

Development licence assessment report

Environment Protection Act 2017

Application no.	1004200
Applicant name	Prospect Hill International Pty. Ltd.
Registered address	132 Whitehouse Road, Deepdene VIC 3103
Development activity	A08 (Waste to energy)
Activity site	164-200 McManus Road, Lara VIC 3212
Proposal	Development of a 400,000 tonnes/year moving grate combustion technology waste-to-energy facility to process waste feedstock comprising 80% residual municipal solid waste (MSW) and 20% residual commercial and industrial (C&I) waste.
Delegated decision maker (name, signature and date)	Con Lolis Director, Permissioning and Development 06/12/2023
Approval number	DL000300041

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Term	Definition
APAC	Air Pollution Assessment Criteria
APCr	Air Pollution Control residues
AQIA	Air Quality Impact Assessment
ARENA	Australian Renewable Energy Agency
AS	Australian Standard
ASLP	Australian Standard Leaching Procedure
BAT	Best Available Techniques
BAT-AEL	BAT-associated emission levels
BAT-AEEL	BAT-associated energy efficiency levels
BATC	Best Available Techniques Conclusions
BATT	Best Available Techniques and Technologies
BREF	Best Available Techniques Reference
BSWWRRG	Barwon South West Waste and Resource Recovery Group
C&I	Commercial and industrial
CCAMP	Climate change adaptation management plan
CEFC	Clean Energy Finance Corporation
CEMP	Construction Environmental Management Plan
CEMS	Continuous Emission Monitoring System
CHR&R Act	Charter of Human Rights and Responsibilities Act 2006
CoGG	City of Greater Geelong
COMS	Continuous Operating Monitoring System
CO ₂ e	Carbon dioxide equivalents
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DDO	Design and Development Overlay
DEECA	Department of Energy, Environment and Climate Action
DELWP	Department of Environment, Land, Water and Planning
EE Act	Environment Effects Act 1978
EES	Environment effects statement
EFW	Energy from waste
EMS	Environmental Management System
EP Act	Environment Protection Act 2017

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Term	Definition
EPA	Environment Protection Authority Victoria
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
EPC	Engineering, Procurement and Construction
ERS	Environment Reference Standard
EU IED	European Union Industrial Emissions Directive (2010/75/EU)
FFG Act	Flora and Fauna Guarantee Act 1988
FGCS	Flue gas cleaning system
FGR	Flue gas recirculation
FOGO	Food and garden organics
GED	General environmental duty
GHG	Greenhouse Gas
GHGERMP	GHG Emission Reduction and Management Plan
HAZID	Hazard Identification
HAZOP	Hazard and operability
HHIA	Human Health Impact Assessment
IBA	Incinerator bottom ash
IED	Industrial Emissions Directive
IPCC	Intergovernmental Panel on Climate Change
kWh	Kilowatt-hour
LCA	Life cycle assessment
LHV	Lower Heating Value
MSW	Municipal solid waste
MWI	Municipal waste incinerators
MWRRG	Metropolitan Waste and Resource Recovery Group
NATA	National Association of Testing Authorities
NEM	National Electricity Market
NIA	Noise impact assessment
NOx	Nitrous Oxides
NSW	New South Wales
OHS	Occupational health and safety
OEMP	Operational Environment Management Plan
OH&S	Occupational health and safety
OMS	Operations Management System
OTNOC	Other than normal operating conditions

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Term	Definition
PCB	Polychlorinated biphenyls
PCDD	Polychlorinated dibenzodioxins
PCDF	Polychlorinated dibenzofurans
PCRZ	Public Conservation and Resource Zone
PFAS	Polyfluoroalkyl substances
POP	Persistent organic pollutants
P&E Act	Planning and Environment Act 1987
Qld	Queensland
RFI	Request for Further Information
RV	Recycling Victoria
SCR	Selective Catalytic Reduction
SEPP	State environmental planning policies
SNCR	Selective Non-Catalytic Reduction
SWRRIP	Statewide Waste and Resource Recovery Infrastructure Plan
TOC	Total organic carbon
TRL	Technology Readiness Level
VCAT	Victorian Civil and Administrative Tribunal
VOC	Volatile Organic Compounds
VRIP	Victorian Recycling Infrastructure Plan
VWRRF	Victorian Waste and Resource Recovery Infrastructure Planning Framework
WRRG	Waste and Resource Recovery Group
WtE	Waste to energy

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Executive summary

On 17 February 2021, Environment Protection Authority Victoria (**EPA**) received a works approval application no. 1004200 from Prospect Hill International Pty. Ltd (**Prospect Hill**). The application proposes developing a waste to energy (WtE) facility at 164–200 McManus Road, Lara VIC 3212.

The application was made under the Environment Protection Act 1970 (1970 Act). On 1 July 2021, the Environment Protection Act 2017 (EP Act) repealed and replaced the 1970 Act. Section 474 of the EP Act transitions works approval applications made under the 1970 Act as development licence applications made under the current EP Act.

Accordingly, even though the application was during the operation of the 1970 Act, the application is considered under the current EP Act.

The application seeks permission to conduct A08 (Waste to energy) prescribed development activities under section 44(1) of the EP Act and Schedule 1 of the Environment Protection Regulations 2021 (**EP Regulations**).

This document records EPA's assessment of the application against all relevant regulations, policies, standards, and guidelines. This assessment informs EPA's decision to grant or refuse to grant a development licence under section 69(1) of the EP Act.

Background: waste to energy

WtE describes a number of different industrial techniques and technologies to convert waste into a usable form of energy. There are more than 1,600 operational WtE facilities globally. Modern, well-run facilities are commonly found throughout countries of Europe (Sweden, France, United Kingdom), East Asia (Japan, South Korea) and the United States.

The technology generates energy as heat from the combustion of waste that would otherwise go to landfill. Heat is converted to steam, which can be used to generate electricity and/or in operational processes.

Victoria has a number of EPA-approved and licensed WtE facilities – none of these facilities are yet in operation. Over the past five years, EPA has approved several large-scale WtE facilities that will operate using similar waste to Prospect Hill.

Application proposal

The proposed WtE facility will process waste feedstock comprising 80% residual municipal solid waste (**MSW**) and 20% residual commercial and industrial (**C&I**) waste. Residual MSW is also known as kerbside waste. It is the waste households

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place in their 'red top' bin. The proposal will only accept residual waste otherwise destined for landfill. This excludes waste from other sources such as recycling collections.

The application proposes using moving grate combustion technology designed to perform in accordance with best available technique and technology standards of the European Union. This is the most common, mature and proven type of WtE technology available. From this it will generate an estimated 35 megawatts of electricity.

The proposed source of waste is the surrounding local government areas of Geelong, the southwest coast and metropolitan Melbourne.

The facility is configured into two separate lines capable of processing 200,000 tonnes a year of waste each. Each line will have its own air pollution control system also known as a flue gas cleaning system. The designed lifespan of the facility is 25 years.

Development licence application details

The proposed key controls and performance standards includes:

- waste tipping hall and bunker operating under negative atmospheric pressure to capture and prevent escape of odorous gases and dust from incoming waste,
- a moving combustion grate on each of the two plant lines,
- furnace and heat recovery boiler and steam turbine generator on each of the two plant lines to convert heat into steam for energy recovery,
- a flue gas cleaning system designed to internationally recognised best available techniques and technology standards and optimised to remove acid gases, heavy metals and complex halogenated compounds (such as dioxins and furans),
- continuous emission monitoring of pollutants,
- continuous monitoring of crucial operating parameters (for example, temperature, pollutants in flue gas) to optimise plant operation,
- a dedicated bottom ash treatment hall to manage residual wastes generated by the facility,
- all plant equipment, waste, and chemical storage and handling in areas with walls and impervious floors to reduce potential for chemicals or contaminants to escape into soil, groundwater and surface waters, and
- backup power and emission monitoring systems to maintain stability of environment controls during upset conditions.

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EPA assessment framework

EPA undertakes an evidence and risk-based approach to its regulatory function and decision-making. EPA has assessed the development licence application against the requirements of the EP Act and all relevant subordinate regulations, policies and standards.

This regulatory framework ensures that waste management infrastructure is appropriately located, designed, constructed, operated and managed to minimise risks of harm to human health and environment.

This decision is made under section 69(3) of the EP Act which states:

When determining whether or not to issue a development licence, the Authority must take into account—

- (a) any measures the applicant has taken or proposes to take in order to comply with the general environmental duty when engaging in the activity that is the subject of the application; and*
- (b) the impact of the activity on human health and the environment, including the impact on any environmental values identified in any relevant environment reference standard, taking into account any other activities being or proposed to be engaged in by the applicant or any other person; and*
- (c) the principles of environment protection; and*
- (d) the best available techniques or technologies; and*
- (e) whether the activity is otherwise consistent with this Act and the regulations; and*
- (f) if the regulations require the Authority to refer the application to a prescribed agency, any comments or submissions received from that agency; and*
- (g) any comments and submissions received—*
 - (i) in response to the notice of the application published under section 52; and*
 - (ii) within the time specified in that notice; and*
- (h) any prescribed matter.*

A prescribed matter means a matter that is specified in the EP Regulations. There are no matters specified for the purposes of section 69(3) of the EP Act.

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In this assessment EPA considered an extensive the totality of the evidence before it including:

- measures proposed to comply with the general environmental duty,
- impacts of the proposal on human health and environment and any values of the environmental reference standards,
- the principles of environment protection,
- the best available technique and technology,
- comments from referral authorities, and
- comments and submissions from community and interested third persons.

Section 69(4) of the EPA act states that EPA must refuse to grant a development licence:

- if the activity that is the subject of the application poses an unacceptable risk of harm to human health or environment,
- if the applicant is not a fit and proper person to hold the permission, or
- any prescribed circumstances exist.

Prescribed circumstances mean those that are specified in the EP Regulations. Regulation 22(5) states:

For the purposes of section 69(4)(c) of the Act, the following are prescribed circumstances—

- (a) the proposed activity that is the subject of the application is prohibited by a planning scheme, unless the Authority has been advised under subregulation (2)(b) that an amendment to the planning scheme is to be prepared;*
- (b) the Secretary to the Department of Health provides written comments under subregulation (4) objecting to the issue of the development licence on the ground that public health is likely to be endangered if the development licence is issued.*

In addition to the requirements under the EP Act, EPA also considered:

- Climate Change Act 2017
- Flora and Fauna Guarantee Act 1988
- Charter of Human Rights and Responsibilities Act 2006
- Minamata Convention on Mercury
- Stockholm Convention on Persistent Organic Pollutants.

Referral agency consultation

As part of the assessment, EPA referred the application to the following agencies for their comment:

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- Minister for Planning
- Recycling Victoria
- Sustainability Victoria
- WorkSafe Victoria
- Barwon Region Water Corporation
- City of Greater Geelong.

Community engagement

As part of the assessment, EPA completed community engagement and consultation as required under the EP Act and EPA's Charter of Consultation (Table A). All documentation was published on a dedicated Engage Victoria webpage.

A request for further information was issued in late 2021 which resulted in a long pause in the assessment. As a result, EPA decided to hold a third submission period to give the community and other respondents a chance to review the new information and submit their views.

Table A: Summary of public consultation

Date	Activity	Details
24 March – 28 April 2021	Public notification and extended submission period (1 of 3)	Published in the Herald Sun and Geelong Indy on 24 March 2021. 63 submissions received of which 59 were objections.
24 March – 28 April 2021	Online Q&A forum	36 questions received and responded to
20 April 2021	Online information session held by Prospect Hill	
13 July 2021 (4.30 – 6.30 pm)	Pre-conference drop-in information session	
13 July 2021 (from 6.30 pm)	Independently chaired community conference held at Lara Masonic Hall	
13–28 October 2021	Second submission period (2 of 3)	58 submissions received of which 56 were objections.
22 June – 13 July 2023	Third submission period (3 of 3)	101 submissions received of which 95 were objections.

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During consultation, the following key issues were raised:

- Human health,
- Separation distances to residences and other sensitive land uses beginning at 320 m,
- Air emissions,
- Upset conditions or 'other than normal operating conditions',
- Greenhouse gas emissions,
- Noise emissions,
- Odour emissions, and
- Hazardous residual waste management.

EPA assessment

EPA's primary role is to protect human health and environment from waste and pollution. EPA's permissioning assessment framework requires risks of harm to human health to be eliminated. If that is not feasible, risks must be reduced so far as reasonably practicable. EPA must refuse to grant a development licence for any activity that poses an unacceptable risk of harm to human health and the environment.

Prospect Hill considered the potential impacts of its activities, carrying out impact assessments and proposing administrative and engineering controls designed to eliminate or reduce risks of harm. EPA reviewed the assessments submitted by Prospect Hill to ensure their conclusions were evidence based and used scientifically valid methodology. The EPA also reviewed the application's proposed controls against EPA guidelines, the internationally recognised best available technique (BAT) standards of the European Union (EU) and any other relevant information.

Table B summarises the assessment done for the seven key issues raised during consultation.

Table B: EPA assessment of key issues raised during consultation.

Key issue	EPA's assessment
Human health	<ul style="list-style-type: none"> • Reviewed the applicant's Human Health Risk Assessment which assessed the potential impact of hazards on the health of the community. • Verified risks against its own recent review of publicly available research on human health impacts from air emissions from modern WtE facilities and reviewed more recent opinions of UK public health authorities.
Air emissions	<ul style="list-style-type: none"> • Reviewed the applicant's air quality and emission modelling, which simulates and assesses how air pollutants disperse in the atmosphere. • Reviewed the applicants administrative and engineering controls against EPA guidance and EU BAT standards.

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Key issue	EPA's assessment
Upset conditions	<ul style="list-style-type: none"> Reviewed the applicant's upset conditions and environmental management framework against EPA guidance and EU BAT standards. This included consideration of environmental management systems, monitoring programs and emergency management practices.
Greenhouse gas emissions (GHG)	<ul style="list-style-type: none"> Reviewed the applicant's GHG emissions inventory. Reviewed the applicant's proposed GHG emission controls against EU BAT standards. This included consideration of resource recovery and energy efficiency.
Noise emissions	<ul style="list-style-type: none"> Reviewed the applicant's noise impact assessment and modelling. Reviewed the applicant's proposed noise emission controls against EPA guidance and EU BAT standards. This included consideration of plant and equipment, siting and location and truck movements within the site.
Odour emissions	<ul style="list-style-type: none"> Reviewed the applicant's odour impact assessment. Reviewed the applicant's proposed odour emission controls against EPA guidance and EU BAT standards. This included consideration of plant and equipment, siting and location and truck movements within the site.
Hazardous residual waste management	<ul style="list-style-type: none"> Reviewed the applicant's proposed controls for managing hazardous residual wastes against EPA guidance and EU BAT standards. This included consideration of generation, treatment, storage, and disposal or reuse options.

In assessing potential risks, EPA has identified a series of conditions which, when implemented, will further reduce risk of harm to human health and the environment (Table C).

Table C: EPA controls in response to key issues raised during consultation.

Key issue	EPA controls
Human health	<ul style="list-style-type: none"> Oversight of design and construction by an EPA-appointed industrial facilities auditor. Implementation of EU BAT standards for WtE facilities. Public reporting of emission monitoring results.
Air emissions	<ul style="list-style-type: none"> Air emission monitoring during normal and other than normal operating conditions, including continuous emission monitoring systems. Public reporting of air emissions including continuous emission monitoring results in real time or as near as practicable. Backup power and emission monitoring systems. Oversight of design and construction by an EPA-appointed industrial facilities auditor. Implementing EU BAT standards for air emission controls for WtE facilities.

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Key issue	EPA controls
Upset conditions	<ul style="list-style-type: none"> • Preparation and maintenance of an environment management system (EMS) including an 'other than normal operating condition' management plan. • A site emergency response plan. • A waste management contingency plan for alternative incoming waste management options for planning or unplanned shutdowns. • Oversight of design and construction by an EPA-appointed industrial facilities auditor. • Implementation of EU BAT standards for waste to energy facilities.
Greenhouse gas emissions (GHG)	<ul style="list-style-type: none"> • An updated GHG inventory using waste auditing data at the detailed design phase. • Ongoing and yearly GHG inventory reporting based on operation data and against the GHG reduction targets demonstrating contribution towards Victoria's legislated target of net zero emissions and the interim targets. • Ongoing climate change adaptation and mitigation planning. • Ongoing review for the adoption of additional resource recovery if it becomes reasonably practicable.
Noise emissions	<ul style="list-style-type: none"> • An updated noise impact assessment at the detailed design demonstrating the effective noise level at noise sensitive areas will not exceed the noise limits calculated in accordance with Part I of the Noise Protocol minus 10 decibels (10 dB). • Oversight of design and construction by an EPA-appointed industrial facilities auditor. • Implementation of EU BAT standards for WtE facilities.
Odour emissions	<ul style="list-style-type: none"> • Oversight of design and construction by an EPA-appointed industrial facilities auditor. • Implementation of EU BAT standards for WtE facilities.
Hazardous residual waste management	<ul style="list-style-type: none"> • Oversight of design and construction by an EPA-appointed industrial facilities auditor. • Implementation of EU BAT standards for WtE facilities. • A Residual Waste Management Plan.

With the controls proposed by Prospect Hill and conditions imposed by EPA, EPA concludes that, on the basis of all available evidence, the proposal poses a low and acceptable risks of harm to human health and the environment. The community is invited to review this assessment report for a detailed explanation of how EPA reached this conclusion.

EPA decision

Through its assessment, EPA has determined that Prospect Hill meets the fit and proper person requirements of the Act and that the proposal:

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- poses a low and acceptable risk of harm to human health and environment,
- includes measures consistent with internationally recognised best available techniques and technologies (BATT) for WtE facilities, and
- includes measures that will enable it to comply with the general environmental duty (which was created by section 25 of the EP Act).

As noted above, the circumstances prescribed by regulation 22(5) do not arise in this assessment.

EPA has also assessed the application against the requirements of the following relevant statutory frameworks:

- Climate Change Act 2017
- Charter of Human Rights and Responsibilities 2006
- Flora and Fauna Guarantee Act 1988.

On 6 December 2023, EPA granted a development licence to Prospect Hill subject to conditions.

In deciding to grant this development, EPA notes that this assessment report is made under the EP Act and does not in any way seek to impinge on any future decisions made under the *Planning and Environment Act 1987* or *Environment Legislation Amendment (Circular Economy and Other Matters) Act 2022*.

Furthermore, granting this development licence does not constitute approval or endorsement of the proponent's 'business case'. EPA notes that the proponent has yet to secure any commercial contracts for the secure supply of residual MSW and C&I waste. This is a fundamental prerequisite of any future approvals to be provided by the EPA.

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Next steps

A development licence only allows the construction or installation of plant and equipment. It may allow the commissioning of the facility but does not allow for its ongoing operation. The applicant will need to obtain an EPA operating licence to operate the facility. The applicant will need to complete the following before applying for an operating licence:

- obtain other regulatory approvals (please note the comments above),
- meet a series of development licence milestones,
- have the final detailed design independently verified by an EPA-appointed industrial facilities auditor,
- have the construction independently verified by an EPA-appointed industrial facilities auditor, and
- undertake and provide detailed results of “Proof of Performance” testing to demonstrate that the facility can operate with the environmental and human health parameters set by the development licence and any future EPA approvals.

EPA will not issue an operating licence until the development activities have been completed to its satisfaction and in accordance with the application and conditions of the development licence. As notes above, this includes completing comprehensive proof of performance testing as part of a commissioning phase.

The purpose of this testing or commissioning is to demonstrate and verify the facility operates fully in accordance with the application and conditions of the development licence. This includes meetings all BAT performance measures and standards.

Other approvals required.

Other regulatory approvals needed to proceed include:

- a planning permit from the responsible authority, and
- a Cap licence from Recycling Victoria.

Note: There is a cap or limit on the amount and type of waste that can go to WtE facilities in Victoria. A Cap licence is required from Recycling Victoria to operate a WtE facility.

Independent verification of detailed design and construction

EPA requires that Prospect Hill must have an EPA-appointed industrial facilities auditor (or alternative expert approved by EPA) to verify that:

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- the final detailed design of the facility meets the performance criteria specified in the development licence application and conditions of the development licence, and
- the facility has been constructed in accordance with the development licence application and conditions of the development licence.

EPA will not allow the company to begin works on the facility until EPA has endorsed the auditor's verification of the detailed design.

EPA will also not allow the company to operate the facility until EPA has endorsed the auditor's verification of the facility's construction.

Development licence milestones

EPA's development licence includes a strict set of conditions, which need to be met to EPA's satisfaction. The conditions set clear milestones for Prospect Hill. If Prospect Hill fails to complete any milestones, it cannot proceed to the next phase of the project.

- **Before detailed design:** Prospect Hill must complete a 12-month waste audit to inform the detailed design of the facility.
- **Before construction:** Prospect Hill must submit to EPA final detailed designs of the facility. These must verify that the facility is designed to operate in accordance with the development licence application and conditions of the development licence.
- **Before commissioning:** Prospect Hill must verify that the facility has been constructed in accordance with the development licence application and conditions of the development licence. It is also required to provide a commissioning plan to demonstrate how it will commission the facility and verify its environmental performance.
- **Commission:** Prospect Hill must complete proof-of-performance testing of the facility as set out in the EPA-approved commissioning plan including environmental monitoring by independent laboratories.
- **Before operating:** Prospect Hill must provide commissioning results verifying that the facility is operating in accordance with the commissioning plan, the development licence application and conditions of the development licence

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1 Background

- [1] On 17 February 2021, Environment Protection Authority Victoria (**EPA**) received works approval application no. 1004200 from Prospect Hill International Pty. Ltd. The application proposes developing a waste to energy (**WtE**) facility at the premises of 164–200 McManus Road, Lara VIC 3212.
- [2] On 1 July 2021, the Environment Protection Act 2017 (**EP Act**) commenced and introduced a new permissioning framework. From this date, the application transitioned into a development licence application under section 474 of the EP Act. The works approval application is hereafter referred to as a development licence application.
- [3] The application seeks permission to conduct A08 (Waste to energy) prescribed development activity. A development licence is required to construct or install plant or equipment for development activities under section 44(1) of EP Act and Schedule 1 of the Environment Protection Regulations 2021 (**EP Regulations**).
- [4] An operating licence is also required under section 45(1) of the EP Act. This assessment is limited to the development licence application. EPA will only consider an operating licence application after a development licence is granted and all development activities are completed in accordance with the application and any conditions of the development licence.
- [5] This document records EPA's assessment of development licence application no. 1004200 against the statutory requirements of the EP Act, EP Regulations, other relevant Acts, policies, standards and guidelines. This assessment informs EPA's decision to grant or refuse to grant a development licence under section 69(1) of the EP Act.

1.1 Applicant information

- [6] The applicant is Prospect Hill International Pty. Ltd (**Prospect Hill**). Prospect Hill describes itself as an energy from waste company based in Melbourne, Victoria. The company has not previously applied for or been issued with an EPA permission. Company details are listed in Table 1.

Table 1: Company details

Company details	
Company name	Prospect Hill International Pty. Ltd.
Australian Company Number (ACN)	617 544 224

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Company registration date	22 February 2017
Australian Business Number (ABN)	13 617 544 224
Applicant CEO	Jian Qi
Applicant signatory	Jingchao Pan, Assistant General Manager

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1.2 Facility overview

- [7] The application proposes development of a 400,000 tonne per year WtE facility that will process waste feedstock comprising 80% residual municipal solid waste (**MSW**) and 20% residual commercial and industrial (**C&I**) waste. The proposed facility will be located at 164-200 McManus Road, Lara VIC3212.
- [8] The proposed source of the waste is the surrounding local government areas of Geelong, the southwest coast and metropolitan Melbourne. The facility is configured into two separate lines capable of processing 200,000 tonnes a year of waste each. The designed lifespan of the facility is 25 years.
- [9] Residual MSW is also known as kerbside waste. It is the waste households place in their 'red top' bin. The proposal will only accept residual waste otherwise destined for landfill. This excludes waste from other sources such as recycling collections.
- [10] The application proposes using moving grate combustion technology designed to perform in accordance with best available techniques or technologies (**BATT**) standards of the European Union (EU). This is the most common, mature and proven type of WtE technology available. From this it will generate an estimated 35 megawatts of electricity.
- [11] The proposed source of waste is the surrounding local government areas of Geelong, the southwest coast and metropolitan Melbourne.
- [12] The facility is configured into two separate lines capable of processing 200,000 tonnes a year of waste each. Each line will have its own air pollution control system also known as a flue gas cleaning system. The designed lifespan of the facility is 25 years.

1.3 Assessment process timeline

- [13] Table 2 sets out the key administrative and procedural steps taken by EPA as part of its assessment in accordance with the procedural requirements of the EP Act and EP Regulations.

Table 2: Assessment timeline

Date	Activity	Head of power
17 February 2021	Application received.	S 19(B)(1) EP Act 1970
24 March – 28 April 2021	Public notification and submission period.	S 20(8)(b) EP Act 1970

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Date	Activity	Head of power
24 March – 28 April 2021	Online Q&A forum.	
20 April 2021	Online information session held by Prospect Hill.	
12 May 2021	Section 22 Notice to supply further information (1 of 6) requiring a response to: <ul style="list-style-type: none"> • submissions received between 24 March and 28 April 2021 • referral agency comments from Sustainability Victoria, Barwon Region Water Corporation, City of Greater Geelong and the Barwon South West and Metropolitan Waste and Resource Recovery Groups. 	S 22 EP Act 1970
1 July 2021	<i>Environment Protection Act 2017</i> commenced, with the (works approval) application (1004200) automatically transitioning into a development licence application.	S 474 EP Act 2017
13 July 2021 (4.30 pm – 6.30 pm)	Pre-conference drop-in information session.	Charter of Consultation
13 July 2021 (from 6.30 pm)	Independently chaired community conference held at Lara Masonic Hall, 37-39 Rennie St, Lara VIC 3212.	S 236 EP Act 2017, Charter of Consultation
22 July 2021	Request for Further Information (RFI) (2 of 6) requiring completion of EPA forms f1017 and f1018 for fit and proper person and prohibited person questionnaires.	S 50(3) EP Act 2017
28 July 2021	RFI 3 of 6 requiring a response to: <ul style="list-style-type: none"> • section 236 conference of interested persons report and the Chair's recommendations. • referral agency comments from Sustainability Victoria. 	S 50(3) EP Act 2017
10 September 2021	Applicant submitted completed EPA forms (RFI 2/6 issued 22 July 2021).	
20 September 2021	Applicant submitted its response to submissions received between 23 March and 28 April 2021 (RFI 1/6 issued 12 May 2021) and to the chair's report from the community conference (RFI 3/6 issued 28 July 2021).	
7 October 2021	RFI 4 of 6 requiring a response to Barwon Region Water Corporation comments on alternative to potable water main supply usage.	S 50(3) EP Act 2017

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Date	Activity	Head of power
15 October 2021	Applicant submitted the response to Barwon Region Water Corporation (RFI 4/6 issued 7 October 2021).	
13–28 October 2021	Second submission period conducted with submissions received via the project's dedicated Engage Victoria webpage.	
18 November 2021	RFI 5 of 6 requiring: <ul style="list-style-type: none"> • further details on the proposed Engineering, Procurement and Construction (EPC) tender process • response to Sustainability Victoria referral comments • consideration of the Victorian Waste to Energy Framework. 	S 50(3) EP Act 2017
9 December 2021	RFI 6 of 6 requiring: <ul style="list-style-type: none"> • updated noise impact assessment prepared in accordance with the Noise Protocol • direct summary of details of measures proposed to comply with the general environmental duty with regard to air emissions and odour. • GHG emissions including potential impact from variation in feedstock over time • further fit and proper person assessment details. 	S 50(3) EP Act 2017
24 August 2022	Applicant submitted the revised noise impact assessment (RFI 6/6 issued 9 December 2021) and responded to submissions received between 13 and 28 October 2021.	S 50(3) EP Act 2017
11 November 2022	Applicant submitted the further fit and proper person assessment details (RFI 6/6 issued 9 December 2021).	S 50(3) EP Act 2017
21 November 2022	Applicant submitted the: <ul style="list-style-type: none"> • direct summary of details of measures proposed to comply with the general environmental duty with regard to air emissions and odour. • GHG emissions including potential impact from variation in feedstock over time (RFI 6/6 issued 9 December 2021). 	S 50(3) EP Act 2017
6 January 2023	Applicant submitted further details on the proposed EPC tender process, its response to	S 50(3) EP Act 2017

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Date	Activity	Head of power
	Sustainability Victoria referral comments, and consideration of the Victorian Waste to Energy Framework (RFI 5/6 issued 18 November 2021).	
22 June – 13 July 2023	Third submission period conducted with submissions received via the project's dedicated Engage Victoria webpage.	Charter of Consultation
6 November 2023	Development licence issued.	69(1)

1.4 What is waste to energy?

[14] WtE describes several different industrial techniques and technologies to convert waste into a usable form of energy. There are more than 1,600 operational WtE facilities globally. Well run, modern facilities are commonly found throughout countries of Europe (Sweden, France, United Kingdom), East Asia (Japan, South Korea) and the United States.

[15] The technology generates energy as heat from the combustion of waste that would otherwise go to landfill. Heat is converted to steam, which can be used to generate electricity and /or in operational processes.

1.4.1 Waste to energy in Victoria

[16] Victoria has a number of EPA-approved and licensed WtE facilities. Over the past five years, EPA has approved several large-scale WtE facilities that will operate using similar waste to Prospect Hill. There are no operating WtE facilities in Victoria.

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2 Activity site

2.1 Activity site description

[17] The proposed activity site for the WtE facility is 164-200 McManus Road, Lara VIC 3212. The site is located approximately 1.2 km southwest of Lara, 10 km north of central Geelong and 50–60 km southwest of central Melbourne. The activity is within 1 km access to the M1 Princes Freeway and Geelong Ring Road – see Figure 1 and Figure 2.

[18] The activity site is rectangular in shape, with an area of approximately 160,000 m² or 16 ha. The site is currently free of any built structures or any obvious history of development. The site is flat with evidence of some land management or modification with large parts of the site cleared of vegetation. Other sections are covered by grassy weeds.

2.2 Surrounding environment

[19] The activity site is located at the northern portion of a large industrial area that expands to the west and south of the site which forms part of the Geelong Ring Road Employment Precinct. The built form in these areas is dominated by large industrial lots including many undeveloped lots. Notable neighbouring development includes energy infrastructure, with the Viva Lara LPG Terminal directly southwest and chemical manufacturing and waste management activities to the west.

[20] Immediately north and northeast of the activity site is open grassland and followed by Flinders Memorial Park Public Cemetery and the Lara township at about 1.2 km distance. Directly northwest of the activity site is an area of low-density rural residences. This area includes the nearest sensitive receptors to the activity site starting at about 320 m from the boundary of the activity site. Further beyond the rural residential zone in a northwest direction is the Elcho Park Golf Course. West of the activity site beyond Bacchus Marsh Road is an area identified as a Residential Growth Zone at over 2 km distance.

[21] There are no major or notable geographical features within 1 km of the activity site.

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Figure 1: Project location 1 of 2

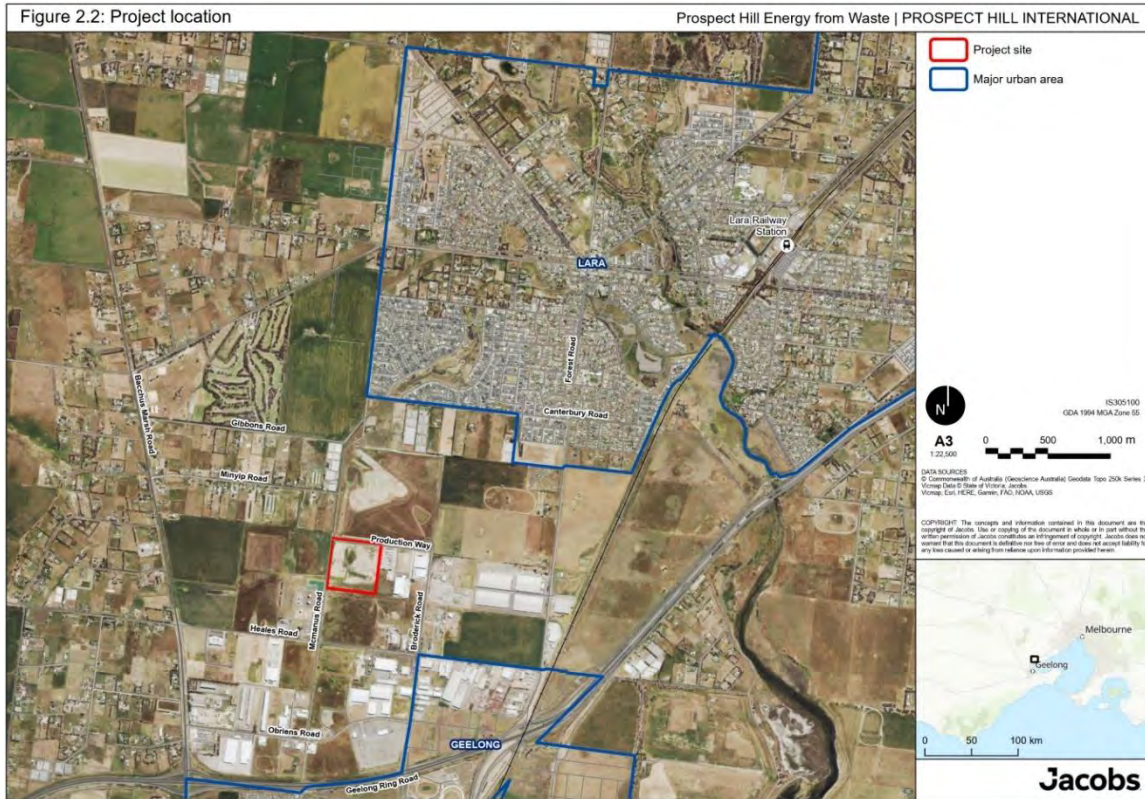
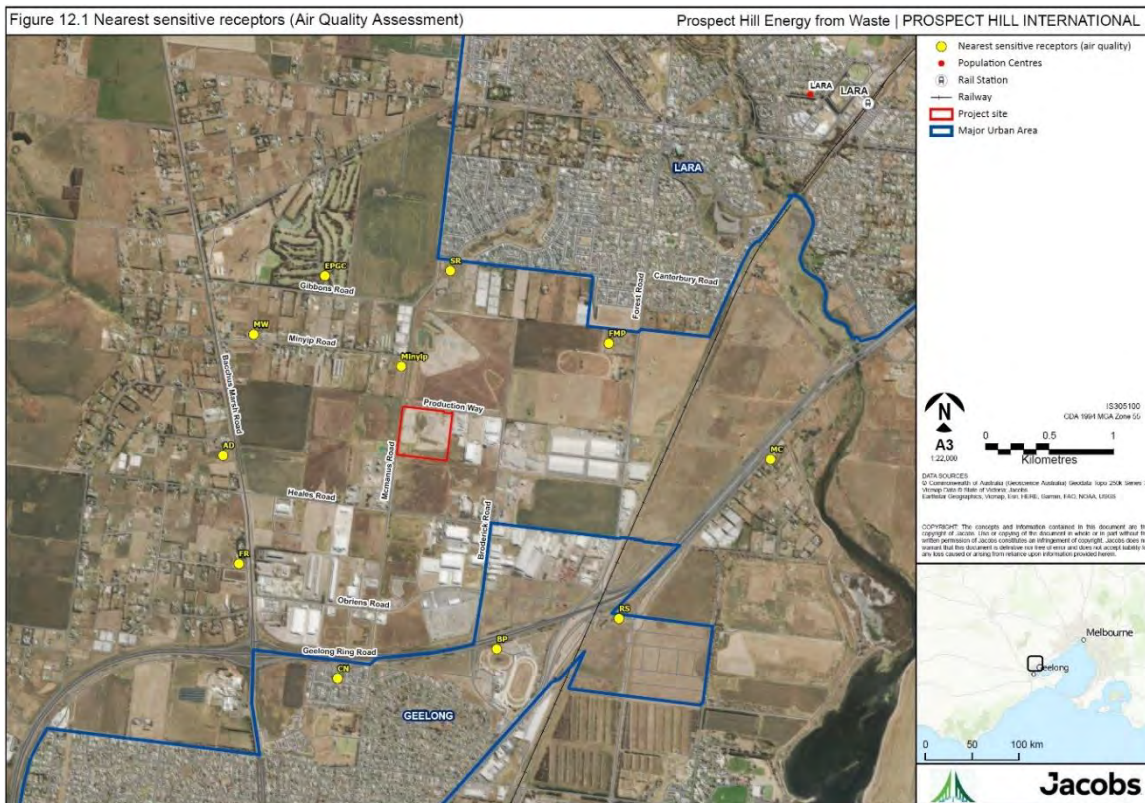


Figure 2: Project location 2 of 2



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2.3 Land use zones and development overlays

2.3.1 Statutory planning context

[22] The premises are within the administrative boundary of the City of Greater Geelong. Under the Greater Geelong Planning Scheme, the site is affected by the Industrial Zone 2 (IN2Z). The intent of the IN2Z includes:

- to provide for manufacturing industry, the storage and distribution of goods, and associated facilities in a manner which does not affect the safety and amenity of local communities,
- to promote manufacturing industries and storage facilities that require a substantial threshold distance within the core of the zone, and
- to keep the core of the zone free of uses which are suitable for location elsewhere so as to be available for manufacturing industries and storage facilities that require a substantial threshold distance as the need for these arises.

[23] The activity site sits on the northern portion of the IN2Z which is further distributed to the south, southwest and southeast – see Figure 3. L and immediately to the north of the site is zoned Farming Zone and Rural Living Zone to the northwest.

[24] The site is affected by the Design and Development Overlay (DDO) and DDO Schedule 18. The purpose of DDO Schedule 18 includes to facilitate the development of the Geelong Ring Road Employment Precinct as a high amenity industrial area suited to the needs of advanced manufacturing and production support industries.

[25] The activity site is not affected by any heritage overlay.

[26] No other development or environmental overlays affect the activity site.

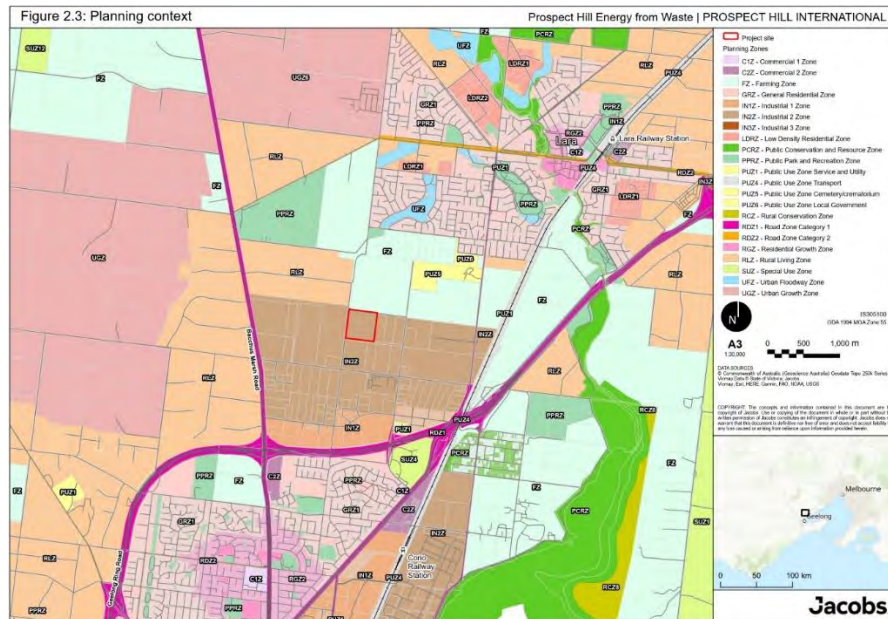
2.3.2 Strategic planning context

[27] The site is within the Geelong Ring Road Employment Precinct.

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Figure 3: Planning zones and overlays



3 Proposal overview

[28] This section summarises the proposal set out in application no. 1004200 and additional information provided in response to Requests for Further Information (RFI) (see Appendix A: List of application documents and information).

3.1 Waste to energy facility

[29] WtE describes a number of different industrial techniques and technologies to convert waste into a usable form of energy. Thermal techniques use heat and includes combustion, pyrolysis, and gasification. Non-thermal techniques use biological or mechanical processes and include anaerobic digestion and fermentation (Western Australia Waste Authority, 2020).

[30] The applicant proposes developing a WtE facility using moving grate combustion technology. This is a type of combustion or thermal treatment technology and is one of the most common types of WtE facilities. Waste is combusted in a furnace and boiler to generate heat. The heat is then converted into electricity via a heat recovery system and water-cooled condensing steam turbine generator. Any references to 'WtE facility' in this report refers to the proposed moving grate combustion technology proposal and concept design as detailed in the application, unless otherwise stated.

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[31] Under normal operating conditions, the energy generated by the WtE facility would be used to run the plant itself. Surplus energy can be exported as either process steam or electricity. Process steam is generally considered a more efficient form of energy recovery but is usually limited by local demand from neighbouring industrial or district heating or cooling uses. The applicant believes there is limited local demand for process steam. The WtE facility would instead export surplus energy to the electricity grid.

[32] Waste outputs generated by the proposed WtE facility operations would be incinerator bottom ash (**IBA**), boiler ash and Air Pollution Control residues (**APCr**) (Table 3).

Table 3: Waste outputs generated by the proposed WtE facility operations.

Waste outputs	Description
Incinerator bottom ash	A form of ash made up of the solid residues removed from the furnace once waste has been combusted.
Boiler ash	Part of fly ash (particles in the flue gas from the incineration of waste) that is removed from the boiler.
Air Pollution Control residues	A mix of combustion products removed from the flue gas by the air pollution control equipment.

[33] Emissions generated by the proposed facility include air emissions, noise and wastewater discharges. The primary source of air emissions are the direct channelled emissions of flue gas after it is treated in the air pollution control equipment also known as a flue gas cleaning system (FGCS).

[34] The facility would generate noise during operation including mechanical noise from plant and equipment such as fans, cooling towers, turbines and boilers. Other noise sources include waste collection truck movement to, from and through the activity site.

[35] The primary source of wastewater discharges would be from the periodic blowdown from the cooling towers used to cool the electricity generating turbines. Wastewater would be discharged to sewer via a Trade Waste Agreement with Barwon Region Water Corporation. The proposal would not discharge wastewater to surface water.

3.2 Conceptual design and configuration

[36] The application has been prepared and submitted based on a conceptual design for a mass burn combustion grate facility. The

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conceptual design has been prepared with technical design services from Jiangsu Power Design Institute.

[37] The proposal would be subject to an Engineering, Procurement and Construction (**EPC**) tender process to award contracts to the final development partners, including the moving grate combustion technology provider. This is a common approach for large complex industrial facility projects like this proposal.

[38] The concept design includes benchmarks informed by relevant published state of knowledge documents including the internationally recognised BAT for WtE in the EU. This framework includes:

- Directive 2010/75/EU on industrial emissions (EU, 2010) (IED 2010/75/EU),
- Best Available Techniques (BAT) Reference (BREF) Document for Waste Incineration (BREF 2019) (Neuwahl, Cusano, Benavides, Holbook, & Roudier, 2019), and
- Best Available Techniques (BAT) Conclusions for Waste Incineration (BATC) (EU, 2019a).

[39] Where the EU framework has not been specified or is not directly applicable, the application has considered best practice standards or acknowledged EPA's discretion to impose suitably worded conditions.

[40] Table 4 summarises the key plant design and performance parameters and is a limited reproduction of Table 7.1 in the application.

Table 4: Summary of key plan design and performance parameters

Design parameter / input	Value	Comment
Plant design life	25 years / 200,000 hours	
Number of boiler lines	2	
Number of steam turbines	2	
Annual plant fuel (waste) consumption	400,000 tonnes/year	Based on 2 x 200,000 tonnes/year boiler lines.
Estimated calorific heating value	9.5 MJ/kg (LHV)	Indicative value only, to be confirmed through further waste characterisation.
Annual auxiliary fuel consumption	Up to 20,350 GJ/year	Based on input received from the preferred technology supplier. Based on total for two boilers.
Plant availability factor	~90%	Subject to detailed design and to be agreed with contractual guarantees.
Typical operating hours per year	7,884 hours	

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Design parameter / input	Value	Comment
Operating regime	24 hours, 7 days per week	Except planned and unplanned shutdowns.
Design waste throughput per boiler	26.7 tonnes/hour	
Fly ash to bottom ash ratio	20% / 80%	Preferred technology supplier assumption.
Stack height	80 m	
Stack exit temperature	Approximately 140°C	
Potable water source	Barwon Region Water Corporation potable water main	
Wastewater and sewage discharge point	Barwon Region Water Corporation sewer main	
Stormwater discharge point	City of Greater Geelong stormwater system	
Estimated gross plant power output	40,700 kW	Based on ambient site conditions for two units.
Auxiliary load	4,720 kW	Based on ambient site conditions. Estimated to be approximately 11.6% of gross output. Depending on the final design and equipment selection, it is estimated the maximum auxiliary load may be up to 17% of gross output.
Estimated net plant power output	35,980 kW	Based on ambient site conditions. For the purposes of the R1 Efficiency calculation, a conservative estimate using an auxiliary load of 17% was used.
Plant net heat rate (Lower Heating Value or LHV)	14,101 kJ/kWh	Based on ambient site conditions and an auxiliary load of approximately 11.6% of gross output.
Plant net efficiency (LHV)	25.53%	Based on ambient conditions and an auxiliary load of approximately 11.6% of gross output.

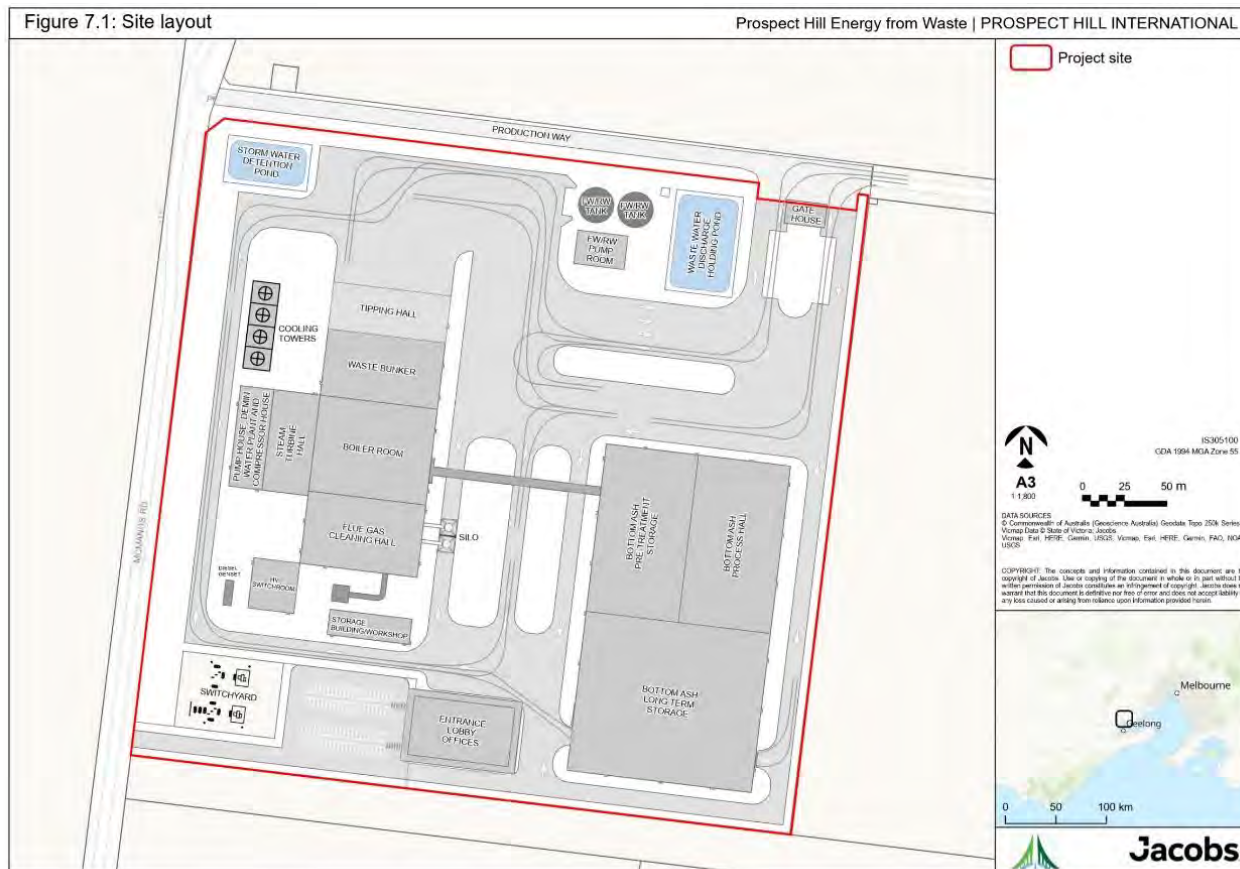
3.2.1 Activity site layout

[41] Figure 4 shows the configuration of the proposed WtE facility at the activity site.

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Figure 4: Activity site plan and concept model



3.2.2 Proposed waste or 'waste feedstock'

[42] The application proposes to process 400,000 tonnes a year of residual MSW (80%) and residual C&I (20%) waste streams. The application does not propose to accept any reportable priority wastes and includes an upper limit for composition of the waste of no more than 1% of halogenated organic substances expressed as chlorine.

[43] The waste feedstock is proposed to be sourced from surrounding regional areas, Greater Geelong and metropolitan Melbourne. The applicant would need to secure waste contracts with the various councils and private waste contractors. Table 5 lists potential sources of waste by local government areas. These are anticipated sources only as the applicant is yet to secure any waste contracts.

Table 5: Anticipated tonnages by location (reproduction of Table 8.1 in the application)

Source	MSW (tonne)	C&I (tonne)	Total (tonne)
Colac Otway, Surf Coast, Greater Geelong	60,000	40,000	100,000

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Western Melbourne	200,000	40,000	240,000
Nearby regional local government areas	40,000	0	40,000
Melbourne local government areas	20,000	0	20,000
Total	320,000	80,000	400,000

[44] Prospect Hill carried out desktop research to provide an indicative composition of the waste feedstock. Data was sourced from the 2018 Maryvale WtE facility works approval application and from the Metropolitan Waste and Resource Recovery Group and Sustainability Victoria. The data is presented in Section 6 of the application.

[45] Prospect Hill proposes to conduct a waste characterisation audit of the targeted residual MSW to provide additional analytical data such as combustion parameters. The audit will be designed in accordance with Sustainability Victoria's *Guidelines for auditing kerbside waste in Victoria* (SV, 2013). The audit will be conducted before construction over a 12-month period to cover waste seasonality. It will inform finalisation of the detailed designs of the WtE facility.

[46] Waste feedstocks would be brought to the WtE facility by road. Weekly trips to the plant would include an estimated:

- 490 trips for incoming waste,
- 9–10 deliveries for consumables and chemicals used for the plant, and
- 60 truck trips for ash and scrap metal removal from the activity site.

3.2.3 Waste tipping hall

[47] The WtE facility includes a single waste tipping hall in a fully enclosed building. Waste delivery vehicles tip waste into a waste bunker, where waste feedstock is stored before being inserted into the furnace for combustion. Automated fast-acting roller doors will be installed at vehicle entry and exit points. The tipping hall is maintained under negative pressure during plant operation. These features are included to control odour and dust from escaping the building via entry and exit points.

[48] An automated traffic control system coordinates vehicle movement into and within the tipping hall. The tipping hall includes areas for reject load-out, a quarantine area and sufficient space to allow for waste auditing with space for 10 tonnes of waste to be spread out and inspected. These areas will store waste types that do not meet the facility's operating licence and Waste Acceptance Criteria before offsite disposal.

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3.2.4 Waste bunker and cranes

[49] The WtE facility includes a single waste bunker. It will be designed to contain five day's storage of waste below the height of the tipping hall floor and above this level for emergency scenarios. Waste will be stored in the bunker before being conveyed via at least two overhead cranes into the WtE plant's waste combustion chamber via waste feeding hoppers. The bunker will be made of robust concrete to prevent any potential leaching into the environment.

[50] Fire control systems will be installed to control the risk of fire in the bunker. This includes a suitably rated fire wall between the bunker and boiler room that meets national building fire code requirements. Odour and dust would be controlled through the maintenance of negative pressure above the waste bunker during plant operation. A shutdown ventilation stack would maintain negative pressure in the bunker and tipping hall during other than normal operating conditions (**OTNOCs**). The ventilation stack has an inline odour filtration system prior to a discharge point on the facility's roof.

3.2.5 Waste feeding hopper

[51] The WtE facility includes a waste feeding hopper on each boiler line. Waste is placed into the hopper by the waste bunker cranes. The hoppers are mechanical feeding devices that push waste onto the combustion grate in the boiler. This is achieved by hydraulically driven ram stokers. The hopper is equipped with features to prevent or minimise the inflow of air from the waste bunker and tipping hall directly into the boiler. The hopper is equipped with water-cooling system and other fire detection equipment to minimise the risk of waste burning in the hopper.

3.2.6 Moving combustion grate

[52] The WtE facility includes a moving combustion grate within the furnace and heat recovery boiler of each boiler line. The grate is an air-cooled hydraulically driven reciprocating grate. The grate is designed to move waste along and down an incline via sliding and tumbling mechanism to achieve an efficient and complete combustion of the waste. As waste is conveyed along and down the grate, it undergoes a drying, gasification, ignition, combustion and ash burnout phase. The design of the moving combustion grates varies by technology providers and will be resolved as part of the detailed design phase.

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[53] Combustion air will be injected at various point under the grate ('primary air') and above the grate ('secondary' and 'tertiary air'). Air is injected to optimise combustion of the waste and manage mixing of the flue gases. The primary air will be drawn from the tipping hall and waste bunker buildings. This will maintain the areas under negative pressure to control odour and dust. Any non-combustible material or IBA would fall off the end of the grate into the bottom ash extractor.

3.2.7 Furnace and heat recovery boiler

[54] The WtE facility includes a furnace and heat recovery boiler on each of the two plant lines. The boiler includes the furnace area where waste will be combusted on the moving combustion grate. The furnace and heat recovery boiler will be designed so that the gas resulting from the combustion of waste is raised in a controlled and homogenous fashion to a temperature of at least 850°C for at least two seconds.

[55] This standard ensures the destruction of chemical substances such as dioxins and furans within the gas. This standard is prescribed by the EU's Industrial Emissions Directive 2010/75/EU (EU, 2010) and must be met during normal and upset conditions. This is a critical performance measure for the conceptual design of the facility. The boiler includes an auxiliary fuel system which would be used to manage combustion temperature to ensure effective combustion and furnace temperature.

[56] The hot combustion gases, also known as flue gases, produced in the furnace pass through the boiler and economiser to convert heat into steam for energy recovery. Dioxins and furans can form via de novo synthesis in the flue gas if kept at temperatures between 250–450°C for a prolonged time. The heat recovery boiler would be designed to rapidly cool the flue gas to minimise any residence time within the boiler at such temperatures.

3.2.8 Steam turbine and generator

[57] The WtE facility includes a steam turbine for each plant line. The steam generated by the furnace and heat recovery boiler is transferred to the turbine. The turbine converts the potential energy of the steam into kinetic energy. This is then converted to electrical energy via a generator and dispatched into the local grid.

3.2.9 Flue gas emission and air pollution control system

[58] The WtE facility includes a FGCS. The FGCS is a critical component of the conceptual design of the facility. Its purpose is to reduce the emission of

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pollutants generated during the combustion of waste in the furnace and heat recovery boiler. The FGCS would be designed to target major pollutants of concern for moving grate combustion WtE facilities as identified in the EU IED, BREF and BATC 2019. The proposed control system for major pollutants is summarised in Table 6.

Table 6: Overview of the proposed air pollution control system

Proposed control and primary target pollutant/s	Control method or mechanism
<p>Flue gas residence time in the main furnace pass.</p> <p>Organic compounds including dioxins and furans.</p>	<p>Flue gas residence time in the main furnace pass controls emissions of organic compounds including dioxins and furans. The furnace is designed and operated to achieve >850°C temperature with residence time 2 seconds under normal operating conditions, during start-up and transient conditions. This achieves the thermal destruction.</p>
<p>Advanced Selective Non-Catalytic Reduction (SNCR) system.</p> <p>Oxides of Nitrogen (NO_x).</p>	<p>SNCR controls nitrogen oxide emissions in combustion processes.</p> <p>An ammonia or urea solution is injected into the top of the furnace where the temperature is around 800°C to 1,000°C. The ammonia or urea reacts with nitrogen oxide in the combustion gases, reducing it to water and nitrogen (N₂).</p> <p>An advanced SNCR system will employ enhanced temperature sensors (radiation pyrometers) and upgraded control systems to continuously optimise the injection locations and rates of ammonia or urea into the upper furnace.</p>
<p>Flue gas recirculation system</p>	<p>A flue gas recirculation system controls nitrogen oxide emissions in combustion processes. It recirculates part of the dust-free flue gas and mixes it with fresh secondary air. This is then injected back into the furnace. This reduces the oxygen concentration in the combustion zone reducing the formation of NO_x.</p>
<p>One or a combination of two Dry/Semi-Dry Absorbent Reactor Systems:</p> <ul style="list-style-type: none"> • Circulating Fluidised Bed design. • Loop reactor design. <p>Oxides of Sulphur (SO_x).</p> <p>Halogens including hydrogen chloride.</p> <p>Heavy metals.</p> <p>Volatile organic compounds including dioxins and furans.</p>	<p>Dry/Semi-Dry Absorbent Reactor Systems control sulphur oxide emissions in combustion processes.</p> <p>A dry or semi-dry lime is injected into the flue gas stream (in addition with the injection of dry activated carbon powder). This reacts and captures targeted pollutants resulting in a solid by-product which is collected in the bag house.</p>

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Proposed control and primary target pollutant/s	Control method or mechanism
Flue gas residence time in boiler. Organic compounds including dioxins and furans.	Boiler design controls the <i>de novo</i> synthesis of dioxins and furans. This is achieved by minimising residence of flue gas in temperature range of 250–450°C.
Bag filters. Heavy metals. Particulates. Volatile organic compounds including dioxins and furans.	Bag filters control particulate emissions in combustion processes. Lime and activated carbon injected into the flue gas (see control descriptions above).

3.2.10 Continuous emission monitoring system

[59] A National Association of Testing Authorities Australia (**NATA**) and MCERTS (UK gas analyser accreditation scheme) certified continuous emission monitoring system (**CEMS**) and continuous operating monitoring system (**COMS**) will be installed for each boiler line. This measures pollutant and duct process condition parameters. The CEMS records the following corrected concentrations of gases in the chimney on a continuous basis:

- Stack gas flow,
- Temperature,
- Pressure,
- Gas moisture content,
- Oxygen,
- Carbon dioxide,
- Total dust,
- Total organic carbon,
- Hydrogen chloride (HCl),
- Hydrogen fluoride (HF),
- Sulphur dioxide,
- Oxides of nitrogen (NO_x) as nitrogen dioxide (NO₂),
- Carbon monoxide (CO),
- Ammonia, and
- Mercury.

3.2.11 Stack

[60] The WtE facility includes a single 80 m stack with a flue for each plant line. The stack emits to atmosphere flue gas that has been treated in the FGCS.

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3.2.12 Cooling water system

[61] The WtE facility includes a cooling tower system, which keeps the plant within targeted temperature ranges. Water used in the plant would be supplied via Barwon Region Water Corporation's water mains. 'Blowdown discharge' or wastewater generated by the cooling water system would be recycled where possible or otherwise discharged to sewer via a Trade Waste Agreement with Barwon Region Water Corporation.

3.2.13 Wet bottom ash extraction system

[62] The WtE facility includes a wet boiler bottom ash discharge system. IBA is a form of ash made up of the solid residues removed from the furnace once waste has been combusted. The IBA falls off the grate at the bottom of the furnace into a water-filled slag extractor bath which rapidly cools the material. This system is a net consumer of water and will not generate wastewater. A mechanical ram is used to push the cooled or quenched IBA onto a belt conveyor system. The IBA is then sized and graded before being moved to the bottom ash treatment building via an enclosed belt conveyor.

3.2.14 Bottom ash treatment building

[63] The WtE facility includes a bottom ash treatment building. It receives the IBA generated by the combustion of waste in the furnace via the wet bottom ash extraction system. The building includes a pre-treatment storage hall, a processing shed with dust extraction system and bag filter and a maturation hall. All three halls would be enclosed.

[64] IBA is initially stored in the pre-treatment hall where it is dried and drained. It then undergoes mechanical processing in the processing shed. This involves grading the material into a useful size for reuse by removing ferrous and non-ferrous material with overhead magnets, crushing and sieving. Once sorted and graded, the IBA is transported to the maturation hall. The treated IBA is stored for about 12 months. The WtE facility would produce about 15–20% of the weight of incoming waste as IBA or up to 63,072 tonnes per year.

3.3 Construction

[65] If a development licence is issued, construction of the WtE facility would start with general site preparation works. This would be followed by laying building foundations and other building construction work.

[66] Construction activities would be conducted under detailed project management plans, including a construction environmental management

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plan (CEMP) aligned with ISO:14001 Environmental Management. This would guide and manage construction activities and related risks such as dust, construction waste and noise. The construction phase of the project would occur under the development licence and would be subject to strict conditions imposed by EPA.

3.4 Commissioning

- [67] If a development licence is issued, the WtE facility would undergo a commissioning phase. This would occur after construction but before full-scale operation. Commissioning is the activity of testing plant and equipment to verify they operate in accordance with designed performances standards and specifications. Commissioning of the proposed WtE facility would be completed in two phases. These are called cold and hot commissioning.
- [68] Cold commissioning is testing plant and equipment to verify it operates in accordance with designed performances standards and specifications but without the use of fuel or waste feedstock. This would be done to identify deficiencies in plant and equipment before hot commissioning or plant operation.
- [69] Hot commissioning is testing plant and equipment to verify it operates in accordance with designed performances standards and specifications and includes the first introduction of fuel and waste feedstock. This would allow the testing of plant and equipment under actual operating conditions.
- [70] EPA highlights that the commissioning phase or proof-of-performance testing is a critical benchmark of EPA's permissioning processes. If a development licence is issued, conditions would be attached requiring submission and EPA approval of a detailed commissioning plan. This would require independent monitoring and NATA-accredited analysis of samples to confirm the WtE facility operates in accordance with the designed environmental performance standards.
- [71] EPA will not issue an operating licence for the activities until the development activities have been completed to its satisfaction (based on independent verification) and in accordance with the application and conditions of the development licence. Any failure to meet the design performance standards would require thorough investigation by the applicant. This could result in the need for additional work and design changes to meet the environmental performance standards specified in the application or condition of a development licence.

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[72] The failure to meet design performance standards (on which this application is based) will prevent operation of this facility.

[73] If a development licence is issued, the WtE facility would be designed to operate approximately 7,884 hours a year with a 90% plant availability factor. The facility would operate 24 hours a day, 7 days a week excluding planned and unplanned plant shutdowns. Estimated or expected shutdown periods include annual outages of 21 days per boiler, boiler major outages of 42 days every four years, turbine overhaul of 21 days every four years.

3.5 EPC tender process and concept design

[74] The applicant would undertake a competitive EPC tender process as described throughout the application and RFI response. EPC tender processes are common industry practice for WtE and power plant facilities. These processes allow businesses or developers to engage experienced contractors via a competitive process.

[75] The successful contractor would be responsible for designing or engineering the facility, procuring necessary plant and equipment, and its final construction and installation. The commissioning phase is typically a critical milestone in an EPC contract that requires the contractor to demonstrate the facility performs in accordance with the standards specified in the contract. The EPC process outlined by the applicant aligns with this.

[76] For this proposal, the tender would include an Expression of Interest and Request for Tender. The intent of these steps is to enable a competitive process to identify EPC contractors and technology providers experienced in delivering similar WtE facilities. A shortlist has not been provided to EPA at this stage.

[77] The concept design would form the basis of the EPC contract. When dealing with applications of this nature, EPA imposes specific conditions to ensure the proposal adheres to the concept design and any other conditions of the development licence. This includes conditions requiring verification that the facility meets the standards of the concept design and development licence at the detailed design, construction and commissioning phases of the project. In addition, EPA also requires oversight and endorsement of critical phases of the project by a suitably qualified EPA-appointed auditor or other relevant experts.

[78] This approach imposes safeguards and milestones on development licence holders to ensure the performance parameters of the concept

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design are achieved. The proposed technology for a concept design must be proven, well understood and robust. This is only suitable for mature types or classes of techniques and technologies such as moving grate combustion technology. As part of the development licence assessment process, EPA requires an applicant to explain key processes and technologies including key inputs, key outputs, emission controls and monitoring, and management of incoming waste and outgoing residues (EPA, 2021a). This ensures the environmental performance standards, parameters and impact assessments of the concept design are technically feasible even where the final technology vendor is yet to be selected.

3.6 Reference facilities

[79] Reference plants or facilities are examples of facilities deploying the same or similar techniques and technologies to a proposal. Reference facilities provide confidence that a proposal can operate within known and demonstrable performance standards. This is particularly relevant for air emission performance standards. Reference facilities contribute technical evidence that a particular technique or technology is proven, well understood and robust.

[80] The applicant provided details of six reference facilities (summarised in Table 7) which use the same moving grate combustion technology proposed in the application. This includes information on the reference facility plant and FGCS technology providers. Of the six reference facilities, three are Hitachi Zosen INOVA (HZI) plants and FGCS and three are Constructions Industrielles de la Méditerranée and Lab (CNIM-LAB) plants and FGCS.

[81] These reference facilities demonstrate the performance of the FGCS and provide benchmarks for the EPC tender process.

[82] Appendix N of the application includes air emission performance monitoring for the years 2017–20. Monitoring results are against the applicable licence limits of the EU EID. This includes results for those indicators or pollutants that are subject to continuous emissions monitoring and periodic sampling requirements.

Table 7: Overview of reference facilities (reproduction of Tables 7.4 and 7.5 in the application)

HZI CFB technology			
	Greatmoor WtE facility	Newhaven WtE facility	Riverside WtE facility

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Typical waste composition	Residual MSW	MSW with up to 10% clinical	MSW, C&I mixture
Basic plant capacity information	345,000 tonnes/year, single line 1x37.5 tonne/hr	226,000 tonnes/year, two lines 2x14.5 tonne/hr	585,000 tonnes/year, three lines, 3x31.8 tonne/hr
Start of operations	2016	2011	2011
Basic plant boiler and flue gas treatment (FGT)	<ul style="list-style-type: none"> HZI reciprocating grate. Recirculating flue gas SNCR Semi-dry CFB reactor utilising lime & Powdered Activated Carbon (PAC) 	<ul style="list-style-type: none"> HZI reciprocating grate. Recirculating flue gas SNCR Semi-dry CFB reactor utilising lime & PAC 	<ul style="list-style-type: none"> HZI reciprocating grate. Recirculating flue gas SNCR utilising aqueous. Ammonia Semi-dry CFB reactor utilising lime & PAC
Emissions standard met	EU IED 2010/75/EU		
Design changes required for BREF 2019 emissions	<ul style="list-style-type: none"> NOx: DyNOR system Acid gases: increased consumption of reagents, option to use sodium bicarbonate in lieu of lime. The acid gas loading of the raw flue gas will need to be assessed to finalise the optimum design. 		
CNIM-LAB loop reactor with recirculation technology			
	Battlefield WtE facility	Leeds WtE facility	Staffordshire WtE facility
Typical waste composition	MSW, small quantity of C&I	MSW, small quantity of C&I	MSW
Basic plant capacity information	102,000 tonnes/year, single line 1x12 tonne/hr	164,000 tonnes/year, single line 1x20.5 tonne/hr	340,000 tonnes/year, two lines 2x20 tonne/hr
Start of operations	2015	2016	2014
Basic plant boiler and FGT	<ul style="list-style-type: none"> CNIM-Martin reverses acting grate. Recirculating flue gas SNCR utilising urea injection Dry system, VapoLAB with LABLoop reactor utilising lime and PAC 		
Emissions standard met	EU IED 2010/75/EU		
Design changes required for BREF 2019 emissions	<ul style="list-style-type: none"> NOx: advanced system with improved control system and increased number of reagent injection points. Acid gases: increased consumption of reagents, option to use sodium bicarbonate in lieu of lime. The acid gas loading of the raw flue gas will need to be assessed to finalise the optimum design. 		

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- [83] The EU framework for WtE facilities was updated in 2019 under the EU's *Best Available Techniques (BAT) Conclusions for Waste Incineration*. This introduced new emissions, monitoring and efficiency standards to lower the environmental impact of waste incineration activities. The new standards are based on the outcomes of a review of the BREF 2016 and are presented in the BREF 2019. The EPA considers the EU standards to be representative of technically feasible standards and outcomes for new WtE facilities.
- [84] The updated framework includes new BAT-associated emission levels (**BAT-AEL**) for discharges to air. The BAT-AELs are stricter than those of the EU IED that have been applied as permission emission limits by EU environmental regulators. Competent authorities in EU member states have four years to verify if existing facilities comply with the revised standards (EU, 2019c). Stricter BAT-AELs are specified under the BREF 2019 for new plants.
- [85] The application's reference facility emission monitoring results are reflective of facilities designed and subject to permission limits of the IED 2010/75/EU. The results generally show compliance with the BAT-AELs of the BREF 2019 and BATC for new plants for all pollutants. The application lists the pollutants that do not currently meet the BAT-AELs in the BREF 2019 (see Table 8). Technical measures or enhancements to bring these pollutants within the BAT-AELs are described in Table 7 above.

Table 8: Selected emissions data for reference plants (reproduction of Table 7.6 in the application)

Pollutant	IED 2010 emissions limit (mg/Nm ³)	2019 BREF Emissions limit (mg/Nm ³)	HZI CFB Technology 2019 annual average of reported daily emissions (mg/Nm ³)			CNIM-LAB Loop Reactor Technology with residue recirculation 2019 annual average of reported daily emissions (mg/Nm ³)		
			Greatmoor	Newhaven	Riverside	Battlefield	Leeds	Staffordshire
NOx	200	120	180.2	185.7	180.2	172.8	175.5	175.2
HCl	10	6	5.5	3.7	5.5	6.3	5.5	6.8
SOx	50	30	3.5	0.6	3.5	22.8	40.9	37.0
Particulates	10	5	5.1	1.6	5.1	0.3	0.9	0.3

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4 Consultation

[86] This section summarises the consultation conducted by the applicant and EPA as part of its assessment process and commitments made under EPA's Charter of Consultation (EPA, 2021b).

[87] Applicants are expected to conduct their own community and third-party engagement before applying for a development licence (EPA, 2021a). This ensures those whose interests may be affected by a proposal are adequately aware of its details and potential impacts.

[88] EPA also conducts its own community and third-party engagement as part of the development licence application assessment process. This includes public notification, providing detailed information on a publicly accessible website (www.engage.vic.) and considering submissions from third parties in the assessment.

[89] Under section 69(3)(g) of the EP Act, EPA must take into account any comments and submissions received when deciding whether to issue a development licence. For EPA's full consideration of submissions, refer to Section 6.7 of this report.

4.1 Consultation carried out by applicant.

[90] The applicant detailed its community and stakeholder engagement in Section 5 of the application. The applicant based its engagement on the [International Association of Public Participation \(IAP2\) Public Participation Spectrum](#). The applicant's engagement objectives were to:

- manage community expectations about the level of influence they can have on the project,
- enable the development of relationships with stakeholders by raising early project awareness and gathering feedback,
- make it clear how to access information about the project, provide feedback and keep informed,
- promote project benefits through establishing clear and consistent messaging to ensure stakeholders understand the project purpose and how it will contribute to a more sustainable waste management chain, and
- record evidence of engagement activities undertaken.

[91] Table 9 summarises the community and engagement activities conducted by the applicant.

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Table 9: Engagement carried out by the applicant.

Engagement	Description	Feedback
Webpage	Established and maintained a website: https://prospecthill.com.au/	10 contacts from stakeholders via the website contact form
Phone	Established and maintained a 1300 phone number. The number goes directly to voicemail and the appropriate team member phones the caller back within three business days.	5 contacts from stakeholders via phone
Email address	Established and maintained an email address. The project team replied to emails within three business days.	11 contacts from stakeholders via email
Fact sheet and cover letter	An introductory fact sheet and cover letter were distributed via Australia Post to all residential and commercial properties in the area bounded by Elcho Road, Patullos Road, Forest Road South, the Princes Freeway and Bacchus Marsh Road (approximately 1,600 properties) in July 2020.	
Online information session	On Tuesday 28 July 2020 from 7.30 to 8.30pm, the project team delivered an online information session about the project.	56 attendees

[92] EPA notes that the applicant completed a Cultural Heritage Due Diligence Assessment in Appendix G. The assessment concluded that the site has been subject to extensive ground disturbance and that there are no historical heritage places, including Aboriginal heritage, within the Project area.

[93] It is also noted that the pre-submission phase of the application occurred during the COVID-19 pandemic and associated public health measures. This had a significant impact on the opportunities for face-to-face engagement.

4.2 Consultation carried out by EPA.

[94] EPA completed its statutory obligations on community and third-party engagement in accordance with the EP Act and conducted further engagement activities beyond its statutory obligations (Table 10). This included three public submission periods spanning a total of 10 weeks, an online question-and-answer forum, an online information session and a community conference.

[95] In conducting its engagement, EPA has considered and where possible applied the commitments made under EPA's Charter of Consultation. EPA notes there are no cultural heritage, including Aboriginal heritage, overlays on the activity site.

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Table 10: Community and third-party engagement conducted by EPA.

Engagement	Timeline	Description	Details
Newspaper	24/03/2021	Application advertised in the Herald Sun and Geelong Independent on 24 March 2021	
Webpage	24/03/2021 – decision	Full application made available via a project dedicated Engage Victoria webpage.	The webpage was updated and used to share submissions from the community and interested third parties and RFI responses from the applicant.
Q&A forum	24/03/2021 – 28/04/2021	Question-and-answer forum open on the project's Engage Victoria webpage.	36 enquiries were received and responded to during the submission period.
Online information session (run by Prospect Hill)	20/04/2021	Online information session held by Prospect Hill. EPA attended and presented an overview of the application assessment process.	
Submission period (1 of 3)	24/03/2021 – 28/04/2021	Extended submission period from 24 March to 28 April 2021. Submissions were accepted via a survey on the project's Engage Victoria webpage.	63 submissions were received with 59 objecting to the proposal.
Pre-conference information session	13/07/2021	'Open house' information session for participants to meet and ask questions or raise concerns with the applicant.	
Conference of interested persons	13/07/2021	Section 236 conference of interested persons on 13 July at Lara Masonic Hall, 37-39 Rennie St, Lara VIC 3212.	59 community members and stakeholders attended the conference including nine EPA staff and eight staff representing the applicant. Attendance was limited due to public health restrictions.
Submission period (2 of 3)	13/10/2021 – 28/10/2021	Second submission period from 13–28 October 2021. Submissions were accepted via a survey on the project's Engage Victoria webpage.	Gave submitters, community and interested third parties the opportunity to review and make further submissions on the proposal and the applicant's response to submissions and the recommendations of the section 236 conference report recommendations. 58 submissions were received with 56 objecting to the proposal.

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Engagement	Timeline	Description	Details
RFI comment period (3 of 3)	22/06/23 – 13/07/23	Third submission period from 22 June to 13 July 2023. Submissions were accepted via a survey on the project's Engage Victoria webpage.	and Gave submitters, community and interested third parties an opportunity to review and make further submissions or comments on the proposal and information required under EPA RFIs. 63 submissions were received with 59 objecting to the proposal.

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5 Assessment framework

[96] EPA takes an evidence and risk-based approach to its regulatory function and decision-making under the permissioning framework. EPA has regard to principles and obligations of the EP Act and all relevant subordinate regulations and policy frameworks. This application has been assessed against:

- EP Act 2017,
- EP Regulations,
- Environmental Reference Standards (Victorian Government Gazette No S 245),
- relevant EPA guidelines.

[97] Under section 69(3) of the EP Act, EPA must consider the following when deciding whether to issue a development licence:

- measures taken or proposed to be taken, relevant to the activity, to comply with the general environmental duty,
- impact on human health and the environment, including relevant environmental reference standard,
- the principles of environmental protection,
- best available techniques or technologies (BATT),
- consistency with the EP Act and the EP Regulations,
- comments from referral authorities,
- comments and submissions received during advertising period, and
- any prescribed matters (these are matters prescribed by the EP Regulations).

[98] Under section 69(4) of the EP Act, EPA must refuse to issue the development licence if:

- the Authority considers that the activity poses an unacceptable risk of harm to human health or the environment, or
- the Authority determines that the person is not a fit and proper person to hold a development licence, or
- any prescribed circumstances exist.

[99] EPA has also assessed the application against the requirements of the following relevant statutory frameworks:

- Climate Change Act 2017,
- Charter of Human Rights and Responsibilities 2006,
- Flora and Fauna Guarantee Act 1988,

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- Minamata Convention on Mercury, and
- Stockholm Convention on Persistent Organic Pollutants.

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6 Assessment

[100] This section details EPA's assessment conclusions against the criteria set out in the assessment framework in Section 5. It generally follows the order of the assessment criteria as presented. EPA has considered all stages of the proposed activity including potential cumulative impacts of surrounding activities.

Assessing concept design and performance-based applications

[101] EPA assesses development licence applications on a case-by-case basis. This takes into consideration the specific circumstances of the application, proposed activity, the activity site, and local community.

[102] In this case, the application was submitted based on a concept design. The concept design was developed with suitable technical support from an engineering consultancy firm experienced in the WtE industry, as well as a WtE technology vendor.

[103] The concept design does not present the final detailed designs of the facility. This will be finalised at a later stage subject to EPA oversight. However, it has clearly established specific environmental performance standards for the facility that the future design and constructed facility must adhere to.

[104] This includes such standards as air emission levels of pollutants from the facility's stack, noise and odour emissions, and hazardous waste management. The application demonstrates the reliability of the concept's design performance standards through reference facilities, other studies and literature, and internationally recognised standards such as the IED framework.

[105] This approach is only suitable for robust and well proven technology types such as moving grate incineration WtE facilities. This approach is commonly used when seeking environmental approvals for the WtE industry.

[106] EPA's assessment of the application focuses on whether the concept design and environmental performance standards are consistent with EPA's assessment criteria including the general environmental duty (GED) and the elimination or reduction of risks of harm to human health and environment so far as reasonably practicable, and the adoption of BATT.

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- [107] EPA also assesses the application to determine if the proposed technology type is robust and proven and whether the concept design and environmental performance standards are reliably and technically viable.
- [108] As explained in Section 3.6, if a development licence is granted the company will proceed to an open EPC tender process. The development licence and its conditions form part of these commercial arrangements.
- [109] EPA incorporates a comprehensive set of conditions if EPA is satisfied that the application demonstrates compliance with EPA's assessment criteria. This ensures that these are firmly established for the applicant's EPC tender process. For this reason, the development licence includes more conditions than would otherwise be considered necessary.
- [110] EPA also imposes additional requirements on concept design and performance-based applications which are not usually required. For example, EPA requires involvement of an EPA-appointed auditor (or suitably qualified person approved in writing) at the detailed design, construction and commissioning phase of the project.
- [111] The following assessment should be read with this context in mind.

6.1 Measures to comply with the general environmental duty.

- [112] Under section 69(3)(a), EPA must take into account any measures the applicant has taken or proposes to take to comply with the GED when engaging in the activity subject of the application. The GED is defined under section 25(1) of the EP Act:

S 25(1) A person who is engaging in an activity that may give rise to risks of harm to human health or the environment from pollution or waste must minimise those risks, so far as reasonably practicable.

- [113] Section 25(4) and (5) also sets out the actions a person conducting such an activity must do, so far as reasonably practicable, to comply with the GED:

S 25(4) Without limiting subsection (1), a person who is conducting a business or an undertaking contravenes that subsection if the person fails to do any of the following in the course of conducting the business or the undertaking, so far as reasonably practicable—

S 25(4)(a) use and maintain plant, equipment, processes and systems in a manner that minimises risks of harm to human health and the environment from pollution and waste;

S 25(4)(b) use and maintain systems for identification, assessment and control of risks of harm to human health and the environment from pollution and waste that may arise in connection with the activity, and for the evaluation of the effectiveness of controls;

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- S 25(4)(c) use and maintain adequate systems to ensure that if a risk of harm to human health or the environment from pollution or waste were to eventuate, its harmful effects would be minimised;*
- S 25(4)(d) ensure that all substances are handled, stored, used or transported in a manner that minimises risks of harm to human health and the environment from pollution and waste;*
- S 25(4)(e) provide information, instruction, supervision and training to any person engaging in the activity to enable those persons to comply with the duty under subsection (1).*

[114] Section 6 of the EP Act defines the concept of ‘minimising risks of harm to human health and environment’ along with a guiding framework for determining ‘so far as reasonably practicable’. The GED requires persons carrying out such an activity to eliminate risks of harm to human health and the environment so far as reasonably practicable and, if it is not reasonably practicable, to reduce those risks so far as reasonably practicable.

[115] To determine what is reasonably practicable (EPA, 2020b) in relation to minimising risks of harm to human health and environment, the following must be considered:

- the likelihood of those risks eventuating,
- the degree of harm that would result if those risks eventuated,
- what the person concerned knows, or ought reasonably to know, about the harm or risks of harm and any ways of eliminating or reducing those risks,
 - the availability and suitability of ways to eliminate or reduce those risks, and
 - and the cost of eliminating or reducing those risks.

[116] EPA’s assessment of the application against the GED framework looks at how the application has identified risks of the proposed activity and the measures identified to eliminate or reduce risks of harm to human health and environment so far as reasonably practicable (EPA, 2022a) (EPA, 2021a). It also considers to what extent the measures address or are consistent with the requirements outlined in S25(4)(a)-(e). In doing so, EPA’s assessment follows the general advice or process steps in controlling hazards and risks as recommended by EPA (see Figure 5).

[117] BATT for WtE under the EU framework specifies both mechanical and administrative controls – and does so in a risk-based approach. In this regard, the BATT measures of the EU framework may also be considered generally consistent and complementary with the preventative approach of

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the GED. While the EU framework refers to BAT under its framework, this is compatible with BATT under the EP framework. These terms are used interchangeably throughout this report. For further details on these terms, see Section 6.4.

Figure 5: Steps in controlling hazards and risks.



6.1.1 Risk and hazard identification and management framework

[118] The application acknowledges the risk-based preventative framework of the GED in Section 6.1. This is further supported by information included in the RFI response dated 25 October 2022.

[119] The application is based on a conceptual design with all current measures proposed to comply with the GED aligning with the conceptual understanding and environmental performance standards set out in the application – as outlined in the application’s Appendix M: Concept Design Basis Report. These measures will be further validated during the detailed design stage of the proposal and subject to EPA review and endorsement. The conceptual design or site model of the activity facilitates a project-specific understanding of hazards and risk pathways as recommended by EPA (EPA, 2022a).

Risk assessment

[120] The application includes a risk assessment covering all major development phases of the activity including construction, commissioning, operation and non-routine or other than normal operating conditions (“OTNOC”). It did not include an assessment of the decommissioning phase.

[121] The EP Act gives EPA increased power and oversight of the decommissioning phases of prescribed activities. EPA considers it appropriate to require submission of a decommissioning plan prior to

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obtaining an operating licence which is consistent with EPA's standard approach for this requirement (Condition [DL_G07](#)).

- [122] The risk assessment methodology is described in Section 6.2 of the application and its outcomes are presented in Table 6.5 of Section 6.3.
- [123] The applicant's risk assessment methodology is based on EPA's risk matrix and criteria (EPA, 2019). The methodology and its outcomes are described in Sections 6.2 and 6.3 of the application. The risk assessment identifies project hazards common to waste management and WtE facilities (EPA, 2021c). The application provided information on the risks, potential impacts and ways to reduce risks from hazards specific to WtE facilities through reference to relevant state of knowledge for the activity. This includes the internationally recognised and BAT standards for EU WtE facilities – the EU IED and BREF and BATC 2019.
- [124] The risk assessment characterised risks associated with identified hazards, including the likelihood of the risks eventuating. The risk assessment then details mitigation or control measures to manage the risk of harm for each potential impact. The risk level is then re-evaluated to determine the residual risk after implementation of controls. Mitigation controls include engineering as well as administrative controls.
- [125] The applicant notes the risk assessment or Project Risk Register is a live document that will be maintained and updated over the life of the project. The register will be informed by a hazard and operability study ("HAZOP"), fire risk study and other detailed risk studies. EPA will be notified if any significant change or variation to the risk profile of the proposal emerges during the detailed design phase as originally presented in the application.
- [126] EPA requires recommendations from the risk studies to be implemented as part of validating the final detailed design of the proposed facility before construction (Condition [DL_R04/6](#)). These studies and implementation of their recommendations must be endorsed by a suitably qualified EPA-appointed auditor. EPA will then verify that the risk profile of the final detailed design does not vary from that detailed in the application as assessed at this time.
- [127] The Project Risk Register informs the project's proposed Operations Management System ("OMS") described in Section 16.1 of the application. The OMS is the overarching framework for managing environmental risks associated with all major development phases of the activity. This includes an environmental management system ("EMS") that would address and provide a structured system for organising the proposed activity's

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environmental management. An EMS covers training and record management, and identifies, monitors, and controls environmental impact. The following certifications would be sought as part of the overarching environmental management framework:

- Quality system certification to AS/NZS ISO 9001:2016,
- Safety system certification to AS/NZS 45001:2018, and
- EMS certification to AS/NZS ISO 14001:2016.

[128] The OMS will cover such areas as air, odour and noise emissions, traffic management and residual waste management.

[129] The detailed design of the facility, including selecting all relevant technology vendors, must be completed before the risk studies and EMS can be finalised. EPA is satisfied that the application has identified an appropriate risk identification management framework that is consistent with state of knowledge and BATT for WtE facilities. This framework is a critical environmental performance benchmark for the detailed design, commissioning, and operating phases.

[130] EPA requires the management framework to be reviewed and validated before operation. This will ensure that there is no deviation in the risk profile or environmental performance parameters from the application's concept design. The risk studies based on the final detailed design must be submitted to EPA (Condition [DL_R04/6](#)) including a Hazard Identification (HAZID) Study and Hazard Operability (HAZOP) Study based on the final detailed design of the facility endorsed by a suitably qualified EPA-appointed auditor (or alternative expert approved by EPA in writing), that also demonstrates:

- consideration of all potential hazardous events and their impact on safe operations. These events may be internal to the facility or external (e.g. large gas release or fire at the proximal major hazard facility),
- implementation of good engineering practice,
- compliance with all relevant Australian or European equivalent engineering and occupational health and safety (OHS) standards, and
- a fire risk study prepared by a suitably qualified fire risk engineer.

[131] Iterative validation is also required at the completion of construction and commissioning phases. A summary of the EMS – with access to all documents therein – must be provided to EPA for review before commissioning (Condition [DL_R01](#)). The EMS must be prepared in accordance with the EU BAT standards (BREF and BATC 2019) and must include, but is not limited to emissions monitoring and assessment plan including for:

- normal operating conditions (consistent with BAT 4 of the BREF and BATC 2019),
- OTNOC (consistent with BAT 5 of the BREF and BATC 2019),

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- a noise management plan,
- an odour management plan, and
- an emergency management and response plan.

[132] The applicant must submit a risk management and monitoring program for the activities, as part of the risk identification and management framework (Condition DL_C05).

Conclusion

[133] EPA is satisfied that the application demonstrates a sufficient understanding of risk and hazard identification and management systems for the proposed activity. EPA is satisfied that the proposed risk and hazard identification and management framework and performance standards incorporated into conditions will reduce the risk of harm from the proposed activities so far as reasonably practicable. This includes the ongoing administrative systems and processes for monitoring construction, commissioning, normal and OTNOC phases of the activities and contingency arrangements should risks of hazards occur.

EPA conclusion

- EPA is satisfied that the application proposes to take measures that will enable it to comply with the GED.
- EPA is satisfied that the application proposes to take measures consistent with the intent of section 25(4)(a)–(e).
- EPA is satisfied that the risk of harm to human health and environment for the WtE facility can be minimised so far as reasonably practicable.

6.1.2 Construction activities

Identification of risk and degree of harm

[134] The application identifies a range of potential risks during the construction phase in the risk assessment (see Section 6.3 and Table 6.5 in the application (Item I.D. 002, 005, 012, 014, 016, 020-026)).

[135] The source of risks and hazards includes earthworks and site preparations and associated stormwater, dust and contamination, vehicle movements, resource use, waste management and noise.

[136] The application considers the likelihood and potential degree of harm or impact of risks of hazards associated with the construction phase throughout the application. Desktop and site investigations were conducted to identify risks of hazards detailed in the application's Appendix H:

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Desktop Flora and Fauna Assessment, Appendix I: Land and Groundwater Contamination Assessment, and Appendix J: Land and Groundwater Contamination Site Investigation Report.

Knowledge of risk and availability and suitability of controls to eliminate or reduce risks.

[137] EPA recognises that risks of hazards are common during construction for prescribed and non-prescribed activities (EPA, 2021d). EPA is satisfied that the application shows an understanding of the proposed activities consistent with state of knowledge such as:

- EPA Publication 480: Best Practice Environmental Management – Environmental Guidelines for Major Construction Sites,
- EPA Publication 275: Construction Techniques for Sediment Pollution Control, and
- EPA Publication 1254.2: Noise Control Guidelines.

[138] The application includes measures to reduce risks of hazards associated with construction activities in the concept design, as summarised in

[139] Table 11. The application identifies and considers construction activity controls for such matters as noise, dust and waste management and stormwater contamination. As noted, desktop and site investigations were conducted to identify controls specific to activity site characteristics such as interaction with the groundwater table. Measures to manage risks and hazards associated with construction activities can be found throughout the application including Sections 6.3 and 16.5.

Cost of eliminating or reducing those risks

[140] EPA has given regard to costs of eliminating or reducing risks of harm to human health and the environment and is satisfied that the proposed or imposition of BATT measures as defined under the EU IED 2010/75/EU and BREF and BATC 2019 represents reasonably practicable measures that the applicant must take and are proportionate to the risks of harm to human health and the environment.

Table 11: Environmental control measures and environmental performance standards – construction

Stage	Measure
Engineering controls	i. Use of a temporary noise damper on the steam blowing vent during start-up and commissioning.

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	<ul style="list-style-type: none"> ii. Design of plant, bunding, chemical storage and spill management systems in accordance with EPA Publication 1698: Liquid Storage and Handling Guidelines and relevant Australian Standards.
Administrative controls	<ul style="list-style-type: none"> i. Contractor EPC tender evaluation and selection process Construction Environment Management Plan (CEMP) prepared by the contractor and approved by Council. ii. Construction undertaken in accordance with EPA Publication 480 and state environmental planning policies (SEPPs), including scheduling operation of noisy machinery, maintenance of equipment and noise monitoring. iii. Construction waste managed in accordance with EPA Publication 480: Environmental Guidelines for Major Construction Sites, including: <ul style="list-style-type: none"> a. Waste minimisation b. Provision of bins for workers c. Segregation of wastes for reuse, recycling and disposal d. Covering of vehicles carrying materials or waste e. Review opportunities to specify biofuel use on construction plant and equipment based on site for extensive periods. f. Specify high recycled content in steel use where technically possible and cost-effective. g. Undertake modelling to minimise unnecessary movement of materials. h. Maintenance and inspection of construction and plant equipment to reduce greenhouse gas emissions. iv. Operational and maintenance manuals and effective maintenance schedules. v. Operator induction and training. vi. Rigorous and proactive complaints management process. vii. Implementation of appropriate dust control measures including soil stockpile management, dust suppression watering, vegetation clearance minimisation and revegetation, windbreaks and silt fences. viii. Maintenance of construction plant and in good working order to minimise exhaust emissions. ix. Development of chemical management and handling procedures. x. Emergency response procedures. xi. Conduct community consultation sessions throughout the planning of the project to discuss the benefits of the project. xii. Regular open and transparent communications provided to the community and stakeholders. xiii. Undertake a stakeholder assessment – Identify all stakeholders / their interests, influence and importance and use this in developing the Stakeholder Engagement Plan.

Key considerations

[141] In reviewing the proposed construction activities controls, EPA notes the several key considerations.

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Construction environment management plan

- [142] State of knowledge refers to information and control measures for identifying, assessing and eliminating or reducing risks of harm associated with construction activities. This information is provided in EPA Publication 1834.1: Civil construction, building and demolition guide (EPA, 2023a) and other guidance specified therein.
- [143] The application states that a CEMP will be developed which will address the key construction risks (see Table 16.1 in the application). The CEMP should be developed in accordance with the EPA publications listed above (480, 275 and 1254).
- [144] The CEMP will address the key risks of hazards associated with construction activities identified in the risk assessment such as noise, dust and air emissions, stormwater contamination, and waste management. The application has not identified any significant or project-specific risks associated with construction activities that would necessitate a high order assessment at this stage.
- [145] The selected EPC contractor will be responsible for preparing the CEMP. The finalised CEMP must be verified by EPA before starting construction (Condition [DL_R04/20](#)). It is noted that as of 25 August 2023 the publications specified in the application noted above (EPA Publications 480 and 275) have been superseded by EPA Publication 1834.1: Civil construction, building and demolition guide (EPA, 2023a). EPA is satisfied that the application has identified a range of risks and hazards to be managed through its CEMP consistent with the updated guideline.
- [146] EPA is satisfied that risks of harm associated with construction activities are reduced so far as reasonably practical through the development licence Condition [DL_R04/9](#).

Conclusion

- [147] EPA is satisfied that the application demonstrates sufficient understanding of construction activity risks associated with the proposed activity. EPA is satisfied that the that the range of controls and performance standards incorporated into conditions will reduce the risk of harm from construction activities so far as reasonably practicable. This includes the ongoing administrative systems and processes for monitoring construction activities and contingency arrangements should risks of harm be identified.

EPA conclusion:

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- EPA is satisfied that the application proposes to take measures that will enable it to comply with the GED.
- EPA is satisfied that the application proposes to take measures consistent with the intent of section 25(4)(a)–(e).
- EPA is satisfied that the risk of harm to human health and environment for risks and hazards associated with the construction activities can be minimised so far as reasonably practicable.

6.1.3 Greenhouse gas emissions

Identification of risk and degree of harm

[148] Greenhouse gas emissions are identified as a net positive impact of the proposed WtE facility in the application's risk assessment (item I.D. 011). This matter is considered in further detail in Sections 11, 15.6 and 4.2.4 and Appendix C: GHG assessment in the application and Section 2 of RFI response dated 10 November 2022. Identified sources of GHG emissions include construction activities and materials, combustion of waste during operation over its proposed approximate 25-year lifespan, and waste transport.

[149] The application considers the likelihood and potential degree of harm or impact of GHG emissions in Section 11 and Appendix C: GHG assessment. This includes a GHG inventory prepared in accordance with the [Greenhouse Gas Protocol \(GHG Protocol\)](#)¹ and *International Standard ISO 14064-1:2006 Greenhouse gases – Part 1: Specification with guidance at the organisation level for quantification and reporting of GHG emissions and removals*.

[150] The application considers potential degree of harm by considering the impact of GHG emissions against total emissions in Victoria and Australia. The GHG inventory calculates a net reduction in GHG emissions of 0.31% and 0.06% of Victoria's and Australia's total emissions at the time of application submission (see Table 12 and Table 13 below). It concludes that the proposal will result in a net reduction in GHG emissions over the life of

¹ The Greenhouse Gas Protocol was developed by the World Business Council for Sustainable Development and the World Resources Institute as a global standard for companies and organisations to measure and manage their GHG emissions.

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the facility through avoided GHG emissions. For further information and definitions of Scope 1–3 emissions, see Section 6.2 of this report.

Table 12: GHG inventory results (Scope 1–3 emissions)

Scope	Annual emissions (tCO ₂ e)	Total emissions (25 years – tCO ₂ e)
Scope 1	191,993	4,797,072
Scope 2	–209,358	–5,233,960
Scope 3	2,651	66,285
Total emissions (all Scopes)	–14,824	–370,604

Table 13: Operation non-energy relation emissions by source

	Source	Total quantity (tonnes)	Energy consumption (GJ)	Scope 3 GHG emissions (tCO ₂ e)	GHG emissions – all scope (tCO ₂ e)
Offset landfill emissions	Offset landfill emissions	–400,000	N/A	–300,051	–300,051
Total			..	–300,051	–300,051
Total (25 years)					–7,501,278

[151] The intent of the proposal is to meet waste management demand for residual waste driven by existing and future waste generation and population growth. The facility will only target residual waste destined for landfill. This offers a higher order waste management solution, moving from waste disposal to recovery of energy on the waste management hierarchy (see section 18 of the EP Act). Avoided GHG emissions are achieved through grid displacement and avoidance of GHG emissions from landfill gas emissions.

Knowledge of risk and availability and suitability of controls to eliminate or reduce risks.

[152] EPA recognises GHG emissions as a common source of risk of harm hazards for industrial and waste management activities (EPA, 2022b). EPA is satisfied that the application demonstrates an understanding of the proposed activities and its GHG emissions consistent with state of knowledge such as:

- the [World Business Council for Sustainable Development](#) and the [World Resources Institute](#),

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- International Standard ISO 14064-1:2006 Greenhouse gases,
- EPA Publication 2048: *Guideline for minimising greenhouse gas emissions* (EPA, 2022b),
- EPA Publication 1559.1: *Energy from waste guideline* (EPA, 2017),
- EU IED 2010/75/EU and BREF and BATC 2019, and
- the EU's [Waste Framework Directive](#) (Directive 2008/98/EC).

[153] EPA's assessment of the application's GHG inventory is detailed in Section 6.1.3. As part of the assessment, EPA notes several factors that will likely reduce the potential avoided GHG emission as determined in the application. However, EPA is satisfied that the application has identified and assessed GHG emissions in accordance with state of knowledge, such as the GHG Protocol, and to an adequate standard for the concept phase of this proposal.

[154] The application lists measures in the concept design to reduce risks of harm associated with GHG emissions so far as reasonably practicable (Table 14). An audit of targeted waste is proposed to further refine its understanding of waste characteristics including calorific value or content. This will be used to develop a final Waste Acceptance Criteria and optimise the final detailed design of the facility. The facility and its power plant will be designed to optimise recovery of energy from waste for export to the local electricity grid.

[155] The application proposed additional measures to manage GHG emissions in response to the RFI (response received 21 November 2022) as summarised in Table 14 below:

Table 14: Environmental control measures and environmental performance standards – GHG emissions

Stage	Measure
Engineering controls	Operation <ol style="list-style-type: none"> i. Design and operate the WtE facility with an R1 rating of 0.76.
Administrative controls	Construction <ol style="list-style-type: none"> i. Develop and maintain a Construction Environment Management Plan (CEMP) and Operations Environment Management Plans (OEMP), including: <ol style="list-style-type: none"> a. Review opportunities to specify biofuel use on construction plant and equipment based on site for extensive periods. b. Specify high recycled content in steel use where technically possible and cost-effective. c. Undertake modelling to minimise unnecessary movement of materials.

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Stage	Measure
	<p>d. Maintaining and regularly inspecting construction and plant equipment to ensure their efficiency and reduce greenhouse gas emissions.</p> <p>Operation</p> <p>ii. With gross emissions in excess of 50 ktCO₂e per year the EFW plant will need to report GHG emissions to the Clean Energy Regulator each year in its own right.</p>

Cost of eliminating or reducing those risks

[156] EPA has given regard to costs of eliminating or reducing risks and is satisfied that the proposed or imposition of BATT measures as defined under the EU IED 2010/75/EU and BREF and BATC 2019 is proportionate to the risks of harm. Cost has been raised by the applicant regarding additional resource recovery options prior to incineration. EPA has assessed this in further detail under key considerations below.

[157] EPA is imposing requirements for a system for the ongoing identification and implementation of resource recovery prior to incineration when it becomes financially feasible. This is implemented through development licence conditions and future operating licence conditions.

[158] In 2024, EPA will be reviewing operating licence conditions for large scale thermal WtE facilities. EPA will further develop the conditions and standards for identifying and implementing resource recovery prior to thermal treatment. This will ensure there is an ongoing, consistent, and industry-wide standard in place.

Key considerations

[159] In reviewing the proposed GHG emission controls, EPA notes the several key considerations:

Resource recovery

[160] State of knowledge provides information and control measures for eliminating or reducing risks associated with GHG emissions through resource recovery, specifically through:

- EPA Publication 1559.1: Guideline: Energy from waste (EPA, 2017), and
- EU IED and BREF and BATC 2019.

[161] The application states that it only intends to accept residual waste otherwise destined for landfill. Further pre-treatment or recovery of MSW or C&I waste before incineration is not feasible at this stage. The applicant

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also comments that resource recovery of residual waste may be particularly challenging in Victoria given the maturity and current state of the local recycling industry. This is particularly relevant when comparing the feasibility of resource recovery at the proposed facility with the larger and more mature recycling and resource recovery markets in the EU.

[162] However, EPA considers it appropriate for a review and investigation of existing or emerging techniques and technology options for resource recovery following completion of the 12-month waste audit and before detailed design freeze and selection of techniques and technology (Condition [DL_R04](#)). This must be provided before starting construction and be informed by the waste audit confirming the composition of waste to be accepted and processed at the facility, the calorific value (R1 value) of the waste and appropriate market analysis. It must also identify options available for resource recovery for the targeted waste feedstock before incineration so far as reasonably practicable.

[163] A suitably worded condition will also be imposed on the operating licence if granted to require ongoing reviews of existing and emerging techniques and technologies with a five-year frequency. This aligns with EPA's powers to periodically review operating licences under section 76 of the EP Act. These reviews would need to consider available resource recovery options for the targeted waste feedstock before incineration so far as reasonably practicable.

[164] The applicant must also make provisions for future incorporation of options (including physical space within the activity site) for resource recovery (Condition [DL_G01/15](#)). EPA notes that the application does propose pre-treatment of incoming waste consistent with techniques of BAT conclusion 14 of the EU BREF and BATC 2019, including waste blending via bunker crane mixing. This would homogenise material in the bunker to improve overall performance of the incineration of waste. The application also proposes resource recovery of ferrous and non-ferrous metals post-incineration as part of the IBA treatment facilities.

[165] EPA is satisfied risks of harm associated with GHG emissions are reduced so far as reasonably practicable through resource recovery with the requirement of an ongoing process to identify options available for resource recovery for the targeted waste feedstock before incineration.

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Energy efficiency

[166] State of knowledge provides information and control measures for eliminating or reducing risks associated with GHG emissions through energy efficiency. specifically through:

- EPA Publication 1559.1: Guideline: Energy from waste (EPA, 2017), and
- EU IED and BREF and BATC 2019.

[167] The application identifies the R1 Energy Efficiency Formula as reducing risks of harm from GHG emissions. EPA acknowledges the EU's R1 Energy Efficiency Formula as an appropriate measure as specified in EPA Publication 1559.1.

[168] The R1 is set out in Annex II of the EU's Waste Framework Directive (Directive 2008/98/EC) which provides a range of waste recovery options. R1 is defined as waste recovery operations that 'use principally as a fuel or other means to generate energy' (EU, 2008). The objective of this efficiency measure is to determine genuine energy recovery rather than disposal via combustion. The R1 sets a minimum efficiency calculation of 0.65 for WtE facilities to be considered as achieving genuine recovery.

[169] The application provides technical details to demonstrate and set environmental performance standards for energy efficiency. The energy efficiency calculations are based on an indicative calorific value of the waste of 9.5 MJ/kg. The application acknowledges that this is preliminary and will be confirmed via waste audits and selection of the plant vendor through the EPC tender. The application has calculated an R1 efficiency value of 0.77 for the proposed facility. This is broadly consistent with the R1 calculations for other large-scale WtE facilities assessed by EPA over the past six years.

[170] EPA notes this calculation is based on an indicative calorific value of the targeted waste feedstock. To reduce risks associated with GHG emissions and the concept design, EPA has phased related conditions to ensure the final detailed design of the facility conforms to the performance standards set in the application and is optimised based on the results of the waste characterisation audits (Conditions [DL_R04/1-3](#) and [DL_R04/8](#)). EPA has also imposed a condition requiring the proposal's power plant to recover heat or electricity generated from the process so far as reasonably practicable and be designed to achieve an average R1 energy efficiency of 0.77 (condition [DL_G03/11](#)).

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- [171] State of knowledge provided in the BREF and BATC 2019 also identify BAT measures for energy efficiency. These are primarily contained in BATC 2, 19 and 20. Of these measures, the application proposes to use a heat recovery boiler consistent with BAT 19, as well as proposing a range of techniques consistent with the requirements of BAT 20. Techniques include minimising heat losses through flue gas recirculation, using an economiser pass to recover additional energy from the flue gases, and using high steam conditions with an expected boiler outlet steam condition of 440°C and 64 bar.
- [172] The application calculates an overall thermal efficiency (lower heat value gross) of 28.8%. The BAT-associated energy efficiency levels (BAT-AEEL) for new WtE plants is 25–35%. To reduce risks associated with GHG emissions and the concept design, EPA requires the proposed power plant to recover heat or electricity generated from the process so far as reasonably practicable and be designed to achieve BAT-AEEL of the BREF and BATC 2019 (Condition [DL_G03/11](#)).
- [173] EPA is satisfied risks of harm associated with GHG emissions are reduced so far as reasonably practicable through the selection of BATT that incorporate energy efficiency measures. This must be validated at the detailed design phase and endorsed by a suitably qualified EPA-appointed auditor before commencing construction (Condition [DL_R04/8](#)).

Commissioning and proof of performance

- [174] State of knowledge provides for the circumstances and purpose of proof-of-performance commissioning of waste treatment and management facilities. This is a typical requirement of EPA's permissioning arrangement for prescribed development activities and is also provided in:
- standard industry practice,
 - EPA Publication 1559.1: Guideline: Energy from waste (EPA, 2017), and
 - New South Wales (NSW) Energy from Waste Policy Statement (NSW EPA, 2021a).
- [175] Section 7.6 of the application outlines the proposed commissioning of the facility. Commissioning would involve performance and reliability testing including energy recovery power plant and equipment. The commissioning would validate that the performance of these systems achieves the outcomes and environmental performance standards set out in the application or conditions of the development licence. This includes

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the BAT-AEEL levels consistent with BAT 2 of the BREF and BATC 2019 to determine energy efficiency of the incineration plant.

[176] Proof-of-performance testing is a critical benchmark of the EPC tender and EPA's permissioning process. EPA will not issue an operating licence for the activities until the development activities (including commissioning) have been completed to its satisfaction and in accordance with the application and conditions of the development licence (Condition [DL_R03](#)).

Conclusion

[177] EPA has considered the impact or degree of harm to human health and environment for GHG emissions. This considers the residual risk after the abovementioned controls are imposed. This is assessed in detail in Section 6.2 below.

[178] EPA is satisfied that the application demonstrates a sufficient understanding of GHG emission risks associated with the proposal. EPA is satisfied that the range of controls and performance standards incorporated into conditions will reduce the risk of harm associated with GHG emissions so far as reasonably practicable. This includes the ongoing administrative systems and processes for monitoring construction activities and contingency arrangements should risks of hazards occur.

EPA conclusion:

- EPA is satisfied that the application proposes to take measures that will enable it to comply with the GED.
- EPA is satisfied that the application proposes to take measures consistent with the intent of section 25(4)(a)-(e).
- EPA is satisfied that the risk of harm to human health and environment for risks and hazards associated with GHG emissions can be minimised so far as reasonably practicable.

6.1.4 Air

Identification of risk and degree of harm

[179] Air emissions are identified as being associated with a range of potential risks of harm in the application's risk assessment (item I.D. 005-011). During construction, the source of air emissions includes dust emissions from activities such as earthworks, vegetation clearance and vehicle movement.

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[180] The operational phase is the primary source of air emissions for the proposed activity. This is from channelled emission to air of combustion air pollution products and diffuse emissions of dust from residual waste storage and management. OTNOC scenarios are a source of uncontrolled or unplanned discharges of air emissions due to plant and equipment failures, operator error or failure of the FGCS.

[181] The application considers the likelihood and potential degree of harm or impact of air emissions in the risk assessment, supported by an Air Quality Impact Assessment (AQIA) and Human Health Impact Assessment (HHIA). These are assessed in Section 6.2 of this report.

[182] Potential degree of harm has been considered from inhalation of pollutants to multiple pathway exposures such as via deposition and accumulation in soil, homegrown fruit and vegetables, or other farm products. Both acute and chronic impacts have been considered.

Knowledge of risk and availability and suitability of controls to eliminate or reduce risks.

[183] EPA recognises toxic or hazardous materials that are discharged into the air from soot, ashes, fumes, gas and smoke as a common hazard of the waste and recycling industry (EPA, 2021c).

[184] EPA is satisfied that the application demonstrates an understanding of air emission risks of hazards associated with the proposed activities consistent with state of knowledge. This includes the:

- EPA Publication 1961: Guideline for Assessing and Minimising Air Pollution in Victoria (EPA, 2022c),
 - EPA Guideline: Energy from waste (publication 1559) (EPA, 2017), and
 - EU IEDEU IED and BREF and BATC 2019.

[185] EPA is satisfied that the application has identified and assessed risks of air emissions in accordance with EPA Publication 1961, the environmental reference standards and to an adequate standard for the concept phase of this proposal.

[186] The application lists measures in the concept design to reduce risks of harm associated with air emissions, as summarised in Table 15 below. A FGCS is proposed to treat emissions generated by the combustion of waste before discharge to atmosphere via the stack. Each of the two proposed WtE plant lines will have independent FGCSs and a flue in the multi-flue stack. The proposed treatment train provides some flexibility in the final

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design including one or a combination of two dry/semi-dry absorbent reactor systems.

[187] The final detailed design of the FGCS will be confirmed through the detailed design phase but will adhere to the concept design of the application. The proposed treated air emission pollution levels establish the environmental performance standards for the concept design. Reference facilities are detailed to demonstrate the effectiveness of the proposed controls for comparable FGCS of incineration plants processing waste streams with similar physical and chemical characteristics.

[188] Measures to manage air emissions can be found in Sections 6.3, 4.2.6 and 12, Appendix D: Air Quality Impact Assessment of the application, and RFI response (21 November 2022).

Cost of eliminating or reducing those risks

[189] EPA has given regard to costs of eliminating or reducing risks and is satisfied that the proposed or imposition of BATT measures as defined under the EU IED 2010/75/EU and BREF and BATC 2019 is proportionate to the risks of harm assessed in section 6.2.3 Air.

[190] There are different treatment technologies and design configuration available for air emission controls and the FGCS treatment trains. The applicant has identified a configuration capable of achieving performance standards of the IED. This includes deployment of upgraded systems such as an advanced SNCR system to achieve standards of the BREF and BATC 2019.

[191] Cost has not been raised by the Applicant as a substantive impediment for eliminating or reducing risks including through implementation of BATT.

Table 15: Environmental control measures and performance standards – air emissions

Stage	Measure
Engineering controls	Design and operation <ul style="list-style-type: none"> i. Furnace combustion control <ul style="list-style-type: none"> a. Secondary combustion air is heated and injected above the grate, which destroys additional Volatile Organic Compounds and reduces the amount of carbon monoxide in the flue gases. b. Waste is combusted in a reducing environment, which reduces NOx emissions. ii. Advanced Selective Non-Catalytic Reduction (SNCR) system for limiting NOx emissions: <ul style="list-style-type: none"> a. This process injects an ammonia or urea solution in the combustion gases, which causes a reaction with the NOx and produces water and molecular nitrogen. Ammonia levels are monitored in the flue

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Stage	Measure
	<p>gas to avoid overdosing the reagent. This further reduces the overall NO_x emissions.</p> <ul style="list-style-type: none"> iii. Flue Gas Recirculation (FGR) <ul style="list-style-type: none"> a. A FGR recirculates part of the dust-free flue gas and mixes it with fresh secondary air before injecting it back to the furnace, which replaces fresh combustion air that would have otherwise been required. b. This process cools the furnace flame temperature and limits the oxygen content for nitrogen oxidation, which further limits NO_x generation iv. Lime and activated carbon powder injection into the flue gas duct <ul style="list-style-type: none"> a. Activated carbon and lime powder are injected into the flue gas duct before the flue gas enters the bag filters, which reduces the concentration of acidic gases, and absorbs heavy metals and other pollutants (dioxins and furans). v. Bag filters capture Air Pollution Control residues (APCr) and fly ash to reduce particulate concentrations to below 2010 EU IED limits. <ul style="list-style-type: none"> a. Acidic gases in the flue gas continue to react with hydrated lime, and the activated carbon continue to absorb heavy metals, dioxins and furans. b. Some of the collected dust is recirculated back into the duct or reactor for reuse, which reduces the overall amount of APCr generated. c. APCr collected in the bag filters will be stored in a silo with dust control filtration, before being transported offsite in enclosed vehicles for disposal. vi. Continuous Emissions Monitoring System (CEMS) certified by National Association of Testing Authorities (NATA) on the emissions exhaust to measure all pollutant and duct process condition parameters. <ul style="list-style-type: none"> a. A backup CEMS onsite which can be switched into service in the event that the operating CEMS is not in use due to maintenance, calibration or faults. b. In addition to the CEMS, there will be periodic testing for dioxins and heavy metals conducted by a NATA-accredited certifier. This will occur monthly during commission stages and will progress towards a 3–6 month cycle for the first two years of operation, and every 6–12 months after two years, depending on the test outcomes.
Administrative controls	<p>Air Emissions Management Plan</p> <ul style="list-style-type: none"> i. Implement and maintain a hazard risk register and risk-based monitoring systems for identification, assessment and control of risks of harm to human health and the environment from pollution and waste that may arise in connection to plant activities, and for the evaluation of the effectiveness of controls implemented.

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Key considerations

In reviewing the proposed air emission controls, EPA notes the following key considerations:

Incineration plant, furnace and heat recovery boiler

[192] State of knowledge provides information and control measures for eliminating or reducing risks of harm from air emission through incineration plant and heat recovery boiler design and performance controls. This information is provided in:

- EPA Publication 1559: Guideline: Energy from waste (EPA, 2017),
- NSW Energy from Waste Policy Statement (NSW EPA, 2021a), and
- EU IED and BREF and BATC 2019.

[193] The application proposes an incineration plant, furnace and heat recovery boiler that meets the thermal performance standard of Article 50 of the IED. This Article establishes key operating performance standards for such plant and equipment. Article 50(2) requires gas resulting from the incineration of waste to be raised, after the last combustion of air, in a controlled and homogenous fashion to a temperature of at least 850°C. This standard applies to non-hazardous waste such as residual MSW with a content of no more than 1% of halogenated organic substances expressed as chlorine. Its purpose is to eliminate or reduce the formation and emission of dioxins and furans from incomplete combustion of waste.

[194] To reduce risk with this performance measure, EPA requires verification that the incineration furnace meets this standard through computerised fluid dynamics (BREF 2019) modelling (Condition DL_R04/8). This must be submitted and endorsed by an EPA-appointed auditor before starting construction. This performance standard is dependent on the waste feedstock not exceeding the content threshold specified for halogenated organic substances. This informs the application's proposal for further waste auditing to inform detailed design of the facility.

[195] The purpose of the audits is to better understand the combustion parameters of the waste material. EPA is further satisfied that risks of exceeding the 1% halogenated organic substances content threshold will be further reduced through enforcement of the proposed Waste Acceptance Criteria, feedstock delivery protocol, independent auditing of waste within the first three years of the facility's operation, and ongoing periodic auditing. EPA will verify these measures at the detailed design phase (Conditions [DL_R04/2](#) and [DL_R04/3](#)). To ensure appropriate and strict oversight, EPA will incorporate suitably worded conditions into an operating

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licence if granted. These will require implementation of the Waste Acceptance Criteria, feedstock delivery protocols, and periodic auditing with clear environmental performance standards including the 1% halogenated organic substances content threshold. These considerations are also further assessed in Section 6.1.9 of this assessment report (Condition [DL_R04/1](#)).

[196] Article 50(3) requires each combustion chamber of a waste incineration plant to be equipped with at least one auxiliary burner which must be used automatically when the temperature of the combustion gases fall below the threshold of Article 50(2). The application also proposes auxiliary burners for boiler management and to ensure combustion stability consistent with Article 50(3). The application's selection of moving grate incineration is supported by their wide deployment in Europe where operators are subject to the stringent IED standard. EPA has previously assessed the feasibility of moving grate incineration plants in achieving the standards of Article 50 (EPA, 2018a).

[197] Article 50(4) requires installation of an automatic system to prevent waste feed under specified operating conditions such as start-up, when there is a failure to maintain the temperature specified in Article 50(2), or where emission limit values are exceeded. EPA also considers it appropriate to require the installation of these systems to be verified at the detailed design phase (Condition [DL_W08/3](#)).

[198] EPA is satisfied risks of harms to human health and the environment associated with air emissions are reduced so far as reasonably practicable through the proposed incineration plant, heat recovery boiler design and thermal performance standards. This must be validated at the detailed design phase and endorsed by a suitably qualified EPA-appointed auditor before commencing construction (Conditions [DL_R04/8](#) and [DL_W08/3](#)).

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Emission characterisation

[199] State of knowledge provides information on the characterisation of channelled emission to air from WtE facilities. This is provided in:

- EPA Publication 1961: Guideline for Assessing and Minimising Air Pollution in Victoria (EPA, 2022c),
- EPA Publication 1559: Guideline: Energy from waste,
- EPA Publication 1718: A review of the scientific literature on potential health effects in local communities associated with air emissions from Waste to Energy facilities (EPA, 2018c)
- EU IED 2010/75/EU and BREF and BATC 2019, and
- recommendations of other comparable jurisdictions (NSW EPA, 2021b).

[200] The application has characterised potential channelled emissions from the combustion of waste to reduce risks associated with air emissions. The characterisation is based on the standard emission pollution profile of the EU and BREF 2019 and is consistent with the recommendations of EPA Publication 1718. To reduce risks further EPA requires an ongoing system for identifying and investigating chemicals of concerns based on operational audits of the targeted waste feedstock accepted at the facility (Condition [DL_R04/11](#)). This will ensure it is consistent with the EPA's steps in controlling hazards and risks.

[201] EPA is satisfied the application demonstrates an understanding of the likely characteristics of air emissions to be generated by the facility consistent with state of knowledge.

Flue gas cleaning system

[202] State of knowledge provides information and controls to reduce risks for channelled emission to air from WtE facilities. This is provided in:

- Publication 1559: Guideline: Energy from waste (EPA, 2017),
- EU IED 2010/75/EU and BREF and BATC 2019, and
- recommendations from other comparable jurisdictions (NSW EPA, 2021b).

[203] The application has proposed an incineration plant, furnace, and heat recovery boiler that will meet the thermal performance and standard of Article 50 of the IED. The application also proposes a FGCS for each of the two incineration lines to treat channelled emissions from the combustion of waste. It has been designed to be consistent with techniques of the BREF and BATC 2019 assessed in Section 6.4. This includes:

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- emissions of dust, metals, and metalloids: the proposed installation of a filter baghouse and injection of lime and activated carbon powder systems is consistent with BATT for emissions of dust, metals, and metalloids for WtE facilities (BAT 27),
- emissions of HCl, HF, and SO₂: the proposed installation of a dry or semi-dry absorbent reactor system is consistent with BATT for emissions of HCl, HF and SO₂ for WtE facilities (BAT 27),
- the proposed optimisation and automatic reagent dosage through continuous measurement of ammonia (HCl and SO₂) for dosing optimisation and the recirculation of reagents is also consistent with BATT (BAT 28),
- emissions of NO_x, N₂O, CO, and NH₃: the proposed installation of a flue gas recirculation system and selective non-catalytic reduction (SNCR) system is consistent with BATT for emissions of NO_x, N₂O, CO and NH₃ for WtE facilities (BAT 29),
- emissions of organic compounds: the proposed optimisation of the incineration process (through enforcement of the Waste Acceptance Criteria, periodic waste auditing, and CEMS/COMS) process parameter monitoring, furnace combustion control, boiler cleaning, and rapid flue gas cooling is consistent with BATT for emissions of organic compound for WtE facilities (BAT 30),
- emissions of mercury: the proposed installation of dry/semi-dry sorbent injection, injection of activated carbon, and filter baghouses is consistent with BATT for emissions of mercury for WtE facilities (BAT 31),
- continuous emission and operating monitoring systems, with backup systems in case of failure of primary systems, consistent with BAT 3 and 4, and
- backup power system for each line to provide emergency power during OTNOCs.

[204] To reduce risks with the concept design, EPA requires verification of the FGCS at the detailed design phase and before starting construction (Condition [DL_R04/9](#)). This must be endorsed by a suitably qualified EPA-appointed auditor.

[205] This technical validation must include, but is not limited to, demonstration that the final detailed design of the plant and FGCS is optimised to treat the waste characteristics determined through waste audits and the final Waste Acceptance Criteria and can achieve the BAT-AELs of the BREF and BATC 2019. This must be supported through the use of computerised fluid dynamics modelling. This technique is used to optimise

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furnace and boiler geometry, the positioning of secondary and flue gas recirculation air, and reagent injection points for SNCR NO_x reduction.

[206] EPA also requires the design of the FGCS to be sufficient for retrofit or upgrade to achieve more stringent limits, if required in the future, and makes provision for incorporation of future emission controls as may be recommended by the EU IED 2010/75/EU and BREF and BATC 2019 (Condition [DL_G03/4](#)).

[207] EPA is satisfied risks of harm associated with channelled emissions to air are reduced so far as reasonably practicable through the proposed FGCS. This must be validated at the detailed design phase and endorsed by a suitably qualified EPA-appointed auditor before starting construction (Conditions [DL_R04/9](#) and [DL_W08/3](#)).

Licence limits and emission monitoring

[208] State of knowledge provides information and controls to reduce risks from air emission for channelled emission to air through emission limits and monitoring. This is provided in:

- EPA Publication 1961: Guideline for assessing and minimising air pollution (EPA, 2022c),
- EPA Publication 1559: Guideline: Energy from waste (EPA, 2017),
- EPA Publication 1718: A review of the scientific literature on potential health effects in local communities associated with air emissions from Waste to Energy facilities (EPA, 2018c), and
- EU IED and BREF and BATC 2019.

[209] The application proposes operating air emission discharge limits and monitoring methodologies for channelled emissions in accordance with Table 16. This includes BAT-associated emission levels (**BAT-AELs**) using an appropriate combination of the BAT for the FGCSs assessed above. The CEMS will be certified by National Association of Testing Authorities, Australia (NATA) and monitoring emissions to air, land and water (**MCERTS**), the [UK gas analyser accreditation scheme](#), consistent with techniques of BAT 4 of the BREF and BATC 2019 for monitoring channelled emissions to air.

Table 16: Proposed licence limits and emission monitoring

BREF and BATC 2019	BAT-AEL	Unit	Averaging period	Emission Monitoring Type
Hydrogen chloride (HCl)	< 2–6	mg/Nm ³	Daily average	CEMS

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BREF and BATC 2019	BAT-AEL	Unit	Averaging period	Emission Monitoring Type
Hydrogen fluoride (HF)	< 1	mg/Nm ³	Daily average or average over the sampling period	Periodic monitoring
Sulphur dioxide (SO ₂)	5–30	mg/Nm ³	Daily average	CEMS
Sum of nitrogen monoxide (NO) and nitrogen dioxide (NO ₂) expressed as NO ₂ (NO _x)	50–120	mg/Nm ³	Daily average	CEMS
Carbon monoxide (CO)	10–50	mg/Nm ³	Daily average	CEMS
Ammonia (NH ₃)	2–10	mg/Nm ³	Daily average	CEMS
Total particulate matter (Dust)	< 2–5	mg/Nm ³	Daily average	CEMS
The sum of cadmium, thallium and their compounds (Cd+Tl)	0,005–0,02	mg/Nm ³	Average over the sampling period	Periodic monitoring
The sum of antimony, arsenic, lead, chromium, cobalt, copper, manganese, nickel, vanadium and their compounds (Sb+As+Pb+Cr+Co+Cu+Mn+Ni+V)	0,01–0,3	mg/Nm ³	Average over the sampling period	Periodic monitoring
The sum of mercury and its compounds (Hg)	< 5–20	µg/Nm ³	Daily average or average over the sampling period	CEMS
	1–10	µg/Nm ³	Long-term sampling period	Periodic monitoring
Total volatile organic carbon expressed as C (in air) (TVOC)	< 3–10	mg/Nm ³	Daily average	CEMS
Polychlorinated dibenzo-p-dioxins and -furans (PCDD/F)	< 0,01–0,04	ng I-TEQ/Nm ³	Average over the sampling period	Periodic monitoring
	< 0,01–0,06	ng I-TEQ/Nm ³	Long-term sampling period	Periodic monitoring
Polychlorinated dibenzo-p-dioxins and -furans and Polychlorinated biphenyls showing a similar toxicity to the 2,3,7,8-substituted PCDD/PCDF according to the World Health Organization (WHO) (PCDD/F + dioxin-like PCBs)	< 0,01–0,06	ng WHO-TEQ/Nm ³	Average over the sampling period	Periodic monitoring
	< 0,01–0,08	ng WHO-TEQ/Nm ³	Long-term sampling period	Periodic monitoring

[210] The application also proposes to develop an air emissions management plan at the detailed design phase (condition [DL_R04/10](#)). It will include an

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air pollution risk management framework in accordance with EPA Publication 1961 (EPA, 2022c) and 1695 (EPA, 2019). It will sit under the activity site's EMS and will provide a system for implementing the ongoing steps in controlling air pollution risks consistent with minimising risk of harm so far as reasonably practicable.

[211] The application has acknowledged that over the lifespan of the facility changes in demographic, consumer habits, and public policy may impact the composition of residual waste. This may impact on the performance of the FGCS. The application proposes to manage such variation through enforcement of the Waste Acceptance Criteria and waste delivery protocol. Enforcement of these systems will be incorporated into suitably worded operating licence conditions.

[212] The applicant has stated that additional resource recovery of waste before incineration is not economically feasible or technically necessary at this stage. As earlier noted, the application does propose pre-treatment of incoming waste consistent with techniques of BAT conclusion 14 of the EU BREF and BATC 2019, including waste blending via bunker crane mixing. The purpose of this is to homogenise material in the bunker to improve overall performance of the incineration of waste. To reduce risks associated with the FGCS licence limits, EPA requires provision for future incorporation of options (including physical space on the site) to improve material recovery from the waste feedstock before incineration, if this becomes reasonably practicable or necessary to achieve licence limits (Condition [DL_G03/16](#)). An accompanying requirement is preparation of a report for the ongoing testing and investigation of existing or emerging technology options for resource recovery before incineration including includes cost and market analysis (Condition [DL_R04/4](#)).

[213] EPA is satisfied risks of harm associated with air emissions are reduced so far as reasonably practicable through the proposed emission limits and monitoring of channelled emissions to air. This must be validated at the detailed design phase and endorsed by a suitably qualified EPA-appointed auditor before starting construction (Condition [DL_R04](#)).

Reference facilities

[214] State of knowledge provides information and controls to reduce risks from air emission for channelled emission to air using reference facilities. This is provided in:

- EPA Publication 1559.1: Guideline: Energy from waste (EPA, 2017),
- Guide to the NSW Energy from Waste framework (NSW EPA, 2021b), and

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- Guideline: Energy from Waste (Department of Environment and Science (Qld), 2021b).

[215] The application has provided operational data from reference facilities to reduce risks of harm associated with assessing the performance of the proposed FGCS and related air emission controls. Reference facilities are an acknowledged method for demonstrating a proposed technology is proven, well understood and robust. State of knowledge recognises the use of reference facilities as a suitable methodology for supporting environmental approvals such as a development licence.

[216] This can be achieved through reference to other locally or internationally established plants using the same technologies, and, if possible, treating comparable waste streams on a similar scale. Risks associated with any differences between reference technologies and the proposal can be managed through quantifying impacts, risk assessments, and mitigation strategies.

[217] The application has provided air emission monitoring results from 6 UK-based reference facilities to support the performance of the FGCS of proposed moving grate incineration facilities operating to the EU IED standard. These are summarised above in Table 4 of this assessment report where it is also noted that these facilities were commissioned before the updated BAT-AELs of the BREF and BATC 2019. Publicly available technical details are provided on the FGCSs equipment and configuration for each facility. All the reference facilities primarily process MSW with individual plant line capacity with a similar scale of operation to that proposed in the application.

[218] EPA is satisfied that the waste input of the six reference facilities is a reasonable representation of the targeted waste of the application. The UK is regarded as a comparable regulatory jurisdiction under the Queensland 'Guideline: Energy from Waste' for nominated reference facilities. The use of six reference facilities demonstrates achievement of air emission limits from facilities processing MSW across the UK. EPA further notes that the proposed technology is operated at MSW facilities across Europe in accordance with the EU IED standards. Moving grate incineration plants are recognised for their capacity to process wide variability of heterogenous waste such as MSW (EU, 2019b).

[219] EPA has previously considered UK waste input as suitable for demonstrating the FGCS performance of reference facilities. This application is supported by waste data considered under a previous

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decision by EPA (EPA, 2018a). EPA is satisfied risks associated with the waste input and emission performance of reference facilities is reduced by the application's commitment to conduct a 12-month waste audit of the targeted waste feedstock (Condition [DL_R04/1](#)). EPA has also phased related conditions to ensure the final detailed design of the facility conforms to the performance standards set in the application and optimised based on the results of the waste characterisation audits (Condition [DL_R04](#)). EPA requires verification of this before commencing construction and endorsement by a suitably qualified EPA-appointed auditor.

[220] EPA is satisfied that the air emission performance of the six reference facilities demonstrates the feasibility of the proposed facility to comply with the BAT-AELs of the EU IED and BREF and BATC 2019. The reference facility emission monitoring results provided in Appendix N demonstrate compliance with the BAT-AELs of the BREF and BATC 2019 for all critical pollutants with the exception of NO_x, HCl, and So_x. For these pollutants the applicant has specified suitable and technically feasible design changes to the reference facilities that would be required for them to comply with the BAT-AELs for new plants. To reduce risks further EPA has required verification of the FGCS as discussed above.

[221] EPA is satisfied risks of harm associated with air emissions are reduced so far as reasonably practicable using reference facilities, and where there are differences with the proposal, through those measures required to quantify impacts, risk assessments, and mitigation strategies.

Other than normal operating conditions (OTNOCs)

[222] State of knowledge provides information and controls for the avoidance and management of OTNOCs such as start-up, shutdown operations, leaks, malfunctions, momentary stoppages, and definitive cessation of operations. This is provided in:

- A review of the scientific literature on potential health effects in local communities associated with air emissions from Waste to Energy facilities (EPA, 2018c), and
- EU IED and the BREF and BATC 2019.

[223] The applicant has proposed a range of measures for the avoidance and management of OTNOCs to reduce risks of harm associated with air emissions. This includes auxiliary burners for boiler management and to ensure combustion stability during OTNOCs; backup CEMS system in case of failure of the primary system; backup power system for each incineration

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line to provide emergency power during OTNOCs; and plant and boiler maintenance measures to minimise plant downtime. In addition, EPA requires installation of an automatic system to prevent waste feed under specified OTNOCs (Condition [DL_W08/3](#)).

[224] The application has also detailed a proposed Project Risk Register. It will be developed and informed by a HAZOP and other technical risk studies as assessed in Section 6.1.1 of this assessment report. This informs the overarching OMS and EMS under which will sit a proposed air emissions management plan consistent with EPA Publication 1961 (EPA, 2022c) and 1695 (EPA, 2019). As noted above, this provides a system for implementing the ongoing steps in controlling air pollution risks consistent with minimising risk of harm so far as reasonably practicable. EPA considers it appropriate to validate the air emissions management plan alongside the final detailed design of the proposed facility and FGCS (Condition [DL_R04/10](#)).

[225] To reduce risks further, EPA requires that the air emissions management plan include a monitoring program for OTNOCs compliant with frequency and standards of the EU IED and BREF and BATC 2019, including reporting CEMS and COMS data during such scenarios or conditions (Condition [DL_R04/10](#)). This is consistent with BAT 5 of the BREF and BATC for monitoring emissions during OTNOCs. EPA also requires preparation of an OTNOC Management Plan as part of a summary of its EMS before commissioning. This is consistent with BAT 18 of the BREF and BATC for reducing the frequency of the occurrence of OTNOCs (Condition [DL_R01/2](#)).

[226] The Air Emission Impact assessment has been conducted to assess the potential impacts on human health and environment. The AQIA was conducted assuming ongoing emissions at the half-hourly 97th percentile emission limit under the EU IED for key indicators or the otherwise maximum emission level. This is considered a conservative representative of peak emissions during OTNOCs. The air emissions management plan must be accompanied by an air emission monitoring plan and OTNOC management plan consistent with the requirements of BAT 18.

[227] These plans must include shutdown protocols and specifications at a minimum consistent with the EU IED including Article 46(6) which states that “under no circumstances should an operator continue to incinerate waste for a period of more than 4 hours uninterrupted where emission limit values are exceeded nor the cumulative duration of operation in such conditions over 1 year shall not exceed 60 hours”. Article 47 also states that

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when in the case of a breakdown, the operator “shall reduce or close down operations as soon as practicable until normal operations can be restored”.

[228] EPA is satisfied risks of harm associated with air emissions are reduced so far as reasonably practicable through the use of reference facilities, and where there are differences with the proposal, through those measures required to quantify impacts, risk assessments, and mitigation strategies.

Commissioning and proof of performance

[229] State of knowledge provides for the circumstances and purpose of proof-of-performance commissioning of waste treatment and management facilities. This is a typical requirement of EPA’s permissioning arrangement for prescribed development activities and is also provided in:

- standard industry practice,
- EPA Publication 1559.1: Guideline: Energy from waste (EPA, 2017), and
- NSW Energy from Waste Policy Statement (NSW EPA, 2021a).

[230] The application proposes commissioning in Section 7.6. Commissioning will involve performance and reliability testing including the FGCS under operating conditions. Commissioning will validate that the performance of the air emission controls achieves the outcomes and environment performance standards set in the application, AQIA, or conditions of the development licence. This includes the BAT-AEL levels.

[231] Proof-of-performance testing is a critical benchmark of the EPC tender and EPA’s permissioning processes. EPA will not issue an operating licence for the activities until the development activities have been completed to its satisfaction and in accordance with the application and conditions of the development licence (Condition [DL_R03](#)).

Conclusion

[232] EPA has considered the impact or degree of harm to human health and environment for air emissions. This considers the residual risk after the abovementioned controls are imposed. This is assessed in detail in Section 6.2 below. This assessment considers the risks to be low and acceptable subject to conditions.

[233] EPA is satisfied that the application demonstrates a sufficient understanding of air emissions and the associated risks of hazards from the proposed activity. EPA is satisfied that the range of controls and performance standards incorporated into conditions will reduce the risk of harm from air emissions so far as reasonably practicable. This includes the

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ongoing administrative systems and processes for monitoring air emissions and contingency arrangements should risks of hazards occur.

EPA conclusion

- EPA is satisfied that the application proposes to take measures that will enable it to comply with the GED.
- EPA is satisfied that the application proposes to take measures consistent with the intent of section 25(4)(a)-(e).
- EPA is satisfied that the risk of harm to human health and environment for risks and hazards associated with air emissions have been minimised so far as reasonably practicable.

6.1.5 Noise

Identification of risk and degree of harm

[234] Noise and noise emissions are identified as being associated with a range of risks of hazards in the risk assessment in Section 6.3 and Table 6.5 of the application (item I.D. 002–004). The sources of noise identified include the construction, operational, and OTNOCs phases of the proposal. Sources of noise may also arise from truck movements during construction and operations, mechanical plant operations including fans and turbines during operations, and boiler safety valve releases during OTNOCs.

[235] The application has considered the likelihood and potential degree of harm or impact of noise emissions in the risk assessment which is supported by a noise impact assessment (NIA) and HHIA. Potential degree of harm has been considered from sleep disturbance, annoyance, disturbance of community amenity, employees' hearing impairment, through to impacts on cardiovascular health.

Knowledge of risk and availability and suitability of controls to eliminate or reduce risks.

[236] EPA recognises unwanted sound (including vibration) that is annoying, disturbing, or harmful as a common hazard of the waste and recycling industry (EPA, 2021c). EPA is satisfied that the application demonstrates an understanding of the noise emission risks of hazards associated with the proposed activities consistent with state of knowledge such as EPA WtE guidance (EPA, 2017), the EU IED and BREF and BATC 2019, and standard industry practice. EPA is also satisfied that the application has identified and assessed the risk of emitting unreasonable noise as determined in accordance with the EP Regulations and the Noise Protocol (EPA, 2021e).

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[237] EPA's detailed assessment of the application's NIA and HHIA is detailed in Section 6.2 below. EPA notes several methodological issues that impact the results. EPA also notes that the application has not adequately assessed low frequency noise emissions in accordance with preferred methodologies of EPA's *Noise guideline – Assessing low frequency noise* (EPA, 2021m). However, EPA is satisfied that the application has identified and assessed risks of noise emissions to a sufficient standard for the concept phase of this proposal subject to condition requiring submission of a revised NIA before commencing construction (Condition [DL_R04/13](#)).

[238] The application details measures in the concept design to reduce risks of hazards associated with noise emissions, as summarised in Table 17. The application has identified and considered noise controls for emissions during the proposal's construction, operation, and OTNOCs phases. The noise emission characterisation has been conducted for the operational phase of the project. It has been completed relying on information from similar projects and is generally in accordance with state of knowledge for similar activities utilising plant and equipment such as boilers, cooling towers, turbines, and fans.

[239] The final detailed design of the noise-generating plant and equipment will be confirmed through the detailed design phase but will adhere to the concept design in the application. The application acknowledges that at this stage the inventory of operational noise sources is preliminary in nature. Final selection of controls to eliminate or reduce risks of harm from noise emissions, and the noise outputs of individual plant and equipment, is dependent on completion of the EPC tender process and selection of the final technology vendors.

[240] The application details proposed measures to manage noise emissions in Sections 4.9.2, 6.3, 13, and Appendix E – NIA.

Cost of eliminating or reducing those risks

[241] EPA has given regard to costs of eliminating or reducing risks and is satisfied that the proposed or imposition of BATT measures as defined under the EU IED 2010/75/EU and BREF and BATC 2019 is proportionate to the risks of harm. Cost has not been raised by the Applicant as a substantive impediment for eliminating or reducing risks including through implementation of BATT.

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Table 17: Environmental control measures and performance standards – noise emissions

Stage	Measure
Engineering controls	<p>Construction</p> <ul style="list-style-type: none"> i. Use of a temporary noise damper on the steam blowing vent during start-up and commissioning. <p>Design and operation</p> <ul style="list-style-type: none"> i. Design enclosure for key noise-generating plant (boilers, turbines, tipping hall, flue gas treatment) ii. Boiler room roof and cladding: <ul style="list-style-type: none"> a. Concrete 100mm thick wall and roof cladding: iii. Flue gas cleaning hall, FW/RW pump room, Pump House, Denim Water Plant and Compressor House, Steam Turbine Hall, Tipping Hall wall and roof cladding: <ul style="list-style-type: none"> a. 0.55mm Sheet Steel + 50mm thick Foil-faced Fiberglass or RockWool insulation batts + 100mm air space + 9mm thick plywood or hardboard. iv. Substituting the Cooling Tower fans with low-noise fans. Specification of low-noise fans for cooling towers. v. Installing bespoke acoustic silencers for the Stack and major fans, e.g. hybrid reactive/dissipative silencers and/or plenums. vi. Selecting equipment with lower noise emissions. vii. Enclosing and /or lagging noise sources within the buildings. viii. Including sound absorptive internal linings on the inside wall and/or roof cladding surfaces within the buildings. ix. Considering alternative wall and/or roof cladding with more appropriate sound transmission properties. x. Rearranging the plant layout by using large buildings to provide additional acoustic shielding of major noise sources from the nearest noise receivers. xi. Rigorous and proactive complaints management process <p>OTNOC</p> <ul style="list-style-type: none"> i. Turbine bypass condenser avoiding venting via safety valve. ii. Orientate valves away from sensitive receptors where possible
Administrative controls	<p>Construction and commissioning</p> <ul style="list-style-type: none"> i. Contractor EPC tender evaluation and selection process ii. CEMP prepared by the contractor and approved by Council. iii. Construction undertaken in accordance with EPA Publication 480 and SEPPs, including scheduling operation of noisy machinery, maintenance of equipment and noise monitoring. iv. Use of a temporary noise damper on the steam blowing vent during start-up and commissioning. v. Advise local residents when unavoidable or excessive noise will occur. vi. Operator induction and training. vii. Rigorous and proactive complaints management process <p>Design and operation</p>

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Stage	Measure
	<ul style="list-style-type: none"> i. Further evaluation of controls during detailed design. ii. Contractor commissioning plan. iii. OEMP. iv. Operational & Maintenance manuals and effective maintenance schedules. v. Adherence to permitted hours for operation and waste transport. vi. Operator training. vii. Rigorous and proactive complaints management process. <p>OTNOC</p> <ul style="list-style-type: none"> i. Emergency procedures and emergency shutdown procedures. ii. Advise local residents when expected and unavoidable excessive noise work will occur.

Key considerations

[242] In reviewing the proposed noise emission controls, EPA notes the several key considerations. Where BAT and BATT are referenced for WtE facilities, refer to Section 6.4:

Site planning, plant layout and configuration

[243] State of knowledge provides information and control measures for eliminating or reducing risks of harm from noise emissions through site planning and management. This information is provided in:

- EPA Publication 1884: Site planning and management (EPA, 2021o), and
- EU IED and BREF and BATC 2019.

[244] The application considers site planning based on the proposed layout or site configuration shown in Figure 4. Truck movements and waste flow through the site have both been considered.

[245] The application has identified site planning, such as the location and positioning of buildings, equipment, and other infrastructure as a potential control for reducing risk of harm associated with noise emissions. This is consistent with BAT 37 techniques (a) and (d) of the BREF and BATC 2019 for reducing noise emissions. The applicant will investigate further use of these techniques through the detailed design phase with compliance with the Noise Protocol to be taken as the minimum performance benchmark. Site management will be conducted under an EMS which will include noise management plan supplemented by other administrative controls such as operational and maintenance manuals and effective maintenance schedules.

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[246] EPA is satisfied risks of harm associated with noise emissions are reduced so far as reasonably practical through the proposed implementation of site planning, layout, and configuration to be validated at the detailed design phase and before commencing construction (Condition [DL_R04/13](#)).

Plant and mechanical equipment

[247] State of knowledge provides information and control measures for eliminating or reducing risks of harm from noise emissions associated with operating plant and mechanical equipment. This information is provided in:

- EPA Publication 1892: Noise: vibration isolation (EPA, 2021p),
- EPA Publication 1886 Noise: barriers and enclosures (EPA, 2021q),
- EPA Publication 1887: Noise: duct attenuators or silencers (EPA, 2021r), and
- EU IED and BREF and BATC 2019.

[248] The application has identified selecting lower emission equipment as a potential control for eliminating or reducing risks associated with noise emissions. This includes but is not limited to use of low-noise fans for the cooling towers and bespoke acoustic silencers for the stack and major fans. This is consistent with EPA guidance and BAT 37 techniques (c) and (e) of the BREF and BATC 2019 for reducing noise emissions. The application has also specified minimum construction material and thickness standards for the structures housing key noise-generating equipment. As noted above, the applicant will investigate further use of these techniques while site management will be conducted under an EMS with supplementary administrative plans, controls, and systems.

[249] EPA is satisfied risks of harm associated with noise emissions are reduced so far as reasonably practicable through the proposed installation of low-noise-generating plant, mechanical equipment, and noise control measures to be validated at the detailed design phase and before commencing construction (Condition [DL_R04/13](#)).

Onsite vehicle movement

[250] State of knowledge provides information and control measures for eliminating or reducing risks of harm from noise emissions associated onsite vehicle movement. This is provided in:

- EPA Publication 1890: Managing noise from reversing alarms (EPA, 2021s), and
- EPA Publication 1891: Managing truck noise (EPA, 2021t).

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[251] EPA only considers risks associated with noise emissions from onsite vehicle movements. Offsite vehicle movements on roads are outside the regulatory role of EPA and form no part of this assessment.

[252] The application proposes to limit waste transport to less sensitive time, a one-way traffic system, automated traffic control system for waste tipping, and traffic control systems including lights and automated door opening to manage traffic entering and exiting the waste tipping hall. This is provided for both safety and general site management purposes. However, it will also contribute to the reduction of noise by optimising traffic flow, reducing vehicle reversing, and avoiding unnecessary or complex vehicle movements. These measures are considered consistent with the guidance referenced above.

[253] EPA is satisfied risks of harm associated with noise emissions are reduced so far as reasonably practicable through the proposed implementation of onsite vehicle management. However, additional noise control measures for truck movements may be identified during the detailed design to ensure that noise does not contribute to noise that exceeds the noise limits (refer to Section 6.2.4) (Condition [DL_R04/13](#)).

Other than normal operating conditions

[254] State of knowledge provides information and control measures for the avoidance and management of OTNOCs such as start-up, shutdown operations, safety valve releases, malfunctions, momentary stoppages, and definitive cessation of operations. This is provided in:

- EPA Publication 1559.1: Guideline: Energy from waste (EPA, 2017), and
- EU IED and BREF and BATC 2019.

[255] The application has identified noise attenuation and control equipment/infrastructure measures as potential measures for eliminating or reducing risk of harm associated with noise emissions during OTNOCs including commissioning. This includes such measures as positioning or orienting noise-generating sources such as safety valves away from sensitive receptors where possible. It also proposes such measures as the use of a turbine bypass condenser to eliminate or reduce venting via safety valves. This is consistent with BAT 37 techniques (c) and (d) of the BREF and BATC 2019 for reducing noise emissions. As noted above, the applicant will investigate further use of such techniques through the detailed design phase. The application also specifies operational measures such as an EMS which will include noise management plan supplemented by other administrative controls such as operational and maintenance manuals,

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effective maintenance schedules, emergency and emergency shutdown procedures, and a complaints management process in case noise emissions are experienced at nearest noise receivers. These are considered consistent with technique BAT 37(b).

[256] EPA is satisfied risks of harm associated with noise emissions are reduced so far as reasonably practicable through the proposed implementation of controls for OTNOCs including commissioning to be validated at the detailed design phase and before commencing construction (Condition [DL_R04/13](#)).

Commissioning and proof of performance

[257] State of knowledge provides for the circumstances and purpose of proof-of-performance commissioning of waste treatment and management facilities. This is a typical requirement of EPA's permissioning arrangement for prescribed development activities and is also provided in:

- standard industry practice,
- EPA Publication 1559.1: Guideline: Energy from waste (EPA, 2017), and
- NSW Energy from Waste Policy Statement (NSW EPA, 2021a).

[258] The application proposes commissioning in Section 7.6. Commissioning will involve performance and reliability testing including noise level testing of plant and equipment under operating conditions. Commissioning will validate that the performance of the noise emission controls achieves the outcomes and environment performance standards set in the application, NIA, or conditions of the development licence.

[259] Proof-of-performance testing is a critical benchmark of the EPC tender and EPA's permissioning processes. EPA will not issue an operating licence for the activities until the development activities have been completed to its satisfaction and in accordance with the application and conditions of the development licence (Condition [DL_R03](#)).

Conclusion

[260] EPA has considered the impact or degree of harm to human health and environment from noise emissions. This considers the residual risk after the abovementioned controls are imposed. This is assessed in detail in Section 6.2 below. This assessment considers the risks to be low and acceptable subject to conditions.

[261] EPA is generally satisfied that the application demonstrates a sufficient understanding of noise risks associated with the proposed activity. EPA is satisfied that the range of noise controls should be sufficient to reduce the

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risk of harm from noise emissions so far as reasonably practicable. This includes the ongoing administrative systems and processes for monitoring noise emissions should they occur.

EPA conclusion:

- EPA is satisfied that the application proposes to take measures that will enable it to comply with the GED.
- EPA is satisfied that the application proposes to take measures consistent with the intent of section 25(4)(a)-(e).
- EPA is satisfied that the risk of harm to human health and environment for risks and hazards associated with noise emissions have been minimised so far as reasonably practicable.

6.1.6 Water, wastewater and stormwater

Identification of risk and degree of harm

[262] Wastewater and stormwater management is identified as being associated with a range of potential hazards in the risk assessment in Section 6.3 and Table 6.5 of the application (Item I.D. 012 – 014). The application does not propose any emissions of wastewater to surface water. However, it acknowledges the potential risks of hazards caused by accidents such as leaks and spills or contamination breaches of wastewater and stormwater infrastructure.

[263] The application has considered the likelihood and potential degree of harm or impact of wastewater and stormwater management throughout the application including the risk assessment. The applicant has not provided any land or groundwater impact assessments as it does not propose any licensable or permissible emission to land, surface water or groundwater.

Knowledge of risk and availability and suitability of controls to eliminate or reduce risks.

[264] EPA recognises surface run-off from rain and storms that enters Victoria's waterways or any water that has been 'used' or is in excess and is not wanted for use, whether untreated or partially treated as common hazards of the waste and recycling industry (EPA, 2021c). EPA is satisfied that the application demonstrates an understanding of the water, wastewater, and stormwater risks of hazards associated with the proposed activities consistent with state of knowledge such as:

- EPA Publication 1698: Liquid storage and handling guidelines (EPA, 2018b),

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- EPA Publication 1559.1: Guideline: Energy from waste (EPA, 2017),
- State Environment Protection Policy (Waters) (Victorian Government, 2018),
- EU IED and BREF and BATC 2019, and
- standard industry practice.

[265] EPA is also satisfied that the application has identified and assessed risks of hazards in accordance with acceptable methods (EPA, 2019).

[266] The application details measures to reduce risks of hazards associated with water, wastewater and stormwater management, as summarised in Table 18. Identification of controls is informed by activity site-specific characteristics including meteorology, topography, proximity to waterways, access to water and sewage infrastructure, and local stormwater infrastructure. The final detailed design of the wastewater and stormwater management infrastructure will be confirmed through the detailed design phase but will adhere to the concept design of the application.

[267] The application details proposed measures to manage incoming waste in Sections 6.3 and 10.

Cost of eliminating or reducing those risks

[268] EPA has given regard to costs of eliminating or reducing risks and is satisfied that the proposed or imposition of BATT measures as defined under the EU IED 2010/75/EU and BREF and BATC 2019 is proportionate to the risks of harm. Cost has not been raised by the applicant as a substantive impediment for eliminating or reducing risks including through implementation of BATT.

Table 18: Environmental control measures and performance standards – water, wastewater and stormwater

Stage	Measure
Engineering controls	Design and operation <ol style="list-style-type: none"> i. Appropriate design of drainage network and stormwater detention pond for 1:100-year average recurrence interval. ii. Design of plant, bunding, chemical storage and spill management systems in accordance with EPA Publication 1698: Liquid Storage and Handling Guidelines and relevant Australian Standards
Administrative controls	Construction <ol style="list-style-type: none"> i. Development and implementation of CEMP Design and operation <ol style="list-style-type: none"> i. Operational and Maintenance manuals and effective maintenance schedules. ii. Operator training iii. Development of chemical management and handling procedures

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Stage	Measure
	iv. Sediment and erosion management v. Vehicle inspection and maintenance programs vi. Waste inspection protocols OTNOC i. Emergency Response Procedures ii. Transport Emergency Response Plan

Key considerations

[269] In reviewing the proposed water, wastewater and stormwater management controls, EPA notes the following key considerations. Where BAT and BATT are referenced for WtE facilities, refer to Section 6.4.

Water consumption

[270] State of knowledge provides information and control measures for eliminating or reducing risks of harm associated with water consumption. This is provided in:

- EP Act's principle of waste management hierarchy,
- State Environment Protection Policy (Waters) (Victorian Government, 2018), and
- EU IED 2010/75/EU and BREF and BATC 2019.

[271] The application has estimated operational potable water demand of approximately 2.5 ML per day or 820 ML per year to be supplied by Barwon Water. This demand is generated by equipment such as the water-cooled condensers and cooling towers. This option has been selected over air-cooled condensers because of its long-term tolerance for increases in ambient temperatures and forms part of its climate change adaptation and mitigation measures. As noted in Section 6.6 – and following referral agency response from Barwon Water – the applicant has committed to investigate the use of recycled water as an alternative to reduce demand on the region's potable water supply.

[272] The application has also committed to harvesting rainwater from the facility's roofs to further reduce demand. The applicant has specified that best practice water management performance standards will be included in the EPC tender process. As part of this the successful bidder will need to produce a water balance demonstrating best practice in water management.

[273] EPA is satisfied risks of harm associated with water consumption are reduced so far as reasonably practical through the proposed reuse or

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harvesting of rainwater and the investigation into the use of recycled water to be validated at the detailed design phase and before commencing construction (Condition [DL_R04/16](#)).

Wastewater management

[274] State of knowledge provides information and control measures for eliminating or reducing risks of harm associated with wastewater management. This information is provided in:

- EPA Publication 1698: Liquid storage and handling guidelines (EPA, 2018b),
- EPA Publication 1559.1: Guideline: Energy from waste (EPA, 2017),
- EU IED 2010/75/EU and BREF and BATC 2019, and
- Barwon Water requirements.

[275] The application notes that the proposal will not generate high-risk wastewater streams. The wet bottom ash extraction system will be a net consumer of water while the FGCS has been designed to be waste-water-free. These controls are considered consistent with the techniques of BAT 32 and 33 of the BREF and BATC 2019.

[276] Filter backwash and cooling tower blowdown are identified as the primary sources of wastewater. This wastewater will be directed to a dedicated holding pond before discharge to sewer. This will require the applicant to enter into a Trade Waste Agreement with Barwon Water. The applicant has provided an estimated wastewater discharge to sewer of approximately 0.4 ML per day. The application has set preliminary environmental performance target for the discharge to sewer in Table 10 of Section 10.1.1.8 of the application. The applicant will monitor sewage discharges in accordance with a Trade Waste Agreement with Barwon Water. The application has also identified these wastewater streams suitable for reuse in the wet bottom ash handling system if proven fit-for-purpose also consistent with techniques of BAT conclusion 33.

[277] The application proposes a wastewater holding pond for wastewater before discharged to sewer under a Trade Waste Agreement. Its sizing is estimated based on set parameters as detailed in Appendix M. The holding pond's final capacity will be confirmed during the detailed design phase. As noted above, best practice water management performance standards will be included in the EPC tender process including a final water balance.

[278] EPA is satisfied risks of harm associated with wastewater management will be reduced so far as reasonably practicable through the proposed minimisation of wastewater generation, reuse of generated wastewater, and management via a Trade Waste Agreement to be validated at the

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detailed design phase and before commencing construction (Condition [DL_R04/16](#)).

Stormwater management

[279] State of knowledge provides information and control measures for eliminating or reducing risks of harm associated with stormwater management. This information is provided in:

- EPA Publications 1739.1: Urban stormwater management guidance (EPA, 2021f),
- EPA Publication 1698: Liquid storage and handling guidelines (EPA, 2018b), and
- State Environment Protection Policy (Waters) (Victorian Government, 2018).

[280] The application has characterised the surrounding environment that may impact or be impacted by stormwater management practices. As noted in Section 2 of this assessment report, the activity site is not affected by any waterways or bodies of water, nor is it affected by relevant overlays such as the Land Subject to Inundation Overlay.

[281] The application proposes a stormwater management system comprising a sitewide stormwater drainage system. This system will capture and convey stormwater from all impermeable surfaces. This includes roofs, roads, parking areas, clean concrete and clean hardstand areas. Stormwater will be directed into a stormwater detention pond before discharge into the City of Greater Geelong's stormwater system.

[282] Stormwater that falls within areas with risks of potential contamination, such as bunded chemical storage areas, will be segregated from the stormwater drainage system eliminating a potential pathway of contamination consistent with EPA Publication 1698: Liquid storage and handling guidelines (EPA, 2018b). This stormwater will be managed as wastewater and will be discharged to sewer in accordance with any requirements of a Trade Waste Agreement.

[283] The application has also set performance standards for the sizing of the stormwater detention pond based on a 1 in 10-year storm event and the stormwater drainage system of 1 in 100-year average recurrence interval. It also proposes to harvest stormwater from roofs as a measure for reducing potable water demand consistent with the principle of the waste hierarchy and the reduction of stormwater run-off. These performance standards will be validated during the detailed design phase (Condition [DL_R04/16](#)).

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Conclusion

[284] EPA is satisfied that the application demonstrates a sufficient understanding of water, wastewater and stormwater management risks associated with the proposal. EPA is satisfied that the range of controls and performance standards incorporated into conditions will reduce the risk of harm from water, wastewater and stormwater management risks so far as reasonably practicable. This includes the ongoing administrative systems and processes for monitoring construction activities and contingency arrangements should risks of hazards occur.

EPA conclusion

- EPA is satisfied that the application proposes to take measures that will enable it to comply with the GED.
- EPA is satisfied that the application proposes to take measures consistent with the intent of section 25(4)(a)-(e).
- EPA is satisfied that the risk of harm to human health and environment for risks and hazards associated with water, wastewater and stormwater can be minimised so far as reasonably practicable.

6.1.7 Land and groundwater

Identification of risk and degree of harm

[285] Land and groundwater management are identified as a being associated with a range of potential hazards in the risk assessment in Section 6.3 and Table 6.5 of the application (Item I.D. 012-015). The application does not propose any emissions of waste to land or groundwater. However, it acknowledges the potential risk caused by accidents such as chemical spills, leaks, or failures of containment measures. Potential sources of unintended emissions to land or groundwater includes handling and storing chemicals and fuels as part of plant operations, handling and storing incoming and outgoing waste streams and leachate in the waste bunker.

[286] The application has considered the likelihood and potential degree of harm or impact associated with land and groundwater management throughout the application including the risk assessment. The applicant has not provided any land or groundwater impact assessment as it does not propose any licensable or permissible emission to land or groundwater. However, desktop and site investigations were conducted to inform identification of risks of hazards detailed in Appendix H: Desktop Flora and Fauna Assessment, Appendix I: Land and Groundwater Contamination

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Assessment, and Appendix J: Land and Groundwater Contamination Site Investigation Report in the application.

Knowledge of risk and availability and suitability of controls to eliminate or reduce risks.

[287] EPA recognises chemical spills and other breaches of waste containment measures as a common hazard of the waste and recycling industry (EPA, 2021c). EPA is satisfied that the application has demonstrated an understanding of the proposed activities consistent with state of knowledge such as:

- EPA Publication 1698: Liquid storage and handling guidelines (EPA, 2018b),
- EPA Publication 1559.1: Guideline: Energy from waste (EPA, 2017),
- State Environment Protection Policy (Waters) (Victorian Government, 2018),
- [Dangerous Goods handling framework](#) and subordinate legislation,
- relevant Australian Standards including AS1940:2017: The storage and handling of flammable and combustible liquids, and
- EU IED and BREF and BATC 2019.

[288] The application details measures to reduce risks of hazards associated with land and groundwater, as summarised in Table 19. Identification of controls is informed by development and operating activities such as waste storage, fuel storage for the auxiliary burners and backup power systems, and chemical storage used as part of the FGCS. Their identification is also informed by site-specific characteristics including topography, distance to groundwater table and existing land and soil conditions. The final detailed design of land and groundwater management infrastructure will be confirmed through the detailed design phase but will adhere to the concept design of the application.

[289] The application details proposed measures to manage incoming waste in Sections 6.3, 7, 10 and 15 and Appendix J of the application, and RFI responses. Please note, where overlapping risks are more relevant to other segments or categories – such as incoming and outgoing waste management – they are assessed in those sections of this assessment report.

Cost of eliminating or reducing those risks

[290] EPA has given regard to costs of eliminating or reducing risks and is satisfied that the proposed or imposition of BATT measures as defined under the EU IED 2010/75/EU and

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BREF and BATC 2019 is proportionate to the risks of harm. Cost has not been raised by the Applicant as a substantive impediment for eliminating or reducing risks including through implementation of BATT.

Table 19: Environmental control measures and performance standards – land and groundwater

Stage	Measure
Engineering controls	Design and operation <ol style="list-style-type: none"> i. Design of plant, bunding, chemical storage and spill management systems in accordance with: <ol style="list-style-type: none"> a. EPA Publication 1698: Liquid storage and handling guidelines and relevant Australian Standards b. <i>Dangerous Goods Act 1985</i> and associated regulations c. AS1940:2017 The storage and handling of flammable and combustible liquids
Administrative controls	Construction <ol style="list-style-type: none"> i. Development and implementation of CEMP Design and operation <ol style="list-style-type: none"> i. Operational & Maintenance manuals and effective maintenance schedules. ii. Operator training iii. Development of chemical management and handling procedures iv. Sediment and erosion management v. Vehicle inspection and maintenance programs vi. Waste inspection protocols OTNOC <ol style="list-style-type: none"> i. Emergency Response Procedures ii. Transport Emergency Response Plan

Key considerations

[291] In reviewing the proposed outgoing land and groundwater controls, EPA notes the following key considerations. Where BAT and BATT are referenced for WtE facilities, refer to Section 6.4.

Chemical, fuels and dangerous goods storage

[292] State of knowledge provides information and control measures for eliminating or reducing risks of harm associated with storage and handling of chemicals, fuels and similar material classified as dangerous goods. This is provided in:

- EPA Publication 1698: Liquid storage and handling guidelines (EPA, 2018b),
- EPA Publication 1667.3: Management and storage of combustible recyclable and waste materials – guideline (EPA, 2021g),
- EPA Publication 1559.1: Guideline: Energy from waste (EPA, 2017),

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- State Environment Protection Policy (Waters) (Victorian Government, 2018),
- [Dangerous Goods handling framework](#) and subordinate legislation,
- relevant Australian Standards including AS1940:2017: The storage and handling of flammable and combustible liquids, and
- EU IED and BREF and BATC 2019.

[293] The application has identified likely materials to be stored or managed at the activity site. This may include lime, activated carbon, urea (or ammonia), alum, carbonates and auxiliary fuels. The exact type and quantities of chemicals and fuels to be stored on site will be confirmed during the detailed design phase. The application has specified relevant controls and environmental performance standards. Chemical, fuel and other dangerous goods storage will be designed to comply with the Victoria's dangerous goods framework under the *Dangerous Goods Act 1985* and subordinate legislation.

[294] These will also be designed in accordance with Australian Standard *AS1940:2017: The storage and handling of flammable and combustible liquids* and EPA Publication 1698. The applicant has committed to consulting with WorkSafe and the Fire Rescue Victoria on the storage and handling arrangements for dangerous goods as part of the detailed design phase. Impervious surfaces (e.g. concrete slabs) will be used within high-risk activity areas including the waste tipping hall and waste bunker. This will eliminate or reduce the risk of chemical or fuel spills infiltrating groundwater or impacting land. These measures are consistent with techniques of BAT 12 of the EU IED and BREF and BATC 2019. These controls will be augmented by the use of chemical management and handling procedures.

[295] EPA is satisfied risks of harm associated with storage and handling of chemicals, fuels and similar material classified as dangerous goods are reduced so far as reasonably practicable through the proposed implementation and performance standards for storage techniques, impervious surfaces, bunding and other relevant controls to be validated at the detailed design phase and before commencing construction (Condition [DL_R04/13](#)). This must be endorsed by a suitably qualified EPA-appointed auditor before construction.

Construction, waste bunker and groundwater

[296] State of knowledge provides information and control measures for eliminating or reducing risks of harm associated with interacting or

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encountering groundwater and groundwater contamination. This is provided in:

- EPA guidance: About groundwater (EPA, 2023b),
- EPA Publication 1698: Liquid storage and handling guidelines (EPA, 2018b),
- EPA Publication 1667.3: Management and storage of combustible recyclable and waste materials – guideline (EPA, 2021g),
- State Environment Protection Policy (Waters) (Victorian Government, 2018),
- WorkSafe Victoria's Industry standard: Contaminated construction sites (WorkSafe, 2017),
- EPA Publication 1559.1: Guideline: Energy from waste (EPA, 2017),
- EU IED and BREF and BATC 2019, and
- other resources such as [Visualising Victoria's Groundwater](#) and [Victoria Unearthed](#).

[297] The applicant has identified a risk of encountering groundwater during the construction phase of the project. Sites excavations may occur to a depth of 11 m below ground level during construction primarily in relation to the waste bunker. The application has undertaken a characterisation of the land and groundwater environments as part of Appendix J: Land and Groundwater Contamination – Site Investigation Report. The site investigation included installation a single monitoring well which encountered groundwater 2.25 m above the base of the proposed excavation or approximately 9 m below ground level.

[298] The applicant does not propose construction of underground storage of petroleum, groundwater extraction, or injection of waste to groundwater. The application has identified an environmental performance standard of the EPC tender process will specify measures to protect groundwater, including appropriate management of groundwater and no disposal of water to groundwater. This will be incorporated into the proposed CEMP (Condition [DL_R04/20](#)).

[299] Risk to land and groundwater during operational phase will be reduced by the use of impervious surfaces (e.g. concrete slabs) within high-risk activity areas including the waste tipping hall and waste bunker. This will reduce the risk of leachate, wastewater, or chemical or fuel spills infiltrating groundwater or impacting land. These measures are consistent with techniques of BAT 12 of the EU IED and BREF and BATC 2019.

[300] EPA is satisfied risks of harm associated construction of the waste bunker and groundwater interaction during the construction and

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operational phases are reduced so far as reasonably practicable through the proposed implementation and performance standards for construction under the CEMP, impervious surfaces, and storage controls to be validated at the detailed design phase and before commencing construction (ConditionDL_R04/13). This must be endorsed by a suitably qualified EPA-appointed auditor before commencing construction.

Conclusion

[301] EPA is satisfied that the application demonstrates a sufficient understanding of land and groundwater risks associated with the proposal. EPA is satisfied that the range of controls and performance standards incorporated into conditions will reduce the risk of harm associated with land and groundwater management so far as reasonably practicable. This includes the ongoing administrative systems and processes for monitoring construction activities and contingency arrangements should risks of harm to human health and the environment occur.

EPA conclusion

- EPA is satisfied that the application proposes to take measures that will enable it to comply with the GED.
- EPA is satisfied that the application proposes to take measures consistent with the intent of section 25(4)(a)-(e).
- EPA is satisfied that the risk of harm to human health and environment for risks and hazards associated with land and groundwater management can be minimised so far as reasonably practicable.

6.1.8 Odour

Identification of risk and degree of harm

[302] Odour and odour emissions are identified as being associated with a range of potential risks of hazards in the risk assessment in Section 6.3 and Table 6.5 of the application (item I.D. 007). The sources of odour including during operational and OTNOCs phases of the proposed activity are the receipt, storage and management of the MSW and C&I waste feedstock.

[303] The application has considered the likelihood and potential degree of harm or impact of odour in the risk assessment and its HHIA – these are assessed in Section 6.2 of this assessment report. Potential degree of harm has been considered from fugitive emissions with consideration of impacts including annoyance, stress and anxiety.

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Knowledge of risk and availability and suitability of controls to eliminate or reduce risks.

[304] EPA recognises unwanted odour or gases in the air that can cause an unpleasant smell as a common hazard of the waste and recycling industry (EPA, 2021c). EPA is satisfied that the application demonstrates an understanding of the odour emission risks of hazards associated with the proposed activities consistent with state of knowledge such as:

- EPA Publication 1559: Energy from waste guideline (EPA, 2017), and
- EU IED and BREF and BATC 2019.

[305] EPA is also satisfied that the application has identified and assessed risks of odour emissions in accordance with EPA recommended methodologies (EPA, 2022d) subject to a submission of an updated assessment based on the final detailed design of the facility before commencing construction (Condition [DL_R04/12](#)).

[306] The application details measures in the concept design to reduce risks of hazards associated with odour emissions, as summarised in Table 20. Identification of controls is informed by the characteristics of MSW and C&I waste including its putrescible content. The application has identified and considered odour controls for emissions during the proposal's normal and other than normal operating conditions. The identification of odour controls is also informed by site-specific characteristics including distance to sensitive receptors. The final detailed design of odour emissions controls will be confirmed through the detailed design phase but will adhere to the concept design of the application.

[307] The application details proposed measures to manage odour emissions in Sections 4.2.7 and RFI response (21 November 2022).

Cost of eliminating or reducing those risks

[308] EPA has given regard to costs of eliminating or reducing risks and is satisfied that the proposed or imposition of BATT measures as defined under the EU IED 2010/75/EU and BREF and BATC 2019 is proportionate to the risks of harm. Cost has not been raised by the applicant as a substantive impediment for eliminating or reducing risks including through implementation of BATT.

Table 20: Environmental control measures and performance standards – odour

Stage	Measure
Engineering controls	Design and operation <ol style="list-style-type: none"> Design of tipping hall to avoid odour escape, including the following features:

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	<ul style="list-style-type: none"> a. Tipping hall maintained under negative pressure. b. Automated roller doors for vehicle entry c. Odours and air captured and combusted through boilers. d. Boiler design to eliminate most VOCs and odours. e. Odour monitoring and application of deodorisers if required. <ul style="list-style-type: none"> ii. Maintenance of negative pressure above the bunker at all times when one or more combustion line is in operation. The air from the tipping hall should be ducted to the inlet of the primary air fan for the combustion line(s) and combusted in the main furnace. <p>OTNOC</p> <ul style="list-style-type: none"> i. A stack (approximately 20m high) ventilation shutdown system to maintain negative pressure in the bunker and tipping hall, and an odour filtration system (an activated carbon odour control) prior to the discharge point located on the facility roof for good dispersion. ii. During an event when no combustion lines are operating (i.e., a short-term boiler outage), suitable systems and procedures will need to be provided to minimise odour generated from waste remaining in the bunker. This will include at a minimum, a shutdown ventilation stack system to maintain negative pressure in the bunker and tipping hall, an inline odour filtration system prior to the discharge point which will be located on the facility roof for good dispersion. iii. A backup diesel generator is also available that can run the backup odour control system.
Administrative controls	<p>Design and operation</p> <ul style="list-style-type: none"> i. Odour Management Plan would be developed during the detailed design stages and revised upon commissioning/testing to establish procedures to identify risks, manage impacts in accordance with agreed standards, objectives or targets, and monitor overall environmental performance during operation of the plant. ii. Delivery of MSW feedstock in enclosed containers iii. Odour monitoring and application of deodorisers if required.

Key considerations

[309] In reviewing the proposed odour emission controls, EPA notes several key considerations. Where BAT and BATT are referenced for WtE facilities, refer to section 6.4.

Waste tipping hall and bunker

[310] State of knowledge provides control measures for eliminating or reducing risks of harm from odour emissions. This is provided in:

- Odour advice for businesses (EPA, 2023c),
- EPA Publication 1883: Guidance for assessing odour (EPA, 2022d),
- EPA Publication 1559.1: Guideline: Energy from waste (EPA, 2017), and
- EU IED and BREF and BATC 2019.

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[311] The application proposes odour controls for eliminating or reducing risk of harm associated with odour emissions during operations. This includes receiving waste in enclosed vehicles and limiting waste tipping or auditing to within the waste tipping hall. This hall will be maintained under slight negative atmospheric pressure with the air injected into the incineration furnace as part of plant operation. Negative pressure can be maintained while at least one of the two lines are operating. This eliminates most odour from the waste storage area and tipping hall and is consistent with BAT measures detailed in the BREF 2019. This plant feature is supported by automated roller doors for vehicle entry to minimise the risk of odour exiting from those sources.

[312] Odour monitoring will be conducted under an Odour Monitoring Plan which will sit within the EMS. It will establish procedures to identify risk, monitor impacts based on environmental performance standards, and manage impacts if any occurs. It will assess odour emission in general accordance with EPA Publication 1883.

[313] EPA is satisfied risks of harm associated with odour emissions are reduced so far as reasonably practicable through the proposed implementation of negative atmospheric pressure and injection of air into the incineration furnace to be validated at the detailed design phase and before commencing construction (Condition [DL_R04/12](#)).

Other than normal operating conditions

[314] State of knowledge provides control measures for eliminating or reducing risks of harm from odour emissions during OTNOCs. This is provided in:

- Odour advice for businesses (EPA, 2023c),
- EPA Publication 1883: Guidance for assessing odour (EPA, 2022d), and
- EU IED and BREF and BATC 2019 (EPA, 2017).

[315] The application proposes odour controls for eliminating or reducing risk of harm associated with odour emissions during OTNOCs. This includes provision of a backup odour control and power systems to maintain negative pressure in the event of total plant shutdown of both lines. The air will be treated via a carbon filtration system before discharge from a 20-metre stack. This is consistent with techniques of BAT 21 which is further supplemented by optimisation of waste storage capacity in the waste bunker.

[316] As noted above, the applicant proposes an Odour Monitoring Plan which will sit within or under the EMS. EPA also considers it appropriate to require

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preparation of a waste management contingency plan to further reduce risks of harm from odour during OTNOCs (Condition [DL_R01\(2\)](#)). The purpose of this Plan is to identify alternative waste management arrangements in the event of a long duration shutdown of the plant.

[317] EPA is satisfied risks of harm associated with odour emissions are reduced so far as reasonably practical through the proposed implementation of a backup odour control and power systems to be validated at the detailed design phase and before commencing construction (Condition [DL_R04/12](#)).

Commissioning and proof of performance

[318] State of knowledge provides for the circumstances and purpose of proof-of-performance commissioning of waste treatment and management facilities. This is a typical requirement of EPA's permissioning arrangement for prescribed development activities and is also provided in standard industry practice and:

- EPA Publication 1559.1: Guideline: Energy from waste (EPA, 2017), and
- NSW Energy from Waste Policy Statement (NSW EPA, 2021a).

[319] The application proposes commissioning in Section 7.6. Commissioning will involve performance and reliability testing to detect any occurrence of any odour emissions under operating conditions. Commissioning will validate that the performance of the odour emission controls achieves the outcomes and environment performance standards set in the application and conditions of the development licence.

[320] Proof-of-performance testing is a critical benchmark of the EPC tender and EPA's permissioning processes. EPA will not issue an operating licence for the activities until the development activities have been completed to its satisfaction and in accordance with the application and conditions of the development licence (Condition [DL_R03](#)).

Conclusion

[321] EPA has considered the impact, nature and degree of harm to human health and environment for odour emissions. This considers the residual risk after the abovementioned controls are imposed. This is assessed in detail in Section 6.2 below. This assessment considers the risks to be low and acceptable subject to conditions.

[322] EPA is generally satisfied that the application demonstrates a sufficient understanding of odour risks associated with the proposed activity. EPA is satisfied that the range of controls and performance standards should be

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sufficient to reduce the risk of harm from odour emissions so far as reasonably practicable. This includes the ongoing administrative systems and processes for monitoring odour emissions should they occur.

EPA conclusion

- EPA is satisfied that the application proposes to take measures that will enable it to comply with the GED.
- EPA is satisfied that the application proposes to take measures consistent with the intent of section 25(4)(a)-(e).
- EPA is satisfied that the risk of harm to human health and environment for risks and hazards associated with odour emissions can be minimised so far as reasonably practicable.

6.1.9 Waste (incoming)

Identification of risk and degree of harm

[323] Incoming waste is associated with a range of potential risks of hazards in the risk assessment in Section 6.3 and Table 6.5 of the application (Item I.D. 001, 014–018). The primary source of incoming waste is the application's proposed acceptance of 400,000 tonnes per year of waste comprising 80% residual MSW and 20% C&I waste.

[324] Waste will be deposited into a waste bunker before being thermally treated in the moving grate combustion furnace to recover energy. Hazards associated with incoming waste include the targeted waste falling outside design parameters of the facility, and acceptance or processing waste outside the targeted waste parameters. This may impact the activity's performance including the effectiveness of energy recovery, air emission performance controls, plant maintenance and the composition of residual wastes such as IBA.

[325] The application has considered the likelihood and potential degree of harm or impact associated with incoming waste throughout the application including the risk assessment and the HHIA (see Section 6.2 for a full assessment of the HHIA). Potential degree of harm has been considered for potential impacts on offsite communities. Please note, where overlapping risks are more relevant to other segments or categories – such as GHG, air or noise emissions – they are assessed in those sections of this assessment report.

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Knowledge of risk and availability and suitability of controls to eliminate or reduce risks.

[326] EPA recognises receipt, storage, handling and management of waste or any matter, whether solid, liquid, gaseous or radioactive, as a common hazard of the waste and recycling industry (EPA, 2021c). EPA is satisfied that the application demonstrates an understanding of the incoming waste risks of hazards associated with the proposed activities consistent with state of knowledge such as:

- [Victorian Waste to Energy Framework](#),
- Guidelines for auditing kerbside waste in Victoria (SV, 2013), EPA Publication 1559.1: Guideline: Energy from waste (EPA, 2017), and
- the EU IED and BREF and BATC 2019.

Incoming waste management controls

[327] The application details measures in the concept design to reduce risks of harm associated with incoming waste management so far as reasonably practicable, as summarised in

[328] Table 21. These controls are detailed in the application in Sections 5.5.5 and 6.

[329] An audit of targeted waste is required to further refine understanding of waste characteristics and inform detailed design. This will inform the development of a Waste Acceptance Criteria and associated waste delivery protocol and procedures. Ongoing incoming waste auditing and monitoring procedures are proposed to ensure waste is suitable for optimisation of the thermal treatment and performance parameters of the energy recovery and FGC systems.

Cost of eliminating or reducing those risks

[330] EPA has given regard to costs of eliminating or reducing risks and is satisfied that the proposed or imposition of BATT measures as defined under the EU IED 2010/75/EU and BREF and BATC 2019 is proportionate to the risks of harm.

Table 21: Environmental control measures and performance standards – waste (incoming)

Stage	Measure
Engineering controls	Design and operation <ol style="list-style-type: none"> Containment bay in tipping hall for rejected waste within the hall so that further inspection can be undertaken.

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Stage	Measure
	<ul style="list-style-type: none"> ii. Sufficient space in the tipping hall will be provided for a waste audit pad that allows up to 10 tonnes of waste to be spread and inspected. iii. Number plate recognition software to track incoming and outgoing vehicles. iv. Waste crane grabber. v. 30m³ hook bin skip for waste that is found to be unsuitable, but not hazardous (e.g. oversized or non-combustible waste). vi. fire detection and protection systems for the waste bunker will comply with the Victorian Government Publication: <i>Management and storage of combustible recyclable and waste materials – Guideline</i>, Publication 1667 (August 2017) and with the required Australian Fire Protection Authority codes and standards applicable. These shall at a minimum include the following measures: <ul style="list-style-type: none"> a. Infrared fire detection matrix system b. Carbon monoxide detectors located around the bunker area. c. Remote-control operated fire cannons mounted on the bunker walls, which can pivot to cover the entirety of the bunker area, capable of both manual and remote control from the central control room. d. Fire hose reels that can be manually operated e. Atomiser mist sprays for dust control to prevent build-up of dust on surfaces in the bunker and tipping hall
Administrative controls	<p>Design and operation</p> <ul style="list-style-type: none"> i. Understand the composition of feedstock material by undertaking a waste compositional analysis. <ul style="list-style-type: none"> a. Prospect Hill will also undertake a waste audit of MSW waste that will be targeted by the Project to provide further analytical data of the combustion parameters of the waste material. The audit framework will be designed in accordance with Sustainability Victoria document 'Guidelines for the auditing of Kerbside Waste in Victoria' and analyse waste over a 12-month period to capture waste seasonality. ii. Waste Acceptance Criteria <ul style="list-style-type: none"> a. The plant will accept residual MSW, and C&I wastes only. b. Waste input feedstock acceptance criteria included in waste supply contracts. iii. Feedstock delivery protocol <ul style="list-style-type: none"> a. Two onsite weighbridges used for calculating waste quantities, one at the entrance and one at the exit. Vehicles arriving onsite will be logged and weighed to determine the amount of feedstock. b. Number plate recognition software will be installed to track incoming and outgoing vehicles. The origin of the waste and vehicle will be recorded for auditing purposes. c. The feedstock will be visually inspected by staff members to confirm feedstock does not have any obvious physical

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Stage	Measure
	<p>contamination. Visual inspections will also be used to determine problems or hazards.</p> <ul style="list-style-type: none"> d. If a problem or hazard is suspected, the vehicle will move to an inspection area where a more detailed analysis of the delivery can be undertaken. e. Waste will be inspected again as it is tipped into the bunker. Waste that is found to be non-compliant will be removed using a grab crane. f. Periodically, random waste deliveries will be audited via a similar inspection process for quality control. g. Once the waste has been unloaded, the delivery vehicle will be weighed and logged before it leaves site. <ul style="list-style-type: none"> iv. Waste categorisation <ul style="list-style-type: none"> a. Weighbridge inspection as the vehicle arrives onsite. b. Weighbridge inspection at the waste transfer terminal for bulk vehicles. c. Information from the carrier. d. Inspection of the carrier's documentation. e. Visual inspections either at the waste transfer terminal or at the EFW plant. f. The origin of the waste. v. Independent auditing <ul style="list-style-type: none"> a. An independent auditor will be commissioned by Prospect Hill for the first three years of the plant's operational life. These audits will be undertaken by a suitably qualified professional, at regular intervals, to ensure the incoming feedstock complies with EPA regulatory requirements.

Key considerations

[331] In reviewing the proposed incoming waste management controls, EPA notes several key considerations. Where BAT and BATT are referenced for WtE facilities, refer to Section 6.4.

Targeted waste feedstock – access and availability

[332] The application proposes to accept 400,000 tonnes a year of waste comprising 80% residual MSW and 20% C&I waste. The prospective source of targeted waste is broken down by type and region in Table 5 earlier in this assessment report. The applicant will need to successfully contract or apply for and be awarded private or publicly tendered contracts with councils, businesses and waste management service providers.

[333] The applicant's risk assessment acknowledges that the financial viability of the project is subject to it successfully obtaining the necessary volume of waste contracts. Sources identified earlier in Table 5 are taken as

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preliminary or prospective only. The potential volumes align with publicly available information on waste generation in those regions. The availability of waste is also expected to grow overtime in line with projected population and business activity growth.

[334] EPA requested information from Recycling Victoria regarding the potential availability of waste volumes in the targeted source areas. Recycling Victoria was unable to provide this information. However, it did not object to the facility based on its location with respect to the Victorian Recycling Infrastructure Plan (interim) – see Section 6.6 in this report.

[335] EPA assessed, on the basis of the available evidence, the prospective waste availability as part of its assessment of the environmental performance of the facility. EPA notes the two-line facility enables scalability in operations from 200,000 to 400,000 tonnes a year. EPA is satisfied that current and future availability of waste underlines the potential viability of the project based on preliminary and publicly available information.

[336] EPA has limited capacity to verify availability of waste beyond publicly available information as this would necessitate access to contractual arrangements for all the councils, businesses and waste management services providers across the target waste catchment. These may be subject to confidential or private business arrangements.

[337] The viability of the project's full-scale operation also depends on the applicant being able to manage the complex legal and financial negotiations of available contracts successfully and competitively. These aspects of the proposal's viability are considered beyond the scope of the development licence application assessment.

[338] The appropriate sizing and location of the facility in relation to residual waste access and availability is expected to be managed through the Recycling Victoria Victorian Waste to Energy Framework and Cap licensing discussed in further detail immediately below. However, to reduce risks associated with managing incoming waste streams for the purpose of this assessment EPA requires the inclusion of waste flow analysis as part of the waste characterisation studies that will inform the final detailed design of the facility (Condition [DL_R04/1](#)).

Targeted waste – Victorian Waste to Energy Framework

[339] State of knowledge provides information on waste available for thermal treatment under the Victorian Waste to Energy Framework (the

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framework). This outlines the state government's policy approach to thermal WtE and sets a cap of 1 million tonnes a year of waste (**Cap**). The framework and Cap are legislated under the *Circular Economy (Waste Reduction and Recycling) Act 2021* and subordinate regulations. It establishes a new licensing process for the Cap which is administered by Recycling Victoria.

[340] The framework establishes permitted, exempt and prohibited waste types to which the Cap applies. Under the Cap, permitted waste is:

- residual MSW (other than municipal food and garden organics (**FOGO**) and municipal recycling material) that has undergone source separation.
- C&I waste that is not technically, environmentally or economically practicable to further reuse or recycle.

[341] Since the application proposes to accept 400,000 tonnes of MSW and C&I a year, it is subject to the requirements of the framework. The application does not propose to accept any prohibited waste types. The application acknowledges the need to successfully apply for a Cap operator licence from Recycling Victoria to commence operations. The consideration of a Cap operator licence is a matter for Recycling Victoria and is outside of the scope of this assessment.

[342] The application states that the applicant intends to accept only residual waste otherwise destined for landfill and that further pre-treatment or recovery of MSW or C&I waste before incineration is not feasible at this stage. EPA considers it appropriate to require an ongoing regime for testing and investigation of existing or emerging technology options for resource recovery (Condition [DL_R04](#)). This must be provided before commencing construction and be informed by appropriate market analysis. It must also identify options available for resource recovery for the targeted waste feedstock before incineration so far as reasonably practicable at a minimum frequency of five-yearly intervals. The applicant must also make provisions for future incorporation of options (including physical space within the activity site) for resource recovery (Condition [DL_G01\(3\)\(15\)](#)).

Waste characterisation and auditing

[343] State of knowledge provides for waste characterisation control measures for eliminating or reducing risks of harm associated with incoming waste associated with waste characterisation and auditing. This is provided in:

- EP Regulations,

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- EPA Publication 1968.1: Guide to classifying industrial waste (EPA, 2021h),
- EPA Publication 1559.1: Energy from waste guideline (EPA, 2017), and
- EU IED and the BREF and BATC 2019.

[344] The application identifies waste characterisation as a control for eliminating or reducing risks of harm associated with incoming waste. The application provides an indicative or preliminary analysis of the composition of the targeted waste in Sections 6.2 (MSW) and 6.3 (C&I). This analysis informed development of the facility's concept design. The waste data provided in this application supported approvals of a similar WtE proposal for Australian Paper (EPA, 2018a). As the waste data has not been collected from western Metropolitan Melbourne or the Barwon South West Region, it is considered preliminary.

[345] A 12-month waste characterisation audit of targeted areas is therefore proposed by the applicant to reduce risks associated with the preliminary status of waste compositional data in the application. This will inform final detailed design of the facility to ensure it is optimised for the available waste characteristics (Condition [DL_G01/15](#)). The audit methodology will be informed by Sustainability Victoria's *Guidelines for auditing kerbside waste in Victoria* (SV, 2013). Determination of the characteristics of the waste is consistent with techniques of BAT 9 of the BREF and BATC 2019. EPA is satisfied with the proposed 12-month waste characterisation audit subject to the specification of it including physical, chemical and hazardous properties, calorific value analysis and accounting for seasonality (Condition [DL_R04/1](#)). Selection of areas for waste characterisation audit or audits will need to be informed by waste flow analysis.

[346] EPA is satisfied that risks of harm associated with incoming waste are reduced so far as reasonably practicable through waste characterisation and auditing including the proposed 12-month waste characterisation audit to inform final detailed design of the facility. This must be validated by EPA at the detailed design phase and before commencing construction and endorsed by a suitably qualified EPA-appointed auditor before commencing construction. (Condition [DL_R04/1](#)).

Waste Acceptance Criteria and procedures

[347] State of knowledge provides information and controls measures eliminating or reducing risks of harm from incoming waste associated with Waste Acceptance Criteria, delivery and auditing procedures and related measures. This is provided in:

- EP Regulations,

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- EPA Publication 1827.2: Waste classification assessment protocol (EPA, 2021i),
- EPA Publication 1828.2: Waste disposal categories – characteristics and thresholds (EPA, 2021j),
- EPA Publication 1968.1: Guide to classifying industrial waste (EPA, 2021h),
- EPA Publication 1559.1: Energy from waste guideline (EPA, 2017),and
- EU IED and the BREF and BATC 2019.

[348] The application identifies implementation of Waste Acceptance Criteria informed by waste characterisation as a control for reducing risks of harm associated with incoming waste. Only allowable waste under the facility's Waste Acceptance Criteria detailed in Section 6.6.2 of the application will be accepted for incineration. The Waste Acceptance Criteria will be updated using results of the abovementioned 12-month waste characterisation audit and data from waste suppliers as part of finalising detailed design of the facility.

[349] If the facility is operational, the applicant would enforce the Waste Acceptance Criteria including excluding or rejecting prohibited waste through waste acceptance procedures. Waste tracking infrastructure will work alongside routine visual inspections to ensure successful enforcement of the criteria. For example, weighbridges (one for entering vehicles and one for exiting vehicles), number plate recognition software, a waste audit pad to allow up to 10 tonnes of waste to be unloaded and inspected and dedicated rejected waste bins. This is consistent with techniques of BAT 11 of the BREF and BATC 2019. EPA has incorporated the waste delivery monitoring requirements of BAT 11 into a condition (Condition [DL_R04/3](#)). This includes a requirement for radioactivity detection. A suitably worded condition will also be imposed on the operating licence, if granted, to require implementation of the Waste Acceptance Criteria and associated waste delivery monitoring measures and waste acceptance procedures.

[350] EPA acknowledges that it is not possible for these procedures to eliminate the presence of certain materials or contaminants prohibited by the Waste Acceptance Criteria, such as small batteries. However, these levels of contamination will be identified in the proposed 12-month waste characterisation audit and ongoing operational audits, so that the criteria and associated procedures can be refined to improve the detection and removal of such contaminants.

[351] The WtE facility and emission controls will be designed, with sufficient redundancy as required under BAT 17, and operated in accordance with the identified physical, chemical and hazardous properties of the waste and

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waste flow analysis required by EPA (Condition [DL_R04/1](#)). As assessed below, the proposed moving grate technology is a proven and robust treatment for heterogenous waste types such as MSW and C&I waste. The reference facility emission data is representative of WtE facilities operating under these conditions. The application also proposes pre-treatment measures consistent with BATT as discussed below.

[352] Any significant level of contamination not removed through waste acceptance procedures leading to potentially elevated emissions (or emissions of concern) would be detected by the CEMS and COMS and suitable automatic operational measures enacted to ensure compliance with emission limits. To reduce risks associated with air emissions from new or emerging chemicals of concerns, EPA also requires an air emissions management plan with an ongoing system for identifying and investigating chemicals of concerns based on operational audits of the waste accepted at the facility (Condition [DL_R04/10](#)). The purpose of this condition is discussed further in Section 6.2.1.

[353] The applicant also commits to conducting independent operational auditing of incoming waste within the first three years of the plant's operational life. The operational audit will be designed to verify successful enforcement of the facility's Waste Acceptance Criteria. EPA considers it appropriate to require ongoing operational auditing arrangement to demonstrate compliance with the Waste Acceptance Criteria at a frequency of at least twice a year (Condition [DL_R04/3](#)). These measures are consistent with techniques of BAT 9 of the BREF and BATC 2019. A suitably worded condition would also be imposed on the operating licence, if granted, to require implementation of these operational audits.

[354] EPA is satisfied risks of harm associated with incoming waste are reduced so far as reasonably practicable through the proposed Waste Acceptance Criteria and delivery procedures. This must be validated at the detailed design phase and endorsed by a suitably qualified EPA-appointed auditor before commencing construction (Conditions [DL_R04/1](#), [DL_R04/2](#) and [DL_R04/3](#)).

Pre-incineration waste storage and management

[355] State of knowledge provides information and controls measures for eliminating or reducing risks of harm associated with incoming waste associated with storage and management. This is provided in:

- EPA Publications 1698: Liquid storage and handling guidelines (EPA, 2018b),

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- EPA Publication 1667.3: Management and storage of combustible recyclable and waste materials – guideline (EPA, 2021g),
- EPA Publication 1559.1: Guideline: Energy from waste (EPA, 2017), and
- the EU IED and the BREF and BATC 2019.

[356] The application identifies waste pre-treatment and storage infrastructure specifications for eliminating or reducing risks of harm associated with incoming waste. The application proposes to pre-treat incoming waste primarily within the waste bunker. Waste will undergo homogenisation in the waste bunker in addition to the Waste Acceptance Criteria and procedures detailed above. This will be done via the overhead cranes mixing waste in the bunker before placement in the boiler feed hoppers. This is consistent with techniques of BAT 14 of the BREF and BATC 2019 for improving the overall environment performance of the incineration process.

[357] The bunker and surfaces of the waste tipping hall and bunker will be constructed of suitable material with impermeable surfaces and chemical attack resistance. The waste bunker will be designed with a storage capacity of five days below the height of the tipping hall floor. It will also be designed to store waste above that height for additional storage during emergency or OTNOC. These measures are consistent with BAT 12 of the BREF and BATC 2019 for reducing environmental risks associated with incoming waste. It is noted that, in general, MSW is stored in enclosed buildings for a period of 4–10 days as influenced by waste delivery/collection patterns.

[358] The application proposes fire management controls such as fire water tanks and pumps, fire detection and protection systems for the bunker designed in accordance with EPA Publication 1667.3 and relevant codes and standards required by the Fire Protection Association Australia. This includes an infrared fire detection system, carbon monoxide readers and remote-control operated fire cannons mounted on the bunker walls. EPA will require a report of the final detailed designs and schematics of the fire mitigation controls to further reduce risks associated with waste storage and management (Condition [DL_R04/6](#)). This must be informed by a fire risk study and endorsed by a suitably qualified fire safety engineer.

[359] EPA is satisfied risks of harm associated with incoming waste are reduced so far as reasonably practicable through the proposed pre-incineration waste storage and management control measures. This must be validated at the detailed design phase and endorsed by a suitably

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qualified EPA-appointed auditor before commencing construction (Condition [DL_R04](#)).

Waste treatment or incineration

[360] State of knowledge provides information and controls measures for eliminating or reducing risks of harm for incoming waste associated with thermal waste treatment with energy recovery. This is provided in:

- EP Act and Regulations,
- principle of waste management hierarchy,
- Guide to the NSW Energy from Waste Framework (NSW EPA, 2021b),
- EPA Publication: 1559.1 Guideline: Energy from waste (EPA, 2017), and
- EU IED and the BREF and BATC 2019.

[361] The application identifies measures for eliminating or reducing risks of harm with incoming waste associated with thermal waste treatment with energy recovery. The application describes the objective of the project as implementing the principle of integration of environmental, social and economic considerations and the principle of the waste management hierarchy. The application proposes to only accept residual MSW, and C&I waste otherwise destined for landfill. This will be further enforced through operator licensing arrangements of the Victorian Waste to Energy Framework and Cap – this is discussed in more detail above.

[362] The application includes a concept model of the proposed facility which balances environmental, social and economic impacts. Central to the concept design is the adoption of control measures consistent with BATT for WtE facilities as determined in accordance with the EU IED and BREF and BATC 2019 framework. The application describes how these considerations have informed the selection of moving grate incineration with energy recovery treatment option.

[363] Different thermal treatment technologies can meet the BATT standards of the EU IED and BREF 2019. This includes incineration, gasification, and pyrolysis. These treatment technology types have different performance capabilities to consider. For example, some treatment technologies such as gasification involve an oxidation process with a limited amount of oxygen. For this and other reasons it is more capable of operating towards the lower end of the BAT-AELs for certain indicators such as NO_x. However, these benefits often have countervailing factors for proponents and operators to consider. These factors may include limited or more costly scalability, a narrow waste calorific value performance range, higher order pre-

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treatment and homogenous waste feedstock requirements, or more complex maintenance regimes.

- [364] These are complex design, operational, and cost considerations for proponents. The consideration of these factors also needs to be done for the full lifespan of the facility. EPA's permissioning assessments consider proposed treatment technology on a case-by-case basis. Activity performance consistent with the EU IED and BREF 2019 framework is the appropriate benchmark for consistent decision-making for thermal waste treatment technology options.
- [365] The BREF 2019 describes moving grate technology as 'very widely proven on large scales', 'robust – low maintenance cost', with a 'long operational history', and 'can take heterogeneous wastes without special preparation'. It is also the technology type applied at most modern MSW facilities throughout the EU. The Western Australian Government commissioned an investigation into the environmental and health performance of waste energy technologies internationally. The report featured numerous moving grate incineration facilities (Department of Environment and Consultation (WA), 2013).
- [366] The Technology Readiness Level (TRL) index is a 'globally accepted benchmarking tool for tracking progress and supporting development of a specific technology through the early stages of the technology development chain, from blue sky research (TRL1) to actual system demonstration over the full range of expected conditions (TL9)' (ARENA, 2014). It is used by the Australian Renewable Energy Agency (ARENA) when considering projects. It is also used for assessing WtE projects under the Queensland Government's 'Energy from Waste Policy' (Department of Environment and Science (Qld), 2021a).
- [367] The [Kwinina Waste to Energy Project](#) in Western Australia is a WtE proposal currently under construction. The facility will operate at a similar scale and targeted waste feedstock using moving grate incineration technology. The project features on the [ARENA website including a life cycle assessment](#) (LCA). As part of ARENA's requirements, the LCA identified the WtE plant as having a TRL of 9+. EPA considers this indicative of the technology readiness and robustness of moving grate incineration technology and EU IED and BREF-compliant control systems. To further reduce risks associated with the selection of technology providers through the EPC tender process, EPA requires the submission of a Technology Readiness Assessment (Condition [DL_R04/7](#)).

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- [368] The capacity to process variability in waste composition is advantageous for managing potential changes in the composition of waste over the lifespan of the facility. The final selection of the technology providers or vendors will be conducted via the EPC tender process. The concept design has established the environmental performance standards for the facility consistent with state of knowledge for BATT standards for WtE facilities. The various aspects of this are assessed in detail in the relevant sections of this assessment report.
- [369] To reduce risks associated with the EPC tender process and selection of the moving grate technology provider, the application proposes to develop a firing envelope or stoker diagram. These diagrams illustrate the thermal and waste throughput performance range of a plant. Finalising this diagram also depends on results of the waste characteristics audits. EPA requires submission of a firing envelope or stoker diagram based on the final detailed design of the facility before commencing construction (Condition [DL_R04/7](#)).
- [370] To further reduce risks associated with the EPC tender process and selection of the moving grate technology provider, EPA requirements are phased in a manner consistent with BAT 9 of the BREF and BATC 2019 for improving the overall environmental performance of the incineration plant. This includes conducting a minimum 12-month audit of the targeted waste feedstock supported by waste flow analysis (Condition [DL_R04/1](#)), preparing a final Waste Acceptance Criteria informed by the waste characterisation audits (Condition [DL_R04/2](#)), and preparing detailed designs and schematics of the plant optimised to treat the waste characteristics specified in the Waste Acceptance Criteria (Condition [DL_R04/2](#)).
- [371] As part of verifying optimisation of the plant, the applicant must provide a final heat and chemical mass balance, a firing envelope or stoker diagram and final BAT-Associated Energy Efficiency Levels and R1 efficiency calculations (Condition [DL_R04/7](#)). Other critical performance standards relevant to the plant design are assessed in more detail under their respective sections of this assessment report. This includes Article 50(2) of the EU IED on the thermal performance of the plant heat and recovery boiler. This Article requires the elevation of combustion gases to a minimum temperature of 850°C with a residence time of at least two seconds before exiting the furnace (Condition [DL_R04/8](#)). Additional assessment details are provided in Section 6.1 of this assessment report. EPA also requires

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installing controls to prevent continued plant operation if these temperatures are not achieved or maintained (Condition [DL_W08](#)).

[372] EPA is satisfied risks of harm associated with the waste treatment or incineration of incoming waste are reduced so far as reasonably practicable through the proposed environmental performance benchmarks and standards established in the application and concept design and the conditions required by EPA. These must be validated at the detailed design phase and endorsed by a suitably qualified EPA-appointed auditor before commencing construction (Condition [DL_R04](#)).

Commissioning and proof of performance

[373] State of knowledge provides for the circumstances and purpose of proof-of-performance commissioning of waste treatment and management facilities. This is a typical requirement of EPA's permissioning arrangement for prescribed development activities and is also provided in:

- standard industry practice,
- EPA Publication 1559.1: Guideline: Energy from waste (EPA, 2017), and
- NSW Energy from Waste Policy Statement (NSW EPA, 2021a).

[374] The application proposes commissioning in Section 7.6 of the application. Commissioning will involve performance and reliability testing including incineration of incoming waste feedstock, also referred to as 'hot commissioning'. Commissioning will validate performance of the moving grate and all associated plant and equipment such as the boilers and energy recovery plant. This will seek to verify and demonstrate achievement of the outcomes and environment performance standards set in the application and conditions of the development licence.

[375] As part of the commissioning plan, the applicant will need to include details of the waste volume and types to be used through hot commissioning. The commissioning plan will need to be endorsed by EPA prior to any commissioning (Condition [DL_R01\(7\)](#)).

[376] Proof-of-performance testing is a critical benchmark of the EPC tender and EPA's permissioning processes. EPA will not issue an operating licence for the activity until the development activities have been completed to its satisfaction and in accordance with the application and conditions of the development licence (Condition [DL_R03](#)).

Conclusion

[377] EPA is satisfied that the application demonstrates a sufficient understanding of incoming waste risks associated with the proposed

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activity. EPA is satisfied that the range of propose incoming waste management controls should be sufficient to reduce the risk of harm so far as reasonably practicable. This includes the ongoing administrative systems and processes for monitoring incoming waste risks should they occur.

EPA conclusion

- EPA is satisfied that the application proposes to take measures that will enable it to comply with the GED.
- EPA is satisfied that the application proposes to take measures consistent with the intent of section 25(4)(a)-(e).
- EPA is satisfied that the risk of harm to human health and environment for risks and hazards associated with incoming waste management can be minimised so far as reasonably practicable.

6.1.10 Waste (outgoing)

[378] Outgoing waste is identified as a potential hazard in the risk assessment in Section 6.3 and Table 6.5 of the application (Item I.D. 014, 015, 019). The sources of generated and outgoing waste primarily result from combustion residuals, boiler operation and the FGCS. Other minor waste streams include construction waste, rejected waste, recovered materials and office wastes. The applicant has proposed to treat the IBA waste stream onsite in a dedicated bottom ash treatment hall before offsite management. Potential reuse options will be investigated but it is assumed all waste will be disposed to landfill.

[379] The application has considered the likelihood and potential degree of harm or impact of outgoing waste management throughout the application risk assessment and the HHIA (see Section 6.2 for a full assessment of the HHIA). Potential degree of harm has been considered for potential impacts for offsite communities.

[380] Hazards associated with outgoing waste include dust generation, storage containment breaches, treatment processes, presence of contaminants in residual wastes, and incorrect classification of residual waste for disposal or reuse. Please note, where overlapping risks are more relevant to other segments or categories – such as air, land and groundwater – they are assessed in those sections of this assessment report.

[381] EPA recognises any receipt, storage, handling and management of waste or any matter, whether solid, liquid, gaseous or radioactive, as a

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common hazard of the waste and recycling industry (EPA, 2021c). EPA is satisfied that the application demonstrates an understanding of the proposed activities consistent with state of knowledge such as:

- EPA Publication 1698: Liquid storage and handling guidelines (EPA, 2018b)
- EPA Publication 1559.1: Guideline: Energy from waste (EPA, 2017)
- relevant Australian Standards
- EU IED and BREF and BATC 2019.

Outgoing waste management controls

[382] The application details measures to reduce risks of hazards associated with outgoing residual wastes management including IBA, FGCS residuals and boiler ash, as summarised in

[383] Table 22 Identification of controls is informed by development and operating activities such as IBA management and treatment, potential IBA reuse options, and the hazardous or non-hazardous classification of the residual waste. The final detailed design of outgoing waste management controls and infrastructure will be confirmed through the detailed design phase but will adhere to the concept design of the application. These controls are detailed in the application in Sections 5.5 and 6.

Cost of eliminating or reducing those risks

[384] EPA has given regard to costs of eliminating or reducing risks and is satisfied that the proposed or imposition of BATT measures as defined under the EU IED 2010/75/EU and BREF and BATC 2019 is proportionate to the risks of harm.

Table 22: Environmental control measures and performance standards – waste (outgoing)

Stage	Measure
Engineering controls	Design and operation <ol style="list-style-type: none"> i. IBA management: <ol style="list-style-type: none"> a. be stored in the maturation hall, which will have a capacity of approximately 11,300 tonnes of waste or 12 weeks of storage. ii. APCr management: <ol style="list-style-type: none"> a. will be stored in a 455-tonne, dust-tight silo. This will accommodate the APCr produced over 7 days of operation. iii. The processing will be contained in an enclosed shed with a dust extraction system: <ol style="list-style-type: none"> a. bag filter system will be present in the discharge point to prevent emissions to the environment.
Administrative controls	Design and operation

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Stage	Measure
	<ul style="list-style-type: none"> i. Category B&C classified residual wastes, currently, there is only one landfill in Victoria identified that accepts Category B wastes, which is Veolia Taylors Road, over 100 km from the project. ii. Waste categorisation and sampling: <ul style="list-style-type: none"> a. Testing and categorisation of wastes that are transported offsite will be required. b. A testing program will be developed in accordance with EPA requirements, including ASLP – Australian Standard Leaching Procedure AS4439.2 and AS4439.3. iii. Treatment and disposal of APCr: <ul style="list-style-type: none"> a. Pneumatic loading is the only option currently available for the removal and disposal of boiler ash and APCr. APCr will be pneumatically loaded from the storage silo into a B-double powder tanker. The tanker will transport the waste to the nearest facility accepting reportable priority waste, currently identified as the Veolia Taylors Road facility. The EPA requires that waste is transported by a registered vehicle and tracked with waste tracker. iv. General waste produced on site in the offices, workshops etc. that meets the Waste Acceptance Criteria: <ul style="list-style-type: none"> a. transferred to the bunker. v. Recovered metals and scrap metal from worn equipment etc. will be collected in ferrous and non-ferrous skips for recycling in the IBA treatment plant.

[385] In reviewing the proposed outgoing waste control measures, EPA notes the key following key considerations. Where BAT and BATT are referenced for WtE facilities, refer to Section 6.4.

Waste characterisation and classification

[386] State of knowledge provides information and control measures for eliminating or reducing risks of harm from residual wastes through waste classification. This information is provided in:

- Schedule 5 of the EP Regulations,
- Publication 1827.2: Waste classification assessment protocol (EPA, 2021i),
- Publication 1828.2: Waste disposal categories – characteristics and thresholds (EPA, 2021j),
- Publication 1968.1: Guide to classifying industrial waste (EPA, 2021h),
- Publication 1559.1: Energy from waste guideline (EPA, 2017), and
- EU IED and the BREF and BATC 2019.

[387] The application identifies generated residual waste classification as a control for reducing risks of harm associated with outgoing waste

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management. The application provides preliminary calculations of residual wastes volumes to be generated from the incineration of waste: 63,072 tonnes a year of IBA and 23,652 tonnes a year for combined FGCS residuals and boiler ash. These are considered within the typical range or volumes for residual waste generated by WtE facilities processing MSW as a proportion of incoming waste (EU, 2019b). The application also provides an analysis of IBA in Tables 9.2 and 9.3 based on international literature and UK reference facilities. This provides a preliminary assessment of the potential characteristics of the residual wastes and its associated hazards. This in turn informs the selection of appropriate treatment options discussed below.

[388] The application analysis concludes that FGCS residuals typically have pollution concentrations in line with the highest hazard classifications of A, B or C under Victoria's former classification framework in the industrial waste resource guidelines. This is generally consistent with the equivalent and categories under the updated standards of waste disposal categories in EPA Publication 1828.2. Under the EP Act and EP Regulations, the IBA is classified as N205, FGCS residuals as N210, and the fly ash as N150 Reportable Priority Wastes. The application's characterisation of the residual wastes is considered consistent with state of knowledge. EPA notes that many factors affect the range of outcomes from facilities processing heterogenous waste such as MSW, and these may change overtime.

[389] EPA is satisfied the application demonstrates an understanding of the likely volume and characteristics of residual wastes to be generated by the facility consistent with state of knowledge.

Monitoring and classification

[390] State of knowledge provides for information and control measures for eliminating or reducing risks of harm from outgoing waste management associated with residual waste monitoring. This is provided in:

- EP Regulations,
- EPA Publication 1827.2: Waste classification assessment protocol (EPA, 2021i),
- EPA Publication 1828.2: Waste disposal categories – characteristics and thresholds (EPA, 2021j),
- EPA Publication 1968.1: Guide to classifying industrial waste (EPA, 2021h),
- EPA Publication 1559.1: Energy from waste guideline (EPA, 2017), and
- EU IED and the BREF and BATC 2019.

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[391] The application identifies residual waste monitoring and classification as a control for reducing risks of harm associated with outgoing waste management. This includes a monitoring and testing program such as Australian Standard Leaching Procedure (ASLP) AS4439.2 and AS4439.3. Samples will be submitted to a laboratory accredited by NATA in accordance with EPA Publication IWRG701: Sampling and Analysis of Waters, Wastewaters, Soils and Wastes (EPA, 2009a). Proof-of-performance testing will be completed as part of commissioning to confirm the IBA and FGCS residual composition. The results must be given to EPA before an operating licence can be issued. Infrastructure used to monitor incoming waste will also be used to monitor outgoing wastes, such as bi-directional vehicle weighbridges.

[392] Analysis and monitoring of IBA also allows for the determination of successful incineration of waste. This is measured as an organic carbon content <2% total organic content (**TOC**) and loss on ignition <5% of the dry weight. The application proposes this as a monitoring standard and critical performance benchmark for the facility's operations. This is consistent with BAT 7 of the EU IED and BREF and BATC 2019.

[393] The waste classification references in the application were superseded when the EP Act came into force on 1 July 2021. Therefore, EPA considers it appropriate to require preparation of a residual waste management plan to classify all residual waste generated at the activity site in accordance with the EP Regulations and EPA guidance (Publications 1827.2 and 1828.2) (Condition [DL_R04/15](#)). This must include a bottom ash output quality feature to be part of the EMS consistent with BAT 10 of the EU IED and BREF and BATC 2019 to improve overall environmental performance of bottom ash treatment.

[394] EPA is satisfied risks of harm associated with outgoing waste management are reduced so far as reasonably practicable through the proposed residual waste monitoring and classification infrastructure and processes to be further validated at the detailed design phase and before commencing construction (Condition [DL_R04/3](#)). As noted above, condition [DL_R04/15](#) is designed to provide greater clarity on outgoing waste management.

Storage, handling and management

[395] State of knowledge provides for information and control measures for eliminating or reducing risks of harm from outgoing waste management

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associated with residual waste storage, handling and management. This is provided in:

- EPA Publication 1698: Liquid storage and handling guidelines (EPA, 2018b),
- EPA Publication 1697.3: Management and storage of combustible recyclable and waste materials – guideline (EPA, 2021g),
- EPA Publication 1559.1: Guideline: Energy from waste (EPA, 2017), and
- EU IED and the BREF and BATC 2019.

[396] The application identifies measures for storing, handling and managing residual waste as a control for reducing risks of harm associated with outgoing waste management. IBA will be conveyed from the wet boiler bottom ash discharge system to a pre-treatment storage hall via enclosed belt conveyor system to reduce the potential for emissions of dust or leachate. This is consistent with BAT 24 of the EU IED and BREF and BATC 2019.

[397] The application proposes to store IBA in an enclosed pre-treatment storage hall for 7 to 10 days before mechanical and physical treatment. This hall will be designed with a segregated draining system where leachate will be returned to the ash quench water system to make-up for evaporation losses. This segregation of wastewater is consistent with BAT 32 for preventing contamination of uncontaminated water and increased resource efficiency of the EU IED and BREF and BATC 2019.

[398] Dried IBA will undergo mechanical and physical treatment in the processing hall which will have an enclosed shed with dust extraction and bag filter to reduce dust emissions. Processing will include screening, resizing and removing recoverable ferrous and non-ferrous metals. This is consistent with BAT 24 of the EU IED and BREF and BATC 2019 for reducing diffuse dust emissions. Final composition of the mechanical treatment equipment will be determined through the detailed design phase (Condition [DL_R04/14](#)).

[399] Physically and mechanically treated IBA will be stored in an enclosed maturation hall. It will have storage capability for approximately 12 weeks of storage or 11,300 tonnes. It will be physically segregated from the pre-treatment IBA to eliminate the risk of cross-contamination. The hall will be enclosed to eliminate or reduce the risk of diffuse dust emissions. This hall will also be designed with a segregated draining system where leachate will be returned to the ash quench water system to make-up for evaporation losses. This is consistent with of BAT 32 techniques of BAT 24 of the EU IED

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and BREF and BATC 2019 for segregating wastewater and reducing diffuse dust emissions.

[400] The application proposes that FGC residuals will be handled separately, consistent with BAT 35 of the EU IED and BREF and BATC 2019 for increasing resource efficiency. FGCS residuals will be treated with the boiler fly ash. The FGCS residuals will be stored in a 455-tonne dust-tight silo. This will accommodate over seven days generation of waste. A portion of the FGCS residuals will be redirected back into the FGCS consistent with BAT 28 of the EU IED and BREF and BATC 2019 for reducing channelled emissions of HCl, HF and SO₂. Both the FGCS and boiler residuals will be loaded into a tanker truck via pneumatic loading to reduce the risk of release of the residuals to the environment.

[401] EPA is satisfied risks of harm associated with outgoing waste management are reduced so far as reasonably practicable through the proposed residual waste storage, handling and management to be further validated at the detailed design phase and before commencing construction (Condition [DL_R04/3](#)). This must be endorsed by a suitably qualified EPA-appointed auditor before commencing construction.

Resource recovery and IBA treatment

[402] State of knowledge provides information and control measures for eliminating or reducing risks of harm from outgoing waste management associated with residual waste treatment and resource recovery. This is provided in:

- EP Act and principle of waste management hierarchy,
- EP Regulations,
- EPA Publication 1559.1: Guideline: Energy from waste (EPA, 2017), and
- EU IED and the BREF and BATC 2019.

[403] The application identifies measures for residual waste treatment and resource recovery as a control for reducing risks of harm associated with outgoing waste management. The application proposes to treat the IBA waste onsite in a dedicated bottom ash treatment hall before offsite management. The IBA will be treated to enable potential reuse options such as use in road base, civil construction such as pipe/cable trench backfill material, or as an aggregate mixed with cement. The application proposes a mixture of IBA treatment techniques consistent with BAT 36 of the EU IED and BREF and BATC 2019 for increased resource efficiency. This includes screening and sieving, crushing, recovery of ferrous and non-ferrous metals,

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and ageing. EPA considers the proposed treatment and reuse options to be consistent with principle of the waste hierarchy.

[404] Under EPA's waste framework, all IBA is classified as N205 Reportable Priority Waste, regardless of its hazardous characteristics. EPA cannot allow reuse of the waste through the development licence process. The applicant will need to demonstrate that the treated IBA is fit-for-purpose for any pursued reuse option based on operational data. The applicant will need to obtain an appropriate permission for reuse such as an A16 (supply or use of reportable priority waste) permit or a Regulation 86 waste designation. However, the application demonstrates sufficient understanding of the likely characteristics of the IBA and feasible reuse options consistent with state of knowledge.

[405] EPA requires a residual waste management plan at the detailed design phase before commencing construction (Condition [DL_R04/15](#)). This plan must include details of any proposed reuse or disposal of residual wastes, including identifying any associated risks with those end-of-life options. The plan must also detail the IBA output quality features to enable consistent monitoring of IBA and ensure its treatment achieves intended standards.

[406] EPA is satisfied risks of harm associated with outgoing waste management are reduced so far as reasonably practical through the proposed resource recovery and IBA treatment to be further validated at the detailed design phase and before commencing construction (Conditions [DL_R04/14](#) and [DL_R04/15](#)). This must be endorsed by a suitably qualified EPA-appointed auditor before commencing construction.

[407] EPA is satisfied that the application demonstrates a sufficient understanding of outgoing waste management risks associated with the proposal. EPA is satisfied that the range of controls and performance standards incorporated into conditions will reduce the risk of harm associated with outgoing waste management so far as reasonably practicable. This includes the ongoing administrative systems and processes for monitoring construction activities and contingency arrangements should risks of hazards occur.

EPA conclusion:

- EPA is satisfied that the application proposes to take measures that will enable it to comply with the GED.
- EPA is satisfied that the application proposes to take measures consistent with the intent of section 25(4)(a)-(e).

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- EPA is satisfied that the risk of harm to human health and environment for risks and hazards associated with outgoing waste management can be minimised so far as reasonably practicable.

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6.2 Impact of the activity on human health and environment

[408] Under section 69(3)(b) of the EP Act, EPA must take into account the impact of the activity on human health and the environment. This includes the impact on any environmental values identified in any relevant Environment Reference Standard (**ERS**), taking into account any other activities being or proposed to be engaged in by the applicant or any other person. The ERS is a reference point that supports the GED. It is a benchmark for assessing potential impacts on human health or the environment from proposed GED compliance measures and other factors that affect the decision. The ERS assists in evaluating the significance of these impacts.

6.2.1 Human health

[409] EPA has assessed the potential risk of harm to human health and environment from the proposed activities on a hazard and environmental segment basis using standard and widely accepted impact assessment methodologies. This section summarises EPA's assessment of the risk of harm to human health from WtE facilities informed by published literature. It also provides an overview of the HHIA submitted as part of the application, and which is relied on in subsequent sections of this assessment report.

Human health risks associated with waste to energy facilities - EPA Victoria (2018)

[410] EPA commissioned an independent review, published in November 2018, of the scientific literature on potential human health effects in local communities associated with air emissions from MSW WtE facilities. The review helped inform EPA's decision to issue an approval to Australian Paper for an MSW incinerator in the Latrobe Valley. This application was for a similar moving grate incineration plant technology as considered under this assessment.

[411] The review looked at available literature associated with modern MSW WtE facilities that meet or operate in accordance with the EU IED framework or equivalent emissions standards. The review of international published literature identified papers that describe studies investigating potential short and long-term health impacts on residents living near such facilities. The review was independently peer-reviewed by a qualified regulatory toxicologist and health risk assessor. The review was conducted before the update of the BREF and BATC in 2019. The updated BREF and

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BATC 2019 introduces more stringent environmental performance standards and air pollution emission limits (BAT-AELs) than those specified in the EU IED. The potential for future adverse effects is therefore likely to be lower than those associated with historic emission levels considered by the review.

- [412] The review made several conclusions and, 'while health effects associated with incinerator emissions cannot be fully discounted, based on the epidemiological limitations, there is no casual evidence that health effects from incinerators emitting to EU IED standards occur'. Other conclusions include that studies of older WtE facilities have shown some associations with health effects.
- [413] Some studies of facilities that are presumed to comply with EU IED or equivalent standards have found some limited evidence of associations with health effects. The review acknowledged that all reviewed studies have methodological issues that are inherent to these types of studies. One such methodological issue, common to all the studies, is the presence of other sources of combustion emissions within the study area where health effects were investigated. This means none of the studies can identify the emissions from the WtE facilities as the sole reason for the identified health effects.
- [414] EPA has considered the recommendations of the review. EPA is satisfied that the application has assessed air emission impacts for pollutants or chemicals of concern consistent with the review's recommendations. The application has also considered as part of its AQIA and HHIA the fuel mix of the proposed plant, the size of the plant, local meteorology, local topography and the nature of land uses in the area surrounding the proposed activity site. To ensure ongoing monitoring of human health risks, EPA requires an updated HHIA before commencing construction based on the final detail design of the proposed facility (Condition [DL_R04/17](#)). EPA will verify that the risk profile of the final detailed design does not vary from that detailed in the application.
- [415] With further consideration of the review's recommendations, EPA also considers it appropriate to require an air emissions management plan that includes an ongoing system for identifying and investigating chemicals of concerns based on operational audits of the waste accepted at the facility (Condition [DL_R04/10](#)). The purpose is to ensure ongoing identification, monitoring and implementation of controls for reducing risks of harm to human health from air emissions consistent with the intent of the review's recommendations. This also reduces risks associated with potential

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changes in the composition of waste over the lifespan of the facility. This requirement will be incorporated into an appropriately worded operational condition if an operating licence is granted.

[416] EPA is satisfied that the conclusions and implementation of the recommendations of the public health review demonstrate that waste incineration activities do not pose an unacceptable risk of harm to human health and that, based on the evidence, the risks are considered low and acceptable. This conclusion relies on the supporting assessment conclusions detailed throughout this assessment report that the proposed facility is a modern, well run WtE facility designed and operated in accordance with the BATT framework for WtE facilities under the EU IED and BREF and BATC 2019.

Human health risks associated with waste to energy facilities – Public Health England (2019)

[417] On 15 October 2019, Public Health England published a statement (Public Health England, 2019) following the release of a major study on modern municipal waste incinerators in Scotland and England (Parkes & al, 2019) (Ghosh & al, 2019). The study was published by the Small Area Health Statistics Unit at Imperial College London and was funded by Public Health England and the Scottish Government with support from the UK's Medical Research Council and the National Institute for Health Research.

[418] In the statement, Public Health England wrote that its 'risk assessment remains that modern, well run municipal waste incinerators are not a significant risk to human health'. Public Health England also acknowledged that, 'while it was not possible to rule out adverse health effects from these incinerators completely, any potential effect for people living close by is likely to be very small'. This is consistent with its conclusion that modern, well run municipal waste incinerators are not a significant risk to human health.

[419] The statement by Public Health England notes that two studies published in 2018 and 2019, 'found no evidence of an increased risk of infant mortality for children living close to municipal waste incinerators'. Another study published in 2019, 'found no evidence of increased risk of congenital anomalies from exposure to municipal waste incinerator chimney emissions, but a small potential increase in risk of congenital anomalies for children born within ten kilometres of municipal waste incinerators'.

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[420] In its statement, Public Health England notes that the study's, 'authors acknowledge the increase in risk of congenital anomalies linked to distance from such municipal waste incinerators is the cruder of the two measures and may well be down to not fully adjusting the study for factors such as other sources of pollution around municipal waste incinerators or deprivation. A causal association between the increased risk of congenital anomalies for children born close to municipal waste incinerators has not been established.'

[421] EPA has considered the more recent studies on modern municipal waste incinerators in Scotland and England published by the Small Area Health Statistics Unit at Imperial College London. EPA has also considered the response to these studies by the relevant competent public health regulator, Public Health England. EPA consider that the conclusions of these reviews and position statement further support the conclusions detailed above that waste incineration activities do not pose an unacceptable risk of harm to human health and that based on the evidence the risks are considered low and acceptable.

Human health risks associated with waste to energy facilities – Public Health Scotland (2022)

[422] On 30 March 2022, Public Health Scotland published a *Rapid Evidence Review on Municipal Solid Waste Incineration Facilities and Reported Health Effects* (PHS, 2022). The review was initiated following a request by Scottish Government Zero Unit to obtain more recent evidence of the human health effects of incineration facilities. This follows from an earlier review conducted by Health Protection Scotland in 2009 at the request of the Scottish Environment Protection Agency (HPS, 2009). The 2009 review considered MSW, clinical and hazardous waste incineration facilities. The conclusions relevant to MSW facilities include the following:

- 'The body of evidence for an association with (non-occupational) adverse health effects is both inconsistent and inconclusive. However, more recent work suggests, more strongly, that there may have been an association between emissions (particularly dioxins) in the past from industrial, clinical and municipal waste incinerators and some forms of cancer before more stringent regulatory requirements were implemented.'
- 'The magnitude of any past health effects on residential populations living near incinerators that did occur is likely to have been small.'

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- 'Whatever past (non-occupational) health effects might be attributable to waste incineration in Scotland, these are likely to have been relatively small in comparison to other sources of environmental pollution, particularly previous industrial emissions, domestic coal burning and more recently traffic pollution.'
- 'The majority of research work in this field is of historical relevance but tells us little about the current risk of (non-occupational) adverse effects potentially associated with incineration plants in operation now.'
- 'Given the much stricter waste incinerator emission regulations now in place, the magnitude of any future (non-occupational) adverse effects will probably be smaller than any associated with past emissions. This assumption may only be valid however, if there is no significant increase in the overall burden of local pollution (especially airborne), in terms of the total mass of emissions added by new waste incinerators.'

[423] The Rapid Evidence Review was then conducted to review more recent evidence on the health effects of incineration. The overall conclusions of this review reinforced conclusions of the 2009 review as reproduced above.

[424] EPA has considered the 2009 and 2022 reviews on the health effects of waste incinerators by the competent public health regulator, Public Health Scotland. EPA is satisfied that the conclusions of the Rapid Evidence Review further support the conclusions detailed above that waste incineration activities do not pose an unacceptable risk of harm to human health and that based on the evidence the risks are considered low and acceptable.

Human Health Impact Assessment

[425] The application is supported by a human health risk assessment, known as a HHIA. HHIA's are a type of study for assessing the potential impact of a hazard on the health of a person, group of people, or a community (visit the [Department of Health website](#) for more information). The reliability of the HHIA is particularly relevant to air emissions and the acceptability of the proposed activity site's proximity to sensitive receptors such as residences, schools and healthcare facilities.

[426] Since 2018, EPA has required applications for WtE facilities to include an HHIA prepared in accordance with the Australian Government's enHealth 2012 standard (EnHealth, 2012). This is part of a proportionate assessment of human health risks. The use of HHIA's prepared in accordance with these standards was also recommended by the NSW Chief Scientist and Engineer (NSW Government, 2020) and adopted by the NSW Government (NSW DPIE, 2021).

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[427] This recommendation was made in an independent report prepared by a working group established by the NSW Chief Scientist and Engineer to 'undertake a review of Energy from Waste (EFW)' in NSW, to ensure proposals adopt international best practice standards and controls to protect human health and the environment'. The Queensland Government also specified this requirement in its *Energy from Waste Guideline* (Department of Environment and Science (Qld), 2021b).

[428] The HHIA has considered health impacts from air emissions, odour, noise and economics, waste and transport. The conclusions of the HHIA are that where negative impacts are identified, they are considered low to negligible in terms of community health. The specific conclusions for air emission impacts are:

- 'There are no acute inhalation exposure risks of concern.'
- 'There are no chronic inhalation exposure risks of concern.'
- 'There are no chronic risks of concern from exposure to pollutants from the facility via soil or ingestion of homegrown produce.'

[429] EPA is satisfied that the HHIA has been prepared in accordance with relevant standards and methodologies consistent with accepted practice. The requirement of the HHIA was met using the approach outlined in:

- Environmental Health Risk Assessment – Guidelines for Assessing Human Health Risks from Environmental Hazards (EnHealth, 2012)
- Health Impact Assessment Guidelines (Enhealth, 2017)
- National Environment Protection Council guidance and guidelines on ambient air quality (NEPC, n.d.)and contaminated land (NEPC, n.d.).

[430] Data sources that include exposure and toxicity data were documented in the report. A description of baseline conditions for health, describing health outcomes, health determinants, affected populations and vulnerable sub-populations (depending on data availability) was also included in the HHIA.

[431] Sensitive exposed population were suitably identified and exposure pathways of inhalation (the main exposure pathway), dermal contact and ingestion were assessed. A summary of risk estimates for acute and chronic risks were presented in tables showing likelihood of potential risk associated with the proposed WtE facility. Cumulative risk (background air quality plus emissions contributed by the proposed activities) was evaluated as well as a comparison to suitable air quality criteria for the various air pollutants that were assessed.

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- [432] The HHIA relies on the AQIA and air emission dispersal modelling assessed in further detail in Section 6.2.3 below. EPA notes that the AQIA and modelling incorporates several conservative assumptions into their methods. This means that the predicted exposure levels of pollutants on the surrounding population as assessed in the HHIA are considered very unlikely to occur. The potential impacts in the HHIA are therefore also conservative.
- [433] As noted previously, the HHIA and AQIA consider activity site-specific features as recommended by the health review commissioned by EPA. This includes such features as local meteorology, the nature of land uses surrounding the area, and specific consideration of the separation distances to nearest sensitive receptors beginning at 320 m. It also includes consideration of the additional contribution of the proposed WtE facility's air emissions on the current overall burden of local pollution as recommended by the public health reviews and scientific literature discussed above. This includes consideration of the susceptibility of the local population to any additional pollution burden posed by the facility.
- [434] The NSW Chief Scientist and Engineer's independent report also considered EPA Victoria's health review commissioned in 2018 but at the time considered additional literature would likely remain 'scant'. However, additional advice provided by the Chief Scientist and Engineer in November 2020 (NSW EPA, 2021a) noted and made the following comments on the conclusions of a systemic review of health impacts in *The health impacts of waste incineration: a systematic review* (Tait & al, 2020):
- [435] 'The authors make several recommendations, including design to world's best practice standards; adherence to upgrade and maintenance schedules; and avoidance of proximity to food production. The first two can be addressed through the regulatory assessment and compliance process. The latter (exposure through food) should be addressed through the human health risk assessment that applicants are required to prepare'.
- [436] EPA has also considered the study and concurs with the broader recommendations of the NSW Chief Scientist and Engineer that risks should be assessed through HHIA's. EPA has assessed the application against the BATT requirements in Sections 6.1 and 6.4, including proposed measures for managing and reducing air emissions associated with maintenance schedules.
- [437] The HHIA has assessed exposure through food as part of its multiple pathway exposures assessment. This includes ingestion of homegrown fruit

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and vegetables as well as eggs, meat (beef) and milk (cows) that may be impacted by pollution emitted by the proposed facility deposited on soil, pasture or plants as they grow. As noted, the HHIA concludes that there are 'no chronic risks of concern from exposure to pollutants from the facility via soil or ingestion of homegrown produce'.

[438] EPA is satisfied that the HHIA further provide evidence that the proposed waste incineration activities at the activity site do not pose an unacceptable risk of harm to human health and that based on the evidence the risks are considered low and acceptable. EPA requires an updated HHIA before starting construction based on the final detail design of the proposed facility (Condition [DL_R04/17](#)). EPA will verify that the risk profile of the final detailed design does not vary from that detailed in the application.

Psychological health impacts

[439] The EP Act defines human health to include psychological health. Accordingly, this assessment must consider the risk of harm to the psychological health of community, especially those closest to the proposed site. At the outset, EPA notes that there is little evidence of psychological health impacts of this proposal. Even though the HHIA adopts widely accepted methodologies, it does not provide any data from which EPA can draw any insights on the question of psychological health impacts.

[440] Further enquiry by EPA reveals that there is currently no scientifically validated assessment tool for measuring psychological health impacts on a community living near industrial facilities. This means that EPA does not have any objective evidence base to assess the risks of harm to the psychological health of community.

[441] EPA has carefully considered the submissions by community members. Those submissions detail concerns with the impact of this proposed facility. The submissions are entirely consistent with the views expressed by community members during the conference of interested persons held in July 2021.

[442] EPA does not explicitly or by implication seek to diminish the importance and value of the submissions made by community. However, given the limitations of the current methodologies for HHIA, EPA does not have a mechanism to assess the psychological health impacts from on community raised in from the submissions. As noted above, this is in no way a reflection on the concerns raised by community.

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Conclusion

[443] EPA has considered the recommendations of the independent review into the scientific literature on potential human health effects in local communities associated with air emissions from MSW WtE facilities conducted for EPA in 2018 (EPA, 2018c). EPA has also considered its findings and those more recently of other competent public health authorities in the UK. This is informed by further and additional studies of more recent evidence into the potential adverse health impacts of MSW incineration facilities.

[444] Based on the literature, EPA is satisfied that the activities of WtE facilities can be appropriately controlled to ensure low risks of harm to human health and environment. The HHIA was performed in accordance with appropriate standards and methodologies to assess risks to human health from the proposed facility and its proximity to nearest sensitive receptors starting from 320 m.

[445] EPA's consideration of human health impacts associated with air emissions is further supported through the risk assessment methodologies of the HHIA and air emission modelling which are also assessed in Section 6.2.3 of this assessment report. EPA has assessed and is satisfied that the application proposes controls that will eliminate or reduce risk of harm so far as reasonably practicable. This includes implementation of a suitable combination of BATT control measures. EPA is also satisfied the application has considered potential impact on human health and environment. This is supported by the application's use of reference facilities and risk and impact assessment methodologies. EPA is satisfied that the proposed activity will not pose an unacceptable risk of harm to human health or the environment.

EPA conclusion: EPA is satisfied that the proposed activity will not pose an unacceptable risk of harm to human health or the environment. EPA is also satisfied that the HHIA reflects best practice and current methodologies.

6.2.2 Climate change and greenhouse gas emissions

[446] EPA has assessed the application and taken into account whether GHG emissions from the proposed activities may impact on human health and the environment. As part of assessing impacts on human health and environment, EPA gives regard to the ERS. The relevant standard for GHG emissions is provided in ERS Part 2 – Ambient Air. This includes relevant

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environmental values for the ambient air environment in Table 2.1. Here the relevant environmental value is climate systems that are consistent with human development, the life, health and wellbeing of humans, and the protection of ecosystems and biodiversity. There is no specific indicator, such as an annual temperature increase, attached to the environmental value of climate systems (Victorian Government, 2021).

- [447] EPA has assessed and considers that the application proposes measures to comply with the GED that reduce the risk of harm so far as reasonably practicable – see Section 6.1. EPA is also satisfied that the application proposes to adopt BATT-relevant aspects of the project such as energy efficiency – see Section 6.4. This part of the assessment focuses on the residual risks associated with GHG emissions after implementation of those controls.
- [448] The application included consideration of GHG emissions in Sections 11, Section 15.6, Section 4.2.4, Appendix C: GHG assessment, and Section 2 of RFI response dated 10 November 2022. For assessing GHG emission impacts, the application has completed a GHG inventory prepared in accordance with the GHG Protocol and International Standard ISO 14064-1:2006 Greenhouse gases - Part 1: Specification with guidance at the organisation level for quantification and reporting of GHG emissions and removals.
- [449] EPA considers the application to be consistent with the steps for controlling hazards and risk recommended in EPA Publication 2048: Guideline for minimising greenhouse gas emissions (EPA, 2022b). This includes identifying hazards of GHG emissions, characterising sources of GHG emissions consistent with state of knowledge for WtE facilities for construction and operational phases of the proposal and describing the receiving environment with reference to statewide GHG emission targets.
- [450] For assessing GHG emission risks, the application includes a GHG inventory considering Scope 1, 2, and 3 emissions. The inventory has been completed using accepted standards as acknowledged in EPA Publication 2048. The inventory provides an indication of the scale of GHG emissions. It also allows for a comparison against or contribution to GHG emission reduction targets. The Victorian Government has also set a target of net zero emissions by 2045 although this is still to be legislated. The current legislated target is net zero GHG emissions by 2050 from 2005 emission levels. Interim targets have been set for 28–33% by 2025, 45–50% by 2030 and 75–80% by 2035 (DEECA, 2023).

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[451] The proposal's primary energy related and direct GHG emissions (Scope 1) are generated by the combustion of waste and auxiliary fuels. The plant will be powered by energy generated from its own operation. The sources of direct GHG emissions are identified as the construction of the facility and the combustion of waste during the operation of the proposal over its approximate 25-year lifespan. The inventory's indirect energy related GHG emissions (Scope 2) includes avoided emissions from displaced grid electricity. This is based on the state-specific electricity generation mix using the National Greenhouse Accounts Factors (Department of the Environment and Energy, 2019). Other indirect emissions not controlled by the applicant are (Scope 3) which is primarily waste transport related emissions. Results of the inventory are reproduced in Table 22 below.

Table 23: GHG inventory results (Scope 1–3 emissions)

Scope	Annual emissions (tCO ₂ e)	Total emissions (25 years – tCO ₂ e)
Scope 1	191,993	4,797,072
Scope 2	-209,358	-5,233,960
Scope 3	2,651	66,285
Total emissions (all Scopes)	-14,824	-370,604

[452] The applicant has also completed an inventory of non-energy related GHG emissions. This provides a comparison with a base-case of 'business as usual' or the assumption that the waste is disposed of to landfill. Based on this assessment the proposed WtE facility will result in an additional annual reduction in emissions of -300,051 tCO₂e per year or -7,501,278 over the lifespan of the facility. These figures are reproduced in Table 24.

Table 24: Operation non-energy relation emissions by source

	Source	Total quantity	Energy consumption (GJ)	Scope 3 GHG emissions (tCO ₂ e)	GHG emissions – all scope (tCO ₂ e)
Offset landfill emissions	Offset landfill emissions	-400,000 t	N/A	-300,051	-300,051
Total			-	-300,051	-300,051
Total (25 years)					-7,501,278

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Operations – variation in feedstock

- [453] EPA notes that there will likely be a variation in the composition of the targeted waste over the lifespan of the facility. These changes are driven by population growth and other demographic changes, consumer behaviour and government waste management policies. One of the most likely variations is a change in the fraction of organic wastes in the residual MSW.
- [454] The Victorian Government has released climate action targets to guide Victoria in meeting its GHG emission reduction targets, as legislated in the *Climate Change Act 2017*. Part of this regime is a waste sector emissions reduction pledge (DELWP, 2021a). This pledge commits to providing every Victorian household with access to FOGO waste recycling services by 2030. The GHG emission reduction is achieved by achieving a targeted 50% reduction in organic waste disposed to landfill. This target is also part of Victoria's circular economy policy [Recycling Victoria – A New Economy](#).
- [455] An increase in the provision of a separate FOGO collection service is likely to reduce the fraction of organic waste in the residual waste collection and increase the proportion of non-organic waste. The extent of household adoption of organic collections over the next decade is difficult to estimate. Estimates in line with the climate action targets for reduction in FOGO would result in an increase in direct GHG emissions due to an increase in the proportion of non-organic waste.
- [456] EPA acknowledges that there is a degree of uncertainty over the extent of such changes in the residual waste composition. This will depend on timing and rollout of household behaviour and government policies such as FOGO collection services. FOGO collection services have a current rollout target of 2030. However, the degree to which this will influence waste composition will ultimately depend on its uptake by households. Taking a precautionary approach, EPA considers that direct GHG emissions from the combustion of waste may rise over the lifespan of the facility due to variations in the composition of feedstock. Other examples of policies that may influence the composition of the targeted waste feedstock is the introduction of a [ban on disposal to landfill of single use plastics](#).

Operations – displaced grid electricity

- [457] The inventory's indirect energy related GHG emissions (Scope 2) includes avoided emissions from displaced grid electricity. This has been determined using the Emissions Reduction Fund Carbon Credits (Carbon Farming Initiative – Coal Mine Waste Gas) Methodology Determination

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2015. The application used the National Electricity Market (NEM) emissions factor of 0.82 kg CO₂ e/kWh from the 2019 National Greenhouse Accounts Factors as part of its calculations. The inventory calculated an annual displacement or avoided emissions of 209,358 tCO₂e.

- [458] EPA notes the 2022 National Greenhouse Accounts Factors NEM emission factors for electricity grids has reduced to 0.69 kg CO₂ e/kWh (DCCEEW, 2023). The reduction in the emission factor has been driven by the increased role of lower emission sources of electricity. The emission factors or carbon intensity of the electricity grid is likely to continue to decline over time and in line with renewable energy targets such as Victoria's current legislated target of 45-50% by 2030.
- [459] The application also includes a comparison with the proposal's emission intensity of 0.75 tCO₂e/MWh with that of other sources of electricity. This includes Victoria's three lignite or brown coal power stations, Loy Yang A, Loy Yang B and Yallourn. They have respective emission intensities of 1.17, 1.11 and 1.29 t CO₂/MWh in 2021-22 – see Figure 6 below. This is reflected in an emission intensity of Victoria at 0.85 kg CO₂-e/kWh (Clean Energy Regulator, 2023). Currently, the power stations have announced closures of 2035, 2046 and 2028 respectively.
- [460] As noted in the application, the organic component of MSW is defined as an eligible renewable energy source under section 17(1) of the *Renewable Energy (Electricity) Act 2000*. The project may therefore be eligible for renewable energy large-scale generation certificates for the organic component of the waste.
- [461] The Kwinina WtE Project in Western Australia is the first MSW WtE facility under construction in Australia. The facility will operate at the same scale of 400,000 tonnes a year of residual MSW and C&I waste. It uses the same moving grate incineration technology proposed by the applicant. The Kwinina WtE Project features on the Australian Government's Clean Energy Finance Corporation (CEFC) website as a case study of cost-competitive baseload renewable energy along with the similar East Rockingham WtE facility. The Kwinana project has received \$90 million in CEFC finance.
- [462] The Kwinina WtE Project also features on the [ARENA website](#) including a life cycle assessment (LCA) completed in 2018. The LCA was prepared to satisfy ARENA requirements for a \$25 million funding grant. It includes a GHG inventory prepared in accordance with ARENA's *Life Cycle Assessment (LCA) of Bioenergy Products and Projects* (ARENA, 2016). As part of this

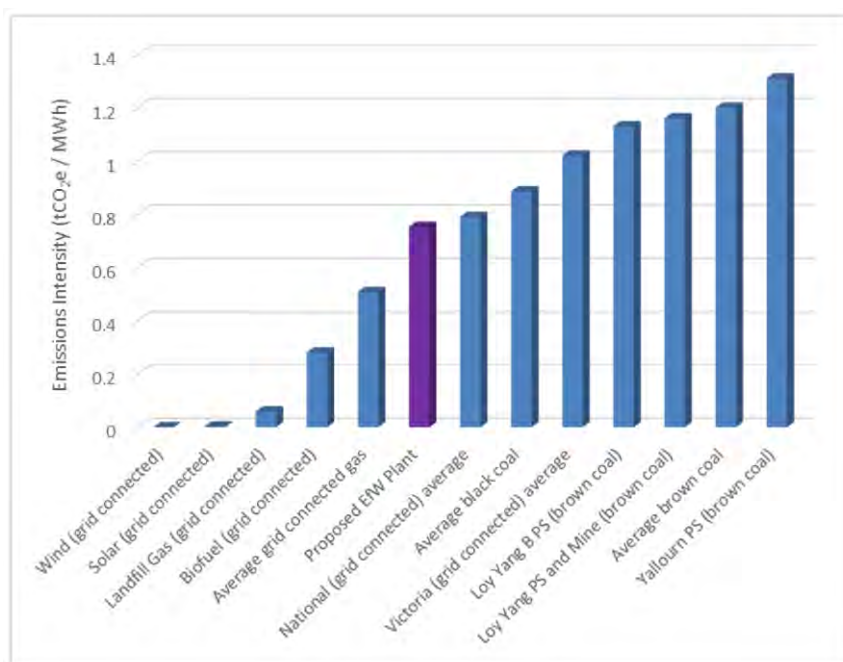
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method a reference system is needed to serve as a benchmark comparison using the dominant energy sources and fuels in the market.

[463] For Western Australia, black coal power generation was used as the reference system. Using this method, the LCA concluded that the Kwinina WtE Project would result in a GHG emission reduction of over 400,000 tCO₂e per year through avoided grid electricity and landfill gas emissions. This method of accounting avoided emissions has been used by national renewable energy financing agencies ARENA and CEFC to satisfy funding and financing requirements.

Figure 6: Emission intensity comparison



Source: Electricity sector emissions and generation data 2021–22 (Clean Energy Regulator, 2023)

[464] In December 2019, the NSW Minister for Energy and Environment asked the NSW Chief Scientist & Engineer to set up a working group to review and advise on WtE activities to ‘ensure proposals adopt international best practice standards and controls to protect human health and the environment’. One of the Terms of Reference included consideration of how WtE activities may contribute to achieving the state government’s net zero GHG emissions policies. In responding to this Terms of Reference, the Chief Scientist & Engineer recommended the adoption of LCA’s with consideration of the approach taken in the Kwinina WtE facility assessment.

[465] The comparison of avoided emissions against the NEM emission factor rather than the dominant energy and fuel source of Victorian brown coal likely presents more conservative results than alternative methods adopted

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by Australia's renewable energy financing agencies. However, EPA notes that the three remaining coal power stations are expected to close over the second half of the lifespan of the proposed facility and the adoption of renewable energy sources is likely to be higher.

[466] For these reasons, EPA acknowledges that there is a degree of uncertainty over the extent of avoided emissions from grid displacement over the lifespan of the facility. Any avoided emissions are likely to accrue early in the facility's lifecycle and decline over time. To reduce uncertainty, EPA requires preparation of GHG Emission Reduction and Management Plan (GHGERMP) (Condition [DL_R01/4](#)). This must identify GHG emission estimates and scopes – estimates of Scope 1, Scope 2 and measurable and relevant Scope 3 GHG emissions, in carbon dioxide equivalent (tCO₂e), for the operational phases of the proposal. EPA would incorporate a requirement to maintain the GHGERMP into a suitably worded operating licence condition. In addition, the GHGERMP must be maintained and updated on a yearly basis using operational data. It must also provide minimisation strategies for the life of the project, with GHG reduction targets demonstrating contributions towards Victoria's target of net zero emissions and the interim targets set by Government under the *Climate Change Act 2017* (CC Act).

Operations – avoided emissions from landfilling

[467] The inventory's indirect non-energy related GHG emissions (Scope 3) includes a reduction in emissions resulting from the diversion of waste from landfill disposal. This has been determined using the Emissions Reduction Fund Carbon Credits (Carbon Farming Initiative – Coal Mine Waste Gas) Methodology Determination 2015. It assumes all 400,000 tonnes/year of waste is diverted from landfill. The inventory has calculated an annual displacement or avoided emissions of 300,051 tCO₂e.

[468] Landfill gas is emitted from landfill because of the decomposition of organic matter in waste. It is largely composed of methane and carbon dioxide. Methane is a potent GHG emission and is at least 28 times more effective than carbon dioxide at trapping heat in the atmosphere over a 100-year period (US EPA, 2023). Modern landfills in Australia use systems to capture landfill gas and recover energy. However, not all gas is recovered even under the most optimum settings. In comparison, incineration of waste effectively destroys all methane converting it to the less potent carbon dioxide.

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- [469] The application's inventory assumed a methane capture rate of 45% based on available literature and information on current landfill capture in Victoria. A similar methane capture rate of 46.2% based on the average Australian landfill operations was used in the Kwinina WtE Project LCA. While the performance of landfill gas capture may increase over the lifespan of the facility, this is likely to occur incrementally and at varying scale. As residual waste will be sourced from a large geographical area, use of an average methane capture rate for Victoria is considered appropriate.
- [470] In further assessing the potential for avoided emissions from landfilling EPA has given regard to the *Climate Change 2007 – Mitigation of Climate Change*, prepared by Working Group III Contribution to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC, 2007). The report recognises that a wide range of mature technologies are available to mitigate GHG emissions from waste and landfilling. This includes thermal treatment including specifically moving grate incineration with energy recovery. Benefits are noted as reducing the mass of waste, offset fossil fuel use and avoidance of most GHG emission when compared to landfilling.
- [471] *Climate Change 2014 – Mitigation of Climate Change* also clearly acknowledges the role of WtE facilities in mitigating GHG emissions from landfilling (IPCC, 2014). It reiterates the importance of mitigation in waste management and landfilling through reuse, recycling and energy recovery. It refers to the EU Directive 2008/98/EC on waste with energy recovery being positioned above landfill with methane recovery and use. This is consistent with EPA's principle of waste management hierarchy.
- [472] In the Working Group III's latest contribution to the Sixth IPCC Report (IPCC, 2023), the focus shifts from GHG emission mitigation of waste to the concept of circular economy. The Victorian Waste to Energy Framework has been specifically developed as part of the [state's circular economy policy](#). Central to this policy is the target to reduce by 80% the amount of waste disposed at landfill and the imposition of a 1 million tonne per year cap on residual waste that may be treated through WtE activities.
- [473] The Cap is designed to avoid 'path dependency' or locking in overcapacity of WtE infrastructure in Victoria, a risk recognised in *Climate Change 2014 – Mitigation of Climate Change* (IPCC, 2014). The circular economy policy and Cap also acknowledge the potential of WtE to contribute to the avoidance or mitigation of GHG emissions from landfilling.

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- [474] As part of a Cap licence application, an applicant will need to provide assessments of the expected lifecycle GHG emission impact of the proposed facility compared to a system reference or benchmark of landfilling (DELWP, 2021b). This is consistent with the balance in infrastructure and system planning of a circular economy as recommended in the latest IPCC report.
- [475] In assessing the application's proposed avoided emissions from landfilling, EPA has given regard to the IPCC reports and the acknowledged role of incineration with energy recovery in reducing GHG emissions from landfilling. EPA has also considered the role of WtE as part of the Victorian Government's circular economy policy. EPA is satisfied with the inclusions of avoided emissions from landfilling in the applicant's GHG inventory. EPA is also satisfied that it will contribute to a reduction in GHG emissions over the lifespan of the facility.
- [476] To reduce any uncertainty associated with avoided emissions from landfilling and to better align assessment methods with other Australian jurisdictions and agencies, EPA requires an updated GHG inventory as part of a lifecycle analysis of the facility. This must be provided at the detailed design phase prior to commencing construction (Condition [DL_R04/18](#)). This will reflect the updated waste characterisation required under Condition [DL_R04/1](#)).

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Figure 7: Hierarchy of waste management

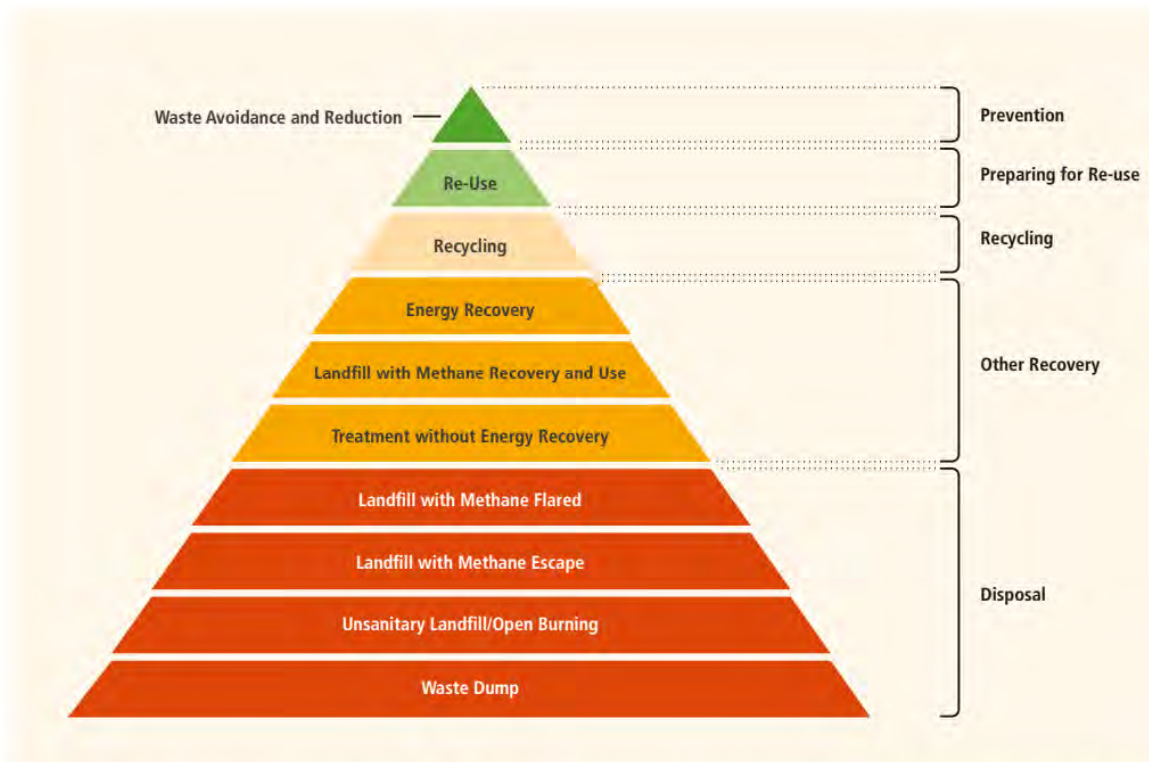


Figure 10.16 | The hierarchy of waste management. The priority order and colour coding is based on the five main groups of waste hierarchy classification (Prevention; Preparing for Re-Use; Recycling; Other Recovery e.g., Energy Recovery; and Disposal) outlined by the European Commission (EC, 2008b).

Source: Reproduced in the Climate Change 2014 - Mitigation of Climate Change Working Group III contribution to the fifth assessment report of the IPCC (IPCC, 2014)

Other avoided emissions not accounted.

[477] The inventory does not include an assessment of potential avoided emissions associated with the reuse of IBA or the recovery of metals. GHG emission contributions or avoidance may be considered as part of an LCA. To reduce uncertainty associated with avoided emissions and better align assessment methods with other Australian jurisdictions and agencies, EPA requires an updated GHG inventory as part of an LCA. This must be provided at the detailed design phase prior to commencing construction (Condition [DL_R04/18](#)). This will reflect the updated waste characterisation required under Condition [DL_R04/1](#).

Avoided emissions over the lifespan of the facility.

[478] The applicant's assessment of a net positive impact of GHG emission reduction over the proposal's lifespan relies on avoided emissions. Avoided emissions are not carbon offsets or credits. Offsets are financial products (purchasing GHG emissions reductions elsewhere) sometimes used to offset

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GHG emissions that cannot be avoided, usually as part of net zero emission or carbon neutrality initiatives. For this reason, offset products will rarely be an appropriate mechanism to comply with the GED (EPA, 2022b). Avoided emissions is the difference between the GHG emissions of the activity compared to what is occurring or will occur should that activity not take place. Avoided emissions allows a comparison of GHG emission outcomes of two scenarios and their potential impact on climate systems.

[479] EPA has noted areas of the GHG inventory that are likely to be impacted over the life of the facility. These are changes in the waste composition overtime and changes in the emission intensity of displaced grid electricity on avoided emissions. Some of these changes are unlikely to occur until the 2030s or later and may not occur along predictable trajectories. A conservative or precautionary assessment therefore expects the potential for avoided emissions to accrue earlier in the proposal's operation and decrease overtime. These may be somewhat mitigated by requirements of the facility to perform within the set calorific designed parameters of the facility as noted by the applicant.

[480] The proposed WtE facility works alongside achieving a higher order management of residual waste in accordance with the environmental protection principles of the waste hierarchy from disposal to energy recovery. It also aligns with the strategic objectives and targets of Victoria's circular economy policy to reduce the amount of waste disposed at landfill by 80%.

[481] While the circular economy policy commits to reducing per capita waste generation by 15%, Victoria's population is also estimated to grow from 5 million and 6.5 million in 2018 for Melbourne and Victoria respectively, to 9 million and 11.2 million in 2051 (DELWP, 2019a). Victoria's demand for MSW and C&I waste management is likely to increase overtime or exceed existing infrastructure capacity regardless of any successful reductions in per capita waste generation.

[482] Within this context, it is considered an appropriate avoided emission scenario to consider the reduction of GHG emissions achieved from the proposal's activities compared to those that would otherwise occur from disposing of the waste to landfill. Avoided GHG emissions from displaced electricity are also a relevant consideration. While not consistent to include in the applicant's GHG inventory, the proposal may also be seen to extend the lifespan or reduce the demand for expanded or new landfill infrastructure and their associated GHG emissions over coming decades. As previously noted, to reduce uncertainty and any potential impacts, EPA

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requires further validation with an updated GHG inventory of the proposed activities at the detailed design phase before starting construction (Condition [DL_R04/18](#)). This will reflect the updated waste characterisation required under Condition [DL_R04/1](#).

- [483] The applicant is also required to prepare a GHGERMP (Condition [DL_R01/4](#)). This must identify GHG emissions estimates and scopes – estimates of Scope 1, Scope 2 and measurable and relevant Scope 3 GHG emissions, in carbon dioxide equivalent (tCO₂e), for the operational phases of the proposal. It must be maintained and updated on a yearly basis using operational data. It must also provide minimisation strategies for the lifetime of the project, with GHG reduction targets demonstrating contribution towards Victoria’s target of net zero emissions and the interim targets set by Government under the CC Act.
- [484] The applicant is also required to prepare a Climate Change Adaptation Management Plan (Condition [DL_R01/5](#)). This must identify hazards and assesses risks of harm from climate change impacts to the proposal’s operation, over the life of the project. This includes potential biophysical and environmental impacts, social and economic impacts, potential health impacts and other potential impacts from climate change related to the activity. These will need to be assessed in terms of long and short-term impacts, direct and indirect impacts and cumulative impacts. For further consideration of climate change impacts, please see Section 7.1.
- [485] The conditions above are designed to continuously validate and monitor the performance of the proposal and its potential impacts on human health and environment against the critical performance benchmark for GHG emissions set by the application. These reports will inform EPA’s option of periodically reviewing any operating licence under section 76 of the EP Act issued for the proposal and its attached conditions. Under section 75(2)(b) of the EP Act, EPA cannot issue an operating licence with an expiry date exceeding 20 years. These reports will also enable EPA’s assessment of any new licence application at the time of expiry. These conditions also provide mechanisms for identifying and implementing further actions to improve or reduce the potential of GHG emissions exceeding the critical performance benchmark for the proposal so far as reasonably practicable.
- [486] As noted, there is no specific indicator, such as an annual temperature increase, attached to the environmental value of climate systems. For this assessment, EPA has considered the potential net reduction in GHG emissions when taking into account avoided emissions against the Victorian Government’s currently legislated emission reduction targets. It is

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acknowledged that the application's estimated reduction of 0.31% and 0.06% for Victoria and Australia's total emissions may not be fully realised.

Conclusion

[487] EPA has assessed and is satisfied that the application proposes GHG emission controls that would enable it to reduce risk of harm so far as reasonably practicable. This includes implementing a suitable combination of BATT control measures. EPA is also satisfied the application has considered potential impact or harm of GHG emissions. This is supported by the application's use of reference facilities, GHG inventory, and risk and impact assessments. While EPA acknowledges some uncertainty in the calculations, a set of suitable conditions has been imposed to reduce it. EPA is satisfied that GHG emissions from the proposed activity will not pose an unacceptable risk of harm to human health or the environment or any of the relevant value of the ERS for ambient air.

EPA conclusion: EPA is satisfied that GHG emissions pose a low and acceptable risk to human health and environment, the relevant value of the ERS.

6.2.3 Air

[488] EPA has assessed the application and taken into account whether air emission from the proposed activities may impact on human health and the environment. As part of assessing impacts on human health and environment EPA gives regard to the ERS. The relevant standard for air emissions is provided in Part 2 – Ambient Air. This includes relevant environmental values for the ambient air environment in Table 2.1 along with indicators and objectives in Table 2.2.

[489] As noted above, EPA considers that the application proposes measures to comply with the GED that reduce the risk of harm so far as reasonably practicable – see Section 6.1. EPA is also satisfied that the application proposes to adopt BATT for air emissions – see Section 6.4. This assessment focuses on the residual risks associated with air emissions after mitigation controls have been implemented.

[490] The application included an AQIA in Appendix D and a HHIA in Appendix F. While it was prepared under EPA's former 1970 EP Act and State Environment Protection Policy (Air Quality Management) framework the technical information either directly addressed or provided sufficient evidence for an assessment against the new EP Act 2017 framework. EPA considers the application to be generally consistent with the steps in controlling and reducing risk as recommended under EPA Publication 1961:

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Guideline for Assessing and Minimising Air Pollution in Victoria (EPA, 2022c). This includes identifying hazards of air emissions including:

- characterising emission sources consistent with state of knowledge for WtE facilities, and
- describing the local receiving environment around Lara including topography and landscape, meteorology and sensitive land uses, including the nearest at 320 m northwest of the activity site and major residential areas approximately 1 km.

[491] For assessing air pollution risks the application has completed equivalent of a 'Level 2 assessment' as defined under EPA's air pollution guideline (1961). A Level 2 assessment is the most common type of risk assessment. It usually involves dispersion modelling or monitoring. The AQIA included dispersion modelling using EPA's preferred AERMOD modelling guidance (EPA, 2022c). The predicted pollution concentrations are then benchmarked against a set of predefined air pollution assessment criteria (**APAC**) to understand the resulting risk in the HHIA. Exceedances of an APAC indicates that the activity has the potential to pose an unacceptable risk to human health or environment. The applicant has also provided information regarding the appropriateness of buffer distances from sensitive receptors.

[492] The AQIA applied a conservative assessment strategy. This included modelling the proposed air emissions for each pollutant assuming the maximum emission limits allowed under the EU IED. For example, NO_x was modelled using the 30-minute average under the IED emission limits of 400 mg/Nm³. This compares to the daily BAT-AEL of 120 NO_x under the BREF 2019 – refer to Table 16 in this assessment report for more details. The modelling results may therefore be seen as representative of upset or OTNOCs rather than continuous normal operations.

[493] To reduce risks posed by air emissions EPA requires is requiring the facility to achieve the BAT-AELs of the BREF and BATC 2019 under transient, part load, start-up and shut down, and normal operating conditions (Condition [DL_G03/4f](#)). These limits will be incorporated into suitably worded operating licence conditions.

[494] In addition to applying conservative air emission levels in the modelling, it has also incorporated full five-year meteorological data and appropriate background values. This means the AQIA has assessed the contribution of the facility to existing air pollution levels and not impacts of the facility in isolation. The importance of this to human health impacts is discussed in

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further detail in Section 6.2.1 above. This strategy applied in the modelling provides a high degree of conservativeness to the AQIA results. EPA is satisfied the modelling has been completed in accordance with accepted standards and methodologies and is reliable for the purposes of this assessment.

[495] The results of the modelling in the AQIA and supporting HHIA find all APAC are met except PM_{2.5}. As noted in Section 8.2.1, the specific conclusions for air emission impacts are:

- 'There are no acute inhalation exposure risks of concern'.
- 'There are no chronic inhalation exposure risks of concern'.
- 'There are no chronic risks of concern from exposure to pollutants from the facility via soil or ingestion of homegrown produce'.

[496] In assessing the results further, EPA notes the following:

- The calculated inhalation hazard index for all types of pollutants and exposure times was well within the acceptable limit of one. The results for the pollutants assessed were two to three orders of magnitude below relevant APACs indicating a margin of safety.
- Conservative assumptions were included in the assessment, so that the estimates of risk that were calculated are likely to be significant overestimates:
- In all cases, risks were calculated at the most sensitive receptor anywhere in the study area. For acute exposures (i.e. short ones lasting about 1 hour), it is possible (though unlikely) for someone to be present at the worst-case location and at the worst-case time for one hour. For chronic exposures (which assume a full year of continuous exposure, 24/7), the assumption of someone remaining exposed continuously for such long times at a place that is not their residence is conservative. This means that most people will not be exposed to such concentrations for this amount of time, but the scenario is modelled to account for such a person.
- The risk assessment is based on the highest ground level concentrations predicted anywhere in the model domain. This means that some of these concentrations might fall within the boundaries of the facility, where no residence would be present, but the concentrations are used in the model because they represent the highest possible exposure to a chemical.
- The entire HHIA was based on the most conservative scenario modelled in the AQIA, which assumes that the that the highest emission levels, as discussed above, occur every hour of the year.

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[497] Regarding the ERS, for criteria pollutants, such PM_{2.5}, PM₁₀, nitrogen dioxide, sulphur dioxide, carbon monoxide and ozone, the relevant objectives specified in the ERS are adopted as APAC objectives. In assessing potential impacts on the ERS, EPA notes:

- The findings from the HHIA indicates that background levels of PM_{2.5} exceed ambient air criteria for PM_{2.5}. In situations with high background concentrations, the application needs to show that the incremental contribution from the project's activities is negligible (4% of the relevant APACs). The estimated maximum incremental PM_{2.5} concentration for 24-hour duration at the nearest sensitive receptor was 0.0339µg/m³, approximately 1.3% of the ERS (25µg/m³). Therefore, contribution to background from the proposed project can be considered negligible.

[498] EPA has given regard to the potential risks of harm to human health from particulate emissions. In doing so, EPA is satisfied that the application proposes BATT measures for particulate emissions as assessed in Sections 6.1.4 and 6.4 of this assessment report. EPA has further considered the informed opinion of the NSW Chief Scientist and Engineer's Independent Report on WtE activities in which consideration of air emission limits was one of its Terms of References (NSW Government, 2020)

[499] Regarding particulate emissions, the report notes that BATT controls, where adopted, generally perform well. This includes the capture of ultrafine particles. While acknowledging the relatively limited number of available studies or literature, the report comments that ultrafine particulate removal of up to 99% can be expected at WtE facilities. The reference facility data supports this conclusion with several facilities performing towards the lower end of the BAT-AELs of the BREF 2019.

[500] EPA has considered the results of the AQIA and HHIA including for the purposes of assessing the suitability of the separation distance and potential impacts on nearest sensitive receptors. Based on the results of the AQIA and HHIA and the implementation of BATT measures for air emission controls, EPA is satisfied that the activities do not pose an unacceptable risk of harm to human health and that based on the evidence the risks are considered low and acceptable. This includes the potential risks of harm from air emissions to the nearest sensitive receptors at 320 m northwest of the activity site. Human health risks are assessed in more detailed in Section 6.2.1.

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Conclusion

[501] EPA has assessed and is satisfied that the application proposes air emission controls that will reduce risk of harm so far as reasonably practicable. This includes implementation of a suitable combination of BAT control measures. EPA is also satisfied the application has considered potential impact or harm of air emissions. This is supported by the application's use of reference facilities, AERMOD modelling, and risk and impact assessments. EPA is satisfied that air emissions from the proposed activity will not pose an unacceptable risk of harm to human health or the environment or any of the relevant value of the ERS for ambient air.

EPA conclusion: Modelled risk estimates were not predicted to significantly impact sensitive receptors. EPA is satisfied that air emissions pose a low and acceptable risk to human health and environment.

6.2.4 Noise

[502] EPA has assessed the application and considered the impact of the activity on human health and the environment from noise emissions. As part of assessing impacts on human health and environment, EPA gives regard to the ERS. The relevant standard for noise is provided in ERS Part 3 – Ambient Sound. However, under the EP framework, direct regulations take precedence over the ERS (EPA, 2021k).

[503] Section 166 of the EP Act states that a person must not emit unreasonable noise or permit unreasonable noise to be emitted. The method for determining unreasonable noise from commercial, industrial and trade premises is set out in Division 1 (Noise Protocol) and Division 3 (Unreasonable and aggravated noise from commercial, industrial and trade premises) of the EP Regulations and EPA Publication 1826: Noise limit and assessment protocol for the control of noise from commercial, industrial and trade premises and entertain venues (EPA, 2021e) (**Noise Protocol**).

[504] EPA has considered the application's proposed noise control measures against requirements of the GED and whether they eliminate or reduce the risk of harm so far as reasonably practicable – see Section 6.1 above. EPA has noted that the proposed measures are BATT for noise emissions – Section 6.4. This assessment focuses on the residual risks associated with noise emissions after implementation of some of the proposed controls.

[505] As noted above, a noise impact assessment (NIA) was included in Appendix E of the application and a HHIA in Appendix F. Following detection of an error in the calculation of applicable noise limits an RFI was issued. A

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revised NIA, dated 24 August 2022, was submitted to EPA. The revised NIA was prepared in accordance with the EP Regulations and the Noise Protocol and replaces the original NIA in its entirety. This assessment considers the revised document only.

[506] EPA's Noise Protocol sets out the process that must be followed to assess (measurement or prediction) the effective noise level within a noise sensitive area or at an alternative assessment location. This generally includes:

- characterising the sources of noise emissions consistent with state of knowledge for WtE facilities, waste management facilities or other equivalent large industrial plant and equipment,
- predicting the noise levels at the nearest sensitive receptors (such as homes or schools – referred to as 'noise sensitive areas'), and
- accounting for the character of the noise, such as tonal, intermittent or impulsive character, duration and measurement position as relevant.

[507] The NIA includes noise modelling using SoundPLAN computer modelling software with noise propagation calculation using CONCAWE. EPA is satisfied that the software is consistent with generally accepted practice. The predicted noise levels are then benchmarked against a set of noise limits at each of the nearest sensitive receptors. Noise limits apply to each period – day, evening and night. The most sensitive of these limits is for the 'night period' which usually has the lowest limit. Noise is unreasonable under section 166 of the EP Act if the effective noise level exceeds the noise limit that applies at the time the noise is emitted.

[508] The noise limit for a noise sensitive area is for the total industry noise combined. Regulation 119 requires:

- (1) If two or more commercial, industrial and trade premises (whether existing or proposed) emit, or are likely to emit, noise that contributes to the effective noise level, a person in management or control of one or more of those premises must take all reasonable steps to ensure that the contribution from each of the premises, when combined, does not exceed the noise limit for the noise sensitive area.

[509] The NIA has determined the noise limits for each of the sensitive receptors – including the nearest receptors as shown in Figure 8.

[510] The NIA was conducted using the characterisation or inventory of major site operational noise sources. These are listed in Table 6 of the NIA and are based on available information from similar projects. Certain other

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assumptions about noise sources were also made. In considering this, EPA notes the following:

- Unfavourable or worst-case metrological conditions are assumed in the model.
- The internal noise levels within unlined reverberant buildings were used in the modelling and additional structural building treatments/materials as described in Table 6 of the NIA were modelled to obtain the predicted noise levels at the receiver locations.
- Measures to address tonal noise such as silencers on fans and stack were included in the modelling.
- Additional controls identified in the application and NIA (detailed in section 6.1) have not been implemented in the modelling.
- Truck movements across the site (excluding movement within the tipping hall) have not been included in the inventory of major site operational noise sources.

[511] In considering this, EPA notes the following:

- Noise limits are appropriately calculated for most receptors although several methodological issues were observed.
- Lower noise design targets have not been set that would otherwise allow for noise contributions from other industries.
- Information was not provided on the number of existing industries that operate at more sensitive times (evening and night) and did not allow for other industries within their assessment of being able to meet the noise limits when considering cumulative noise from other industries.
- There are currently five other industries in the Lara Industrial Zone 2. Also, there appears to be at least 13 vacant allotments in this zone.
- In applying the noise limits to multiple industries, for the purpose of Regulation 119(1), EPA Publication 1997: Technical guide: Measuring and analysing industry noise and music noise (EPA, 2021I) would effectively set a noise design objective for the proposed development of 10 dB below the noise limit identified in the NIA.
- 10 dB below the limit is unlikely to give rise to a cumulative level exceeding the limit, even if it has already been reached.

[512] EPA considers the night period noise design objective for the nearest sensitive receptor to be 28 dB(A) for R22 compared to 38 dB(A) in the NIA.

[513] The NIA was conducted using the characterisation or inventory of major site operational noise sources. These are listed in Table 6 of the NIA and are based on available information from similar projects. Certain other

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assumptions about noise sources were also made. In considering this, EPA notes the following:

- Unfavourable or worst-case metrological conditions are assumed in the model.
- The internal noise levels within unlined reverberant buildings were used in the modelling and additional structural building treatments/materials as described in table 6 of the NIA were modelled to obtain the predicted noise levels at the receiver locations.
- Measures to address tonal noise such as silencers on fans and stack were included in the modelling.
- Additional controls identified in the application and NIA (detailed in Section 6.1) have not been implemented in the modelling.
- Truck movements across the site (excluding movement within the tipping hall) have not been included in the inventory of major site operational noise sources.

Figure 8: Nearest sensitive receptors



[514] The results of the modelling are provided in Table 9, Section 7 of the NIA. For the nearest and most sensitive receptor (R22), it concludes results of 36 dBA versus its calculated night period limit of 38 dBA. The NIA also

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concludes compliance at all other receivers during all time periods. As noted, EPA considers that the noise design objective should be 10 dB below the noise limit to allow for cumulative noise from other industries.

[515] This is in recognition of existing noise sources within the Lara Industrial Zone and the zone's potential growth of large-scale industrial land uses. The noise design objective makes it unlikely that existing and potentially new cumulative noise levels will exceed the limit, even if it has already been reached. This is considered consistent with Regulation 119. On this basis, the NIA indicates noise design objective is predicted to be exceeded during the night period at the nearest noise receptors R20 by 5 dB and R22 by 8 dBA.

[516] The NIA only included certain noise mitigation or control measures in its assumptions. This includes constructing the boiler room using 100 mm thick concrete and the use of other noise attenuating building materials. Other noise controls are identified for investigation at the detailed design phase but have not been included in the NIA model. This includes:

- substituting the cooling tower fans with low-noise fans,
- installing bespoke acoustic silencers for the stack and major fans,
- selecting equipment with lower noise emissions,
- enclosing and/or lagging noise sources within the buildings,
- including sound absorptive internal linings on the inside wall and/or roof cladding surfaces within the buildings,
- considering alternative wall and/or roof cladding with more appropriate sound transmission properties, and
- rearranging the plant layout by using large buildings to provide additional acoustic shielding of major noise sources from the nearest noise receivers.

[517] EPA is satisfied that the proposed noise emission controls not incorporated into the noise modelling are sufficient to achieve the noise design objective 10 dB below the noise limit. The applicant is required to verify this by providing an updated NIA based on the final detailed design before commencing construction, endorsed by a suitably qualified EPA-appointed auditor (Condition [DL_R04/13](#)). This will undergo further proof-of-performance verification during the commissioning phase.

Risk of low frequency sound

[518] The risk of low frequency sound has been assessed using an alternate approach rather than that of EPA Publication 1996: Noise guideline – Assessing low frequency noise (EPA, 2021m). Low frequency is a type of noise often described as a rumbling or droning noise. It can be generated by

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machinery used as part of WtE facilities such as pumps, compressor, fans, generators and boilers.

[519] The updated NIA is also required for risks associated with low frequency noise. This must be conducted in accordance with EPA Publication 1996, including details of measures to be implemented to address, as necessary, the risk of unreasonable noise associated with the emission of low frequency noise.

Risk from noise emissions on environment values

[520] EPA notes that the NIA did not identify any other areas for which environmental values apply that are not represented by noise sensitive areas. In the absence of this information, EPA conducted a desktop assessment and identified the following natural areas:

- Serendip Wetland Wildlife Reserve, zoned Public Conservation and Resource Zone (PCRZ) approximately 4.6 km north of the proposed facility
- You Yangs Regional Park, zoned PCRZ, approximately 9 km north of the facility.

[521] Using the predicted noise level of 25 dB(A) at R31 located 1,310 metres north of the facility, EPA estimated the noise level at Serendip Wetland Wildlife Reserve as 14 dB (distance attenuation only). Based on current modelling, it is considered unlikely that the proposed facility would be audible at either Serendip reserve or the You Yangs Regional Park. The risk from noise emissions on the environment value of human tranquillity and enjoyment in natural areas is likely to be very low.

Conclusion

[522] EPA has assessed the potential impact of the proposed activity on human health and the environment, including the impact on the environmental value of human tranquillity and enjoyment in natural areas identified in the environmental reference standard. EPA has considered potential for unreasonable noise including cumulative impacts from the activity proposed by the applicant and potential surrounding activities conducted by other persons.

[523] EPA is satisfied that in relation to noise emissions the application does not pose an unacceptable risk of harm to human health and environment or any relevant value of the environmental reference standard. EPA is further satisfied that application proposes noise emission controls that will eliminate or reduce risk of harm so far as reasonably practicable subject to

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conditions. EPA concludes additional noise controls are available to further reduce noise so that the proposed activities do not contribute to unreasonable noise when combined with other industries both existing and those that may be developed in future.

EPA conclusion: EPA is satisfied that noise emissions pose a low and acceptable risk to human health and environment and the relevant value of the ERS.

6.2.5 Odour

- [524] EPA has assessed the application and taken into account whether odour emissions from the proposed activities may impact on human health and the environment. As part of assessing impacts on human health and environment, EPA has regard to the ERS. The relevant standard for odour emissions is provided in ERS Part 2 – Ambient Air. This includes relevant environmental values for the ambient air environment in Table 2.1 along with a qualitative indicator and objective for odour in Table 2.2. The qualitative objective for odour is an air environment that is free from offensive odours from commercial, industrial, trade and domestic activities.
- [525] As noted in Section 6.1 of this assessment report, EPA considers that the application proposes measures to comply with the GED that eliminate or reduce the risk of harm so far as reasonably practicable. EPA is also satisfied that the applicant proposes to adopt BATT for odour emissions – see Section 6.4. This assessment focuses on the residual risks associated with odour emissions.
- [526] The application states in its RFI response (November 2022) that limited odour assessment reports are available for its active WtE reference facilities due to their performance. However, a report was found for the Leeds reference facility in the UK. The report enables a comparison with the odour emission performance of a reference facility of a similar size and throughput, common emission sources and odour control technologies (Leeds City Council, 2016). Information on local meteorology was not supplied. A desktop review was conducted to understand the surrounding topography with residences at approximately 350–400 m distance, but a higher presence of buildings and structures and neighbouring industries.
- [527] The report concludes that a very small number of odour complaints were made coinciding with the facility’s commissioning phase. For some of these complaints, there was no evidence that this was connected to the reference facility. The report concluded that the facility was not giving rise to impacts of odour, according to the evidence. EPA has considered similar

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compliance enforcement evidence from reference facilities as part of previous assessments (EPA, 2020a). The conclusions of the Leeds report are generally consistent with evidence supplied to EPA in these prior assessments.

[528] The application has not provided an odour impact assessment using dispersion modelling. The applicant considered risk of odour impacts to be only the result of rare scenarios such as unplanned shutdown of both boilers lines and the proposed backup controls. Therefore, the applicant did not consider modelling necessary due to the effectiveness of the proposed controls and the likely rare and short duration of any odour emission impacts. EPA has received and assessed such modelling for WtE facilities previously which has demonstrated the effectiveness of such controls during normal operating conditions.

[529] The applicant will be required to further validate the performance of the primary and backup odour control systems during normal and other than normal operating conditions using computational fluid dynamics or flow modelling of airflows within and exiting the waste tipping hall at the detailed design phase and before starting construction (Condition [DL_R04/12](#)).

[530] The application also proposes an odour management plan, as part of the activity sitewide EMS. It will be developed as part of the detailed design phase and be maintained through commissioning and operations. It will establish procedures to identify risk, monitor impacts based on environmental performance standards, and manage impacts if any occur. It will assess odour emission in general accordance with EPA Publication 1883: Guidance for assessing odour (EPA, 2022d). EPA requires the applicant to submit the odour management plan, endorsed by an EPA-appointed auditor, before starting construction (Condition [DL_R04/12](#)).

Conclusion

[531] EPA has assessed and is satisfied that the application proposes odour emission controls that will eliminate or reduce risk of harm so far as reasonably practicable. This includes implementing a suitable combination of BATT control measures.

[532] EPA is satisfied that the application has considered potential impact or harm of odour emissions. This is supported by the application's use of reference facilities, compliance track record analysis and risk assessment methodologies. EPA is satisfied that odour emissions from the proposed

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activity will not pose an unacceptable risk of harm to human health or the environment or the relevant value of the ERS for odour.

EPA conclusion

EPA is satisfied that odour emissions pose a low and acceptable risk to human health and environment and the relevant value of the ERS.

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6.3 Principles of environment protection

[533] Under section 69(3)(c) of the EP Act, EPA must take into account the principles of environment protection contained in Chapter 2 of the EP Act, specifically in sections 13–23.

[534] Applicants are also required to consider the principles when preparing their application. An application must demonstrate:

- which of the principles are relevant, which are not, and why?
- how the principles will be met – this should detail the measures (practices, techniques and technologies) that can meet the principles.

[535] The application was initially prepared as a works approval under the EP Act 1970, with consideration given against those principles. The EP Act 2017 amended and introduced several new principles to strengthen protection of human health and the environment, although the fundamental purpose of the principles is unchanged.

[536] In assessing the application against the principles, EPA has considered:

- [Permission applications and the environment protection principles](#) (web guidance) (EPA, 2023d)
- EPA publication 1565: Application of environment protection principles to EPA's approvals process (EPA, 2014).

[537] While EPA Publication 1565 was prepared under the EP Act 1970, the fundamental purpose of the principles has not changed. It is still considered relevant and forms state of knowledge.

6.3.1 Relevance of the principles to the approvals process

[538] Publication 1565 sets out how EPA expects applicants to consider the environment protection principles when developing proposals and preparing applications for approval. When deciding which principles are relevant to an approvals process, EPA provides the following guidance (section 2.1):

- All the principles are relevant to some extent to all proposals within the approval process, but the direct relevance of each principle depends on the issues arising in a particular proposal.
- Different principles (or combinations of principles) of varying significance may apply to different applications. They can moderate or balance each other in the overall assessment.

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- However, none of the principles are treated as absolute or totally dominant in any given situation. The principles are commonly applied in an integrated fashion.
- In applying the principles, EPA focuses on achieving efficient and practicable outcomes that are proportionate to the significance of the environmental problem(s) being addressed.
- The principles are not to be considered in isolation from the other matters (e.g. best practice and other statutory policy requirements) that proponents and EPA need to consider.

[539] In considering the Prospect Hill application, the following principles are considered relevant:

- Principle of integration of environmental, social and economic considerations (section 13),
- Principle of proportionality (section 14),
- Principle of primacy of prevention (section 15),
- Principle of shared responsibility (section 16),
- Principle of polluter pays (section 17),
- Principle of waste management hierarchy (section 18),
- Principle of evidence-based decision-making (section 19),
- Precautionary principle (section 20),
- Principle of equity (section 21),
- Principle of accountability (section 22), and
- Principle of conservation (section 23).

6.3.2 Principle of integration of environmental, social and economic considerations

[540] This principle aims to assist in reaching a balanced decision that integrates environmental, social and economic considerations. It recognises that there may be compromises between competing concerns and values. Depending on the nature of the proposal, considerations may vary in scope. Consideration may need to be given to varying geographies or timeframes – for example, to local, regional and global impacts or to short, medium and long-term timeframes (EPA, 2023d).

[541] In Publication 1565, EPA states that the principle aims to optimise the outcome of available trade-offs or compromises between competing concerns and values, and assist in reaching a balanced decision, rather than provide the absolute maximum level of protection of the environment. It requires the effective integration of economic, social and environmental considerations in decision-making processes with the need to improve

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community wellbeing and the benefit of future generations. For a proposal that may generate significant external economic and social impacts, consideration needs to be given first to whether the proposal is consistent with statutory policy (state environmental planning policies or SEPPs have since been replaced by ERS), and how likely is it to cause an environmental hazard first before broader economic and social issues are taken into account.

[542] The principle does not require EPA to balance the financial viability of a proposal with broader environmental, social and economic concerns. It is the overall impact of a proposal on society and the environment (rather than the applicant) that is of primary interest in applying this principle.

[543] The principle of integration of environmental, social and economic considerations is incorporated into EPA's assessment methodology and application form and manner requirements. The application's risk and impact assessments both include an integrated consideration of environmental, social and economic considerations. As part of its consideration, the application has addressed consistency with other environment protection principles such as the principle of waste management hierarchy.

[544] EPA has considered the risks of harm to human health and environment from the proposal. This includes short and long-term and cumulative impacts. EPA is satisfied that the application proposes measures to comply with the GED which requires the elimination or reduction of risk of harm so far as reasonably practicable – see Section 6.1. Furthermore, EPA is also satisfied that the application poses a low risk of potential adverse impact on environment and human health or any relevant ERS (which have replaced SEPPs) – see Section 6.2. Additionally, as part of this assessment, EPA has determined it appropriate to require implementation of all relevant internationally recognised BATT controls for WtE facilities in Victoria – see Section 6.4.

[545] The application details proposed social and economic considerations including employment and economic development opportunities, and improved waste and resource recovery outcomes including energy recovery. These are considered as part of the HHIA provided in Appendix F of the application and assessed in Section 6.2.1 of this report.

[546] EPA notes that many submissions raised concerns about the suitability of the site and its proximity to sensitive receptors such as residences and schools. The submissions raised a high level of concern with the potential

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for a disproportionate and localised impact while also expressing doubts over the potential social and economic benefits of the proposal.

[547] Potential adverse effects on the local community immediately around the site have been carefully considered together with the need for consideration of 'benefits to future generations'. However, as detailed above, EPA considers the proposal to pose a low and acceptable risk of harm to human health and environment. EPA further notes that:

- the proposal would result in a significant investment in the local economy with employment and other economic opportunities over the life of the facility,
- the proposal provides a waste management option for the current and future population of the Greater Geelong, Barwon South West region and western metropolitan Melbourne while also achieving a higher order waste management solution, moving from 'waste disposal' to 'recovery of energy' on the waste management hierarchy,
- the proposal, with its GHG offsets compared to landfilling wastes, will help government and societal efforts to reduce GHG emissions and tackle climate change,
- the applicant is required to demonstrate that it satisfies the requirements, and objectives of the Victorian Waste to Energy Framework administered by Recycling Victoria.

[548] On balance, EPA considers that the broader environmental, social and economic benefits have been balanced against the potential adverse effects on those immediately adjacent to the site.

6.3.3 Principle of proportionality

[549] This principle requires that a decision, action or thing directed towards minimising harm or a risk of harm to human health or the environment should be proportionate to the harm or risk of harm that is being addressed. It has been incorporated into and is the underlying concept behind the establishment of the GED and EPA's Permissioning framework.

[550] EPA's assessment methodology and application form and manner requirements align with the objective of this principle. EPA's Permissioning framework is based on a tiered approach to managing the risks to human health and the environment from activities with the potential to generate waste and pollution. Licences are the permissions tool for high-risk, high-complexity activities – such as the Prospect Hill WtE application.

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[551] The applicant was required to provide a high level of documentary evidence identifying potential risks of harm and how they would be eliminated or reduced so far as reasonably practicable.

[552] The application details proposed control measures consistent with state of knowledge for WtE activities. This includes adopting internationally recognised BATT control measures. EPA considers the information in the application sufficient for decision-making under the assessment framework detailed above. Where necessary, EPA has required additional information through RFI processes. The proportionality of EPA's decision-making is further informed by its objectives with regards to other principles of environment protection, specifically the principle of evidence-based decision-making and the precautionary principle.

[553] EPA has assessed the application and considers its decision to issue the development licence to be consistent with the principle of proportionality.

6.3.4 Principle of primacy of prevention

[554] This principle enshrines that prevention of harm to human health and the environment is preferred to remedial or mitigation measures. It has been incorporated into and is the underlying concept behind the establishment of the GED and the Permissioning Framework.

[555] EPA's assessment methodology and application form and manner requirements align with the objective of this principle. This is provided in the application's concept design, risk and impact assessments. The applicant was required to provide a proportionate level of documentary evidence identifying potential risks of harm and how they have been eliminated or reduced so far as reasonably practicable.

[556] The application supplies and proposes control measures consistent with state of knowledge for WtE activities. This includes adopting internationally recognised BATT control measures including ongoing activity and emission monitoring regimes.

[557] EPA has imposed a comprehensive and proportionate set of development licence conditions and benchmarks. To further ensure the highest level of technical oversight, EPA requires that all development phases of the project (detailed design, construction and commissioning) be appropriately endorsed by an EPA-appointed industrial facilities auditor or other suitably qualified expert where specified.

[558] The development licence and future operating licence will include strict and comprehensive monitoring and reporting requirements in addition to

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those measures proposed in the application. These contribute to further prevention of risks of harm to human health and environment from occurring.

[559] EPA has assessed the application and considers its decision to issue the development licence consistent with the principle of primacy of prevention.

6.3.5 Principle of polluter pays

[560] This principle mandates that persons who generate pollution and waste should bear the cost of containment, avoidance and abatement.

[561] The principle of polluter pays for residual MSW and C&I waste is operationalised through council or private commercial service provider fees and charges. The proposed facility will operate within a competitive market to offer waste management services. Consideration of the principle of waste management hierarchy is also relevant to the principle of polluter pays.

[562] The proposed facility will be subject to the fee schedule of Schedule 11 of the EP Regulations for its discharge or emission to the atmosphere. Further the applicant will be financially responsible for the disposal or management costs for wastes generated onsite including bottom ash and FGCS residues. These costs will act as an incentive for the company to minimise waste generation and pursue reuse options.

[563] EPA has assessed the application and considers its decision to issue the development licence to be consistent with the principle of polluter pays.

6.3.6 Principle of waste management hierarchy

[564] This principle is based on the concept of a hierarchy of preferred waste management options, with avoidance being the most preferred option and disposal being the least preferred. The hierarchy establishes an order of preference for waste management and is fundamental to EPA's assessment of waste management activities. EPA encourages higher order options in line with the hierarchy so far as reasonably practicable.

[565] Within the hierarchy, WtE is considered preferential to disposal at landfill, as it captures the energy value of waste and reduces the overall volume of waste sent to landfill. However, it is lower in the waste hierarchy than waste avoidance, reuse and recycling which prevent waste or capture materials for reuse.

[566] Recovery of energy should not compete with avoidance, reuse or recycling. Recovery of energy is only feasible where the targeted waste

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feedstock has a gross calorific value that can be recovered or where generation of the waste cannot be avoided, or the waste cannot be recovered for productive purposes through reuse and recycling.

[567] The waste feedstock proposed to be processed at the facility is currently managed through landfill disposal. The application also notes interruption within the recycling industry over the past several years. This proposal would result in recovery of energy from residual waste that would otherwise be destined for landfill. The application also presents opportunities for further resource recovery from metals and bottom ash recovery. EPA has imposed conditions requiring a report for the ongoing investigation of existing or emerging technique or technology options for resource recovery, so far as reasonably practicable.

[568] The applicant and EPA have considered current Victorian Government waste management policies and initiatives in *Recycling Victoria: a new economy* (DELWP, 2020) and the Victorian Waste to Energy Framework and Cap. These policy settings identify a role for WtE within a circular economy model. The applicant will need to obtain a Cap operator licence from Recycling Victoria and meet all requirements of these processes.

[569] EPA has assessed the application and considers its decision to issue the development licence consistent with the principle of waste management hierarchy.

6.3.7 Principle of evidence-based decision-making

[570] This principle legislates that actions or decisions under the EP Act should be based on the best available evidence in the circumstances that is relevant and reliable.

[571] This principle is integrated into EPA's assessment methodology and application form and manner requirements. Applications must be supported by technical studies into the potential impacts in areas such as human health and air and noise emissions. In the case of the Prospect Hill application, the studies undertaken relied on established and credible risk and evidence-based assessment methodologies such as enHealth (EnHealth, 2012) and AERMOD (EPA, 2022c) for HHIA and AQIA.

[572] EPA's decision is also informed by an EPA study on the potential health effects on local communities associated with air emissions from WtE facilities (EPA, 2018c). This study was conducted to inform EPA decision-making for WtE applications. EPA has also given regard to more recent reviews and conclusions of competent public health authorities in the UK.

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[573] EPA also considered evidence to support the reliability of the proposed use of moving grate incineration technology type and environmental controls. EPA considered the established and mature nature of the proposed technology and environmental controls to be sufficiently manageable through clearly established benchmarks established in the application and development licence conditions. Risks are further mitigated by requiring detailed design, construction and commissioning review processes as well as involvement of an EPA-appointed auditor.

[574] EPA has further reduced potential risks associated with a conceptual design and WtE activities through a comprehensive set of development licence conditions and benchmarks consistent with internationally acknowledged BATT for WtE facilities and environmental controls.

[575] EPA has assessed the application and considers its decision to issue the development licence to be consistent with the principles of evidence-based decision-making.

6.3.8 Precautionary principle

[576] Applying this principle requires consideration of the risk-weighted consequences, rather than a total avoidance of all risks. This requires a reasonable balance between the risks and costs associated with various environment protection measures and the benefits to be derived from them.

[577] In establishing if the precautionary principle is applicable to a development licence, it is necessary to determine whether two necessary conditions are satisfied, namely the existence of:

- the threat of serious or irreversible environmental impacts, and
- scientific uncertainty about those impacts.

[578] In relation to the threat, if it is considered serious, it does not matter whether the threat is irreversible or not. In addition, the expectation of damage should have 'reasonable scientific plausibility', even if it is not fully demonstrable.

[579] The need for precautionary action increases with both the level of possible harm (potential threat) and the degree of uncertainty.

[580] An applicant should also consider any potential cumulative impacts arising from a proposal, which is, whether the proposal's impacts or risks would add significantly to the seriousness of a threat which already exists.

[581] The precautionary principle is integrated into EPA's assessment of the application's compliance with the GED and potential impact of the activity

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on human health and environment including any values identified in the ERS. Consideration of the precautionary principle is also closely aligned with the principle of evidence-based decision-making.

[582] EPA has considered the weight of technical and scientific evidence supporting the application and WtE operations internationally. It is noted that WtE is an established activity that occurs in Australia, as well as other jurisdictions and internationally. Modern third generation WtE facilities are tightly regulated so that the potential environmental risks and impacts are known. EPA considers that the proposal poses neither a threat of serious or irreversible harm to human health, nor has it used a lack of full scientific certainty as reason for postponing measures to prevent or minimise any such threats. EPA has assessed the application and imposed conditions consistent with internationally acknowledged BATT for WtE facilities and environmental controls – see Section 6.4.

[583] As noted above, EPA’s decision is also informed by a review of international literature on the public health impacts of incineration facilities and recent reviews and conclusions of competent public health authorities in the UK – this assessment is detailed in Section 6.2.1. This is further supplemented by risk assessment methodologies of the HHIA, and air emission modelling assessed in Sections 6.2.1 and 6.2.3.

[584] EPA has assessed the application and considers its decision to issue the development licence consistent with the precautionary principle.

6.3.9 Principle of equity

[585] This principle expands on the considerations enshrined in section 1D of the EP Act 1970 (principle of intergenerational equity) and additionally legislates that all people are entitled to live in a safe and healthy environment irrespective of their personal attributes or location; and people should not be disproportionately affected by harm or risks of harm to human health and the environment.

[586] The principle of equity is integrated into EPA’s assessment of the application’s compliance with the Human Rights Charter, GED and potential impact of the activity on human health and environment including any values identified in the ERS.

[587] EPA has considered the risks of harm to human health and environment from the proposal. The assessment has been informed by an EPA study into the potential health effects on local communities associated with air

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emissions from WtE facilities (EPA, 2018c). This study was conducted to inform EPA decision-making for WtE applications.

[588] EPA also gave regard to research and studies provided in submissions and more recent reviews and conclusions of competent public health authorities in the UK. This is further supplemented by activity site-specific risk assessment methodologies of the HHIA, and air emissions modelling assessed in Sections 6.2.1 and 6.2.3. The HHIA considers the current health conditions of the local community such as vulnerable sub-populations.

[589] A precautionary approach has been adopted in determining whether any residual risks, if they were to eventuate, are acceptable or not. The assessment has considered cumulative impacts including the contribution of the proposed activity on background or existing environmental conditions and the susceptibility of the existing community to current and increases in pollution.

[590] EPA consider that the scientific literature, reviews and the HHIA support the conclusions that the proposed WtE activities do not pose an unacceptable risk of harm to human health and that, based on the evidence, the risks are considered low and acceptable. EPA is further satisfied that the proposal will not result any disproportionate harm or risk of harm to human health or environment on the current or future local population.

[591] As part of a balanced decision, EPA has determined it appropriate to require implementation of all relevant internationally recognised BATT controls for WtE facilities in Victoria – see Section 6.4. Where EPA considers certain risks could be reduced further, appropriate conditions have been applied. To ensure the highest level of technical oversight, EPA requires all development phases of the project (detailed design, construction and commissioning) to be appropriately endorsed by an EPA-appointed industrial facilities auditor or other suitably qualified expert where identified.

[592] As the proposal targets residual waste otherwise destined for landfill, it offers an alternative to the long-term human health and environmental impacts of landfills such as climate systems, air quality, amenity and land. The demand for residual waste management options is influenced by population growth in the Barwon South West region and metropolitan Melbourne. As noted, the proposal will contribute to achieving a higher order waste management solution, moving from 'waste disposal' to 'recovery of energy' on the waste management hierarchy.

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[593] The proposal, with its GHG emission offsets compared to landfilling wastes, will help government and societal efforts to reduce GHG emissions and tackle climate change. The proposal also provides opportunities for further resource recovery through such options as IBA reuse, potentially reducing demand for virgin materials.

[594] EPA is satisfied that the facility will contribute to the maintenance of the environment for future generations. EPA has assessed the application and considers its decision to issue the development licence to be consistent with the principle of equity.

6.3.10 Principle of accountability

[595] This basis for this principle is that the 'aspirations of the people of Victoria for environmental quality should drive environmental improvement' and that 'members of the public should therefore be given access to reliable and relevant information in appropriate forms to facilitate a good understanding of environmental issues and opportunities to participate in policy and program development'. On the latter, EPA notes that this does not just relate to policy and program development but also includes the opportunity for the public (and other third parties) to comment on an application when it is advertised and to ask the Victorian Civil and Administrative Tribunal (VCAT) to review EPA's decision on the application.

[596] The principle of accountability is integrated into EPA's development licence assessment process and decision-making. As part of its assessment process, EPA has engaged with members of the public guided by EPA's [Charter of Consultation](#).

[597] As set out in Section 4.2 of this report, this engagement included coordinated notifications via social media, print media, the [EPA webpage and media releases](#), and a [dedicated webpage](#) on the Victorian Government's engagement platform [Engage Victoria](#). The dedicated webpage provides full access to the application and supporting documents.

[598] EPA also conducted three rounds of public submissions. Following the first round of submissions, a section 236 conference of interested persons (also known as a community conference) was convened to inform EPA's decision-making – see Appendix C. In making its decision, EPA has given due regard to all submissions made by the community and interested parties and the outcomes of the community conference. This assessment report is also being published to further facilitate an understanding of the mitigation of risks of harm to human health and how the decision was made.

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[599] It is apparent however through the consultation process and as evidenced by the independent facilitator's comments in the community conference report, that significant themes and issues were raised during the consultation process, and it is important that all parties work constructively together into the future.

[600] EPA acknowledges the recommendations of the community conference report aimed at facilitating a better understanding in the community of consultation in EPA's decision-making. EPA also acknowledges the recommendation to provide the community with access to reliable and relevant information on EPA's new regulatory powers and the GED. EPA supports the implementation of these recommendations to further promote the principle of accountability. This is achieved through the requirement of public reporting of monitoring results and compliance (Condition [DL_R04/11](#)). EPA also requires a community and stakeholder engagement plan and a complaints response plan to form part of the applicant's EMS framework (Condition [DL_R01/2](#)).

[601] EPA strongly encourages community engagement activities and will consider ongoing options to support the recommendations of the community conference report. EPA will consider options for community engagement as part of future operating licence conditions.

[602] EPA has assessed the application and considers its decision to issue the development licence to be consistent with the principle of accountability, noting that the principle could be further promoted through continued community engagement and adoption of the independent facilitator's recommendations in the community conference report.

6.3.11 Principle of conservation

[603] This principle legislates the position that conservation of biodiversity and the protection of ecological integrity should be for the protection of environment that includes human health. The widespread and ongoing losses of valuable species and habitats resulting from human development now place greater responsibility on current generations to conserve the natural environment, its species and its ecosystems.

[604] The principle of conservation is integrated into EPA's assessment of the potential impact of the activity on human health and environment including any values identified in the ERS. EPA has also considered the Biodiversity Duty under the *Flora and Fauna Guarantee Act 1988* – see Section 7.2.

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[605] EPA has considered the risks of harm to human health and environment from the proposal – see Section 6.2.

[606] EPA is satisfied that the application poses a low risk of potential adverse impact on environment and human health or any relevant ERS – see Section 6.2.

[607] EPA is satisfied that the application proposes measures to comply with the GED which requires the elimination or reduction of risk of harm so far as reasonably practicable – see Section 6.1. As part of this assessment, EPA has determined it appropriate to require implementation of all relevant internationally recognised BATT controls for WtE facilities in Victoria – see Section 6.4.

[608] EPA has also imposed a comprehensive and proportionate set of development licence conditions and benchmarks. EPA further mitigates risks of harm eventuating by requiring detailed design, construction and commissioning review processes as well as involvement of an EPA-appointed auditor.

[609] EPA is satisfied that the proposal poses a low and acceptable risk to biological diversity and ecological integrity including the protection of human health. EPA has assessed the application and considers its decision to issue the development licence to be consistent with the principle of conservation.

Conclusion

[610] Overall, EPA considers that the proposal meets the environment protection principles.

EPA conclusion: EPA is satisfied that its decision appropriately has taken into account the principles of environment protection.

6.4 Best available techniques and technologies

[611] Under section 69(3)(e) of the EP Act, EPA must take BATT into account. BATT can be defined as techniques and technologies with the lowest impact on the environment without compromising the economic health of the (industrial) enterprises concerned (EPA, 2022c) (EPA, 2021a).

[612] In considering BATT for the application, EPA has relied primarily on the EU framework under EU IED and the BREF and BATC 2019, as discussed in Section 3.2.

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[613] The EU framework is informed by decades of regulatory and technical expertise overseeing the development and operation of WtE facilities throughout the EU. EPA considers this framework as the leading international standard for the industry, a position also recommended in NSW (EPA, 2017) (NSW Government, 2020). BAT under this framework is taken to be compatible with BATT under the EP framework (Article 3(10) of the EU IED).

[614] Under the EU framework, BATC 2019 provides the key elements of the BAT reference document. They are intended as a reference for setting permit or approval conditions for installations covered by Chapter II of EU IED. Existing EU facilities were given four years to comply with the BATC. The BATC offers a suitable BATT performance standard and benchmark for this application.

[615] EPA's assessment of the application against the EU framework is presented in Appendix F: BATT assessment. The standards specified in the BATC are considered critical performance benchmarks for the detailed design phase of the development either as proposed in the application or as prescribed by condition. As the BATC 2019 recommendations are intended as references for setting approval conditions, the assessment also includes an alignment of EPA conditions with the BATC.

EPA conclusion: EPA is satisfied that application is consistent with all relevant BATT for WtE facilities.

6.5 Whether the activity is otherwise consistent with the Act and Regulations

[616] Under Section 69(3)(e) of the EP Act, EPA must consider whether the activity is otherwise consistent with the Act and Regulations. EPA has completed a comprehensive assessment of the application against the requirements of the EP Act and Regulations, as detailed throughout Sections 6 and 7 of this report.

6.5.1 Section 52A Authority may refuse certain applications inconsistent with Victorian Recycling Infrastructure Plan

[617] EPA may refuse certain applications for waste management facilities that are inconsistent with the Victorian Recycling Infrastructure Plan (VRIP). This Plan is primarily administered by Recycling Victoria and supported by Sustainability Victoria. EPA referred the application to Recycling Victoria and Sustainability Victoria as detailed in Section 6.6 of this assessment

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report. Neither Recycling Victoria nor Sustainability Victoria objected to the proposal on the grounds that it is inconsistent with the VRIP.

[618] EPA further notes that compliance with VRIP may be further enforced via the Victorian Waste to Energy Framework and Cap operator licensing arrangements, which are administered by Recycling Victoria. For these reasons, EPA is satisfied that the application is not inconsistent with the VRIP.

Conclusion

EPA is satisfied that there are no significant matters that would otherwise be considered inconsistent with the Act and Regulations that are not otherwise dealt with throughout this assessment report.

6.6 Comments or submissions from prescribed referral agency

[619] Under section 69(3)(f) of the EP Act, EPA must consider comments and submissions received from prescribed and other referral agencies. The application was referred to:

- the Minister for Planning,
- Barwon Region Water Corporation,
- City of Greater Geelong,
- WorkSafe,
- Recycling Victoria, and
- Sustainability Victoria.

[620] All referral agencies responded, and their responses were incorporated into the assessment. Summaries of the referral agency comments are provided below.

6.6.1 Planning Authority – Minister for Planning

[621] The Minister of Planning is the Responsible Authority under the Planning and Environment Act 1987 (P&E Act) for the proposal. EPA referred the application to the Minister for Planning for comment on the application's permissibility under the P&E Act and the requirements and status of a planning permit application. A response was received from the former Department of Environment, Land, Water and Planning (DELWP) under the P&E Act's powers of delegation. DELWP confirmed the following:

- The activity is allowable by the planning scheme.
- The proposed activity is not prohibited by the planning scheme.

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- Planning Permit application no. PA2001035 had also been received for the proposed facility.
- A decision has not been made on the planning permit application.

Conclusion

[622] EPA has given due consideration to the referral response under section 69(3)(f) of the EP Act. EPA is satisfied the recommendations of this assessment report are consistent with the referral agency comments.

[623] The applicant must provide a copy of any planning permit or amendment to a planning scheme required under the *Planning and Environment Act 1987* (Vic) and related planning schemes (Condition [DL_G04](#))

Conclusion

EPA is satisfied the recommendations of this assessment report are consistent with the referral agency comments.

6.6.2 Barwon Region Water Corporation

[624] Barwon Region Water Corporation (Barwon Water) is the regional water and sewage service provider for the proposed activity site. EPA referred the application to Barwon Water for comment. Barwon Water responded confirming that it did not object to the proposal.

[625] Barwon Water provided comments on the proposal and its potential interaction with its water and sewage network. This included water resource and use of alternative water sources, water supply system infrastructure access, sewage network access and Trade Waste requirements. Barwon Water requested further detailed discussions with the applicant during the project's detailed design phase.

Conclusion

[626] EPA has given due consideration to the referral response under section 69(3)(f) of the EP Act.

[627] EPA is satisfied the recommendations of this assessment report are consistent with the referral agency comments.

[628] EPA requires the applicant to provide a report of the final detailed designs of water, wastewater and stormwater infrastructure before construction (Condition [DL_R04/16](#))

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EPA conclusion: EPA is satisfied the recommendations of this assessment report are consistent with the referral agency comments.

6.6.3 City of Greater Geelong

[629] The proposed activity site is situated within the administrative boundaries of the City of Greater Geelong. The Council is not the responsible authority under the P&E Act for the proposal. However, EPA referred the application to the Council for comment on the application as it is a significant local stakeholder. The City of Greater Geelong responded with comments from their engineering, environmental health and environment departments.

[630] Council's engineering department commented on truck movement to and from the site and requirements around sealing access roads. It did not identify any other concerns with the proposal. Truck movements and local traffic impacts are outside the scope of development licence application assessments.

[631] The environmental health department provided comments on air quality, noise, dust emissions and other amenity concerns. EPA has considered health in Section 6.2.1, air quality including dust in Sections 6.1.4 and 6.2.3, noise in Sections 6.1.5 and 6.2.4, and odour in Sections 6.1.8 and 6.2.5. Other amenity issues raised such as light emissions are outside the scope of development licence application assessments.

[632] The environment department commented on native vegetation and risks to water (groundwater and surface water). EPA has considered these matters in detail in Sections 7.2 and 6.1.6 respectively.

[633] EPA has given due consideration to the referral response under section 69(3)(f) of the EP Act. EPA is satisfied the recommendations of this assessment report are consistent with the referral agency comments.

EPA conclusion

EPA is satisfied the recommendations of this assessment report are consistent with the referral agency comments.

6.6.4 WorkSafe Victoria

[634] WorkSafe is Victoria's workplace health and safety regulator. Its responsibilities include regulating major hazard facilities. EPA referred the application to WorkSafe for comment. WorkSafe responded confirming that

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it did not object to the proposal. Other comments of note include the following:

- WorkSafe is satisfied that the applicant is likely to comply with relevant requirements of the *Dangerous Goods Act 1985* and its subordinate legislation, particularly the *Dangerous Goods (Storage and Handling) Regulation 2012*.
- The proposal will not be considered a major hazard facility.

[635] WorkSafe noted the proximity of the proposal to the neighbouring licensed major hazard facility – Viva Lara LPG Terminal – located at 137-207 McManus Road, Lara VIC 3212. The Viva facility stores and handles large quantities of highly flammable materials. WorkSafe noted that a significant proportion of the proposal's activity site is within the nominated Inner Safety Area of the Major Hazard Facility. Due to these circumstances, WorkSafe recommended including the following set of conditions in the development licence:

- Condition to be discharged before construction:
- 'Applicant must provide a Hazard Identification (**HAZID**) Study report that considers all potential hazardous events and their impact on safe operations. These events may be internal to the facility or external (e.g. large gas release or fire at the proximal major hazard facility).'
- Condition to be discharged before starting operations:
- 'Applicant must provide a copy of the site Emergency Response Plan that includes actions to be taken to protect personnel and property in the event of a major incident (large gas release, fire/explosion or toxic gas release) at the Viva Lara LPG Terminal.'

[636] WorkSafe designed these conditions to ensure that the operational integrity of the proposed activities is not compromised due to its proximity to the major hazard facility.

Conclusion

[637] EPA has given due consideration to the referral response under s 69(3)(f) of the EP Act. EPA is satisfied the recommendations of this assessment report are consistent with the referral agency comments.

[638] The conditions designed by WorkSafe have been adopted (Conditions [DL_R04/7](#) and [DL_R01/3](#)).

Conclusion

EPA is satisfied the recommendations of this assessment report are consistent with the referral agency comments.

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6.6.5 Recycling Victoria

[639] Recycling Victoria is a newly created agency given its head of power under the *Circular Economy (Waste Reduction and Recycling) Act 2021*. Its purpose is to provide leadership and oversight to Victoria's waste and recycling sector for a better and more reliable waste and recycling system. Its work supports Victoria's transition to a circular economy.

[640] Recycling Victoria is responsible for developing and administering the VRIP. The VRIP replaces the Victorian Waste and Resource Recovery Infrastructure Planning Framework. Recycling Victoria plan to release the VRIP in 2024. It will provide long-term strategic infrastructure planning to guide and inform decision-making in relation to waste, recycling and resource recovery infrastructure over the next 30 years. Under section 52A of the EP Act, EPA may refuse certain applications for waste management facilities that are inconsistent with the VRIP.

[641] EPA initially referred the application to the Barwon South West Waste and Resource Recovery Group (BSWRRG) and the Metropolitan Waste and Resource Recovery Group (MWRRG). These groups were subsequently brought under Recycling Victoria. Due to these changes, EPA sought further comment from Recycling Victoria as to whether it considered the application inconsistent with the VRIP. Recycling Victoria confirmed that it did not object to the proposal. In its response, it also stated the following:

- 'Since the initial responses from MWRRG and BSWRRG, significant legislative changes have occurred including the release of the Victorian Waste to Energy Framework (November 2021), the establishment of Recycling Victoria on 1 July 2022 and the introduction of the *Circular Economy (Waste Reduction and Recycling) Act 2021* (CE Act 21) and amendments via the *Environment Legislation Amendment (Circular Economy and Other Matters) Act 2022* (ELA Act 22).
- Amendments to the *Environment Protection Act 2017* (EP Act 2017) include transitional provisions (Part 16.10—Victorian Waste and Resource Recovery Infrastructure Planning Framework (VWRRF)) that keep the VWRRF that includes the Statewide Waste and Resource Recovery Infrastructure Plan (SWRRIP), Metropolitan Waste and Resource Recovery Implementation Plan 2016 (Metro Implementation Plan) and Barwon South West Waste and Resource Recovery Implementation Plan (Barwon South West Implementation Plan) in operation. Part 16.5—Transitional provisions: Waste and Resource Recovery Groups provide for the Head, Recycling Victoria to become

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successor in law to Waste and Resource Recovery Groups (WRRGs) and their respective Implementation Plans.

- These transitional provisions in the EP Act 2017 ensure the continuity and applicability of the VWRRF to EPA decision-making and the operation of the SWRRIP, Metro Implementation Plan 2016 and Barwon South West Implementation Plan whose relevant provisions have been previously outlined in correspondence in April 2021.
- EPA is also seeking feedback from Recycling Victoria on potential future waste volumes for this facility. You will note the Lara Project is not being progressed through any government procurement processes. The facility will be privately operated, and as such the waste feedstocks will be privately negotiated between the proponent and waste generators. Recycling Victoria is not able to provide any further clarity on the quantum, source or location of waste that may ultimately be processed at this facility. This unknown and specific information will need to be provided by the applicant and agreements and/or when contracts are put in place. Waste streams and environmental impacts will need to be analysed to EPA's satisfaction.'

[642] EPA's consideration of Recycling Victoria's comments is incorporated throughout this report and specifically Sections 6.1.9 and 6.1.10. The referral response from Recycling Victoria has informed EPA's assessment against section 52A of the EP Act. This section of the Act provides EPA with the power to refuse certain application inconsistent with the VRIP. This is assessed in Section 6.5.1 of this report.

[643] EPA has given due consideration to the referral response under section 69(3)(f) of the EP Act. EPA is satisfied the recommendations of this assessment report are consistent with the referral agency comments.

Conclusion

EPA is satisfied the recommendations of this assessment report are consistent with the referral agency comments.

6.6.6 Sustainability Victoria

[644] Sustainability Victoria's statutory objective is to facilitate and promote environmental sustainability in the use of resources. EPA referred the application to Sustainability Victoria for comment. In its initial response Sustainability Victoria requested additional information on the targeted waste feedstock and its composition.

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[645] Sustainability Victoria noted the substantial legislative changes affecting WtE activities since its initial comments, including the introduction of the Victorian Waste to Energy Framework. Sustainability Victoria confirmed it was satisfied with the applicant's response to its enquiries. Sustainability Victoria did object to the application and did not seek to make any further comment on the application.

[646] EPA has given due consideration to the referral response under section 69(3)(f) of the EP Act. EPA is satisfied the recommendations of this assessment report are consistent with the referral agency comments.

Conclusion

EPA is satisfied the recommendations of this assessment report are consistent with the referral agency comments.

6.7 Comments and submissions received from third parties.

[647] Under section 69(3)(g) of the EP Act, EPA must take into account any comments and submissions received in response to the notice of the application received within the specified time.

[648] In keeping with EPA's commitments under its Charter of Consultation, additional consultation efforts were made. This included extended and multiple submission and comment periods. A combined total of 10 weeks of submission periods were conducted over the life of the assessment.

[649] A summary of results of the submission periods and consultation efforts are presented below. A summary of the submissions can be found in Appendix B, D and E.

6.7.1 Submission period 24 March to 28 April 2021

[650] EPA conducted an extended submission period from 24 March to 28 April 2021. The full application was made available on a dedicated Engage Victoria webpage. On 20 April 2023, the applicant held an online information session. This format was chosen due to COVID-19 public health measures in place at the time. EPA hosted an online question-and-answer forum on the Engage Victoria webpage. Thirty-six questions were received and responded to.

[651] At the close of the submission period, 63 submissions were received with 60 objections and three support or conditional support (Figure 9). Key issues raised were:

- site selection and buffer or separation distances to nearest residences,

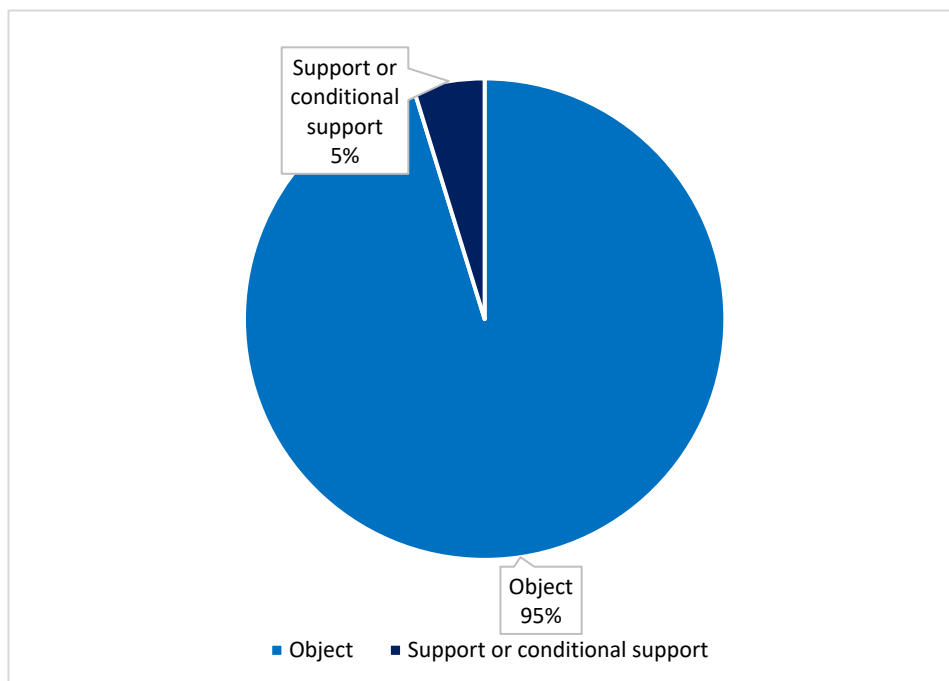
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- incineration of waste undermining the recycling industry or state and local waste management policies,
- GHG emissions from the facility over the lifespan of the facility, and
- the concept model for the proposal and lack of detailed designs of the facility.

[652] The applicant was required under a RFI issued 12 May 2021 to respond to the submissions. Their response was published on the project's dedicated Engage Victoria webpage.

Figure 9: Proportion of submissions objecting or supporting the proposal during submission period 24 March to 28 April 2021



6.7.2 Community conference 13 July 2021

[653] Under section 236 of the EP Act, EPA may establish a conference of interested persons in relation to any matter or decision under consideration. These are also known as community conferences. The purpose of this conference is:

- for EPA to better understand community concerns and issues that need to be considered,
- to inform the public on EPA's assessment process, and
- to identify potential resolutions for any issues in the application.

[654] Following review of the submissions received between 24 March and 28 April 2021, EPA decided to hold a community conference. An independent chair was appointed to moderate the event.

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[655] The conference was held from 6.30 pm on 13 July 2021 at the Lara Masonic Hall. It was preceded by an 'open house' to allow participants to meet and ask questions or raise concerns with the applicant. Fifty-nine community members and stakeholders attended the conference including nine EPA staff and eight staff representing the applicant. Attendance was limited due to public health restrictions.

[656] The issues raised during the public submission period were categorised into the following discussion themes:

- Location,
- Transitioning away from waste, waste policy,
- Sustainability,
- Governance, responsibility, transparency,
- Human health and/or hazards,
- Emissions, pollution, air quality,
- Traffic and logistics, and
- Miscellaneous.

[657] Following introductory and explanatory presentations by the chair, EPA and the applicant, participants were invited to explore these themes in an issues workshop. Participants were asked to discuss key concerns, actions to be taken to address the concerns and residual questions to EPA or the applicant. The applicant was then given the opportunity to respond to the concerns raised and any further questions. From these discussions the following priority concerns were identified:

- Location,
- Transitioning away from waste, waste policy,
- Sustainability,
- Governance, responsibility, transparency,
- Human health and /or hazards,
- Emissions, pollution, air quality, and
- Traffic and logistics.

[658] Following the conference, the independent chair prepared a report summarising conference discussions (concerns, desired actions and questions), community member satisfaction with responses of questions raised during the conference and recommendations for the EPA and the applicant. The conference report is provided in Appendix C of this report.

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Table 25: Community conference – chair’s recommendations and EPA’s response

Chair recommendations	EPA’s response
Distribute plain English guidance on Works Approval processes to the Lara community articulating expectations and scope about how community can provide feedback and how their feedback will influence decision-making.	EPA maintained the project’s dedicated Engage Victoria webpage as a plain English summary of EPA’s ongoing assessment and decision-making. This includes details of how and why EPA conducts community consultation and submission processes.
Assure community concern that businesses must manage risks under the GED provision, including communicating changes under the EP Act which seek to avoid legacy waste stockpiling in the Lara community.	EPA included information on the GED as part of its decision-making communication and engagement with the Lara and Greater Geelong communities.
Assure community on management of hazardous waste transport from the Prospect Hill facility.	EPA included information on the hazardous waste transport requirements and duties as part of its decision-making communication and engagement with the Lara and Greater Geelong communities.
Work with co-regulators to ensure stated trucking routes are complied with.	EPA will endeavour to work with co-regulators to ensure stated trucking routes are complied with.

6.7.3 Submission period 13 to 28 October 2021

[659] EPA issued the applicant an RFI on 12 May 2021 requiring a response to the submissions received between 24 March and 28 April 2021. EPA issued another RFI on 28 July 2021 requiring the applicant to prepare a response to the recommendations of the conference report. The applicant responded to both RFIs on 20 September 2021 and responses were published on the project’s dedicated Engage Victoria webpage for submitters and conference attendees.

[660] EPA initiated a second submission period from 13 to 28 October 2021 seeking updated views on the applicant’s response to submissions and conference report recommendations. At the close of this second submission period, 58 submissions were received with 56 objections and two support or conditional support (Figure 10).

[661] Human health risks or hazards and air emissions from the proposal continued to elicit the highest level of concerns from the largest number of submitters. Other key issues or concerns nominated by submitters included:

- site selection and buffer or separation distances to nearest residences,
- a lack of social licence to operate,

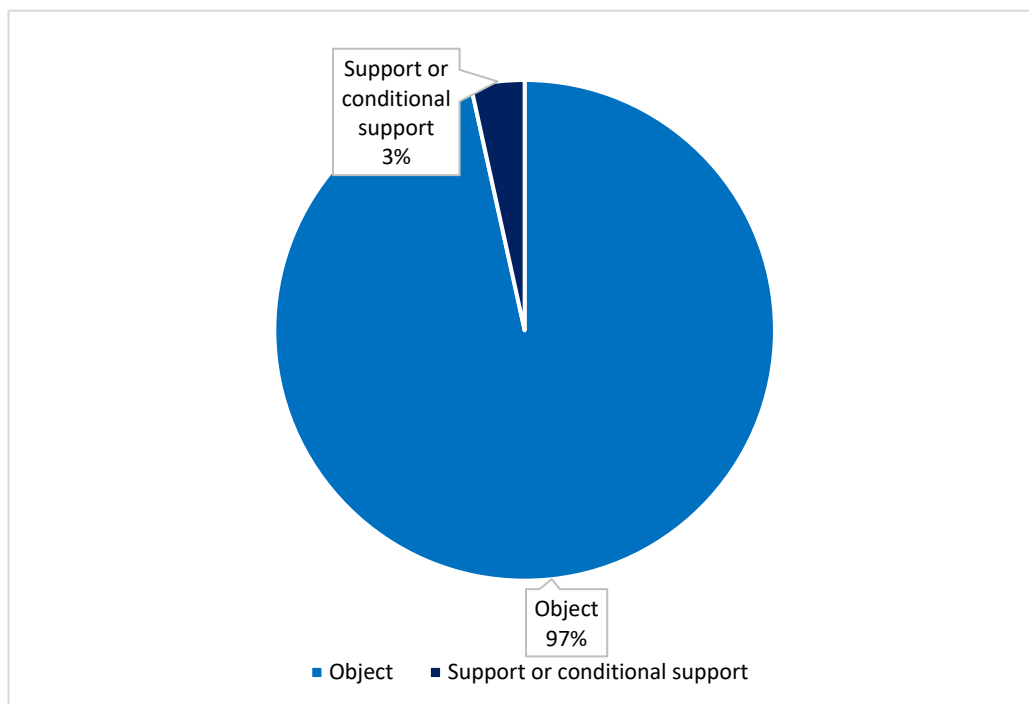
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- the lack of a business case, energy contracts and feedstock for the designed capacity of the facility,
- GHG emissions over the lifespan of the facility,
- the concept model for the proposal and lack of detailed designs of the facility, and
- the lack of an environment effects statement.

[662] The applicant provided a response to the submissions which was made available of the project's dedicated Engage Victoria webpage.

Figure 10: Proportion of submissions objecting or supporting the proposal during submission period 13–28 October 2021



6.7.4 Submission period 22 June to 13 July 2023

[663] In November 2021, EPA issued the applicant with an additional RFI. This request related primarily to a revised noise impact assessment and additional information on measures to comply with the GED. Following its receipt and review, EPA published the applicant's responses on the project's dedicated Engage Victoria webpage for submitters and conference attendees, as well as newly informed community and interested third parties.

[664] Due to the length of time since the last engagement event and the relevance of the RFI items to issues raised in the submissions, EPA decided to conduct an additional round of engagement and consultation. This gave the community and interested persons a further opportunity to consider

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and respond to the latest response from the applicant. It is noted that the RFI response did not result in a change to the proposal or its risk profile but provided further clarifying information.

[665] This third comment and submission period was from 22 June to 13 July 2023. At the close of this submission period, 101 submissions were received with 95 objections and six support or conditional support.

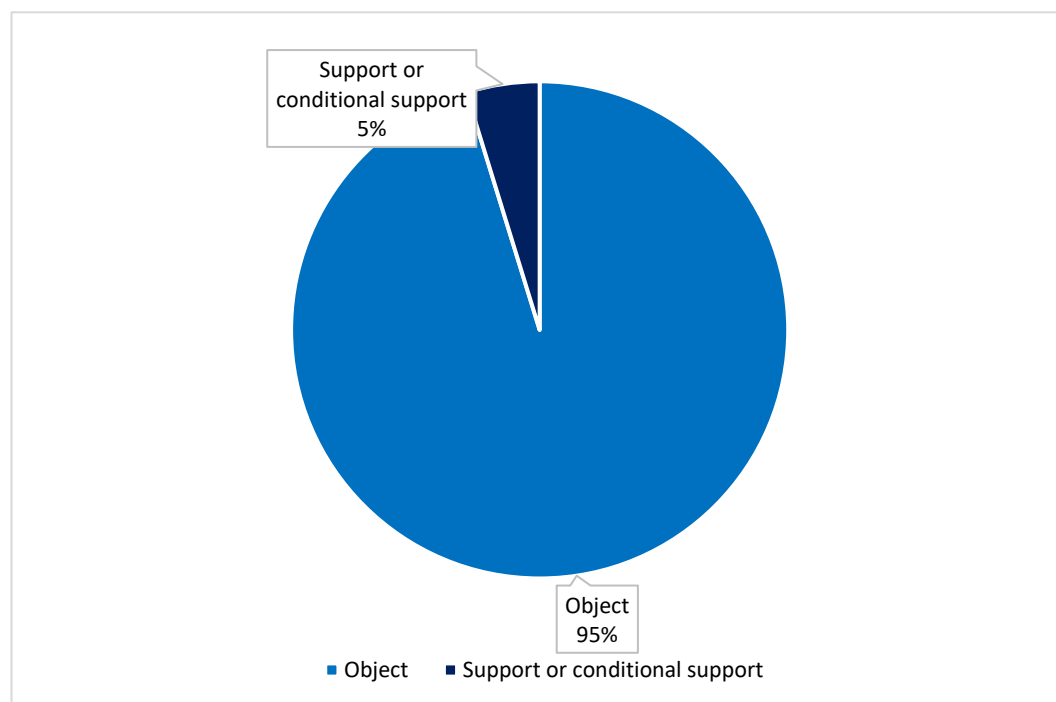
[666] Human health risks or hazards and air emissions from the proposal continued to elicit the highest level of concerns from the largest number of submitters. Other key issues or concerns nominated by submitters included:

- health impacts particularly on vulnerable community members and children,
- site selection and buffer or separation distances to nearest residences,
- GHG emissions over the lifespan of the facility,
- WtE technologies are old and outdated and undermine higher order waste avoidance, recovery and recycling,
- the quality and reliability of the application and its content, including whether it complies with specific BATT measures,
- the lack of a business case, energy contracts and feedstock for the designed capacity of the facility,
- the concept model for the proposal and lack of detailed designs of the facility, and
- the lack of an environment effects statement.

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Figure 11: Proportion of submissions objecting or supporting the proposal during submission period 22 June - 13 July 2023



6.7.5 Consideration of key themes and issues in comments and submissions by third parties

Human health: Risks to human health from air emissions and residual wastes

Consultation

[667] This was a key theme in most submissions.

Applicant documentation

[668] The applicant prepared a concept design with supporting risk and impact assessments, including a HHIA and AQIA.

EPA assessment

[669] EPA has assessed the applicant documentation and considered international scientific literature on the potential human health effects in local communities associated with air emissions from MSW WtE facilities. EPA has considered the more recent opinions of other public health bodies in the UK.

[670] EPA has also taken account of the principles of environment protection including the principles of primacy of prevention, evidenced-based decision-making and the precautionary principle (see Section 6.3).

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[671] EPA is satisfied that risks of harm to human health and environment associated with air emissions and residual wastes has been reduced so far reasonably practicable and does not pose an unacceptable risk of harm to human health or environment.

[672] EPA has assessed the applicant documentation in this assessment report in:

- Section 6.2.1: Human health impacts.
- Section 6.2.3: Air emission impacts.
- Section 6.2.4: Noise emission impacts.
- Section 6.2.5: Odour emission impacts.

Controls and conditions

[673] The application proposes and EPA has imposed a BATT requirement for WtE facilities for all relevant considerations including air emissions and residual waste management (see Sections 6.1 and 6.4). This includes a comprehensive and strict air emission monitoring plan (Condition [DL_R04/10](#)) and residual waste management plan (Condition [DL_R04/15](#)).

[674] The applicant must also provide an updated human health risk assessment based on the final detailed design of the facility (Condition [DL_R04/17](#)).

Human health: Risks to human health from emergency or other than normal operating conditions

Consultation

[675] This was a key theme in many submissions.

Applicant documentation

[676] The applicant prepared a concept design with supporting risk and impact assessments. This includes consideration of overarching risk and hazard identification and management.

EPA assessment

[677] EPA has assessed the applicant documentation in this assessment report in:

- Section 6.1.1: Risk and hazard identification and management,
- Section 6.1.4: Air emission controls during operational and OTNOCs,
- Section 6.1.5: Noise emission controls during operational and OTNOCs, and
- Section 6.1.8: Odour emission controls during operational and OTNOCs.

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[678] EPA notes that the applicant's assessments include a range of conservative assumptions.

[679] EPA has also given due regard to the principles of environment protection including the principles of primacy of prevention, evidenced-based decision-making and the precautionary principle (see Section 6.3).

[680] EPA is satisfied that risks of harm to human health and environment associated with emergency or OTNOCs has been reduced so far reasonably practicable and does not pose an unacceptable risk of harm to human health or environment.

[681] EPA has also given due regard to the potential risks posed to human health and environment including during OTNOCs under the following sections:

- Section 6.2.1: Human health impact,
- Section 6.2.3: Air emission impacts,
- Section 6.2.4: Noise emission impacts, and
- Section 6.2.5: Odour emission impacts.

Controls and conditions

[682] The application proposes and EPA has imposed a BATT requirement for WtE facilities for all relevant considerations including OTNOC. This includes requirements for an EMS, specific controls to automatically shut down plant operations if certain performance standards are not met (Condition [DL_W08/2](#) and [DL_W08/3](#)), and a range of plans and programs such as an OTNOC management plan, site emergency response plan and waste management contingency plan (Condition [DL_R01/2](#)).

[683] Before construction, the applicant must provide to EPA a report of the final detailed designs and schematics of the facility demonstrating implementation of a HAZID study, a full plant and operations risk assessment, including HAZOP study that considers all process and environmental risks for operation (normal and OTNOC), good engineering practice and compliance with all relevant Australian or European equivalent engineering and OHS standards (Condition [DL_R04/16](#)).

Separate or buffer distances to sensitive receptors (such as homes, schools): many submissions

Consultation

[684] Most community members raised concerns about the facility's proximity to nearby residences and the growth areas of Lara and Greater Geelong.

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Applicant documentation

[685] The applicant prepared a concept design with supporting risk and impact assessments including an AQIA with air emission modelling and a HHIA. These studies include consideration of separation distances and risks to nearest sensitive receptors.

EPA assessment

[686] Separation distances under EPA's new environment protection framework are not considered a suitable measure for eliminating or reducing risk of harm to human health or environment from residual air emissions or pollution. Permission holders and applicants must eliminate or reduce these risks of harm through appropriate administrative and engineering controls. EPA cannot issue a development licence if there is an unacceptable risk of harm to human health or environment.

[687] EPA's [separation distance guidelines are currently under review](#). These are being updated to align with the risk-based and preventative framework of the EP Act 2017 and the GED. The purpose of the guidelines will be to:

- protect the community from human health and amenity risks associated with unintended offsite odour and dust impacts generated by industry.
- protect industry from inappropriate land use and development nearby that may constrain operations.

[688] Under the current and draft guidelines separation distances for activities such as waste to energy are considered on a case-by-case basis. EPA has assessed the application's proposed controls to eliminate or reduce risk of harm from air, odour and dust emissions in Sections 6.1.4, 6.1.8, 6.1.9 and 6.1.10.

[689] EPA is satisfied that risks of harm to human health and environment associated with unintended offsite odour and dust impacts have been reduced so far as reasonably practicable and pose a low risk of impact on nearest sensitive receptors.

Controls and conditions

[690] The application proposes and EPA has imposed the requirement of BATT for reducing odour and dust emissions (Condition [DL_R04](#)). EPA will verify implementation of these controls at the detailed design, construction and commissioning phases. EPA also requires technical oversight by an EPA-appointed auditor. The auditor will verify that the detailed designs of

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the facility are consistent with the environmental performance standards specified in the application and conditions of the development licence.

Public reporting of monitoring performance

Consultation

[691] Many submissions asked whether the applicant will make emission monitoring results publicly available.

Controls and conditions

[692] The application proposes and EPA has imposed the requirement of BATT for emission monitoring – see Section 6.1 and 6.4. This includes continuous and periodic emission monitoring requirements for air emissions and residual wastes.

[693] For a full list of pollutants or indicators that the applicant will monitor, see Section 6.2.4 of this assessment report, specifically Table 16. EPA will verify implementation of these measures at the detailed design and commissioning phases.

[694] EPA requires the applicant to publicly report its emission monitoring results (Condition [DL_R04/11](#)).

[695] Before construction, the applicant must provide to EPA an air emissions management plan (Condition [DL_R04/10](#)) and a residual waste management plan (Condition [DL_R04/15](#)).

Contamination in incoming waste

Consultation

[696] Some submissions raised concerns about potential contamination in incoming waste and how it will be identified and removed before incineration.

Application documentation

[697] The applicant prepared a concept design with supporting risk and impact assessments including a preliminary assessment of incoming waste composition, Waste Acceptance Criteria, and waste acceptance procedures.

EPA assessment

[698] EPA has given due consideration to this issue raised in the submissions. This is assessed in more detail in Section 6.2.9: Waste (incoming). The applicant is required to complete a 12-month waste characterisation audit

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of the targeted waste. This will determine the likely level or range of hazardous material and contamination in the waste. The pollution control systems will be designed with reference to data collected through this audit and to meet BAT emission levels. Waste incineration has a proven track record in incinerating heterogenous waste streams such as residual MSW and C&I waste.

[699] Incoming waste procedures and an ongoing audit regime will also be implemented to identify and minimise the presence of contaminants or hazardous material in incoming waste. The CEMS will detect the presence of any significant level of contamination and appropriate mitigation action will be taken.

[700] EPA is satisfied that risks of harm to human health and environment associated with the potential presence of contaminants in incoming waste have been reduced so far as reasonably practicable and do not pose an unacceptable risk of harm.

Controls and conditions

[701] Before construction, EPA requires results of a 12-month waste characterisation audit or audits conducted in accordance with methodologies approved by EPA (Condition [DL_R04/1](#)).

[702] Before construction, EPA requires the final waste acceptance procedures demonstrating compliance with BAT (Conditions [DL_R04/2](#) and [DL_R04/3](#)).

[703] EPA will impose requirements for enforcing waste acceptance procedures and an ongoing auditing regime as part of the operating licence conditions.

Resource recovery

Consultation

[704] Some submissions raised concerns about the need for further resource recovery before incineration of waste to reduce risks of harm so far as reasonably practicable for air emission and GHG emission performance and overall environmental performance.

Application documentation

[705] The application proposes to accept 400,000 tonnes per year of waste comprising 80% residual MSW and 20% C&I waste. The applicant will only target residual waste that is otherwise destined for landfill.

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[706] The application proposes to pre-treat incoming waste consistent with BATT (BAT conclusion 14). The application also proposes resource recovery of ferrous and non-ferrous metals from the IBA. The applicant has stated that additional resource recovery before incineration is not feasible at this stage. This is assessed in Section 6.2.2: Climate change and GHG emissions and Section 6.1.9: Waste (incoming).

[707] The applicant will also need to apply for a Cap operator licence from Recycling Victoria to start operating. It will need to demonstrate compliance with the requirements of the Victorian Waste to Energy Framework and Cap as legislated under the *Circular Economy (Waste Reduction and Recycling) Act 2021* and subordinate regulations.

EPA assessment

[708] EPA has given due consideration to this issue raised in the submissions. EPA is satisfied that risks of harm to human health and environment associated with resource recovery have been reduced so far as reasonably practicable and do not pose an unacceptable risk of harm.

Controls and conditions

[709] EPA requires provision for future incorporation of additional resource recovery before incineration (Condition [DL_G03/15](#)).

[710] Before construction, the applicant must provide to EPA a report for the ongoing testing and investigation of existing or emerging technology options for resource recovery before incineration including supporting market analysis (Condition [DL_R04/4](#)).

Level of detail and scope of assessments supporting the concept design

Consultation

[711] Some submissions raised concerns with the scope of assessments prepared by the applicant.

Application documentation

[712] The application is supported by technical studies and evidence detailing the proposal, its environmental performance, and its potential impacts including human health and GHG, air and noise emissions. These studies rely on established and credible risk and evidence-based assessment methodologies.

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EPA assessment

- [713] EPA has given due consideration to this issue raised in the submissions. EPA requires applications to demonstrate how they will meet the internationally recognised BAT standards for WtE facilities of the EU IED. EPA has also considered the assessment requirements and recommendations of comparable Australian jurisdictions in the New South Wales and Queensland waste to energy policies and guidelines. EPA is satisfied that the application has provided a proportionate level of information to enable its assessment.
- [714] EPA's assessment of the evidence and methods used to support the application can be found in the relevant sections of this assessment report. Where additional information was deemed necessary, this was requested and provided by the applicant under EPA's 'RFI' powers.
- [715] EPA has imposed a comprehensive set of conditions to reduce risks associated with the project, concept design and EPC tender process. In coming to this conclusion, EPA has also given due regard to the principles of environment protection including the principle of the primacy of prevention, the principle of evidenced-based decision-making, and the precautionary principle. This assessment is detailed in Section 6.3 of this assessment report.

Controls and conditions

- [716] EPA will verify development and implementation of controls at the detailed design, construction and commissioning phases.
- [717] Before construction, the applicant must give EPA reports with any accompanying plans and specifications of the final detailed design of the facility endorsed by a suitably qualified EPA-appointed auditor (Condition [DL_R04](#)). The auditor will verify that the detailed designs of the facility are consistent with the environmental performance standards specified in the application and conditions of the development licence.

Greenhouse gas emissions and climate change

Consultation

- [718] Many submissions raised concerns about the potential release of GHG emissions from the combustion of waste and how this would contribute to climate change. Concerns were also raised over how the applicant calculated their offsets. Submissions pointed to such issues as:

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- the potential effect of organic waste collection services on emissions offsets (including a similar impact on emissions from landfills)
- other potential changes in the waste over the lifespan of the facility
- increasing renewable energy and avoided emissions from grid displacement.

Application documentation

[719] The application prepared a concept design with supporting risk and impact assessments. This includes a GHG inventory showing that the facility would result in a net reduction in GHG emissions over the life of the facility. This is achieved through avoided emissions from grid displacement and avoidance of landfill gas emissions.

EPA assessment

[720] EPA assessed GHG emissions and climate change in:

- Section 6.1.3: Greenhouse gas emissions (under the GED),
- Section 6.2.2: Climate change and greenhouse gas emissions, and
- Section 7.1: Climate Change Act 2017

[721] EPA's assessment noted several factors that may reduce the potential avoided GHG emission as determined in the application. EPA acknowledges some uncertainty over the degree of potential avoided emissions over the lifespan of the facility. The potential for avoided emissions is likely to accrue early in the life of the facility and diminish over time.

[722] EPA has also considered available information from the IPCC and other comparable environment protection or renewable energy agencies in Australia such as the NSW Chief Engineer and Scientist, ARENA, and the Clean Energy Finance Corporation.

[723] EPA also considered the introduction of Recycling Victoria's Waste to Energy Framework and Cap and how the proposal can contribute to the state government's circular economy policy objectives including GHG emission reductions.

[724] EPA has given due consideration to this issue raised in the submissions. EPA is satisfied that risks of harm to human health and environment associated with GHG emissions have been reduced so far as reasonably practicable. EPA is also satisfied that proposal will result in a net reduction of GHG over the lifespan of the facility. EPA has imposed several conditions to ensure ongoing and accurate GHG assessments based on operational data.

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Controls and conditions

- [725] Before construction, the applicant must give EPA an updated life cycle analysis with GHG assessment based on the final detailed design of the facility (Condition [DL_R04/18](#)).
- [726] EPA has imposed conditions requiring.
- [727] Before commissioning, the applicant must give EPA a GHG Emission Reduction and Management Plan (Condition [DL_R01/5](#)). The plan must include yearly reporting using operational data to increase certainty of the facility's GHG emissions (among other things).

Waste

Consultation

- [728] Some community members raised concerns with the suggestion the facility might accept waste imported from overseas or interstate. Other concerns were raised about the facility's access to suitable quantities of waste for its designed capacity.

Application documentation

- [729] The application proposes to accept waste generated from the geographical areas listed in Table 5 of this report. The application does not propose to accept waste from any other location outside Victoria.
- [730] The proposed facility is configured with two incinerator plant lines capable of operating independently. This modular aspect of the concept design allows a scalability to process from 200,000 up to 400,000 tonnes a year of waste.

EPA assessment

- [731] The application does not propose nor does the development licence allow acceptance of waste generated outside of Victoria. To operate the facility, the applicant needs an operating licence under the EP Act. Any future operating licence will contain conditions that prevent acceptance of waste generated outside of Victoria.
- [732] The applicant will also need to obtain an operator licence under the Victorian Waste to Energy Framework and Cap administered by Recycling Victoria. This limits the operation of WtE facilities in Victoria to accepting residual MSW or C&I waste generated in Victoria. The optimum distribution of the Cap's 1 million tonnes of waste available for WtE activities will be decided through Recycling Victoria's licensing arrangements.

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Fit and proper person assessments

Consultation

[733] Some submissions raised concerns about whether the applicant has provided or nominated details to satisfy EPA's fit and proper person and prohibited person requirements.

Response

[734] The applicant submitted completed fit and proper person and prohibited person forms to EPA. EPA does not publish these forms because they contain personal contact details and commercial-in-confidence material.

[735] EPA has assessed the applicant and determined the applicant to be a fit and proper person, as per Section 7.6 of the assessment report.

[736] EPA can and regularly reviews a permission holder's fit and proper person status. EPA will continue to review the applicant's fit and proper person status at the detailed design, commissioning and operational phases.

Environment effects statement

Consultation

[737] Some submissions asked whether an [environment effects statement](#) (EES) was required for the proposal.

Response

[738] The applicant prepared a self-assessment of the proposal for the purposes of the *Environment Effects Act 1978* (EE Act).

[739] The decision to require an EES under the EE Act is a matter for the responsible minister. Similar and larger WtE proposals have been referred to the responsible minister previously. A [previous decision for a 650,000 tonne a year WtE facility](#) did not trigger the requirement for an EES.

Principles of environment protection

Consultation

[740] Submissions raised concerns and considered the application is not consistent with the principles of environment protection.

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Response

[741] EPA has assessed the application against the relevant principles of environment protection, as detailed in Section 6.3 of this assessment report. EPA has given due regard, particularly to the principles of primacy of prevention, waste management hierarchy, equity and the precautionary principle. EPA is satisfied that its decision is consistent with the principles of environment protection.

Matters raised but not assessed by EPA.

[742] The following matters were raised but do not fall under EPA's regulatory oversight or decision-making powers:

- energy or electricity contract arrangements,
- waste contract arrangements, and
- offsite truck movements.

6.8 Any prescribed matters

[743] Under section 69(3)(h) of the EP Act, EPA must consider any prescribed matters under the EP Regulations.

6.8.1 Regulation 112 Generators or emitters of Class 3 substances

[744] EP Regulation 112 applies to any person who holds an operating licence that specifies an activity which results in the emission of Class 3 substances. A person subject to this Regulation must eliminate the generation of Class 3 substances so far as reasonably practicable and, if it is not reasonable to do so, must reduce the generation and emissions of Class 3 substances so far as reasonably practicable.

[745] EPA's assessment of air emissions can be found in Section 6.1.4 of this report. EPA assessed the application's proposed air emission controls and whether these eliminate or reduce air emissions so far as reasonably practicable in accordance with the GED. This included an assessment of Regulation 112.

[746] EPA is satisfied that application proposes measures to reduce the generation and emission of Class 3 substances far as reasonably practicable should it progress to obtaining an operating licence.

6.8.2 Regulations 167 and 168 Financial assurances

[747] The application is considered to propose A08 (Waste to energy) prescribed development and operating activities. For this reason, EPA does not consider the application to propose prescribed activities listed under EP

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Regulation 167. The application does not consider the application to be subject to the requirements of financial assurance.

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7 Other assessment considerations

7.1 Climate Change Act 2017

[748] The CC Act provides Victoria with the legislative foundation to manage climate change risks. It establishes a long-term GHG emission reduction target of net zero by 2050 (recently revised to 2045, but to be legislated). This target aligns with the Paris Agreement, an international treaty with the goal to hold the increase in the global average temperature to well below 2°C above pre-industrial levels.

[749] Under section 17 of the CC Act, decision-makers must have regard to climate change. This applies to EPA when considering a development licence application. Specifically, the EPA must have regard to:

- the potential impacts of climate change relevant to the decision or action,
- the potential contribution to the State's GHG emissions of the decision or action,
- any guidelines issued by the Minister for Energy, Environment and Climate Action under section 18 of the CC Act.

[750] At the time of this decision, the Minister has not issued a guideline under section 18. In considering the potential impacts of climate change relevant to a development licence, EPA must consider potential:

- biophysical impacts,
- short and long-term economic, environmental, health and other social impacts,
- beneficial and detrimental impacts,
- direct and indirect impacts,
- cumulative impacts.

[751] In considering the potential contribution to the state's GHG emissions, EPA must consider:

- potential short-term and long-term GHG emissions,
- potential direct and indirect GHG emissions,
- potential increases and decreases in the GHG emissions,
- potential cumulative impacts of GHG emissions.

[752] State of knowledge for consideration of climate change includes, but is not limited to:

- EPA Publication 1293: Protecting Our Future Environment in a Changing Climate (EPA, 2009b),

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- Victoria's Climate Science Report 2019 (DELWP, 2019b),
- Climate Action resources on the DEECA website,
- Climate change in Australia (CSIRO and DCCEEW website),
- Sixth assessment report, Climate Change 2022: Mitigation of Climate Change (IPCC, 2023).

7.1.1 Potential impacts of climate change relevant to the decision or action

[753] The application considers potential impacts of climate change relevant to the proposal in Section 15.6. It relies on two different climate projections or models for the Barwon South West region:

- Climate-ready Victoria: Barwon South West – How climate change will affect the Barwon South West region and how you can be climate-ready (DELWP, 2015a),
- Climate-Ready Victoria: Barwon South West – Climate Projections Data Sheet (DELWP, 2015b)

[754] The two climate projections present plausible future climate scenarios, including higher and lower emissions projections for 20-year-periods centred on 2030 and 2070. The application has relied on the 2030 scenarios which aligns with the facility's lifecycle.

[755] The application identified potential impacts of climate change including increases in average temperatures, increase in extreme rainfall and flooding, higher fire weather risks and sea level rises. From this the application identified 30 climate change risks of hazards in Table 15.11. This includes consideration of biophysical, environmental, health and social impacts and the potential for both beneficial and detrimental impacts. Each of the 30 risks of hazards is characterised through identifying the climate variable, project receptor, potential risk and proposed risk treatment. Risk treatment encompasses resilience and short and long-term adaptation measures.

[756] In assessing the potential impacts of climate change relevant to the decision, EPA has had regard to impacts of climate change on the activity and foreseeable climate change impacts that may be increased by the activity. Immediate impacts that may affect the activity site are generally considered lower risk or manageable under the proposed resilience and adaptation treatment techniques for risks of hazards such as sea level rises on waste transport accessibility or extreme rainfall and flooding on the site's waste and stormwater management systems.

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- [757] Reviewing potential impacts on the site under various projections and scenarios using the [Victorian Climate Tool](#) suggests that the proposed activity site is lower risk for many of the risks of hazards identified in the application. It is also currently unaffected by planning overlays that would indicate higher environmental risks of impact such as Land Subject to Inundation or Bushfire Management Overlays. However, acknowledgement and planning for climate risks should be incorporated into the proposed HAZOP and fire risk assessments studies to inform the project's final detailed design (Condition [DL_R04/6](#)).
- [758] More general direct and indirect risks of hazards may emerge from climate change such as increased ambient temperature and incidence of heatwave. This may impact the operation of the plant including causing higher frequency of outages and use of backup generators. This may in turn impact operational efficiency, lifespan of plant and equipment, and air and GHG emissions from the proposed activity. The application has acknowledged these risks and incorporated appropriate measures into the concept design including the proposed 25-year lifespan of the facility and use of water-cooled condensers rather than an air-cooled plant due to this technique being more tolerant to increases in ambient temperature.
- [759] The application has considered potential cumulative impacts of climate change such as the potential reduction in the availability of potable water overtime while extreme rainfall and flooding may impact wastewater management infrastructure. The application acknowledged these risks and incorporated appropriate measures for resilience and adaptation including the flood susceptibility of the proposed location of wastewater management infrastructure and incorporating sufficient freeboard above predicted flood levels into the design of a wastewater storage dam.
- [760] The application has considered the critical long-term, cumulative and detrimental impacts from a hotter and drier climate. This includes the likely increase in particles from bushfires, fuel reduction burns and windblown dust. These may in turn increase potential impacts on human health and related services. In giving regard to this potential impact, EPA has considered the technical conclusions of the AQIA and HHIA assessed in Section 6.2.
- [761] There it is noted that existing background levels of particulate matter as PM_{2.5} exceed the ambient air criteria. This existing exceedance is driven by the impact of bushfire events. However, the AQIA and HHIA demonstrate that the proposal's incremental contribution is negligible or approximately 1.3% of the relevant ERS (25µg/m³) at the nearest sensitive receptor. There

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are some conservative assumptions such as those summarised in Section 5.5 of the AQIA meaning the likely impact of the proposed activity would be lower. The contribution of the proposed activity to particles is unlikely to change overtime beyond levels detailed in the application.

[762] The application also proposed BATT measures for reducing particulate matter emissions. EPA will require ongoing compliance with the EU IED and BAT framework as it is periodically updated, as it was in 2019. This includes imposing a suitably worded development licence condition requiring the FGCS to be designed to allow for ease of upgrade to achieve more stringent limits if required in the future (Condition [DL_R04/5](#)). EPA has also required the applicant to make provisions to incorporate CEMS for PM2.5 and PM10 if it becomes reasonably practicable (Condition [DL_R04/10](#)).

[763] State of knowledge on climate change projections and impacts will change overtime or as more information becomes available. This is evidenced by the recent release of the IPCC's Sixth assessment report during the assessment of this application in early 2023 (IPCC, 2023) and the DELWP climate change projections for Barwon used in the application (DELWP, 2015b).

[764] To ensure the applicant continues to review and maintain climate change risk reduction, adaptation and resilience measures in accordance with state of knowledge, EPA requires a Climate Change Adaptation Management Plan (Condition [DL_R01/4](#)).

7.1.2 Potential contribution to the state's greenhouse gas emissions of the decision or action

[765] The application has quantified potential direct and indirect GHG emissions through an inventory prepared in accordance with reliable methodologies, such as the GHG Protocol, and to an adequate standard for the concept phase of this proposal – see Sections 6.1 and 6.2 above. With consideration of potential short-term and long-term GHG emissions, the operating phase of the activities would be the most intense period of emissions over its full 25-year lifespan.

[766] A comparison of the potential annual contribution to the state's GHG emissions using the latest available data is presented in Table 26. This excludes any consideration of avoided emissions from grid displacement or avoidance of landfill gas emissions.

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Table 26: Potential contribution to the state's GHG emissions in 2021

	Emissions (2021)	Scope 1 direct emissions @ ~195,000
Victoria	80,645 kt	0.24%
Australia	464,770 kt	0.04%

[767] As noted in Sections 6.1 and 6.2 above, direct GHG emissions from the combustion of waste are likely to vary over the lifespan of the facility. This would be driven by changes in business and consumer behaviour and government waste management policies such as source-separated FOGO waste collection services or single use plastic bans. In considering these factors, it is likely the annual GHG emissions of the proposed facility would increase as a proportion of the state's total GHG emissions. This is also likely to accelerate overtime as Victoria and Australia's GHG emissions decline in line with reduction targets and the transition to renewable energy sources.

[768] In assessing the potential increases, decreases and cumulative impacts of GHG emissions over the lifespan of the facility, EPA may consider change relative to what would otherwise occur in the absence of the proposal or decision by EPA. GHG emissions are associated with the generation of waste which in turn necessitates a management option. The residual MSW and C&I waste streams targeted by the proposal are expected to increase in total volume over the lifespan of the facility. This growth in volume is driven by population growth which is likely to exceed any offset or decline in waste generation on a per capita basis if achieved.

[769] Residual MSW and C&I waste streams are currently disposed to landfill resulting in GHG emissions that may not be fully captured through landfill gas recovery infrastructure. Disposal of waste at landfill also limits the conversion to energy of the organic fraction of the waste and prevents any further energy recovery or reuse or recovery options. This limits the potential for further avoided emissions. Victoria is also likely to face airspace capacity constraints with existing landfills. GHG emissions associated with future waste management options are unlikely to be avoided including potential increase demand for the expansion or construction of new landfills or landfill cells.

[770] In considering the application, the potential cumulative GHG emissions of the proposed activity – with the exclusion of avoided emissions – may be inconsistent with the state's ability to meet the net zero or interim GHG emissions targets over the lifespan of the facility. However, the proposal

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offers an improvement in the state's GHG emissions performance when compared to what would otherwise occur in the absence of the proposal or decision by EPA. This is the 'business as usual' scenario of disposal to landfill. EPA regards it as appropriate to consider avoided emissions under this scenario. Part of this consideration is Victoria's projected population growth and its future demand for waste and energy infrastructure. Further consideration of avoided emissions is provided in Section 6.2.2 of this assessment report.

[771] Furthermore, the proposed facility may offer additional avenues of avoided emissions including:

- Potential eligibility for renewable energy for the organic component of MSW as defined as an eligible renewable energy source under Section 17(1) of the Renewable Energy (Electricity) Act 2000. The project may therefore be eligible for renewable energy large-scale generation certificates for the organic component of the waste.
- It may achieve additional avoided GHG emissions through reuse or recovery of metals post-incineration and the prevention of use of virgin materials.
- It may achieve additional avoided GHG emissions through the reuse of IBA as construction aggregate and the prevention of use of virgin materials.
- It may extend the lifespan of existing landfills or reduce demand for the construction of new landfill infrastructure.

[772] EPA acknowledges there are some inherent uncertainties with the GHG emission calculations with activities of this nature. Risks associated with these uncertainties are mitigated through conditions of the development licence requiring annual reporting of GHG emissions based on actual operational data during operational phase of the project (Condition [DL_R01/3](#)).

7.1.3 Conclusion

[773] EPA has given regard to the potential impacts of climate change relevant to the assessment of the development licence application under section 17 of the CC Act. EPA has also given regard to the contribution to the state's GHG emissions. EPA has considered potential biophysical impacts, short and long-term economic, environmental, health and other social impacts, beneficial and detrimental impacts, direct and indirect impacts, and cumulative impacts.

EPA conclusion

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EPA given regard to the potential impacts of climate change relevant to the assessment of the development licence application under section 17 of the CC Act.

7.2 Flora and Fauna Guarantee Act 1988

[774] The *Flora and Fauna Guarantee Act 1988* (FFG Act) has the objectives to conserve all of Victoria's native plants and animals. The Act provides a legislative framework for the conservation of threatened species and communities and for the management of potentially threatening processes (DEECA, 2023).

[775] EPA is required under section 4(B) of the FFG Act to consider the objectives of the FFG Act when exercising and performing any of its functions that are reasonably expected to impact on biodiversity, so far as is consistent with the proper exercising of those functions. This is known as 'the Biodiversity Duty'.

[776] In addition, EPA must consider any instrument made under the FFG Act, including the Biodiversity Strategy, action statements, critical habitat determinations and management plans. Consideration of potential impact on biodiversity must include:

- long and short-term impacts
- beneficial and detrimental impacts
- direct and indirect impacts
- cumulative impacts
- the impacts of potentially threatening processes.

7.2.1 Flora and fauna assessment

[777] The application provides a flora and fauna assessment in Appendix H. A desktop assessment was conducted to identify the potential or likelihood of threatened species occurring at the activity site. This relied on searching relevant databases and literature. A site assessment was then conducted, with a focus on identifying the occurrence of species and ecological communities listed in Victoria's Advisory Lists of Threatened Species, under the FFG Act, or the Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

[778] The assessment characterises the activity site as occurring in a highly fragmented and modified environment. Historically, the land was used for agriculture (cropping and grazing). More recent industrial development has altered the landscape further. This includes recent site works involving clearing and levelling the site and removing vegetation. The assessment

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notes that it has subsequently been used as a refuse dumping ground. Large portions of the activity site have deposits of dry fill such as dirt, bitumen, gravel and rock.

[779] A final assessment was conducted and concluded that there are no threatened flora and fauna risks relevant to the site. This conclusion was based on the lack of remaining habitat which is a consequence of the land use history summarised above.

[780] The application's assessment notes that this conclusion is supported by recent reporting for the development of the Geelong Ring Road Precinct Structure Plan. The Precinct Structure Plan was supported by an accompanying Native Vegetation Precinct Plan which determined that native vegetation did not persist on site. The Precinct Structure Plan was endorsed by the City of Greater Geelong under Clause 52.16 of the *Planning & Environment Act 1987*.

7.2.2 Objectives of the FFG Act

[781] EPA has given due consideration to the objectives of the FFG Act. EPA's assessment is limited to those proposed activities enabled under EPA's Permissioning framework that may have an impact on biodiversity.

[782] EPA has given due consideration to potentially threatening processes that the proposed activities may contribute to. In this regard, the application has proposed measures to mitigate or reduce risks so far as reasonably practicable including broad adoption of BATT for WtE facilities. This includes consideration of stormwater management, land and groundwater management, and air emissions.

[783] The application proposes a Waste Acceptance Criteria to prevent or limit the potential acceptance of hazardous waste such as chlorinated herbicides, insecticides and fungicides. A FGCS is proposed to treat combustion gases consistent with BATT. Potential impacts are further reduced by proposed monitoring plans and programs for the ongoing identification of risks of harm should they occur.

Instruments of the FFG Act

[784] EPA has given due consideration to the instruments of the FFG Act. EPA considers the proposal to pose a low risk of impact on biodiversity based on the flora and fauna assessment in the application. Where residual risks may remain, the application has proposed measures to mitigate these so far as reasonably practicable.

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[785] EPA is satisfied that EPA has given proper consideration to the objectives and instruments of the *Flora and Fauna Guarantee Act 1988*.

7.2.3 Conclusion

[786] EPA considers the proposal to pose a low risk of impact on biodiversity based on the flora and fauna assessment in the application. Where residual risks may remain, including those relevant potentially threatening processes, the application has proposed measures to mitigate these so far as reasonably practicable.

EPA conclusion: EPA is satisfied that EPA has given proper consideration to the objectives and instruments of the *Flora and Fauna Guarantee Act 1988*.

7.3 Charter of Human Rights and Responsibilities Act 2006

[787] EPA is required under section 38(1) of the *Charter of Human Rights and Responsibilities Act 2006 (CHR&R Act)* to consider human rights when making decisions. This statutory obligation requires EPA to justify any limitations to human rights before a decision is made, by assessing the five factors under section 7(2) of the Charter.

[788] The **CHR&R Act** establishes 20 human rights, all which EPA has considered. Of these, the following human rights are considered relevant to the decision-making to issue or refuse to issue a development licence for the proposed activities subject of this assessment.

[789] In considering the relevance of each right EPA notes that no individual submitter claimed their cultural heritage rights were impacted by the proposal.

7.3.1 Right to life

[790] Under the CHR&R Act, the right to life is defined as:

- Every person has the right to life and has the right not to be arbitrarily deprived of life.

[791] Section 13(a) of the Charter provides that a person has the right not to be arbitrarily deprived of life. The right to life is said to be inherent and 'supreme' right, without which all other human rights would be devoid of meaning. An 'arbitrary' deprivation of life may be described as one that is unreasonable or disproportionate.

[792] The right to life imposes a negative obligation to refrain from conduct that causes an arbitrary deprivation of life, and there is some judicial

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authority that it also imposes a positive duty to minimise the risk of loss of life, which consists of:

- a) A 'framework' or 'system' duty to put in place a legislative and administrative framework to protect the right to life; and
- b) An 'operational duty' to take positive measures to protect an individual whose life is at risk in certain circumstances.

[793] While the scope of the right to life may be narrowly construed as being confined to immediate life-threatening risks, comparative international jurisprudence supports a broad reading of this as extending to 'general conditions' that reduce one's quality of life, including from environmental degradation.

[794] In determining whether a decision concerning risk management is proportionate to not constitute an arbitrary deprivation of life, the following relevant factors should be considered:

- c) Identifying the risks of harm to a person (or class of persons) that a decision poses (including a gravity of such risk);
- d) Considering whether reasonable steps can be taken to mitigate such risks and the effectiveness of such measures; and
- e) To the degree that residual risk persists, balancing whether accepting such risks is proportionate to the countervailing objective of the decision.

[795] In deciding to issue or refuse to issue a development licence, EPA must consider the assessment framework detailed in Section 5 of this assessment report. Under this framework, EPA must refuse to issue a development licence if it considers that the activity poses an unacceptable risk of harm to human health or the environment.

[796] EPA has given regard to the potential residual impacts of the proposed activity on surrounding land uses and residences. A risk assessment framework has been applied to identify relevant risks and hazards during normal and other than normal operating conditions. Proposed environmental performance standards and controls have been assessed to eliminate or reduce risks of harm so far as reasonably practicable as detailed in Section 6.1, supplemented by BATT analysis in Section 6.4. This has considered appropriate and proportionate controls for risks from air, GHG, noise and odour emissions, as well as land and groundwater, incoming waste and outgoing residual wastes.

[797] The potential effects of the proposed activity including air (including dust), GHG, noise and odour emissions have been comprehensively

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assessed in Sections 6.1, 6.2, and 7.1 of this assessment report. In conducting this assessment, EPA has relied on robust and proven methods for determining potential impacts, such as AERMOD modelling, noise modelling and human health risk assessments. EPA consideration of human health risks has taken special consideration of human health risks from air emissions and residual waste management as detailed in Section 6.2.1.

[798] A precautionary approach has been adopted in determining whether any residual risks, if they were to eventuate, are acceptable or not. The assessment has considered cumulative impacts including the contribution of the proposed activity on background or existing environmental conditions and the susceptibility of the existing community to current and increases in pollution. Residual risks have been considered for the lifespan of the facility and potential changes in the surrounding environment such as future population growth.

[799] Further regard was given to a review of scientific literature on the potential human health impacts from modern WtE facilities commissioned by EPA in 2018 (EPA, 2018c). In addition to this, EPA reviewed more recent scientific literature, including those provided in submissions, and the opinions of competent UK public health regulators experienced in regulating WtE facilities. Detailed assessment is provided in Section 6.2.1.

[800] Where EPA considers certain risks could be reduced further, appropriate conditions have been applied. For example, compliance with the internationally recognised BATT standards for WtE facilities of the EU are required in full. EPA has also imposed strict performance standards, such as BAT-AELs under all normal and other than normal operating conditions. To ensure the highest standard of community accountability, emission monitoring results will be made publicly accessible in as close to real time as possible. To further ensure the highest level of technical oversight, EPA requires all development phases of the project (detailed design, construction and commissioning) to be appropriately endorsed by an EPA-appointed industrial facilities auditor or other suitably qualified expert where specified.

[801] EPA's assessment concludes that the proposed facility does not pose an unacceptable risk of harm to human health or environment. EPA is satisfied that the activity poses a low and acceptable risk to human health and that any residual risk does not constitute an arbitrary deprivation of life. This has considered the broader concept of including potential reduction to one's quality of life from environmental degradation. EPA has also considered the countervailing benefits (see also Section 6.3) of the proposal

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including the avoidance of landfilling and their associated human health risks and providing for waste infrastructure and management demand from the growing population in western metropolitan Melbourne and the Barwon southwest region of Victoria.

[802] On this basis, EPA does not consider that the residual risks posed by the proposed activity will arbitrarily limit any persons right to life by its decision to issue a development licence.

7.3.2 Right to privacy and reputation

[803] Under the CHR&R Act, the right to privacy and reputation is as follows:

A person has the right—

(a) not to have that person's privacy, family, home or correspondence unlawfully or arbitrarily interfered with;

(b) not to have that person's reputation unlawfully attacked.

[804] Section 13(a) of the Charter provides that a person has the right not to have their privacy unlawfully or arbitrary interfered with. An interference will be lawful if it is permitted by a law that is precise and appropriately circumscribed, and will be arbitrary only if it is capricious, unpredictable, unjust or unreasonable, in the sense of being disproportionate to the legitimate aim sought.

[805] 'Privacy' is a right of considerable breadth. Relevantly, privacy protects a person's place of residence, regardless of whether they have a legal interest in that residence. What constitutes an interference with this aspect of the right to privacy has been approached in a practical manner and may cover actions that prevent a person from continuing to live in their home.

[806] EPA has given regard to the potential residual impacts of the proposed activity on surrounding land uses and residences. A risk assessment framework has been applied to identify relevant risks and hazards. Proposed environmental performance standards and controls have been assessed to eliminate or reduce risks of harm so far as reasonably practicable as detailed in Section 6.1, supplemented by BATT analysis in Section 6.4. The application has considered appropriate and proportionate controls for risks from air, GHG, noise and odour emissions as well as land and groundwater, incoming waste and outgoing residual wastes.

[807] The potential effects of the proposed activity including air (including dust), GHG, noise and odour emissions have been comprehensively assessed in Sections 6.2, 7.1 and 7.2 of this assessment report. In conducting this assessment, EPA has relied on robust and proven methods for

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determining potential impacts, such as AERMOD modelling, noise modelling and human health risk assessments. A precautionary approach has been adopted in determining whether any residual risks, if they were to eventuate, are acceptable or not. The assessment has considered cumulative impacts including the contribution of the proposed activity on background or existing environmental conditions. Residual risks have been considered for the lifespan of the facility incorporating potential changes in the surrounding environment such as future population growth.

[808] Where EPA considers certain risks could be reduced further, appropriate conditions have been applied. For example, compliance with the internationally recognised BATT standards for WtE facilities of the EU is required in full. EPA has also imposed strict performance standards, such as to prevent unreasonable noise impacts on nearby residences from current and future industry in the Lara Industrial Zone 2.

[809] To ensure the highest level of technical oversight, EPA requires all development phases of the project (detailed design, construction and commissioning) to be appropriately endorsed by an EPA-appointed industrial facilities auditor or other suitably qualified expert where identified.

[810] EPA's assessment concludes that the proposed facility does not pose an unacceptable risk of harm to human health or environment, or the amenity of surrounding land uses and residences. EPA is satisfied that any residual risk does not arbitrarily interfere with the use or habitability of any person's place or residence. Where residual risks may remain, EPA has considered the countervailing benefits of the proposal including the avoidance of landfilling and providing for waste infrastructure and management demand from the growing population in western metropolitan Melbourne and the Barwon southwest region of Victoria.

[811] On this basis, EPA does not consider that any persons right to privacy and reputation has or will be limited by its decision to issue a development licence.

7.3.3 Protection of families and children

[812] Under the CHR&R Act, the right to protection of families and children is as follows: as:

(1) Families are the fundamental group unit of society and are entitled to be protected by society and the State

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(2) Every child has the right, without discrimination, to such protection as is in the child's best interests and is needed by the child by reason of being a child.

- [813] Section 17(2) of the Charter provides that every child has the right, without discrimination, to such protections as in their best interests and is needed by them by reason of being a child. The right to protection of children is a positive duty to consider the specific impact of a decision on children considering their vulnerability and need for protection, and to take all appropriate measures to protect children from all forms of harm or neglect.
- [814] 'Best interests' is a complex concept which must be determined on a case-by-case basis. However, the following elements may be taken into account when assessing a child's best interests: protection and safety of the child, their vulnerability as compared to adults, and the child's right to health. Courts in other countries and in Queensland have recognised the intergenerational disadvantage occasioned by climate change, including longer term impacts on children, rather than being limited to a consideration of immediate child-related harms.
- [815] Proper consideration of a child's right to protection in their best interests requires assessing the specific risks of harm to children (including likelihood and gravity of such risks), whether appropriate measures are being taken to protect against this risk, and a balancing of the nature and extent of any residual risks against other countervailing interests.
- [816] EPA has given regard to the potential residual impacts of the proposed activity on the current and future surrounding population including children. A risk assessment framework has been applied to identify relevant risks and hazards during normal and other than normal operating conditions. Proposed environmental performance standards and controls have been assessed to eliminate or reduce risks of harm so far as reasonably practicable as detailed in Section 6.1, supplemented by BATT analysis in Section 6.4. This has considered appropriate and proportionate controls for risks from air, GHG, noise and odour emissions as well as land and groundwater, incoming waste and outgoing residual wastes.
- [817] The potential effects of the proposed activity including air (including dust), GHG, noise and odour emissions have been comprehensively assessed in Sections 6.2, 7.1 and 7.2 of this assessment report. In conducting this assessment, EPA has relied on robust and proven methods for determining potential impacts, such as AERMOD modelling, noise modelling

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and human health risk assessments. EPA consideration of human health risks has taken special consideration of human health risks from air emissions and residual waste management as detailed in Section 6.2.1.

[818] A precautionary approach has been adopted in determining whether any residual risks, if they were to eventuate, are acceptable or not. The assessment has considered cumulative impacts including the contribution of the proposed activity on background or existing environmental conditions and the susceptibility of the existing community, including children, to current and increases in pollution. Residual risks have been considered for the lifespan of the facility and potential changes in the surrounding environment such as future population growth.

[819] Further regard was given to a review of scientific literature on the potential human health impacts from modern WtE facilities commissioned by EPA in 2018 (EPA, 2018c). In addition to this, EPA reviewed more recent scientific literature, including those provided in submissions, and the opinions of competent UK public health regulators experienced in regulating WtE facilities. The literature, reviews and opinions of competent public health authorities incorporate consideration of potential risks on the health and development of children. EPA's detailed assessment of these is provided in Section 6.2.1.

[820] Where EPA considers certain risks could be reduced further, appropriate conditions have been applied. For example, compliance with the internationally recognised BATT standards for WtE facilities of the EU are required in full. EPA has also imposed strict performance standards, such as, BATT-associated emission levels under all normal and other than normal operating conditions. To ensure the highest standard of community accountability, emission monitoring results will be made publicly accessible in as close to real time as possible. EPA has also considered other aspects of the proposal that present long-term or intergenerational impact such as climate change – this is assessed in detail in Sections 6.2.2. and 7.1. To further ensure the highest level of technical oversight, EPA requires all development phases of the project (detailed design, construction and commissioning) to be appropriately endorsed by an EPA-appointed industrial facilities auditor or other suitably qualified expert where specified.

[821] EPA's assessment concludes that the proposed facility does not pose an unacceptable risk of harm to human health or environment. EPA is satisfied that the activity poses a low and acceptable risk to human health including children and family groups and that any residual risk does not compromise

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the protection of children. EPA has also considered the countervailing benefits (see also Section 6.3) of the proposal including the avoidance of the long-term impacts of landfilling on environment and human health, providing for waste infrastructure and management demand from the growing population in western metropolitan Melbourne and the Barwon southwest region of Victoria, and the benefits of reducing GHG emissions and subsequent climate change impacts.

[822] On this basis, EPA does not consider that the residual risks posed by the proposed activity will limit any persons right to protection of families and children by its decision to issue a development licence.

7.3.4 Taking part in public life

[823] Under the CHR&R Act, the right to take part in public life is as follows:

Every person in Victoria has the right, and is to have the opportunity, without discrimination, to participate in the conduct of public affairs, directly or through freely chosen representatives.

[824] As set out in section 4 and the following paragraphs below, EPA undertook a series of consultation activities to inform its assessment of the application. As required under section 69(3) of the EP Act, the EPA must have regard to any comments and submissions received in response to notice of the application published under requirements of the Act.

[825] EPA published notice of the application in the Herald Sun and Geelong Indy on 24 March 2021 along with a social media campaign. The application was made available on a dedicated Engage Victoria webpage, which was also used to receive submissions. The application's webpage was subsequently updated with all RFI responses, submissions and the applicant's response to submissions. EPA additionally undertook two further rounds of public submission period between 13 and 28 October 2021 and 22 June to 13 July 2023. This gave the community and interested third parties the opportunity to comment on the applicant's response to submissions, the conference report and RFI material. During the initial notice and submission period, EPA concurrently ran a question-and-answer forum on the Engage Victoria webpage which received 36 enquires each of which was responded to.

[826] During the initial submission period (24 March to 28 April 2021), an online information session was run by the applicant and attended by EPA. Due to the number and nature of submissions received, the decision was made to hold a community conference. The initial planned date for a conference was

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delayed due to COVID-19 pandemic public health measures. EPA delayed the conference to hold a face-to-face conference as the preferred and most effective engagement format. A community conference was held on 13 July 2021 at Lara Masonic Hall, 37-39 Rennie St, Lara VIC 3212.

[827] EPA considers that the broader Lara and Greater Geelong community are aware of the proposal and were given opportunities to comment on the application. The application has received ongoing local media attention during the life of the assessment. The total number of submitters has not varied significantly across the multiple submission periods. EPA made every effort to make the community aware of the application and to hear and consider submissions and broader sentiment towards the application. EPA's engagement during the assessment was guided and consistent with its commitments under the EPA's Charter of Consultation. The engagement was substantially greater than the minimum statutory notice and submission requirements for development licence applications.

[828] EPA does not consider that any persons right to have the opportunity, without discrimination, to participate in the conduct of public affairs, directly or through freely chosen representatives has or will be limited by its decision to issue a development licence.

7.3.5 Conclusion

EPA conclusion:

EPA has considered whether issuing a development licence for the proposed activities subject of this assessment would limit the human rights of any person.

EPA does not consider that its decision to issue a development licence will have the effect of limiting the human rights of any person.

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7.4 Minamata Convention on Mercury

[829] EPA has assessed the application against the commitments of the Minamata Convention and determined that Article 8 is relevant to its decision-making for this development licence application assessment.

[830] The Minamata Convention is an international treaty that seeks to protect human health and environment from anthropogenic emissions and releases of mercury and mercury compounds. The Convention was ratified by Australia on 7 December 2021.

[831] Article 8 concerns controlling and, where feasible, reducing emissions of mercury and mercury compounds to the atmosphere through measures to control emissions from point sources as identified in Annex D of the Convention. Waste incineration is one of the point sources categories identified in Annex D. Article 8(4) requires the use of BAT and best environmental practices to control and, where feasible, reduce emissions and use emission limit values that are consistent with the application of BAT.

7.4.1 Conclusion

[832] EPA has assessed the proposed FGCS in Section 6 of this report. EPA is satisfied that the application proposes measures consistent with BAT for the control of mercury emissions. In line with this, the facility will be required to install CEMS and continuously monitor its point source emissions of mercury (Condition [DL_G03/8](#)).

[833] The applicant will also be required to report its monitoring results on a publicly available website (Condition [DL_R04/11](#)). Relevant BAT measures also include adoption of incoming waste auditing and monitoring systems and procedures. These would enable the continuous identification of risks of hazards associated with waste streams and any potential implication for air emission discharges of pollutants such as mercury.

EPA conclusion

EPA is satisfied the application proposes measures consistent with Australia and Victoria's commitment to ratify the Minamata Convention on Mercury.

7.5 Stockholm Convention on Persistent Organic Pollutants

[834] EPA has assessed the application against the commitments of the [Stockholm Convention on Persistent Organic Pollutants](#). The Stockholm Convention is an international treaty that seeks to protect human health

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and the environment from persistent organic pollutants (**POPs**). Examples of POPs include DDT, polychlorinated biphenyls (PCBs) and some per- and polyfluoroalkyl substances (PFAS). Countries that ratify the Stockholm Convention agree to take measures to eliminate or reduce environmental releases of these POPs. The Convention was ratified by Australia on 20 May 2004 (EPA, 2021n).

[835] EPA has determined that Article 5 is relevant to its decision-making for this development licence application assessment. Article 5 concerns measures to reduce or eliminate releases from unintentional production of each of the chemicals listed in Annex C of the Convention. Part II(a) of Annex C identifies waste incinerators of MSW as having potential for comparatively high formation and release of the POPs listed in Annex C.

[836] Article 5 requires implementation of measures to reduce the total release derived from anthropogenic sources of each of the chemicals listed in Annex C. The purpose of these measures is to reduce and, where feasible, eliminate the release of such POPs. Measures relevant to this development licence application assessment include the promotion of applying BAT for new sources. Guidelines for applying BAT standards relevant to Article 5 and Annex C have been published by the Secretariat of the Stockholm Convention (Secretariat of the Stockholm Convention on Persistent Organic Pollutants, 2008).

[837] EPA and considers the application to be generally consistent with the Stockholm Convention BAT guidelines. The application is targeting residual MSW and C&I waste which will be subject to the requirements of [Victoria's Waste to Energy Framework](#). The framework is part of Victoria's broader [circular economy policy](#) which seeks to reduce disposal of waste to landfill and achieve a higher order management of waste consistent with the principles of the waste management hierarchy and consistent with the sustainability objectives of the guidelines.

7.5.1 Conclusion

[838] EPA has assessed the proposed WtE facility and FGCS in Section 6 of this report. EPA is satisfied that the application proposes measures consistent with BAT for the control of POPs. In line with this, the facility will also be required to periodically monitor its point source emissions of organic compounds in accordance with the EU BREF and BATC framework (Condition [DL_R04/10](#)).

[839] The applicant will also be required to report its monitoring results on a publicly available webpage (Condition [DL_R04/11](#)). Relevant BAT measures

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include adopting incoming waste auditing and monitoring systems and procedures (Conditions [DL_R04/2](#) and [DL_R04/3](#)). These will enable continuous identification of risks of hazards associated with waste streams and any potential implications for air emission discharges of pollutants such as organic compounds and POPs.

EPA conclusion:

EPA is satisfied the application proposes measures consistent with Australia and Victoria's commitment to ratify the Stockholm Convention on Persistent Organic Pollutants.

7.6 Prohibited and fit and proper person

7.6.1 Prohibited person.

[840] The applicant submitted a completed EPA Form F1018: Prohibited person questionnaire as part of the application. This form requires a response to a series of questions designed to determine if an applicant triggers any of the criteria of a prohibited person as defined under section 88 of the EP Act. The applicant did not answer or declare 'yes' to any question or criteria that may indicate it is a prohibited person.

[841] EPA is not aware of any other information that would suggest or indicate that the applicant may be considered a prohibited person. EPA is satisfied with the declaration made by the company, and based on available information, has determined the applicant is not a prohibited person.

7.6.2 Fit and proper person

[842] The applicant submitted a completed EPA Form F1017: Fit and proper person questionnaire as part of the application. This form requires a response to a series of questions designed to determine if an applicant can satisfy the requirements of a fit and proper person as defined under section 66 of the EP Act.

[843] The applicant responded 'no' to all questions, declaring that the company has not been found in breach of compliance with the EP Act, the EP Regulations, or any environment protection legislation of the Commonwealth or another state or territory, nor is it currently under investigation or before a proceeding for such a breach. EPA reviewed its internal compliance records, and no compliance actions records were found such as pollution abatement notices or pollution infringement notices.

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[844] The applicant supplied an estimate of annual operating costs for the proposed activity, totalling approximately \$35 million including consumables, staffing and maintenance costs. The applicant has expressed its intent to partner with a suitably qualified operational and maintenance company during the activity's operational phase.

7.6.3 Conclusion

[845] EPA is not aware of any other information that would suggest or indicate that the applicant is not a fit and proper person. Based on material submitted along with the completed fit and proper person and prohibited person questionnaires, EPA is satisfied that the applicant is a fit and proper person. This is not a static determination. A person or company's status may change and can be regularly or periodically reviewed by EPA.

EPA conclusion: EPA is satisfied that the applicant is not a prohibited person. EPA is satisfied that the applicant is a fit and proper person.

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8 Decision

[846] Through its assessment, EPA has determined that Prospect Hill meets the fit and proper person requirements of the Act and that the proposal:

- poses a low and acceptable risk to human health and environment.
- includes measures consistent with internationally recognised best available techniques and technologies (BATT) for WtE facilities.
- includes measures that will enable it to comply with the general environmental duty.

[847] EPA has also determined that its decision to grant a development licence for the proposal is consistent with the environment protection principles and the interim Victorian Recycling Infrastructure Plan.

[848] EPA has also assessed the application against the requirements of the following relevant statutory frameworks:

- Climate Change Act 2017,
- Charter of Human Rights and Responsibilities 2006, and
- Flora and Fauna Guarantee Act 1988.

[849] On 6 December 2023, EPA granted a development licence to Prospect Hill subject to conditions.

[850] In deciding to grant this development, EPA notes that this assessment report is made under the EP Act and does not in any way seek to impinge on any future decisions made under the *Planning and Environment Act 1987* or *Environment Legislation Amendment (Circular Economy and Other Matters) Act 2022*.

[851] Furthermore, granting this development licence does not constitute approval or endorsement of the proponent's 'business case'. EPA notes that the proponent has yet to secure any commercial contracts for the secure supply of the waste streams.

[852] The proposal can only proceed when it:

- obtains other regulatory approvals,
- meets a series of development licence milestones,
- has the final detailed design independently verified by an EPA-appointed industrial facilities auditor, and
- has the construction independently verified by an EPA-appointed industrial facilities auditor.

[853] If the applicant can satisfactorily meet these requirements, it can apply to EPA for an operating licence. EPA will not issue an operating licence until

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the development activities have been completed to its satisfaction and in accordance with the application and conditions of the development licence.

8.1.1 Other approvals required.

[854] Other regulatory approvals needed to proceed include:

- a planning permit from the responsible authority, and
- a Cap operator licence from Recycling Victoria

[855] Note: There is a cap or limit on the amount and type of waste that can go to WtE facilities in Victoria. A Cap licence is required from Recycling Victoria to operate a WtE facility.

8.1.2 Independent verification of detailed design and construction

[856] EPA has required that Prospect Hill must have an EPA-appointed industrial facilities auditor (or alternative expert approved by EPA) to verify that:

- the final detailed design of the facility meets the performance criteria specified in the development licence application and conditions of the development licence, and
- the facility has been constructed in accordance with the development licence application and conditions of the development licence.

[857] EPA will not permit the applicant to begin works on the facility until it has endorsed the auditor's verification of the detailed design.

[858] EPA will also not permit the applicant to operate the facility until it has endorsed the auditor's verification of the facility's construction.

8.1.3 Development licence milestones

[859] EPA's development licence includes a strict set of conditions, which need to be met to EPA's satisfaction. The conditions set clear milestones for Prospect Hill. If Prospect Hill fails to complete any milestones, it cannot proceed to the next phase of the project.

- Before detailed design: Prospect Hill must complete a 12-month waste audit to inform the detailed design of the facility.
- Before construction: Prospect Hill must submit to EPA final detailed designs of the facility. These must verify that the facility is designed to operate in accordance with the development licence application and conditions of the development licence.
- Before commissioning: Prospect Hill must verify that the facility has been constructed in accordance with the development licence

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application and conditions of the development licence. It is also required to provide a commissioning plan to demonstrate how it will commission the facility and verify its environmental performance.

- Commission: Prospect Hill must complete proof-of-performance testing of the facility as set out in the EPA-approved commissioning plan including environmental monitoring by independent laboratories.
- Before operating: Prospect Hill must provide commissioning results verifying that the facility is operating in accordance with the commissioning plan, the development licence application and conditions of the development licence.

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9 Conditions

Table 27: Development licence conditions

Condition code	Condition text
DL_G01	<p>A copy of this licence must be kept at the site and be easily accessible to persons who are engaging in an activity conducted at the site. Information regarding the requirements of the licence and the Act duties must be included in site induction and training information.</p>
DL_G02	<p>The development activities must be constructed in accordance with the listed approved plans and documents:</p> <ul style="list-style-type: none"> (a) <i>Prospect Hill EfW Project – Works Approval Application, Prospect Hill International Pty Ltd</i> including Appendices A–N, document number 1, prepared by Jacobs Group (Australia) Pty Limited, dated 10 February 2021. (b) <i>Memorandum Response to s50(3) Notice and s236 Conference of Interested Persons Report</i> including Appendices A–C, document number IS305100, prepared by Jacobs Group (Australia) Pty Limited, dated 10 September 2021. (c) <i>Prospect Hill Energy from Waste Facility – Noise Impact Assessment</i>, Document no: IS305100_TP_008, prepared by Jacobs Group (Australia) Pty Limited, dated 24 August 2022. (d) <i>Memorandum: EPA Victoria – Development Licence Application: Request for further information pursuant to s 50(3) of the Environment Protect Act 2017</i>, document number IS305100_01.06.22, prepared by Jacobs Group (Australia) Pty Limited, dated 25 October 2022. <p>In the event of any inconsistency between the approved documents and the conditions of this permission, the conditions of this permission shall prevail.</p>
DL_G03	<p>Subject to the following conditions, this development licence allows you to: develop a moving grate incineration waste to energy facility capable of treating 400,000 tonnes per year of residual municipal solid waste (MSW) (80%) and commercial and industrial (C&I) waste (20%) and consisting of the following key components:</p> <ul style="list-style-type: none"> (1) two bi-directional calibrated road vehicle weighbridges.

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Condition code	Condition text
	<p>(2) a fully enclosed negatively pressured waste tipping hall and storage bunker, which includes:</p> <ul style="list-style-type: none"> (a) fire detection and protection systems; (b) incoming waste audit, waste load-out, and rejected waste quarantine, and other related waste sampling facilities; and (c) backup odour control system. <p>(3) Two incineration process lines, each consisting of a moving grate, furnace and heat recovery boiler, steam turbine and generator, wet bottom ash extraction system, fly-ash solids recovery and handling system, and advanced control system.</p> <p>(4) a flue gas cleaning system for each incineration process line which:</p> <ul style="list-style-type: none"> (a) meets Best Available Techniques (BAT) (defined by Article 3(10) of Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (IED 2010/75/EU)); (b) complies with international BAT review for waste incineration facilities, and follows the guiding BAT principles of the European Commission, Commission Implementing Decision (EU) 2019/2010 of 12 November 2019, establishing the BAT conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for waste incineration (BATC 2019) and the European Commission Integrated Pollution Prevention and Control Reference Document on Best Available Techniques for Waste Incineration (BREF 2019); (c) at a minimum includes an advanced selective non-catalytic reduction system, flue gas recirculation system, a dry or semi-dry absorbent reactor system, an activated carbon injection system, and a filter baghouse; (d) the filter baghouse design is to be sufficient for retrofit of catalytic filter bags for removal of additional dioxins and furans if the activated carbon injection is insufficient to reduce relevant indicators so far as reasonably practicable; (e) allows for ease of upgrade to achieve more stringent limits, if required in the future, and makes provision for

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Condition code	Condition text
	<p>incorporation of future emissions controls as may be recommended by the BREF or BATC, as amended from time to time, which do not result in significant efficiency impacts of the initial design;</p> <p>(f) meets the requirements and procedures (including applicable emission limits) of the EU IED 2010/75/EU with any reduced emission levels necessary to reflect the outcomes of the future reports provided under Condition DL_R04 and which is capable of:</p> <ul style="list-style-type: none"> (i) operating within the BAT- AEL ranges for new plants contained in BAT 25, BAT 27, BAT 28, BAT 29, BAT 30 and BAT 31 of BATC 2019 under transient, part load, and start-up and shutdown operating conditions; and (ii) does not exceed the BAT-AEL ranges for new plant contained in BAT 25, BAT 27, BAT 28, BAT 29, BAT 30 and BAT 31 of BATC 2019 under all other operating conditions and reduces emissions within those ranges so far as reasonably practicable. <p>(5) The furnace for each incineration process line is designed to be equipped, built and operated in such a way that gas resulting from the incineration of waste is raised after the last injection of combustion air in a controlled fashion and even under the most unfavourable conditions, including all transient, part load, and start-up operating conditions as defined in the IED 2010/75/EU, to a temperature of at least 850°C for at least two seconds.</p> <p>(6) A Continuous Operating Monitoring System capable of monitoring all key process parameters for emissions to air as specified in BAT 3 of the BATC 2019.</p> <p>(7) Continuous and Non-continuous Emission Monitoring Systems to be installed on each flue in the multiflued stack capable of measuring all substances and parameters compliant with the standards and minimum monitoring frequencies as specified in BAT 4 of BATC 2019:</p> <ul style="list-style-type: none"> (a) Including continuous emission monitoring of carbon monoxide, total dust, total organic carbon, total volatile organic carbon, hydrogen chloride, hydrogen fluoride,

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Condition code	Condition text
	<p>sulphur dioxide, oxides of nitrogen expressed as NO₂, ammonia and mercury;</p> <p>(b) Including in all operating scenarios, including steady state, unsteady state, all transient, part load, and start-up and shutdown operating conditions as defined in the IED 2010/75/EU.</p> <p>(8) A backup Continuous and Non-continuous Emission Monitoring Systems capable of measuring all substances and parameters consistent with the standards set out in Condition DL_G03(7).</p> <p>(9) Provision for future incorporation of a Continuous Emissions Monitoring System capable of measuring PM_{2.5} and PM₁₀, if this becomes reasonably practicable.</p> <p>(10) A power plant which recovers heat or electricity generated from the process so far as reasonably practicable and is designed to achieve the BAT-Associated Energy Efficiency Levels of the BREF and BATC 2019, including an average R1 energy efficiency of 0.77 (calculated in accordance with methodologies specified in EPA Publication 1559.1 'Guideline – Energy from waste' dated July 2017).</p> <p>(11) A backup power generator system that is sized to operate control systems of both process lines during other than normal operating conditions.</p> <p>(12) A wet bottom ash extraction system.</p> <p>(13) Provisions for future incorporation of options for a flue gas cleaning system solid residue stabilisation system.</p> <p>(14) A bottom ash treatment system and building including an enclosed:</p> <ul style="list-style-type: none"> (a) pre-treatment storage hall; (b) processing shed with dust extraction system and bag filter; and (c) maturation hall. <p>(15) Provision for future incorporation of options (including physical space within the activity site) for resource recovery from the waste before incineration so far as reasonably practicable.</p>
DL_G04	This permission does not take effect until a copy of any planning permit or amendment to a planning scheme required under the

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Condition code	Condition text
	<i>Planning and Environment Act 1987 (Vic)</i> and related planning schemes has been provided to the Authority by the applicant.
DL_G05	<p>This permission expires:</p> <ul style="list-style-type: none"> (a) on the issue or amendment of an operating licence or permit relating to all activities covered by this permission; (b) when the Authority advises in writing that all activities covered by this permission have been satisfactorily completed and the issue or amendment of an operating licence or permit is not required; or (c) on the expiry date listed on the front page of this permission.
DL_G07	<p>You must:</p> <ul style="list-style-type: none"> (a) develop and maintain a decommissioning plan that is in accordance with the current decommissioning guidelines published by the Authority; (b) provide the decommissioning plan to the Authority upon request; (c) supply to the Authority an updated detailed decommissioning plan 60 business days before commencement of decommissioning, if you propose to divest a section of the licensed site, cease part or all of the licensed activity or reduce the basis on which the licence was granted to a point where licensing is no longer required; and decommission the licensed site in accordance with the detailed decommissioning plan, to the satisfaction of the Authority and within any reasonable timeframe which may be specified by the Authority.
DL_C01	Commissioning activities must be undertaken in accordance with the commissioning plan approved by the Authority.
DL_C02	<p>You must immediately notify the Authority by calling 1300 EPA VIC (1300 372 842) in the event of:</p> <ul style="list-style-type: none"> a) a discharge, emission or deposit which gives rise to, or may give rise to, actual or potential harm to human health or the environment;

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Condition code	Condition text
	<ul style="list-style-type: none"> b) a malfunction, breakdown or failure of risk control measures at the site which could reasonably be expected to give rise to actual or potential harm to human health or the environment; or c) any breach of the licence.
DL_C05	<p>(1) You must develop a risk management and monitoring program for your activities which:</p> <ul style="list-style-type: none"> a) identifies the risks of harm to human health and the environment which may arise from the activities you are engaging in at your activity site; b) clearly defines your environmental performance objectives; c) clearly defines your risk control performance objectives; d) describes how the environmental and risk control performance objectives are being achieved; e) identifies and describes how you will continue to eliminate or minimise the risks in (1)(a) (above) so far as reasonably practicable; and f) describes how the information collated in compliance with this clause, is or will be disseminated, used or otherwise considered by you or any other entity. <p>(2) The risk management and monitoring program must be:</p> <ul style="list-style-type: none"> a) documented in writing; b) signed by a duly authorised officer of the licensed entity; and c) made available to the Authority on request.
DL_C06	<p>Within 30 business days of the expiry of this permission, you must provide to EPA a report detailing the results of the commissioning monitoring program.</p>
DL_C07	<p>Within 30 business days of the completion of the approved activities, you must provide to EPA a written report that summarises the activities undertaken and includes: a summary of compliance with each condition of this development licence.</p>
DL_W08	<p>You must install:</p> <ul style="list-style-type: none"> (1) For each flue in the multi-flue stack, a device capable of sampling in stack:

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Condition code	Condition text
	<p>(a) long-term mass concentrations of polychlorinated dibenzodioxins (PCDD) and polychlorinated dibenzofurans (PCDF), for periods of up to one month for each flue; and</p> <p>(b) short-term mass concentrations of PCDD and PCDF.</p> <p>(2) For each furnace, at least one auxiliary burner that is automatically switched on when the temperature of the combustion gases after the last injection of air falls below 850°C.</p> <p>(3) An automatic system to prevent waste feed if:</p> <p>(a) at start-up, the temperatures of at least 850°C with a residence time of at least two seconds has not been reached;</p> <p>(b) the temperature of the furnace (at least 850°C with a residence time of at least two seconds) is not maintained;</p> <p>(c) Continuous Emissions Monitoring Systems show that any emission limit value is exceeded due to disturbances or failure of the flue gas cleaning system; or</p> <p>(d) all flue gas cleaning or pollution control equipment has not been validated for plant readiness.</p>
DL_W09.1	<p>You must install all exhaust stacks so that provisions for sampling are included in accordance with <i>A Guide to the Sampling and Analysis of Air Emissions and Air Quality</i> (EPA Publication 440.1, released December 2002), or as approved by the Authority.</p>
DL_R01	<p>At least 60 business days before the start of any commissioning, you must provide to the Authority plans and reports that include(s):</p> <p>(1) A Construction Verification Report prepared by a suitably qualified EPA-appointed auditor (or alternative expert approved by the EPA in writing) demonstrating that the facility has been built in accordance with the development licence and all endorsed reports provided under Condition DL_R04.</p> <p>(2) A summary report of the site Environmental Management System (EMS) prepared in accordance with ISO 14001 or Regulation (EC) NO 1221/2009 and the BREF and BATC 2019, and make available for inspection all documents and procedures which form part of the EMS, including but not limited to:</p> <p>(a) A Waste Stream Management Plan</p> <p>(b) A Residual Waste Management Plan</p>

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Condition code	Condition text
	<p>(c) A Community and Stakeholder Engagement Plan</p> <p>(d) A Complaints Response Plan</p> <p>(e) An air Emission Management Plan</p> <p>(f) An Odour Management Plan</p> <p>(g) An Other Than Normal Operating Condition Management Plan</p> <p>(h) An Accident Management Plan</p> <p>(i) A Diffuse Dust Emission Management Plan</p> <p>(j) A Noise Management Plan that includes:</p> <ol style="list-style-type: none"> i. inspection, maintenance, and testing programs to prevent the emission of unreasonable noise (as defined in section 3 of the <i>Environment Protection Act 2017</i>, as prescribed in Part 5.3, Division 3 of the Regulations); ii. program for the implementation of contingency measures, wherever necessary; iii. procedures to investigate and respond to noise complaints, including measures to be taken to address the cause of valid complaints; and iv. implementation of continual improvement, to ensure the risk of harm from noise to human health and the environment is minimised so far as reasonably practicable, across the whole life of the project. <p>(3) A Site Emergency Response Plan that includes actions to be taken to protect personnel and property in the event of a major incident (large gas release, fire/explosion or toxic gas release) at the Viva Lara LPG Terminal.</p> <p>(4) A Waste Management Contingency Plan for planned and unplanned shutdowns, that considers:</p> <ol style="list-style-type: none"> (a) alternative waste management options; (b) alternative waste odour control contingency measures; and (c) arrangements or systems to inform relevant stakeholders about any shutdown (e.g. the Authority, power companies, community and local councils). <p>(5) A Greenhouse Gas (GHG) Emission Reduction and Management Plan (GHGERMP) that must:</p>

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	<p>(a) Include a GHG inventory that identifies and estimates Scope 1, Scope 2, and measurable and relevant Scope 3 GHG emissions, in carbon dioxide equivalent (tCO₂e), for the operational phases of the proposal;</p> <p>(b) maintain updates of the above GHG inventory on a yearly basis using operational data; and</p> <p>(c) include minimisation strategies for the lifetime of the project, with GHG reduction targets demonstrating contribution towards Victoria's legislated target of net zero emissions and the interim targets set by the Victorian Government under the <i>Climate Change Act 2017</i>.</p> <p>(6) A Climate Change Adaptation Management Plan (CCAMP) that must:</p> <p>(a) identify hazards and assess risks of harm from climate change impacts to the proposal's operation, over the life of the project including:</p> <ol style="list-style-type: none"> i. potential biophysical and environmental impacts, social and economic impacts, potential health impacts and other potential impacts from climate change related to the activity; and ii. long and short-term impacts, direct and indirect impacts, and cumulative impacts. <p>(7) A detailed Commissioning Plan detailing all relevant monitoring methodologies for validation or proof-of-performance of the development activities in accordance with the application, development licence, and endorsed reports required under Condition DL_R04 including the waste types and volumes to be stored and processed during commissioning.</p>
RD_R02	<p>You must not commence commissioning of the operating components of the development activities until you have received the Authority's written approval of the report or reports which is required under Condition(s) DL_R01.</p>
DL_R03	<p>You must not commence operation of the works until the Authority's written approval of the reports required by Condition(s) DL_C07 has been received.</p>

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DL_R04	<p>At least 60 business days before the start of any construction or installation, you must provide to the Authority the following plans or reports. The reports with any accompanying plans and specifications prepared under this condition must be endorsed by a suitably qualified EPA-appointed auditor (or alternative expert approved by the EPA in writing), or other expert as specified:</p> <p>(1) A final Waste Characterisation Report including:</p> <ul style="list-style-type: none"> (a) results of waste characterisation audit or audits of the physical, chemical and hazardous properties, and calorific value analysis results representative of the target waste feedstock to inform the detailed design of the facility; (b) verification of the audit or audits conducted in accordance with methodologies approved by EPA; (c) audit results of a minimum 12-month period accounting for potential seasonality in the targeted waste feedstock composition; and (d) an accompanying waste flow analysis informing the selection of the waste characterisation audit or audits. <p>(2) A final Waste Acceptance Criteria in a form or manner consistent with the BREF and BATC 2019 that will inform waste supply agreements to ensure targeted waste feedstock received at the activity site is within the operational and design specifications of the facility.</p> <p>(3) Final waste acceptance procedures consistent with the BREF and BATC 2019 including:</p> <ul style="list-style-type: none"> (a) ongoing waste auditing and analysis procedures and waste tracking system to: <ul style="list-style-type: none"> (i) demonstrate compliance with the Waste Acceptance Criteria and design specifications of the facility; (ii) audit frequencies conducted at a minimum on a quarterly basis, then, after two consecutive quarterly audits demonstrating compliance with the Waste Acceptance Criteria and design specifications, twice a year; (b) waste delivery monitoring procedures including: <ul style="list-style-type: none"> (i) radioactivity detection;

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	<ul style="list-style-type: none"> (ii) weighing of the waste deliveries; (iii) visual inspection; and (iv) periodic sampling of waste deliveries and analysis of key properties and substances. <p>(c) specification of all material, including recyclable material, hazardous material, e-waste, industrial, priority or reportable priority waste, which is to be removed from the waste before incineration; and</p> <p>(d) that only waste that would otherwise be disposed of to landfill will be accepted at the facility.</p> <p>(4) A report for the ongoing testing and investigation of existing or emerging technology options for resource recovery including:</p> <ul style="list-style-type: none"> (a) identifying options available for resource recovery for the targeted waste feedstock before incineration so far as reasonably practicable; (b) includes cost and market analysis; and (c) is being completed at a minimum of five-yearly intervals and to the satisfaction of the Authority. <p>(5) A report of the final detailed designs and schematics of the storage facilities for the targeted waste feedstock, rejected or quarantined waste, and chemical and fuel storage and associated containment and draining infrastructure:</p> <ul style="list-style-type: none"> (a) demonstrating implementation of BAT consistent with all relevant conclusions of the BREF and BATC 2019; and (b) designed in accordance with EPA Publication 1698: <i>'Liquid storage and handling guidelines'</i> dated June 2018. <p>(6) A report of the final detailed designs and schematics of the facility demonstrating implementation of:</p> <ul style="list-style-type: none"> (a) the findings or recommendations of a Hazard Identification (HAZID) Study that considers all potential hazardous events and their impact on safe operations. These events may be internal to the facility or external (e.g. large gas release or fire at the proximal major hazard facility); (b) the findings or recommendations of a full plant and operations risk assessment, including Hazard Operability (HAZOP) Study that considers all process and environmental risks for operation (normal and other than normal operating conditions);

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	<p>(c) good engineering practice and compliance with all relevant Australian or European equivalent engineering, occupational health and safety (OH&S) standards; and</p> <p>(d) an accompanying report of the final detailed designs and schematics of the fire mitigation controls, informed by a fire risk study and endorsed by a suitably qualified fire safety engineer and prepared in accordance with EPA Publication 1667.3: <i>'Management and storage of combustible recyclable and waste materials'</i> dated July 2021.</p> <p>(7) A report of the final detailed designs and schematics of the facility optimised to treat the waste characteristics specified in the Waste Acceptance Criteria required under Condition DL_R04(2) and waste acceptance procedures of Condition DL_R04(3), including:</p> <p>(a) a heat and chemical mass balance based on the waste characteristics detailed in the final Waste Acceptance Criteria;</p> <p>(b) a firing envelope or stoker diagram demonstrating the capacity of the facility to process the waste characteristics detailed in the final Waste Acceptance Criteria;</p> <p>(c) BAT-Associated Energy Efficiency Levels and R1 efficiency calculations based on the final Waste Acceptance Criteria demonstrating compliance with each of the applicable efficiency measures of 25–35% gross electrical efficiency or 72–91% gross energy efficiency of the BREF and BATC 2019; and</p> <p>(d) a technology readiness assessment of the critical technology elements of the facility prepared by a suitably qualified person; and</p> <p>(e) implementation of all relevant requirements set out in Conditions DL_G03 and DL_W08 of this development licence.</p> <p>(8) A report detailing computerised fluid dynamics modelling of the incineration furnace demonstrating that:</p> <p>(a) all combustion gases, after the last injection of air, are elevated to a minimum temperature of 850°C with a residence time of at least two seconds before exiting the furnace;</p> <p>(b) all combustion gases are reduced to 250°C, or below, at the outlet of the boiler with optimum residence time to minimise the de novo synthesis of dioxins/furans; and</p> <p>(c) Safe combustion and discharge of process gas flows during other than normal operating conditions.</p>

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	<p>(9) A report of the final detailed designs and schematics of the flue gas cleaning system:</p> <ul style="list-style-type: none"> (a) demonstrating optimisation to treat the waste characteristics specified in the Waste Acceptance Criteria; (b) demonstrating capability to operate within the performance standards specified in Condition DL_G03(4)(f); (c) designed considering the maximum flow rate and pollution concentrations and maintain optimal availability; (d) supported by computerised fluid dynamics modelling; and (e) accompanied by an updated Air Quality Impact Assessment based on the final detailed design of the flue gas cleaning system prepared in accordance with EPA Publications 1961 'Guideline for assessing and <i>minimising air pollution</i>' dated February 2022. <p>(10) An Air Emissions Management Plan including:</p> <ul style="list-style-type: none"> (a) an air pollution risk management framework prepared in accordance with EPA Publication 1961: '<i>Guideline for assessing and minimising air pollution</i>' dated February 2022 and 1695 '<i>Assessing and controlling risk: A guide for business</i>' dated April 2020; (b) flue gas emission monitoring program for normal operating conditions compliant with the frequency and standards of the EU IED 2010/75/EU and BREF and BATC 2019; (c) flue gas emission monitoring program for Other Than Normal Operating Conditions compliant with frequency and standards of the IED 2010/75/EU and BREF and BATC 2019 to include the reporting of CEMS and COMS data during such conditions; (d) commissioning monitoring and sampling plan methodology for demonstrating compliance with the IED 2010/75/EU and emission performance standards specified in Condition DL_G03 of the treated flue gas by the completion of commissioning and prepared in accordance with EPA Publication: 440.1 '<i>A Guide to the Sampling and Analysis of Air Emissions and Air Quality</i>' dated 2002. (e) monitoring of the following indicators: Condensable particulate matter, PM^{2.5} and PM¹⁰, Polycyclic Aromatic Hydrocarbons, Polychlorinated biphenyls, Volatile Organic Compounds,

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	<p>Polyhalogenated dibenzo- dioxins/furans, Chlorinated polycyclic aromatics and Chlorinated monocyclic aromatics;</p> <p>(f) continuous and non-continuous monitoring of those pollutants and parameters as otherwise specified in conclusions BAT 4 and 5 of the BREF and BATC 2019;</p> <p>(g) monitoring of the content of unburnt substances in bottom ash at the frequencies and standards specified in conclusion BAT 7 of the BREF and BATC 2019; and</p> <p>(h) an ongoing system for identifying and investigating chemicals of concerns based on operational audits of the targeted waste feedstock accepted at the facility.</p> <p>(11) a Community and Stakeholder Engagement Plan with details for providing public reporting of monitoring results on a website related to the project, or through a website agreed to by EPA, that must include:</p> <p>(a) reporting of all periodic monitoring results at a minimum frequency of quarterly;</p> <p>(b) reporting of continuous emission monitoring results in real time or as near as practicable;</p> <p>(c) reporting incinerator bottom ash monitoring results and the results of any monitoring of emissions to water by the end of the calendar month in which the monitoring is carried out; and</p> <p>(d) reporting of compliance status of air emissions against licence limits at a minimum frequency of daily.</p> <p>(12) a report of the final detailed designs and schematics of the primary and backup odour control systems:</p> <p>(a) demonstrating implementation of BAT for odour emissions during normal and other than normal operation conditions consistent with all relevant BREF and BATC 2019;</p> <p>(b) demonstrating the efficacy of the negative pressure odour management control system so far as reasonably practicable during normal and other than normal operation conditions;</p> <p>(c) an Odour Management Plan that provides for the ongoing assessment of odour emissions during commissioning, normal, and other than normal operating conditions in</p>

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	<p>accordance with EPA Publication 1883 'Guidance for assessing odour' dated June 2022; and</p> <p>(d) an updated odour impact assessment prepared in accordance with EPA Publication 1883 'Guidance for assessing odour' dated June 2022.</p> <p>(13) a report of the final detailed designs and schematics of the noise attenuation controls, including:</p> <p>(a) demonstrating implementation of BAT to minimise noise emissions consistent with the BREF and BATC 2019;</p> <p>(b) the steps followed to ensure iterative consideration through all the planning and design phases of the project, and eventual adoption of all opportunities to minimise the risk of harm from noise to human health and environment so far as reasonably practicable, consistent with the General Environmental Duty;</p> <p>(c) the noise mitigation measures to be implemented at source, and their itemised acoustic performance, including controls to mitigate low frequency noise and noise from truck movements occurring outdoors, and address potential noise character;</p> <p>(d) an assessment conducted in accordance with EPA Publication 1826.4 '<i>Noise limit and assessment protocol for the control of noise from commercial, industrial and trade premises and entertainment venues</i>' (Noise Protocol) dated May 2021 and consistent with the provisions of EPA Publication 1997 '<i>Technical guide: Measuring and analysing industry noise and music noise</i>' dated July 2021, that must:</p> <p>(i) demonstrate that the contribution of the project to the effective noise level at noise sensitive areas will not exceed the noise limits calculated in accordance with Part I of the Noise Protocol minus 10 decibels (10 dB);</p> <p>(ii) consider measurement/calculation uncertainty; and</p> <p>(iii) detail contingency measures to be implemented to address, as necessary, the risk of exceedance of the project noise design objectives or of the noise limits of the Regulations, supported by evidence of their effectiveness.</p>

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	<p>(e) an updated assessment of the risk associated with low frequency noise emitted from all noise sources associated with the project, consistent with the provisions of EPA Publication 1996 'Noise guidelines: Assessing low frequency noise' dated June 2021', including details of measures to be implemented to address, as necessary, the risk of unreasonable noise associated with the emission of low frequency noise, supported by evidence of their effectiveness;</p> <p>(f) a commissioning measurement program intended to ensure the acoustic objectives of the project, including (but not limited to) project noise design objectives and effectiveness of measures for low frequency noise, are satisfied at the onset of operation.</p> <p>(14) a report of the final detailed design and schematics of the bottom ash treatment system and residual waste storage and buildings:</p> <p>(a) demonstrating implementation of BAT for bottom ash treatment and management consistent with the BREF and BATC 2019;</p> <p>(b) the steps followed to ensure iterative consideration through all the planning and design phases of the project, and eventual adoption of all opportunities to minimise the risk of harm from bottom ash treatment and management to human health and environment so far as reasonably practicable, consistent with the General Environmental Duty; and</p> <p>(c) an accompanying monitoring plan consistent with the BREF and BATC 2019 including dust extraction systems, defuse dust emissions, and water emissions.</p> <p>(15) a Residual Waste Management Plan that:</p> <p>(a) classifies all residual waste generated at the activity site in accordance with Schedule 5 of the Environment Protection Regulations 2021, EPA Publication 1827.2: Waste classification assessment protocol (March 2021), EPA Publication 1828.2: Waste disposal categories – characteristics and thresholds (March 2021) and EPA Publication 1968.1: Guide to classifying industrial waste (August 2021);</p> <p>(b) details the management, reuse and disposal of incinerator bottom ash, boiler fly ash and flue gas cleaning system solid residues;</p>

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	<p>(c) details provision for the disposal of residual wastes to landfill only where no other treatment or reuse option is available;</p> <p>(d) details the location of landfills or appropriately permissioned activity sites that will accept the facility's residual wastes;</p> <p>(e) details the incinerator bottom ash output quality features to be part of the EMS including quality assurance and control procedure, testing regime of the various solid residue fractions, and includes, but is not limited to, such details as sampling, measurement procedures, and frequencies;</p> <p>(f) identifies end-of-life risks for reuse or disposal of residual waste; and</p> <p>(g) identifies disposal options and specifies the fate of residual waste that fail to meet the quality assurance and control procedures.</p> <p>(16) a report of the final detailed designs of water, wastewater and stormwater infrastructure:</p> <p>(a) demonstrating implementation of BAT for stormwater and wastewater management consistent with all relevant conclusions of the BREF and BATC 2019;</p> <p>(b) a final water balance for the activity site;</p> <p>(c) final detailed designs of the stormwater detention pond and wastewater holding pond determined in accordance with the final water balance;</p> <p>(d) investigation of options for alternative water supply to substitute use of potable water and other recommendations of Barwon Water in correspondence titled 're: EPA VICTORIA WORKS APPROVAL application NO.1004200 PROSPECT HILL INTERNATIONAL – 164-200 MCMANUS RD LARA VIC', dated 20 April 2021; and</p> <p>(e) accompanying Wastewater and Stormwater Management and Monitoring Plan/s.</p> <p>(17) an updated Human Health Risk Assessment based on the final detailed design of the facility that must include consideration of:</p> <p>(a) the updated Air Quality Impact Assessment and AERMOD Modelling results required under Condition DL_R04(9);</p> <p>(b) the updated odour impact assessment required under condition DL_R04(12);</p>

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	<p>(c) the updated noise impact assessment required under condition DL_R04(13); and</p> <p>(d) the Residual Waste Management Plan required under condition DL_R04(15).</p> <p>(18) A life cycle analysis with a GHG assessment based on the final detailed design of the facility and prepared in accordance with methodologies approved by EPA.</p> <p>(19) a Baseline Conditions Report of describing soil, surface, and groundwater at the activity site and its boundary.</p> <p>(20) a Construction Environment Management Plan, prepared in accordance with EPA Publication 1834.1 '<i>Civil construction, building and demolition guide</i>' dated August 2023.</p>

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Appendix

Appendix A: List of application documents and information

- *Prospect Hill EfW Project – Works Approval Application, Prospect Hill International Pty Ltd* including Appendices A–N, document number 1, prepared by Jacobs Group (Australia) Pty Limited, dated 10 February 2021.
- *Memorandum Response to s50(3) Notice and s236 Conference of Interested Persons Report* including Appendices A–C, document number IS305100, prepared by Jacobs Group (Australia) Pty Limited, dated 10 September 2021.
- *Prospect Hill Energy from Waste Facility – Noise Impact Assessment*, Document no: IS305100_TP_008, prepared by Jacobs Group (Australia) Pty Limited, dated 24 August 2022.
- Memorandum: EPA Victoria – Development Licence Application: Request for further information pursuant to s 50(3) of the Environment Protection Act 2017, document number IS305100_01.06.22, prepared by Jacobs Group (Australia) Pty Limited, dated 25 October 2022.

Development licence assessment report

Environment Protection Act 2017

Appendix B: Summary of submissions received between 24 March and 28 April 2021



Summary of submissions:

Public and interested third-party submissions on Prospect Hill Int., waste-to-energy facility, Lara

1. Purpose of this document

This document provides a summary of submissions received during Environment Protection Authority Victoria's (EPA) advertisement and submission period for works approval application no. 1004200.

Section 2-4 of this document summarises the works approval application, and advertisement and submission period. Sections 5-6 summarises the submissions received including key issues or concerns raised. This document also includes a table of submission and written submissions received as Appendix A and B, respectively.

2. Application overview

On 17 February 2021, EPA Victoria (EPA) received works approval application no. 1004200 from Prospect Hill International Pty. Ltd. (Prospect Hill). The company is proposing to develop a waste-to-energy facility at 164-200 McManus Road, Lara VIC 3212.

3. What does the application propose?

The application proposes a waste-to-energy facility in Lara to service greater Geelong and west metropolitan Melbourne. The facility will be designed to process approximately 400,000 tonnes of waste per year and generate 35 megawatts of electricity. Prospect Hill estimates this is enough to power up to 50,000 homes. The facility will only take residual wastes currently destined for landfill.

The application includes technical studies of the potential impacts of the proposal including:

- comparison with international best practice standards for waste-to-energy facilities
- human health impact assessment
- air and odour emissions
- noise emissions
- greenhouse gas emissions
- incoming and outgoing waste management.

The proposed facility requires a works approval because it falls under the A08 (Waste to energy) and K01 (Power stations) categories of the Environment Protection (Scheduled Premises) Regulations 2017.

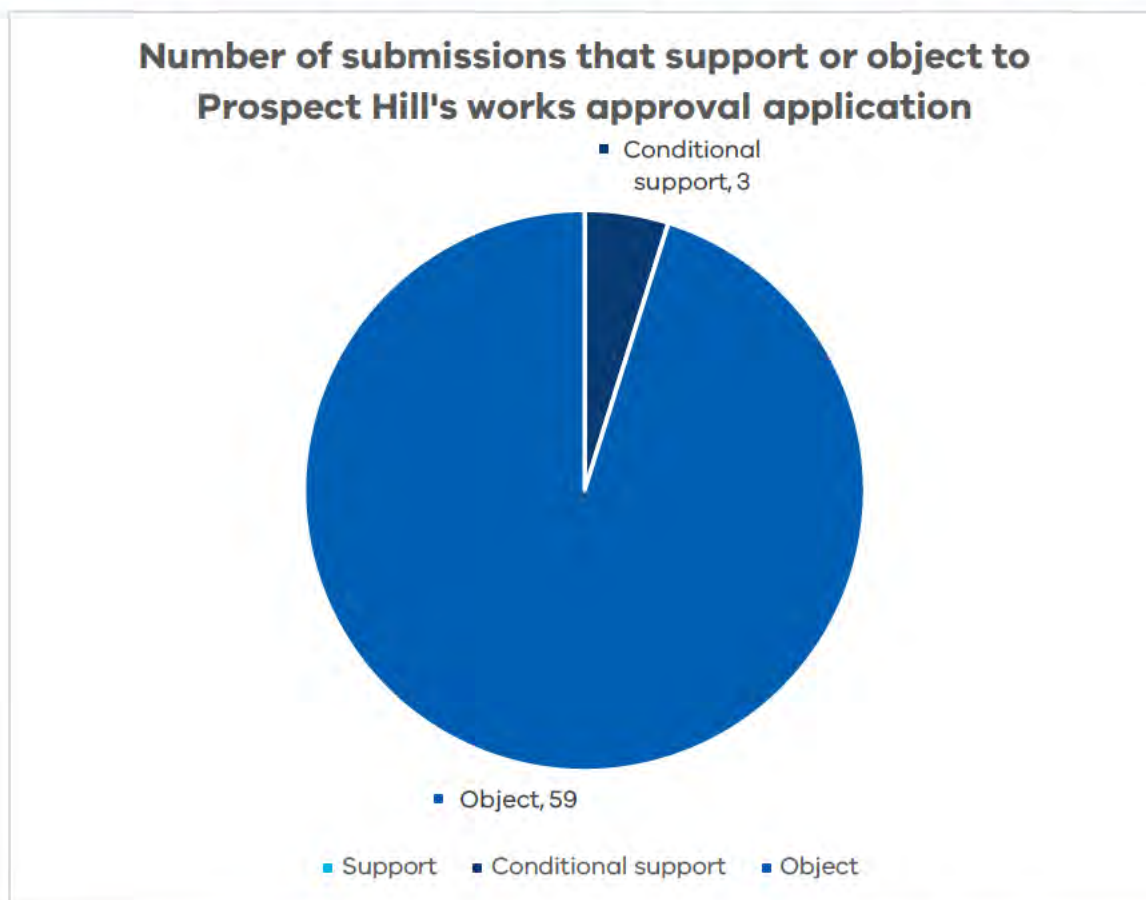
4. Application advertisement and submission period

The application underwent an extended advertisement and public submissions period from 24 March – 28 April 2021. The application was advertised in the Herald Sun and the Geelong Indy and was made publicly accessible on a dedicated Engage Victoria webpage. The Engage Victoria webpage also featured an online questions and answers forum which received 36 enquires about the proposal. Submissions or comments on the application could be made via the Engage Victoria webpage.

5. Submissions received

Between 24 March – 28 April 2021 EPA received 63 submissions from the community and other interested third parties. Of the 63 submissions 3 offered support subject to conditions and 59 objected to the proposed facility – see Figure 1.

Figure 1: Chart of submissions that support or object to Prospect Hill's works approval application



Of the key segments regulated by EPA, Human health risks or hazards and air emissions from the proposal elicited the highest level of concerns from the largest number of submitters.

Summary of submissions: Public and interested third-party submissions on Prospect Hill Int., waste-to-energy facility, Lara

Other key areas or concerns nominated by submitters include:

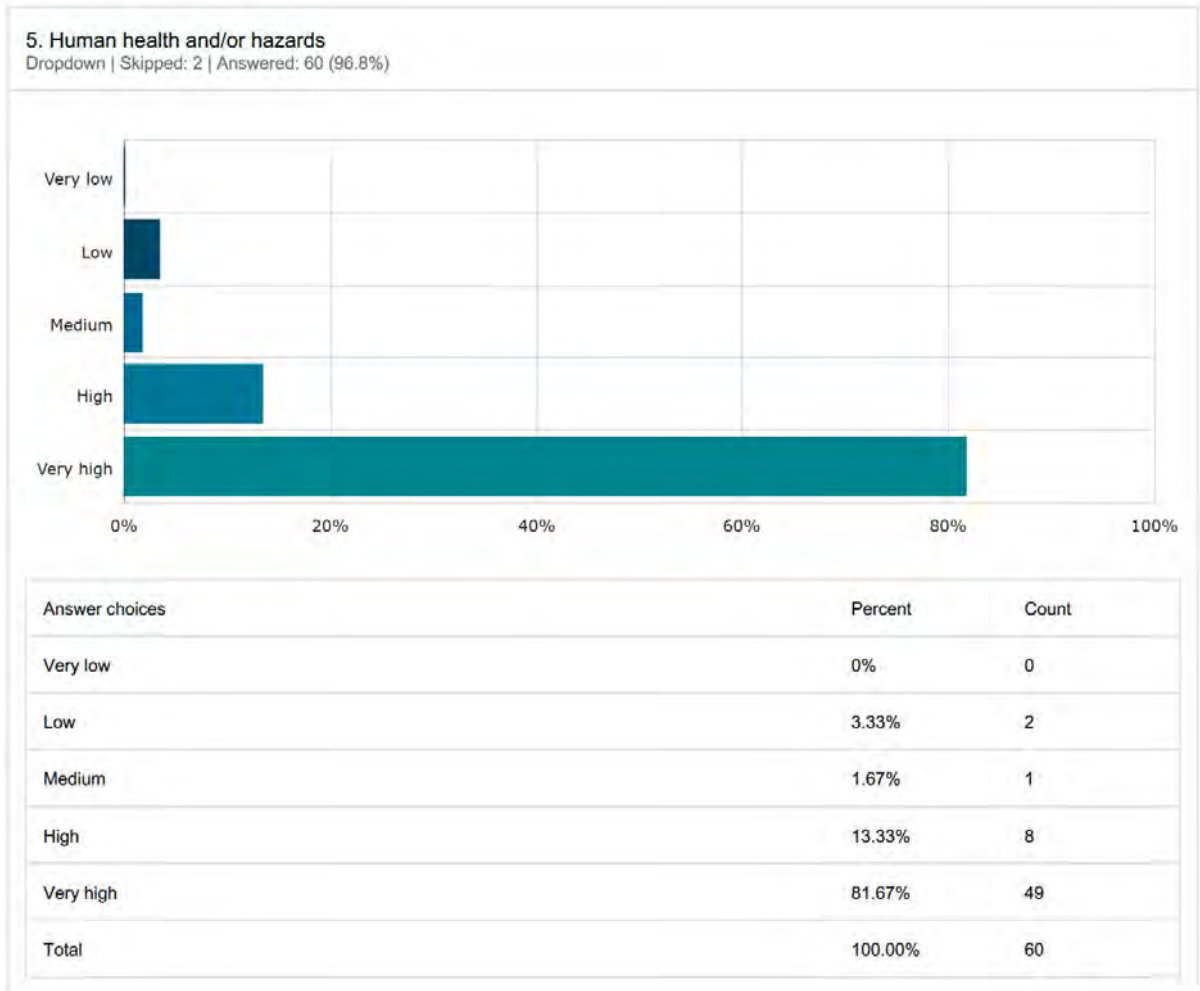
- Site selection and buffer or separation distance to nearest residences
- Incineration of waste undermining the recycling industry or state and local waste management policies
- Greenhouse gas emissions from the facility over the life of the project
- The concept model for the proposal and lack of detailed designs of the facility
- Waste contamination affecting neighbouring land and residences

Other issues raised that are not administered or assessed by EPA works approval and licensing processes:

- Traffic management and impacts on local road networks
- Visual impact of the facility and stack.

6. Summary level of concern by issues

Figure 2: Human health and/or hazards



Summary of submissions: Public and interested third-party submissions on Prospect Hill Int., waste-to-energy facility, Lara

Figure 3: Air emissions

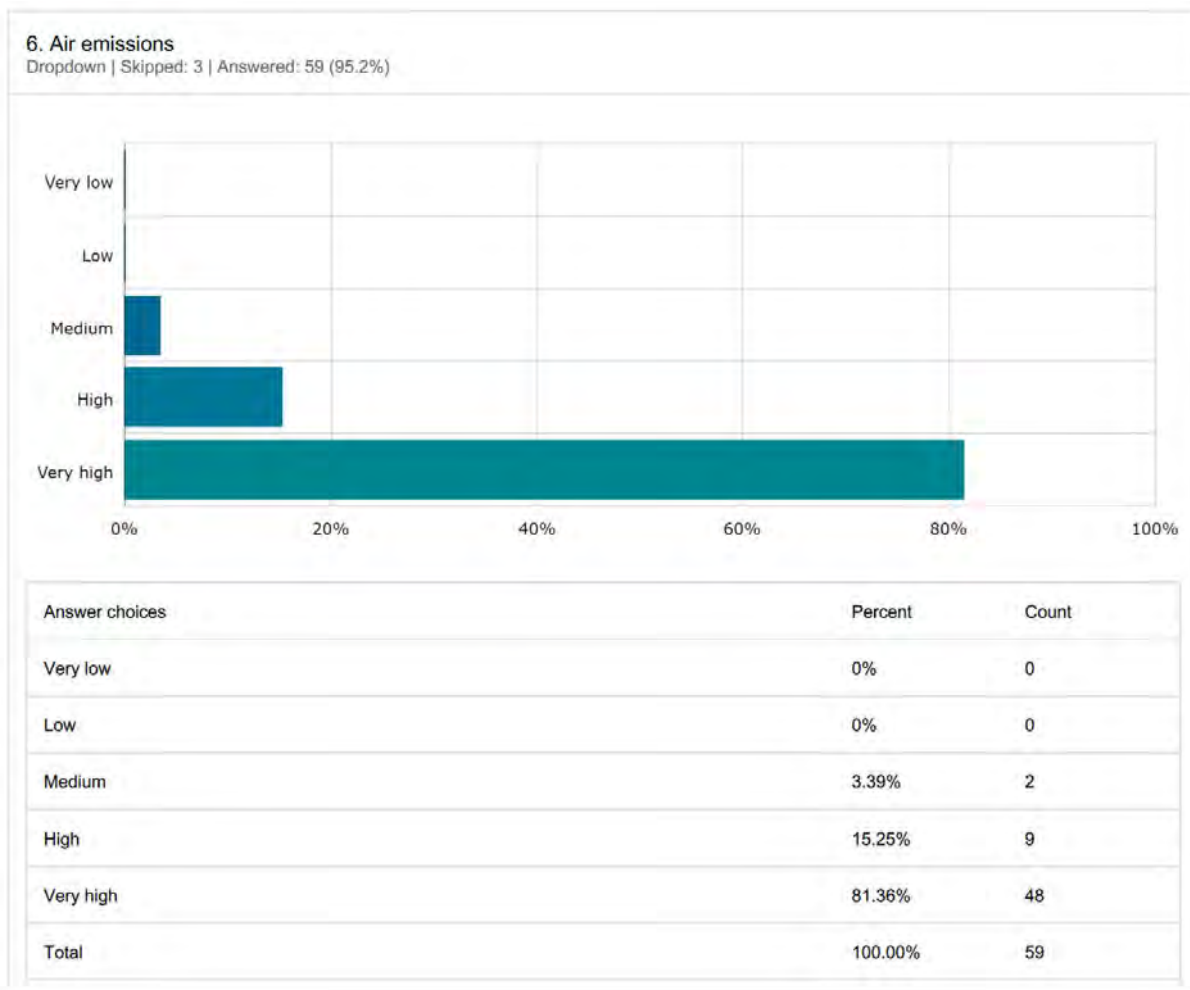


Figure 4: Odour emissions

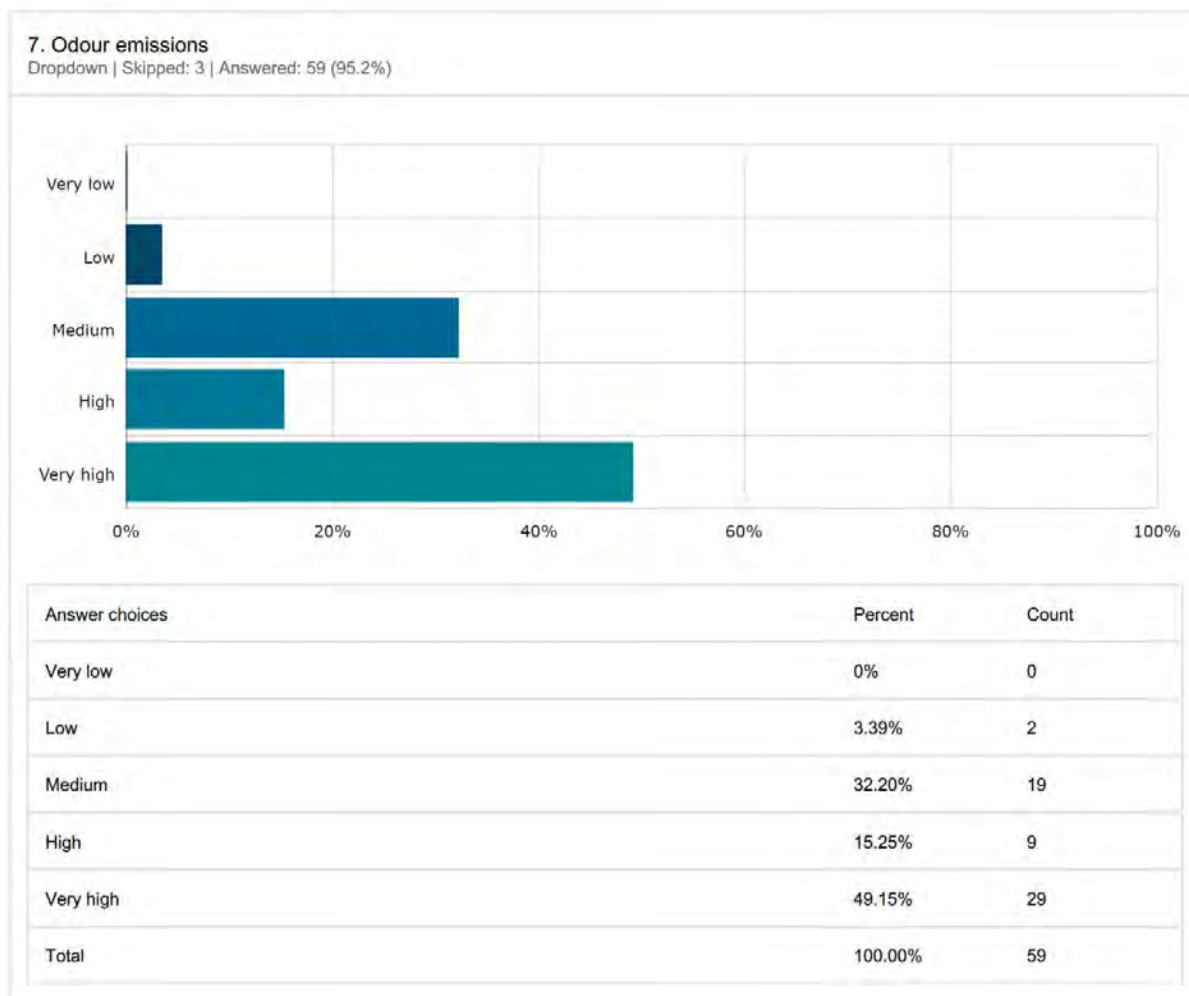


Figure 5: Noise emissions

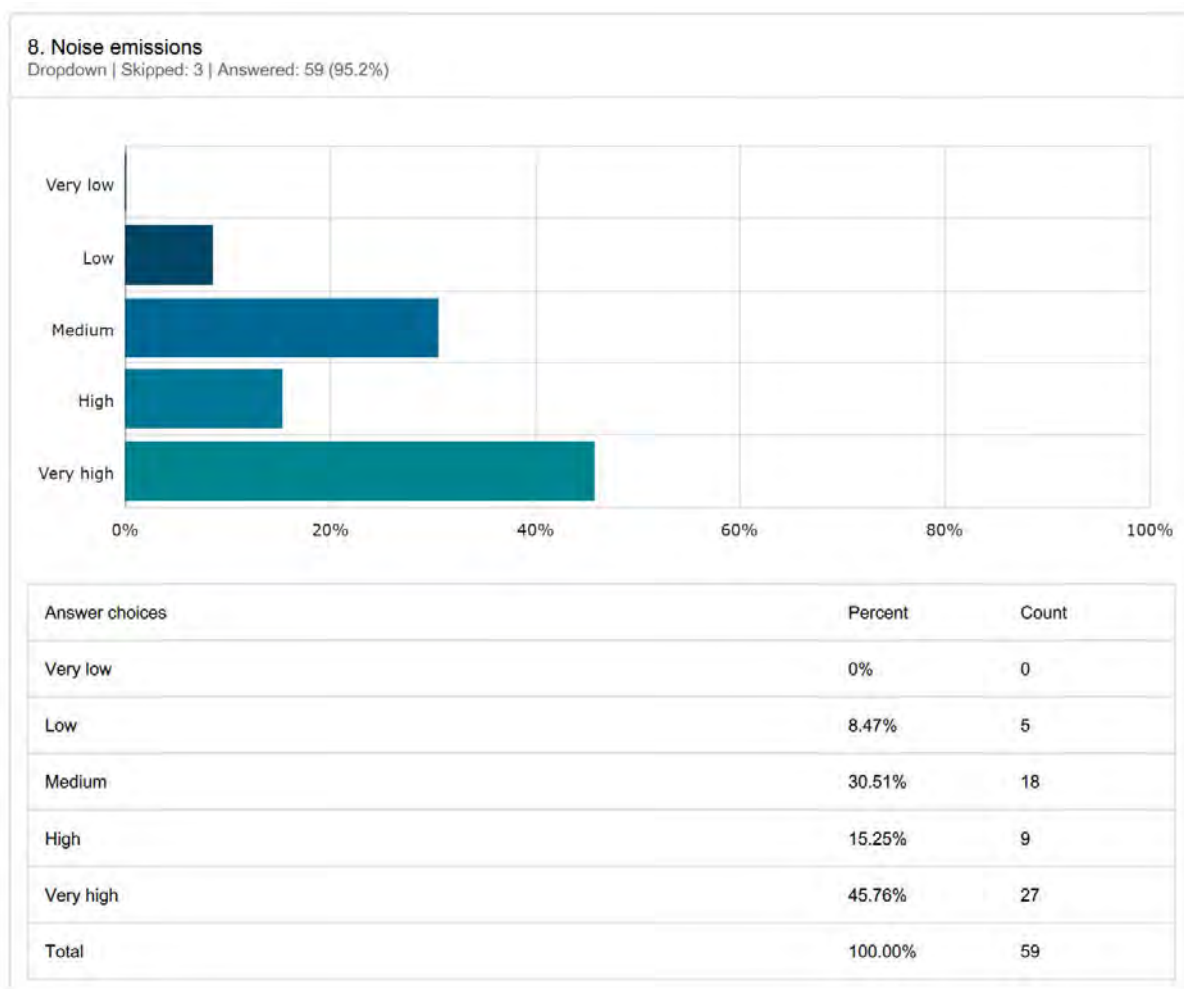


Figure 6: Waste acceptance / storage / treatment

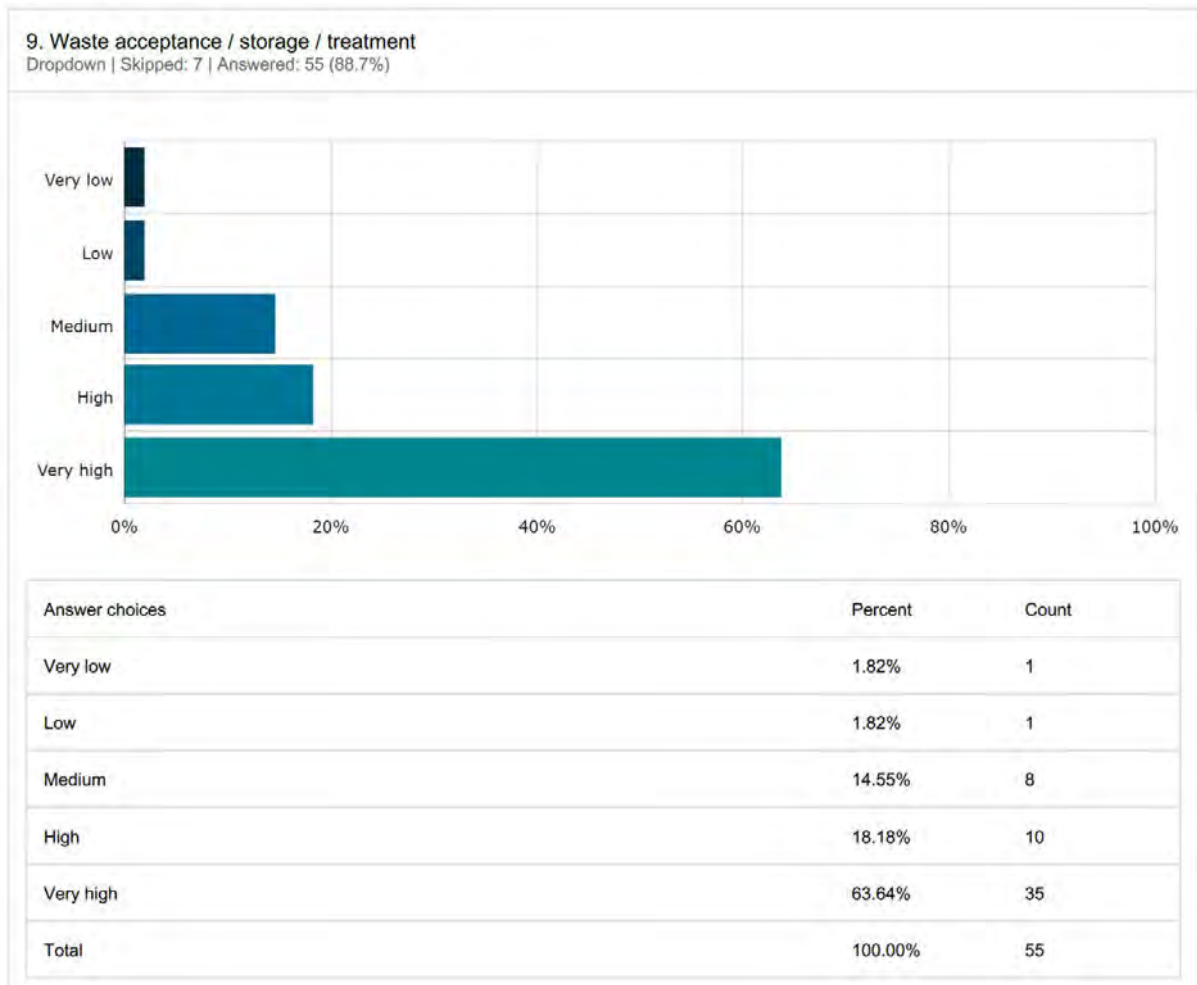


Figure 7: Climate change and greenhouse gas emissions

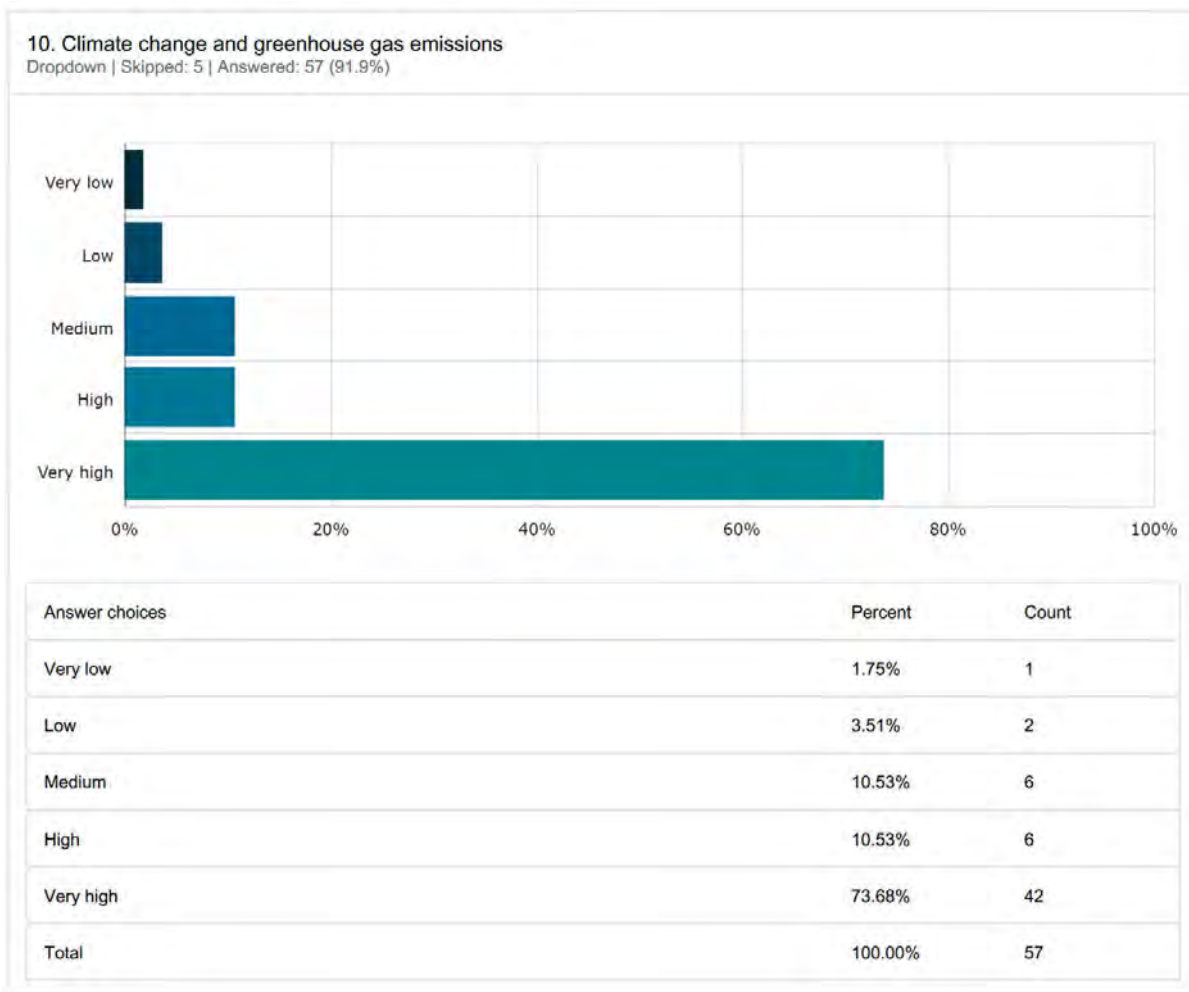


Figure 8: Environmental best practice design and management

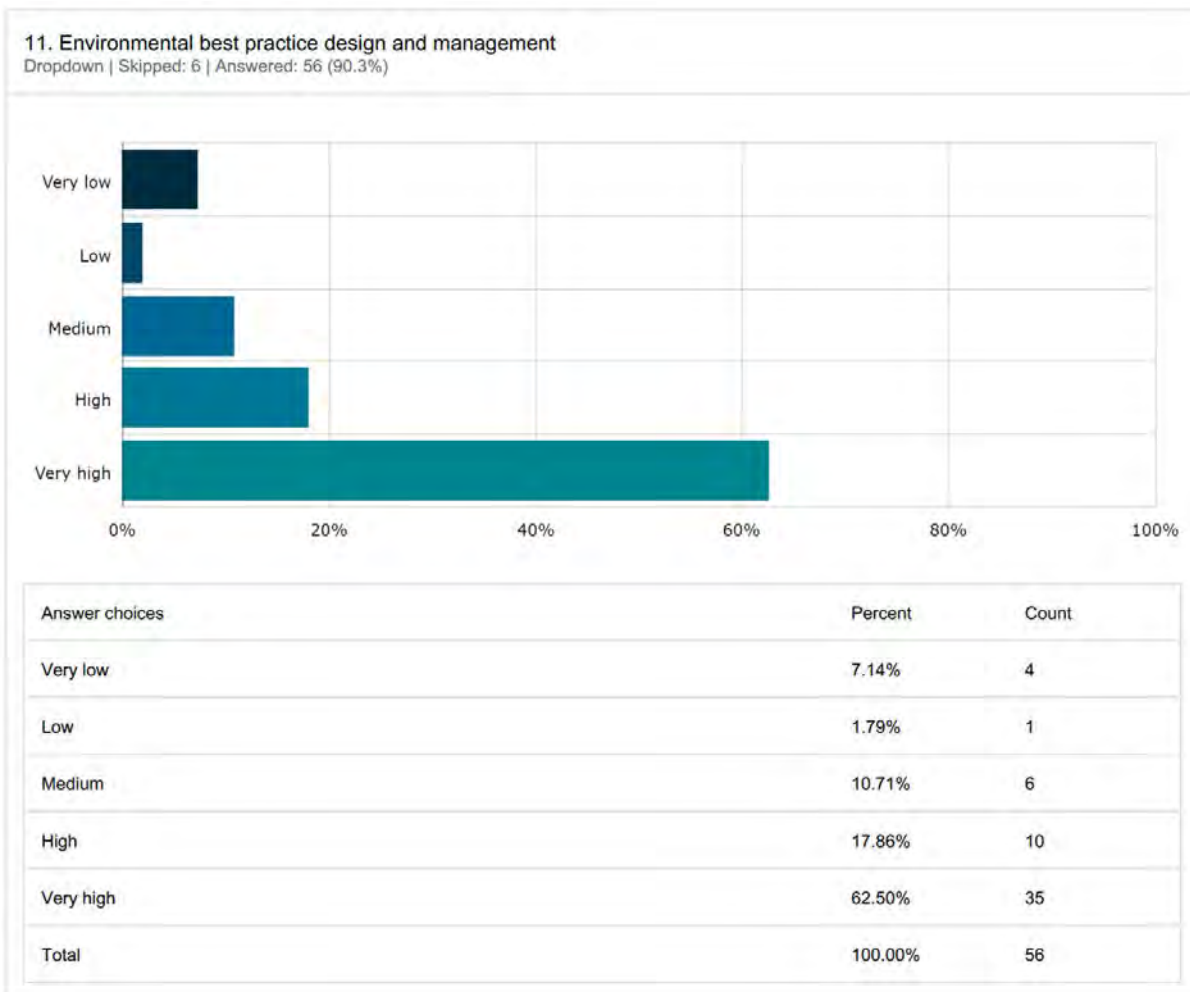
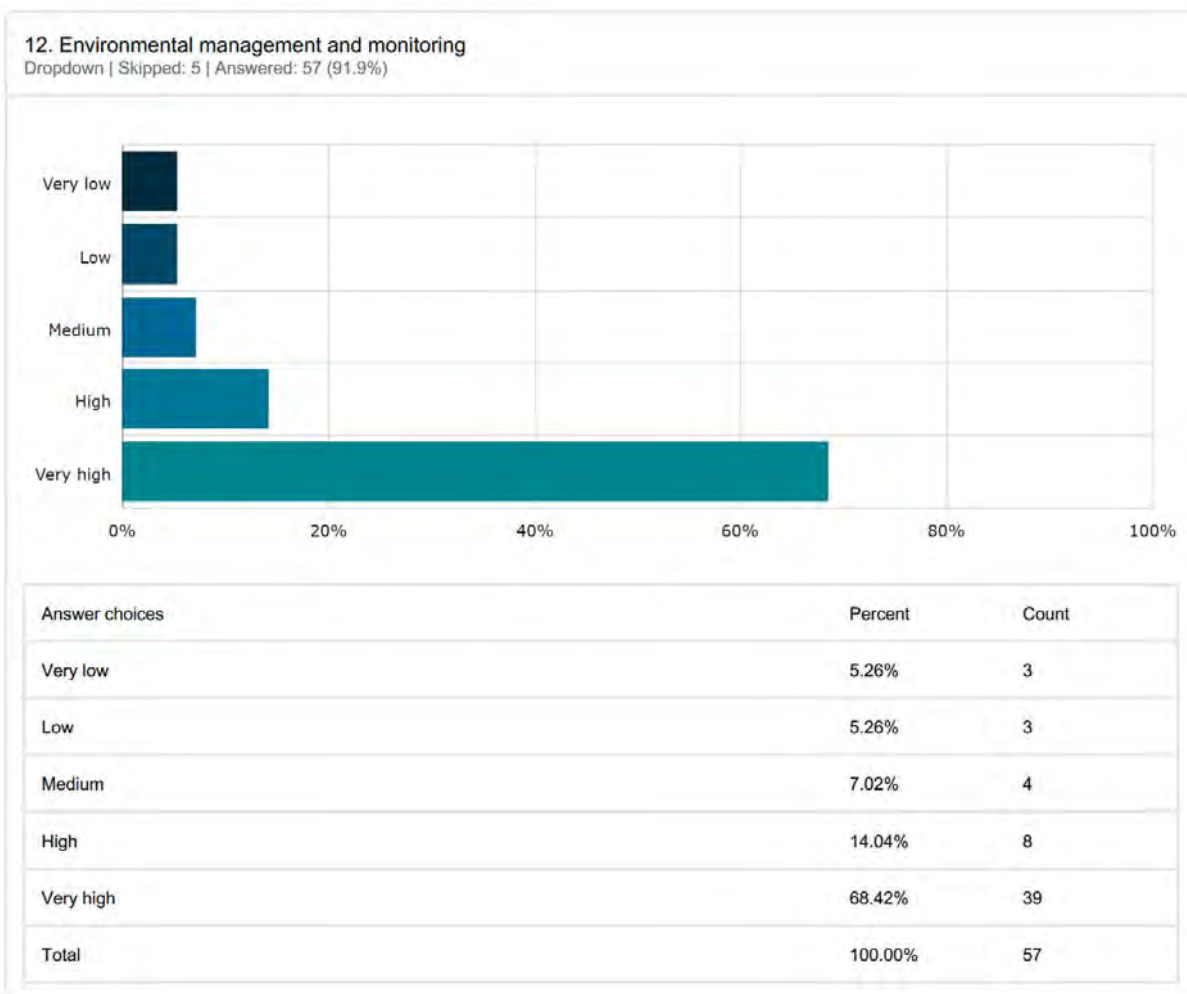
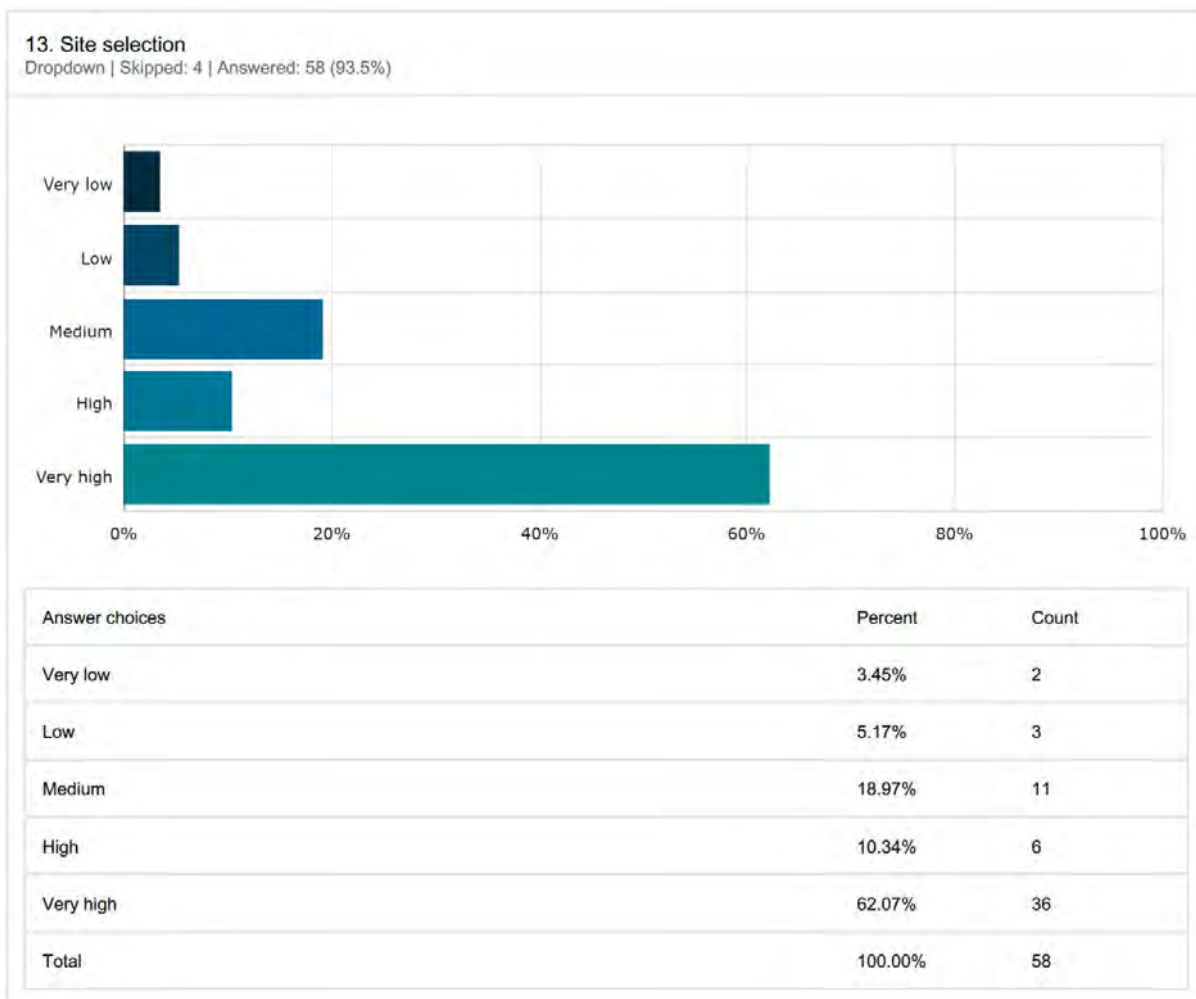


Figure 9: Environmental management and monitoring



Summary of submissions: Public and interested third-party submissions on Prospect Hill Int., waste-to-energy facility, Lara

Figure 10: Site selection





EPA acknowledges Aboriginal people as the first peoples and Traditional custodians of the land and water on which we live, work and depend. We pay respect to Aboriginal Elders, past and present.

As Victoria's environmental regulator, we pay respect to how Country has been protected and cared for by Aboriginal people over many tens of thousands of years.

We acknowledge the unique spiritual and cultural significance of land, water and all that is in the environment to Traditional Owners, and recognise their continuing connection to, and aspirations for Country.



For languages other than English, please call **131 450**.

Visit epa.vic.gov.au/language-help for next steps.

If you need assistance because of a hearing or speech impairment, please visit relayservice.gov.au

Summary of submissions: Public and interested third-party submissions on Prospect Hill Int., waste-to-energy facility, Lara

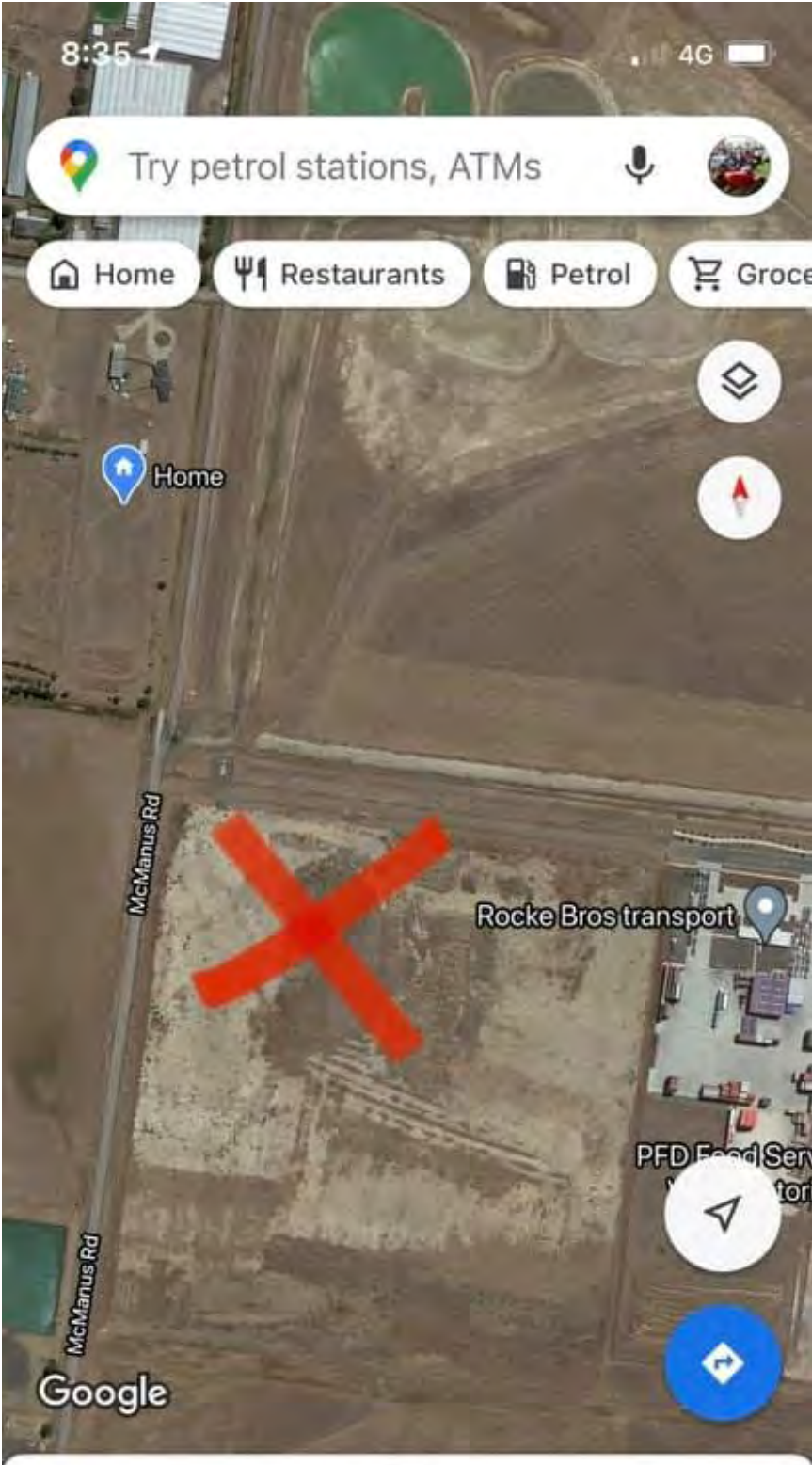
Appendix A – Table of submissions

Summary of submissions: Public and interested third-party submissions on Prospect Hill Int., waste-to-energy facility, Lara

Appendix B – Written submissions

Summary of submissions: Public and interested third-party submissions on Prospect Hill Int., waste-to-energy facility, Lara

Submission ID: 318093



Latest in the area

-  Explore
-  Commute
-  Saved
-  Contribute
-  Updates

Summary of submissions: Public and interested third-party submissions on Prospect Hill Int., waste-to-energy facility, Lara

Submission ID: 322087



Prospect Hill Waste to Energy project - Lara

Submission: Township of Lara Care Group Inc

The following comments relate to the proposed Waste to Energy proposal located in McManus Road Lara. While this proposed site is in an industrial zoned area we highlight the proximity to neighbouring residential areas and collateral consequences for local residents.

1. The very early view that we have of this proposal is that it has to provide net community benefit and must be a better option for waste management than is currently available (and that has been demonstrated in Lara with a number of 'disastrous' projects previously approved by City of Greater Geelong Council and EPA. We will continue to carry the costs of these for many years to come, and the environmental regulators who 'fell down on the job' with regard to some of these, need to take a much more 'hands-on' approach to their responsibilities.) We don't want an unsatisfactory system replaced with an even more unsatisfactory option and we will be focusing on this. The Prospect Hill proposal will need to clearly identify and demonstrate where it fits in the spectrum of possible 'solutions' and whether the technology aligns with international 'best practice'.
2. We are particularly focused on community health issues associated with emissions from the plant and will rely heavily on independent scientific and technical analysis before being able to support this project. In particular, the concerns are about chemical composition of the emissions and whether proposed filtration systems will satisfactorily manage potential health related impacts.
3. As a community group we do not have the resources to challenge the technology or the technical and environmental impacts, other than raising our concerns that if these are not adequately addressed, the local community will be at risk.
4. We are also concerned about aspects such as truck movements, hours of operation and how these might be managed (while recognising that the proposed plant is in an industrial zone area) given proximity to neighbouring residential developments (and with further growth of these in the near future). There are therefore, serious potential collateral community and health impacts if such matters are not suitably addressed.
5. Our view of the concept is that if it provides a better option for disposal of landfill waste and conversion to use (energy) than exists at present and in the absence of science and technology that this development would lead to negative net community benefit, we would give conditional support. As mentioned above, our approval of the application must be subject to independent and expert assessment of all potential risks prior to acceptance. We will have to leave it to individuals and relevant authorities with appropriate scientific and technological expertise to challenge these aspects of the proposal.

6. Other matters raised with us include proposed water use which we understand would be considerable. As we understand the proposal, this water supply would be drawn from existing water mains. There are concerns about the possible conflicts between industrial use and residential water supplies given reported (to us) volumes required to feed the plant's operations.

The TLC Group is happy to support this application subject to the above matters being satisfactorily (and scientifically) addressed, and community relevant answers being provided.

We would be happy to discuss any of the above issues with you in more detail.

April 15, 2021

██████████
President – TLC Group Lara Inc
Lara, VIC 3212

██████████
██
info@laracaregroup.com.au
www.laracaregroup.com.au

Summary of submissions: Public and interested third-party submissions on Prospect Hill Int., waste-to-energy facility, Lara

Submission ID: 324694



Prospect Hill International's Waste-to-Energy Facility:
Submission to EPA, Vic
(22nd Apr 2021)

Dear EPA,

Thank-you for the opportunity to make a submission to Prospect Hill International's (PHI's) application for a works approval to construct a waste-to-energy facility at 164 – 2000 McManus Rd, Lara.

There are a number of contextually important considerations for this application:

- The waste hierarchy principles in the Vic *Environment Protection Amendment Act 2018*;
- The *"Recycling Victoria: A new economy"* strategy, which outlines Victoria's plan to transform waste and recycling towards a circular economy;
- The Water Services Association of Australia's paper entitled *"Transitioning the water industry with the circular economy"* which outlines the key building blocks required for a utility to transition to a circular economy as well as the value proposition and the many benefits to customers and the broader community, the environment and to utilities themselves;
- Barwon Water's (BW's) current investigation with several Councils as part of the Renewable Organics Network (RON) project which involves utilising BW's infrastructure for renewable energy facilities;

We support the concept of a waste-to-energy facility, however it is not clear how this project fits with BW's existing RON project. The PHI proposal seems to duplicate the RON project. Instead, the PHI proposal should form part of the RON project, which will likely expand the existing RON project and identify other BW sites for waste-to-energy facilities. In that regard:

- PHI should work with Barwon Water as part of the RON project to identify the most cost effective solution to building a renewable energy facility. This is likely to involve the augmentation of an existing BW wastewater treatment plant to enable waste-to-energy capabilities, using anaerobic digestion. The significant advantage of this solution is that not only organic waste, but also sewage and trade waste can be used as energy sources for the waste-to-energy facility;
- Building a new, organics only facility appears to be missing a significant opportunity for investing in infrastructure that can capture other sources of energy to produce renewable biogas;
- Augmenting existing BW infrastructure is also likely to minimise any social or environmental impacts of a waste-to-energy facility, as these have already largely been factored in to an existing facility;
- Furthermore, building a new facility will increase trucks on the road transporting organic waste to this facility and thus increase GHG emissions. These are likely to offset the emissions gains from the waste-to-energy facility, thus creating a false energy economy;

We look forward to engaging further on this application.

██████████
Global Head of Compliance

M: ██████████

E: ██████████

• Iugis Pty Ltd • ABN 67 632 882 243

• Address: Level 4, 141 Walker Street, North Sydney NSW 2060 • Phone: 13 000 IUGIS • Web: iugis.com
Australia | New Zealand | United Kingdom | Greece | Germany | United Arab Emirates



Summary of submissions: Public and interested third-party submissions on Prospect Hill Int., waste-to-energy facility, Lara

Submission ID: 325057

I object to the proposal.

Concerns

The production of hazardous ash. Inputs such as PVC leading to increased pollution.

The Northwest and North of the site is a major growth area, with Lara West already well under development. Northwest soon to follow.

The site is industrial, but emissions can be distributed in the wind?

Carbon emissions from burning materials such as plastics, that would not occur under a landfill situation.

Likelihood the proposal will compete with actual recycling and efforts to recycle currently landfilled materials. Lower cost of disposal.

Incompatible with circular economy.

Resources

<https://zerowasteaustralia.org/publications/>

Summary of submissions: Public and interested third-party submissions on Prospect Hill Int., waste-to-energy facility, Lara

Submission ID: 325133

[REDACTED]
[REDACTED]
email: [REDACTED]
ph: [REDACTED]

26 April 2021

Environment Protection Agency Victoria

Re- Application for 'Waste to Energy Facility' in Lara.

Dear Sir/Madam,

I ask that a permit not be granted to construct a so-called waste to energy facility in Lara.

We live in a society that gives little or no consideration to the effects of our lifestyle on the environment. Our production of waste is grossly excessive and unsustainable. Governments will not regulate so as our production of waste is reduced and landfill can be avoided or at least minimised.

We are facing a climate emergency, so the very suggestion that we carry on generating unsustainable amounts of waste and simply incinerate it to avoid landfill is a strategy that is simply not conducive to our survival. The construction of an industrial incinerator would create a 'waste-industrial complex' that once created would be difficult to reverse. If established, the facility would be dependent on continuing gross and excessive generation of waste for its viability and a cycle of waste creation, incineration and the accompanying release of huge amounts of greenhouse gases and various other pollutants would be 'set in stone'. This would not be an intelligent strategy or a way of living that is compatible with our survival.

If the facility is established, there would be no incentive for society to be responsible in relation to its production of waste as incineration would be portrayed as an acceptable way of avoiding landfill. The generation of unsustainable amounts of waste would thereby continue unabated.

The priority should be to reduce our production of waste: not to simply take the easy and irresponsible route of incinerating it. To allow the commencement of a 'waste-industrial complex' utilising incineration would be a grossly irresponsible course of action that would help to seal our fate in relation to climate change.

There are no grounds upon which an industrial incinerator could be deemed a responsible or intelligent course of action in an age of climate change.

I implore you to not allow the commencement of a process that would assist in accelerating climate change and thereby contribute to putting our quality of life and indeed our very survival in jeopardy .

Yours sincerely,

[REDACTED]

Summary of submissions: Public and interested third-party submissions on Prospect Hill Int., waste-to-energy facility, Lara

Submission ID: 325340

**Submission to:
Environment Protection Authority**

Regarding:

Applicant: Prospect Hill International Pty Ltd

Premises: 164-200 McManus Road, Lara VIC 3212

Application no. 1004200

From:

Lara Resident, [REDACTED]

and [REDACTED]

Date:

27 April 2021

Notes:

This submission,

- is not copyright.
- does not contain any confidential material,
- is itself, not confidential. It may be transmitted to others, and
- is a sincere expression of our opinions, in good faith.

Respectful comments are invited.

Dear EPA

The EPA should reject the application for licences for the construction and operation of the proposed Lara Prospect Hill Energy from Waste (EfW) facility, in order to protect the environment and the health of people, crops, livestock and aquatic life in the City of Greater Geelong.

The townships and suburbs between Melbourne and Geelong are major housing growth areas, with many young families and schools. Our research suggests that EfW plants pose little risk to the environment and health, whilst they remain compliant. However, there is insufficient history of noncompliances, and insufficient risk analysis regarding noncompliant situations.

We find that the consultants' reports might look like science, but are often little more than advocacy written in technical language. We have flagged some of the more egregious examples.

If the EPA decides to grant licences, we respectfully request that additional conditions are imposed, as described below.

Yours sincerely,

[REDACTED] - Lara Resident

and [REDACTED]

Executive Summary

Principal recommendation - rejection

The EPA should reject the application for licences for the construction and operation of the proposed Lara Prospect Hill Energy from Waste (EfW) facility, in order to protect the environment and the health of people, crops, livestock and aquatic life in the City of Greater Geelong and environs.

Contingent recommendations - should the EPA allow the project to proceed

The EPA should require that;

1. **the entire post-furnace flue gas treatment and filtration systems must be duplicated.**
2. each and every director of the EfW facility must be an Australian citizen and resident in Australia, capable of being apprehended, sued and prosecuted in the event of a breach of EPA licence conditions, or other breach of the law.
3. the liability of all parties associated with the project must be clearly defined and communicated to them. The proponents should deposit a bond of at least \$100,000,000 with the EPA to cover the costs of a major contamination or health crisis linked to the Lara EfW.
4. all employees must reside within a ten kilometre radius of the EfW facility.
5. EfW management must conduct a monthly walk around of the EfW facility noting any dead animals, dead vegetation, noise, dust, odour, smoke and any other discernible emanations or impacts possibly arising from the EfW facility. Records to be kept.
6. data relating to the EfW facility's flue gas outputs must be made available to the public and the EPA automatically, via the EfW facility's website. This includes both CEMS data in real-time, and laboratory data as they become available. The data should include emissions to air of heavy metals, radioactive materials, and toxic organic substances. Public reporting to include corrective actions regarding nonconforming situations.
7. the Risk Assessment at Application section 6.3 must be formally rejected and completely re-written as "risks to the environment and community". The current risk assessment at section 6.3 is rubbish. Likewise the Health Impact Assessment (HIA) at Table E1, which could only be defended if all operations run within specifications all the time. The current Risk Assessment and HIA are dismissible nonsense.
8. there must be training and education provided to staff and the community regarding acceptable and unacceptable wastes that can be disposed to the EfW facility.
9. there must be radiation monitoring at the incoming weigh bridge. Radiation monitoring must also be added to the flue gas CEMS system and reported live to the community via the EfW website.
10. there is established through the Commonwealth Department of Health a permanent epidemiological study into the health of residents of the City of Greater Geelong.
11. the operations of the plant must be under a Certified ISO 14000 Environmental Management System.
12. there must be procedures, including training and regular simulations / drills, in relation to ...
 - Fire and flood.
 - Correction of nonconforming process conditions, and conditions which are out of statistical control.
 - Dealing with rejected loads (so that they do not end up dumped into Corio Bay).
 - Stopping the plant in the event of an emergency.
 - Emission (for any reason) of a hazardous plume into air or water.
 - Plans for the evacuation of Lara, Corio, and other communities which may be impacted by a major contamination event.

1 Too late to say “sorry”

1.1 What is at stake

Data from the nearby Avalon Airport indicate that morning winds over the Lara EfW facility tend to blow to the west, over farmland. In the afternoon, winds tend to blow more to the south, over the urban areas of The City of Greater Geelong; home to over 250,000 people.



See http://www.bom.gov.au/climate/averages/tables/cw_087113.shtml

We can expect the plume from the Lara EfW facility will be carried on the wind, so it is very important that the plume does not carry heavy metals, organic toxins, smoke, odours or particulate matter.

Heavy metals and their compounds which may be volatilised at 850 Celsius, or converted to fine airborne particles, include;

- Antimony (Sb)
- Arsenic (As)
- Cadmium (Cd)
- Chromium (Cr)
- Cobalt (Co)
- Copper (Cu)
- Lead (Pb)
- Manganese (Mn)
- Nickel (Ni)
- Thallium (Tl), and
- Vanadium (V)

Several of these metals are commonly found in batteries, which may be disposed into household rubbish, and from there into the EfW facility’s feedstock.

Disposing of preserved outdoor wood to domestic garbage, may be adding “tanalith” or similar, containing arsenic, chromium and copper, to the waste stream. For a list of such wood preservatives see <https://www.agriculture.gov.au/import/goods/timber/approved-treatments-timber/permanent-preservative-treatment/approved-timber-permanent-preservative-formulations>

The consequences of heavy metal poisoning for children and pregnant women are very serious.

Let us consider lead (Pb), for example. Symptoms of lead poisoning include;

- abdominal pain
- abdominal cramps
- aggressive behaviour
- constipation
- sleep problems
- headaches
- irritability
- loss of developmental skills in children
- loss of appetite
- fatigue
- high blood pressure
- numbness or tingling in the extremities
- memory loss
- anaemia
- kidney dysfunction

Since a child’s brain is still developing, lead can cause intellectual disability. Symptoms may include:

- behaviour problems
- low IQ
- poor grades at school
- problems with hearing
- short- and long-term learning difficulties
- growth delays

A high, toxic dose of lead poisoning may result in emergency symptoms. These include:

- severe abdominal pain and cramping
- vomiting
- muscle weakness
- stumbling when walking
- seizures
- coma
- encephalopathy, which manifests as confusion, coma, and seizures

For details see <https://www.healthline.com/health/heavy-metal-poisoning>

The City of Greater Geelong has many schools, including 74 Primary Schools.

See <https://www.geelongaustralia.com.au/schools/article/item/8cd2231d87b5532.aspx>

It is reasonable to expect that domestic animals and wild fauna would be similarly affected.

1.2 Belts and braces

The only thing that will protect The City of Greater Geelong from an EfW facility-related disaster is the post-furnace flue gas treatment and filtration systems.

The entire post-furnace flue gas treatment and filtration systems must be duplicated, and each of the duplicates must be capable of purifying the entire output of flue gas when the EfW facility is operating at full capacity. The switch from flue gas treatment plant A to B and back again should be easy and safe when the EfW facility is operating at full capacity.

Having “spare capacity in the baghouse” is manifestly inadequate.

We note that other systems are already planned to be duplicated e.g. cranes, grates, boilers, turbines, condensate extraction pumps, air extraction systems, generators and the Continuous Emissions Monitoring System (CEMS).

EPA Action

- **The EPA must require that the entire post-furnace flue gas treatment and filtration systems be duplicated.**

2 Skin in the game

2.1 Directors and management

Each and every director should be legally liable, capable of being apprehended, sued, and prosecuted in the event of a breach of licence conditions, or other breach of the law. Each and every director should be accessible to police.

At Application point 7.9 it states “The operator’s organisation structure has not been considered to date, however is envisaged that the Owner will appoint an O&M (Operations and Maintenance) contractor to operate the plant.”

It is not acceptable to have a directorship / ownership / operations management structure which enables blame shifting if something goes wrong. If blame shifting is not prevented, the cleanup of a major contamination event will be delayed until liability is eventually established, if ever.

EPA Actions

- The EPA should require that each and every director of the EfW facility be an Australian citizen and resident in Australia.
- The EPA needs to be very clear about who is liable. And the individuals who are liable, need to understand the full extent of their liability before they commence work.
- The EPA should require that the proponents deposit a bond of at least \$100,000,000 with the EPA to cover the costs of a major contamination or health crisis linked to the Lara EfW facility.

2.2 Employees and contractors

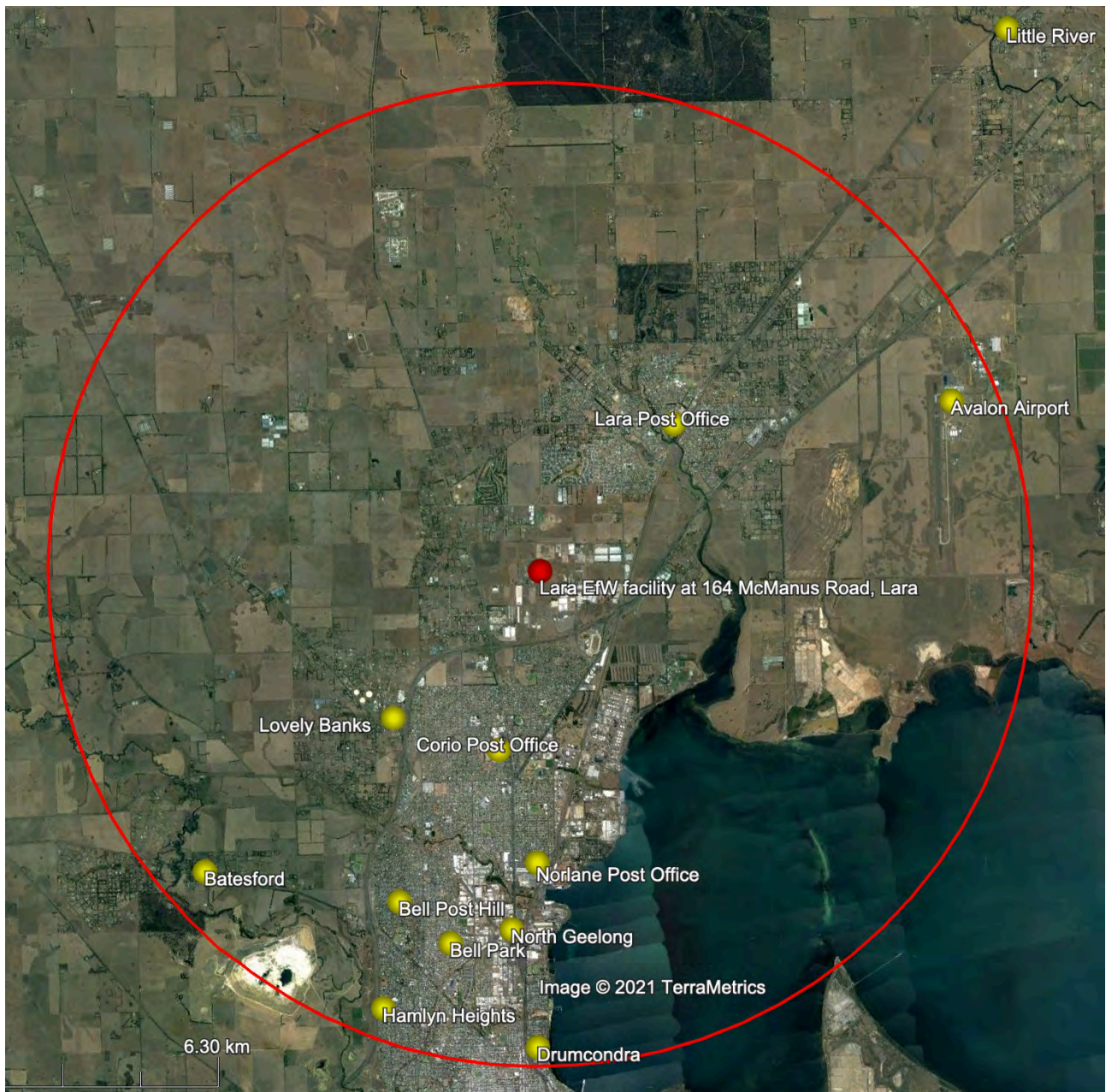
The nature of the EfW facility, and the risks that it entails are such that every person who works at the EfW facility must have a strong command of the English language, and a basic understanding of chemistry, physics, and engineering at least.

Yes, the receptionist on the front desk needs have a good grasp of chemistry, physics and engineering so that she/he responds appropriately to emergency messages, and intelligence about threatening situations.

“She’ll be right, mate.” Nope.

EPA Action

- The EPA should require that all employees of the Lara EfW facility should be residents of the area. The principle place of residence of each employee should be within a ten kilometre radius of the Lara EfW facility, consistent with the planned air quality study area. (Includes Lara, Avalon Airport, Batesford, Bell Park, Bell Post Hill, Corio, Drumcondra, Hamlyn Heights, Lovely Banks, Norlane, North Geelong, and North Shore.)



2.3 Managers

As the EfW facility is designed to operate 24 hours per day, 7 days per week (24/7), there will need to be at least three crews, each with a manager.

The EPA should require that the plant managers reside within the Lara EfW facility premises.

EPA Action

- The EPA should require that the EfW facility includes three houses of high quality within the EfW facility's perimeter fence, one for each of the shift managers. The EfW facility owners should provide free accommodation to the managers, who would be required to reside in these on-site houses, as a condition of employment.

2.4 Monthly walkabout

In addition to the Continuous Emissions Monitoring System (CEMS) and the routine of laboratory analyses, there should be a requirement for a documented “monthly walkabout” to assess any discernible impacts on the local environment.

The monthly walkabout would be carried out by a team consisting of a minimum of;

- local residents (who are not employees of the EfW facility)
- an EfW facility manager
- an officer of the Environment Protection Authority, plus
- any other local officials who may wish to join the walkabout.

Each month, the walkabout team would walk in a circle of about one kilometre radius around the EfW facility noting any dead animals or vegetation, noise, dust, odour, smoke and any other discernible emanations or impacts possibly arising from the EfW facility. All observations to be recorded and retained by the EfW facility manager, and the EPA officer. One member of the walk around team should carry a working Geiger counter.

All walkabout reports to be posted on the EfW facility’s website, for public viewing and downloading.

EPA Action

- The EPA should require that there be a documented “monthly walkabout” to assess any discernible impacts on the local environment.

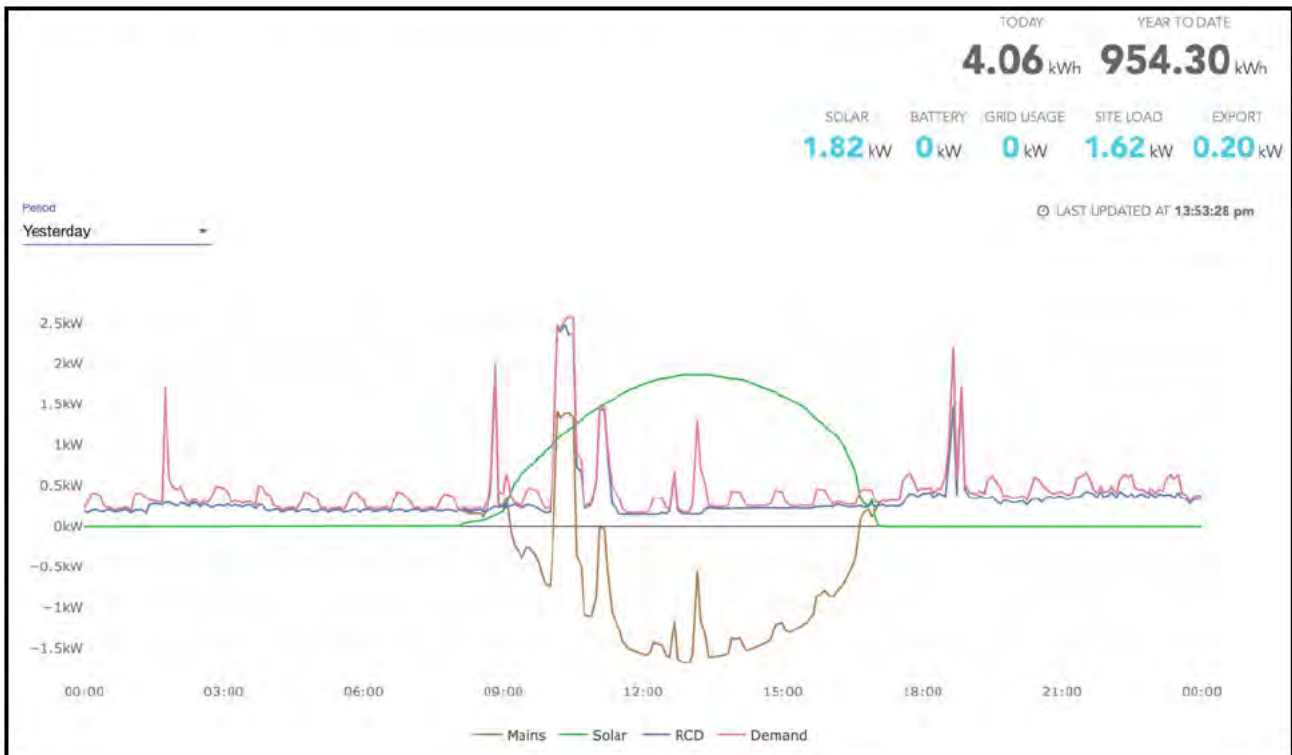
2.5 Analytical data to be made public

The Lara EfW facility will produce copious data from its Continuous Emissions Monitoring System (CEMS) and from laboratory analyses.

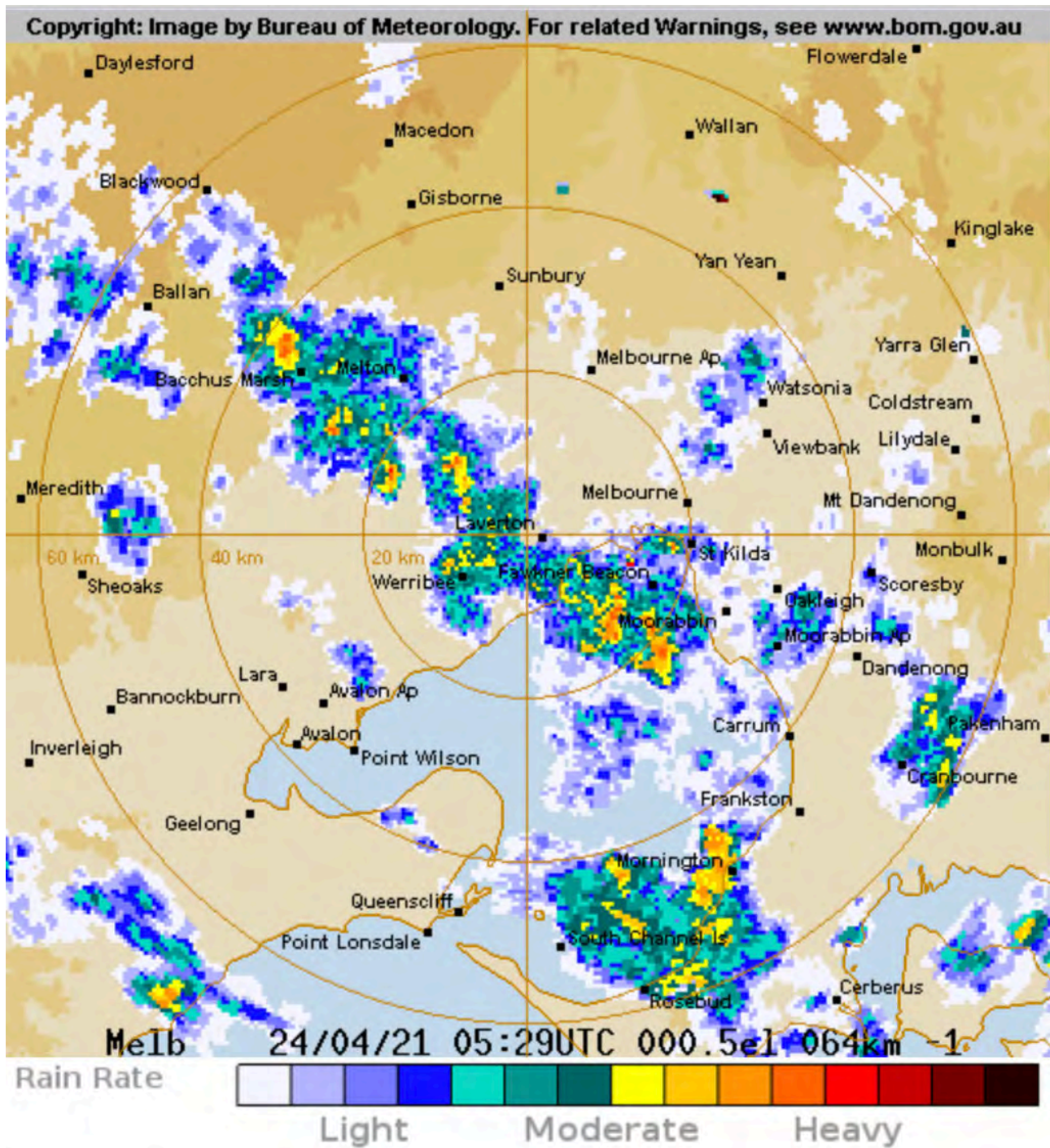
The data relating to the EfW facility’s flue gas outputs should be made available to the public and the EPA automatically, via the EfW facility’s website.

CEMS data should be shown as live graphs. Where limits have been specified by the EPA or other authorities or the EfW facility management, those limits should be shown on the graphs so that the public and authorities can easily verify the conformance of the EfW facility to the requirements. Reportable information would also include corrective actions regarding nonconforming results.

Here is an example of technology performance (photovoltaic panels) automatically reported over the internet as a live graph.



A familiar example of this kind of public reporting of live data comes from the Australian Bureau of Meteorology. Any person with connection to the internet can view any Australian rain radar in real time.



See <http://www.bom.gov.au/australia/radar/>

Data from the CMES to be made public over the internet would include the following emissions to atmosphere;

- Radioactivity
- Carbon dioxide (CO₂)
- Total dust
- Total organic carbon (TOC)
- Hydrogen chloride (HCl)
- Hydrogen fluoride (HF)
- Sulphur dioxide (SO₂)
- Oxides of nitrogen (NO_x) as nitrogen dioxide
- Nitrous oxide (N₂O)
- Carbon monoxide (CO)
- Ammonia (NH₃)
- Mercury (Hg)
- Other heavy metals and their compounds which can be volatilised at 850 degrees Celsius, or otherwise airborne as particulates e.g. Antimony (Sb), Arsenic (As), Cadmium (Cd), Chromium (Cr), Cobalt (Co), Copper (Cu), Lead (Pb), Manganese (Mn), Nickel (Ni), Thallium (Tl) and Vanadium (V). These are insidious cumulative poisons.

These graphs should also show “irregularities” and corrective actions e.g. shutdown for maintenance or other reason. A system of “outage” codes could be used.

Where data are provided as laboratory reports, from NATA accredited testing authorities of course, the data should be transcribed onto electronic graphs (via spreadsheets or databases) and made viewable by the public on the EfW facility’s website. In this way, it will be possible for the public and the EPA to easily see if there are patterns or trends in the data. Again, where limits are specified, those limits should be shown so that conformance can be easily verified.

The Annual Report of the EfW facility should include a summary of the analytical data and any pertinent facts or events arising.

The proposed Monitoring regime described in Application section 16.8 is inadequate.

EPA Actions

- The EPA should require that the operators of the Lara EfW facility make available to the public CEMS data which show emissions to atmosphere, as real-time graphs via the internet.
- The EPA should require that the operators of the Lara EfW facility post all laboratory analytical reports and summaries which attest to the qualities and characteristics of all materials released to the atmosphere, landfills, waterways, ground waters, and other destinations. The reports to be posted on the EfW facility’s internet page.

3 Risk assessment

The risk assessment provided in Application section 6.3 is rubbish. It should be formally rejected by the EPA.

It is ominous that the highest risks are identified at risk #001 as “inability to receive feedstock” and at #024 as “community objection to the project”. These are risks to the commercial ambitions of the proponents, not to the environment nor the community.

The risk that the EfW facility might shower the air, water, land, and community with toxic metals and organics as a result of an operational stuff-up is not adequately addressed. Such risks must receive the highest rating, and the consequences classified as “catastrophic”.

The offered risk assessment could be most charitably described as an “attempted anaesthetic”, and feeble at that.



Works Approval Application

I.D.	Risk type	Project phase	Risk description	Cause	Potential impact	Consequence	Likelihood	Risk level	Mitigation	Consequence	Likelihood	Mitigated Risk Level
010	Air Quality	Non-routine or emergency	General air emissions (combustion air pollution products)	Plant start-up Unexpected plant shutdown / power failure Operator error Failure of flue gas treatment system	Complaints from community or stakeholders Health and/or nuisance Impacts to employees or community Non-compliance with air quality criteria set out in the State Environmental Protection Policy (SEPP) Air Quality Management Non-compliance with operating conditions	Medium Catastrophic	Possible	Medium High	Implementation of hazard controls (HAZID and HAZOP studies) ERW Control systems (on line analysers and monitoring equipment) Emergency Management Plan Plant operator training Duplication of entire flue gas treatment plant, with easy switching from plant A to B and back again. A or B able to treat entire flue gas output with both furnaces at 100% performance.	Moderate	Unlikely Likely when maintenance is required.	Medium

+ chronic poisoning of people, livestock and crops. Actual injuries, illness and deaths. Brain damage, and retarded learning in children. Cancers. Northern half of City of Greater Geelong becomes uninhabitable.



Works Approval Application

I.D.	Risk type	Project phase	Risk description	Cause	Potential impact	Consequence	Likelihood	Risk level	Mitigation	Consequence	Likelihood	Mitigated Risk Level
024	Community objection to the Project	Construction	Concern or anxiety from residents, landowners, and special interest groups with regard to the perceived risks and potential impacts on air and water quality, property values and quality of life in the area.	Poor communication to the community regarding the Project, its benefit and any perceived impacts Lack of involvement from community and stakeholders in the Project Insufficient community consultation able to be undertaken due to COVID-19 distancing restrictions	Project delays or deferment Reputational damage Anxiety about perceived risks leads to loss of support and confidence in PHI and the Project Adverse media coverage regarding the risks Complaints from community or stakeholders	Major Minor	Possible	High	Conduct community consultation sessions throughout the planning of the Project to discuss the benefits of the Project (or a virtual session if required by COVID-19 distancing restrictions) Regular open and transparent communications provided to the community and stakeholders Undertake a stakeholder assessment – Identify all stakeholders / their interests, influence and importance and use this in developing the Stakeholder Engagement Plan. Spin, spin, and more spin.	Major Minor	Unlikely	Medium

This is a risk to the commercial aspirations of the proponents. It is not a risk to the environment, nor to the community.

The Risk Assessment needs to be completely re-written from the perspective of;

- risks to EfW workers and contractors
- risks to the local community, and
- risks to the local environment

rather than “risks to the proponents of the project”.

The EPA should require that the risk analysis be re-done in accordance with a reputable Standard, such as ISO 31000. See <https://www.iso.org/iso-31000-risk-management.html>

To avoid duplication, the risk assessment required by a reputable insurance company may be sufficient.

In addition, the EPA should require a comprehensive Failure Mode and Effects Analysis (FMEA) or equivalent, which assesses and ranks ALL the risks relating to equipment design and operation. The engineers who designed the equipment would have already done the FMEAs, or equivalent, as a matter of normal good engineering practice, so the FMEAs should be available now.

See for example <https://asq.org/quality-resources/fmea>

See also <https://www.youtube.com/watch?v=PIEzR5uhqnw>

Not so easy, but equally necessary, is the assessment of risk due to human failings, such as ...

- Inadvertent or wilful addition of prohibited materials to the incoming loads.
- Negligent, incompetent or corrupt acceptance of loads which should have been rejected.
- “Cost-cutting” especially relating to receiving inspection, lime, activated carbon, urea, ammonia, and filter bags, to the point where the EfW facility becomes noncompliant and dangerous.
- Incorrect human action in response to noncompliance, or emergency situations, i.e. panic.
- Absenteeism.

EPA Actions

- The EPA should formally reject the offered Risk Assessment, and require that the proponents produce a new Risk Assessment in accordance with accepted standards and procedures, focussed on risks to the City of Greater Geelong, its environment and inhabitants.
- The EPA should require that the EfW facility provides procedures, training, and incentives which ensure that human failings do not occur.
- The EPA should require that the EfW facility includes a fully equipped staff training room.

4 Health Impact Assessment

The offered Health Impact Assessment (HIA) at Table E1 and Table ES-1 could only be defended on the assumption that the Lara EfW facility actually runs within specifications and in accordance with EPA approved procedures, **all the time**.

To make such an assumption is dangerous folly.

Table E.1: Summary of HIA outcomes

Health aspect/issue	Potential health impacts considered	Impact identified	Types of measures that could be implemented to enhance positive impacts or mitigate negative impacts
Air quality – Inhalation exposures	Range of health effects associated with exposure to pollutants released to air from the proposed facility	All exposures: negative but negligible. More specifically: <ul style="list-style-type: none"> No acute risk issues of concern No chronic risk issues of concern. Particulate exposures are negligible and essentially representative of zero risk Incremental carcinogenic risks are negligible and essentially representative of zero risk 	The proper operation and maintenance, and monitoring, of the pollution control/flue gas equipment And what are the health impacts if the pollution control / flue gas treatment equipment is not running in accordance with EPA approved specifications and procedures, or suffers a break down, or is overwhelmed ?
Air quality – multiple pathway exposures	Range of health effects associated with exposure to pollutants released to air from the proposed facility, that may then deposit and accumulate in soil homegrown fruit and vegetables and other farm produce	All exposures: negative but negligible. More specifically: <ul style="list-style-type: none"> No chronic risk issues of concern for multiple pathway exposures All calculated risks for individual exposure pathways are negligible and essentially representative of zero risk All calculated risks for combined multiple pathway exposures are negligible and essentially representative of zero risk 	The proper operation and maintenance, and monitoring, of the pollution control/flue gas equipment Ditto.

Any Health Impact Assessment must include consideration of a wide variety of inadvertent and wilful nonconforming operating conditions at the Lara EfW facility e.g. flue gas chemical dosing system stops, bag filters punctured or leaking, an overload of heavy metals from a large but undetected consignment of waste batteries, supplies of detoxifying chemicals run out, or a concealed consignment of waste domestic smoke detectors (containing radioactive Americium 241).

The offered HIA does not take seriously the threat of cumulative poisons such as carbon monoxide (CO) and heavy metals, nor the possibility of pollution with radioisotopes.

The offered HIA does not mention the effects of airborne toxins on humans, nor domestic animals, or plants, or aquatic and marine ecosystems on which humans depend.

Nor does the offered HIA appear cognisant of synergistic effects. The following nonsense is stated on pages 24 and 28 of Application Appendix F.

$$\text{Total HI} = \sum \text{HI (individual pollutants)}$$

Where

HI = health impact(s)

\sum = “the sum of ...”

This equation is ignorant of the possibility that a combination of pollutants may have a much greater effect than the sum of their individual effects (synergy).

An example of a synergistic agent is piperonyl butoxide which has no pesticidal activity of its own, yet it enhances the potency of certain pesticides such as carbamates, pyrethrins, pyrethroids, and rotenone. Similarly, pharmacists are acutely aware of “drug interactions” that is, the lethal effects of taking certain combinations of drugs which are otherwise individually safe.

Appendix F is a hundred pages of “nothing to see here”.

The conclusions in the offered HIA have no credibility. The HIA is dismissed accordingly.

EPA Action

- The EPA must formally reject the offered Health Impact Assessment, and require that the HIA be done again in accordance with accepted standards, so that it includes consideration of adverse and nonconforming operating conditions.

5 Traffic and noise

We note from Appendix K that heavy vehicles are to travel along roads which avoid Route 3, keeping trucks out of Lara. This is appropriate.

However, we also note that many heavy vehicles are planned to use Route 2 which traverses the densely populated suburbs of Corio, Norlane and North Geelong, at least. The residents of these suburbs will be less than delighted with the increased traffic, noise and collision risks.

There is a hint at Application section 7.3 that the proponents might consider using rail transport.

“Provision has also been made for an additional future train to the east of the main process plant, which could increase the waste input by a further 200,000 tonnes per annum (tpa) to 600,000 tpa in total.”

A rail branch line appears feasible and could be designed to reduce noise, road traffic congestion. It could also reduce the risk of road traffic accidents arising from increased road trucks. On the other hand, the use of rail wagons could make inspection of incoming waste more difficult.

EPA Action

- The EPA should require that the proponents prepare a report on the feasibility of using rail transport instead of truck transport for normal operations.

6 Groundwater

At Application section 15.3.1.2 we have a report of various metals being found in ground water at the Lara EfW site. The most significant of these is hexavalent chromium (also known as “chromium VI”, and “chromium 6”).

The depth of excavation at the EfW site, the depth to water table and the hydraulic flow through the soil/regolith are such that the excavations will probably need to be frequently or continuously pumped out for excavation work to proceed. Ongoing pumping or drainage will probably be required.

As hexavalent chromium is a known gross carcinogen, the pumped out water cannot be disposed to Hovells Creek some 3.25 km east of the EfW construction site, nor into Corio Bay some 3.63 km south east; not without water treatment that effectively removes all the hexavalent chromium.

See https://en.wikipedia.org/wiki/Hexavalent_chromium

EPA Action

- The EPA must explicitly prohibit the proponents of the Lara EfW project from disposing of untreated groundwater to any natural aquifer such as Hovells Creek, nor into any agricultural enterprise, nor into the sea. The proponents must submit to the EPA a plan for the treatment and disposal of site groundwater.

7 No laughing matter

At Application Appendix C section C.2.1.2 there is an expectation that the Lara EfW facility would produce about 5,602 tonnes of CO₂ equivalent per year as nitrous oxide, based on combustion of about 400,000 tonnes of waste material. Given that nitrous oxide (N₂O) has about 265 times the heat trapping capacity of carbon dioxide (CO₂) this equates to about 21 tonnes of nitrous oxide emitted per annum.

Not only is nitrous oxide a potent long lived greenhouse gas, it is also a potent ozone (O₃) depleting chemical. Indeed, Ravishanka et al. contend ...

“...that N₂O emission currently is the single most important ozone-depleting emission and is expected to remain the largest throughout the 21st century. N₂O is unregulated by the Montreal Protocol.”

See [https://www.semanticscholar.org/paper/Nitrous-Oxide-\(N2O\)%3A-The-Dominant-Ozone-Depleting-Ravishankara-Daniel/7ef6295e9fe5ff028e3c3cb0163f91f7af97e756](https://www.semanticscholar.org/paper/Nitrous-Oxide-(N2O)%3A-The-Dominant-Ozone-Depleting-Ravishankara-Daniel/7ef6295e9fe5ff028e3c3cb0163f91f7af97e756)

See also https://web.archive.org/web/20130602153542/http://ozone.unep.org/new_site/en/montreal_protocol.php

The destruction of natural ozone in the upper atmosphere allows an increase in ultraviolet radiation from the sun to reach the surface of the earth, resulting in increased sunburn, skin cancers and other biological damage.

In Application Table 4.1 it states...

“Oxides of nitrogen (NO_x) (will be) controlled by combustion control and a selective non-catalytic reduction (SNCR) system with the injection of ammonia or urea into the hot flue gases.”

There is more detail in Appendix D section 4.7.

If, after treatment of nitrous oxide with ammonia and/or urea, 21 tonnes of nitrous oxide still remains in the annual emissions to atmosphere, further action is necessary to reduce the remaining N₂O.

Whilst Appendix D frequently mentions NO_x, nitrous oxide itself is conspicuously missing from the otherwise comprehensive 95 page report “Air Quality Impact Assessment”.

EPA Action

- The EPA should require that the Lara EfW facility implements additional and stronger countermeasures against the emission of nitrous oxide (and other oxides of nitrogen) to atmosphere.

8 Temptation

There is a large number of industries and businesses between Melbourne and Geelong that are handling materials on the EfW prohibited list. See Application section 8.6.2. Proper disposal of these materials is often expensive and administratively complex. There will be some industries and businesses that already have stockpiles of “problematic” wastes under a cloud of indecision.

So much easier and cheaper to find a way to drip feed them into The Big Incinerator.

EPA Action

- The EPA should require that the proponents provide stronger and more detailed procedures for detecting, preventing, containment and disposal of incoming prohibited materials.

8.1 Radioactive materials.

Appropriately, radioactive materials are the first item on the list of prohibited inputs, at Application section 8.6.2.

The EPA should require radiation measurement on both inputs and outputs of the Lara EfW facility.



Yet we find no commitment or requirement for the proponents to detect, or deal with radioactive materials which may arrive at the EfW facility.

The risk is not insignificant. Radioisotopes are widely used in the community, e.g. in hospitals. Here is a list of radioactive materials used in medical procedures. See <https://www.acls-pals-bls.com/nuclear-medicine-and-medical-isotopes/>

The proper procedures for disposal of medical radioisotopes can be found here. See <https://www2.health.vic.gov.au/about/publications/policiesandguidelines/Disposal-of-radioactive-material>

Radioisotopes are also used in many types of industrial testing equipment. In addition, many models of domestic smoke detectors contain Americium 241, which emits alpha particles and gamma rays. Old mechanical wrist watches and clocks often include Radium, which emits alpha and beta particles and gamma rays. Some modern devices that have “glow in the dark” displays requiring no electricity, contain Tritium, which radiates beta particles.

Whilst it is reasonable to expect that the lime/activated carbon treatment would remove many lighter radionuclides from the flue gas, some of the heavier radioactive species would end up in the bottom ash.

And stay there.

Regardless, the EPA must require that radioactive materials are not be submitted to any EfW facility. The challenge is to prevent, detect and reject these materials before they are unloaded.

The EPA should require that as each truck goes onto the incoming weigh bridge, it is tested by a fixed Geiger counter, or an array of radiation detectors in a gantry over the weigh bridge, alerting the weigh bridge operator to reject a radioactive load. The equipment, procedures and training should comply with the recommendations of the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA). See <https://www.arpansa.gov.au/regulation-and-licensing/safety-security-and-transport>

The EPA should require that every incoming load is checked for radioactivity, and the results recorded.

These truckload radioactivity measurements will never be zero, because there is always “background radiation”. See https://en.wikipedia.org/wiki/Background_radiation

What is of interest is the degree to which truckload radioactivity levels are significantly above background, and what types of radiation are present, that is alpha, beta, positron, or neutron particles, and gamma rays.

The EPA should examine these radioactivity records as a matter of routine, and also in the event of an actual or suspected breach of requirements.

There needs to be a clear procedure for rejecting non-conforming and suspect loads, before they unload into the EfW facility. The procedures outlined in Application sections 8.6, 14.6 and 16.2 are inadequate.

In addition there must be radiation detectors as part of the Continuous Emissions Monitoring System (CEMS) examining the discharge of gasses from the chimney. Flue gas radioactivity levels, significantly above background, should trigger alarms. Indeed, nearby populated areas such as Lara and Corio may need to be evacuated.

Radioactive materials in filter bags or bottom ash cannot be considered “safe” unless they are buried deep underground, not in contact with ground water. If these filter bag contents or bottom ash are used for any above-ground purpose e.g. road making material, the public could be exposed to radiation, and some of that radiation can be expected to leach into waterways when it rains.

EPA Actions

The EPA should require that

- there are radiation detection systems at the incoming weigh bridge, with recording of radioactivity readings for each and every vehicle.
- there are systems for rejection and disposal of radioactive materials at receiving inspection, in conformance with the requirements of radiation regulators such as ARPANSA.
- there is measurement of radiation levels in emissions to atmosphere (gasses from the chimney), and also in bottom ash, and bags of fly ash.

9 Approvals

At Application section 16.5, there is a stated ambition to achieve Certification of the Lara EfW facility to the following Standards;

- Quality System certification to AS/NZS ISO 9001:2016
- Safety System certification to AS/NZS 45001:2018
- Environmental Management System certification to AS/NZS ISO 14001:2016
- Major Hazard Facilities licence

This is praiseworthy.

EPA Actions

- EPA licences and other approvals should be stated on the Lara EfW facility’s public website.
- The EPA should also require that Certifications be stated on the Lara EfW facility’s public website. Each time Certification is renewed, that fact should also be stated on the facility’s website. See for example <https://www.coryenergy.com/reports-documents/iso-certificates/>

Certificate of Registration



This is to certify that the Environmental Management System of:

Cory Environmental Holdings Limited

Head Office, 2 Coldbath Square, London, EC1R 5HL, United Kingdom

(Central function listed above. See appendix for additional locations)

applicable to:

The provision of waste management services

has been assessed and registered by NQA against the provisions of:

ISO 14001:2015

This registration is subject to the company maintaining its environmental management system, to the above standard, which will be monitored by NQA

EXAMPLE

Managing Director

Certificate No.	69746
ISO Approval Date:	21 March 2013
Reissued:	24 July 2018
Valid Until:	24 July 2021
EAC Code:	24, 39



10 Cultural heritage

Application Appendix G section 3.1 states ...

“Available ethnohistorical and historical information relating to Aboriginal peoples in the region surrounding the project area was briefly reviewed.”

The Traditional Owners of the Lara area have been identified as the *Wadawurrung* language group. In modern times the *Wadawurrung* clans are represented by the Wathaurung Aboriginal Corporation (WAC), the Registered Aboriginal Party. See <https://www.wadawurrung.org.au>

However ...

“At the time of writing, no consultation had been undertaken with WAC regarding this assessment (of aboriginal heritage).”

As the consultants have, by their own confession, not bothered to confer with the Traditional Owners about the potential impacts of the Lara EfW proposal on *Wadawurrung* cultural heritage, the consultant’s report is worthless, and frankly, insulting.

EPA Action

- The EPA should formally reject the offered Cultural Heritage Due Diligence Assessment and require that the proponents prepare a new Cultural Heritage report after the proponents have consulted with the Wathaurung Aboriginal Corporation (WAC).

11 A multitude of sins ?

In Application Appendix N there are reviews of the performance of six EfW plants in the United Kingdom (UK). These plants are not dissimilar in concept to the proposed Lara EfW facility.

They are;

- | | |
|----------------|---|
| Battlefield. | See https://www.veolia.co.uk/shropshire/facilities-services/energy-recovery-facility |
| Greatmoor. | See https://www.greatmoor.co.uk/emissions-reports/ |
| Leeds. | See https://www.veolia.co.uk/leeds/our-facility/introducing-facility |
| Newhaven. | See https://www.veolia.co.uk/southdowns/facilities/newhaven-energy-recovery-facility |
| Riverside. | See https://www.coryenergy.com |
| Staffordshire. | See https://www.veolia.co.uk/staffordshire/bream-staffordshire-erf |

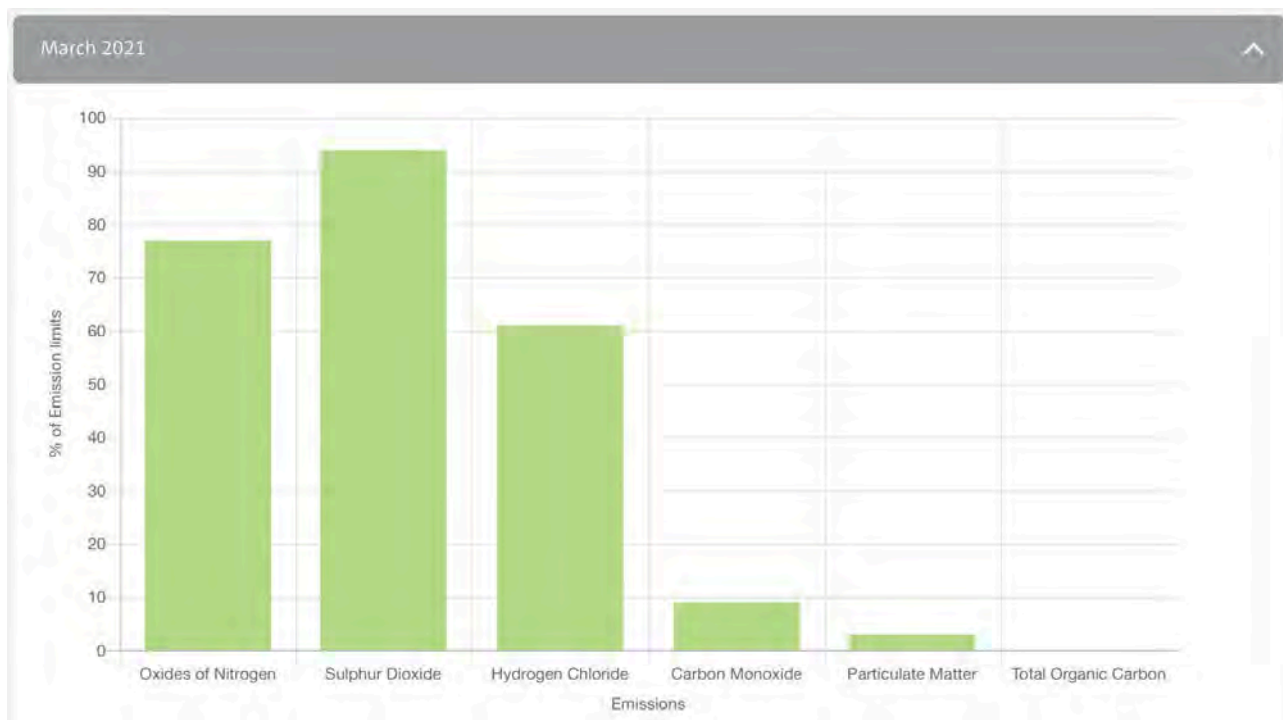
Enthusiasm for the performance of the UK reference EfW plants should be tempered by an understanding that they all experience higher wind speeds and rainfall than the City of Greater Geelong.



Most of the reference EfW facility performance information is of little value, as it mainly shows average emission levels, often devoid of any indication of variability. Here are two examples from the Leeds EfW facility.

Table 3.4: Leeds EfW publicly reported monitored emissions summary

Year	Annual average of reported daily emissions (mg/Nm ³)							
	NOx		HCl		SO ₂		Particulates	
	Limit	Annual average emission	Limit	Annual average emission	Limit	Annual average emission	Limit	Annual average emission
2020 (to date)	200	176.0	10	5.5	50	42.1	10	0.5
2019		175.5		5.5		40.9		0.9
2018		173.4		4.4		24.7		0.4
2017		160.5		6.3		25.3		0.3



This concern is not trivial.

If a pollutant is averaging at 90% of the legal limit, with a Range from 85% to 95% (i.e. $\pm 5\%$) we can reasonably expect that all the results will be legal.

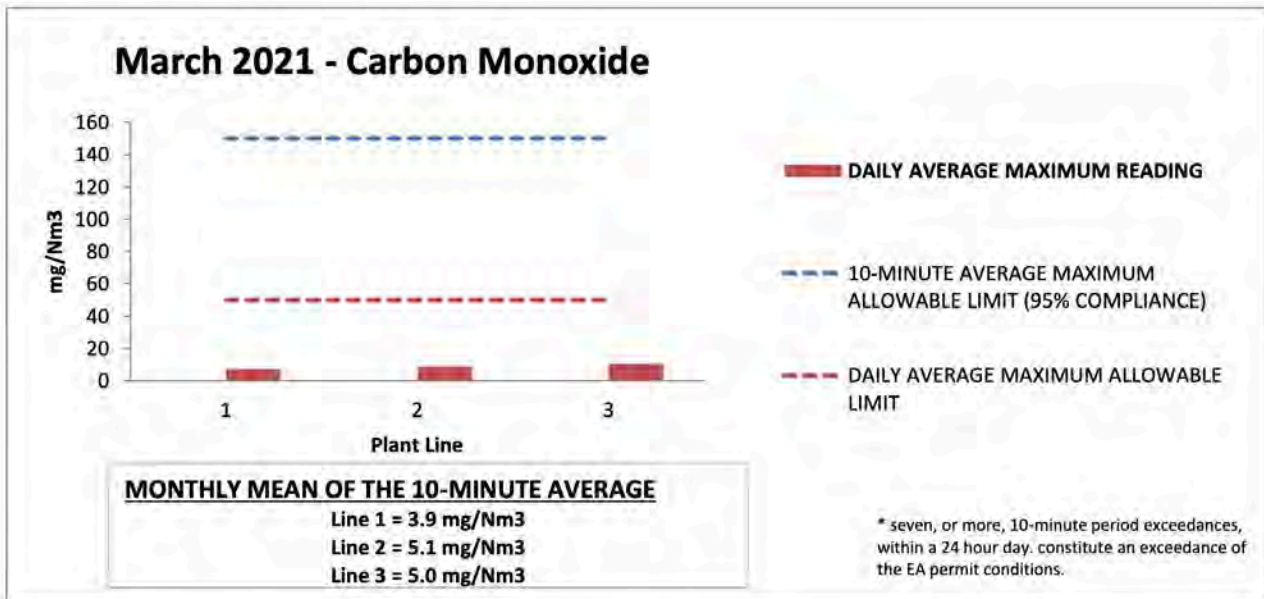
However, with an average of 90% and a Range of $\pm 20\%$ we can be sure that results will go as high as 110%, which is illegal.

Reputable expressions of variability include Standard Deviation (SD), Percentiles, and better still for parameters which logically cannot go below zero, the Range (i.e. maximum value minus minimum value).

From an engineering perspective, engineers need to know not only the typical performance, but also the extremes that are encountered in real operations.

It is an old adage of statistical science that "averages can hide a multitude of sins".

A much better form of public emissions reporting is demonstrated by the Riverside EfW facility. Riverside shows both averages and maxima. Still, it could be improved upon. See for example <https://www.coryenergy.com/wp-content/uploads/2021/04/March-2021-emissions.pdf>



Following EA guidance and approval in May 2019, RRRL no longer report carbon monoxide against a half-hourly emissions limit value. Carbon monoxide is now monitored against the requirement to be 95% compliant against a 10-minute average value, of 150mg/Nm3, over a 24-hour period. Any 24-hour period where the 95% compliance level is breached will be highlighted in the chart above. The daily average emissions limit value of 50mg/Nm3 remains unchanged.

Why do we control and monitor Carbon Monoxide?

Carbon monoxide is both a common naturally occurring chemical and is manufactured by man. It is a colourless, odourless poisonous gas. Carbon monoxide is one of the eight substances for which the government has established an air quality standard as part of its national Air Quality Strategy. Carbon monoxide can cause harmful health effects by reducing oxygen delivery to the body's organs and tissues.

From the Leeds EfW facility 2019 report, here is an illustration of why variation must be stated with averages. See the carbon monoxide (CO) statistics below.

Carbon monoxide	Daily mean	50 mg/m3	26	5.2
	95%ile 10-min avg	150 mg/m3 *	1257	38.5

Why the outlier ? What happened ? What did they do about it ?

Also recommended are column graphs with “error bars” that show average, maximum and minimum values in one chart.

EPA Action

- The EPA should require that Lara EfW facility pollution parameters are reported with reputable measures of variability, in addition to averages. See for example <https://www.coryenergy.com/wp-content/uploads/2021/04/March-2021-emissions.pdf>
- CEMS data relating to the Lara EfW outputs to the environment should be reported to the public in real-time via graphs on the Lara EfW facility’s website.
- The EPA should also require that the Lara EfW facility has automatic statistical analysis of CEMS data which detects and reports conditions which are out of statistical control.

12 Permanent epidemiological study

The EPA should create a formal agreement with the Commonwealth Department of Health which establishes a permanent independent epidemiological study of the City of Greater Geelong.

The study could, for example, be conducted at Barwon Health Research, based at the University Hospital Geelong. See <https://www.barwonhealth.org.au/research/>

Through Medicare, Australia has a long comprehensive history of medical statistics. Some data summaries are available to the public at <https://www1.health.gov.au/internet/main/publishing.nsf/Content/Medicare%20Statistics-1>

Almost every imaginable medical condition and treatment has a Medicare “code”. So it is possible for computers to trawl through the frequencies of these codes, e.g. “how many cancers?”, looking for any differences between the City of Greater Geelong and other areas.

This computational task is relatively easy and quick.

However, medical and epidemiological expertise are required to interpret the statistics and determine whether or not any statistically significant differences might be attributable to the EfW plant in Lara.

If the medical experts find that the occurrence of a medical condition is significantly more common in the City of Greater Geelong, further research will be necessary to establish the cause(s).

The independent research authority (a university) should publish routine periodic (quarterly ?) reports on the epidemiological findings, including any findings that “no statistically significant medical condition frequency differences have been found.” Such a finding is not a “negative result”, rather it can be seen as a reassurance to the authorities and the community that “all is well”.

The Lara EfW independent epidemiological study should be a permanent formal research project, with funding from government and academic support through a university based in Victoria. . Commencement should not wait until a “contamination scandal” erupts.

The study should be set up and running before the Lara EfW plant begins operations.

EPA Action

- The EPA should create a formal agreement with the Commonwealth Department of Health which establishes a permanent independent epidemiological study of the City of Greater Geelong, with particular reference to any effects which might arise from the Lara EfW facility.

13 And when it all goes pear-shaped ...

The EPA should require that the EfW facility provides effective procedures for the detection and response to noncompliant conditions.

Procedures need to include training, and regular simulations or drills, in relation to ...

- Fire and flood.
- Correction of nonconforming process conditions, and conditions which are out of statistical control.
- Dealing with rejected loads (so that they do not end up dumped into Corio Bay).
- Stopping the plant in the event of an emergency.
- Emission (for any reason) of a toxic plume into air or water.
- Plans for the evacuation of Lara, Corio and other communities which may be impacted by a major contamination event.

As previously mentioned, the proponents should deposit a bond of at least \$100,000,000 with the EPA to cover the costs of a major environmental or health disaster linked to the Lara EfW facility.

14 Conclusion

The EPA should reject the application for licences for the construction and operation of the proposed Lara Prospect Hill Energy from Waste (EfW) facility, in order to protect the environment and the health of people, crops, livestock and aquatic life in the City of Greater Geelong and environs.

If the project does proceed, we seek a much higher level of caution, reporting, and accountability than is currently contemplated.

Yours faithfully,

Jessica Gray

Lara Resident

Charles Street

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36 Sutherland Street, Euroa, Victoria, 3666, Australia

Summary of submissions: Public and interested third-party submissions on Prospect Hill Int., waste-to-energy facility, Lara

Submission ID: 325341

Comment on Prospect Hill Works Approval Application 1004200 McManus Rd Lara

We object to the granting of a Works Approval for the Waste to Energy Plant at McManus Rd Lara. Our objections are based upon the following key issues:

1. The site does not control the required buffers and approval of the application will devalue surrounding land.
2. The application is premature and relies on data that is not representative or inadequate.
3. There is almost no detailed information on the proposed plant, and the application states there will be more detail granted after the approval, this completely removes other stakeholders from any meaningful engagement with the process.
4. There are already waste to energy approvals granted or in train that will exceed the state government cap of 1,000,000 tonnes per annum.

Waste data on the composition of the waste stream is completely reliant on gross waste compositional studies that detail the gross composition of MSW without providing any insight into variability, moisture content, levels of contamination and calorific values. The performance of the plant is entirely dependent on these waste characteristics and the applicant has undertaken no studies of the composition of the proposed waste stream.

Similarly the reference plants cited in the WAA for plant are located in a completely different setting with different waste streams, in particular composition, contamination, calorific value and waste collection and sorting systems. The quality of the waste stream is a function of the collection system and the behaviour of the waste generators. European studies provide only very limited value on the proposed waste targeted for this plant.

The application states that wastes containing a broad range of contaminants will not be accepted. This is contradictory to the proposition that unsorted MSW will be accepted. It is certain that MSW will contain many of the wastes that the applicant says will not be accepted. This contradictory position means that the public have no confidence on the emissions standard proposed will be met.

No detail is provided on the plant manufacturer and if the proposed manufacturer has constructed plant that is operated in a European regulatory setting.

There is no data provided on the particular characteristics of local wastes that could be used to support the R1 calculation provided. Granting an application without any supporting information on local waste calorific value is contrary to EPA Principles.

Granting this speculative application will cause a great deal of concern in the community and restrict the development rights of other landholders when it is likely that this project would not proceed unless it can contract the wastes in an open tender.

It is very disturbing that the applicant seeks an approval with no relevant data on waste characteristics or emission profiles that could be used to form a reliable understanding of the proposed plant performance. Stating that these will be provided later in a detailed design phase is unreasonable and cuts out the input from other interested stakeholders including local landholders, local community and environment groups.

Summary of submissions: Public and interested third-party submissions on Prospect Hill Int., waste-to-energy facility, Lara

Submission ID: 325539

28 April 2021

Environment Protection Authority Victoria
Uploaded via engage.vic.gov.au

PROSPECT HILL WASTE TO ENERGY FACILITY SUBMISSION OPPOSING APPLICATION # 1004200

We appreciate the opportunity to provide a submission regarding the proposed Prospect Hill Waste to Energy Facility at Lara. Geelong Sustainability is deeply opposed to this proposal, which takes our region in the wrong direction.

1. Geelong is a designated UNESCO City of Design and its shared vision is based upon building a clever and creative future. Incinerating waste is neither clever nor creative!
2. The proposed facility would mostly incinerate reusable waste and is contrary to Victorian and Local Government waste management directions
3. There is no reliable argument that the facility would reduce greenhouse gas emissions
4. No guarantee that expected current volume of red bin waste will actually go to the Lara facility
5. Volume of red bin waste will reduce in future as more waste is diverted from landfill and particularly when food waste is diverted to food organics processing
6. Calculations regarding "displaced demand for energy" seem unfounded and will rapidly become inaccurate as Victoria's energy mix becomes greener
7. No guarantee that energy will be able to be fed into the grid

These are discussed in more detail below.

About Geelong Sustainability

Established in 2007, [Geelong Sustainability](http://www.geelong sustainability.org.au) (GS) is a not-for-profit, volunteer-led, incorporated community association, registered environmental organisation and charity. Our mission is to empower people to protect and regenerate the planet. GS inspires hope through action and effectively delivers a wide range of community projects, events and advocacy work within the Greater Geelong and G21 region.

Our new Strategy 2025, aligned to the UN Sustainable Developments Goals (SDGs), seeks to position our region for the bold transformative action required to become a net zero emissions region before 2040. We know a fast and fair transition can deliver economic opportunities and ecological benefits for Geelong and its people. Our operations fall under four pillars aligned to 4 SDGs: 1) Climate Action, 2) Renewable Energy, Sustainable Cities and Communities and 4) Circular Economy - the focus of this submission.

1. The proposed facility would mostly incinerate reusable waste and is contrary to Victorian and Local Government waste management policies

Prospect Hill's Works Approval Application claims that the proposal "aligns with Victorian Government waste policy... (which) supports energy from waste as a transition solution to reducing the use of landfill and allowing energy to be generated from materials that cannot be recycled. Similarly, EPA's wording on the Engage Victoria consultation page states that "the facility will only take residual wastes currently destined for landfill".

These suggestions that the facility would only be used to incinerate waste which would otherwise proceed to landfill are shown to be incorrect by the detail of the application. In reality, it appears that around two thirds of waste that would be incinerated is reusable.

Prospect Hill expects that the facility's feedstock will be around 35% food waste, 9% garden waste, 3% soil and other organic waste, 13% plastic and 5% glass (Works Approval Application Part 1, Table 8.2). In total, 65% of waste proposed to be incinerated could be reused. Nearly half of all waste is organics alone. Across our region, food waste makes up to 50% of the average household rubbish bin. However, it is

expected that the City of Greater Geelong will reduce its annual ~50-55 millions tonnes of waste going to landfills by ~12 million tonnes in its proposed program of collecting Food Organics.

While we understand that governments cannot prevent all reusable waste from being placed in red bins, we consider that choosing to incinerate red bin waste which we know to be reusable rather than investing in solutions to reuse that resource would be astonishingly short-sighted. It is our considered opinion that this proposal does not encourage waste reduction and recycling initiatives and is out of line with state and local government policies which emphasise the need for reduction of waste and development of circular economies.

This proposal is inconsistent with Victorian Government statements on the Waste to Energy framework. For example, stated to be a transition technology, but this plant has a lifespan of 25 years; Infrastructure Victoria's has stated warnings over investing in this kind of technology and the number of proposed Waste to Energy sites will more than exceed the cap of 1 million tonnes per year.

In the Greater Geelong area, where the facility is proposed to be built, the [Waste and Resource Recovery Strategy 2020-2030](#), there is a strong community desire to reduce waste and recycle more items (even if new recycling services cost them more) (page 17). All councils in the G21 Geelong Region Alliance are developing climate change response plans which include goals for consumption and waste. Specifically to reduce municipal waste, especially food waste and soft plastics, by implementing various zero waste and circular economy initiatives.

Once a facility like Prospect Hill is built, it will create an incentive to continue to burn reusable waste, despite any policy direction to the contrary. It will become a simple solution for councils who would otherwise need to take more responsible steps to reduce waste and divert more of their waste to reuse or recycling. In particular it will reduce the incentives to invest in innovative solutions which support circular economies.

Worse still, if this facility is built, Victorians may find themselves paying to have waste delivered to it for incineration even if better and cheaper options exist. Experience from the US has been that contracts for incineration facilities have "put or pay" clauses which require governments to deliver a certain volume of waste for incineration or pay a fee. The result of these terms are to create disincentives for the reuse of waste, as well as introducing a financial burden for local governments. (Zero Waste Houston Coalition, 2014, *It's Smarter to Separate: Why Houston's Trash Proposal Would Waste Our Resources, Pollute Our Air and Harm Our Community's Health*, p 16)

Far from being a "transition solution" as claimed by Prospect Hill's Approval Application (Part 1, Page 1), building this facility would embed outdated, linear economy approaches and slow our transition to a circular economy for the next 25 years.

2. There is no reliable argument that the facility would reduce greenhouse gas emissions

We consider the predictions regarding the facility's ability to reduce greenhouse gas emissions unconvincing, for the following reasons:

- There is no guarantee that the facility will receive the projected 400,000 tonnes of waste each year, which throws all of the estimates regarding greenhouse gas savings into doubt;
- it is unclear where the waste will be sourced from and how many kilometers per annum trucks will undertake in round trips to deliver waste to the facility;
- even if the projected volume of supply exists now, it will not exist in future as we recycle and compost more waste;
- it is unclear how savings relating to "displaced energy demand" are calculated, but we expect they will become rapidly out of date as Victoria's energy mix becomes consistently greener over time;
- It is unclear if the facility will use potable water for cooling towers instead of low water options such as refrigeration for water cooling;
- there is no guarantee that surplus energy created can be fed into the grid; and
- there is no guarantee that the 20% residual ash will find a local sustainable market and not end in landfill, with the potential to contaminate groundwater.

3. No guarantee that expected current volume of red bin waste will actually go to the Lara facility

Firstly, all predictions regarding greenhouse gas savings rely on the facility processing 400,000 tonnes of waste annually, and thereby saving around 300,000 tonnes of CO₂ equivalent being created by dumping the waste in landfill (Works Approval Application Part 1, Table 11.4.2). But it is not at all clear that the proposed facility will be able to collect this amount of waste.

The predicted 400,000 tonnes is to come from many different parts of Victoria, including 60,000 tonnes from Greater Geelong and nearby areas; 200,000 tonnes from Western Melbourne; and a combined 80,000 tonnes from other Melbourne and other regional LGAs (Works Approval Application Part 1, table 8.1).

However, this supply may never eventuate. Prospect Hill's application notes that they have not yet entered into arrangements with any supplying councils (Approval Application Part 1, paragraph 8.1). In other words, the bulk of the predicted greenhouse gas emissions reductions rely entirely on local governments agreeing to have all or a significant quantity of their waste incinerated at this plant.

4. Volume of red bin waste will reduce in future as more waste is diverted from landfill

Secondly, even if the projected amount of waste exists now, it is unlikely to exist in future as more of Victoria's red bin waste gets diverted to recycling or composting. To take the City of Greater Geelong as an example, the city's Waste Resource and Recovery Strategy 2020-2030 notes that Geelong's kerbside collection services collected 45,000 tonnes of household red bin waste in 2018-2019 (page 12), with around 33% being food organics (page 16). This is consistent with the Works Approval Application, which indicated that the expected proportion of food waste in the facility's feedstock would be 35 per cent (Works Approval Application Part 1, table 8.2).

However, the Waste Resource and Recovery Strategy indicated overwhelming community support for building more infrastructure to divert food waste from landfill (page 16) and committed to developing a business case to do so (page 25, strategic actions 2.2 and 2.3).

If that trend is consistent across other Victorian Councils (as we expect it would be), the Prospect Hill facility looks to lose around a third of its municipal waste feedstock.

Municipal waste makes up 320,000 tonnes of the projected 400,000 tonne capacity of the proposed plant (Works Approval Application Part 1, table 8.1). So, removing 35% of municipal waste could reduce demand for the proposed plant 112,000 tonnes per year. Even if food and garden waste is not entirely removed from red bins, other moves will reduce red bin volume, including reduction in supply of plastics (which make up 13% of the projected municipal waste feedstock) as bans on single use plastics come into effect in 2023. <https://www.premier.vic.gov.au/victoria-taking-action-single-use-plastics> .

5. Calculations regarding "displaced demand for energy" seem unfounded and will rapidly become inaccurate as Victoria's energy mix becomes greener

The Works Approval Application also claims that by creating "clean" energy and feeding this into the grid, the facility displaces need for other energy which would have created greenhouse gas emissions. The Application estimates that, by burning 400,000 tonnes of waste, the facility will be able to displace 255,000 Megawatt hours, saving 209,000 tonnes of CO₂ equivalent (Table 11.7).

Apart from some threshold concerns with this argument we have already mentioned above (for example, how "clean" is energy which is created by burning waste which is 65% either organic or recyclable? Will the facility even burn 400,000 tonnes of waste per year?), it simply isn't clear how this saving is being calculated or what "dirty" energy is being used as a comparison.

We can only assume that the Application cites figures relating to average greenhouse gas emissions from existing Australian power generation. If this is the case, these projected emission savings will quickly become incorrect as Australia continues to move away from coal to green energy sources. We would expect that if the facility is built and it runs for its expected 25 year lifespan, any energy demand this facility displaces will be far greener than energy created by burning waste.

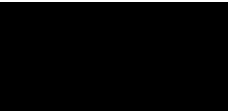
6. No guarantee that energy will be able to be fed into the grid

It is unclear how Prospect Hill intends to feed the projected 255,000 megawatt hours into the grid each year. Our understanding is that to do this would require additional investment in energy infrastructure as well as an agreement with a distributor, neither of which appear to be discussed in the Works Approval Application. We understand that other energy generation projects built in Victoria have struggled to settle arrangements to feed energy into Victoria's grid because of these hurdles.

Until these arrangements are in place, we are not convinced that the proposed facility is capable of producing the energy suggested, or displacing demand for dirtier energy sources.

Thank you for the opportunity to make this submission.

Yours sincerely,



President, Geelong Sustainability Group Inc.

m: [Redacted]

e: [Redacted]

w: www.geelongsustainability.org.au



Summary of submissions: Public and interested third-party submissions on Prospect Hill Int., waste-to-energy facility, Lara

Submission via
works.approval@epa.vic.gov.au

EPA Application No.: 1004200
Prospect Hill International Pty Ltd.

Proposal Submission by:

Request for further information and clarification

Preface:

The directors and principles of ACT Group (Aust) Pty. Ltd. generally support the concept of Energy from Waste and recognise the importance of Energy from Waste infrastructure in securing Victoria's landfill diversion targets and the broader objectives of the current "Recycling Victoria" policy.

As a technical consultant based in Melbourne and with specific expertise in thermal EfW technologies, we have closely followed the development of these proposals in Victoria. We have actively participated in the community engagement activities and reviewed the applications and comments on each of the 3 utility scale proposals now approved for construction by the Victorian EPA. We are also very familiar with the waste management industry and the specific and relative nuances of the Melbourne waste sector.

The comments and observations made in this submission are based on our experience and knowledge of the conditions for equitable and appropriate developments of EfW proposals in the Victorian landscape.

Contextual assessment:

The Victorian EPA has now approved 3 EfW facilities in Victoria. Each facility approval demonstrated increasingly superior environmental performance characteristics.

- The Maryvale EfW facility was the first facility to secure EPA approval and was able to demonstrate compliance with the BREF BAT emissions requirements applicable at the time (which have now been tightened under the current revision). The Maryvale EfW approval proposes the deployment of a mass burn incinerator, larger but not dissimilar from that proposed under this application.
- The subsequent 2 EfW facilities approved in Victoria propose the deployment of significantly smaller gasifier facilities. These facilities clearly demonstrated steady state emissions profiles, operating conditions and processing capabilities (including operating temperature ranges) considerably superior to those supporting the earlier approved Maryvale incinerator. The approvals documentation for each of the gasifier proposals were very specific in terms of their facility design and technology providers and was supported by technology and supplier specific operational histories. The current submission, like the initial Maryvale proposal, relies on generalised data and technology assumptions.

It is stated in the environmental assessment process that the EPA require applicants to demonstrate compliance with Best Practice Technology, Application and Reporting. The EPA also requires assessments to be considered in the context of relative "benchmarking".

If a subsequent EfW proposal demonstrates environmental compliance capabilities and steady state expectations superior to the minimum BAT guidelines then shouldn't that therefore be established as the new minimum "benchmark" for the performance expected of

any subsequent submissions seeking approval for relatively similar purpose and function regardless of the core technology selection?

In the PHI video presentation of 20 April 2021, [REDACTED] on behalf of the EPA specifically stated “that if there are similar approved facilities we may use these as a reference”.

Accordingly, it should be incumbent on the EPA to consider this application according to the highest comparative performance benchmarks set by the other recently approved EfW projects in Victoria. Our observations from the extensive information and consultative processes supporting the last two EfW proposal in Victoria is that they both used performance data from their other specific technology deployments to evidence and provide confidence that normalised operations will be significantly within the allowable limits for their operations and likely superior to that which combustion process can credibly achieve for a comparative scale and investment in emissions and residues management systems.

On a comparative risk assessment basis, the community must consider that the smaller the requisite need for processing “clean-up” the lower the likelihood of potential exceptions and the impact of operator or market failures.

An environmentally probative methodology for the assessment must also be considerate of the comparative and evidenced based “steady state” performance anticipated by the proposed facility, not just compliance under a “worst or maximum limit based” assessment as appears to be the case presented in this application. The community has the right to expect that new facilities will not just meet the minimum performance criteria but be able to credibly evidence and demonstrate that the “normalised” daily performance is as good or better than the highest and best performance for a similar facility already approved in Victoria.

Will EPA be considerate of continuous improvement principles and also be assessing this application against the performance assumptions of the most recent EfW approvals in Victoria and not just the worst-case limits established under BAT?

While we acknowledge that the design remains conceptual, the proposal is largely based on hypothetical assumptions premised on open source and public data with limited validation or specific supporting evidence of the actual proponent’s assessment, expertise or qualification under Victoria’s local operating conditions. The proponents of the earlier approved projects all demonstrated significant and extensive local engagement and intelligence to support their conceptual design. The earlier proposals also were considerably more specific in their technology design, input evidence and performance validation at a similar stage to this current submission.

How can the EPA have sufficient confidence to approve a proposal where the input variables and technology selection are intrinsically assumed and accordingly the performance measure inherently unreliable?

Will EPA require PHI to provide more specific detail relative to its core technology provider, specific process design, input fuel specifications and consequent environmental performance PRIOR to the approval of this application?

It is anticipated that the any Works Approval will impose specific conditions on PHI. It is expected that these conditions will be largely consistent with those applied to the other EfW proposals now approved. At the very least the environmental expectations should not allow for any lesser environmental performance, reporting or minimum design validations or criteria. Some of the condition’s precedent under the existing approved projects have not

been addressed or their potential for compliance evidenced in the submission document including but not limited to:

- meeting the lower end of the BAT-AEL ranges for new plant contained in BAT 25, BAT 27, BAT 28, BAT 29, BAT 30 and BAT 31 of BATC 2019 during commissioning and under all other operating conditions.
- a plan for providing public reporting of monitoring results on a website related to the project, or through a website agreed to by EPA, that must include:
 - reporting of all periodic monitoring results at a minimum frequency of quarterly;
 - reporting of continuous emission monitoring results in real time or as near as practicable;
 - reporting bottom ash monitoring results and the results of any monitoring of emissions to water by the end of the calendar month in which the monitoring is carried out; and
 - reporting of compliance status of air emissions against licence limits at a minimum frequency of daily.
- Installation for each flue in the multi-flue stack, a device capable of sampling in stack:
 - long-term mass concentrations of polychlorinated dibenzodioxins (PCDD) and polychlorinated dibenzofurans (PCDF), for periods of up to 1 month for each flue;
 - short-term mass concentrations of PCDD and PCDF
- a residual waste management plan which includes provision for the disposal of residual wastes to landfill only where no other treatment or reuse option is available and to a maximum of 3% of feedstock by weight;

Specific Observation / Questions /Comments:

1. Community Engagement:

The PHI community engagement program has been extremely limited and inconsistent with that required and delivered by the other EfW proponents as part of their approvals process. While CoVid19 has made it more difficult to execute a community engagement plan during this application process it does not diminish the requirement for the proponent to meet the community and regulatory requirements for an engagement process that readily meets or exceeds the minimum standards of the EPA's engagement templates or the IAP2 standards. Community disengagement due to COVID necessitates a more rigorous and extensive stakeholder engagement process than normally applicable to ensure stakeholders now disenfranchised from the community during this period have every opportunity to be equitably informed, consulted and to make comments. The Covid situation seems to have been leveraged by PHI to justify a limited and controlled engagement process.

It would appear that PHI has only made 2 public presentations over 9 months, both by video link where community interactions and questions were controlled or potentially managed in a self serving manner – community questions were not readily available to all participants for comment, participants were unable to interact with each other, information provided was limited and presented in a limited timeframe that has not presented opportunity for discussion. Their website contains little detailed information and does not appear to have been updated to present all the questions likely raised at each of the forums.

In contrast to the PHI approach to community engagement, the other EfW proponents now approved by EPA made multiple presentations in a variety of forums, widely distributed project newsletters, advertised in the local newspapers and/or created drop-in centres for personal interactions. Most of this engagement was completed over an extensive period PRIOR to their applications being accepted by the EPA for advertising.

In general, the PHI stakeholder engagement, appears significantly deficient, particularly in an environment now less constrained by movement and gatherings. The engagement to date appears disingenuous, particularly in comparison to the standards applied to most other proposals related to EfW and the wider waste industry applications.

Importantly, the planning approval responsibility for this project now resides with the Planning Minister meaning that the community has even less avenues for input into the project. In the recent presentation DWELP specifically identified EPA as the key interface with the community on everything save for streetscape and traffic. Accordingly, EPA has even greater responsibility to ensure a robust and encompassing stakeholder engagement process in this instance than in those earlier EfW proposals where community had the additional input through the council process.

We understand that EPA is proposing a further consultation, we assume a 20B conference. The 20B conference is supposed to bring stakeholders together to consider their issues. In this instance it is likely that the issues haven't yet been fully developed or fully considered due to the limited opportunity for open discussion.

In general, the PHI stakeholder process has not been sufficiently robust or transparent to provide stakeholder with the requisite confidence in its operators, design or intent to justify their support. Exacerbating this lack of confidence is the fact that unlike proponents from each of the other approved projects that made their senior executives available to the public as well as their consulting teams – with PHI, it remains unclear who the principles behind this project are, who they represent or what their local credential are. The EPA may have further information generally applicable to the project but, based on the communications to date, it is difficult to understand how stakeholders cannot feel disappointed in the proponents interest in transparency, due diligence or anything other than meeting minimum compliance requirements.

2. Site Suitability

- PHI have indicated the suitability of the site due to its location within an IN2Z zone. Specifically the applicant notes:

The IN2Z also aims to "keep the core of the zone free of uses which are suitable for location elsewhere so as to be available for manufacturing industries and storage facilities that require a substantial threshold distance."

PHI then state "Given that the Project does not require a substantial threshold distance due to its limited potential for impacts on amenity and safety, it is considered that the Project is appropriately located outside of the core of the IN2Z. This ensures that the core of the IN2Z is reserved for land uses that do require substantial buffers from any sensitive land use."

This appears an extraordinary presumptive statement by PHI in that the “potential” for impacts from this proposed facility are clearly considerable – if there weren’t any “potential” why would the EPA require it to be evaluated and licenced. The fact that the facility will be seeking to handle putrescible waste, toxic and explosive chemicals and will make considerable emissions to the environment (whether inside or outside its limits) will clearly impact the amenity and potentially pose risk to sensitive receptors. Any reasonable assessment would suggest that this facility, or similar, were the intended focus of the specific zoning statement concerned with maximising buffers from sensitive land uses by locating them in the core of the zone.

Clearly the adequacy of the 300-350m buffer to the nearest residence appears insufficient and potentially sets a questionable precedent for future developments of this nature.

- The SWIIRP nominates Waste Hubs of State Significance as appropriate locations for waste and resource recovery infrastructure. This site is not nominated as a hub in the SWIIRP.
- PHI acknowledge that the site does not have access to sufficient potable water to support its operations and that their will need to be an upgrade to the current mains. Will PHI be responsible for the cost of this upgrade and what will be the impact of this on water supply and priority allocations in the Barwon region.
- It is unclear the need for the project to secure a major hazard licence – P11 suggests not but p169 suggests yes. A major hazards facility requires considerably more consideration of the buffers and interfaces and will be a determining factor in the site suitability. In any case the document is confusing on this.

3. Environmental

○ Flue gas

- The air modelling assumes output concentrations based on performance information that does not appear in the documentation. The recently approved EfW proponents provided supporting emissions data from operational facilities employing their specific technologies over an extended period and correlated with specific waste compositional data from those facilities.

The flue gas concentrations anticipated will be specific to the equipment specified and the waste composition. PHI also notes this. This application has only advised a design at such high level such that any estimate of normalised performance cannot be reliably assumed. Any performance data is also heavily dependent of the assumed waste compositions. While it is acknowledged that the final waste compositions cannot be defined at this time but there has been no apparent attempt to validate the localised compositions like each of the other approved EfW proposals needed to prove. The “published data” approach for all these assumptions is clearly less probative and robust than that benchmark undertaking by the other EfW proponents.

- The PHI proposal describes the combustion of waste in a “reducing air” environment to reduce the production of NOx. The gasifier EfW projects approved in Melbourne operate in a much lower and controlled air environment and consequently produce considerably less Nox. The gasifiers evidence demonstrated that they can readily meet the revised

BAT AEL's for NO_x processing a range of waste compositions without additional DeNox technology (such as SNCR). None of the reference facilities included in this submission appear to demonstrate compliance with the current NO_x limit and most operate at the upper end of the earlier versions of the NO_x limits with DeNox technology applied. There is NO reference plant information provided by PHI for facilities that they or their partners actually built or operate to evidence the history or ability of the proponent to comply with the revised NO_x limits (or any other limit). There is even less data to suggest that this facility will have any capability, now or in the future, to meet the lower limit of the NO_x BAT AEL as is the requirement for the recently approved facilities.

At some point, continuing to increase the dosage of Urea or Ammonia in the SCNR to meet the lower NO_x limits must be restricted by the potential for Ammonia slip at the stack.

- As that EfW gasifiers are now approved by the EPA and they utilise considerably less air in their process they will also produce less flue gas (laws of mass) than a comparably sized incinerator. Consequently, if the gasifiers are held to the same concentration limits (mg/m³) as the incinerators then, at the same concentrations, they will be ejecting less pollutants per tonne of waste processed (less dilutive effect). The IED BAT limits are primarily set as concentrations at the stack so, at the same concentrations, incinerators must emit more absolute volume of pollutants than the gasifiers.

When the limits are primarily based on concentrations, how does the EPA consider the absolute impact on the environment from gaseous emissions –wouldn't the approval of a relatively more polluting facility than that previously approved be contrary to the continuous improvement responsibility of the regulator?

- The technology provider originally specified a stack height of 70m. The fact that the modelling required the stack height to be increased to 80m suggest that PHI is relying on greater dispersion rather than lowering emissions to meet the SEPP(AQM) requirements at the boundary and sensitive receptors. At some point the size of the stack relative to the location and application must be considered inappropriate from an amenity and practical perspective.

- Leachate

It is unclear how PHI propose to treat the leachate and the volume PHI anticipate they will produce. Is PHI planning to inject the leachate into the boilers?

- Water Usage

Water use is a key assessment criterion for any sustainable development. PHI is proposing to use water cooled chillers in their process rather than air condensers. This will consume significantly more water than an air condenser (orders of magnitude) and cannot be consistent with sustainable development principle, particularly in a region where potable water supply can be constrained. The facility proposes to use ~2500ML per day, an air condenser is likely to require

around one third of that volume. It is acknowledged that there is a relatively small energy trade off and slightly higher capital cost to install an air condenser, but this is clearly an option given the benchmark already set by the latest EfW approvals. PHI clearly have adequate space for the air chiller installation. At another EfW consultation EPA was supportive of the justification for reducing energy efficiency in favour of water efficiency.

- Waste water
PHI propose the installation of a waste water pond. It appears the primary purpose of this is to cool the water blow down prior to discharge to the sewer. This appears an unusual requirement not consistent with other water-cooled chiller installations. The waste water pond is also likely to be redundant (or considerably smaller) if the facility adopts air cooled condensers.

4. Technology/Equipment/Process

- General Comment
The technology selection and specific in the application is vague. Numerous options are suggested for most of the equipment and no specific supply is advised for the main combustor.
 - not all combustors operate with the same characteristics.
 - the scrubber type, dry or wet, is not decided
 - the preferred boiler design is presented as options
 - the boiler cleaning system is presented as an options evaluation
 - the APCr treatment and logistics is presented as options
 - the primary air sourcing is described as “typical” and presented as options
 - the economiser design is optionally horizontal or vertical
 - secondary combustion air is described a capable of being drawn from various locations
 - the use of aqueous Urea, aqueous ammonia or sodium bicarbonate all appear optional considerations
 - the air modelling refers to 2 or more cranes
 - there has been no specific waste modelling or characterisation to inform the design (the document notes that a stoker diagram can’t be developed because of this).

Clarification of each of these will have significant impact on the performance and emissions of the facility. The document states that the stoker diagram, which can’t be developed because PHI has not completed a waste characterisation, is a “key performance requirement of the project”.

How can the EPA or community derive confidence in PHI’s performance assertions, modelling and efficiency calculations given the level of uncertainty in the facility design and the lack of robust, specific, and validated local supply data that is underpinning the application?

- Mass burn lines
PHI states that they expect to install 2 lines each capable of processing circa 200,000 tonnes per annum. They also state that the building will be designed to allow for the installation of an additional line at a later time providing for a total facility capacity of 600,000 tonnes per annum.

Is the EPA assessing this proposal as a 400,000 tonne per annum facility or a 600,000 tonne facility? Given PHI has stated its intent to increase in scale isn't it incumbent on the EPA to consider the capability of the facility, the site and the services to accommodate this nominated increase. The proposed layout doesn't appear to support the additional storage, stack or water treatment necessary to support this increase and could consequently be misleading in its intent.

- Waste Bunker

The application states:

“The bunker capacity for the Project is designed for up to five days storage of feedstock or approximately 3,200 tonnes of waste. During unplanned shutdowns a further 5 days of storage is possible by super stacking waste against the rear/side walls of the bunker in a safe manner.”

At the stated boiler consumption rate of 52.4 tph, 5 days storage would amount to around 6,500 tonnes, considerably more than stated. Ten days stacking would leave around 13,000 tonnes in the bunker – the equivalent of several councils annual disposal in the stated catchment.

5. Waste Input

- PHI is proposing to process 400,000 tonnes of waste per annum, 80% of which is intended to be sourced from municipalities. The proposal indicates that 60,000 tonnes per annum will be sourced from the Barwon South West councils and 200,000 tonnes from the western Melbourne councils.

A review of the Sustainability Victoria waste portal suggests that these volumes are representative of ALL the MSW originating in those areas for disposal to landfill. There is already an EfW approved and now under development in Laverton that will also be seeking to service the Western suburbs. It is clear that the proposed facility is not appropriately scaled to the market and the likely infrastructure now in place or being implemented to service it. It is also likely that the current “Recycling Victoria” will encourage greater diversion from the MSW residual waste stream into higher order recovery proposals. This would further suggest that PHI has not designed a facility considerate of the local Victorian waste policy objectives and waste market conditions.

- PHI clearly states that:

“Detailed waste composition analysis has not been undertaken yet and the average chlorine content of the waste is not known. The level of chlorine content is, based on preliminary assessment of publicly available waste data for Victoria, expected to compare similarly with other global MSW EfW projects. For example, chlorine levels for MSW EfW plants in Europe can be up to 1.0 % chlorine, with typical values being between 0.5 and 0.8 %. The limit under the 2010 EC IED for a non-hazardous thermal treatment process is 1%. This Project will not accept waste > 1% chlorine content by weight.”

PHI proposes to inspect ALL vehicles prior to entry into the tipping hall for contaminants and hazardous materials (including chlorine rich waste). The

majority of MSW is delivered in closed side lift or rear lift compactus trucks. It is not realistic that these vehicles can be expected prior to entry so the validity of this as a control and safety mechanism is highly questionable. The gasification facilities operate at temperatures in excess of 1100oC making them more suited to deal with waste variability over time particularly where potential chlorine contents are potentially higher than anticipated.

It is also presumptive and flippant to suggest that Victorian waste is consistent with that processed by “*global MSW EfW projects*”. The generalities applied to the waste composition throughout the application and the absence of even minimal characterisation or sampling by the proponent presents considerable concern as to the suitability of the process design and the applicability of any emissions modelling.

6. Residual Waste

o Bottom Ash

There is considerable variation across the document as to the quantum of bottom ash expected to be produced by the facility which is confusing and potentially misleading. The technology provider clearly advises a fly ash/ bottom ash ratio of 20/80. The document notes that the facility will produce around 23,000 tonnes of fly ash per annum approximately 6% of the input. Accordingly, the facility will produce around 24% boiler ash or 96,000 tonnes per annum. The proposal indicates an intent to store and mature up to 12 weeks supply of wet bottom ash. The environmental assessment does not provide sufficient information to understand the need for or potential environmental impact and management requirements for this bottom ash and its storage.

There does not appear to be any evidence of any lab testing or compositional analysis of bottom ash sourced from a comparable facility, ideally operated by the proponent, to support this proposal or the suggested treatment options.

o APCr

o PHI suggest that the facility will produce around 23,000 tonnes per annum of fly ask which represents around 6% of the input feed volumes. It is proposed that this will be trucked to the Lyndhurst prescribed landfill for treatment. Can the EPA confirm that this landfill has the capability and licence to treat and stabilise fly ash of the nature construed here? There does not appear to be any evidence of any lab testing or compositional analysis of fly ash sourced from a comparable facility ideally operated by the proponent, to support this proposal or the suggested treatment options.

Fly Ash assessments and treatment options from the recently approved gasification facilities clearly identified “worst case” stabilisation and treatment options for fly ash and supported these with compositional evidence from operational facilities directly comparable with that they propose to construct. It would seem appropriate that PHI be requested to provide the same validation especially given the potential requirement for in-situ on-site treatment prior to transport and the consequent requirements for equipment and processes to be included in the process design and modelling.

- The anticipated volume of fly ash produced under this proposal is considerably greater as a percentage of the input feed than what is anticipated to be produced under the gasification proposals. The fly ash is, under each of the proposals, most likely destined for disposal to landfill. In the case of the gasifiers this is expected to account for 2% or less of the input volumes compared to 6% for this incinerator proposal. The EPA placed a qualification on the gasification proposal works approval requiring a plan to ensure that no more than 3% of the input volume by weight is sent to landfill. Clearly there is the assumption that bottom ash is reusable but under the PHI proposal, the fly ash will exceed the planned maximum residual disposal to landfill applied to the gasification plant.

The EPA needs to demonstrate consistency in its requirements and the discharge of its responsibilities as well as demanding continuous improvement and robustness in environmental performance. Accordingly the EPA should require PHI to meet the same diversion requirements, particularly for fly ash as a hazardous material, as those already necessitated of others.

Summary

The PHI application appears to rely on public confidence in the consulting firm rather than evidence-based assessments. It is unreasonable to expect that the community to accept the “trust me” approach and that the project as delivered will be appropriate, best practice and compliant if the EPA simply grants an approval. Now that the Planning Minister has taken control of the planning approvals process for these types of facilities, the EPA now has a greater responsibility for their fair, equitable and diligent assessment and for ensuring that community engagement is clearly, transparent, inclusive and meets the robust expectations necessary to address community rights and concerns.

Thank you for your anticipated due-diligence and investigation of our concerns and General comments.

OFFICIAL

Development licence assessment report

Environment Protection Act 2017

Appendix C: Conference of Interested Persons Report

REPORT



s236 Conference of Interested Persons

Prospect Hill Waste to Energy Facility Proposal

Prepared for EPA Victoria

27 July 2021

capire

COMMUNITY

The term community refers to the group of people residing in the town of Lara. A community often share a sense of place in a given geographical area (e.g. a country, city, town, or neighbourhood) or in virtual space through communication platforms.

STAKEHOLDER

The word stakeholder refers to individuals, groups or organisations with a stake or interest in the outcome of a decision. Stakeholders may also can influence the decision given their role or position.

ENGAGEMENT

Engagement is defined as a planned process with the purpose of working with communities and stakeholders to inform decisions, share knowledge and strengthen relationships.

LIMITATIONS OF USE

This report has been prepared for EPAs consideration as part of its role as determining authority of the Works Approval Application. The author has included observations and recommendations that represent impartial, non-expert view, based on the comments made at the conference and submission received during the submission process.

Every effort has been made to ensure the report accurately reflects the discussions, comments, and contributions, made at the s236 Conference of interested persons on 13 July 2021. No responsibility or liability can be taken for errors or omissions, or in respect of any use of or reliance upon this report by any third party.

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1 Introduction and background

1.1 Summary of application

Public consultation on the Prospect Hill waste to energy facility Works Approval Application began on 24 March 2021 for an extended 35-day period until 28 April 2021.

The Application was submitted under Environment Protection Act 1970. From 1 July 2021, the new Environment Protection Act 2017 commenced, and the Works Approvals Application process is now deemed a Develop Licences Application.

Local community members and stakeholders made 63 submissions. A review of the submissions show that three submissions support the application, while 60 submissions object to the application.

Information about the Development License Application is available on the Engage Victoria website <https://engage.vic.gov.au/epa-works-approvals/prospecthill>. The following summary is provided:

'The application proposes a waste-to-energy facility in Lara to service greater Geelong and west metropolitan Melbourne. The facility will be designed to process approximately 400,000 tonnes of waste per year and generate 35 megawatts of electricity. Prospect Hill estimates this is enough to power up to 50,000 homes. The facility will only take residual wastes currently destined for landfill.'

1.2 Purpose of the s236 conference of interested persons

Section 236 of the Environment Protection Act 2018 states:

'(1) The Authority may establish a conference of interested persons in relation to any matter or decision under consideration by the Authority.

(2) A conference established under this section is for the purposes of— (a) assisting in the just resolution of the matter or decision under consideration by the Authority; and (b) providing an informal means for the Authority to consider the matter or decision.'

Following a review of public submissions EPA decided to hold a s236 Conference to hear community and stakeholder opinions regarding the Works Approval Application.

EPA appointed Capire Consulting Group to independently facilitate and chair the Conference. The Conference was hosted at Lara Masonic Hall, 37-39 Rennie St, Lara from 6.30pm, Tuesday 13 July 2021.

The Conference's objectives were:

- To understand community concerns or issues related to the Prospect Hill Works Approval Application
- To identify applicant's response or proposed mitigation to said concerns and issues
- To test community satisfaction of the applicant's response or proposed mitigation.

1.3 Purpose of this report

This report prepared by Capire Consulting Group states, and summarises Conference discussions (concerns, desired actions, and questions), community member satisfaction to responses of questions raised during the Conference, and recommendations for the EPA and Prospect Hill.

Capire has no role in making recommendations about whether the Development License Application should be approved or refused/rejected.

This report and included recommendations will be considered by the EPA. This may result in further requests for further information from Prospect Hill.

Separately, the EPA's development assessments unit will review the Prospect Hill application, taking into consideration submissions, referral responses, and the s236 Conference report. This will assess the potential impact of the proposal against the requirements of:

- The Environment Protection Act 2017
- The Environment Protection Regulations 2021
- The Environment Reference Standards
- Other policies and guidelines.

During the development license assessment process, EPA Victoria must consider how the applicant has or will comply with the general environmental duty throughout the proposal. The general environmental duty requires businesses and all Victorians to reduce the risk of harm from activities to human health and the environment and from pollution or waste. In addition, the assessment process must include:

- the impact of the activity on human health and the environment
- the principles of environment protection
- the best available techniques or technologies, and
- submissions received from community and stakeholders.

The development assessment unit will prepare a separate Development License Application assessment report which will be made available on the Engage Victoria website once a decision has been made.

1.4 Conference format

The Conference was designed to help the EPA consider Project Hill's waste to energy Works Approval Application. Capire consulted EPA and Prospect Hill on the conference design. The agreed agenda resulted in time for:

- An "Open House" prior to the official Conference to allow Prospect Hill meet and greet participants whilst responding to questions and concerns
- The Chair of the Conference to welcome everyone and give a quick overview
- EPA and Prospect Hill to present the context and provide information of the Development License Application and proposal
 - EPA overview of the Development License Application process and summary of submissions and key issues
 - Prospect Hill presents the proposal and initial response to submissions
- The Chair to present a summary of the key issues/themes across the 63 submissions, summarised as:
 - Location
 - Transitioning away from waste, waste policy
 - Sustainability
 - Governance, responsibility, transparency
 - Human health and/or hazards
 - Emission, pollution, air quality
 - Traffic.
- "Issues Workshop" of the seven key submission themes (above) discussing:
 - Key concerns
 - Actions to be taken to address the concerns
 - Residual questions for Prospect Hill or EPA.
- A Break to allow participants to vote for their top three concerns, and for Prospect Hill to confirm their response.
- Report back, poll and questions:
 - Prospect Hill present response to key concerns which received the greatest number of votes during the break
 - Capire polls Conference attendees on participant satisfaction of the applicant's response.
- Closing statements from Capire Consulting Group, EPA, and Prospect Hill.

- “Open House” to allow Prospect Hill and EPA experts to meet and greet participants whilst responding to questions and concerns.

See Appendix A for the Conference agenda, Appendix B for Presentation Slides.

1.5 Attendees

The Conference was advertised on the Engage Victoria website. (<https://engage.vic.gov.au/epa-works-approvals/prospecthill>)

The Conference was well attended with 59 community members and stakeholders, 9 EPA staff and 8 Prospect Hill staff. The attendance reached the maximum number of individuals in the building due to Covid-19 density limits.

2 Theme discussions

2.1 Location

Table 1 shows priority concern about the location of the proposed facility and its proximity to residential and sensitive land use areas. Different reasons for this concern include the potential health hazards, noise, impacts to biodiversity, distance to a substation, light emissions, and visual impacts. Finding a new location for the facility was the most common desired action.

Table 1 Location

Concerns	Number who prioritised this concern	Desired Action	Residual Question
Wrong location, health hazard. Far too close to residential (future and current). Even though it's in an industrial area - this site is closest to the residential area	7	New location. Appropriate buffer to future residential areas	<ul style="list-style-type: none"> • How can you control what toxic things are coming out given the uncertainty of what is going in? • How effective is the filtration system? • What monitoring of toxins will there be?
Noise from operation (forklifts, trucks) <ul style="list-style-type: none"> ➔ evidence that this type of operation will cause an issue (Kocke Brothers). ➔ Night-time noise issue 	1	Could be underground or in some form of bunker	
Locations linked to all other issues (health, noise, traffic)			
No biodiversity study done - how could it effect flora/fauna			
Not close to a substation <ul style="list-style-type: none"> ➔ will lose power due to this inefficiency 		New locations No new powerlines / high tension cables	<ul style="list-style-type: none"> • How will power efficiently get back to the grid so it can be used by households? • Can the facility work without high tension cables/powerlines)?
Light emissions - night-time	1	New location	<ul style="list-style-type: none"> • Is anything planning to mitigate this impact (light emissions)?
Assessment of this location		Disclose report/assessment	<ul style="list-style-type: none"> • What alternative locations were considered? • Why was this site chosen? • What criteria was used?
Visual impact of 80 metre (~28 storey) high chimney of the immediate area & from the You Yangs	1		<ul style="list-style-type: none"> • Can the design be ameliorated to reduce visual impact / dominance?

2.2 Transitioning away from waste, waste policy

Table 2 relates to zero waste transition and a concern that the Prospect Hill proposal is not compatible with current Victorian State waste policies. These concerns relate to the type of waste feedstock sought, how the proposal may compete with recycling options and the generation of new wastes such as fly-ash and bottom-ash.

Table 2 Transitioning away from waste, waste policy

Concerns	Number who prioritised this concern	Desired Action	Residual Question
Waste to Energy discourages recycling Not consistent with state policy on recycling	3	Business case – be public as per Department of Treasury and Finance guidance Pro-forma contract to be public	<ul style="list-style-type: none"> Who are the customers? What are the customers paying?
Plant is far too big! Not compatible with short - medium - long term future	1	Clarify where the waste is coming from	
State Government cap of 1 million tonnes of waste to energy	1	Clarify State Government plans for maximum of 1 million tonnes	<ul style="list-style-type: none"> How does Prospect Hill fit in with overall provision?
Not circular Not green Not innovative	2		
Circa 30% of fly ash & bottom ash possibly going to landfill- Not best practice diversion			<ul style="list-style-type: none"> Where will ash be disposed?
Waste characterisation insufficient	1	provide specific audit/analysis of waste- Barwon SW region waste not the same as metropolitan Melbourne	<ul style="list-style-type: none"> Will EPA get PHI to collect their own data on seasonal composition and type of waste?

2.3 Sustainability

Table 3 highlights multiple and various concerns, desired actions and residual questions related to “sustainability”. These include the ongoing resources required during the construction and operation of the proposed plant (eg water) and the potential negative impacts on local residents, local ecosystem and global greenhouse gases.

Table 3 Sustainability

Concerns	Number who prioritised this concern	Desired Action	Residual Question
Sustainability of maintain level of waste over course of project	1	Justify 1.2 million tonnes in presentation	<ul style="list-style-type: none"> • How have Prospect Hill arrived at the figures?
Proposal uses too much potable drinking water. Research water restrictions. Not circular water supply Also contaminated ground water not adequately addressed.	2	Alternative chiller technology. Air cooled chillers. Recycled water	
Size of Plant – 400,000 – 600,000 tonne waste facility.	1	Clarity around volume on actual permit	<ul style="list-style-type: none"> • What permit will be applied for 400 or 600? • Where is feedstock come from?
Infrastructure - Who will bear the cost/ where will resources come from for infrastructure - roads, gas, water, sewer, consumables etc.	1	Clarity how Prospect Hill will have services to size of site.	<ul style="list-style-type: none"> • Who will pay for infrastructure services?
Source of feedstock - purity - assessing waste and contamination	1	Clarity on exact sources of waste	<ul style="list-style-type: none"> • Who will do quality control?

<p>Not preventing source/origins of waste. Not creative solution to waste generation</p>	<p>2</p>	<p>Legislate and tax producers of waste especially when its unnecessary.</p> <p>Victorian Government and EPA need to have a plan to draw down carbon.</p> <p>Professional development in project drawdown and permaculture ethics and principles.</p>	<ul style="list-style-type: none"> • Do the Victorian Government and EPA staff know we are in a climate and ecological emergency and headed towards an uninhabitable Earth? • We must cut emissions to zero AND draw down the carbon legacy from the last few decades by leaving trees alone and using the principles of the Australian Landscape Science Institute. • Do staff also know we are in the sixth mass extinction of species? We must support the creation of jobs that regenerate ecosystems and massively reduce demand for energy.
<p>Are truck/transport emissions factored into the CO₂ calculations and lifecycle supply chain (total emissions)?</p>		<p>Transparent accounting CO₂ & CH₄ and toxic chemicals prior to ANY approval</p>	
<p>Impacts on climate and global warming of project need to have plan for greenhouse gases</p>			
<p>Localise our goods and services, to reduce emissions!</p>		<p>Professional development for councillors, EPA, and Victorian Government staff in the transition town/permaculture principles. Remove barriers for initiatives that have or will design waste out of their systems.</p> <p>Microgrids and good design of all new buildings to reduce demand for energy.</p> <p>Use basic passive solar principles including orientation i.e. raise the rating system for all new homes &</p>	

		reduce the allowable size of homes and BANGAs.	
What is the financial burden on council/ratepayer?		Financial transparency before project approved	
What would be the impact on local wildlife and ecosystems?		Work with relevant bodies to explore and produce the impact potentially on all the species who currently live here	
What is the target rubbish - feedstock? In order to understand source	1	Provide transparency prior to any approval about what the waste is Be creative about how to get rid of the source of the problem. Whole cities may not have creative solutions but small communities do!!! Be creative about other energy options that are sustainable	<ul style="list-style-type: none"> • Won't it subconsciously or consciously tie us into keeping on producing waste if our energy is reliant on it?
This project is not helping people reduce energy demand. Not sustainable energy		Encourage/remove barriers and approve hyperlocal initiative to reduce demand for energy e.g. transition town movement	<ul style="list-style-type: none"> • What is the Victorian Government doing to support localisation of goods and services? • What is the Victorian Government doing to legislate production of waste?
Could 20 hectares be used for drawing down carbon and regenerate ecologies		Work with Council to organise a proactive visioning process with Lara residents based on the most innovative climate and ecological solutions.	
Contaminants in groundwater and wastewater management		Proper treatment plant for waste/ground water and monitoring (independent)	
Live data around emissions and environmental and health data for the public		Continuous Environment Monitoring System should be implemented as part of the project	

Not a true circular system		EPA to have professional development. See permaculture ethics principles. No waste in nature.	<ul style="list-style-type: none"> • How can we eliminate the waste? • What are real game changing solutions? • Who (what companies) are manufacturing the waste and how can they be held responsible instead of being allowed to outsource the problem to communities, ecosystems and other species?
Lara feels like a dumping ground for unattractive, polluting industries and so are defensive of what is proposed		<p>A combined visioning session that is inspiring for Lara residents and business with the relevant bodies who make big decisions i.e. State Government, EPA council, Lara residents and businesses - Lara could be a world leader in regenerative living & jobs!</p> <p>- Provide visual material in plans, renderings, photographs, illustrations</p>	
Water			<ul style="list-style-type: none"> • How much water is needed to drive the turbine? • Where does it come from? • How does it get there?

2.4 Governance, responsibility, transparency

Governance, responsibility, and transparency related to the limited knowledge about the applicant Prospect Hill. Across table 4 these concerns relate to poor past experiences of failed waste management companies leaving stockpiles of waste in the area. Understandably, participant attendees sought further information and understanding about who the applicant is, their history, the future financial and environmental costs of the proposed plant. Additionally, the community sought a better understanding about the whole project lifecycle from construction and operation to end-of-life and site rehabilitation.

Table 4 Governance, responsibility, transparency

Concerns	Number who prioritised this concern	Desired Action	Residual Question
Lack of external accountability (during engineering and post-deployment)	4	Independent auditing/monitoring	This has been asked before - what about our previous questions?
Lack of financial accountability (who will pay?)		Proof/legal binding contracts and transparency	Who foots the bill? For example, illegal construction and demolition waste stockpile precedent
Who is Prospect Hill International? Offshore?	7	Make ownership information public. Ledger of finances ongoing	<ul style="list-style-type: none"> • It's a new company. • How have they developed up until now? • 5 years of registration (2017)...where is their bank account statement- what have they been doing for 5 years to make money to finance this? • What is the cost of plant construction? • If there were alternatives, why Lara?
Transparency of location (technical assessment)		A public report and list of alternatives	
Transparency about in-coming waste	1	Public records of the waste inputs/waste forecasts	
Speed of incidence response	2	Public incidence Action Plan	

2.5 Human health and/or hazards

Table 5 highlights concerns related to hazardous waste risks (fly ash and waste were also both mentioned in Section 3.2), hazard assessment process, compliance and human health risks.

The high priority concern of 'fly ash management' and 'waste source' also raised in the theme of 'Transitioning away from waste, waste policy' (Section 3.2) demonstrates the importance of these issues to the community.

Table 5 Human health and/ or hazards

Concerns	Number who prioritised this concern	Desired Action	Residual Question
Fly ash management	6		<ul style="list-style-type: none"> • Where will it be taken to? (which licensed facility) • Who will transport the waste? • Who is managing where its being taken to? • What safeguards are in place for the movement? • Frequency of waste being transported?
Waste source Industrial waste? Kerbside waste?	7	<p>If inappropriate waste is accepted, how is this managed? Waste separation at the site? Who is supplying the Waste to energy facility approved in Laverton, concerning the proposed councils can't supply the volumes?</p> <p>Potential to receive hazardous waste, how will this be sorted? from kerbside especially. Present examples of emissions/health impacts from Europe.</p>	<ul style="list-style-type: none"> • How was the estimated 100,000 tonnes from G21 locations derived at? • Council of Greater Geelong predict only 16,000 tonnes once food and garden organics and other initiatives have been implemented (garden organics already in place).
Negative social impacts		<p>Recognition of human impact</p> <ul style="list-style-type: none"> - Community already dealing with another local waste issue - Covid stress - Now a new hazardous facility 	
Jacobs offered Health Impact Assessment is rubbish. Ditto risk assessment		Go away and don't come back → refusal of permit	

Proposal is selective about which parts of the 2019 BREF will be complied with		Particular attention needs to be paid to BAT11 and BAT25. That is, BAT eleven and BAT twenty-five.	
Speed of incidence response	2	Action plan	

2.6 Emissions, pollution, air quality

Table 6 shows multiple concerns related to projected residual air. Concerns cover the negative impact on Lara residents, wildlife, and broader climate change concerns. Attendees also shared their concern for the lack of relevant information in the Development License Application process.

Some of these concerns are also noted under other themes 'Sustainability' (Section 3.3) and 'Human health and/or hazards' (Section 3.5).

Table 6 Emissions, pollution, air quality

Concerns	Number who prioritised this concern	Desired Action	Residual Question
400,000 tonnes of waste going up the flume into the atmosphere	1	More information	<ul style="list-style-type: none"> Where does the airborne mass (400,000 tonnes/year) land eventually?
Lack of an Environmental Effects Statement prepared. Section 3.1 of the Works Submissions says that it is not required?!	6	EPA to ensure that an EES is triggered/requested	<ul style="list-style-type: none"> Why do they consider an EES is not required?
Release of trapped carbon from plastics that will not decompose	1	Refusal of permit	<ul style="list-style-type: none"> What does the proposal reduce carbon overall when some materials would retain indefinitely?
Odour!			<ul style="list-style-type: none"> Who will monitor it? How will results be published? Will they wait for complaints? Who do we go to for complaints?
Technology description too general with options too vague (a "trust me" approach)	1	Specific equipment and process to be defined to inform EPA	
Does the EPA recognise/acknowledge we are in a climate and ecological emergency (as the context for the decision)? We are NOT dealing with the cause!	2	Full environmental study (emissions and ecology) Look at opportunities to draw down carbon	
It is not all residential waste [80% from residential]			<ul style="list-style-type: none"> What is the industrial/commercial waste? Where does the industrial and commercial waste come from?

PROSPECT HILL WASTE TO ENERGY FACILITY PROPOSAL, **ERROR! NO TEXT OF SPECIFIED STYLE IN DOCUMENT.**

There will be an increase in air pollution in Lara (despite apparent reduction)	5	Find a different location	
No emission reference plants (China)	1	Provide data from the plants used in China	
Composition of emissions will be different over time - current models will be wrong	3	On-going independent monitoring process in place	<ul style="list-style-type: none"> • What controls will be in place to control the inputs?
References don't comply to NOx → no controls on radioactivity		Control radio material Include a gantry over way bridge	
Impact on bird life → pollution of air quality	2	Locate the plant elsewhere - important wetlands at Avalon The You Youngs	Filters?
What emission standard does the plant have to meet		Answer these Questions	<ul style="list-style-type: none"> • Australia does not have a carbon tax. Will the plant meet the same standards as Europe? • Can you tell me the regulation so I can research? The EU emission standards are getting exponentially stricter. • Will the EU still be using WTE as emission standards tighten? • How will this plant meet future Australian Emission Standards?
travel of pollutions	1	implies higher pollution land that required disposition	<ul style="list-style-type: none"> • How far can pollution travel on high wind days?

2.7 Traffic and logistics

Table 7 highlights a range of questions related to proposed truck routes and operating hours, in addition to resource capabilities and demands of the plant.

Table 7 Traffic and logistics

Concerns	Number who prioritised this concern	Desired Action	Residual Question
Enforcing truck routes	3	Trucks from Melbourne use Lara already Suggestion: should be in contracts with transport companies	<ul style="list-style-type: none"> Who does this? Current experience is trucks already cut through Lara What sizes are the trucks?
Feedstock ability - given council's zero-waste policy and construction of similar facility in Laverton	3	Confirmation of what would happen in this case, not wanting to see new or riskier feedstock introduced	<ul style="list-style-type: none"> What is the business case? What would stop new or riskier waste streams being received?
Statistics shown were 2017 and didn't show current trend to phase out post-2019 standards			<ul style="list-style-type: none"> If Geelong Council doesn't want to use it, why build it here?
Hours of operation - trucks - plant itself	2	Clarify of hours for both trucks and operation. Scheduling to avoid stockpile	<ul style="list-style-type: none"> What is the maximum storage at any time? Is it all enclosed (not outside)? Is there adequate supply?
2.5ML of potable water per day Barwon Water says old wasteful process			<ul style="list-style-type: none"> Is there an agreement with Powercor?
Is the network ready to take the energy?			
Trucks from Melbourne will be going past Aldi - a high volume traffic area at times		Reconsider truck route	

2.8 Miscellaneous

There were a wide range of themes and concerns covered on the 'Miscellaneous' presented on Table 8. These concerns cover the ability to make submissions to EPA, being a flood prone site, work approvals processes and other concerns which do not fall neatly into the thematic categories.

Table 8 Miscellaneous

Concerns	Number who prioritised this concern	Desired Action	Residual Question
Never heard when we could make a submission to EPA. Communication from EPA to Lara public has been poor.	1		
Geelong City Council has recently completed a flood probability study.	2	Response to concern Protection of local residential areas and wildlife reserves and waterway	<ul style="list-style-type: none"> Is the site flood prone and if so what is the mitigation strategy?
The site also needs a work approval, it falls under the A08 waste to energy It also needs 'A' license to operate the facility.	1		<ul style="list-style-type: none"> How is the power getting into the grid?
How many subcontractors are part of the construction?		Clear and concise list of who is doing what	<ul style="list-style-type: none"> Once works are completed by these subcontractors who is going to hold them accountable? I.e. Pop up RTO, popup companies, collapsed solar companies
Once energy is made, how is it getting back to grid?	5	No more power lines wanted or needed	<ul style="list-style-type: none"> What are the current discussions/arrangements with Powercor or industrial facilities to use the power?
An incinerator that lasts 20 years is not a sustainable answer to our waste problem	2		<ul style="list-style-type: none"> What happens in 20 years to an old out of date plant? What's the plan for updating?

<p>The Goulbourn Valley has zinc 10 to 15 % higher than anywhere else in the state</p>	<p>1</p>		
<p>The Monash University is currently in its 5th or 6th year of a case study of long-term effects after the power plant caught on fire and burned for several months. Still don't have all effects recorded.</p>			<ul style="list-style-type: none"> • What if this goes up in flames? • What are the predicted hours/weeks/months to extinguish? • What materials other than rubbish will our community be exposed to?
<p>Light pollution has not been disclosed but is a key factor in a 'country' setting.</p>	<p>1</p>	<p>Define and disclose minimum acceptable variance and recourse when not met</p>	<ul style="list-style-type: none"> • What has been observed in previous development (regarding light pollution) and what is considered an acceptable level?
<p>Misinformation about jobs. This is an automated plant. Jobs are mostly only in construction.</p>		<p>Disclose how many ongoing jobs.</p>	<ul style="list-style-type: none"> • How many ongoing new jobs for Geelong? Excluding rubbish truck drivers. • There would be many more jobs in a recycling plant so why not do this instead?
<p>Insufficient opportunity for written submissions/having a say - most people don't know about this - not enough people in this meeting - poorly advertised - zoom was not accessible for many residents - future residents in a growth corridor will be affected, not enough wider publicity</p>	<p>1</p>	<p>Take out a full-page advertisement in the Geelong Advertiser seeking further submissions</p>	
<p>House pricing decrease! This plant generates voices in favour and against, as well as many people unsure about the effects to health and wellbeing for the community. This will lead to a reduction of demand of houses and an increase in supply. Therefore,</p>	<p>4</p>		<ul style="list-style-type: none"> • Is Bisinella Land Developer responsible for allowing residential development so close to industrial zone 2/in a better zone?

<p>this will ultimately lead to a decrease in the value of our houses. Simple supply and demand laws. worries about house drive impact</p>			
<p>Stack height- 80m high!! Visual disturbance of landscape! Aesthetics</p>	3	Build a smaller stack	<ul style="list-style-type: none"> Why does it have to be so high if it is so clean?
<p>Chernobyl was not considered safe!</p>			

3 Responding to priority concerns

Following the “Issues Workshop” Conference attendees were invited to vote for concerns they would like prioritised. The Chair invited Prospect Hill to respond to concerns with the greatest number of votes. Following this, the Conference attendees were polled on their satisfaction of the applicant’s response to the concern.

Attendees were asked to vote for their level of satisfaction of the response using the following system:

1. Not at all satisfied issue is addressed
2. Not very satisfied issue is addressed
3. Neutral: this is not an issue for me either way
4. Somewhat satisfied issue is addressed
5. Very satisfied issue is addressed

Most concerns and responses led to further questions and concerns by Conference attendees which the applicant aimed to answer. These follow-up concerns may have swayed attendees to answer their satisfaction level to the response they most recently heard and not regarding the original concern.

3.1 Proximity to residential areas

Where the concern addressed was:

Wrong location – it is too close to residential developments.

With other concerns raised:

- What is the rationale for this location?

Response	Not at all satisfied	Not very satisfied	Neutral	Somewhat satisfied	Very Satisfied
The IU2Z permits this kind of development, and environmental guidelines say these two developments (residential and the power station) can coexist. Property size and access to transport links render this a good site	28	6	1	0	0

3.2 Incompatible with growth of recycling rates

Where the concern addressed was:

Waste-to-Energy developments discourage recycling.

With other concerns raised:

- Not consistent with policy promoting innovation
- There is not enough waste between the other EPA approved locations to fulfill demand
- When were the projections done?
- Will the applicant publish a business case?

Response	Not at all satisfied	Not very satisfied	Neutral	Somewhat satisfied	Very Satisfied
<p>It is a transitional technology (and we are still producing waste as a society). Customers will be council contracts</p> <p>Waste output projects are based on state government data</p> <p>The data is from 2017, before the pandemic</p> <p>A business plan will be updated based on new information available, but if this project is not seen as profitable it would not go ahead. It is an Australian-owned project</p>	25	1	5	3	1

3.3 Discouraging waste avoidance

Where the concern addressed was:

Not creating a solution to waste - what does it do to disincentivise waste?

With other concerns raised:

- Victorian Government needs to focus on waste avoidance
- Where does the 100,000 tonnes from City of Greater Geelong projection come from?

Response	Not at all satisfied	Not very satisfied	Neutral	Somewhat satisfied	Very Satisfied
<p>This is about directing residual waste. It is beneficial to not have recyclables in the plant.</p> <p>Someone from the Victorian Government will need to respond.</p> <p>The Victorian Government's waste hierarchy sees waste to energy as part of a journey to circular waste product 100,000 tonnes comes from state forecasts. It may be an 80% municipal, 20% commercial waste split</p>	8	12	4	3	1

3.4 HazWaste by-products

Where the concern addressed was:

Fly ash management – transport and frequency

With other concerns raised:

- Will Prospect Hill have responsibility once it leaves the site?

Response	Not at all satisfied	Not very satisfied	Neutral	Somewhat satisfied	Very Satisfied
<p>Fly-ash will need to be disposed to Lyndhurst HazWaste facility.</p> <p>To prevent air pollution, silo trucks (as used for cement mixing) will be used to transport the fly-ash. The fly-ash won't be stabilised.</p> <p>The intention is to eventually recycle fly ash and bottom ash.</p>	6	8	6	6	1

3.5 Increasing air pollution in Lara

Where the concern addressed was:

Increased air pollution in Lara despite overall drop in emissions (state/region wide)

With other concerns raised:

- Are trucks considered in air pollution projections?

Response	Not at all satisfied	Not very satisfied	Neutral	Somewhat satisfied	Very Satisfied
Proposal using technology that meets the EU emissions regulation Air quality assessments also meeting strict EU & EPA guidelines It is not a zero-emissions facility, but there is a net positive in air quality. Agreements will be made with truck providers regarding emissions.	22	3	2	1	0

3.6 Enforcing trucking routes

Where the concern addressed was:

Who enforces waste transport routes?

Response	Not at all satisfied	Not very satisfied	Neutral	Somewhat satisfied	Very Satisfied
VicRoads and the Heavy Vehicles Regulator. Councils also enforce Council roads.	8	13	0	3	0

3.7 Energy grid constraints

Where the concern addressed was:

How does energy get into the grid? Lara's grid is currently constrained.

Response	Not at all satisfied	Not very satisfied	Neutral	Somewhat satisfied	Very Satisfied
<p>There are a few options that will become apparent in the next phase of design.</p> <p>Power generated will power go through the Geelong Terminal Station.</p> <p>The facility generates baseload power, which is different to other forms of power production (peaking power and intermediate power).</p>	18	4	2	2	1

4 Observations and recommendations

The following observations are made by the chair of the Conference.

- There appears to be a lack of adequate community engagement opportunity between Prospect Hill and the community of Lara (due to Covid-19 lockdowns) leading into the Works Approval Application.
- Community shows high interest and concern about the proposal and its applicant, expressing a desire to be more engaged in the decision-making process.
- Community is unfamiliar with the Development License Application processes and are unclear on expectations for providing feedback and influencing decision making.
- Community is unsatisfied with applicant's responses to key concerns from the Conference.
- Community understanding of waste to energy facilities was diverse with some community showing limited knowledge to some community with very good understanding.
- Community is conscious of legacy, non-compliant, illegal waste facilities which have operated in the area and are concerned agents of change and the environmental regulator will not adequately manage future risks.
- Community is cautious about corporate history of the applicant and unsure about applicant's commitment to corporate social responsibility.
- Community remains unconvinced a business case exists for an energy from waste proposal of this size and volume in the region.

The following are recommendations for the applicant:

1. Undertake further community engagement providing responses to key community concerns. The engagement process should report how concerns are addressed in the proposal, including:
 - a. Provide clear reasons for the chosen location and why other locations were not proposed
 - b. Provide evidence the proposed facility will not rely on waste otherwise destined for recycling pathways
 - c. Report projected air emission quality and volume of the facility, including transport emissions
 - d. Provide a business case summary with the level of waste needed for the plant to be viable and where this waste will come from using more recent data and models.

2. Provide the community of Lara a formal response to all questions raised in this Conference report.

The following are recommendations for EPA:

1. Distribute plain English guidance on Works Approval processes to the Lara community articulating expectations and scope about how community can provide feedback and how their feedback will influence decision making
2. Assure community concern that businesses must manage risks under the general environmental duty provision, including communicating changes under the Environment Protection Act 2017 which seek to avoid legacy waste stockpiling in the Lara community.
3. Assure community on management of HazWaste transport from the Prospect Hill facility.
4. Work with co-regulators to ensure stated trucking routes are complied with.

Appendices

Appendix A: Event agenda

Date:	13 July 2021
Time:	6:30 pm to 9.00 pm
Location:	Lara Masonic Hall, Lara
Session objectives:	<ol style="list-style-type: none"> 1. To understand community concerns or issues related to the Prospect Hill works approval application. 2. To identify applicant's response or proposed mitigation to said concerns and issues. 3. To test community satisfaction of the applicant's response or proposed mitigation.

Time	Item
5:00pm	Venue and event preparation
6.00pm	Open House
6.35pm	Welcome and overview of session
6.40pm	Overview of WA process and summary of submissions and key issues <ul style="list-style-type: none"> • Present WA process • Summarise S22 submissions • Highlight key issues and concerns
6.50pm	Prospect Hill applicant present proposal and initial response to submissions <ul style="list-style-type: none"> • Present summary of proposal • Clarify key community concerns and issues • Present possible responses to concerns/issues
7.00pm	Summary of Issues/Topics <ul style="list-style-type: none"> • Location • Transitioning away from waste, waste policy • Sustainability • Governance, responsibility, transparency • Human health and/or hazards • Emissions, pollution, air quality • Traffic

7.05pm	Issues Workshop/World Cafe <ul style="list-style-type: none">• What is your main concern about this topic and why?• What action can be taken to mitigate any concerns you have?• What outstanding questions do you have about this topic?• (if there are more than 3 concerns, please place a star next to your top 3 concerns)
7.35pm	Break <ul style="list-style-type: none">• Participants vote for their top three priorities to hear about immediately• Applicant reviews key issues and confirms response mitigation strategies.
7.45pm	Report Back, Poll and Questions <ul style="list-style-type: none">• Applicant presents response mitigation strategies for the concerns which received the greatest number of votes during the break• Facilitator polls participants' satisfaction, record result• Repeat for each issue
	Closing statements
8.30pm /9.00pm	Open House <p>Prospect Hill experts meet and greet participants, responding to questions and concerns.</p>

Appendix B: Presentations



**Prospect Hill International
Waste to Energy Facility
McManus Road, Lara
Conference of Interested Parties**

13 July 2021

Today's session

- 6:30pm Welcome, introductions and session overview
- 6:35pm Overview of Works Approval process & summary of key areas of concern**
- 6:40pm *Prospect Hill* proposal presentation**
- 7:00pm Issues workshop – your opportunity to share your views**
- 7:30pm Break
- 7:40pm Report back – an opportunity to hear *Prospect Hill* respond**
- 8:10pm Closing statements
- 8:20 pm Open house



Welcome, introductions and session overview

Environment Protection Act 2017

General Environmental Duty

1970 Act

Consequence
managing pollution,
assessing impacts

2017 Act (GED)

Preventative assess
and eliminate / control risks

Environment Protection Act 2017

From 1 July 2021 works approvals become development licences

2017 Act

1) State waste policy

- Does the proposal fit with waste hierarchy?
- Is it consistent with the SWRRIP/VRIP?

2) Best Available Techniques and Technology (BATT)

- State of knowledge – technology and waste use
 - Is it proven technology?
 - Is it future proof?
-

Environment Protection Act 2017

From 1 July 2021 works approvals become development licences

2017 Act

3) Have environment and human health risks been adequately assessed?

- Have risks been eliminated where possible, and controlled in line with risk management strategy?
- Do remaining risks meet the Environment Reference Standards?

4) Have all viable re-use options been explored?

5) What community engagement has/will occur?

- What level of community interest?

Development Licence Application

Assessment Process

Application received

- EPA determined to accept application on 10 March 2021

Referrals and advertising

- Newspapers (state and local) and online advertising
- Referrals to relevant agencies (24 March - 28 April, 2021)

Review of submissions

- Conference of interested parties where this may assist in just resolution of the matter

Finalise technical assessment

- Consider submissions and conference report
- Input from EPA technical experts

Decision

- Approval granted / refused (late July, 2021)

Appeal provisions

- VCAT – Applicant or affected third parties may apply to appeal decision



Development Licence Application

Assessment Process – current status

- Formal Request under s22 of the Act served on 12 May 2021, which sought:
 - Responses to the 63 submissions received and the issues raised
- Prospect Hill Int. are in the process of responding to this notice.



Planning Permit

Department of Environment, Land, Water, and Planning on behalf of the Minister for Planning

DELWP (on behalf of the Minister for Planning) are currently assessing a planning permit application (PA2001035) for the 'Lara waste to energy facility'.

DELWP have directed the proponent to give public notice of the application, which will be undertaken soon.

Notice is often colloquially called 'advertising of the application', and it is the opportunity for parties to submit objections if they wish to.

The planning permit application documents can be found here: [Browse Ministerial Permits \(planning.vic.gov.au\)](https://planning.vic.gov.au)

Submissions or objections in relation to the buildings and works proposed within the DDO18 can be submitted to: development.approvals@delwp.vic.gov.au

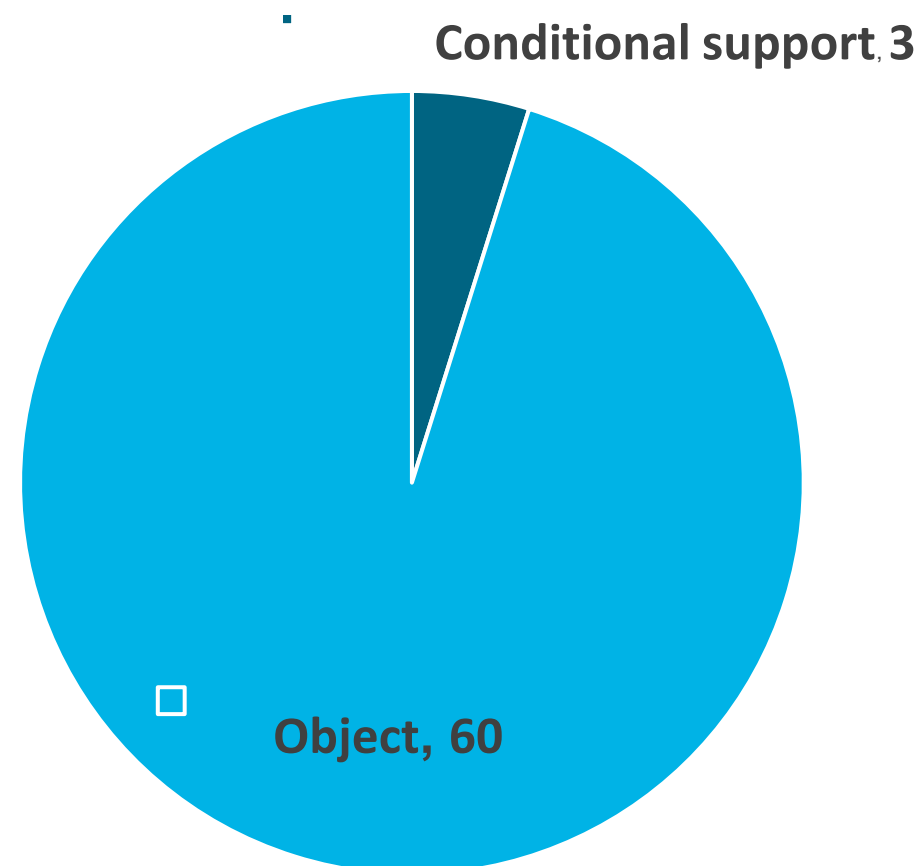
Submissions

Submissions received during the public notification period



highest level of concerns from the largest number of submitters:

- **Human health risks/hazards;** and
 - **Air emissions**
-





PROSPECT HILL INTERNATIONAL

Welcome

Thank you for your attendance this evening

About Prospect Hill International

- Prospect Hill International is a Melbourne company
- We are working with multiple project partners to develop this project

Our Project

About the Project

- Help with the waste management challenge
- Opportunity to divert waste from landfill

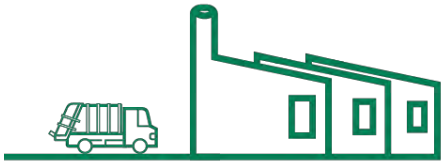
Project benefits

- Advance waste management
- Provide better electricity security
- Deliver jobs for the local community
- Improve Victoria's environment

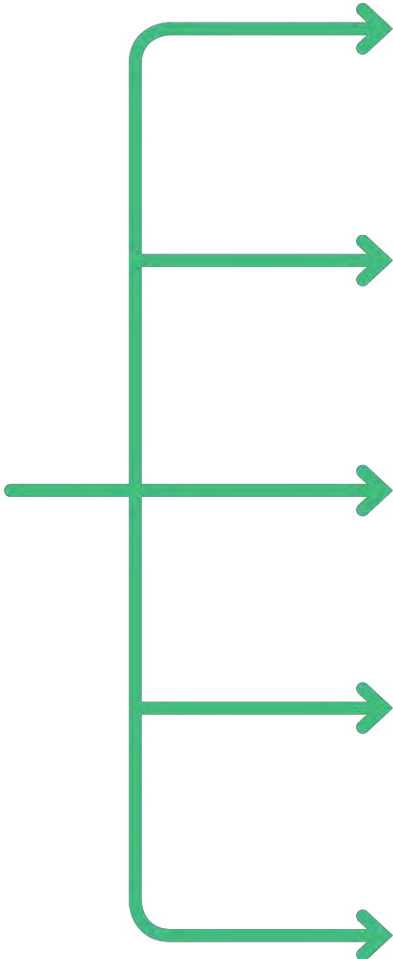
Agenda

- Energy from Waste overview
- Project rationale
- Location rationale
- Environmental assessment results

Energy from waste



Benefits of Energy from Waste



Provide employment during construction and operation



Avoid large amounts of greenhouse gases entering the atmosphere



Reduce reliance on fossil-fueled electricity



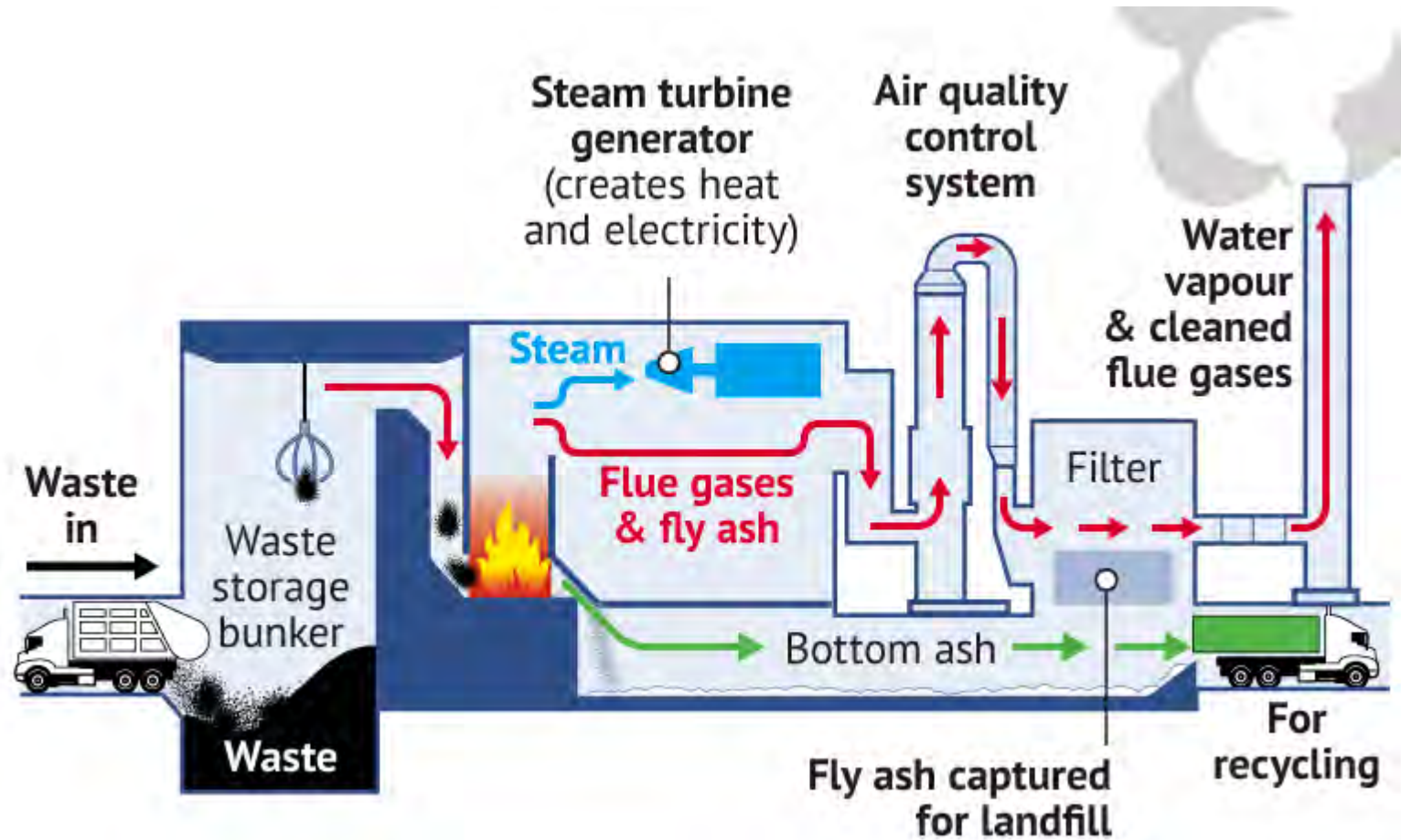
Provide increased energy security



Process waste that would otherwise go to landfill.



How does it work?



Source: The Age (30/5/2018)

Rationale

Vic Govt data – SWRRIP (Statewide Waste and Resource Recovery Infrastructure Plan) & Sustainability Victoria

Waste volumes will increase over time

Recyclables and FOGO will increase, but so will residual waste

Latest data from 2018: 2.2M tonnes of kerbside waste

1.2M (55%) tonnes residual waste

570,000 (25%) tonnes recyclables

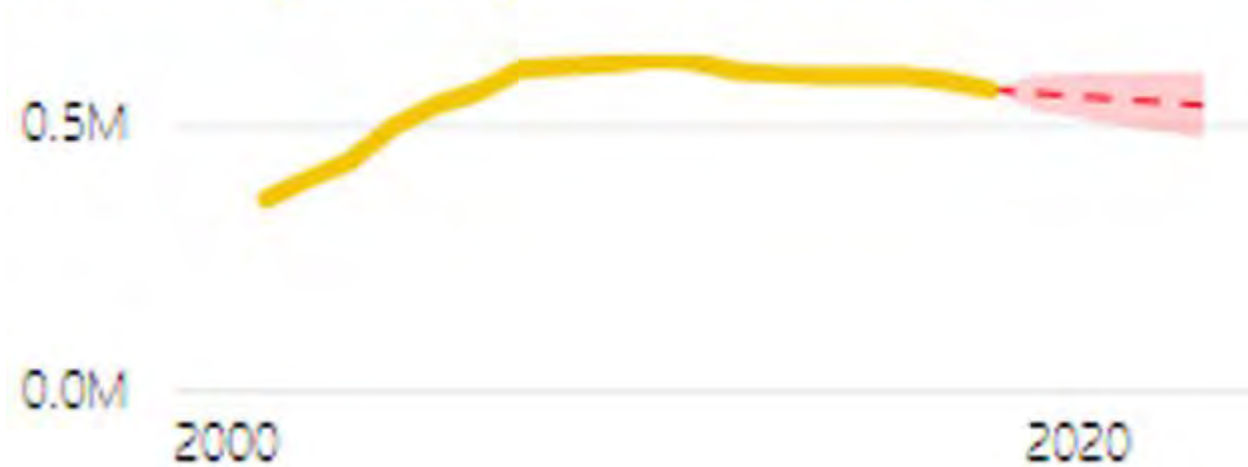
440,000 (20%) tonnes FOGO (food organics, garden organics)

Rationale

Residual waste collected



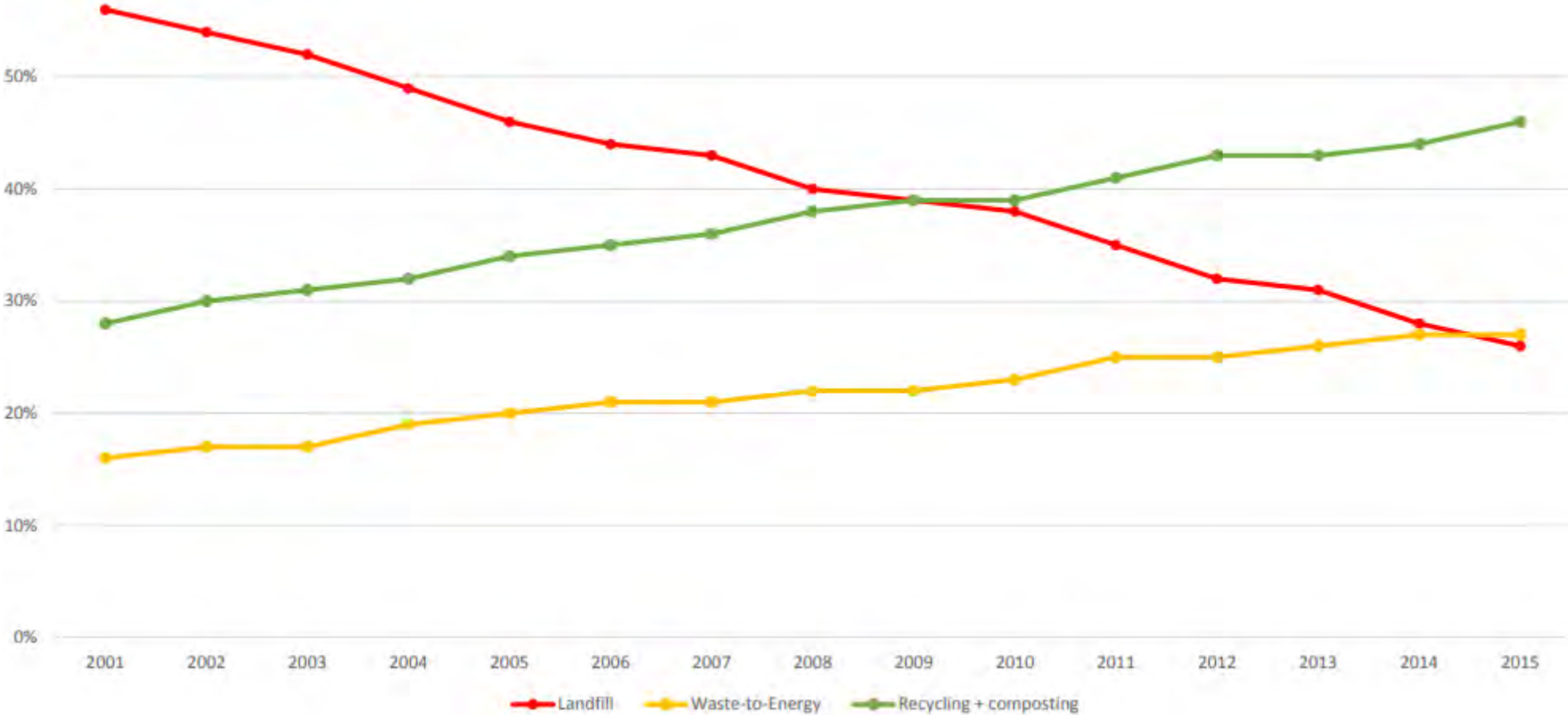
Commingled recyclables collected



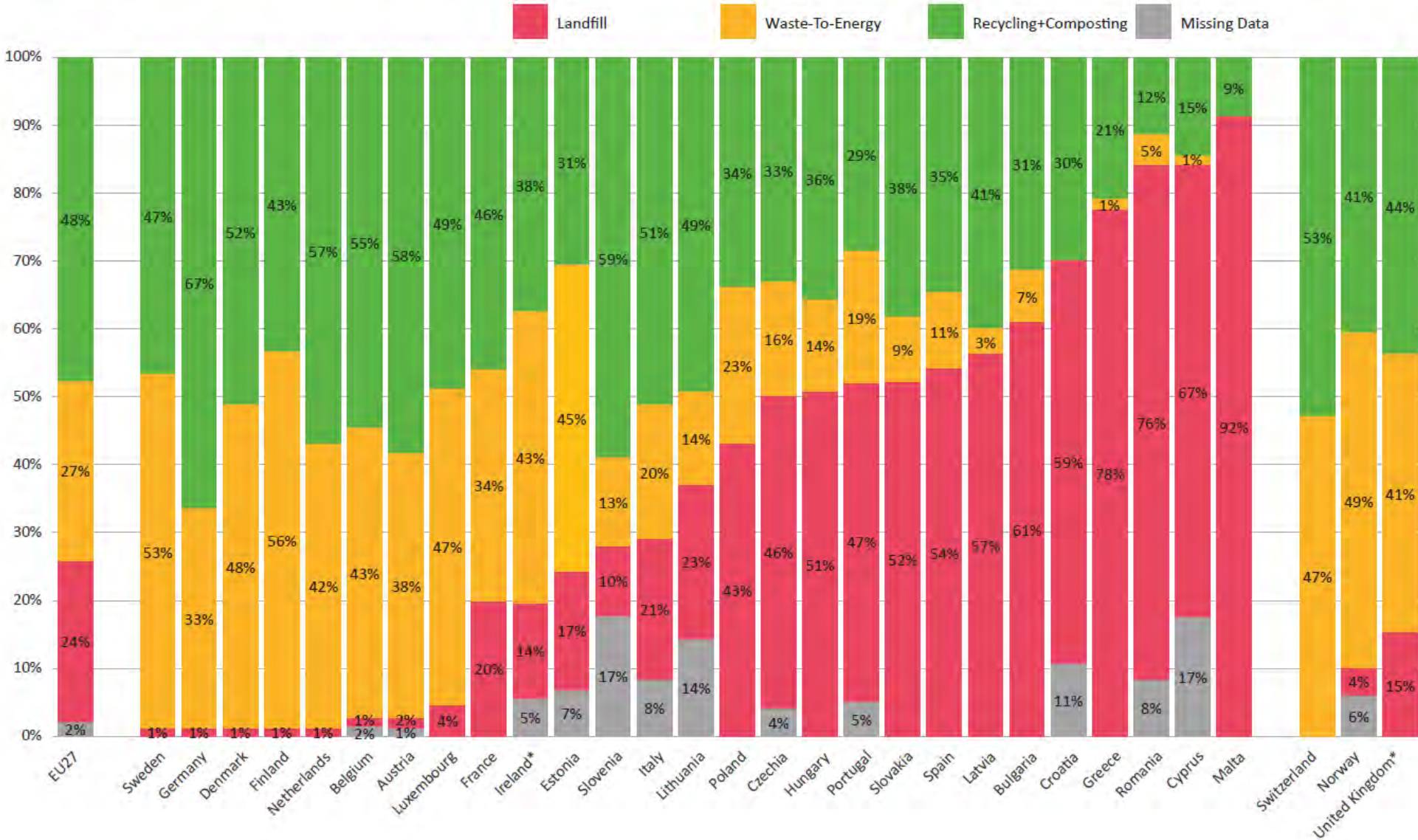
Garden Organics

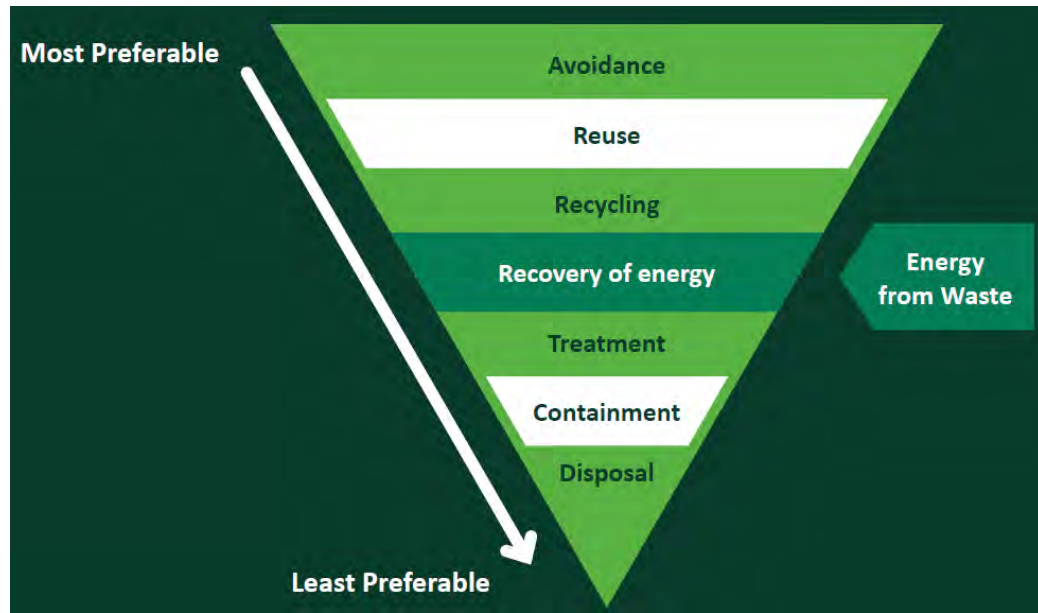


What about Europe?

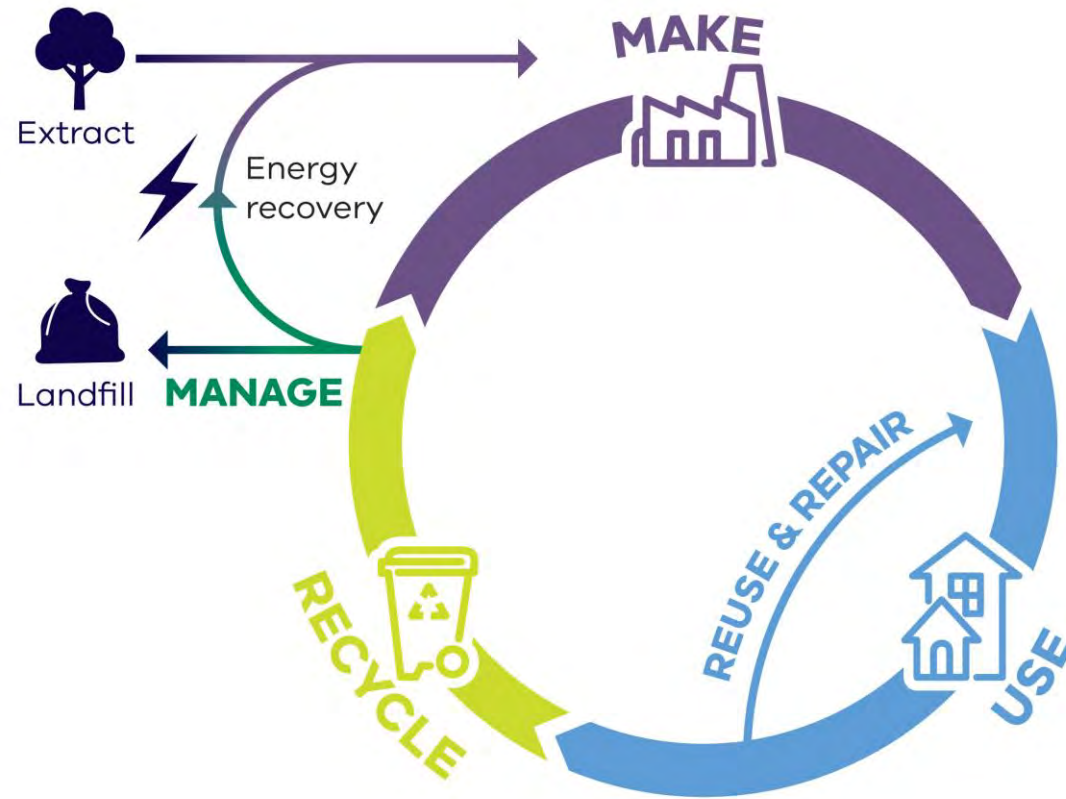


What about Europe?





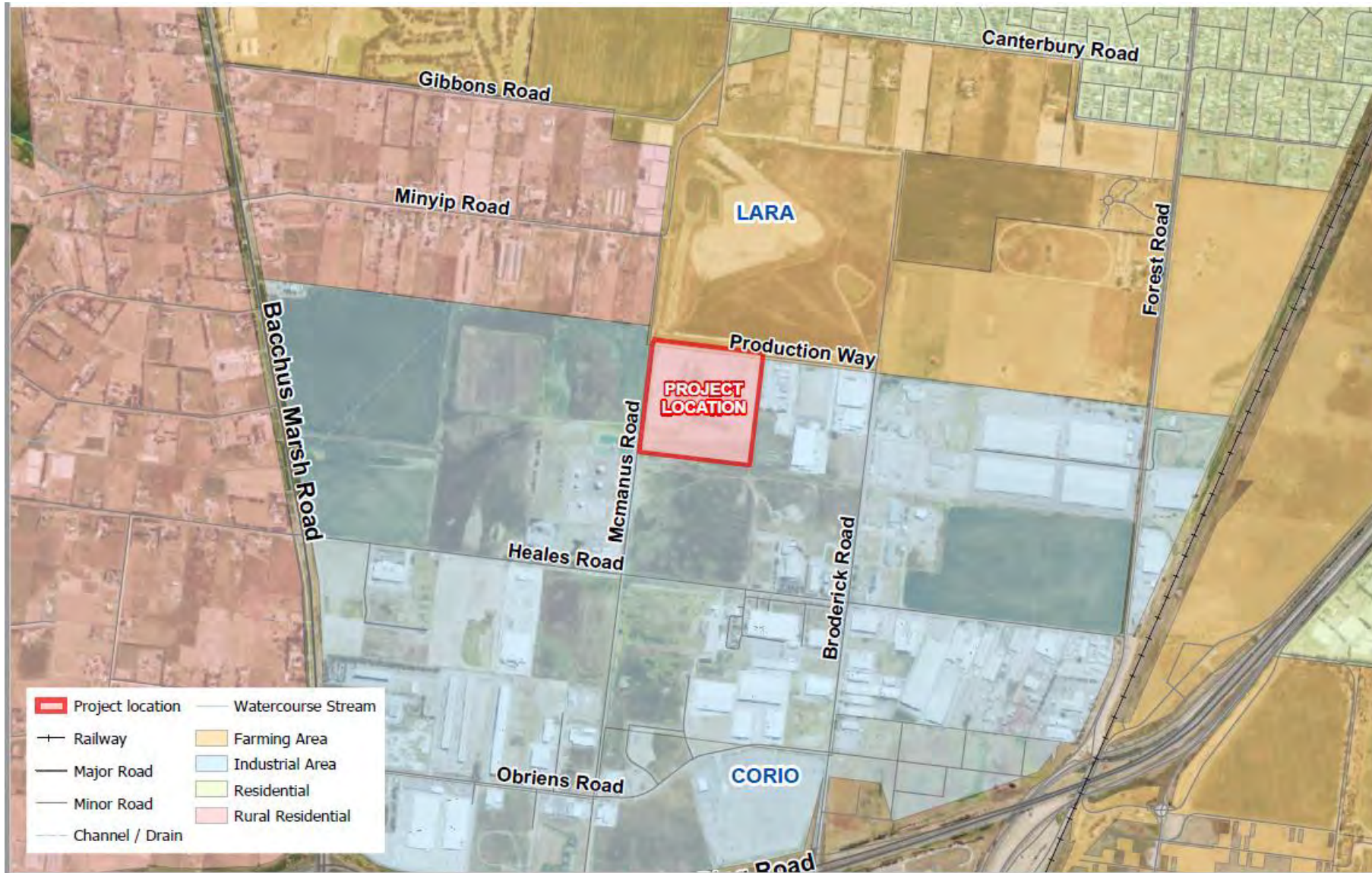
The circular economy



Location

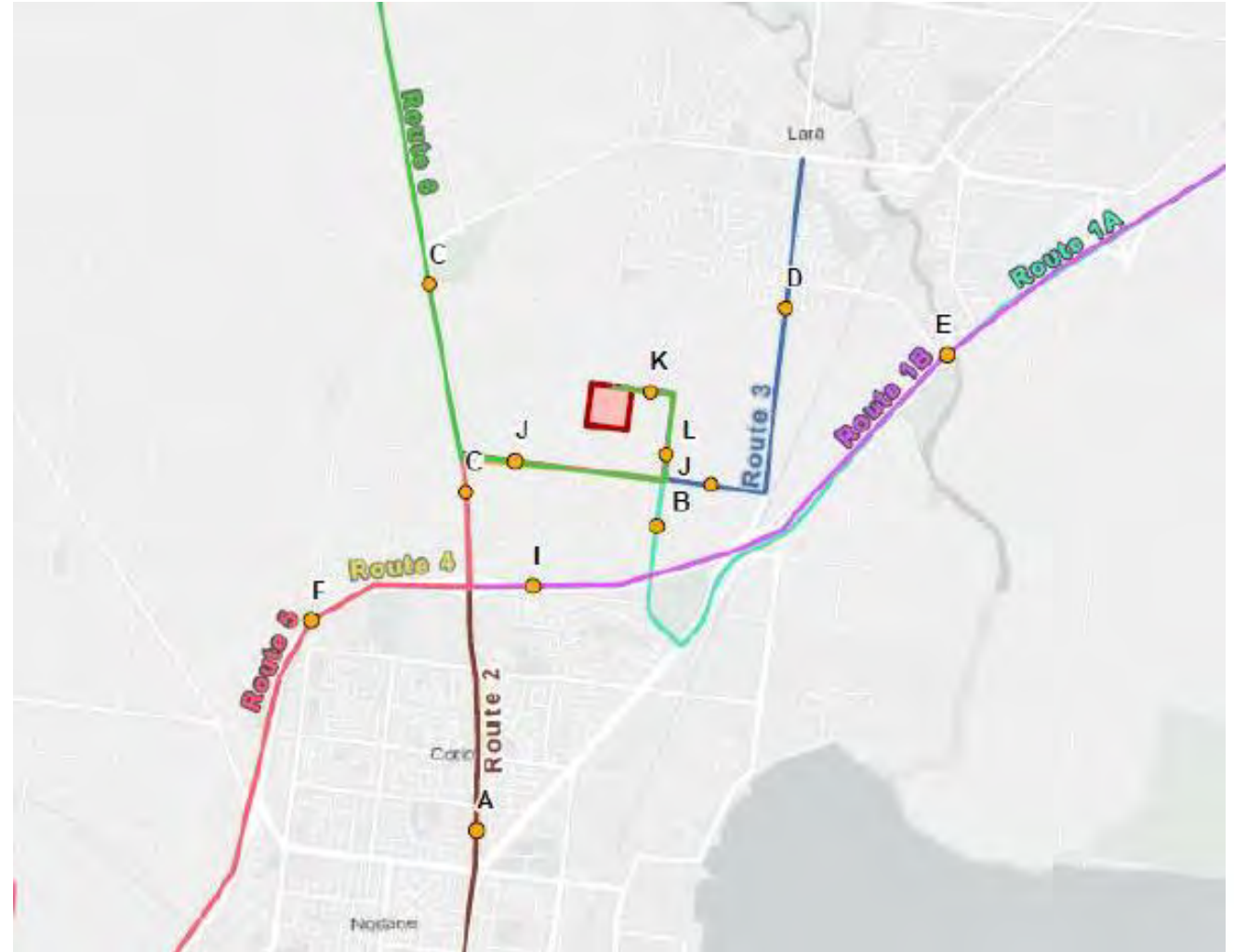
- Located in the GREP (Geelong Ring Road Employment Precinct)
 - *“Strategically located to the City's north, GREP encompasses 500 hectares of land zoned for heavy industrial purposes with significant opportunities for greenfield development. The GREP is one of only a few areas available within Victoria with large lot industrial 2 zoned land.”* (City of Greater Geelong website)
- Industrial planning zone (IN2Z), surrounded by industrial land uses
 - Concrete batching plant
 - Steel fabricators
 - Elgas Major Hazard Facility
 - Chemical manufacturing
 - Numerous freight and logistics companies (truck traffic)

Location



Location

- Transport
 - Good transport links: from Geelong/Surf Coast and from Melbourne
 - Most trucks avoid residential roads, especially B-Doubles and A-Doubles
 - GREP is very well set up for truck movements – many existing truck movements



Location

- Distance: EfW plant to residents
 - Rural Living Zone: 400m
 - Residential Zone: 1.2km
 - Many European cities have energy from waste plants very close
 - London, Paris, Copenhagen, etc
 - Negligible detrimental effects



Location



Location



Air quality and odour control



Our assessment process

We have undertaken an air quality assessment to assess the potential impact our EfW plant may have on air quality. Our air quality assessment applied EPA's approved air quality model (AERMOD) to assess the quality of potential air emissions from the EfW plant factoring existing air quality within the vicinity. This data is then compared against EPA Victoria design criteria and international standards.



Our assessment findings

The air quality assessment found that the EfW plant is able to meet all EPA quality standards.



Odour control

Proven odour control technology will be used to control and contain odour emissions within the EfW plant. Vehicles delivering waste will enter a fully enclosed building that allows air to be drawn into the building and prevents air/odours escaping (i.e. negative pressure).

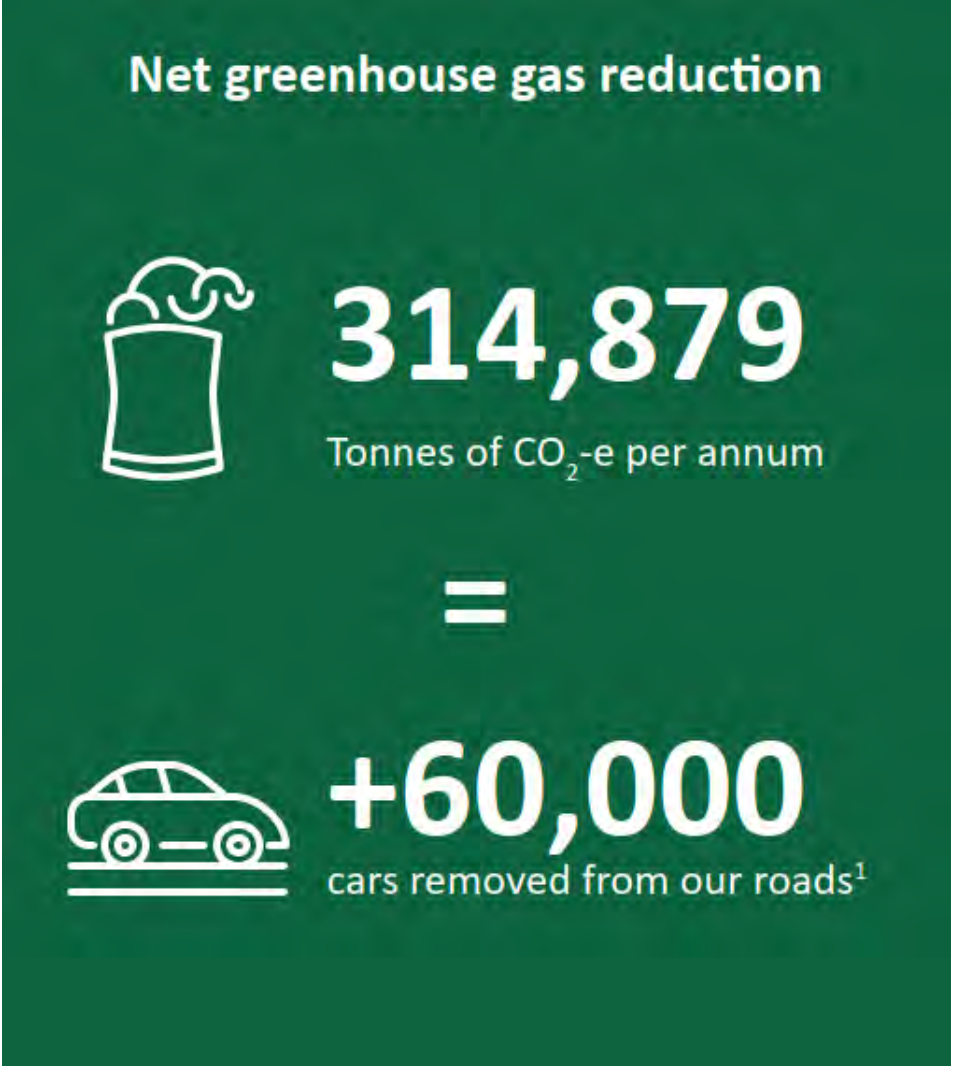
Additional back-up odour control systems include a stack ventilator shutdown system and an odour filtration system. The use of a back-up odour filtration system is considered a proven technology in accordance with the European Union Best Available Techniques (BAT) Reference Document.



Green House Gas

Prospect Hill International is committed to our mission of supporting the creation of a more sustainable world.

The *Climate Change Act 2017* (Vic) sets out a clear policy framework and a pathway to 2050 that is consistent with the Paris Agreement to keep global temperature rise below two degrees Celsius above pre-industrial levels.



Noise



Noise levels from the proposed EfW plant

Prospect Hill International has applied a noise model to predict the noise levels from the EfW plant. The noise from the EfW plant would be below limits set by the EPA

For the closest residences to the proposed EfW plant location, the predicted sound levels during the 'worse-case' weather conditions are tabulated below.

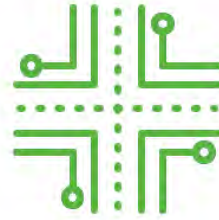
The results show that if the EfW plant is constructed with appropriate noise mitigation measures, compliance with the recommended maximum noise levels will be achieved during all conditions.

Address	Predicted noise level during operation of EfW	Effective recommended maximum noise levels (dBA)		
		Day (07:00 to 18:00)	Evening (18:00 to 22:00)	Night (22:00 to 7:00)
115 Minyip Road	40	55	49	44
180 Minyip Road	43	55	49	44



We will be located close to major transport routes

Our proposed EfW plant will be located close to existing major transport routes in the Greater Geelong region, including the Princess Freeway and Geelong Ring Road, meaning we can avoid small local roads during construction and operations.



Results

The traffic impact assessment found the road network has enough capacity for construction and operation of the project.

Origin	Key roads
Melbourne	Princes Hwy, Geelong City Centre exit
Melbourne	Princes Hwy, Geelong Ring Road
Geelong	Princes Hwy Geelong Ring Rd
Lara	Forest Rd
Ballarat	Midland Hwy
Ballan	Geelong Ballan Rd
Bacchus Marsh	Bacchus Marsh Rd





PROSPECT HILL INTERNATIONAL

Contact

- P: 1300060008
- info@prospecthill.com.au

More information

- prospecthill.com.au
- <https://engage.vic.gov.au/epa-works-approvals>

Summary of Issues

Written submissions and open-ended responses

Summary of Issues

Seven categories were identified

Location: Site suitability, proximity to residences

Transitioning away from waste, waste policy: broader waste strategy, waste production

Sustainability: environmental sustainability, resource consumption, climate change

Governance, responsibility, transparency: availability of information, responsibilities and chain of command, incident response

Summary of Issues (cont'd)

Health and/or hazards: human health and well-being both in the long and short term (human and animal)

Emissions, pollution, air quality: operations byproducts, gas, long-term effects, noise, odor

Traffic and logistics: Road access and use, truck routes and noise, local area traffic, bulk haul (NB this is not an issue EPA controls)

Miscellaneous

Issues Workshop

Your opportunity to share your views

Issues Workshop

What is your main concern about this topic and why?

What action can be taken to mitigate any concerns you have?

What outstanding questions do you have about this topic?

Issues not covered

What is your concern and why?

What action can be taken to mitigate any concerns you have?

What outstanding questions do you have?

Report Back

An opportunity to hear Prospect Hill
respond

Poll

1. Not at all satisfied issue is addressed
2. Not very satisfied issue is addressed
3. Neutral: this is not an issue for me either way
4. Somewhat satisfied issue is addressed
5. Very satisfied issue is addressed

Increasing satisfaction

What would need to happen to increase your satisfaction in response to issue?

Evaluation

How do you feel tonight's conference went?

Next steps

Assessing the development licence application

1

- Once received and accepted further information will be made publicly available and made open for comment.
- The Conference Report and recommendations will be considered.

2

- Completion of Technical Assessment:
 - Compliance against legislation
 - Analysis of key issues to determine likelihood of pollution and hazard occurring

3

- Once decision made to approve or refuse: Notification to submitters and publication of Assessment Report

Closing comments





EPA
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epa.vic.gov.au



Interpreter

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Development licence assessment report

Environment Protection Act 2017

Appendix D: Summary of submissions received between 13 and 28 October 2021



Summary of submissions:

Public and interested third-party submissions – second submission period 13-28 October 2021 - Prospect Hill Int., waste-to-energy facility, Lara

1. Purpose of this document

This document provides a summary of submissions received during Environment Protection Authority Victoria's (EPA) second submission period for development licence application no. 1004200. This submission period was conducted between 13 - 28 October 2021. This document includes the following:

- Section 2-3 summarises development licence application no. 1004200.
- Section 4-5 summarises key engagement steps as part of EPA's assessment prior to the second submission period.
- Sections 6-8 summarises the new submissions received including key issues or concerns raised by community members and interested persons.
- This document includes a table of all submissions in Appendix A and all written submissions received in Appendix B.

2. Application overview

On 17 February 2021, EPA Victoria (EPA) received development licence application no. 1004200 from Prospect Hill International Pty. Ltd. (Prospect Hill). The company is proposing to develop a waste-to-energy facility at 164-200 McManus Road, Lara VIC 3212.

Information on EPA's assessment of the proposal along with a full copy of the application is provided on the Project's dedicated Engage Victoria webpage:

<https://engage.vic.gov.au/epa-works-approvals/prospecthill>

3. What does the application propose?

The application proposes a waste-to-energy facility in Lara to service greater Geelong and west metropolitan Melbourne. The facility will be designed to process approximately 400,000 tonnes of waste per year and generate 35 megawatts of electricity. Prospect Hill estimates this is enough to power up to 50,000 homes. The facility will only take residual wastes currently destined for landfill.

The application includes technical studies of the potential impacts of the proposal including:

- comparison with international best practice standards for waste-to-energy facilities
- human health impact assessment
- air and odour emissions
- noise emissions
- greenhouse gas emissions
- incoming and outgoing waste management.

The proposed facility requires a development licence because it falls under the A08 (Waste to energy) and K01 (Power stations) scheduled activity categories of the *Environment Protection Regulations 2021*.

4. First submission period

The application underwent an extended advertisement and public submissions period from 24 March – 28 April 2021. The application was advertised in the Herald Sun and the Geelong Indy and was made publicly accessible on a dedicated Engage Victoria webpage. The Engage Victoria webpage also featured an online questions and answers forum which received 36 enquires about the proposal.

Submissions or comments on the application could be made via the Project's dedicated Engage Victoria webpage. During this first submission period 63 submissions were received and of these, three supported the application subject to conditions and the remaining 60 objected to the proposal. These submissions can be viewed under the 'supporting documents' section of the Project's dedicated Engage Victoria webpage.

5. Community conference

From 6.30 pm on 13 July 2021 a community conference (a s236 conference of interested persons) was held at Lara Masonic Hall. The conference was independently chaired by Capire Consulting Group. The purposes of the conference were:

- for EPA to gain a better understanding of community concerns and issues that need to be considered
- to inform the public on EPA's assessment process and
- to identify potential resolutions for any issues in the application.

59 community members and stakeholders attended the conference including 9 EPA staff and 8 Prospect Hill staff. Attendance at the conference was limited due to public health restrictions. Following the conference, the independent chair prepared a report including a summary of conference discussions (concerns, desired actions, and

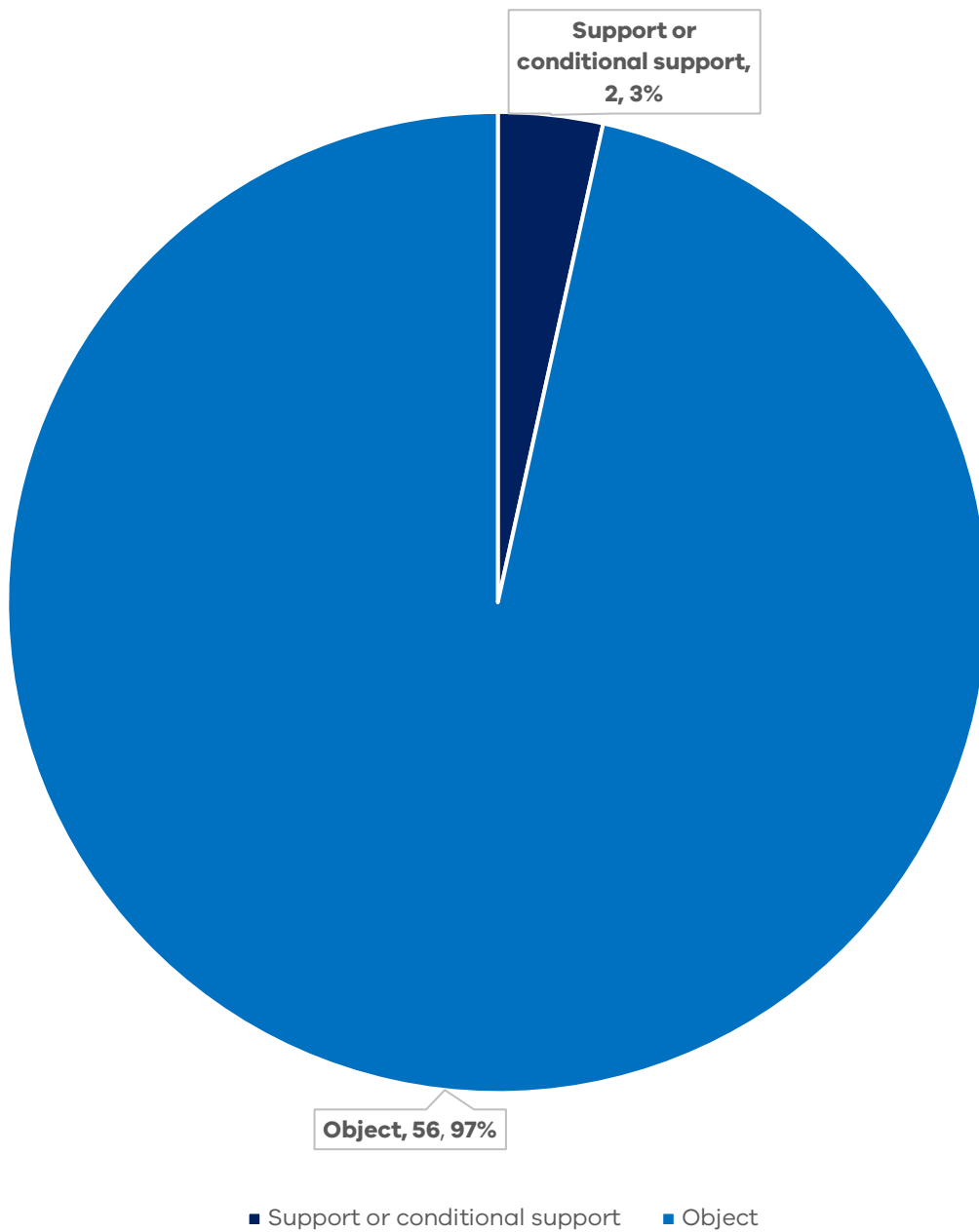
questions), community member satisfaction to responses of questions raised during the conference, and recommendations for the EPA and Prospect Hill.

6. Second submission period

In October 2021, Prospect Hill provided a response to the issues and concerns raised in the submissions along with a response to the recommendations of the conference report. Following receipt of this information, EPA initiated a second submission period from 13 - 28 October 2021 to provide the community and interested persons another opportunity to comment on the application including the company's response to submissions and conference report recommendations. During this period 58 submissions were received and of these 2 supported or conditionally supported the application and 56 objected to the proposal. A summary of the submission responses is provided in sections 7 and 8 below. A table of all submissions is provided in Appendix A and all written submissions received are provided in Appendix B.

7. Submissions received

Figure 1: Second submission period - number of submissions that support or object to Prospect Hill's development licence application



8. Summary level of concern by issues

Figure 2: human health and/or hazards

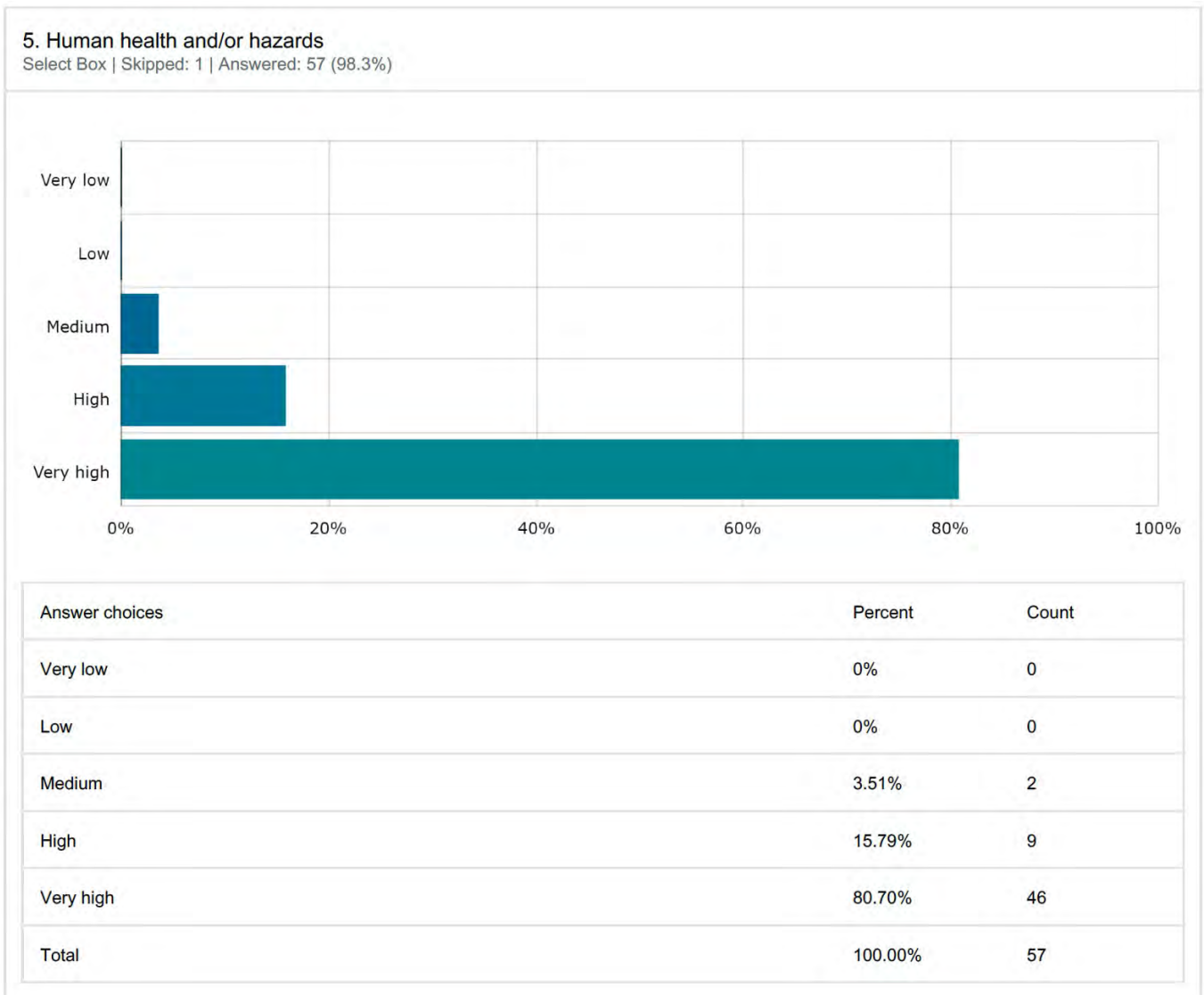


Figure 3: Air emissions

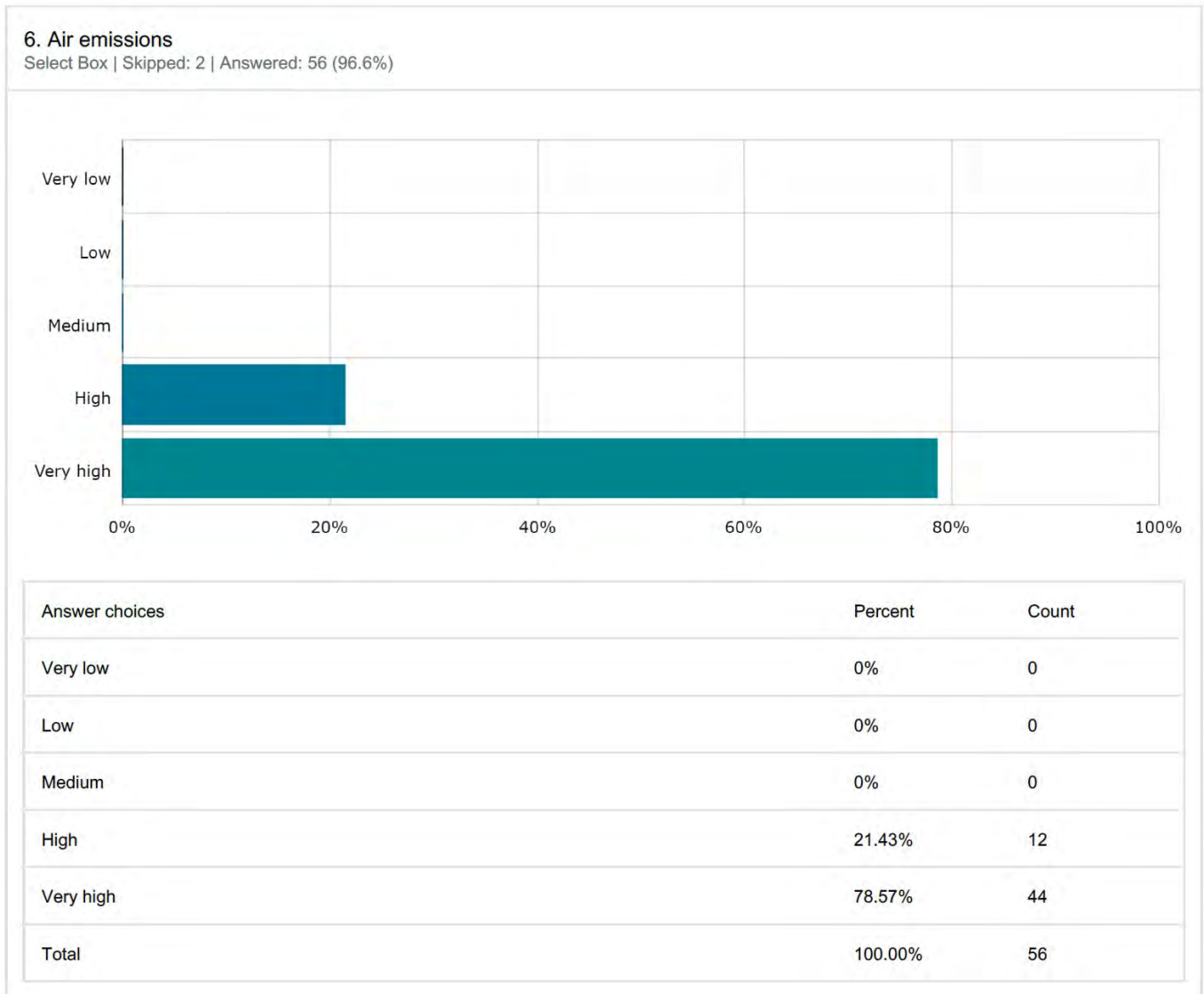


Figure 4: Odour emissions

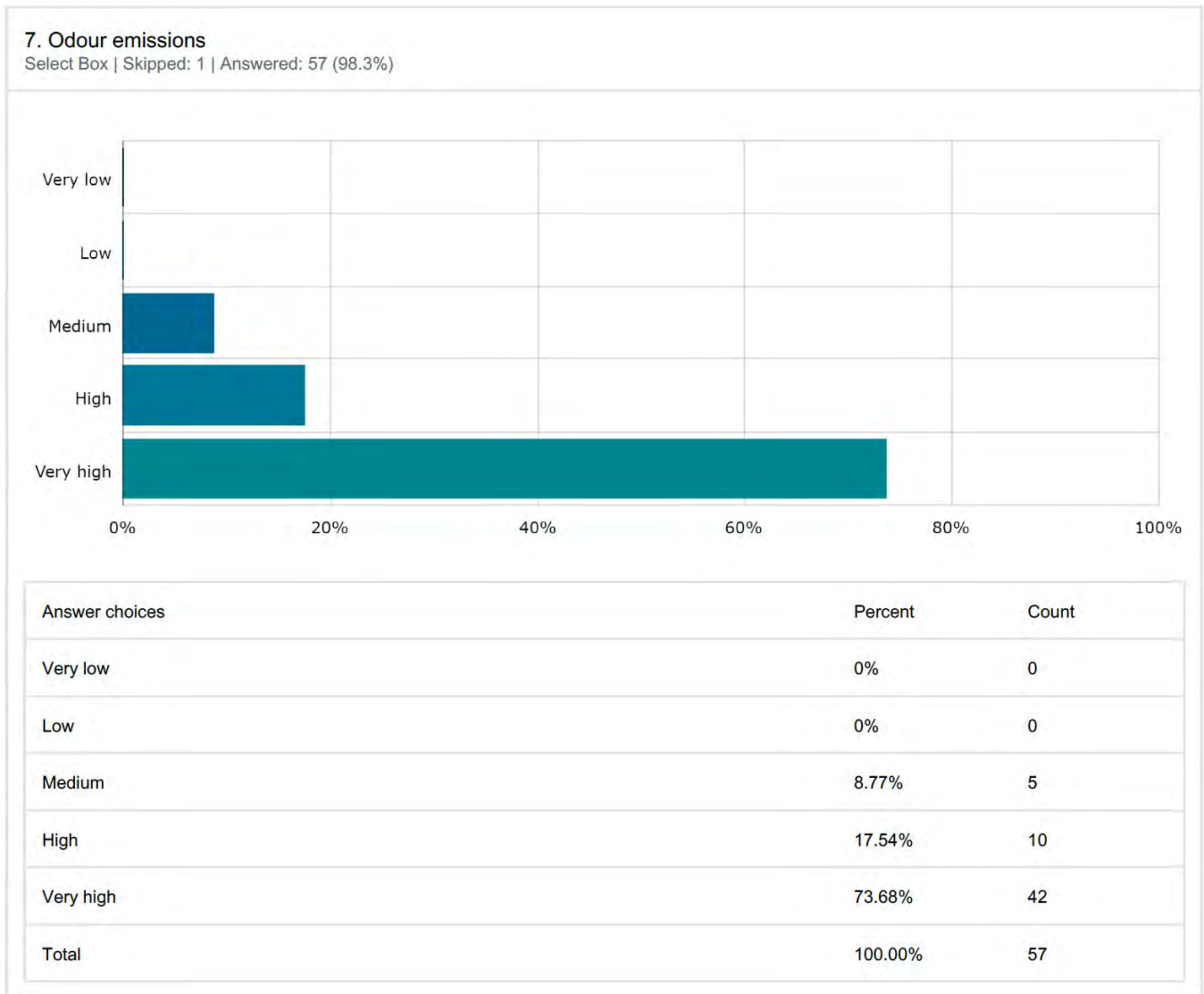


Figure 5: Noise emissions

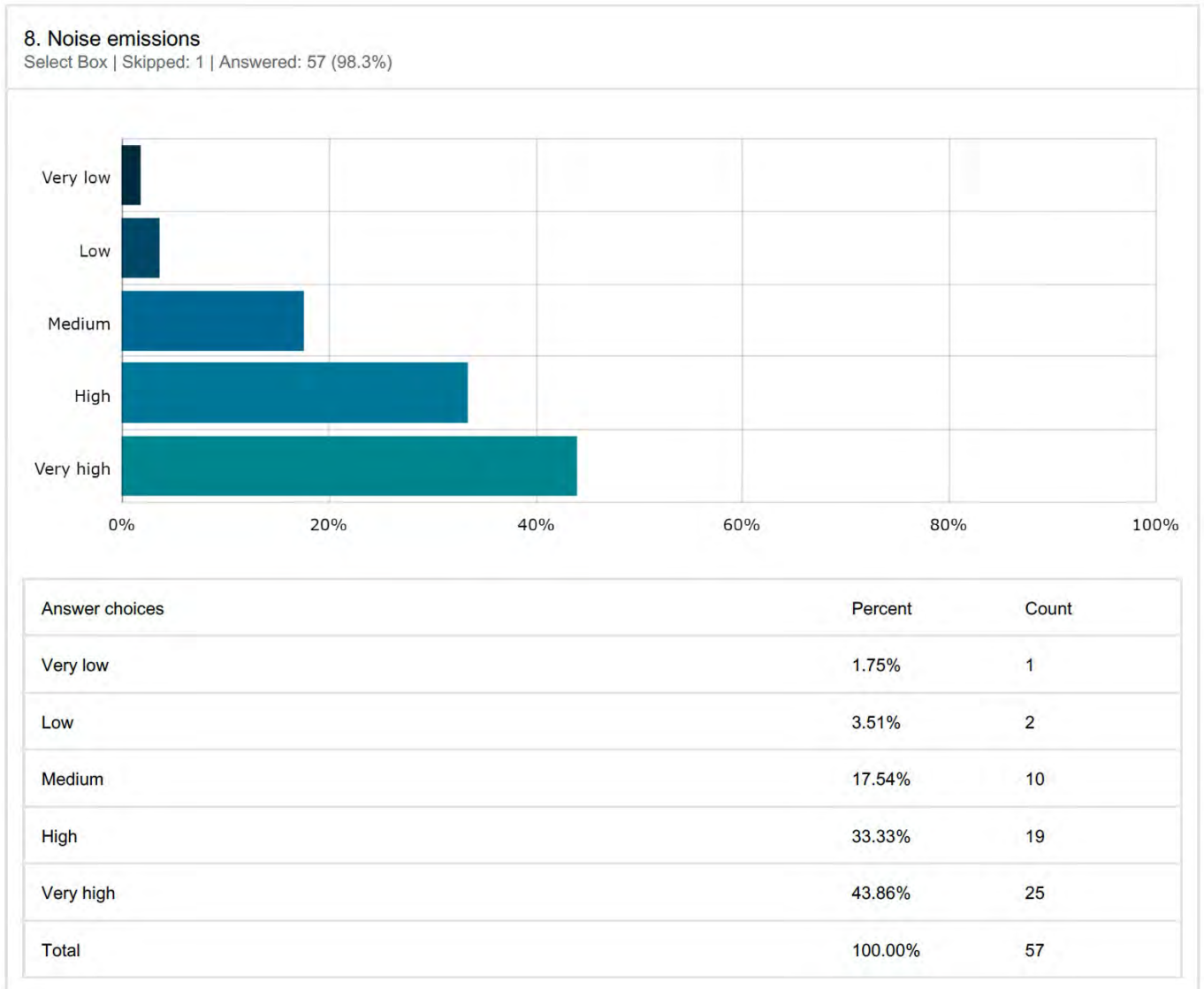


Figure 6: Waste acceptance/storage/treatment

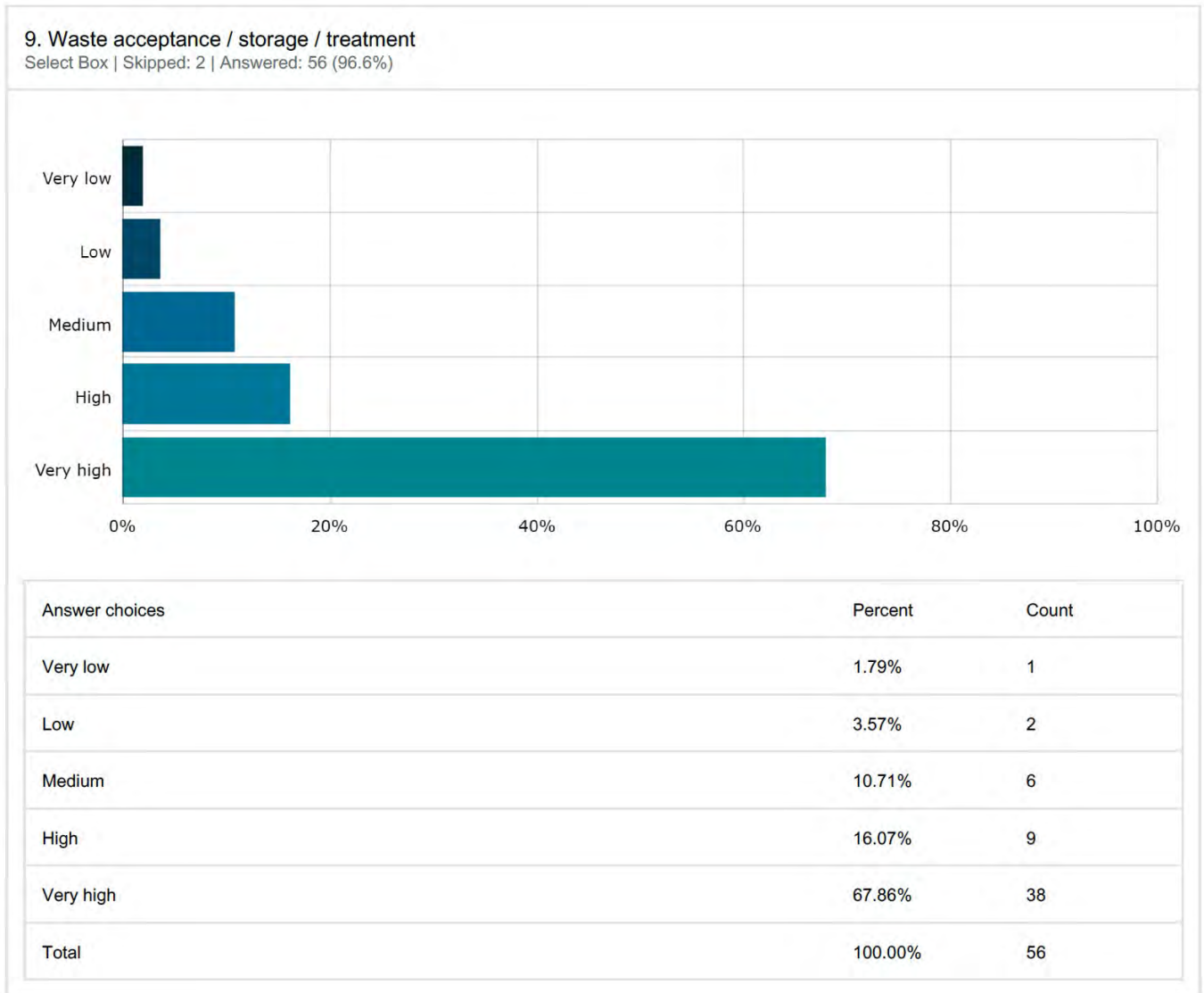


Figure 7: Climate change and greenhouse gas emissions

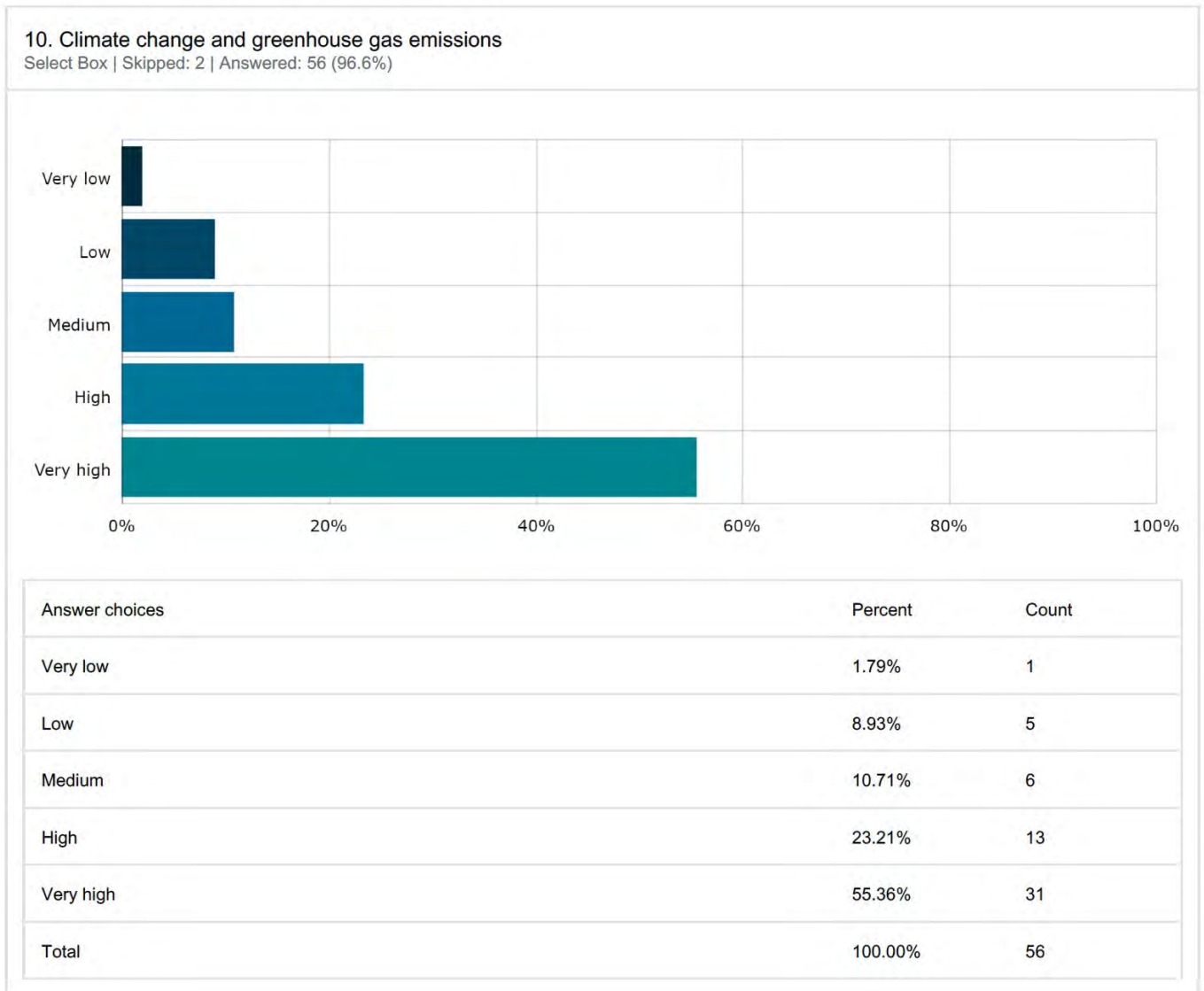


Figure 8: Environmental best practice design and management

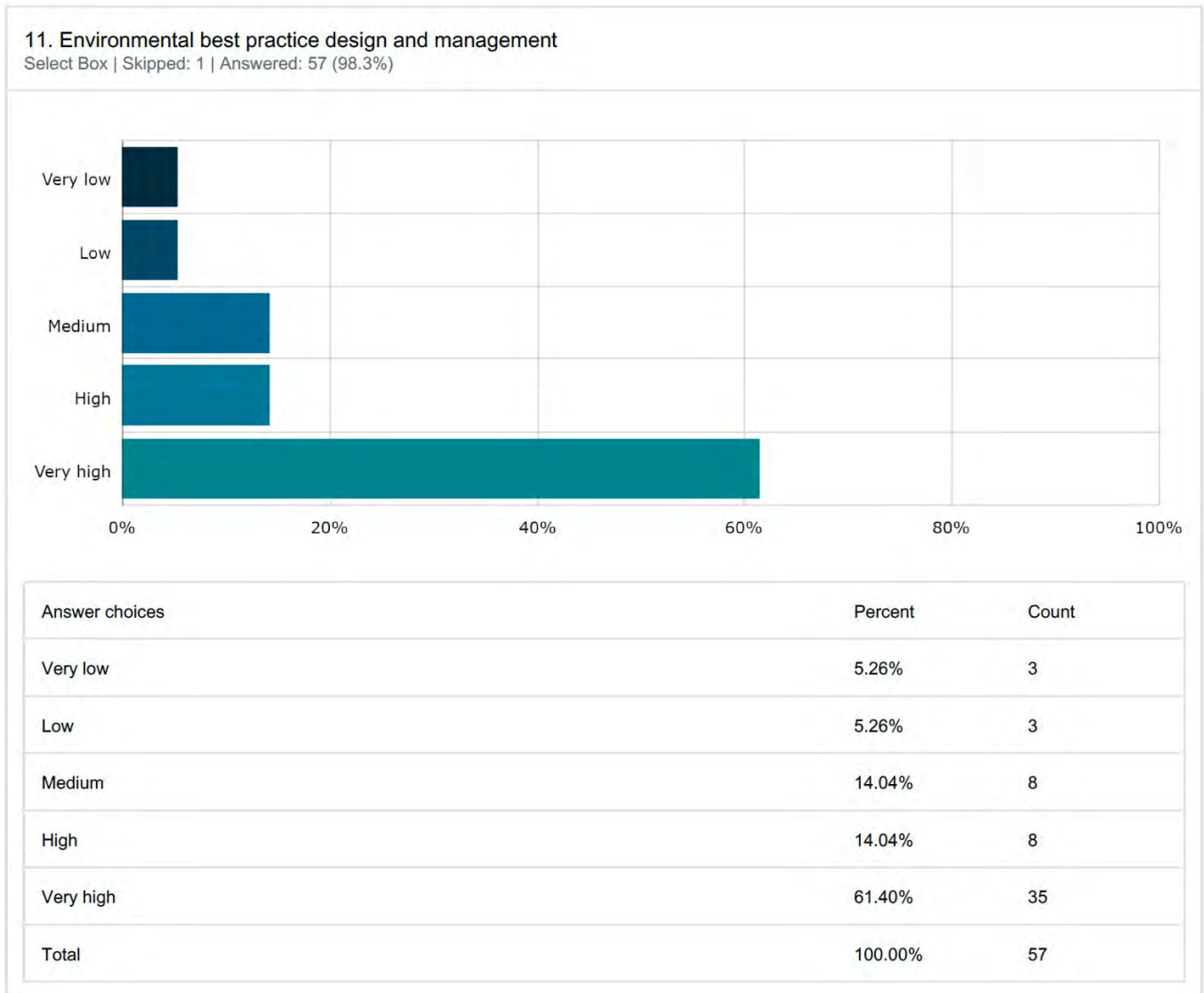


Figure 9: Environmental management and monitoring

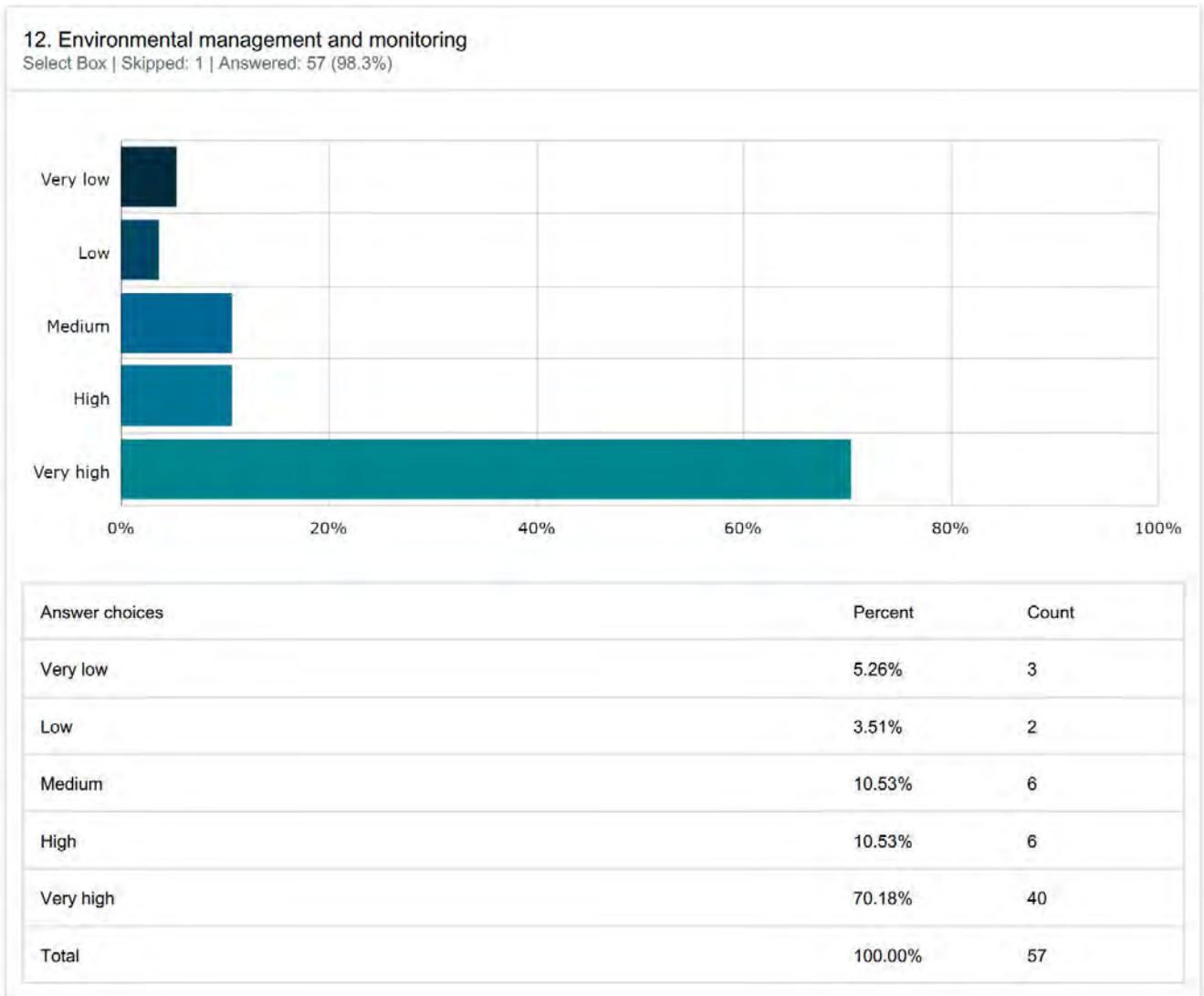
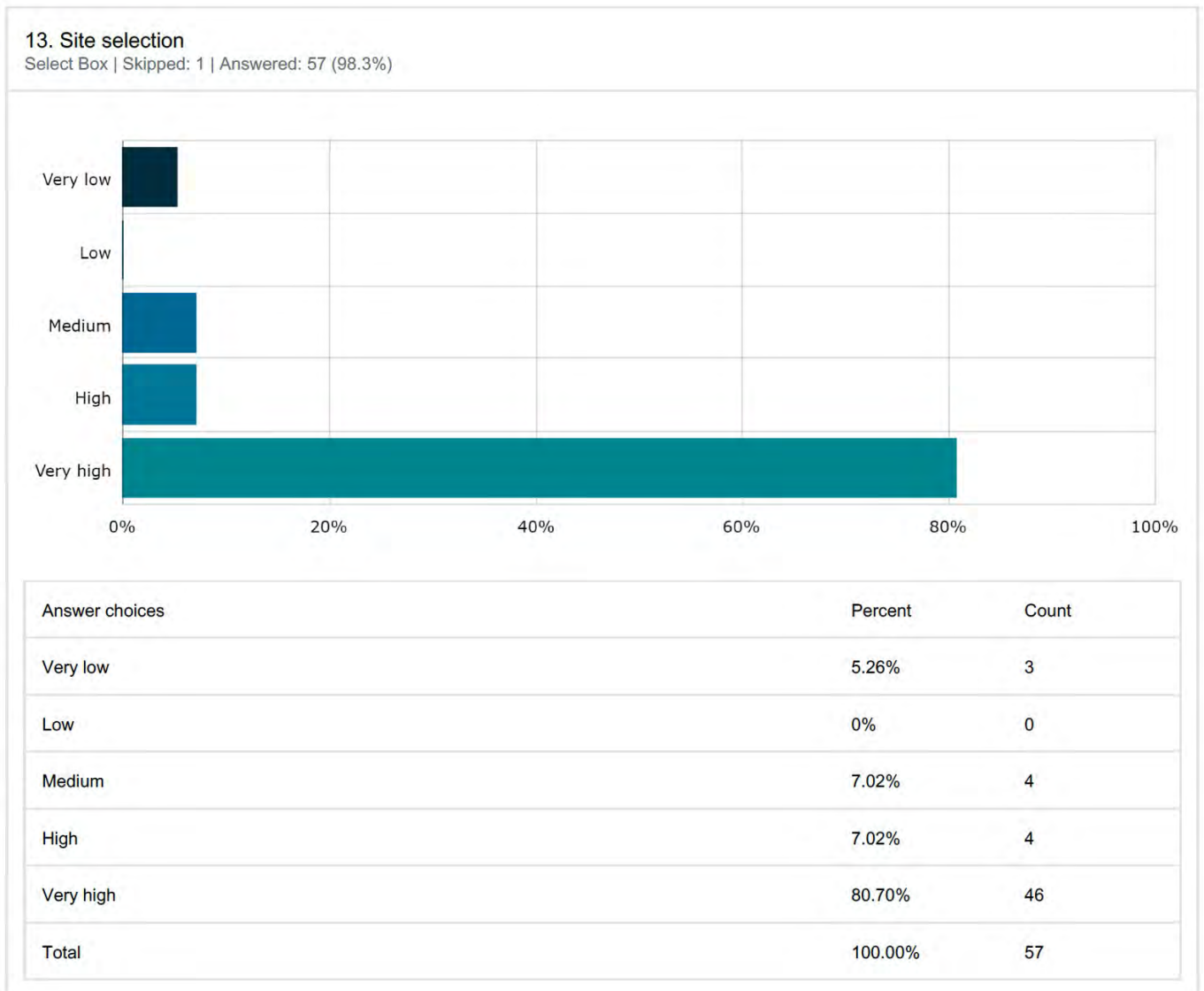


Figure 10: Site selection



Appendix A – Table of submissions

Year	2010				2011				2012				2013				2014				Total	Change	Rate	Notes
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4				
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Appendix B – Written submissions

Submission ID: 389958

To whom it may concern,

Re: submission regarding the prospect hill WtE facility lara

I have reviewed the updated information provided by prospective hill and remain unchanged in my concerns regarding the potential for exposure dioxins/furans and heavy metals at my house and to my local area.

I remain severely concerned about the human error and technical equipment malfunction potential on a facility like this. The risk of exposure to any of the above toxins in any amount should be considered by authorities to be too great of a risk to any human being let alone a growing regional population.

EPA monitoring and rate of action on health risks arising from waste facilities in this area previously has proven to be negligent and too slow.

I don't understand why this particular site needs to be used and why another site can't be chosen that is well away from the community AND planned residential growth areas.

I submit that the EPA should deny the application at the Mcmanus road site.

Kind Regards,



Submission ID: 390457

Submission Regarding the Proposed Prospect Hill Incinerator at Lara.

Introduction

I wish to make a submission regarding two aspects of the proposed Prospect Hill Incinerator (PHI). Both concern proximity to residential housing and visual impact upon Lara, generally .

In this submission I use the abbreviation PHI for both the proposed incinerator and the Applicant.

As this submission was written by Henry Kamstra, I have written in the first person . It has been adopted by the other five signatories.

Overview

My wife Ina and I reside at 105 Canterbury Road West, Lara. The northern 1,000m buffer zone border-line from the Heales Road Industrial Estate runs roughly through the centre (East/West) of our property. The PHI is seeking authority to build on the northernmost border of the Heales Road Estate. I estimate that the rear boundary of our property would be roughly 700m from the proposed PHI facility.

Vo, Nguyen and the Eren signatories reside at 115 Canterbury Road West (adjoining Kamstra to the West) and utilise both this allotment and the adjoining one (No.125) for commercial vegetable growing. The buffer zone border-line also runs through the centre of that property.

Canterbury Road West is approximately 1,200 metres in length and is fully occupied with residential housing on the north side and roughly the first 350 metres of the south side (from Forest Road). The remaining section of the south side is zoned rural residential and comprises ten 4 hectare allotments of which 4 have houses. At the western end there is also an unused and bare “public reserve” of similar size.

Our allotment is the only one which has been extensively landscaped and consequently, it is one of only three which entirely shields a direct view to the land behind, at ground level. The two allotments of co-signatories Vo, Nguyen and Eren have significant coverage by vegetable hot houses and are the remaining two which entirely shield land directly behind, at ground level. Some vacant blocks have some trees and three blocks are completely bare. Overall, the effect is to provide a great deal of transparency from Canterbury Road West to the industrial zone to the south upon which it is proposed to build the PHI.

Numerous homes, on what I believe to be rural residential blocks, are located closer to the proposed plant in Minyip Road.

Specifics

The following headings refer to items in the table within Appendix B and the number mentioned is the number I have ascribed is that of the order the item was listed.

Wrong Location etc (1)

I can see that from the company's perspective it is very much the right location. It ticks all the boxes marvellously for them but not for the community.

PHI states that ".....these types of plants around the world shows that they have very low amenity impacts on surrounding communities" and goes on to name a number of major European cities as examples.

I think that the following factors diminish such comparison significantly;

1. High private ownership of nearby dwellings
2. Our (Lara) semi rural environment is limited to ground level or one storey housing
3. More land is available outside city areas in Australia

I will address this further at No.8 which is more specific to our location concerns.

Assessment of this Location (7 and others)

PHI commentary almost identical to No.1

Visual Impact of 80 metre (28 storey) high chimney etc (8)

PHI refers to a Landscape and Visual Assessment which concluded that "these types of Planning Zones (Industrial 2 Zone) are not considered as visually sensitive" and makes the point that most views towards the site are not considered to be visually sensitive (cleared farmland and industrial areas).

I found these comments a little ambiguous. If it is to be conveyed that the view is largely limited to the land which is adjacent, I would dispute the truth of the response. Whilst it is true that the areas mentioned immediately surround the proposed plant, the chimney would be visible way beyond that because;

1. The land is higher than most surrounding it
2. The chimney would be 80 metres high
3. There are numerous "windows" through to it from Forest Road (South)¹, Canterbury Road West, O'Hallorans Road², Patullos Road and the residential areas

If the response is to convey that the view is already pretty bloody awful ("already highly disturbed" etc), I would agree but hold hopes that the council will develop landscaping on its land sitting between the proposed PHI and the southern boundary of the 4 hectare lots and reserve. The plant and particularly the stack would always dwarf this.

Regardless of the intended specific meaning of "not considered to be visually sensitive" I ask that the three points listed remain in contention. Figuratively, the chimney/stack as proposed would place Lara in its shadow.

PHI uses a few paragraphs to refer to amelioration of visual aspects for the plant but these are not properly relevant to the chimney/stack.

¹ That road is labelled a "visually sensitive entrance to Lara" on Map 6 (pg 67) – Environmental Features, Lara Structure Plan April 2011 (COGG) but it appears as though only the stack would be visible from this road

² An open "full frontal" view

PHI then makes the misleading statement “... *this is similar to other industrial stacks in proximity to the project such as the Viva refinery and the Incitec Pivot Plant which have stacks of 70-80 metres.*”

The Viva Plant (previously Shell) is in Corio and Incitec is in North Shore so whilst in perhaps they could be regarded as “*in proximity*” in some sense, they could not be said to be in close proximity.

The top section of the Viva stack is visible from some parts of Lara but it was already there when the new southern residential areas were created and is not generally visible to them.

In response to a concern regarding the visual impact from the You Yangs, PHI refers to the highly disturbed landscape which it has become when viewed from the You Yangs and concludes, “*As a result, the predicted visual impact from the Project on this site has been assessed to be Low-Negligible*”.

Objectively, there may be many people who agree with this assessment but I would comment that the existence of a compromised view should not be a licence to make it worse (I wouldn't be surprised if this argument has already been used for the Prisons precinct).

The You Yangs are a good example of the priority that people place on their visual environment. Local real estate agents and Bisinella Developments are two groups who use its visual proximity to Lara as selling features for real estate sales.

When we moved into our current address, we had a view of the You Yangs and when the residential development opposite was created and this view lost, it was a real disappointment for us.

Obviously, landscape has long been recognised as an important factor for people's living conditions. I wish to highlight the point that an 80 metre industrial stack would have a greater negative effect on Lara (particularly our immediate neighbourhood) than the positive effect of the You Yangs had.

The You Yangs had a re-birth in the consciousness of people in the last 15 years or so, during which visitor numbers have increased enormously. This fact should also have a place in an assessment as to whether the impact would be Low-Negligible.

Various Headings re Trucks/Transport (3)(21)(59)(65)

Although Traffic is mentioned in various places, my concern hasn't been articulated at what is probably the most relevant place (No.3) and therefore hasn't been addressed by PHI within the various item numbers mentioned.

I am concerned with the additional volume of heavy vehicle traffic and its proximity to the residential areas to the southern border of Lara. The main outstanding concern is noise.

I note a comment concerning the movement during peak hours but am are concerned with the additional noise associated with the overall volume of movements which are required to shift a minimum of 400,000 tonnes of waste to the site per year. I haven't tried to calculate what that might be but it must be huge.

The increased noise of additional truck movement and machinery to the south of our property since the occupation of the industrial zone is already noticeable and is something that we must tolerate. A significant increase over this will be beyond what was initially envisaged and would be quite disruptive.

Most current movements are within daylight hours, when it blends with other background noise such as the Ring Road but this plant would operate 24 hours a day and possibly take rubbish at all hours.

A specific noise will travel more at night due to a lack of competing noises from other sources. It would be most disruptive if truck noises could be heard during what most people have as sleeping hours.

Conclusion

After consideration of the PHI responses, the above concerns are those which remain the highest for me.

I ask that they be given your consideration when deciding whether or not to support the project going ahead at the proposed location.

Yours Sincerely,

[Redacted]

[Redacted]

[Redacted]

[Redacted]

Submission ID: 390809





Submission to: Environment Protection Authority

Regarding:

Applicant: Prospect Hill International Pty Ltd
Premises: 164-200 McManus Road, Lara VIC 3212
EPA application no. 1004200
Planning Application no. 2001035
Jacobs project no. IS05100

From:

Lara Resident, 
and 

Date:

22 October 2021

This submission,

- is not copyright.
- does not contain any confidential material,
- is itself, not confidential. It may be transmitted to others
- is not intended to represent the views of any other person or organisation.
- is a sincere expression of our opinions, in good faith.

Respectful comments are invited.

Recommendations

1. That the Environment Protection Authority refuse the Prospect Hill International application for licences to build or operate an Energy from Waste (EfW) or Waste to Energy (WtE) facility at Lara.
2. That the Environment Protection Authority refuse each and every application for a licence to construct or operate a Waste to Energy facility, or Energy from Waste facility, anywhere within the City of Greater Geelong, and anywhere within the Barwon South West consortium of Local Government Areas (LGAs).



“Response” documents provided by EPA

Memorandum from Jacobs “*Response to s50(3) Notice and s236 Conference of Interested Persons Report*” dated 10 September 2021.

Appendix A

Appendix B

Appendix C

Available from Engage Victoria at <https://engage.vic.gov.au/epa-works-approvals/prospecthill#hive-block-125489>

For brevity, we will refer to these documents as “the Response” and “the Responses”.

Conference report

In addition, the EPA has provided;

Capire report on the *s236 Conference of Interested Persons, Prospect Hill Waste to Energy Facility Proposal* Conference 13 July 2021 in Lara.

Report prepared for EPA Victoria, published by Capire, 27 July 2021.

Available from “*s236 Conference of Interested Persons*”

https://s3.ap-southeast-2.amazonaws.com/hdp.au.prod.app.vic-engage.files/6816/2796/5881/s236_Conference_of_Interested_Persons_Report_Prospect_Hill_with_Appendix_002.pdf

For brevity, we will refer to the s236 Conference of Interested Persons in Lara as “the Conference”, and the report on that Conference as “the Capire Report”.





Who we are and why we write

My name is 

I'm a mum of a toddler, and soon a newborn too. I am currently on maternity leave from the teaching profession. My husband and I chose Lara as a place to build a home and raise a family for many reasons, the country town feel, community connectedness, great schools, nature-based activities (Serendip Sanctuary and the You Yangs) and playgrounds close by.

We could never have imagined that this country town would come under threat from a giant chimney and copious air emissions blowing directly over our house, and our children's future kindergarten and school.

In fact, our front door is less than 2500 metres away from the proposed development !

After a thorough reading of all the available documents produced by the Prospect Hill International, Jacobs, EPA, and Capire, I am not satisfied that there is enough information for us to agree to this proposal, nor any economic justification, nor demand for a big incinerator in our region, nor advice regarding the costs and liabilities that my Council would have to deal with.

I am not satisfied that a big incinerator is an environmentally responsible option for dealing with domestic and commercial waste.

I am not satisfied that the proposed big incinerator is harmless to our children, and I am aware that local doctors are also troubled, similarly.

We have so many major concerns, that we are compelled to consider what this project might be really about. We express our grave misgivings accordingly.

My name is 

I am also a university trained professional. I am assisting my daughter Jessica and her young family with this and other submissions. Now retired, the majority of my career has been spent working in quality assurance, environment, and teaching.



Executive summary

Nothing adds up.

We find that the Response from PHI / Jacobs to the questions from EPA;

- add nothing of significance to the information we already have,
- fail to correct any of the multitude of deficiencies in the original Application documents,
- avoid answering the questions, and
- are verbose, vague, often noncommittal, and repetitive.

Frankly, we do not understand why the EPA continues to entertain this proposal.

All the objections that we raised in our original submission to the EPA (27 April 2021) remain firm. This second submission contains new objections and more detail regarding the objections in the first submission.

Since the Conference we have done more research, and our attention has been drawn to additional concerns regarding the waste industry.

For efficiency, we will not deal with each of the PHI / Jacobs responses point by point. We will instead address the major issues both existing, and newly surmised.

Our objections relate to;

- The absence, indeed avoidance, of a published Business Case or any other kind of economic justification for the project. The proposal is economically unviable, as described.
- The absence of a pro-forma contract or similar, which would outline the costs and contractual arrangements between the Lara EfW facility and its suppliers.
- The absence, indeed avoidance, of an Environment Effects Statement, when there are clear public health criteria which must be addressed.
- The unbelievable explanation given for the sources and quantities of feedstock.
- The continued lack of direct consultation with the Traditional Owners of the land, the Wathaurung Aboriginal Corporation (WAC), the Registered Aboriginal Party.
- Selective claims of conformance to the European Standard 2019 EC BREF.
- A lack of recognition of the potential effects on the commercial viability of the Lara EfW from competing WtE / EfW facilities planned for Melbourne e.g. in particular the planned and EPA approved Recovered Energy Australia (REA) facility in Laverton North, and also the SEMAWP project.
- The manifestly inadequate Risk Assessment and Health Impacts Assessment. They are rubbish. We are amazed that PHI continues to rely upon them.
- A lack of recognition of the environmental significance of emissions to air, land and water, and the potential impacts on communities, farms, and waterways in close proximity, especially under “other than normal operating conditions”. See BAT 5.
- Incompatibility with local government and State government policies to increase waste recycling, at the expense of EfW or WtE feedstock tonnage.
- The vague explanation of the receiving inspection procedure, and the who, what, where, risks, and who pays, regarding any feedstock that is rejectable.

- The claim that the “EfW project will reduce GHG emissions from landfills by approximately 300,000 tonnes of CO2-e per annum” is not supported by future Council policies.
- The lack of infrastructure and procedures for the detection of radioactive wastes. The risks of criminal conduct with respect to radioactive wastes are not addressed.
- The unresolved ownership / operator arrangements, potentially undermining emergency response, accountability, and liability.
- The lack of specific emergency response arrangements.
- The absence of social licence for this project, and hostility of the Lara community.
- Misunderstanding the comments from the referral authorities.
- The erroneous assumption that “more engagement” will somehow overcome the potent well-founded resistance to this project.
- The lack of a \$100,000,000 bond to cover the costs of major contamination event(s) and other adversities attributable to the Lara EfW.
- The exploitation of the waste industry by organised crime in Victoria, Europe and elsewhere, community impacts of such crime, and the corruption of officials.

We find that the consultants’ reports might look like science, but are often little more than advocacy written in technical language.

Based on our analysis of the realistically available feedstock tonnages from Victoria, and the impracticalities of delivery over long land distances, we believe that the feedstock claims from Victoria are not supported by the available evidence. There might be enough available feedstock in western Victoria to run one of the two planned incinerators, no more than four days per week.

The business, as described, is not commercially viable. Alternatively, the proximity of the Lara EfW to the Port of Geelong, strongly suggests to us that the major customers of the Lara EfW are most likely overseas, and undeclared.

We regard the importation of waste for burning in Victoria as an intolerable abuse of an EPA licence.

Conclusion

The townships and suburbs between Melbourne and Geelong are now major housing growth areas, with many young families and schools. The operation of a large incinerator in this scenario, with emissions to air, water, and soil, are unacceptable.

The EPA should reject each and every application for licences to construct or operate an Energy from Waste (EfW) or Waste to Energy (WtE) facility anywhere in the City of Greater Geelong and anywhere within the Barwon South West consortium of LGAs, in order to protect the environment and the health of people, crops, livestock and aquatic life.

Yours sincerely,

██████████ - Lara Resident

and ██████████



Detailed comments

1. The Business case, the competition, and the feedstock nemesis

Based on the description in the Application documents and the Response, we believe that the Lara EfW is not financially viable, mainly due to a severe lack of realistically available feedstock from Victoria.

PHI has offered the following expectations regarding feedstock tonnages and sources.

See Table 8.1 from Works Approval Application, Appendix B, page 72.

Table 8.1: Anticipated tonnages by location

Source	MSW (ton)	C&I (ton)	Total (ton)
Colac Otway, Surf Coast, Greater Geelong	60,000	40,000	100,000
Western Melbourne	200,000	40,000	240,000
Nearby regional LGAs	40,000	0	40,000
Melbourne LGAs	20,000	0	20,000
Total	320,000	80,000	400,000

We are firmly of the view that these expectations are completely unrealistic.

Once the EPA approved REA WtE facility is operating in Laverton North, we are firmly of the view that garbage trucks from Melbourne and Wyndham Shire, will not drive another 42 kilometres past the Laverton North facility to deliver their loads to Lara, returning empty.

It makes no sense to do that.





It is our considered opinion that the Lara EfW will receive no feedstock from Western Melbourne or Melbourne LGAs.

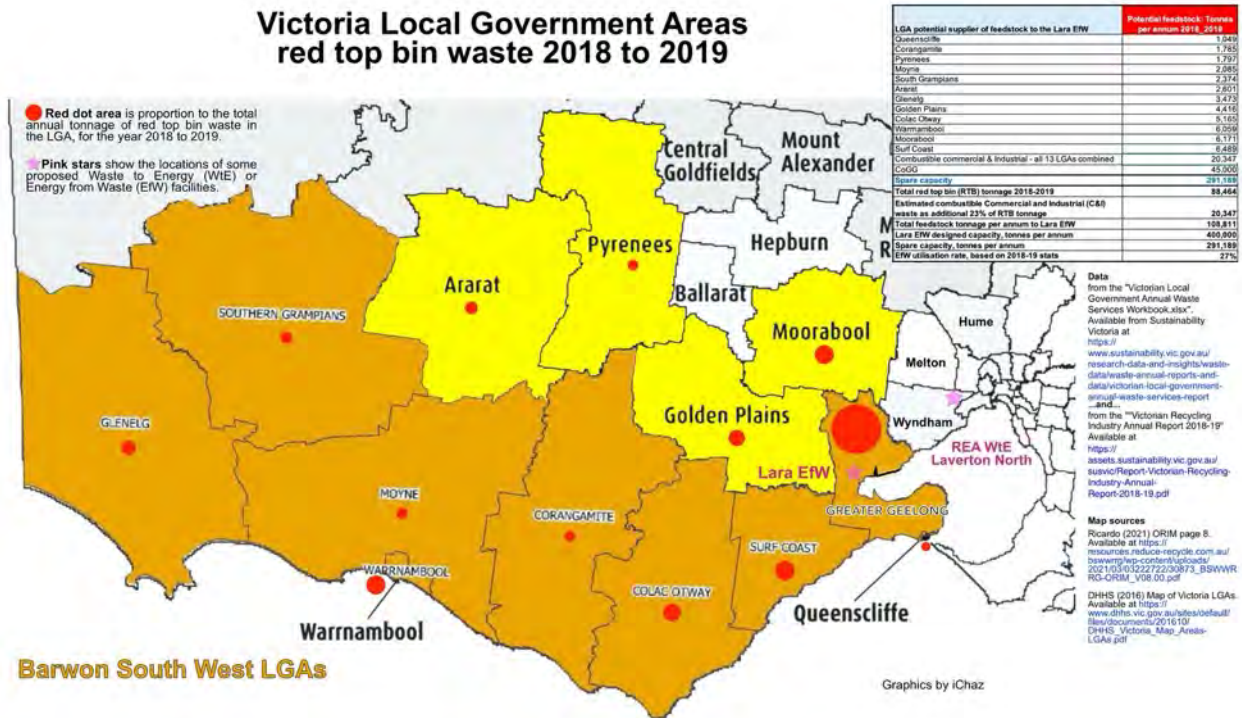
Zero.

As far as Victoria is concerned, we believe that realistic suppliers of feedstock to the Lara EfW would be from the City of Greater Geelong (CoGG) and Local Government Areas (LGAs) west to the South Australian border. That is, the “Barwon South West” consortium of LGAs. We have also considered the possibility that Golden Plains, Moorabool, Ararat, and Pyrenees LGAs might also be feedstock suppliers; a total of thirteen LGAs.

We considered the tonnes of red top bin waste (Municipal Solid Waste or MSW) collected by the thirteen for the financial year 2018-2019. (Later data are COVID-19 pandemic affected and cannot be regarded as typical).

Based on the 2018-19 statistics, we found that total MSW + combustible C&I waste was almost 109,000 tonnes per annum (109 ktpa), or about 27% of the rated capacity of the proposed Lara EfW.

In addition, we estimated that for the entire State of Victoria, combustible commercial and industrial (C&I) waste is about 23% of the red top bin waste.



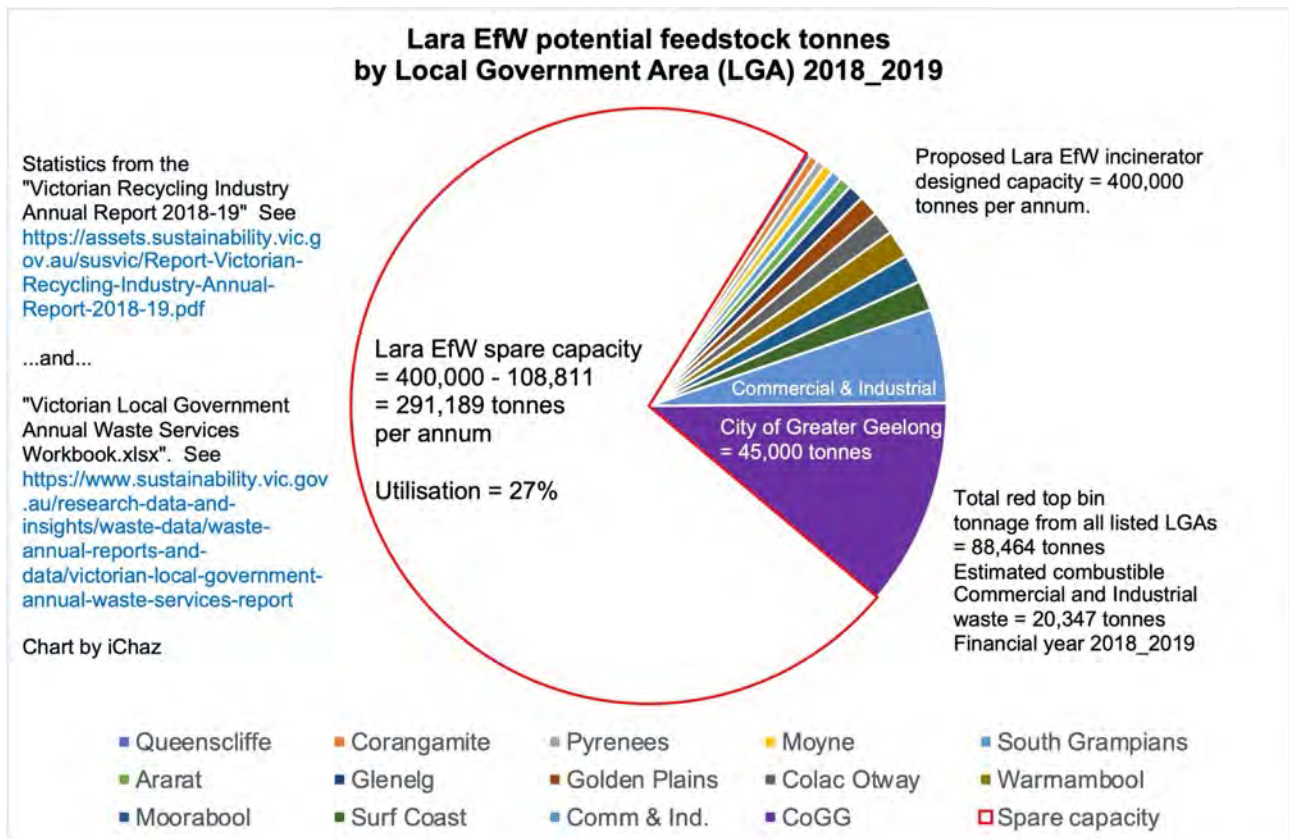
Our calculations suggest that there is enough MSW and combustible C&I waste available from the thirteen nominated LGAs to run one of the two Lara EfW incinerators no more than 4 days per week. A utilisation rate of just 27%.

And it would supply power to the grid, accordingly. This would result in the power generation being no longer considered as base load, and therefore no different to low cost solar or wind power.

This stop-start method of operation may also be in breach of BAT 16



We expect that the proponents would know that the Lara EfW would have oodles of spare capacity.



Calculations

We are happy to provide our calculations on request.

Data sources

Metropolitan Solid Waste (MSW) tonnages for the financial year 2018-2019 come from the Victorian Local Government Annual Waste Services Workbook.xlsx available at <https://www.sustainability.vic.gov.au/research-data-and-insights/waste-data/waste-annual-reports-and-data/victorian-local-government-annual-waste-services-report>

Commercial and Industrial (C&I) waste tonnages for the financial year 2018-2019 come from Table 5 in "Victorian Recycling Industry Annual Report 2018-19" by Sustainability Victoria. August 2020, available at <https://assets.sustainability.vic.gov.au/susvic/Report-Victorian-Recycling-Industry-Annual-Report-2018-19.pdf>



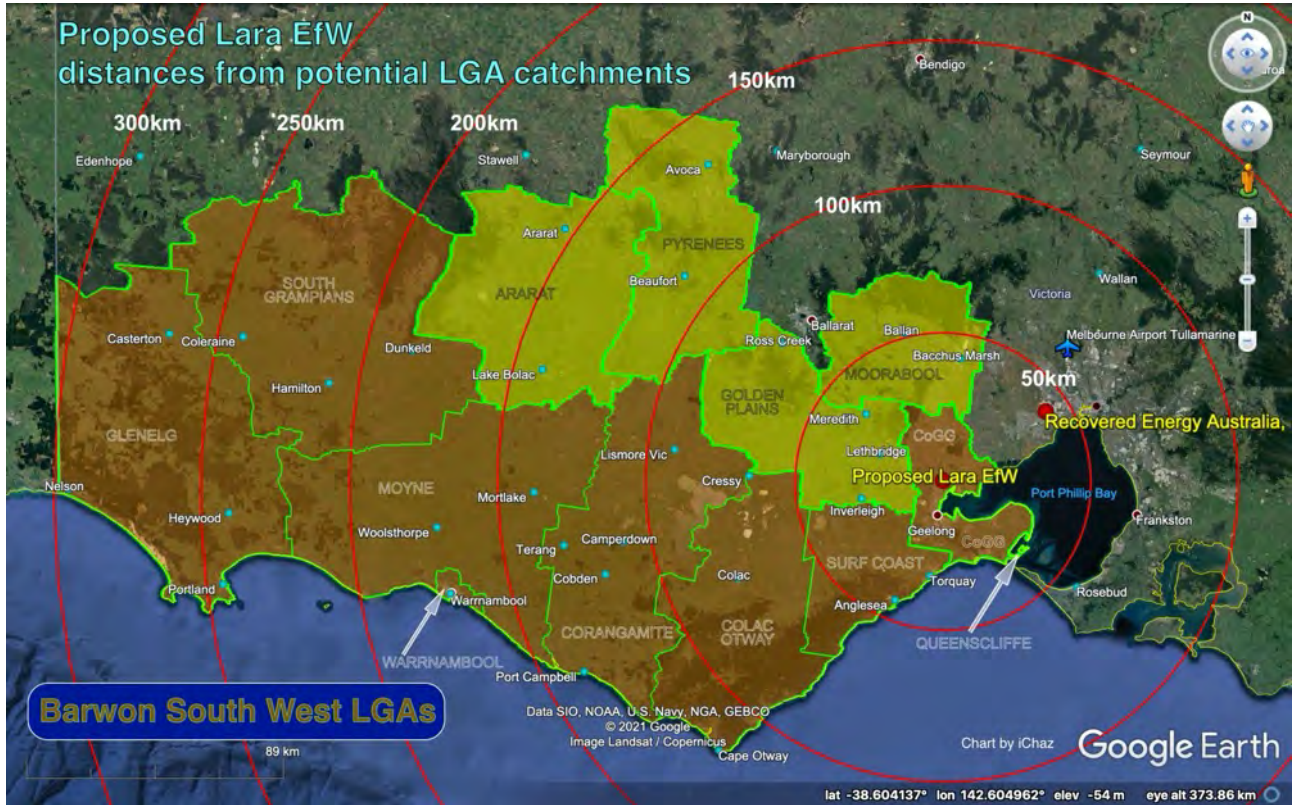
Practicalities ?

Have we presumed too much by implying that garbage trucks might drive up to 300 kilometres from Glenelg Shire to the Lara EfW, dump their loads, and drive up to 300 km back empty ?

Consider the distances, time, and environmental impacts of burning all that diesel.

Victoria is not Europe.

And there is no rail line to the Lara EfW.



We believe that the proposed Lara EfW will not have anywhere near enough feedstock from Victoria to make it financially viable, and that many potential suppliers of feedstock would find the transport logistics prohibitive. We also believe that PHI and Jacobs and many others would have reached the same conclusions long ago.

The government and people of Victoria deserve an explanation, an economic justification, indeed a detailed Business Case, which demonstrates how the proposed Lara EfW will be financially viable, and not just another failed experiment, or worse.

The steadfast resistance to the publication of a credible Business Case, cancels all credibility for this Application.

Our conclusion

The Applicant has failed to provide the requested Business Case.

The proposal, as described in the Application documents, is not financially viable.

2. Pro-forma contract

Given that WtE facilities have been central to the financial demise of waste authorities in other jurisdictions, mainly through “put and pay” contracts, potential customers to the Lara EfW need to know the costs and contractual arrangements before doing business with the Lara EfW.

They need to know.

Before it is built.

Prospect Hill International needs to provide a pro-forma contract.

See Section 3 in <https://www.no-burn.org/wp-content/uploads/Bad-News-for-Recycling-Final.pdf>

In Victoria, those potential EfW customers would be mainly recycling companies, and Councils and municipalities (Local Government Areas, or “LGAs”).

Given the potential impacts on the environment and community of “things gone wrong” during “other than normal operating conditions”, the pro-forma contract should be a public document.

We are firmly of the view that none of the potential customers should not be muzzled by “confidentiality agreements”, as they are in Kwinana.

John McNally

Fwd: Contact Form Submission

To: Charles Street

Morning Charles

The contract is commercial in confidence and I am not able to provide you with a copy.

John

John McNally
Chief Executive Officer
Rivers Regional Council

rivers-regional-council

Postal Address: PO Box 3024, MANDURAH EAST WA 6210

Mob **0419916052** Website: www.rrc.wa.gov.au

Will customers be subject to a “put and pay” system ?

Will customers be liable for “shortfalls” in feedstock tonnages ?

Will the Lara EfW business operate as a “franchise” in which the Lara incinerator is contractually compelled to purchase its supplies (e.g. chemicals, filtration media, spare parts, etc.) from particular companies at high prices ?

What is the mechanism by which the contract with a customer can be amended in response to changes in the prices of supplies ?



PHI and Jacobs have failed to provide answers to these key questions.



Here are some cautionary observations regarding franchise-based businesses. See <https://www.news.com.au/finance/small-business/exploitation-fee-gouging-and-ruined-lives-the-horrific-reality-of-operating-a-franchise/news-story/701d5406ca166c3f0355b35b01660e73>

Here is a Code of Conduct for franchise-based businesses, published by the Australian Competition and Consumer Commission (ACCC). See https://www.accc.gov.au/system/files/Franchising%20code%20of%20conduct%20compliance%20manual_0.pdf

Our conclusion

The Applicant has failed to provide any indication of the likely costs and contractual arrangements which are expected to apply in contracts between the Lara EfW and its suppliers and customers.



3. Environment Effects Statement

PHI / Jacobs have claimed that since the Lara EfW is expected to emit about “192 ktCO₂e per year”, being less than the 200,000 tonne trigger, no Environment Effects Statement (EES) is required.

There are a few problems with this argument.

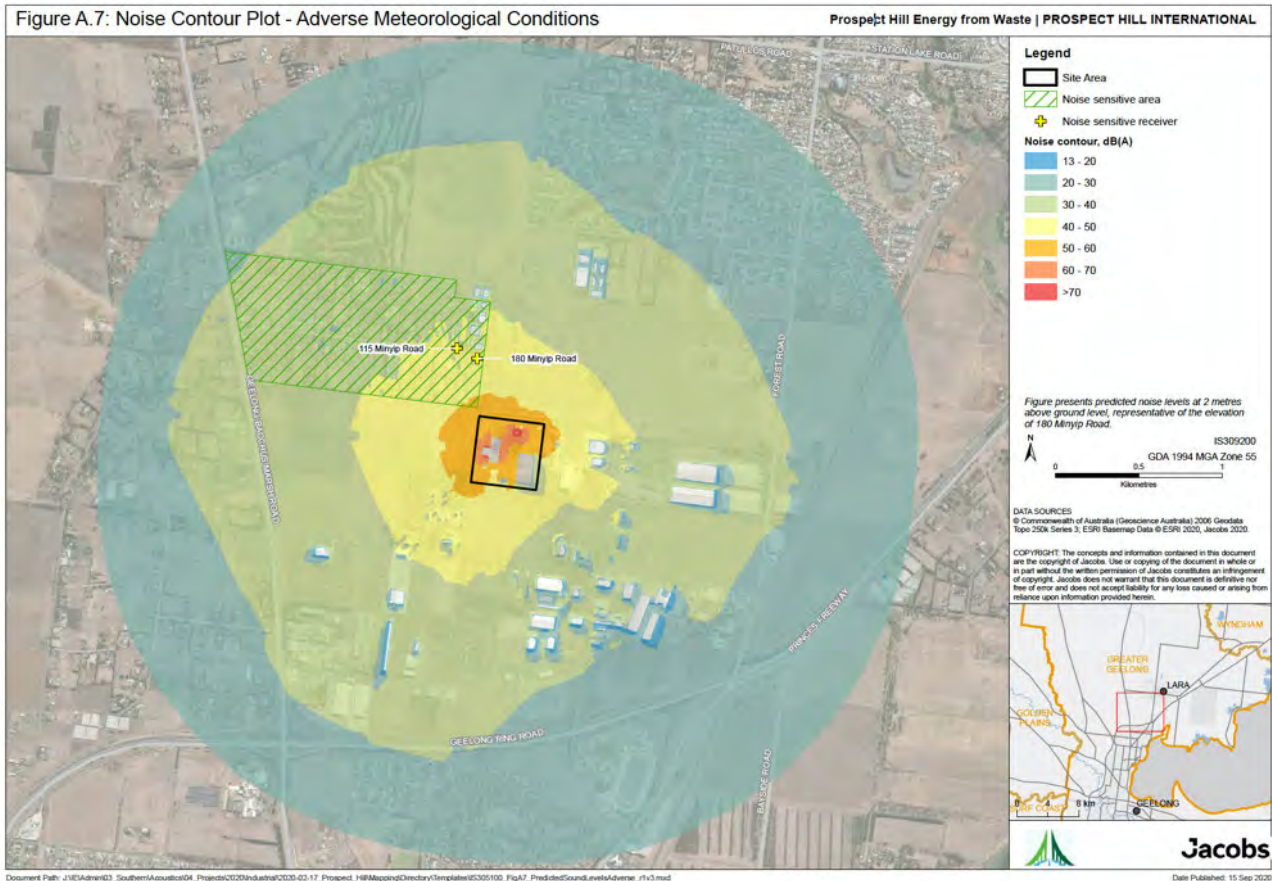
The “192 ktCO₂e per year” is PHI’s estimate, based on PHI’s assumptions and PHI’s calculations. It is a rubbery figure, not an excuse, nothing to be proud of, and quite possibly wrong.

The EES triggers also include public health criteria;

1. Potential extensive or major effects on the health, safety or well-being of a human community, due to emissions to air or water or chemical hazards or displacement of residences.
2. Potential significant effects on the amenity of a substantial number of residents, due to extensive or major, long term changes in visual, noise and traffic conditions.
3. Potential exposure of a human community to severe or chronic health or safety hazards over the short or long term, due to emissions to air or water or noise or chemical hazards or associated transport.
4. Potential greenhouse gas emissions exceeding 200,000 tonnes of carbon dioxide equivalent per annum, directly attributable to the operation of the facility.



The public health criteria at least, need to be addressed through an EES. No reliance can be placed on the Health Impacts Assessment (HIA) offered by PHI. The HIA is rubbish.



The legal Recommended Maximum Noise Level (RMNL) for night time at R22 is 44 decibels, which is indeed quiet. Jacobs computer modelling predicts that the noise level from the Lara EfW at R22 would be 39 decibels under “neutral” weather conditions, and 43 decibels under “adverse” weather conditions.

That is, 43 dB predicted, with a legal limit of 44 dB. What extraordinary luck !

Table 6.2 Predicted noise levels and compliance with Effective RMNLs under adverse meteorological conditions

Location	Address	Effective RMNLs dB(A)			Predicted Noise Level dB(A)	Compliance with Effective RMNLs?			Exceedance of Effective RMNLs dB(A)		
		Day	Evening	Night		Day	Evening	Night	Day	Evening	Night
R01	40 Minyip Rd	55	49	44	31	YES	YES	YES	-	-	-
R02	45 Minyip Rd	55	49	44	34	YES	YES	YES	-	-	-
R03	50 Minyip Rd	55	49	44	32	YES	YES	YES	-	-	-
R04	55 Minyip Rd	55	49	44	34	YES	YES	YES	-	-	-
R05	60 Minyip Rd	55	49	44	35	YES	YES	YES	-	-	-
R06	65 Minyip Rd	55	49	44	37	YES	YES	YES	-	-	-
R07	70 Gibbons Rd	55	49	44	33	YES	YES	YES	-	-	-
R08	70 Minyip Rd	55	49	44	28	YES	YES	YES	-	-	-
R09	75 Minyip Rd	55	49	44	36	YES	YES	YES	-	-	-
R10	80 Gibbons Rd	55	49	44	33	YES	YES	YES	-	-	-
R11	80 Minyip Rd	55	49	44	36	YES	YES	YES	-	-	-
R12	85 Minyip Rd	55	49	44	38	YES	YES	YES	-	-	-
R13	90 Gibbons Rd	55	49	44	35	YES	YES	YES	-	-	-
R14	90 Minyip Rd	55	49	44	36	YES	YES	YES	-	-	-
R15	95 Minyip Rd	55	49	44	40	YES	YES	YES	-	-	-
R16	99 Minyip Rd	55	49	44	39	YES	YES	YES	-	-	-
R17	100 Minyip Rd	55	49	44	37	YES	YES	YES	-	-	-
R18	110 Gibbons Rd	55	49	44	36	YES	YES	YES	-	-	-
R19	110 Minyip Rd	55	49	44	38	YES	YES	YES	-	-	-
R20	115 Minyip Rd	55	49	44	41	YES	YES	YES	-	-	-
R21	160 Minyip Rd	55	49	44	41	YES	YES	YES	-	-	-
R22	180 Minyip Rd	55	49	44	43	YES	YES	YES	-	-	-



But the luck will run out if someone wants to build a house “across the road” from the EfW. If Council changes more of the land from industrial to residential zoning, the noise levels may become unacceptable. In this respect, noise levels should be determined at the boundaries of the Lara EfW facility.

Our conclusion

These interesting claims of “just scraped in” compliance do not increase trust in the proposal, reinforcing the argument that the Lara EfW proposal needs to be informed by a comprehensive independent EES, in the public domain.



4. 2019 EC BREF

Prospect Hill International (PHI) and their consultants Jacobs, frequently claim that the proposed Lara EfW would conform to the requirements of the “2019 EC BREF” Standard.

That is, the “*European Commission Waste Incineration Best Available Techniques (BAT) Reference Document (2019 EC BREF)*”.

The Standard includes a collection of “BATs” or “Best Available Techniques” for operating EfW and WtE facilities.

A (more readable) summary of the 2019 BREF has been published in the *Official Journal of the European Union* L 31/55, 12 November 2019.

See https://eur-lex.europa.eu/eli/dec_impl/2019/2010/oj

The link to the standalone full 2019 EC BREF can be found here.

See https://eippcb.jrc.ec.europa.eu/sites/default/files/2020-01/JRC118637_WI_Bref_2019_published_0.pdf

The link to the full 2019 EC BREF and associated documents can be found here.

See <https://eippcb.jrc.ec.europa.eu/reference/waste-incineration-0>

Radioactive materials

Of note is BAT 11 which requires as follows;

BAT11 “In order to improve the overall environmental performance of the incineration plant, BAT is to monitor the waste deliveries as part of the waste acceptance procedures (see BAT 9(c)) including, depending on the risk posed by the incoming waste, the elements given below.”

Here is a summary of the requirements in relation to radioactive materials;

Waste type	Waste delivery monitoring
Municipal solid waste and other non-hazardous waste	Radioactivity detection.
Hazardous waste other than clinical waste	Radioactivity detection.
Clinical waste	Radioactivity detection.

PHI claims that feedstock would exclude hazardous wastes and clinical wastes, and we grant that point.

However, there is a BREF requirement for the capability to detect radioactive materials in Municipal Solid Waste (MSW), which is the red top bin waste that the Lara EfW seeks.

Although radioactive materials are top of the list of PHI’s Prohibited Wastes (PA Appendix B, 8.6.2), we cannot find anything in the Application documents, or the Response, which says that the Lara EfW would have the capability to detect radioactive substances in feedstock.

In this respect, we believe that the Lara EfW would be in breach of BAT 11.





PHI suggests that the only risk of radioactive contamination of legitimate feedstock would come from waste smoke detectors, some of which contain Americium 241, or ^{241}Am . We grant that point also, but if Americium 241 was present, the Lara EfW would not have the equipment to detect it, according to the current Application documents and Response.

So, what radioactive materials are out there ?

Here is a list of radioactive materials used in medical procedures.

See <https://www.acls-pals-bls.com/nuclear-medicine-and-medical-isotopes/>

The proper procedures for disposal of medical radioisotopes can be found here.

See <https://www2.health.vic.gov.au/about/publications/policiesandguidelines/Disposal-of-radioactive-material>

In Australia, the only way that radionuclides other than ^{241}Am could find their way into EfW incinerator feedstock would be via criminal conduct. But the EPA Victoria and authorities elsewhere have been dealing with criminal disposal of hazardous wastes for some time. Illegal waste disposal has become a lucrative source of income for organised crime.

See <https://www.epa.vic.gov.au/about-epa/what-we-do/compliance-and-enforcement/tackling-waste-crime/the-state-of-waste-crime-in-victoria>

Whilst we are confident that the Lara EfW management would not tolerate criminal contamination of their feedstock with radioactive waste, the Lara EfW cannot know that has happened if they do not have the means to detect it.



The consequences of contamination of air, land, water, and communities with radionuclides can be dire.

See <https://world-nuclear.org/information-library/safety-and-security/safety-of-plants/appendices/chernobyl-accident-appendix-2-health-impacts.aspx>

Whilst any potential radioactive contamination incident arising from the Lara EfW would not be as dramatic as the 1986 accident at Chernobyl, it may take a long time to realise that “something has gone wrong” in The City of Greater Geelong.

Noncompliance with BAT 11 is more than enough we believe, to justify rejection of the proposed Lara EfW.

Other Best Available Technologies (BATs) of interest

BAT 5. “BAT is to appropriately monitor channelled emissions to air from the incineration plant during OTNOC.” OTNOC is “other than normal operating conditions”.

BAT 5 points to the greatest weakness of both the offered Risk Analysis (RA) and the offered Health Impacts Assessment (HIA). Both documents fail dismally to properly forecast the risks to the environment and the community, properly grade the consequences, and offer a sufficient range of mitigating measures regarding “other than normal operating conditions”.

What could possibly go wrong ?

We are firmly of the view that the offered Risk Assessment (RA) and Health Impacts Assessment (HIA) are worthless, so the Lara EfW would be noncompliant with BAT 5. Also **BAT 18**.

BAT 16. “In order to improve the overall environmental performance of the incineration plant and to reduce emissions to air, BAT is to set up and implement operational procedures (e.g. organisation of the supply chain, continuous rather than batch operation) to limit as far as practicable shutdown and start-up operations.”

We have previously described how the Lara EfW may be operating on only one of the two incinerators, less than 4 days per week, due a lack of feedstock from Victoria. The resulting frequent shutdowns and start-ups would not be consistent with BAT 16, we believe.

BAT 21 “In order to prevent or reduce diffuse emissions from the incineration plant, including odour emissions, BAT is to: — store solid and bulk pasty wastes that are odorous and/or prone to releasing volatile substances in enclosed buildings under controlled subatmospheric pressure and use the extracted air as combustion air for incineration or send it to another suitable abatement system in the case of a risk of explosion; — store liquid wastes in tanks under appropriate controlled pressure and duct the tank vents to the combustion ...” etc.

If the Lara EfW were to receive feedstock imported from the northern hemisphere, it would undoubtedly cross the equator in a slow moving ship, being subjected to tropical heat. If that feedstock contains a significant percentage of organic waste in a poorly ventilated container, there is a risk that it could accumulate highly toxic, highly flammable, and highly malodorous hydrogen sulphide (H₂S), also known as “rotten egg gas”.

Two breaths of 1% hydrogen sulphide can be lethal.

See <https://www.osha.gov/hydrogen-sulfide/hazards>

Yet another reason why running the Lara EfW on imported feedstock is a bad idea.



Our conclusion

The Applicant's claims of conformance to the 2019 EC BREF Standard are selective.

As described, the Lara EfW is not compliant with BAT 11.

We believe that there is significant doubt about the ability of the proposed Lara EfW to comply with BAT 5, BAT 16, BAT 18, and BAT 21.



5. Government policies regarding waste

State and local government policies are aimed at reducing the production of waste. They also aim to recycle as much as possible of the waste that is still produced.

The net effect of these policies is to reduce over time, the tonnage of material that would go into red top bins; that is Municipal Solid Waste, or MSW. It is conceivable that combustible Commercial and Industrial (C&I) waste per capita may also decline over time.

As MSW is the sought after feedstock of Energy from Waste (EfW) and Waste to Energy (WtE) facilities, the Lara EfW can expect a gradual decline in feedstock as a result of government policy. Our calculations suggest that there is currently only enough feedstock to run the Lara EfW at 27% of its capacity; any further reductions in feedstock would place an unviable business in an even more perilous situation.

State government

The tonnage of wastes handled by Local Government authorities can be found here. See <https://www.sustainability.vic.gov.au/research-data-and-insights/waste-data/waste-annual-reports-and-data/victorian-recycling-industry-annual-reports>

The ten year plan of the Victorian government is called “Transforming recycling in Victoria”

“In the future, all Victorians will need to separate their waste into 4 streams so we can recycle more of our waste.

- By 2030 a new [4-bin waste and recycling system](#) will be standard for households across the state.
- By 2022–23 we will introduce a [container deposit scheme](#) so you can swap empty cans and bottles for cash.
- We are investing almost \$100 million to [strengthen Victoria’s waste and recycling](#) industry – grow the local industry, create local jobs and drive innovation and new technologies.
- We’ll also regulate the waste and recycling sector, as an essential service with a new waste and recycling Act and a waste authority – putting an end to illegal and unsafe storage and stockpiling of waste.”





See <https://www.vic.gov.au/transforming-recycling-victoria>

City of Greater Geelong

The City of Greater Geelong (CoGG) has a plan for the management of wastes called the “Waste and Resource Recovery Strategy 2020 to 2030” (CoGG WRRS 2030)

See <https://www.geelongaustralia.com.au/common/public/documents/8d7ec5c40d76376-28042020councilagenda-wasteandresourcerecoverystrategy2020-30-strategyattachment3.pdf>

“Key actions include:

- phase out single use plastics across City buildings
- implement a trial food organics collection service
- investigate options and prepare a business case for establishing a food organics processing facility
- prepare a business case for developing waste and resource recovery facility and services that fosters a circular economy with regional partners and local governments
- provide education and behaviour change programs that reduce bin contamination and increase resource recovery
- partner with government agencies, local governments and organisations to explore opportunities for resource recovery and alternative waste technologies.”

Regarding the last point about “partnerships”, CoGG has joined a with eight other LGAs to form a consortium called the “Barwon South West Waste & Resource Recovery Group”, or BSWWRRG.

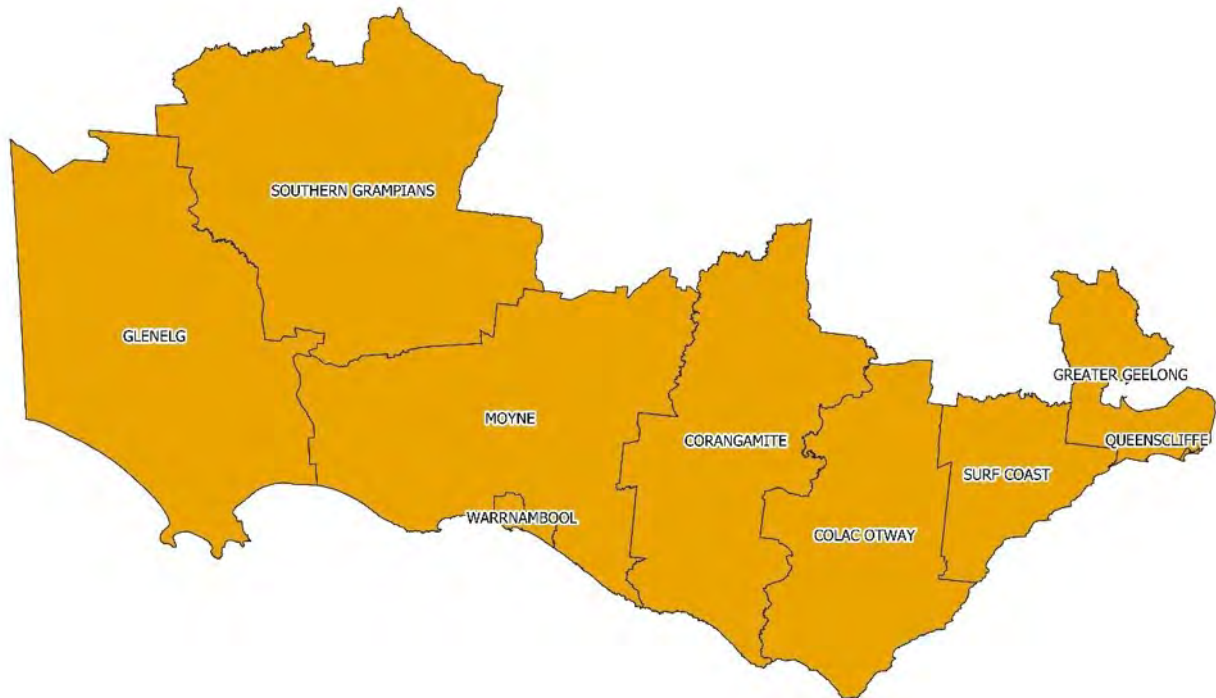
The net effect of the CoGG WRRS 2030 will be to gradually reduce the amount of available red top bin waste, that is, the favoured feedstock of the proposed Lara EfW.



Barwon South West Waste & Resource Recovery Group

The consortium of Local Government authorities participating in BSWWRRG are;

- Borough of Queenscliffe
- Greater Geelong
- Surf Coast
- Colac Otway
- Corangamite
- Southern Grampians
- Warrnambool
- Moyne, and
- Glenelg



BSWWRRG and Ricardo Consulting have developed an Optimal Regional Infrastructure Model or “ORIM” for waste management and resource recovery in the Barwon South west region.

See https://resources.reduce-recycle.com.au/bswwrrg/wp-content/uploads/2021/03/03222722/30873_BSWWRRG-ORIM_V08.00.pdf

The net effect of ORIM will be to gradually reduce the amount of available red top bin waste, that is, the favoured feedstock of the proposed Lara EfW.

Our conclusion

The Applicant’s claim that it will incinerate 400,000 tonnes of waste per annum from Victoria are unrealistic. Suitable feedstock per capita will decline due to government policies.



6. Social licence

Every social entity exists only with the support of its social licence.

The components of social licence are;

- Legitimacy
- Credibility
- Trust

See <https://ethics.org.au/ethics-explainer-social-license-to-operate/>

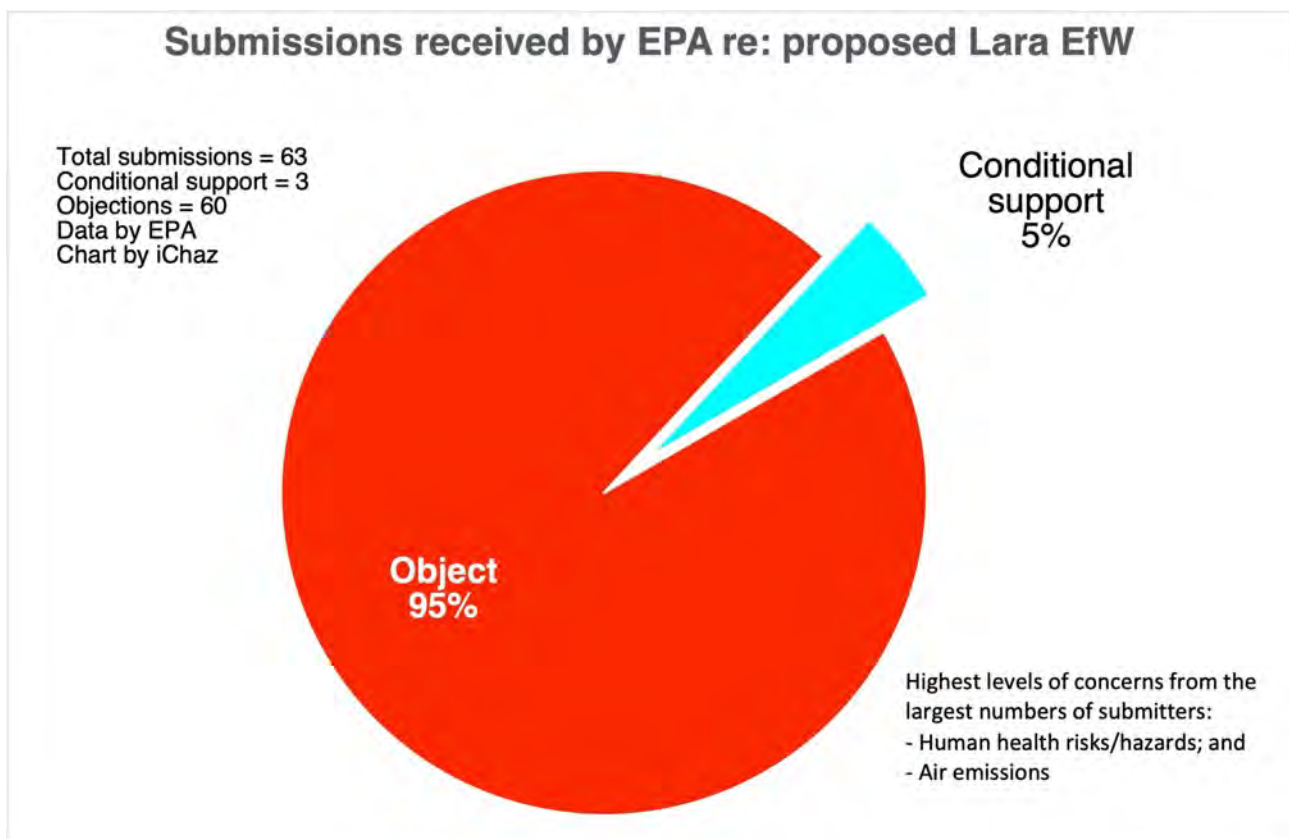
Submissions to the EPA

The EPA, assisted by Capire Consulting, attempted to gauge the support, or social licence, of the Lara EfW proposal.

During April 2021, the EPA invited the public to send in written submissions regarding the Lara EfW facility proposal. The submissions were lodged via Engage Victoria.

See <https://engage.vic.gov.au/epa-works-approvals/prospecthill#hive-block-125489>

A measure of the social licence for this proposal can be obtained by tabulating the numbers of submissions that support the proposal.



See page 51 in Capire “s236 Conference of Interested Persons” at https://s3.ap-southeast-2.amazonaws.com/hdp.au.prod.app.vic-engage.files/6816/2796/5881/s236_Conference_of_Interested_Persons_Report_Prospect_Hill_with_Appendix_002.pdf



Conference

Another measure of social licence can be obtained through a structured community conference.

The EPA convened a “Conference of Interested Persons” under Section 236 of the Environment Protection Act 2018. That Conference took place in the Lara Masonic Centre, 13 July 2021.

COVID-19 pandemic restrictions limited the number of “interested persons” to 59.

The Conference was facilitated by independent consultants, “Capire”.

Afterwards Capire prepared a report on the main points arising from the April submissions and the July Conference. The Capire Report was submitted to the EPA, then made public.

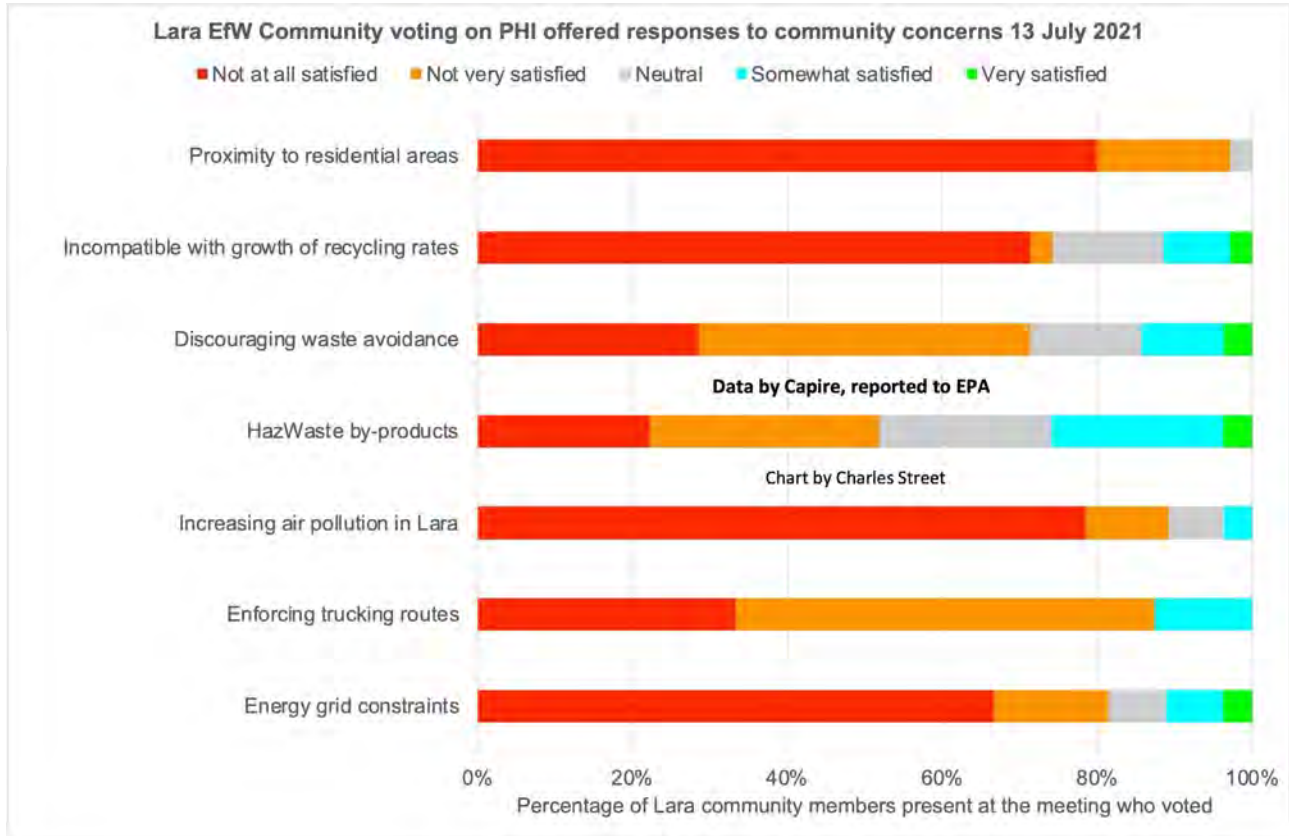
See https://s3.ap-southeast-2.amazonaws.com/hdp.au.prod.app.vic-engage.files/6816/2796/5881/s236_Conference_of_Interested_Persons_Report_Prospect_Hill_with_Appendix_002.pdf

Agenda, in brief

1. Open house
2. Welcome and overview of session
3. Overview of WA process and summary of submissions and key issues (themes)
4. Prospect Hill International applicants present the proposal and initial response to the submissions to the EPA
5. Summary of Issues / Topics
6. Issues workshop (including writing ideas on large sheets of paper)
7. Participants vote for their top three priorities to hear about immediately
8. Applicant reviews key issues and confirms response mitigation strategies
9. Report back
10. Polling of participants’ satisfaction with Applicant’s responses to concerns
11. Questions
12. Closing statements
13. Open house
14. Close



Here are the results of the polling;



It is clear that there was negligible satisfaction regarding the answers given by the Applicant, Prospect Hill International.

See pages 31 to 36 in Capire “s236 Conference of Interested Persons” at [https://s3.ap-southeast-2.amazonaws.com/hdp.au.prod.app.vic-engage.files/6816/2796/5881/s236 Conference of Interested Persons Report Prospect Hill with Appendix 002.pdf](https://s3.ap-southeast-2.amazonaws.com/hdp.au.prod.app.vic-engage.files/6816/2796/5881/s236_Conference_of_Interested_Persons_Report_Prospect_Hill_with_Appendix_002.pdf)

Our conclusion

It is reasonable to suggest that the “mood” of the Conference was “hostile”.

The Applicant has failed to demonstrate that the project has any social licence.



7. When yes means no

It is important to correctly interpret the messages coming from Referral Authorities.

“At this Referral Authority, we reviewed your proposal and have no objection.”

This is Public Service code for “Yes. Your proposal is legal, and consistent with government policy.”

However ...

“Due to regulations, we will need to impose restrictions and conditions ...”

“The amenity of the area must not be detrimentally affected, to the satisfaction of the Responsible Authority ...”

“There is a lack of clarity ...”

“The proposal needs further development ...”

“Our current infrastructure is not adequate to meet the requirements of your proposal ...”

“We suggest that you consider using alternative technology ...”

“The proposal appears consistent with our strategic intent, but inconsistent with the needs of the region ...”

“The proposed operations are quite acceptable, whilst they comply with (a long list of) conditions ...”

“Your water management arrangements could breed mosquitoes ...”

This is Public Service code for “No.”

Our conclusion

The Applicant should read the “approvals” from the Referral Authorities again.



8. Waste crime

Recently, the waste industry has been infiltrated by criminal elements. EPA Victoria and authorities elsewhere have been dealing with criminal disposal of hazardous wastes for some time. This has become a lucrative source of income for organised crime.

“Based on what we know, waste crime can involve two groups:

- traditional organised crime – outlaw motorcycle gangs and Melbourne’s underworld. Figures we’ve encountered have shown little fear of regulation, even after EPA sanctions have been applied
- familial and business community organised crime – use of family and social connections or others in a sector of work to commit crime. This possibly extends to social circles or individuals associated through related business practices (e.g., demolition companies, skip bin providers etc). A very low threshold for entry exists for these types of businesses, both financially and in terms of licensing requirements.

These two groups are agile, and intelligence suggests they will rapidly adapt to evade detection and conceal illegal practices – an experience which is shared by other EPAs across Australia.”

Quoted from <https://www.epa.vic.gov.au/about-epa/what-we-do/compliance-and-enforcement/tackling-waste-crime/the-state-of-waste-crime-in-victoria>

The disposal of wastes in accordance with regulations can be expensive and complex, especially if the wastes are hazardous. Far easier and cheaper for the unscrupulous to pay a smaller amount to have the inconvenient material just “disappear”.



[epa.vic.gov.au/bricks](https://www.epa.vic.gov.au/bricks)
1300 EPA VIC (1300 372 842)



Environment
Protection
Authority Victoria





Europe

Prominent mafia clans such as the Camorra and Ndrangheta are involved in illegal waste disposal in Europe. However, it is becoming increasingly difficult to find places where waste can be stockpiled, drained, sunk, or burned, away from prying eyes.



In Europe, despite a torrent of community complaints, convictions can be difficult to achieve because relevant authorities and politicians have been paid off by the mafia.





Romania has become a favourite dumping ground for illegal waste, mainly because there is little or no law enforcement. The following image shows an illegal dump of textile waste from Italy, on farmland in Romania.



A problem with stockpiling illegal waste on land like this, is that the evidence remains visible year after year.

So much better to get rid of it through a big incinerator.

Stockpiling illegal wastes is not unknown in Victoria.

<https://trinitasgroup.com.au/2019/12/09/illegal-dumping-operation-uncovered-so-big-it-distorted-national-waste-disposal-market/>

In some very poor countries, some kinds of waste from Europe e.g. old cars or car parts, or clothes may still have some value. So, it is easy to send a shipping container far away, loaded up with an old car, whilst the remaining space is mainly filled with illegal or hazardous waste.

The community consequences of illegal disposal of hazardous wastes can be far reaching and long lasting. It is hard to imagine a more egregious act than sinking a ship full of radioactive waste in the Mediterranean Sea.

See "Criminal Planet: Toxic Mafias" at

https://www.sbs.com.au/ondemand/watch/1928251459702?fbclid=IwAR0RM2AxR1x1HV_mnlOmsz3eOhlBqjunKsrvqi78OWinV_S6YjFkujjhZqAE

For waste criminals, the major challenges of illegal disposal are;

- finding enough places to dispose of the waste,
- keeping the material hidden, or destroying it
- ensuring it is untraceable, and
- evading / neutralising witnesses and law enforcement.



Imagine ...

Imagine if you will, a place far far away. So far away in fact, that you have no fear that anything you send there will ever be sent back.

Imagine this place can dispose of material, so that it is transformed into nothing but formless ash and gas.

No witnesses.

No police.

No complaints from your own neighbourhood.

And imagine that this place has oodles of spare capacity ...



9. Conclusion

The Environment Protection Authority should refuse the Prospect Hill International application for licences to build or operate an Energy from Waste (EfW) or Waste to Energy (WtE) facility at Lara.

The Environment Protection Authority should refuse each and every application for a licence to construct or operate a Waste to Energy facility, or Energy from Waste facility, anywhere within the City of Greater Geelong, and anywhere within the Barwon South West consortium of Local Government Areas (LGAs).

Yours faithfully,



Lara Resident

Contact details for correspondence:

Email: 

Mob: 

Post: 



Submission ID: 391191



25 October 2021

██████████
Senior Planner, Development Approvals and Design, Renewables
██

██████████
Senior Project Manager, Development Assessments
Environment Protection Authority Victoria

██ www.epa.vic.gov.au

Dear ██████████

Lara Waste to Energy Facility - PA2001035

This is a submission to Department of Environment, Land, Water and Planning (DELWP) and the Environment Protection Authority (EPA) regarding the Lara Waste to Energy Plant.

Thank you for our recent discussions regarding this application which have been helpful. I understand that recent changes to legislation have increased the standards to which the facility is required to operate and this this will provide further protections to surrounding residential amenity.

In materials lodged to support the application, the applicant has not made any specific submission regarding their expectation of the likely buffer for the facility with respect to Clause 52.10. Instead, the EPA will need to consider what a suitable separate distance should be or how amenity impacts will be managed in its deliberations.

Lovely Banks has been working with the City of Greater Geelong since around 2015 to advance planning for Geelong's Northern Growth Area. Amendment C395 to the Greater Geelong Planning Scheme was adopted by the Minister for Planning earlier in 2021. The adopted plans can be found at: [Amendment C395 - Settlement Strategy and Northern & Western Geelong Growth Areas - City of Greater Geelong \(geelongaustralia.com.au\)](http://www.geelongaustralia.com.au)

The EPA routinely makes submissions to planning scheme amendments that would rezone land to allow sensitive uses like residential development. EPA often objects to residential encroachment where it considers that the proposal would breach the relevant buffer to an existing use with adverse amenity potential.

Lovely Banks is concerned that if the Waste to Energy Plant goes ahead, that the EPA will then apply a buffer distance to any future surrounding proposals for residential development / sensitive uses. This may then disrupt the orderly and properly planning and sequencing of development in Lara and also in the Northern Growth Area.

Lovely Banks seeks confirmation from the EPA in writing that the EPA agrees that the new facility, if approved, will not give rise to a buffer that would extend beyond the 1km buffer from the outer edge of the Geelong Ring Road Employment Area that is provided for in Northern and Western Growth Area Framework Plan or the Lara Structure Plan. Both of these planning strategies from part of the Planning Scheme.



We are seeking to avoid the situation where this Waste to Energy Plant (which has adverse amenity potential), locates near residential and future residential areas – which then imposes a buffer which impacts future residential rezoning. The facility may also impact on the health and wellbeing of existing residents.

Specifically, page 84, the Northern and Western Growth Area Framework Plan provides for a 1km buffer from the Geelong Ring Road Employment Area (GREP). The EPA should ensure that any buffer from the facility is less than the buffer indicated in the Framework Plan.

In addition, the planning scheme supports some additional residential rezoning of land in Lara, consistent with the Lara Structure Plan which is incorporated into the Planning Scheme- refer plan in Clause 21-13.4. This plan includes the relevant buffer from the Geelong Ring Road Employment Area which are 1km from the Industrial Area.

Lovely Banks seeks written confirmation from the EPA, prior to any approval of the Waste to Energy Plant – what buffer distance from the facility will be adopted by the EPA when it responds to future residential rezoning requests on surround land in the future.

If the EPA can confirm that the buffer is less than the 1km GREP buffer, then we will not oppose the facility. If the buffer is greater, then we strongly object to the facility and wish to make further submissions to you before a decision is made.

I can be contacted on [REDACTED].

Yours sincerely

[REDACTED]

[REDACTED]
General Manager

Submission ID: 391319

I cannot see any benefits in this project for residents or the environment. It does not follow the waste recycling and reduction policy that has been adopted around the world. I strongly object to the application.

Submission ID: 391321

We would like to bring to your attention serious concerns found regarding the Prospect Hill waste-to-energy facility pending approval by Environmental Protection Authority (EPA).

EPA as sole approver can lead to biases

- EPA is the sole checkpoint in the whole Energy-from-Waste (EfW) application and approval process, the local council was stripped of their role to grant planning permit by the Minister during the process

Other stakeholders should be involved in engagement and approval

- Lack of community and stakeholder engagement plan, inadequate consultation process offered by Prospect Hill International (PHI) and EPA. The exclusion of others including the local council, health department, residents, stakeholders from the process is a step backwards and substantially different from the requirements of other states

Proposal substandard to other previously approved submissions

- The current format of the other three approved EfW in Victoria is well prepared, in-depth, and of a substantially higher standard. The involvement of various stakeholders before and after submission was much more comprehensive

Selection of site not appropriate

- Two of the three approved sites are built next to an existing waste or recycling site, the third is near the source of waste feedstock. The majority of the PHI plant's capacity would be to service Melbourne, with only a quarter of the source of waste supply coming from the local area. They have exaggerated the processing need of this Lara plant, and it would likely compete for waste with the Laverton plant located in Melbourne
- The site is less than 1km from the nearest residence and next door to an LPG facility. They have not been able to justify their site selection
- It would make more sense for the site to be built in an area of high population density and high waste production, such as inner Melbourne. The energy required and carbon footprint generated in the transportation of waste feedstocks offsets any potential benefits

No guaranteed electricity feed into the grid

- There is no demonstration that the electricity generated will be purchased by AusNet, raising the question of the viability and sustainability of the facility
- They have not shown how the electricity generated feeds into AusNet's grid

Lack of company reputation and capital

- The three approved companies have strong local reputations and solid international ties, allowing them to operate as joint ventures with existing companies
- PHI is a shelf company that lacks transparency regarding its people, background, experience, financial status etc.
- The company was founded solely for this project, they have not been able to show collaborations and engagements with environmental consultants and engineering experts throughout the planning process

No justification of facility design & technology selection

- The design plan for the facility was provided to Jacobs via PHI from China Everbright International. There is no explanation as to why this design was chosen and its suitability for the site

- They also did not specify the technologies that would be used and why it was selected, contrasting with the approved projects which were transparent about their selection of EfW technology
- There was no analysis on human health or hazard, waste treatment, air, odour, noise, and greenhouse gas emission as related to this plant design. The data they took was from a plant in the UK that used a different design

Lack of guarantees and benefits to the society

- No benefit or compensation for society and residents, and no plans to monitor the health of nearby residents and the environment
- Not following state's policy and societal trends of recycling and commitment to renewable energy

Not up to date with current assessment criteria

- Environmental laws in Victoria were updated in June 2021, PHI's submission is not reflective of the recent changes

Lack of confidence in governance of official departments and bodies

- There have been no updates from government bodies or Recovered Energy Australia, the responsible body for the Laverton plant, since the application was approved. The public is left in the dark with its progress. There is little faith in the government departments to uphold its responsibility to ensure conditions are met once clearance is given, and that appropriate actions will be taken against the managing body in a timely manner where appropriate
- Serious concerns are raised against Recovered Energy Australia and Prospect Hill International as they are more likely to undertake perfunctory actions given the lack of agency from the government

Substantial reduction in waste feedstock due to rubbish diversion

- An energy from waste plant seems contradictory to the policy of waste recycling in the state, again raising serious doubts for the origin of the waste feedstock. Victoria Government's Recycling Victoria policy requires a 50% reduction of food waste to landfill by 2030. Geelong Council has already rolled out a food waste processing to compost program for the city

Lack of expertise in plant implementation, management and operation

- The company has no experience or expertise in the purchase and setup of the facility, nor its operation and maintenance. It is unclear how they will manage the facility to comply with government standards and legislatures, or improve its functions to meet the newest operating conditions
- Due to lack of expertise, the entire implementation, execution, and management of the operation will be on paper
- The ultimate decommission and dismantlement of the plant is also a crucial problem that has not been planned or discussed by PHI

Submission ID: 391336

5 kms radius from the plant includes more than 1000 houses from Lara and Corio, numerous schools, crucial local farmlands, the Serendip Sanctuary, and nature and coastal reserves. Please justify why there is no better use of this land than to burn rubbish. Engage the entire city like those in Corio properly.



Submission ID: 391583

To The EPA,

This is a submission to the latest response by Prospect Hill International in relation to the waste-to-energy facility in Lara. We strongly object to the planned development of a waste-to-energy facility in Lara or its surrounding areas.

The latest responses from Prospect Hill, while detailed, emphasized the positives of developing the facility and often neglected the negative aspects.

There are still outstanding issues that have been raised in previous submissions from the community that have not been acknowledged or adequately addressed in the latest response. With some of the responses drawing further questions and concerns.

Health:

There are a few references to safety and health of the residents referenced in the document, which appear to be simulated based on the expected emissions released from the plant

The exposure to these emissions affects the health of people who are both residents of Lara/Corio and people who commonly use the roads as a mode of transportation, the affected area is large and highly variable, as shown in the simulations, so a more conservative approach needs to be taken because the flume pipe extends high into the atmosphere and the variations in the wind could make certain areas of dense concentrated chemical emissions.

The emissions released from the plant are treated as a stand-alone simulation, where in reality there is a compounding effect with numerous other plants operating in the area such as SNF chemical manufacturing plant, Clariant Specialty Chemicals manufacturing plant and in the wider area other agriculture and industrial manufacturers like Chemring, Incitec pivot and Shell.

- Prospect Hill should be addressing what the marginal addition of harmful exposure is in the area and what the short- and long-term health effects are to those exposed.
- And it needs to address the co-correlation of exposure causing diseases, due to widening breadth of chemical exposure.

Prospect Hill has quoted studies and use cases suggesting that these plants have been operating successfully with minimal harm to the residents. These are not complete and accurate representations. They do not show the long-term health effects, but rather draw an inference from the simulation or use very short-term examples, for instance a few years of "data".

- They do not demonstrate that there are no long-term health effects as those studies require a much longer time window, spanning decades as that is the time frame that diseases such as asbestosis and cancer require to emerge.
 - To place a waste to energy facility in such close proximity of a residential suburb would require a study on the long-term health to be undertaken, given the extreme potential hazard it has to human life and the abundance of options to develop where it is less populated.

Mitigation processes:

The emissions simulated in the report are based on the waste being the "target" waste. This target waste includes a limited scope of feed waste which based on the reports is expected to result in less harmful outputs as the waste is processed. It is very difficult to ensure that the correct 'target waste is being fed into the process

when operating at scale. Even with monitoring in place, the figures that the facility is suggesting is in the magnitude of 4,000 tones p.a.

As we know rubbish can vary widely in bins and people can often dump materials like building materials like asbestos; chemical materials like batteries, electronics; and a variety of other waste in their red and yellow residential bins.

Harmful and non-harmful waste is often not distinguishable without close inspection, and can sometimes be hidden within plastic bags and under other waste products.

The monitoring measures suggested are inadequate to perform a meaningful audit or draw insights:

- The staffing resource allocated to this and the exact commitments are very vague, but given the expectation that there will be approx. 30 long-term jobs from the community to the facility suggests that there will not be many resources allocated.
- Number plate monitoring to identify residential areas of concern, this requires the linkage of the number plates the monitoring and audits data in order to work.
- Manual inspection of waste to identify obvious objects such as fridges, manual inspection may help identify the large non-target items, but the issue is that in general household waste we do not expect there to be items like fridges and TVs in there, but smaller less noticeable waste. Often requiring opening and sifting through for useful identification. The other issue is that this is a tedious job, that given the expected resources, there would be a lot of human error from focus burnout.
- Manual auditing of trucks, this does not sound like it would occur very frequently given the volumes of the trucks.
- In order to make any meaningful inferences the analysis must be done in a timely manner with sufficient and correct information. The resources allocated to this suggest that it would be difficult to create a sufficient sample set to draw any statistically sufficient conclusions over a truck level, let alone partitioning the information over time, location or acting on the information.
- This requires a more detailed elaboration on this monitoring plan including the quantification of resources, feasibility and expected benefits. And needs to factor this in to the simulation for a more conservative stance on the emissions.

Community aesthetics and general sentiment:

There is no mention on the potential impact on the value of houses, either with regards to the houses in the immediate vicinity or the houses suburb as a whole

- due to the high potential of extremely detrimental adverse health impacts, there is a stigma on waste and chemical processing facilities.
- this facility is also very prominent and will dominate the Lara skyline, and is a very inaesthetic structure.
- This will drive down the price of houses in the area and the potential impacts should be taken into consideration by Prospect Hill and the local authorities, but it is not adequately addressed.

Given the proximity to residents in Corio and Lara there should be a sufficient buffer, there is not:

- The response to the justification of Lara as the suitable location, is based on a limited number of criteria, which is often further justified by European case studies (which will be addressed further down)
- There needs to be a stronger emphasis on the buffer of land to residents, as there is a high potential health hazard, which is further extended if there are things that are unaccounted for in the studies or areas of error and a high land value impact.
- There is an abundance of land in the surrounding areas which would be suitable for the development of this facility, which are far away from residential communities, especially ones that are growing.

- These should be considered, at a minimum there should be a published evaluation of a number potential suitable alternative locations for this facility and a justification of why they are not ideal or are ideal, before selecting one. There currently is not.

One of the responses is that the intention is to mainly consume the waste from Greater Geelong, Bellarine and the Surf Coast.

- There is sufficient housing and a growing population in the area to supply waste to process at the plant, you should place the waste facility closer to the intended source of waste. It does not make sense to position the waste facility in Lara, as Lara is on the boundary.
- Given this commitment, it seems like positioning the waste facility in Lara means that you intend to receive a significant amount of waste from Western Melbourne and this statement is misleading.

As this development will impact the image of the community as a whole, there should be a study conducted to determine the community sentiment, such as Community Polling.

- the study neglects to show the sentiment of the community, which can be achieved by an online poll to each registered address in the impact zones.
- The sentiments of the local residents, many who have lived here for decades and many hoping to live here for decades, should be taken into account before approving a development of this nature.

The traffic modelling suggested that Prospect Hill will increase the daily peak morning traffic by 14 trucks

- This statement is vague, what time frame is daily peak morning traffic?
- Due to the long distance that is travelled, people who share the same commuting routes will be heavily impacted. As this is very inaeesthetic and can often smell.

Case Studies of European energy to waste facilities

There is frequent reference to the studies in the response, but just because it is done in Europe should not mean that we should do it too

We do not have the same land restrictions as Europe, we are much less dense and have an abundance on little utilised land. As such we can establish a bigger buffer from a residential community like Lara

The case studies do not have a reference to the long-term health effects of those living in the immediate vicinity, nor the impact on the house prices

The studies are heavily biased to the view of those who are beneficiaries of establishing the facility, and do not account for the sentiment or personal impact of those who live "tens" or "hundreds" of meters from the facility.

Based on the considerations above we request that you reject the proposed development.

Submission ID: 391584

To The EPA,

This is a submission to the latest response by Prospect Hill International in relation to the waste-to-energy facility in Lara. We strongly object to the planned development of a waste-to-energy facility in Lara or its surrounding areas.

The latest responses from Prospect Hill, while detailed, emphasized the positives of developing the facility and often neglected the negative aspects.

There are still outstanding issues that have been raised in previous submissions from the community that have not been acknowledged or adequately addressed in the latest response. With some of the responses drawing further questions and concerns.

Health:

There are a few references to safety and health of the residents referenced in the document, which appear to be simulated based on the expected emissions released from the plant

The exposure to these emissions affects the health of people who are both residents of Lara/Corio and people who commonly use the roads as a mode of transportation, the affected area is large and highly variable, as shown in the simulations, so a more conservative approach needs to be taken because the flume pipe extends high into the atmosphere and the variations in the wind could make certain areas of dense concentrated chemical emissions.

The emissions released from the plant are treated as a stand-alone simulation, where in reality there is a compounding effect with numerous other plants operating in the area such as SNF chemical manufacturing plant, Clariant Specialty Chemicals manufacturing plant and in the wider area other agriculture and industrial manufacturers like Chemring, Incitec pivot and Shell.

- Prospect Hill should be addressing what the marginal addition of harmful exposure is in the area and what the short- and long-term health effects are to those exposed.
- And it needs to address the co-correlation of exposure causing diseases, due to widening breadth of chemical exposure.

Prospect Hill has quoted studies and use cases suggesting that these plants have been operating successfully with minimal harm to the residents. These are not complete and accurate representations. They do not show the long-term health effects, but rather draw an inference from the simulation or use very short-term examples, for instance a few years of "data".

- They do not demonstrate that there are no long-term health effects as those studies require a much longer time window, spanning decades as that is the time frame that diseases such as asbestosis and cancer require to emerge.
 - To place a waste to energy facility in such close proximity of a residential suburb would require a study on the long-term health to be undertaken, given the extreme potential hazard it has to human life and the abundance of options to develop where it is less populated.

Mitigation processes:

The emissions simulated in the report are based on the waste being the "target" waste. This target waste includes a limited scope of feed waste which based on the reports is expected to result in less harmful outputs as the waste is processed. It is very difficult to ensure that the correct 'target waste is being fed into the process

when operating at scale. Even with monitoring in place, the figures that the facility is suggesting is in the magnitude of 4,000 tones p.a.

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One of the responses is that the intention is to mainly consume the waste from Greater Geelong, Bellarine and the Surf Coast.

- There is sufficient housing and a growing population in the area to supply waste to process at the plant, you should place the waste facility closer to the intended source of waste. It does not make sense to position the waste facility in Lara, as Lara is on the boundary.
- Given this commitment, it seems like positioning the waste facility in Lara means that you intend to receive a significant amount of waste from Western Melbourne and this statement is misleading.

As this development will impact the image of the community as a whole, there should be a study conducted to determine the community sentiment, such as Community Polling.

- the study neglects to show the sentiment of the community, which can be achieved by an online poll to each registered address in the impact zones.
- The sentiments of the local residents, many who have lived here for decades and many hoping to live here for decades, should be taken into account before approving a development of this nature.

The traffic modelling suggested that Prospect Hill will increase the daily peak morning traffic by 14 trucks

- This statement is vague, what time frame is daily peak morning traffic?
- Due to the long distance that is travelled, people who share the same commuting routes will be heavily impacted. As this is very inaeesthetic and can often smell.

Case Studies of European energy to waste facilities

There is frequent reference to the studies in the response, but just because it is done in Europe should not mean that we should do it too

We do not have the same land restrictions as Europe, we are much less dense and have an abundance on little utilised land. As such we can establish a bigger buffer from a residential community like Lara

The case studies do not have a reference to the long-term health effects of those living in the immediate vicinity, nor the impact on the house prices

The studies are heavily biased to the view of those who are beneficiaries of establishing the facility, and do not account for the sentiment or personal impact of those who live "tens" or "hundreds" of meters from the facility.

Based on the considerations above we request that you reject the proposed development.

Submission ID: 391616

To The EPA,

This is a submission to the latest response by Prospect Hill International in relation to the waste-to-energy facility in Lara. We strongly object to the planned development of a waste-to-energy facility in Lara or its surrounding areas.

The latest responses from Prospect Hill, while detailed, emphasized the positives of developing the facility and often neglected the negative aspects.

There are still outstanding issues that have been raised in previous submissions from the community that have not been acknowledged or adequately addressed in the latest response. With some of the responses drawing further questions and concerns.

Health:

There are a few references to safety and health of the residents referenced in the document, which appear to be simulated based on the expected emissions released from the plant

The exposure to these emissions affects the health of people who are both residents of Lara/Corio and people who commonly use the roads as a mode of transportation, the affected area is large and highly variable, as shown in the simulations, so a more conservative approach needs to be taken because the flume pipe extends high into the atmosphere and the variations in the wind could make certain areas of dense concentrated chemical emissions.

The emissions released from the plant are treated as a stand-alone simulation, where in reality there is a compounding effect with numerous other plants operating in the area such as SNF chemical manufacturing plant, Clariant Specialty Chemicals manufacturing plant and in the wider area other agriculture and industrial manufacturers like Chemring, Incitec pivot and Shell.

- Prospect Hill should be addressing what the marginal addition of harmful exposure is in the area and what the short- and long-term health effects are to those exposed.
- And it needs to address the co-correlation of exposure causing diseases, due to widening breadth of chemical exposure.

Prospect Hill has quoted studies and use cases suggesting that these plants have been operating successfully with minimal harm to the residents. These are not complete and accurate representations. They do not show the long-term health effects, but rather draw an inference from the simulation or use very short-term examples, for instance a few years of "data".

- They do not demonstrate that there are no long-term health effects as those studies require a much longer time window, spanning decades as that is the time frame that diseases such as asbestosis and cancer require to emerge.
 - To place a waste to energy facility in such close proximity of a residential suburb would require a study on the long-term health to be undertaken, given the extreme potential hazard it has to human life and the abundance of options to develop where it is less populated.

Mitigation processes:

The emissions simulated in the report are based on the waste being the "target" waste. This target waste includes a limited scope of feed waste which based on the reports is expected to result in less harmful outputs as the waste is processed. It is very difficult to ensure that the correct 'target waste is being fed into the process

when operating at scale. Even with monitoring in place, the figures that the facility is suggesting is in the magnitude of 4,000 tones p.a.

As we know rubbish can vary widely in bins and people can often dump materials like building materials like asbestos; chemical materials like batteries, electronics; and a variety of other waste in their red and yellow residential bins.

Harmful and non-harmful waste is often not distinguishable without close inspection, and can sometimes be hidden within plastic bags and under other waste products.

The monitoring measures suggested are inadequate to perform a meaningful audit or draw insights:

- The staffing resource allocated to this and the exact commitments are very vague, but given the expectation that there will be approx. 30 long-term jobs from the community to the facility suggests that there will not be many resources allocated.
- Number plate monitoring to identify residential areas of concern, this requires the linkage of the number plates the monitoring and audits data in order to work.
- Manual inspection of waste to identify obvious objects such as fridges, manual inspection may help identify the large non-target items, but the issue is that in general household waste we do not expect there to be items like fridges and TVs in there, but smaller less noticeable waste. Often requiring opening and sifting through for useful identification. The other issue is that this is a tedious job, that given the expected resources, there would be a lot of human error from focus burnout.
- Manual auditing of trucks, this does not sound like it would occur very frequently given the volumes of the trucks.
- In order to make any meaningful inferences the analysis must be done in a timely manner with sufficient and correct information. The resources allocated to this suggest that it would be difficult to create a sufficient sample set to draw any statistically sufficient conclusions over a truck level, let alone partitioning the information over time, location or acting on the information.
- This requires a more detailed elaboration on this monitoring plan including the quantification of resources, feasibility and expected benefits. And needs to factor this in to the simulation for a more conservative stance on the emissions.

Community aesthetics and general sentiment:

There is no mention on the potential impact on the value of houses, either with regards to the houses in the immediate vicinity or the houses suburb as a whole

- due to the high potential of extremely detrimental adverse health impacts, there is a stigma on waste and chemical processing facilities.
- this facility is also very prominent and will dominate the Lara skyline, and is a very inaesthetic structure.
- This will drive down the price of houses in the area and the potential impacts should be taken into consideration by Prospect Hill and the local authorities, but it is not adequately addressed.

Given the proximity to residents in Corio and Lara there should be a sufficient buffer, there is not:

- The response to the justification of Lara as the suitable location, is based on a limited number of criteria, which is often further justified by European case studies (which will be addressed further down)
- There needs to be a stronger emphasis on the buffer of land to residents, as there is a high potential health hazard, which is further extended if there are things that are unaccounted for in the studies or areas of error and a high land value impact.
- There is an abundance of land in the surrounding areas which would be suitable for the development of this facility, which are far away from residential communities, especially ones that are growing.

- These should be considered, at a minimum there should be a published evaluation of a number potential suitable alternative locations for this facility and a justification of why they are not ideal or are ideal, before selecting one. There currently is not.

One of the responses is that the intention is to mainly consume the waste from Greater Geelong, Bellarine and the Surf Coast.

- There is sufficient housing and a growing population in the area to supply waste to process at the plant, you should place the waste facility closer to the intended source of waste. It does not make sense to position the waste facility in Lara, as Lara is on the boundary.
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The studies are heavily biased to the view of those who are beneficiaries of establishing the facility, and do not account for the sentiment or personal impact of those who live "tens" or "hundreds" of meters from the facility.

Based on the considerations above we request that you reject the proposed development.

Submission ID: 391634

To Whom It May Concern:

As the closest Rural Residential property to this EfW plant I OBJECT to this plant being built so close to my family home, Planning application number- PA2001035 and the EPA Application no: 1004200

These types of EfW plants that have been planned in many other locations and states within Australia have been STOPPED due to there closeness to the local community.

This plant is no different. It is too close to the local Lara community.

PHI have carefully calculated their numbers to make sure they haven't triggered a Environmental Effect Statement. This should be made mandatory; it is just a loophole for companies like PHI to push through projects with manipulated data.

The Waste from Energy Plant will be within 350 meters of a family home- MY HOME, 2.2 kilometers from the Local Primary school, and 2.3 kilometers from the community pre school.

I'm not an expert in these plants but the research I have done regarding EfW's has shown me they really are not a good process and have a lot more flaws than benefits, to the point that the energy they create from waste is actually more polluting than a coal fired power station which are slowly getting shutdown throughout Australia for cleaner alternatives.

Prospect Hill International Plan on burning 400,000 tons of rubbish a year, and have said they would like to expand the plant to burn up to 600,000 tons of rubbish a year. Again if that's there long term plan then they surely will then be triggering the need for a EES. Even if they were to burn 400,000 tons of rubbish, there physically is not enough land fill rubbish in the surrounding areas to support this.

Presently our family home is a quiet area with very little noise most days, and nights. This plant will change the environment of our family home hugely. Any noise this plant makes is more than what we currently have and is not wanted. Not to mention the sheer size and the height of the exhaust stacks are HUGE. While we acknowledge the area is industrial, there needs to be relevance and thought put into what goes into the area due to the rural housing and community close by.

Currently the only noise complaint we do have is with a trucking transport company that is 560 meters away from our family home. On a still quiet night the noise from this facility can be very loud. With PHI plant only being 350 meters away the noise will have a HUGE impact on our family home and environment.

Regards.



Submission ID: 391644

28 October 2021

EPA Victoria\1300 372 842

E: contact@epa.vic.gov.au

Re: Submission on Prospect Hill Waste to Energy facility plant Lara VIC 3212

My name is [REDACTED], I am a resident of Lara and secretary of the Township of Lara Care Group Inc.

We continue to object to the issue of a Works Approval for the above mentioned project. The applicants required responses to the first round submissions are again grossly incomplete and do nothing to qualify the proposal at this sensitive location. The location is far too close to existing and emerging residential properties and will be a health and biodiversity hazard to the area.

The applicant relies wholly upon European experiences of “other WTE facilities”. Regulations in Europe are in reality less stringent with nil enforcement. This is Australia and this WTE would be Prospect Hill’s “first such plant” built by and managed by foreign nationals employed by Everbright who manufactures all plant components.

Everbright is a wholly owned entity of the Chinese State government. The World Bank currently has a ban on doing business with a Everbright power division due to misrepresentation in contract negotiations involving power plants. Specific misrepresentations involved performance of specifications, a most critical benchmark EPA Victoria needs to carefully consider.

No net community benefit has been established that is commensurate with the Australian governments Net Zero emissions scheme proposed for 2030-2050. No grid feed arrangement to supply the energy wholesaler, Powercor exists let alone how or if any power cost offset would be realised by Lara residents. How this generated power would financially benefit residents has not been demonstrated. This is a Waste to Energy proposal. Where is the “To Energy” part purported to supply 50,000 homes as an advertised community benefit?

In reality, the “To Energy” part is likely to be an offset to the plants power consumption only issued as credit to them by the energy retailer. There is no example provided in Australia where the energy retailer has indeed lowered energy costs to consumers from a WTE plant. In fact, the proponent has failed to include such an example as existing anywhere on the planet.

Setting aside any real community benefit from generated power, all that remains is a garbage incinerator profiting from waste disposal fees paid by ratepayers at the expense of public health. The plant feedstock supply is in question given Geelong and other Victoria council’s new green waste recycle rollout scheme and expanding recycle programs.

Continued from page 1' Submission by [REDACTED], Township of Lara Care Group Inc.

Temporary external waste storage has been provisioned for. The prevailing winds in Lara will carry both the odours and noise from the operation directly into existing down-wind neighbourhoods. The ash discharge will settle upon area rooftops and yards with ingestion by residents and fauna being a given. Local watercourses will be tainted by tonnes of fine ash and emission particles.

The inspection of incoming feedstock is proposed to be well managed by the use of "CCTV license plate recognition". Being a CCTV expert I can tell you this is only useful to track known vehicles coming from other tracked dump locations. It does nothing to confirm contents unless full time date, time and travel monitoring of loaded material matches transit times from site to site.

No proposal exists to confirm that landfill or other feedstock supply entities will enjoy this labour intensive and expensive "tracking and travel monitoring system". In short the plant will take and burn whatever it gets. No sorting of already deposited pit feedstock will be effective in compliance with toxic emissions prevention. No biodiversity study or printed assessment has been performed or provided other than basic printed assurances from the proponent themselves.

Barwon Water, the water authority has stated it prefers an alternate source of water other than precious potable water already in short supply be used to supply this plant. Geelong has suffered under permanent water restrictions for many years with Stage 4 restrictions likely to be reinstated given climate change and booming residential development in Lara and Greater Geelong.

Even disregarding all of the objection points made herein this plant is still in the wrong location to protect the public and biodiversity. It may meet some of the proponent's needs but falls far short of being a sound environmental proposal with a net community benefit of even power from waste.

I do support alternatives to landfill. We do not support this proposal at this location. We ask the EPA to not grant a works permit.

Regards,

[REDACTED], Secretary
Township of Lara Care Group
PO Box 336
Lara VIC 3212
[REDACTED]

Submission ID: 391695



EPA Application No.: 1004200
Prospect Hill International Pty Ltd.

Dated: 27/10/2021

Proposal Submission by: [REDACTED]

We have previously submitted comments and a request for clarification of presumptions made and issues raised in the PHI Development Approval Application and at the EPA directed community conference.

We are generally concerned with the “selective” responses provided by PHI to the issues raised in our earlier submission. We also consider many of the responses provided to be either dismissive, uninformed or potentially misleading on the issues they do choose to address and some actually appear derisive of the community concerns.

We note that many of our concerns and observations are consistent with those raised by the community and referral authorities and so, rather than resurrect our earlier submission we would provide the following as a summary of outstanding concerns and observations that we believe that the EPA should consider before further progressing this application to approval.

1. Community Engagement

PHI acknowledge in their responses that their community engagement opportunities and activities have been constrained by CoVid lockdown restrictions. While this is clearly correct and is an event outside the control of PHI it does not diminish their responsibility to the community or the importance of direct, detailed, and comprehensive engagement with the community. This is a significant project that will have long term ramifications on the community and it is incumbent on the EPA to ensure comprehensive and inclusive engagement process have been observed.

Jacobs is very aware of the criteria for engagement having conducted a community education and engagement program for the AP Maryvale application. Jacobs community engagement then included a drop in centre, significant collateral and presentations by AP executives at community and industry forums over a couple of years. The REA gasification project also encompassed over a year of community education and engagement which included a drop in centre at the Western Region Environment Centre, 3D models, newsletters, collateral and numerous community, council and industry presentation by the project principals. These must represent a minimum benchmark for this and future engagement activities for projects of this nature. The pandemic constraints should not provide PHI leave to justify less comprehensive engagement program than would otherwise have been required or less than the minimum benchmarks already established.

CoVid constraints should not minimise the importance or comprehensiveness of an exhaustive PHI engagement strategy and the community deserves an equal opportunity to discuss, consider and question the application. Worksafe queries also note that PHI have not even consulted with their industrial neighbours at this time. PHI commitment to 2 online,

heavily controlled, discussion session and 1 arranged by the EPA are clearly insufficient and inordinately inferior when considered in the context of the scale and impact of the project and comparative process completed for similar projects in Victoria.

Continuous reference to the suitability and performance of overseas EfW plants in higher density population areas dismisses the nature and priorities of Victorian (and the Lara) communities, especially regional communities that generally elect to live in these regions BECAUSE they have a separation from urban sprawl and industrial impacts such as proposed by PHI.

2. Waste

Scale – Referral authorities MWRRG and BSWRRG both imply that the available residual waste volumes required to service this facility are highly unlikely within the stated Barwon South West Region and Western Metropolitan waste catchment. PHI response that

“residual waste (that in Victoria goes to landfill) produced per annum is 1,800,000 tonnes” while correct is misleading in the context of the questions around likely waste supply. The Sustainability Victoria waste portal modelling currently forecasts:

- MSW volumes across the whole Barwon South West Region as being circa 81,000 tonnes in 2021 which is expected to hold steady through to 2026.
- C&I volumes for the whole Barwon South West Region as being 89,000 tonnes growing to 98,000 tonnes by 2026.
- MSW volumes across the 6 Western Metropolitan LGA that make up the Western Partnerships as being 183,600 tonnes growing to (an high estimate) of 209,000 tonnes.

If PHI secured every tonne in their stated catchment, then the MSW, which accounts for 80% of the plant volumes, would only TOTAL 290,000 tonnes. PHI has stated that they will only be taking C&I for 20% or 80,000 tonnes of their input meaning that PHI will NEED every tonne of MSW in the catchment AND another 30,000 tonnes from a wider catchment.

Given that Wyndham Council, central to the preferred PHI catchment owns its own landfill and Recovered Energy Australia already has approval for a circa 200,000 tonnes gasification facility servicing the same region – it is extremely unlikely that PHI scale is justifiable. It is exceeding plausible that the proposed scale of the PHI facility will result in the unintended consequence of undermining existing (approved) infrastructure and/or recycling initiatives in order to maintain its operating capacity. PHI notes in its response that:

“Planning for waste to energy will be part of the upcoming review of the Victorian Recycling Infrastructure Plan”

Clearly this Infrastructure plan will be based on a State-wide “needs assessment” and will determine the appropriateness of this proposed facility and scale in this location. It is potentially misleading to suggest the proposed Infrastructure Plan justifies this facility and scale but, in actuality, the PHI proposal is pre-empting or looking to influence the direction of the Infrastructure Plan.

PHI suggests the rationale for the SEMAWP project is similar as for the PHI EfW project and documents a direct quote from the MWRRG to support their application. We are unclear if PHI is unfamiliar with the Melbourne waste market or misleading in this statement. The SEMAWP is a direct response by councils in the SE Metropolitan region to the closure of landfills serving their region. There is a single landfill (Suez Hallam) left to service the residual waste from that region following the closure of several other landfills in that region

over the last decade. The Suez landfill is now scheduled to close some time in the next five years. SE Councils sending waste to Western and Northern Metropolitan landfills is not consistent with the principles of “shared responsibility” and accordingly the SE Metro councils have instigated the SEMAWP process. The same principle of “shared responsibility” being pursued by the SE LGA’s is contrary to the principles and scale of the PHI proposed facility which will likely need to secure waste across Victoria to maintain its operations.

While PHI is correct in stating that the proposed EfW Cap has not allocated any of its proposed capacity PHI is clearly pre-empting and potentially looking to influence the design and conditions of the cap legislation including the current discussion and likely rules regarding the “appropriate scale and distribution of WTE in Victoria. EPA should not be looking to set a precedent (or exception) to these considerations by approving this facility ahead of clarification of the overarching controls and mechanism to be applied under the cap.

To provide community confidence in its waste acceptance procedures, PHI has suggested that waste will be visually inspected PRIOR to its tipping into the waste pit. This is clearly unrealistic and misleading unless PHI are proposing waste deliveries in transparent sided vehicles or open vehicles which are completely unsuitable for the delivery of putrescible waste (and most other types of waste). This inspection undertaking undermines the credibility and sincerity of PHI waste management expertise and/or intent.

3. Environmental

Due to the extensive discussion already provided in our earlier submission we offer the following summary points to this topic:

- Water – The PHI plant as designed requires an exceedingly significant amount of water (potable or otherwise) in the context of the Barwon Water supply. The region is often subject to water shortages in the community and industrial water is prioritised over community water use requirements. PHI suggesting they are in discussion with Barwon Water does not address the facility water use efficiency. It should be incumbent on the proponent to minimise water use more in line with that which can be expected from the use of air cooled, rather than water cooled, condensers (as specified in the other approved EfW in Melbourne).
- The PHI proposal clearly meets the SEPP ground level concentrations for emissions at the boundary due to the height of the stack and the resultant disposition of emissions across a wider area. This approach to emissions management is not dissimilar to the “dilution solution” for pollution generally considered an inappropriate management technique by EPA and the appropriateness of which should be considered in the context of this submission.
- PHI suggest that they will be providing annual environmental performance reporting through the annual performance statement (APS). The frequency and transparency of the suggested environmental performance reporting is completely unreasonable. PHI should be required to provide the same continuous online public reporting that is required by other EfW approved in Victoria.

4. Site

We understand that the site planning approvals is not in the remit of the EPA to consider. It is however the responsibility of the EPA to consider ALL amenity impacts of the proposed facility on the community. EPA has established minimum separation distances for equivalent

and less contentious industrial facilities than now proposed by PHI. While we recognise this to be in an INZ2 zone, as we noted in our earlier submission, the specific site sits at the outside boundary of this 500HA industrial zone rather than towards the centre where the 1.5km buffer zone originally intended for these types of facilities in this type of zone would be protected. By any measure, the circa 350m to a residential (rural or otherwise) is completely unreasonable and not a precedent that should be set for future plants in Victoria.

We appreciate the opportunity to provide further comment and would welcome inclusion in the further engagement necessary for ensure this project secures its social licence to operate.

Yours sincerely

Submission ID: 391754

28 October 2021

Environment Protection Authority Victoria
Uploaded via engage.vic.gov.au

PROSPECT HILL WASTE TO ENERGY FACILITY SUBMISSION 2 - OPPOSING APPLICATION # 1004200

We appreciate the opportunity to provide a second submission regarding the proposed Prospect Hill Waste to Energy Facility at Lara. Geelong Sustainability attended the Community Conference in July.

In reviewing the answers provided by Prospect Hill International PHI to the community's questions, we were disappointed to find little if any new material. So unfortunately, our key questions remain.

- Where will the waste come from?
- Where is the social license for this project?
- Where is the business case that shows the plant is viable?
- How can this plant be a transitional waste solution when it will operate for more than 25 years?
- Why is there no front-end sorting of waste?
- Why is there no agreement with Powercor for energy off-take?
- How can PHI justify using 2.5Gl of potable water per day?

Lack of feedstock

- PHI claim most of the waste will come from the G21 and surrounding regions. However it clear that G21 councils don't require this facility and western Melbourne will be served by the already approved plant, Recovery Energy Aust. at Laverton [see Appendix a, Fig 1]
- Local councils have ambitious zero waste policies with plans to recover food, glass and other resources.
- The City of Greater Geelong (CoGG) has set a net zero waste to landfill target by 2030. CoGG has also started its food organics trial in Lara, which we'd suggest is sending the EPA a subtle message!

Lack of social licence for this project

- Lara residents are still dealing with the aftermath of the last disastrous waste facility, which is costing taxpayers millions to clean up.
- As the proponents have never operated any type of waste facility, the community is entitled to be concerned about their bona fides and capabilities to run the plant safely and efficiently.

Viable business model

- The community has continually called for a business model to be released showing that the plant is commercially viable. Transparency and accountability obligations should require that a strong business case exists to justify the investment. If not, they are entitled to be suspicious.

Incineration is not a transitional solution

- Incineration destroys the material forever, locking in an unsustainable linear approach and impeding innovative circular economy solutions.
- The plant has a lifespan of 25 years and hence this technology is inconsistent with Victorian Government statements on the Waste to Energy framework. We note that Infrastructure Victoria warned the state government about over investing in this kind of technology. There was meant to be a cap of 1 million tonnes per year and 3 other plants have already been approved [see Fig 1, Appendix A].

No front end sorting to remove hazardous items

- It's unacceptable for council waste to be fed directly into the hopper without screening and removal of dangerous and toxic materials like batteries and paint cans etc. This practice would be a major health hazard for the community and a workplace health and safety risk.

No energy off-take agreement with Powercor

- Despite years of planning, PHI has no agreement with Powercor for if or how the produced energy will be fed into the grid. We understand significant additional infrastructure would be required, which must be costed into the business case.
- CoGG is already capturing methane at its Drysdale landfill site via a 1MW plant. Many of PHI generalised statements are insufficiently contextualised to our region.

Excessive water requirement

- It is unclear if the facility will use potable water for cooling towers instead of low water options such as refrigeration for water cooling. Knowing the impending shortfall in town water supply for our region, it's inappropriate that the plant wants to use 2.5 Gegalitres of potable water in its cooling towers each day.
- Understandably, Barwon Water has raised its concerns. It remains unknown (and unlikely) that the plant could readily access recycled water. PHI has indicated it doesn't want to use more expensive cooling options that reuse water. This should be another key issue to be explored thoroughly before approval.

Rationale for Environment Effects Statement

We believe the nature and scale of the proposed Lara WtE plant are such that they warrant an official Environmental Effects Statement (EES).¹ Specifically in relation to these EES criteria under the Ministerial guidelines for assessment of environmental effects under the Environment Effects Act 1978.²

1. Potential extensive or major effects on the health, safety or well-being of a human community, due to emissions to air or water or chemical hazards or displacement of residences.
2. Potential significant effects on the amenity of a substantial number of residents, due to extensive or major, long term changes in visual, noise and traffic conditions.
3. Potential exposure of a human community to severe or chronic health or safety hazards over the short or long term, due to emissions to air or water or noise or chemical hazards or associated transport.
4. Potential greenhouse gas emissions exceeding 200,000 tonnes of carbon dioxide equivalent per annum, directly attributable to the operation of the facility.

Additional reasons to reject the proposal

Europe is abandoning incineration

Waste management practices in many European countries have been used to justify the PHI proposal. However, there are many differences and contrasts between these countries and Australia with regard to the methods for handling waste and generating power. Firstly, European countries do not have the same degree of access to capturing solar energy as we do, so there is a greater need for alternatives such as WtE, even if they are not emission free. Secondly, population and housing density makes it more difficult to guarantee separation of waste items for re-use and recycling. And while Europe and other northern hemisphere countries had previously embraced waste incineration, there is now a trend away from this technology.^{3, 4}

Government policy is working to reduce waste

The City of Greater Geelong, and indeed the entire Barwon South West region are moving to a Circular Economy for waste, with the ultimate goal of zero waste to landfill.^{5, 6} None of the councils in the G21 region need this facility and it seems implausible that a state government would impose a waste facility on a LGA whose traditional role is looking after roads, rates and rubbish!

All societies, locally and globally, need to reduce overall waste. Developed countries are leading a lifestyle which is inconsistent with sustainability, the burden of which we are leaving for the next generation and

¹ <https://www.planning.vic.gov.au/environment-assessment/what-is-the-ees-process-in-victoria>

² https://www.planning.vic.gov.au/_data/assets/pdf_file/0026/95237/DSE097_EES_FA.pdf

³ <https://www.no-burn.org/europewasteburning/#resistance>

⁴ <https://e360.yale.edu/features/in-europe-a-backlash-is-growing-over-incinerating-garbage>

⁵

<https://geelongaustralia.com.au/common/Public/Documents/8d7ec5c40d76376-28042020councilagenda-wasteandresourcerecoverystrategy2020-30-strategyattachment3.pdf>

⁶ <https://www.reduce-recycle.com.au/about-us/regional-plan/>

under-developed countries. Under state government policy, all local councils are gradually introducing separate household waste bins for food waste & garden vegetation, glass, and recyclables.⁷

Regional Renewable Organics Network

Further evidence why allowing the establishment of a WtE facility would be short-sighted is the progress being made on the Regional Renewable Organics Network at Black Rock. Barwon Water is working with local councils - the Borough of Queenscliffe, Colac Otway Shire, City of Greater Geelong, Golden Plains Shire, Surf Coast Shire and the neighbouring Wyndham City Council - to explore opportunities for processing food and garden waste from households across the region. They will be able to take local commercial, industrial and household food and garden waste - known as 'organic waste' - and convert it safely into nutrient-rich products that improve soil for agricultural uses and capture carbon in the ground, as well as clean, green energy.⁸

Project benefits include:

- Processes 40,000 tonnes of our region's organic waste each year, concentrating it into 8,000 tonnes of high value, nutrient rich soil enhancers to support local agriculture.
- Reduces the region's emissions by between 10,000 to 15,000 total carbon emissions per year, the equivalent of taking more than 4,000 cars off the road.
- Saves energy costs, keeping water bills affordable for our customers
- Provides a local, long-term and lower financial and environmental cost waste solution for councils
- Generates 2.5 gigawatt hours of electricity, enough to power 14% of Black Rock's energy needs or the equivalent of 500 homes
- Creates 75 construction jobs and 36 ongoing jobs
- Leads the way in our region's transition to a circular economy, where materials are continually reused and recycled to increase their life span and reduce waste.

Thank you for the opportunity to make this additional submission.

Geelong Sustainability urges the EPA to reject the proposed WtE facility at Lara on the multiple grounds described above. We also believe that the scope of the proposed facility with its potential to threaten multiple environmental values warrants the application of an Environmental Effects Statement.

Geelong Sustainability contends the incinerator is not required and it would push our region in the wrong direction ~ away from our objective for a clean energy circular economy.

Yours sincerely,

[Redacted Signature]

[Redacted Name], President, Geelong Sustainability Group Inc.

w: www.geelongsustainability.org.au



⁷ <https://www.vic.gov.au/transforming-recycling-victoria>

⁸ <https://www.yoursay.barwonwater.vic.gov.au/rron>

APPENDIX A

Figure 1

1.1. Existing facilities

Pre-existing approved facilities not subject to the cap

Facility	Annual feedstock	Electrical output	Thermal output	Notes
Australian Paper (Maryvale) ⁵	650,000 tonnes	45 MW _e	225 MW _{th}	Electricity and heat to supply on-site paper mill
Recovered Energy Australia (Laverton) ⁶	200,000 tonnes	15.1 MW _e		Output excludes 2.1 MW _e for plant operation; proposed capacity to provide thermal output to nearby properties in future
Great Southern Waste Technologies (Dandenong South) ⁷	100,000 tonnes	7.9 MW _e		
TOTAL	950,000 tonnes	68 MW_e	225 MW_{th}	

Figure 3 Already approved WtE facility capacity

⁵ <https://engage.vic.gov.au/epa-works-approvals/australian-paper-wa>

⁶ <https://engage.vic.gov.au/epa-works-approvals/recovered-energy-australia>

⁷ <https://engage.vic.gov.au/epa-works-approvals/GSWT>

Summary of submissions: Public and interested third-party submissions – second submission period 13-28 October 2021 - Prospect Hill Int., waste-to-energy facility, Lara



EPA acknowledges Aboriginal people as the first peoples and Traditional custodians of the land and water on which we live, work and depend. We pay respect to Aboriginal Elders, past and present.

As Victoria's environmental regulator, we pay respect to how Country has been protected and cared for by Aboriginal people over many tens of thousands of years.

We acknowledge the unique spiritual and cultural significance of land, water and all that is in the environment to Traditional Owners, and recognise their continuing connection to, and aspirations for Country.



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Visit epa.vic.gov.au/language-help for next steps.

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OFFICIAL

Development licence assessment report

Environment Protection Act 2017

Appendix E: Summary of submissions received between 20 June and 13 July 2023

Prospect Hill International Pty Ltd (APP1004200)

ID	Q4. Postcode	Q5. Who are you representing in your submission?	Q6. Name the organisation or other person you are representing (if not 'myself')	Q7. What topic of the further information would you like to comment on?: The revised Noise Impact Assessment	Q7. What topic of the further information would you like to comment on?: Greenhouse gas emissions	Q7. What topic of the further information would you like to comment on?: Air emissions	Q7. What topic of the further information would you like to comment on?: Odour emissions	Q7. What topic of the further information would you like to comment on?: Other further information	Q8. Please make your comment on the further information relating to the revised Noise Assessment here	Q9. Please make your comment on the further information relating to greenhouse gas emissions here	Q10. Please make your comment on the further information relating to air emissions here	Q11. Please make your comment on the further information relating to odour emissions here	Q12. Please make your comment on any of the other further information provided by the Applicant here	Q13. Do you have any suggestions or proposed conditions for how your concerns could be dealt with?	Q14. Please select your level of support for this proposal	Q15. Choose a file	
117726	3212	Myself		The revised Noise Impact Assessment	Greenhouse gas emissions	Air emissions	Odour emissions	Other further information	Vague and lacks clear detailed information and actions, pertaining to this specific site, the proximity to residence and specific consideration to the cumulative effects based on existing industrial facilities already in the vicinity	Vague and lacks clear detailed information and actions, pertaining to this specific site, the proximity to residence and specific consideration to the cumulative effects based on existing industrial facilities already in the vicinity	Vague and lacks clear detailed information and actions, pertaining to this specific site, the proximity to residence and specific consideration to the cumulative effects based on existing industrial facilities already in the vicinity	Vague and lacks clear detailed information and actions, pertaining to this specific site, the proximity to residence and specific consideration to the cumulative effects based on existing industrial facilities already in the vicinity	Vague and lacks clear detailed information and actions, pertaining to this specific site, the proximity to residence and specific consideration to the cumulative effects based on existing industrial facilities already in the vicinity	Vague and lacks clear detailed information and actions, pertaining to this specific site, the proximity to residence and specific consideration to the cumulative effects based on existing industrial facilities already in the vicinity	Object to proposal		
117743	3212	Myself		The revised Noise Impact Assessment	Greenhouse gas emissions	Air emissions	Odour emissions		This will have a negative effect the community and the environment	This will be no good on the environment	It is too close to residential homes	This is too close to residential homes		There would have to be a better place for this to be located away from family homes	Object to proposal		
117746	3220	Myself															
117750	3213	Myself		The revised Noise Impact Assessment	Greenhouse gas emissions	Air emissions	Odour emissions	Other further information	False and misleading	False and misleading	False and misleading	False and misleading	False and misleading	False and misleading	Object to proposal		
117781	3212	Myself		The revised Noise Impact Assessment	Greenhouse gas emissions	Air emissions	Odour emissions		False and misleading	False and misleading	False and misleading	False and misleading	False and misleading	False and misleading	Object to proposal		
117819	3250	Another person	The Dews												Object to proposal		
117821	3212	Myself		The revised Noise Impact Assessment	Greenhouse gas emissions	Air emissions	Odour emissions		Such a vague response to all questions I assume and hope the EPA will insist on proof of being able to meet the statutory requirements prior to issuing any permits. The proposed location of this proposal is completely wrong being so close to the Lara township and within about 400m of homes. This company has zero track record of operating one of these facilities anywhere or at any time even though they say their directors have vast experience. Where is the proof of that? Where is the proof that they have the financial ability to meet all expected requirements? The facility will dominate the Lara township with the proposed massive chimney. This proposal must not be allowed to go ahead in this such unsuitable location.								
117829	3212	Myself					Odour emissions		The answers seem to be full of things that will be attended to at the planning stage we would like to know how they will be attended to				As above	It still seems to me this facility should be located much further from residential area Lara is only a stones throw from it and in the predominately downwind area	Object to proposal		
117837	3250	Myself		The revised Noise Impact Assessment			Odour emissions										
117854	3212	Myself		The revised Noise Impact Assessment	Greenhouse gas emissions	Air emissions	Odour emissions	Other further information	The response isn't accurate, and is misleading. It is based off best practices. No real facts. If its built there will be more noise in the area.	Again building this plant means there will be more greenhouse gases and air pollution.	Again building this plant means there will be more greenhouse gases and air pollution.	Again building this plant means there will be more greenhouse gases and air pollution.	The information that has been provided isn't accurate, the measurements from the proposed site are NOT accurate to the nearest neighboring properties. It is 325 meters away from the nearest house. NOT 500 meters as stated in the information Jacobs have provided. So what else are they lying about and manipulating in their data to try and get this proposal approved? The information is using a lot of phrases like, best practices and industry standards. Without backing up these claims. And wanting to do further investigations once there proposal gets approved. It is too close to family homes and neighboring pre-schools and primary schools.	DO NOT SUPPORT AND REJECT PROSPECT HILL INTERNATIONAL FROM BUILDING A EW PLANT IN LARA.	Object to proposal	See 'written submissions' file.	
117900	3212	Myself		The revised Noise Impact Assessment	Greenhouse gas emissions	Air emissions	Odour emissions		I don't believe a legitimate noise assessment has taken place.	This proposal will only add to greenhouse gases	I do not want myself or my family exposed to the air emissions that will be created by this proposed entity.	The rubbish will stink. I do not want to have myself or my family exposed to the foul stench of rubbish.		Reject the proposal once and for all	Object to proposal		
117931	3214	Another person	Bryan Dew	The revised Noise Impact Assessment	Greenhouse gas emissions	Air emissions	Odour emissions	Other further information							Support the proposal		
117935	3224	Myself		The revised Noise Impact Assessment	Greenhouse gas emissions	Air emissions	Odour emissions								Object to proposal		
117968	3215	Another person	Bryan Dew												Object to proposal		
118006	3228	Myself		The revised Noise Impact Assessment	Greenhouse gas emissions	Air emissions	Odour emissions	Other further information							Object to proposal		
118028	3250	Another person	Bryan Dew	The revised Noise Impact Assessment											Object to proposal		
118049	3212	Myself		The revised Noise Impact Assessment					Reassessment of the data, as the figures provided are not correct in regards to distances to neighbouring family homes. And we believe the noise data collected to be inaccurate and misleading					Reassessment of the proposed development and consultation and consideration of the family homes directly affected by this.	Object to proposal		
118070		Myself		The revised Noise Impact Assessment	Greenhouse gas emissions	Air emissions	Odour emissions								Object to proposal		
118087	3220	Myself		The revised Noise Impact Assessment	Greenhouse gas emissions	Air emissions	Odour emissions		This is too close to properties and this community	Too close to residential houses with families and kids	Too close to home surely there would have to be a required radius for an infrastructure like this	I believe there should be an area far away for this to be located as I'm sure this would impact residents		I believe you should seriously consider a more suitable location that is far away from residents because of all the above mentioned issues please consider this from your own personal experience would you be happy with this near your family home ??? Think ???	Object to proposal		
118100	3212	Myself		The revised Noise Impact Assessment	Greenhouse gas emissions	Air emissions	Odour emissions	Other further information	The response is not accurate. It is based off best practices not real impact. No real facts. If its built there will be more noise in the area of families and homes.	Building this plant increases greenhouse gases and emissions - full stop!	Building this plant will cause air pollution!	Building this plant with cause greenhouse gases and air pollution	Stop acting like houses with families in them are not within close proximity to this proposal. A proposal that's going to cause factory noise, greenhouse gases and pollute the air where children and families live!	Put it somewhere else! Away from schools and family homes.	Object to proposal		
118210	3212	Myself															
118218	3212	Myself				Air emissions	Odour emissions								Object to proposal		
118287	3212	Myself												What impact would this have of the neighboring rural properties and close proximity to Lara residential land. Surely this is too close to housing	What impact would this have of the neighboring rural properties and close proximity to Lara residential land. Surely this is too close to housing	Object to proposal	
118504	3212	Myself		The revised Noise Impact Assessment	Greenhouse gas emissions	Air emissions	Odour emissions		There are plenty of other sites to build this facility away from a built up and established community	How will this affect the medical vulnerable in a built up and established community?	How will this affect the medical vulnerable in a built up and established community?	How will this affect the medical vulnerable in a built up and established community?	How will this affect the medical vulnerable in a built up and established community?	Yes There are plenty of other sites to build this facility away from a built up and established community with medical vulnerable people and children	Object to proposal		
118796	3212	Myself		The revised Noise Impact Assessment		Air emissions	Odour emissions	Other further information	Our young family home is within 3-km radius and we are concerned of noise impacts		Our young family home is within 3-km radius and we are concerned of air pollution especially we are with allergies /asthma.	Our young family home is within 3-km radius and we are concerned of foul odour.	We are also concerned with traffic impact and the frequent instances of potholes on our busiest roads. There have been many cycles filling and refilling potholes and they seem to be too often. This has the potential to increase traffic and vehicle incidence.	Please reconsider the location of this facility. Thank you.	Object to proposal		
118809	3212	Myself												Move it to the major industrial area near Viva, the Port, Airport, not close to residential housing. Even better, near a tip. The community doesn't want it in their backyard, reducing house prices and increasing pollution from the plant and trucks. Creating an eyesore at the entrance of Geelong and Lara. I work in manufacturing, accidents happen at what cost to the community! Stop companies trying to dump their shit on us and picking the cheapest option for them!	Object to proposal		
118837	3212	Myself				Air emissions	Odour emissions				Very concerned about the surrounding homes, schools and community areas	Very concerned about the surrounding homes, schools and community areas		Don't build it	Object to proposal		

120203	3212	Myself		The revised Noise Impact Assessment		Air emissions	Odour emissions		No actual real life benchmark data provided. It is late to capture all required actions in the detailed design phase. No mention of sound generated outside of the facility in regard to truck movement.	No actual examples of existing operational facilities emissions shared.	As per emissions.		Move to an area away from rural and residential areas.	Object to proposal			
120232	3222	Myself			Greenhouse gas emissions	Air emissions	Odour emissions			Burning low calorific and impure mixed materials will generate substantial amounts of GHG and higher than other fossil fuels and substantially more than renewable energy sources.	The European experience is that with much stronger EPA regulations and with strong enforcement regimes WTE plants are still major polluters and account for a substantial proportion of dioxine and other dangerous pollutants in nearby regions. In Victoria with our poor EPA regulations and lax regulators there is a likelihood of substantial adverse impacts on the health of nearby people, animals and flora.	Without doubt there will be adverse odours from this plant and even with the best capture techniques there will be leakage. Barwon Water is proud of the performance of its Black Rocks facility but regularly there are very pungent odours emitted.	Not to go ahead with the operation but put the effort into not generating the waste in the first place. This should be followed by expanding the waste so it can be reused into other products and also make much better use of these materials than merely burning them in an inefficient energy process.	Object to proposal			
120743	3212	Myself		The revised Noise Impact Assessment	Greenhouse gas emissions	Air emissions	Odour emissions		This facility should not go ahead in this area as it is too close to residential areas including schools.	As above	As above	The odour, increased trucks in the area, noise and air pollution makes the proposal for this facility to be located in the Lara area unacceptable	By not allowing this project to go ahead in this area	Object to proposal			
120780	3212	Myself				Air emissions	Odour emissions					Emissions from this facility will be an issue for a town so close to the site.	Being a mechanic working with landfill and waste disposal the odour coming out of this facility will clearly be bad for the community so close to this facility	The site could be more beneficial being built on the old landfill site in corio better access and traffic flow away from town	Object to proposal		
120783	3212	Myself				Air emissions	Odour emissions					It doesn't seem like the correct facility so close to a town full of people. Having waste burning and toxic fly ash. It doesn't matter how many forms, procedures or plans you put in place, there is a risk, there is an emissions percentage that shouldn't be released so close to town and there is always room for error. This should be further away from town away from schools and families living their day to day lives. Don't put families at risk, this should be away from housing	No amount of planning and procedures will stop the smell. We have bought and live in an area that is a beautiful area, not a tip. We should not have to succumb to this disgusting stench in our area, which will reduce the value of our housing as well as our quality of life as we will be living with a stench no matter how much they say they will manage it. We thought we were living in a pristine area not a toxic smelly area.	Find a more suitable area away from housing and living areas. Look at areas away from towns and schools that would pose a threat on health of families and people with the fly ash. This should not be anywhere near people's housing.	Object to proposal		
120839	3212	Myself				Air emissions						Not satisfied with the air emissions response. The risk is still not reasonable. The facility should not be so close to residential properties. We note that while it mentions best practices - BAT - best available techniques this is only at this point in time - they are not perfect techniques. Similar to the recent information regarding the barwon river chemical spraying, which no doubt was government approved and using best techniques at the time - which have now found to be directly links to cancer clusters in the area. As such it is only after exposure that these irreversible developments occur, therefore the approval of this facility exposes the community to a great level	Facility should not go ahead in this area. Should be in an isolated location not so close to the general population, asking residents to take a unnecessary risk. This project should not go ahead due to the uncertainty and unnecessary health risks it poses.	Object to proposal			
120842	3212	Myself				Air emissions						Oppose the project due to safety concerns regarding the air emissions emitted from the facility. It places the community at unnecessary risk. The project could be achieved away from residential areas in a isolated location. Much of the information is based on perfect functionality of the facility and even then the resulting emissions are not great. The margin of error and potential damage and risk to the community is too big a risk not to mention a unnecessary risk. We respectfully request that the project application be overturned.	Reject the proposed facility.	Object to proposal			
120843	3212	Myself						Other further information					Not satisfied with the responses of the applicant. The proposed project poses a unnecessary risk on the community. A project of this manner should not be close to residential areas. There is so much available safe better fitting of a projection of this nature which poses much less risk to the community.	The project should be rejected	Object to proposal		
120896	3216	Myself				Air emissions						The proposal to burn waste in order to produce energy in a so-called 'advanced' country is a primitive isolation and borders on the insane. To increase air emissions in a country which already has very high emissions per capita due to, among other things, our poor standards for vehicle emissions, and our high dependence on gas for heating in Victoria makes no sense.	Find ways of re-using that waste in a non polluting manner.	Object to proposal			
120903	3328	Myself			Greenhouse gas emissions							Waste to energy is apparently more polluting than burning coal. When we must be reducing CO2, this proposal is very poor.		Do not proceed with this proposal. It is an outdated method of dealing with waste and undermines efforts to reduce waste production at the source, recover reusable components from the waste stream and is polluting.	Object to proposal		
120910	3238	Myself			Greenhouse gas emissions	Air emissions		Other further information				I am concerned about increased CO2 emissions	I think there are more sustainable alternatives to burning rubbish.	Stop the proposed incinerator	Object to proposal		
120918	3219	Myself			Greenhouse gas emissions			Other further information				Burning rubbish creates more carbon emissions than burning coal.	Are there any filters that could collect the carbon that burning would create?	Support subject to licence conditions			
120990	3212	Myself			Greenhouse gas emissions	Air emissions	Odour emissions					Burning waste releases more carbon emissions than burning coal, destroys finite resources, undermines recycling economy and creates serious health risks for workers and the surrounding community.	The nearby You Yangs Regional Park, Ramsar wetlands and Serendip Sanctuary are environmentally sensitive areas that depend on clean air for wildlife and park visitors. Poor air quality will negate human experience and affect these wildlife refuges for animals already under stress from habitat destruction with encroaching suburbia. Just as importantly Lara and Lovely Banks are growth corridors and established residential areas where people will be exposed to pollutants, no worsening of air quality than what already exists is acceptable.	Lara and Corio residents deserve to have no disruption to their quiet enjoyment of their homes due to foul smells. Tourism is important, in particular the You Yangs enjoys significant visitation which will be diminished by malodorous air. No activity deserves to be curtailed by foul air.	Yes, deny a planning permit. This facility is not needed or wanted by Geelong. It will encourage applicants to import waste into the area to meet targets so is not solving any current problems in Geelong or the western suburbs of Melbourne so is not fit for purpose.	Object to proposal	
120997	3227	Myself			Greenhouse gas emissions							I have told that the plant will produce large amounts of greenhouse gas			Object to proposal		
121000	3216	Myself			Greenhouse gas emissions	Air emissions						oppose the new Prospect Hill incinerator and understand that the burning of waste will emit more carbon emissions into the air and is a short term solution to our waste problems.		1. I suggest we need to reduce waste by ending non recyclable plastic wrapping for food items within supermarket chains/shops and replacing this with recyclable/natural wrappings. 2. Have large corporations/companies that produce large amounts of waste from cheaply made products/food responsible for recycling/collecting their own broken/used/unwanted products. 3. Rather than rubbish bins for each house, have similar setup to Europe where they have large semi sub-surface rubbish/recycling bins at the end of streets where you have to tap a card every time you want to open the bin lid. This is directly debited to your bank.	Object to proposal		
121009	3212	Myself						Other further information					Awful stain on the peninsula. Why disincentivise recycling and reuse by incinerating goods for a nominal gain in potential power generation and risk further environmental damage from emissions.	Move it away from a rapidly developing and expanding area.	Object to proposal		
121070		Myself						Other further information					Destruction of finite resources, negative impact on circular economy	Education, diversion of waste from landfill, reuse resources	Object to proposal		
121074	3212	Myself						Other further information					Please refer attachment. But greater detail required on Waste sorting, boiler spec, turbine spec, flue gas treatment and ash management		Object to proposal	See written submissions file.	

12192	3226	Myself			Greenhouse gas emissions	Air emissions				Incineration is such a last century strategy and we should not invest in this anymore. GHG emissions and material depletion do not allow us such strategy. Future is towards circular economy, waste reduction and valorisation. How can we have 2050 GHG emissions targets and a project of incineration at the same time, this is completely anachronistic. We just can't plan more strategies that emit more GHG. Our IPCC carbon budget can't do it and our planet can't do it.	Yes there are advance systems that treat exhaust fumes, but at which cost? Not only in term of dollars but also in term of GHG emissions and virgin material use. Again, we just can't afford such project and our investment should be redirected towards solutions that integrate circular thinking.				Just don't do it, there is no future in such strategy, an alternative approach to waste is possible.	Object to proposal					
12199	3212	Myself	The revised Noise Impact Assessment		Greenhouse gas emissions	Air emissions	Odour emissions	Other further information	See attached files	See attached files	See attached files	See attached files	See attached files	See attached files	See attached files	Do not approve an incinerator I am gobsmacked that this proposal is even up for discussion, have we learnt nothing from the last 50 years? Perhaps a better location would be Spring St, Melbourne, next to Parliament House.	Object to proposal				
121200	3219	Myself				Air emissions										After nearly 50 years of banning backyard incinerators, we have come full circle, a poorly thought out retrograde strategy. You burn something, there is a resultant by product. Unacceptable in this day and age.	Object to proposal				
121203	3216	Myself				Air emissions										This facility will end up burning plastics. No matter what they say about preventing plastics getting into the incinerator, can't be trusted, over time plastics will end up being burnt. There will be all sorts of excuses and reasons but end result will be bad air quality. Please don't allow this facility to be built.	Ban the facility from being built. Invest in recycling instead.	Object to proposal			
121230	3212	Myself				Air emissions	Odour emissions	Other further information								The study and results published do not account for the long term impact on the health of nearby residents and given the nature of the operations the impact of there are any issues when the emission levels are going above the expected levels. Additionally there is no guarantee that it will not burn other waste products that are dumped like batteries and	The increase in garbage trucks that pass the township and surrounding areas to transport waste will expose the people who use the roads to the odour. Especially when commencing on a frequent basis this can have a large impact.	The increase in waste trucks and the constant burning of garbage will significantly degrade the residential sense of community in Lara and in turn will have an impact on community and land value.	Either don't build the plant, migrate the plant closer to the source of the rubbish, i.e. to Melbourne where the bulk of the waste is originating or move it somewhere where there are less people, not close to residential areas.	Object to proposal	
121238	3212	Myself				Air emissions	Odour emissions									Simply a joke - surely putting something like this right next to growth residential housing is not permitted?	Simply a joke - surely putting something like this right next to growth residential housing is not permitted?	Object to proposal			
121271	3212	Myself				Air emissions										Please read attached letter.	Object to proposal				
121307	3214	Myself														Don't build this so close to homes, playground and schools.	Object to proposal				
121408	3212	Myself			Greenhouse gas emissions											The burning of "green waste" should not count as lowering emissions. Its flawed, especially when this tip could be used for sustainable uses over turning it into ash.	No, just don't build something that burns waste. The world is in trouble, we can't recycle our way out of it and we need to stop producing what this facility proposes to burn. Sooner or later there'll be no fuel and well done, another classed issue.	Object to proposal			
121414	3212	Myself			Greenhouse gas emissions	Air emissions	Odour emissions	Other further information								There is no reliable argument that the facility would reduce greenhouse gas emissions. In fact it would prevent people from being motivated to sort their waste properly, recycle everything that can be recycled, compost food waste, and therefore is likely to actually increase greenhouse gas emissions. It is unclear where the waste will be sourced from and how many kilometers per annum trucks will undertake in round trips to deliver waste to the facility.	There is no assurance that air emissions will be safe for residents of the area. We live in a windy region which will affect large swathes of residents, animals, visitors to the area.	Odour travels and there will be much of it affecting the local communities.	The proposed facility would mostly incinerate reusable waste and is contrary to Victorian and local Government waste management policies. Calculations regarding "displaced demand for energy" seem unfounded and will rapidly become inaccurate as Victoria's energy mix becomes greener.	Invest time and energy into more sustainable, cleaner and more community-engaging solutions.	Object to proposal
121475	3212	Myself			Greenhouse gas emissions	Air emissions	Odour emissions									This is not a sustainable waste management solution, and will contribute further to greenhouse gas emissions. At the community meeting on 1st June 2021, between the EPA and Lara residents during lockdown, one of the representatives from PH1 stood up and said verbatim, 'well of course the air quality in Lara will go down a bit'. Can they tell us what the emissions will be, which chemicals, and the volume that will be emitted into the air? This is an extremely concerning comment, and has stuck with me for the past two years. Can they explain, expand on, and provide a measurement for this comment?	I am extremely concerned about the negative impacts on air quality in Lara. This facility is too close to residential areas, and the increase in air pollutants will negatively impact vulnerable people in the community, especially those with underlying health conditions, the elderly, and children. Due to also trying to become pregnant, is there information on the rates of miscarriage due to living in close proximity to an incinerator such as this, and the effects of the chemicals released into the air during pregnancy? (Including any effects on early childhood cancer?)	I am concerned the chemicals released will be able to be observed by the nearest residential housing, which are very close by.	To find an alternative site that is not in one of Melbourne and Geelong's residential growth corridors. Conduct a study into the impact of living in such a close proximity to an incinerator, negative impacts on air quality and the resulting effects on pregnancy, adult and children's health outcomes, and cancer rates longitudinally from the airborne chemicals that will be released.	Object to proposal	
121480	3209	Myself				Air emissions	Odour emissions									My past experience in burning waste hydrocarbons of varying compositions heating values and water content gives rise to concerns regarding accurate control of combustion and therefore emissions.	Can they demonstrate that the ash waste will be disposed of correctly? How does this not go against the new EPA laws regarding generation of new waste and responsibility?	Can they explain, expand on, and provide a measurement for this comment?	Object to proposal		
121481	3222	Myself			Greenhouse gas emissions											The further information does not address my concern that this high temperature incinerator (of a type banned in the ACT) will lock in greenhouse gas emissions for years. These emissions are exactly what we need to get under control, with governments at all levels now setting zero-emissions targets. Although there are some innovative 'Waste-to-Energy' solutions, this proposal is not for one of those innovative solutions, but for a sledgehammer approach that will be an unwelcome source of the emissions we are seeking to reduce.			Object to proposal		
121488	3215	Myself														I have seen the smoke billowing from the ultra tall incinerator chimneys in Sweden. I've witnessed the frivolous use of plastic - shopping bags, wrap on meat and fruit, plastic bottles that all goes into the kitchen bin and out with food scraps for general rubbish collection. That is not cutting down on plastic production. It is simply allowing unfettered emissions production by profit driven petroleum companies and exacerbating that by burning the discarded products. Blind Freddy can see that incinerating, rather than reducing, reusing, repairing, repurposing and recycling. Let's add another to that list - Governments must ensure products are built with longevity and stability designed within. We can't continue to weekly discard tonnes after tonnes of unrecyclable clothing - sold			Object to proposal		
121502	3212	Myself	The revised Noise Impact Assessment		Greenhouse gas emissions	Air emissions	Odour emissions	Other further information										Object to proposal			
121515	3223	Myself			Greenhouse gas emissions	Air emissions										An incinerator will not solve any emissions problems - it will increase them by allowing/enabling the ever-increasing production of single-use plastic. I have seen the smoke billowing from the ultra tall incinerator chimneys in Sweden. I've witnessed the frivolous use of plastic - shopping bags, wrap on meat and fruit, plastic bottles that all goes into the kitchen bin and out with food scraps for general rubbish collection. That is not cutting down on plastic production. It is simply allowing unfettered emissions production by profit driven petroleum companies and exacerbating that by burning the discarded products. Blind Freddy can see that incinerating, rather than reducing, reusing, repairing, repurposing and recycling. Let's add another to that list - Governments must ensure products are built with longevity and stability designed within. We can't continue to weekly discard tonnes after tonnes of unrecyclable clothing - sold	We all know - Governments and big companies know, fossil miners know, that air emissions are killing us. More and more children and adults are developing allergies and respiratory diseases due to air emissions. The cost of health to the Australian budget is set to far outgrow any gains a single company will make from this overpowered, oversized incinerator. We live on the other side of Port Phillip Bay, in a direct line with the incinerator. North Westerly winds would bring the emissions our way, so yes, I have vested interests as well. I have three beautiful young granddaughters. I do not wish to die knowing I didn't stand against this wrongful idea - a project that will endanger their future existence.	Say NO to this proposal. Focus instead on the reduction of rubbish, in factories, on building sites, in packaging - Polystyrene and acres of plastic are used to wrap and box a microwave. It's wrong, wrong, wrong. Everyone knows it. Governments must stop it, it's unethical.	Object to proposal		
121538	3212	Myself			Greenhouse gas emissions	Air emissions	Odour emissions	Other further information								There is no reliable argument that the facility would reduce greenhouse gas emissions overall. In fact, the presence of such a facility decreases motivation to properly sort waste, recycle where necessary and compost food waste. There is therefore the very likely outcome that greenhouse gas emissions may increase with this facility in the area. There is no clarity about where the waste will be sourced from nor any information about how the waste would be transported to facility. This has the potential to significantly increase greenhouse gas emissions.	There is no assurance that air emissions will be safe for residents of the area. We live in a windy region which will affect large swathes of residents, animals and visitors to the area.	It is clear that the facility represents a decrease in air quality and disgusting odours being present at all hours of day and night. Odour travels - and waste smells - and there will be much of it affecting the local communities.	The proposed facility would mostly incinerate reusable waste and is contrary to Victorian and local Government waste management policies. Calculations regarding "displaced demand for energy" seem unfounded and will rapidly become inaccurate as Victoria's energy mix becomes greener.	Invest time and energy into more sustainable, cleaner and more community-engaging solutions.	Object to proposal

121552	3220	Community organisation	Zero waste		Greenhouse gas emissions					The proposed burning of waste at Lara will be very bad for climate change and for human health. It is a very inappropriate way of disposing of waste. Methods to reduce waste and recycle need further attention.			See above	Object to proposal		
121562	3216	Myself			Greenhouse gas emissions					Refer attached file	Refer attached file	Refer attached file	Refer attached file	Do not approve the PFI Application before this foolish project.	Object to proposal	See 'written submissions' file
121567	3212	Myself		The revised Noise Impact Assessment	Greenhouse gas emissions	Air emissions	Odour emissions	Other further information	Refer attached file	Refer attached file	Refer attached file	Refer attached file	Refer attached file	Do not approve the PFI Application before this foolish project.	Object to proposal	See 'written submissions' file
121585	4670	Community organisation	Save Our Surroundings - Riverina	The revised Noise Impact Assessment	Greenhouse gas emissions	Air emissions	Odour emissions	Other further information	Rubbish should be dealt with in the area where it's produced. Not transported to Lara - creating selfish excuses for unnecessary noise impacts to this quiet community.	We need basic load, 24/7 Nuclear Power with low emissions instead of this potent GHG leaking silly plan - it's unnecessary emissions from transportation of the waste.	If the Air Emissions were harmless as claimed - Suppliers of this rubbish must deal with their own rubbish in their own immediate backyard! Little children/families growing up/living at Lara deserve their Public Health & Safety protected &amp; prioritising over potentially toxic, yet to be properly proven safe over time fumes.	Unpleasant odours will undoubtedly still exist to unjustly & inappropriately afflict the Lara Community. Far	There aren't enough, well proven, scientifically determined facts provided by reputable, independent, peer reviewed research.	Do Not waste our Taxes on Subsidising this Fake Green Plan. Heat a clean, safe Nuclear SMR that has a minimal environmental footprint at Lara instead.	Object to proposal	
121593	3212	Myself				Air emissions								To not have EFW factory so close to residential homes and Schools.	Object to proposal	
121600	3212	Myself						Other further information					uck	The EPA under legislation MUST refuse this application based firstly on the failure to provide a fit and proper person. The health of the greater community is already at vulnerable risk with higher than average incidents of asthma and respiratory issues. This type of plant should not be with in close parameters of any community let alone one that has very limited medical assistance. Geelong itself has limited and oversubscribed emergency health system. If the plant is to go ahead then the business and EPA need to make sure that further respiratory clinics and emergency services open. We have been directly effected now by severe asthma and Geelong is a hit spot air quality will worsen thus medical services will need a lot more further funding	Object to proposal	
121612	3212	Myself		The revised Noise Impact Assessment	Greenhouse gas emissions	Air emissions	Odour emissions	Other further information	The plant noise is a concern the plant as the plant is too close to residential areas. The extra truck noise is concerning.	Dangerous pollution produced by the incinerator. No control of dangerous toxic substances input as rubbish and producing noxious gases harmful to residents health	The air emissions from the incinerator will be a dangerous health concern to humans as well as wildlife. Prospect Hill has provided no business case and no details on how dangerous inputs are to be vetted.	We haven't been advised how the odour from 400,000 tonnes of rubbish per year being trucked into the incinerator will be managed and mitigated.	There is no business case from Prospect Hill, there is no detail on the electricity being produced and how it is going to be fed into the grid. There are no draft contracts with any electricity suppliers. We will be left with a giant incinerator burning rubbish creating pollution without producing electricity.	Dont build a giant incinerator, the proposal has been sneaky and underhand, backed by the Chinese Government. It could be extremely embarrassing for local Labour politicians and Richard Marles, if the project is given the green light	Object to proposal	
121627	3212	Myself		The revised Noise Impact Assessment	Greenhouse gas emissions	Air emissions	Odour emissions		I don't believe lara is the right location for this project	Its a growing community in current clean environment air emissions are not what our community needs in a growing en	Traffic increases, pollution from the truck traffic, air emission will be a big part in this	Emissions from the refinery is bad enough at times when there systems fail	This location is not suitable being a growing rural community	Object to proposal	See 'written submissions' file	
121636	3223	Community organisation	Geelong Sustainability		Greenhouse gas emissions	Air emissions	Odour emissions	Other further information		refer to our submission	refer to our submission	refer to our submission	refer to our submission	refer to our submission	Object to proposal	See 'written submissions' file
121638	3173	Other organisation or entity	ACT Group					Other further information						Contained within the submission	Support subject to licence conditions	See 'written submissions' file
121639	3212	Myself												To not allow this to be built near any town where it can harm residents and cultural places. Don't allow this to become our children's health problems and devalue our homes or make this area unliveable.	Object to proposal	
121640	3223	Myself			Greenhouse gas emissions	Air emissions		Other further information		Even comparing the effects of incineration plants on the environment to landfills, incineration can only be regarded as a "second-best" solution, better than the worst—however, a long way from the best we can do.	Because of the more complex feedstock that these incinerators now tend to draw on, including a range of plastics and hybrid materials, the emissions produced during the burning process may include acid gases including but not limited to the carcinogen dioxin, particulates, heavy metals, and nitrogen oxide. These gases are poisonous to the environment.		Experience overseas suggests that incineration does not encourage recycling and waste reduction and has in some cases fostered increased feedstock demand in order to keep the plant running. This is clearly not a sustainable option. The point of focus should be on reducing waste and recycling most of it.			
121652	3015	Other organisation or entity	Lovely Banks Development Group					Other further information					The applicant has not adequately addressed the need for an appropriate separation between the proposed development and nearby existing or proposed residential development. The Environment Protection Authority has not adequately addressed or responded to the previous submission from the Lovely Banks Development Group. The EPA has not required the applicant to appropriately address the issues raised by Lovely Banks. Lovely Banks has not received an adequate response from the EPA to our earlier submission. We also note that the EPA has not required the applicant to address the issues raised by Lovely Banks in its request for further information. The EPA routinely object to new strategic plans or to rezoning of land that enable residential development or a	The Lovely Banks Development Group requests that the EPA write to it and confirm in writing what separation requirement it would seek from any proposed future residential development, including a future rezoning or PSP if the proposed were to be approved in its current form.	Object to proposal	
121654	4520	Myself		The revised Noise Impact Assessment				Other further information	Love the air	Please see our attached submission	Please see our attached submission	Fully agree with the applicator t	Full	Support the proposal	Object to proposal	See 'written submissions' file
121661	3053	Community organisation	Anti-Toxic Waste Alliance		Greenhouse gas emissions	Air emissions									Object to proposal	See 'written submissions' file
121671	6054	Community organisation	Zero Waste Australia			Air emissions		Other further information			The air emissions claimed in this project are not accurate. The project has not addressed the OTNOC events or other bypass events that contribute significantly more air emissions than is predicted in this proposal. In fact up to 100% of the projects emissions limits can be released in just one OTNOC event. The EPA and the proponent have not addressed this major air pollution aspect of the project, therefore the state emissions underestimate the true pollution impacts of the project. In addition the De novo synthesis of dioxin emissions which occur outside the stack as the flue gases cool also create dioxins. This has not been addressed in the project documents by the proponent or the EPA.		This project has failed to describe the technology that will be used for this project. This is a critical failure of the project. It is assumed that the project is referring to a moving grate mass combustion incinerator but this is not stated clearly anywhere in the document. Reference to an EFW project does not allow the public to understand the potential impacts of the project. It is unbelievable that the EPA or any industrial assessor would permit a project to progress without this basic information. EFW includes non combustion technologies like Anaerobic digestion etc. so reference to the exact technology and its proven specifications is essential. This has not been provided. Therefore most assumptions made in this project document about the expected environmental impacts need to be challenged far more rigorously. The reference plants referred to by the proponent have all had non compliance issues resulting in pollution impacts. All	A full and complete environmental impact assessment of the project is urgently needed.	Object to proposal	See 'written submissions' file
121681	3212	Myself												I object to the odour, air emissions and noise impacts as they will decrease our health and quality of living being so close to our home. If we knew this was being built in the proposed location we would not have bought our current home in its location.	Object to proposal	
121683	3212	Myself													Object to proposal	
121690	3241	Myself				Air emissions	Odour emissions	Other further information		The smoke stacks will be low to the ground and will effect air quality	The blanketing of the land in smoke will result in odours affecting immuno compromised people and outside enjoyment	The community does not support a company that has no experience in running a high risk company that could have such a high impact on the people surrounding it.	Move it elsewhere	Object to proposal		
121691	3212	Myself			Greenhouse gas emissions	Air emissions	Odour emissions			Australian Policy is to reduce Greenhouse Gas emission, burning plastic, glass, wood, food is not Australia's future.		Location is close to Schools, Childcare, Preschools, residential properties.	Flow Battery would be a better solution, to collect excess power during the day.	Object to proposal		

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Measure distance

Click on the map to add to your path

Total distance: 325.80 m (1,068.90 ft)



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1121638 Act Group

RE: PHI further submission and responses:

ACT Group has previously made submissions to the Victorian EPA regarding Prospect Hill International's proposal for a 400,000+ tonne per annum waste to energy facility at Lara.

We have recently had the opportunity to review the most recent submission from Prospect Hill International in response to issues raised related to perceived deficiencies in its earlier documentation and proposal for this facility.

It appears from the Jacob's response that they are either insufficiently resourced or technically conversant to respond to significant questions regarding plant performance and waste considerations fully, appropriately, or genuinely.

My colleagues and I have spent decades actively working with waste to energy infrastructure in Australia and Overseas so are very conversant with practical and technical implementation responses being addressed by current operators implementing new plant and equipment particularly under revised environmental conditions, including BATC, around the world.

We now feel compelled to highlight the following issues, most of which we expect the EPA is already familiar with, to ensure that waste to energy infrastructure in Victoria is properly considered and designed prior to approval. This is critical so the EPA, as is its obligation, and the community can be confident that the implementation and operations meet the highest environmental standards and worlds best practice currently applicable and as they are updated in future.

Air Quality

1. The PHI development application suggests that the Lara facility will deploy "*conventional moving grate boiler technology (exec summary WAA Part 1)*". The environmental performance of this technology and the select ancillary emissions purification equipment performance is then justified by reference to numerous facilities of comparable design (and using supposedly comparable waste fuel – refer later discussion on waste) in Appendix N of the Development application.
 - Not one of the reference plants demonstrate compliance or measured averages anywhere near to the current BAT 29-AEL requirement for NOx

at the highest allowable level for new plants (120 mg/Nm³) and nowhere near the lower target of 50 mg/Nm³

- Very few of the reference plants demonstrated compliance with BAT 27-AEL for HCL (<6 mg/Nm³)
- The Jacobs report recognises that these plants do not meet the minimum requirements for these measures.

Despite these facts, Jacobs asserts that the exact same facility configuration implemented at Lara will meet the requisite minimum BAT AEL. It is likely that the air modelling completed to support this application will confirm this based on the assumptions provided by Jacobs from reference plants or supplier assumptions to support the Aermoc models. Clearly such assumptions in the absence of evidence of complying performance data from operational facilities of like design is questionable and we would expect should be challenged or rejected by the EPA acting prudentially as a regulator for the environment.

It is well known that “conventional moving grate incineration” has significant difficulty meeting some of the minimum standards (particularly for NO_x, HCL, SO₂ and NH₃) now required under BATC without the incorporation of refined combustion technology and additional equipment upstream of the baghouse than now typically applied in MSW incinerators. As the most recent BAT AEL's are only now becoming applicable to new plant there is unlikely to be any evidence of facilities of the configuration suggested by PHI that demonstrate compliance with all BAT AEL's. We have recently visited several moving grate facilities in construction overseas that have to meet the lower BAT-AEL now in place and note that all now incorporate a wet scrubber upstream from the baghouse and some also incorporate an SCR as well to ensure they are capable of complying with the lower discharge limits for NO_x, NH₃ (which will increase on due to ammonia slip typical from overdosing of the reagent in the SNCR operation when NO_x limits are difficult to achieve) and acid gases.

- As evidence of this requirement for an additional scrubber, footnote 3 of BAT 29 suggests that existing plant fitted with SNCR but without a wet abatement process (as suggested by PHI) cannot easily comply with the new NH₃ level and so are accorded an additional allowance with a higher minimum compliance (an increase of 50% from 10 to 15 mg/Nm³)

- Further evidence of the benefit of a wet scrubber is found in the footnote for BAT28 which suggests a wet scrubber is required to achieve the lower BAT-AEL level for HCL (although not a requirement to meet the lower-level, EPA would be prudent to consider this additional benefit when the same scrubber may be a requirement to ensure compliance with NH3 in any case).
2. Jacobs has suggested that the “conventional moving grate” will combust waste in “a reducing environment”. Incineration relies on the combustion of waste in an excess air environment. What Jacobs is suggesting is the integration of refined combustion controls not generally currently used on “conventional moving grate” installations. Less air and flue gas recirculation introduced into the incinerator reduces the oxygen content and lowers the grate temperature consequently reducing NOx formation in the bed, similar in principal to how a gasifier operates. Unlike a gasifier, the incineration process still requires excess air for combustion of the waste and consequently will still produce significant amounts of NOx that require additional management to meet BAT-AEL’s.

Other potential issues from reducing the combustion temperature under this refined process is that relative throughput will generally drop, it is more difficult to ensure complete combustion so increased carbon can present in the ash and the lower temperatures make it more difficult to ensure injection of the SNCR reagent can be optimised (potentially undermining the benefit of the reducing environment on NOx). Only select grate suppliers currently offer the refined combustions process system and there is limited evidence of its practical application benefits.

There is no evidence provided to suggest that the “reducing” environment and flue gas recirculation proposed for this installation will reduce NOx and ensure NH3 emission meet the current BAT AEL limits when the performance data provided for existing plants generally demonstrate AVERAGE values so significantly (~50%) higher than the current maximum allowable limit. EPA should be wary of the accuracy and robustness of Jacobs claims and confidence in the current PHI plant configuration capability to meet current and future emissions limits.

3. The bar charts representing publicly reported continuous monitoring emissions reports in Appendix N of the Development application are misleading. These charts show pollutant emissions performance as a percentage of their limits and the top of the page is titled BREF 2019 compliant flue gas treatment plants whereas we are confident that these bar charts DO NOT compare performance against the 2019 limits (even in 2019) and are consequently irrelevant.
4. Jacobs do not appear to be committing to real-time online continuous public reporting of the key emissions and performance data of the facility. This is now a standard practice in most new plants and provides the transparency necessary to ensure community confidence. EPA has previously made this a requisite condition on other approved facilities in Victoria and we would expect PHI would be required to similarly report.
5. Jacobs suggest that stack testing for Dioxins and Furans will be periodic and diminish over time. It is now more common for combustion facilities to be required to install continuous dioxin sampling systems in the flue gas stream to provide more reliable data on the long term steady state dioxin and furan performance of the facility. EPA has made the installation of continuous flue gas sampling systems a requisite condition of other approved WtE facilities in Victoria and should ensure it is also a requirement for PHI.
6. Jacobs has not been clear if the single stack will contain a discrete flue for each processing line. Each processing line is a discrete operating environment and has its own flue gas treatment systems. If the discrete flue discharge into a single stack then it is likely that out of specification performance will be difficult to identify and likely masked by the dilution in the combined stack. In the event of a line shut down it would also be difficult to maintain the constant velocity and discharge rate (reduced buoyancy) assumed by the air modelling and consequently could adversely impact the disposition of pollutant gases on the community. EPA has previously imposed a requisite condition on approved Victorian waste to energy facilities for discrete flue for each line to be bundled in a combined stack. It would be appropriate for EPA to maintain this requirement for PHI.

Odour

7. PHI clearly states that 75% of the input putrescible waste will be delivered to the facility by bulk haul vehicles. 200,000tpa will be delivered by B-

double bulk haul vehicles and 100,000tpa will be delivered by semi-trailer bulk haul vehicles. The Development application also states, on several occasions, *“that feedstock will be visually inspected by staff members to confirm feedstock does not have any obvious contamination. Visual inspections will also be used to determine problems or hazards. If no problems or hazards are found during the visual inspection, the vehicle will move to the tipping hall”*. It is clear from this that PHI will need to open the waste vehicles prior to entry into the tipping to inspect the waste. It is unclear how PHI intend to open and view the contents of bulk haul vehicles, many of which are likely to be fully enclosed moving floor vehicles, however opening putrescible waste vehicle must generate an additional point source for odour to dispense into the environment outside of a negative air hall that should be included in the odour assessment. If PHI need to “spill waste” from a vehicle to inspect it, then clearly this is even more problematic for odour.

Waste

8. PHI appear to have made no attempt to categorise waste expected to make up the fuel supply to the facility. Instead, Jacobs have relied on 3rd party reports that they agree largely represent areas not within the PHI facility anticipated catchment area. In all cases the data, especially the C&I waste data, is significantly dated. Every other EPA approved WtE facility was required to undertake their own waste audit and categorisation including area and seasonality specific to their location. It is unreasonable to assume that the waste composition and seasonality in the PHI targeted regions of Barwon South West is comparable to Gippsland or the high level characterisation provided in the MWRRG metropolitan study for the South East Melbourne municipal councils.

The waste composition and presentation are fundamental to the design and performance parameters of the facility equipment. Further the ultimate analysis is fundamental to the emissions profile used in the Aermod modelling. In the absence of waste studies, especially in the Barwon South West region specifically nominated as a source by PHI , there are potentially material qualifications on the suggested performance parameters of the facility.

While Jacobs has suggested that PHI will complete a 12 month audit of its targeted waste supply regions and its relative seasonality to inform the

project design, this would seem to be more appropriately confirmed prior to the EPA confirming a Development permission. We are also aware that the EPA imposed a similar requirement on Opal for their Maryvale WtE facility but the audit was abandoned (we assume with EPA consent) well before the 12 months study had been completed.

9. Jacobs has used data from European plants as a surrogate for the compositional and ultimate analysis of waste and its processing at the PHI facility. Jacobs contend that the European data is comparable and suitable for the critical PHI assessment and air modelling. A cursory review of the comparison of the European and average Victorian data sets (even if it is accurate) provided by Jacobs highlights material differences in the waste composition which would flow through to the modelling provided. There is considerably more garden organics, glass and textiles and much less plastics in the Victorian averages. Even if FOGO and glass were significantly reduced by State kerbside reform, this would only increase the differences in the textiles and hazardous material. We question the suitability of the baseline comparative data in determining the plant performance criteria.

10. PHI appears to have limited understanding as to the waste industry practices in Victoria. The assertion that 75% of waste will be delivered to the facility in bulk haul vehicles presumes the transfer station infrastructure exists to support this model. There are very few transfer stations, particularly in the Western Metropolitan area, that are licensed or operate to bulk haul putrescible municipal waste. The presumption that PHI will secure 25% of its waste in kerbside collection vehicles from neighbouring councils is also questionable with Melton (specifically nominated in the Development application) having publicly announced a long term contracting arrangement with another WtE and Wyndham owning and operating their own landfill. The needs basis for a facility the scale proposed by PHI at Lara remains questionable particularly given the clear absence of any substantive waste studies or flow assessments.

Waste to Energy Framework

11. Jacobs have stated that PHI is *“cognisant of the evaluation criteria in the Framework and is confident of meeting the criteria and qualifying for a cap*

licence". The Legislation enacting the Cap framework became law in September 2021. The Framework clearly states that:

"The cap should also support sensible distribution and scale of facilities across Victoria. This includes aligning with the new Victorian Recycling Infrastructure Plan committed under Recycling Victoria."

The regulations predicated the design and conditions for any waste to energy cap allocations, the Victorian Recycling Infrastructure Plan and the requisite Performance Standards have not yet been released for consultation so this statement is clearly presumptive.

12. We would expect that Recycling Victoria as WtE Regulator in Victoria is now a referral authority for this development approval so it would be beneficial if the community were to be advised of any comment RV has provided to EPA on this application.

ACT Group believe that WtE a significant and important role to play as part of an integrated waste industry in Victoria. It is imperative that WtE opportunities in Australia are not further chastised because of poorly considered, inappropriate or opportunistic proposals that cannot evidence the requisite environmental performance or social licence necessary for a successful partnership with the community it services.

I hope that the EPA considers this submission informative and relevant to the PHI assessment process or conditions precedent to its potential licencing.

If you have any further questions, please contact me at

████████████████████

**1121661 Environmental Justice Australia on
behalf of the Anti-Toxic Waste Alliance**

Submission in response to EPA Consultation on:

Development License Application (APP1004200) made by Prospect Hill International Pty Ltd

Applicant: Prospect Hill International Pty Ltd

Activity site: 164-200 McManus Road, Lara VIC 3212.

Application number: APP1004200

Activity code: A08 (Waste to energy), K01 (Power stations)

prepared by

Environmental Justice Australia on behalf of the **Anti-Toxic Waste Alliance**

13 July 2023

For further information on this submission, please contact:

[REDACTED]

Lawyer

Environmental Justice Australia

[REDACTED]

Submitted to: permissioning.engagement@epa.vic.gov.au

About Environmental Justice Australia

- 1. Environmental Justice Australia (formerly the Environment Defenders Office, Victoria) is a not-for-profit public interest legal practice. We are independent of government and corporate funding. Our legal team combines technical expertise and a practical understanding of the legal system to protect our environment.
- 2. We act as advisers and legal representatives to community-based environment groups, regional and state environmental organisations, representing them in court when needed. We also provide strategic and legal support to their campaigns to address climate change, protect nature and defend the rights of communities to a healthy environment.
- 3. We prepared this submission on behalf of the Anti-Toxic Waste Alliance (ATWA).

About the Anti-Toxic Waste Alliance

- 4. The Anti-Toxic Waste Alliance (**ATWA**) was formed to advocate for the protection of communities and the environment from the failures of the waste management industry in Victoria.
- 5. The Anti-Toxic Waste Alliance includes 39 community groups and organisations from across Melbourne’s suburbs. The Alliance was established in April 2019 in response to three serious, toxic chemical and waste fires and the continuing threats from inappropriately managed landfills, storage and recycling premises in residential suburbs.
- 6. ATWA advocates for systemic change to waste management systems from production of waste, through the waste management hierarchy, through to disposal. ATWA also campaigns against projects that increase the risk of toxic waste harming human health or the environment.
- 7. ATWA’s primary goal is to have our communities and natural environments free of the health and safety threats from toxic and hazardous waste and by-products. Many people in ATWA member organisations have direct experience of the harm and stress caused by living with air pollution and poor air quality.

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[B]ased on a precautionary principle there is insufficient evidence to conclude that any incinerator is safe.’¹

A. Executive Summary

8. We submit that the Environment Protection Authority (**‘EPA’**) must refuse to approve Development License APP1004200 (**‘the Application’**) by Prospect Hill International Pty Ltd (**‘PHI’**) as it is obliged to do under s 69(4) of the *Environment Protection Act 2017* (Vic) (**‘the EP Act’**) as the EPA should consider that the proposed project poses an unacceptable risk of harm to human health and the environment.
9. We submit that the EPA should refuse to issue the License as it is empowered to do under s 69(1)(b) following consideration of the s 69(3) factors. In particular, the general environmental duty, the principles of environment protection and best available techniques and technologies.
10. Further, we submit that the EPA is obliged to consider this decision in the light of additional obligations under both the Victorian *Charter of Human Rights and Responsibilities 2006* and the *Climate Change Act 2017* (Vic) with both Acts favouring refusal of the Application.

B. Comments on Application APP1004200

B.1 Toxic Emissions and Waste Residue

11. We submit that the EPA should not be satisfied with PHI’s analysis of the risks their project poses by the creation of toxic air emissions and toxic waste residues such as bottom ash, fly ash and Air Pollution Control residues (**APCr**).
12. All waste incineration technology produces pollution and relies heavily on extensive air pollution controls and regular maintenance to reduce emissions.² Incineration of mixed waste streams from municipal solid waste (MSW) and commercial and industrial waste (C&I), such as that proposed in this Application, is a source of a host of air borne pollutants. The production of air pollution cannot be eliminated, only managed subsequent to production.
13. The Application lists the following pollutants that are expected to be produced by the Prospect Hill facility:
 - Carbon Monoxide (CO)
 - Nitrogen Dioxide (NO₂) and Ozone (O₃)
 - Sulphur Dioxide (SO₂)
 - Course and Fine Particulate Matter (PM₁₀ and PM_{2.5})
 - Ammonia, Hydrogen Chloride and Hydrogen Fluoride
 - Dioxins and Furans
 - Polycyclic Aromatic Hydrocarbons
 - Metals and Semi-Metals such as Hexavalent chromium, cadmium and mercury³

¹ Peter W. Tait, James Brew, Angelina Che, Adam Costanzo, Andrew Danyluk, Meg Davis, Ahmed Khalaf, Kathryn McMahon, Alastair Watson, Kirsten Rowcliff, Devin Bowles, ‘The Health Impacts of Waste Incineration: a Systematic Review’, *Australian and New Zealand Journal of Public Health* (2019) (online) 47.

² Peter Tati, above n 1, 1.

³ The Application, Part 1, 121-122.

14. For several of these chemicals, there is no safe exposure threshold at which adverse health impacts do not occur.⁴
15. This chemical cocktail is expected to be formed during the process of combustion. In addition to being toxic of their own accord, both SO₂ and NO_x interact with ambient O₃ to form secondary fine particle pollution, creating additional quantities of fine particle pollution.⁵
16. Older waste incinerator technology has been associated with considerable toxic emissions.⁶ Proponents of newer incinerator technology have claimed that the air pollution can be effectively managed and minimised.⁷ It is our submission that these claims have been overstated and do not adequately recognise scientific doubt about the level of safety that is possible to achieve in incinerator technology.
17. In the Netherlands, an incinerator built as recently as 2011 and announced as ‘state of the art’ at the time, has been found to be emitting dioxins, furans and other pollutants well above EU limits.⁸ The failures of that incinerator to control emissions were largely occurring during start up and shut down procedures and were hidden by the lack of continuous monitoring. The study of the malfunctions of this incinerator show that even facilities built to the best available standards at the time may operate in a manner that exceeds air pollution limits.
18. A 2022 study of the comparative air emissions of waste-to-energy and landfill in Australia states:

*Incineration makes a more significant negative contribution to local air quality than landfill where facilities only just meet the emissions limits defined by the European Industrial Emissions Directive. Even where best available techniques are used, incineration is anticipated to perform worse than landfill in this respect.*⁹
19. This Application proposes to incinerate a mixed commercial, industrial and municipal waste stream. Mixed waste streams, such as that proposed to be accepted by PHI, contain wet organics, plastics, heavy metals, a suite of chemical compounds and a wide range of moisture contents. Such a heterogenous waste stream dramatically increases the risk of producing persistent toxins when combusted.
20. Waste incinerators also produce residual waste which may contain hazardous contaminants. The Application states that approximately 20-25% of the feedstock mass will remain as bottom ash or

⁴ See, eg, in relation to NO_x: United States Environment Protection Agency, *Integrated Science Assessment for Oxides of Nitrogen – Health Criteria* (Research Report, January 2016) xxxii, Chapters 5 and 6 <https://ofmpub.epa.gov/eims/eimscomm.getfile?p_download_id=526855>; in relation to PM₁₀ and PM_{2.5} NSW Regulatory Impact Statement: Proposed Clean Air Regulation 2022 (April 2022) (RIS) 6; see generally Regional Office for Europe, World Health Organization, *Air Quality Guidelines: Global Update 2005* (Report, 2006); Dockery, Douglas W., et al., (1993) An Association between Air Pollution and Mortality in Six U.S. Cities, *New England Journal of Medicine*, 329(24): 1753-1759. Available at: <<https://www.neim.org/doi/full/10.1056/NEJM199312093292401>>; Krewski D., et al., (2005) Reanalysis of the Harvard Six Cities Study, part I: validation and replication. *Inhalation Toxicology* 2005 Jun-Jul;17(7-8):335-42. Available at: <<https://doi.org/10.1080/08958370590929402U>>.

⁵ Ben Ewald, *The Health burden of fine particle pollution from electricity generation in NSW* (November 2018), 20. Available at: <https://www.envirojustice.org.au/wpcontent/uploads/2018/11/Ewald_B_2018_The_health_burden_of_fine_particle_pollution_from_electricity_generation_in_NSW.pdf>.

⁶ Peter Tati, above n 1, 1. See also Zero Waste Europe, ‘Hidden Emissions: A Story from the Netherlands’ (November 2018).

⁷ The Application.

⁸ Zero Waste Europe, ‘Hidden Emissions: A Story from the Netherlands’ Report, November 2018.

⁹ Anne Ballinger, William Shanks, Tamsin Miles, Sophie Degagny, ‘Greenhouse Gas and Air Quality Impacts of Incineration and Landfill’ (January 2022), 41.

APCr.¹⁰ The proponent intends to dispose of the residue in licensed landfill, unless an avenue for reuse becomes available.¹¹ PHI currently has no use for the residual waste. Further, PHI uses the Maryvale Paper Energy from Waste facility as an indicator of the composition of bottom ash. We note that this facility is not yet operational so the figures are untested.

21. The waste residue will carry toxins that can spread to air, soil or groundwater depending on how it is subsequently managed. One extensive study found microplastics were abundant in bottom ash and that subsequent use of bottom ash was a source of microplastics in the environment.¹² Another study found that PFAS can withstand the incineration process and can be detected in residue.¹³
22. PHI claim that the facility will have systems in place to ensure that contaminants in the feedstock will be identified and removed prior to combustion.¹⁴ We submit that these measures are insufficient and poorly designed, largely because they depend on constant human observation and intervention. Such systems are vulnerable to erosion by adverse workplace culture, work processes and lack of training. Best available techniques include radioactivity detection and regular sampling and analysis of incoming MSW, neither of which are proposed by PHI.¹⁵ Even with constant surveillance of the waste stream, it is unlikely that PHI can effectively remove contaminants from the waste stream to a satisfactory degree, given that contaminants such as paints and batteries may be easily hidden within MSW. This failure will lead to greater concentrations of toxins in air emissions and residual waste.
23. PHI model their emissions estimates on continuous operation.¹⁶ However, their plan also states that the typical per annum operating hours will be 7884, or approximately 328 days per year, leaving considerable non-operating time.¹⁷ It is well established that emissions peak during ramp up and ramp down or 'other than normal operating conditions' ('OTNOC'). Modelling the operation as continuous allows PHI to effectively hide the highest emission periods from their estimates and understate the overall air pollution.

B.2 Climate Impacts

24. This proposed waste incinerator will be a source of scope 1 greenhouse gas ('GHG') emissions directly from the combustion of waste, ancillary gas burning and the use of a diesel generator onsite. In total, the proposed facility is expected to produce 4.8 million tonnes of carbon dioxide equivalent (tCO₂e) over its lifetime from scope 1 emissions alone.¹⁸ It will also generate emissions from the transport of waste to and from the facility.
25. The state of knowledge about GHG emissions, which is relevant to the application of the General Environmental Duty (addressed in section C.2 of this submission), must include the foremost international authority on anthropogenic climate change: the Intergovernmental Panel on

¹⁰ The Application, Part 1, xix.

¹¹ The Application, Part 1, xix.

¹² Zhan Yang, Fan Lu, Hua Zhang, Wei Wang, Liming Shao, Jianfeng Ye and Pinjing He, 'Is Incineration the Terminator of plastics and Microplastics?' *Journal of Hazardous Materials* 401 (2021) 123429.

¹³ Dennis Wohlin, *Analysis of PFAS in ash from incineration facilities from Sweden*, Örebro University (Thesis Report, 2020).

¹⁴ The Application, Part 1, 75-76.

¹⁵ Commission Implementing Decision (EU) 2019/2010 of 12 November 2019 establishing the best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for waste incineration (*notified under document C(2019) 7987*) BAT 11.

¹⁶ The Application, Part 1, xx.

¹⁷ The Application, Part 1, 36.

¹⁸ The Application, Part 1, 104.

Climate Change ('IPCC'). The IPCC's 6th Assessment Report, a document that now partially supersedes or updates the EPA's guidance in Publication 2048, provides the most accurate and authoritative guidance on energy generation and climate implications. The IPCC's findings in relation to GHG emissions are that to limit warming to 1.5 degree or even 2.0 degrees Celsius 'involve[s] rapid and deep and, in most cases, immediate GHG emissions reductions in all sectors this decade'.¹⁹ PHI's proposal is inconsistent with that state of knowledge, including Australia's international commitments based on that knowledge. Similarly, PHI's proposal is inconsistent with IPCC expression of the state of knowledge that 'Net zero CO2 energy systems entail: a substantial reduction in overall fossil fuel use, minimal use of unabated fossil fuels, and use of carbon capture and storage in the remaining fossil fuel systems; electricity systems that emit no net CO2; widespread electrification; alternative energy carriers in applications less amenable to electrification; energy; conservation and efficiency; and greater integration across the energy system...'.²⁰

26. A recent study of the climate impacts of waste management of different forms of plastics showed that both waste-to-energy and incineration without energy recovery are highly carbon intensive processes, well above landfill and recycling (both chemical and mechanical) in their contributions to detrimental climate impacts.²¹
27. PHI's argument that the facility will have a net climate benefit is deeply flawed and is intended to conceal the fact that waste-to-energy is a fossil fuel based form of energy generation.
28. The Application attempts to downplay the enormous generation of GHGs by arguing that the GHGs produced during the operational lifetime of the facility will be cancelled out by:
 - a) the emissions avoided by redirecting waste from landfill, and
 - b) the emissions avoided by generating electricity from waste incineration instead of by other means such as the burning of coal or gas (grid displacement).
29. We note that this approach is analogous to offsetting. The EPA Guidelines for Minimising Greenhouse Gas Emissions, Publication 2048, states that offsetting or a compensatory approach generally is not suitable for eliminating the risks of harm from GHG emissions from a specific activity and 'will rarely be an appropriate mechanism to comply with the GED'.²² This approach should underpin assessment of the state of knowledge on managing GHG emissions. Without these 'offsets' that PHI is claiming, the enormous volume of projected scope 1 and scope 3 emissions from the proposal cannot be concealed.
30. Even if the offsetting approach is accepted, there are a series of miscalculations which result in fundamentally misleading statements as to the climate impacts of the proposal.
31. Firstly, PHI's calculations in relation to the operational production of GHG may be miscalculated. The Application notes that once there is more extensive roll out of the separate organics waste collection, the waste stream may shift to greater non-organic content. This will alter the levels of carbon produced during combustion. Over the lifetime of the facility, the carbon production is likely to increase. PHI expressly does not account for these forecast changes.²³

¹⁹ Intergovernmental Panel of Climate Change (IPCC) 6th Assessment Report, Summary for Policymakers, B.6, 20.

²⁰ IPCC 6th Assessment Report, Summary for Policymakers, C.3.2, 28.

²¹ Report by Blue Environment, 'Carbon Emissions Assessment of Australian Plastics Consumption' Version 3, (28 June 2023), Figure 9, 59.

²² EPA Publication 2048: Guidelines on Minimising Greenhouse Gas Emissions, 20.

²³ The Application, Part 1, 100.

32. Secondly, PHI's calculation of the emissions avoided by reducing landfill may be overstated. Poorly managed landfills do produce methane which, if it escapes into the atmosphere, will have a detrimental climate impact. However, landfills in the waste catchment for the PHI facility are expected to meet standards of methane capture and use. The implementation of these standards can be expected to increase over the 25 year lifespan of the facility, reducing the overall GHG emissions from landfill. Additionally, with the increase in separation of organics from MSW, landfill emissions will decrease.
33. Thirdly, the Application's calculations of grid displacement is based on an emissions intensity figure equivalent to average black coal electricity generation.²⁴ The proportion of the state's electricity that is generated by genuinely renewable sources is increasing. Within the next 10-15 years we may see dramatic changes in the Victorian electricity grid composition including the end of coal fired power generation. Alongside the forecast increases in renewable sources of energy, it is very probable that the carbon emissions of this waste-to-energy facility per kWh of energy will start to be greater than those produced in aggregate statewide electricity generation. Again, PHI acknowledges this fact but determines not to accommodate it in their calculations.²⁵
34. Further, if PHI claims that waste-to-energy facilities can include in their overall climate impact analysis the offset for displaced electricity generation, then the same should form part of the analysis of the GHG contributions of landfill. Inclusion of this factor in assessing the GHG emissions of waste-to-energy in comparison to well-managed landfill further diminishes the alleged advantages of waste incineration.
35. The Application does not contend with these foreseeable changes in GHG emissions resulting from changes in the facility's waste stream, landfill management practices and the decarbonization of State-wide electricity generation. We submit that their calculations of climate impacts are inaccurate and misleading.
36. A 2022 report by Eunomia states:
- Incineration cannot be considered a 'green' or low carbon source of electricity, as the emissions per kWh of energy produced are higher than CCGT [combined cycle gas turbine], renewables, and the likely aggregated future marginal source of electricity in Australia. The carbon intensity deficit of residual waste incinerators will increase as the electricity grid decarbonises.*²⁶
37. Given the overall transition away from carbon intensive forms of energy production, waste-to-energy facilities have no part in a low emissions future. Claiming that waste incineration is a renewable energy source is disingenuous given that the calorific value, and hence the electricity generation, derives from the plastic component of the waste stream, essentially a modified fossil fuel, which is set to increase as the separation of organics progresses.

C. Environment Protection Act 2017 (Vic)

38. Firstly, we note the obligation on the EPA under section 69(4) to **refuse** to issue the Development License if certain conditions are present, being either that the EPA considers the proposed activity poses an unacceptable risk of harm to human health and the environment or that the EPA determines the proponent not to be a fit and proper person to hold a development license.

²⁴ The Application, Part 1, 107-108.

²⁵ The Application, Part 1, 100.

²⁶ Anne Ballinger, William Shanks, Tamsin Miles, Sophie Degagny, 'Greenhouse Gas and Air Quality Impacts of Incineration and Landfill' (January 2022), 41.

39. For the reasons stated throughout this submission, we submit that the EPA should consider the proposal to pose an unacceptable risk of harm to human health and the environment. We address the unacceptable harm in section C.1 below.
40. In sections C.2 – C.4 we address several of the mandatory considerations before the EPA in making the decision to grant or refuse the Application under section 69(3). Our submission addresses considerations under the following provisions:
- Measures the applicant has taken or proposes to take in order to comply with the general environmental duty (s69(3)(a));
 - The principles of environment protection (s 69(3)(c)); and
 - The best available techniques and technologies (s 69(3)(d)).

C.1 Unacceptable Risk of Harm to Human Health and the Environment (section 69(4)(a))

41. Drawing confident conclusions about the harms that incinerators pose can be difficult due to the number of other contributors to ambient air pollution and the time scale required for health impacts to emerge. Despite these difficulties, numerous studies have identified links between negative health outcomes and air pollutants such as those emitted by waste incinerators, similar to that proposed in this Application.²⁷ Over time, the following have been identified as potential harms to human health or the environment from exposure to the pollution and waste created by waste incinerator facilities:

- Human reproductive impacts including increased risk of preterm delivery, miscarriage, genetic and congenital abnormalities;
- Increased risk of cancer, cardiac disease, respiratory disease and developmental delay in children;²⁸
- The numerous environmental and human health impacts associated with contributions to climate change.²⁹

42. One comprehensive study of the literature on human health impacts of waste incinerations concluded:

This systematic review highlights significant risks associated with waste incineration as a form of waste management. Many older incinerators were linked with neoplasia, reproductive issues and other diseases. While the results were not consistent across the literature, based on a precautionary principle there is insufficient evidence to conclude that any incinerator is safe. There is some suggestion that newer incinerator technologies with robust maintenance schedules may be less harmful, but diseases from exposures tend to manifest only after many years of cumulative exposure, so it is premature to conclude that these newer technologies improve safety.³⁰

43. The 2021 People’s Clean Air Action Plan for Victoria compiles evidence on the adverse impacts of air pollutants on human health:³¹

²⁷ Peter Tait, above n 1 identifies and assesses studies on health impacts.

²⁸ Peter Tait, above n 1, 8.

²⁹ The IPCC 6th Assessment Report notes there is high confidence that there will be an increase in extreme weather events and the associated adverse human health impacts.

³⁰ Peter Tait, above n 1, 8.

³¹ Bronya Lipski, Bruce Buckheit, Christopher James and Maxwell Smith, *The People’s Clean Air Action Plan for Victoria*, (2021) 10-12.

A 2019 global review of evidence found that air pollution can damage every organ and every cell in the human body.³² In 2018, the director general of the World Health Organisation (WHO) declared air pollution a “public health emergency”.³³ Children and older people are most vulnerable to the health impacts of air pollution.

The most dangerous form of air pollution is PM_{2.5}. There is abundant evidence that PM_{2.5} exposure can cause adverse health effects and increased risk of death.³⁴ There is no lower threshold for these effects.³⁵ The science does not support that there is a safe level of exposure, so air quality standards are a reference level, not a safe level.³⁶ Long term exposure is particularly damaging, even at lower levels of pollution. A recent study from Queensland found that long-term exposure to PM_{2.5} was associated with increased all-cause mortality of two percent for each 1 µg/m³ increase in annual PM_{2.5}, even where PM_{2.5} levels were measured well-below air quality standards.³⁷

[...] Children are particularly vulnerable to PM_{2.5} exposure due to the adverse effects on lung development. Australia’s most common cause of general practitioner presentation in children under five is asthma and allergy. [...] Reduced lung health and impaired development in children holds lifelong consequences, including an increased risk of cardiovascular disease and associated mortality as an adult.³⁸

³² Dean E. Schraufnagel, et al., Air Pollution and Noncommunicable Diseases: A Review by the Forum of International Respiratory Societies’ Environmental Committee, Part 1: The Damaging Effects of Air Pollution, February 2019, Volume 155, Issue 2, Pages 409–416, Available at: <https://doi.org/10.1016/j.chest.2018.10.042>; Dean E. Schraufnagel, et al., (2019) Air Pollution and Noncommunicable Diseases: A Review by the Forum of International Respiratory Societies’ Environmental Committee, Part 2: Air Pollution and Organ Systems, CHEST Journal, February 2019, Volume 155, Issue 2, Pages 417–426. Available at: <https://doi.org/10.1016/j.chest.2018.10.041>.

³³ Dr Tedros Adhanom Ghebreyesus, “Air pollution is the new tobacco. Time to tackle this epidemic” The Guardian, October 27 2018. Available at: <https://www.theguardian.com/commentisfree/2018/oct/27/airpollution-is-the-new-tobacco-time-to-tackle-this-epidemic>.

³⁴ Dockery, Douglas W., et al., (1993) An Association between Air Pollution and Mortality in Six U.S. Cities, New England Journal of Medicine, 329(24): 1753-1759. Available at: <https://www.nejm.org/doi/full/10.1056/NEJM199312093292401>; Krewski D., et al., (2005) Reanalysis of the Harvard Six Cities Study, part I: validation and replication. Inhalation Toxicology 2005 Jun-Jul;17(7-8):335-42. Available at: <https://doi.org/10.1080/08958370590929402U>.

³⁵ Dockery, Douglas W., et al., (1993) An Association between Air Pollution and Mortality in Six U.S. Cities, New England Journal of Medicine, 329(24): 1753-1759. Available at: <https://www.nejm.org/doi/full/10.1056/NEJM199312093292401>; Krewski D., et al., (2005) Reanalysis of the Harvard Six Cities Study, part I: validation and replication. Inhalation Toxicology 2005 Jun-Jul;17(7-8):335-42. Available at: <https://doi.org/10.1080/08958370590929402U>.

³⁶ World Health Organization. Regional Office for Europe. (2006). Air quality guidelines global update 2005: particulate matter, ozone, nitrogen dioxide and sulfur dioxide. Copenhagen: WHO Regional Office for Europe. Available at: <https://apps.who.int/iris/handle/10665/107823>.

³⁷ Yu W, Guo Y, Shi L, Li S (2020) The association between long-term exposure to low-level PM_{2.5} and mortality in the state of Queensland, Australia: A modelling study with the difference-in-differences approach. PLoS Med 17(6): e1003141. <https://doi.org/10.1371/journal.pmed.1003141>.

³⁸ Ryan G, Knuiman MW, Divitini ML, James A, Musk AW, Bartholomew HC. Decline in lung function and mortality: The Busselton Health Study. Journal of Epidemiology and Community Health. 1999;53(4):230-4; Georgiopoulou VV, Kalogeropoulos AP, Psaty BM, Rodondi N, Bauer DC, Butler AB, et al. Lung function and risk

PM_{2.5} is not the only pollutant that adversely impacts health. At low concentrations, NO₂, SO₂ and O₃ can cause significant health problems. A number of Australian studies published in the last decade demonstrate statistically significant health impacts at pollutant concentrations well-below national standards for these pollutants.³⁹ Nitrogen dioxide is strongly associated with childhood asthma and impaired lung development, which can lead to lifelong adverse health effects and premature death.⁴⁰ Adverse neonatal outcomes, including preterm birth, low weight at birth and foetal growth restriction are associated with maternal exposures to NO₂, SO₂ and O₃.⁴¹ Laboratory testing confirmed paediatric influenza has also been associated with ozone.⁴² Middle-aged Australians exposed to nitrogen dioxide can experience exacerbations of current asthma, the incidence of new asthma, and atopy.⁴³ Long term exposure to SO₂, even at low concentrations, has been associated with cardiorespiratory mortality.⁴⁴

44. The proposal is to locate the facility in Lara, a growth area within 1km of residential areas. Within 5km of the facility there are 9 childcare centres, 7 schools and 3 aged care residences. Census data collected in 2021 mapped to the City of Greater Geelong⁴⁵ shows the areas surrounding the Prospect Hill proposal have:

- Several areas with an asthma rate of 9-13% of the population;
- Many areas with long term health conditions between 30-40% of the population and some areas in which long term health conditions impact 68-71% of the population;

for heart failure among older adults: the Health ABC Study. *American Journal of Medicine*. 2011;124(4):334-41; Sin DD, Wu L, Man SF. The relationship between reduced lung function and cardiovascular mortality: A population-based study and a systematic review of the literature. *Chest*. 2005;127(6):1952-9.

³⁹ See Clare Walter, Maxwell Smith et al. (2019) Health-based standards for Australian regulated thresholds of nitrogen dioxide, sulfur dioxide and ozone: Expert Position Statement 2019:

<https://www.envirojustice.org.au/wp-content/uploads/2019/11/Expert-Position-Statement-PDF.pdf>, pp.6-7.

⁴⁰ Knibbs, Cortés de Waterman, Toelle, Guo, Denison, Jalaludin, Williams. (2018). The Australian Child Health and Air Pollution Study (ACHAPS): A national population based cross-sectional study of long-term exposure to outdoor air pollution, asthma, and lung function. *Environment International*, 120, 394-403; Bowatte, G., Lodge, C., Knibbs, L., Erbas, B., Perret, J., Jalaludin, B., Dharmage, S. (2018). Traffic related air pollution and development and persistence of asthma and low lung function. *Environment International*, 113, 170-176; Gauderman WJ, Urman R, Avol E, et al. (2015). 'Association of improved air quality with lung development in children'. *NEJM* 2015;372;10:905-913.

⁴¹ Chen, Guo, Abramson, Williams, & Li. (2018). Exposure to low concentrations of air pollutants and adverse birth outcomes in Brisbane, Australia, 2003–2013. *Science of the Total Environment*, 622-623, 721-726; Li, S., Guo, Y., & Williams, G. (2016). Acute Impact of Hourly Ambient Air Pollution on Preterm Birth. *Environmental Health Perspectives*, 124(10), 1623-1629; Pereira, G. et al., Locally derived traffic-related air pollution and fetal growth restriction: a retrospective cohort study. *Occupational and environmental medicine* 2012, 69 (11), 815-822.

⁴² Xu, Z. W. et al., Air pollution, temperature and paediatric influenza in Brisbane, Australia. *Environment international* 2013, 59, 384-388.

⁴³ Bowatte, G., et al., (2018). Traffic related air pollution and development and persistence of asthma and low lung function. *Environment International*, 113, 170-176; Bowatte, Lodge, Knibbs, Lowe, Erbas, Dennekamp, Dharmage. (2017). Traffic related air pollution exposure is associated with allergic sensitization, asthma, and poor lung function in middle age. *The Journal of Allergy and Clinical Immunology*, 139(1), 122-129.e1.

⁴⁴ Wang, X., Hu, W., & Tong, S. (2009). Long-term exposure to gaseous air pollutants and cardio-respiratory mortality in Brisbane, Australia. *Geospatial Health*, 3(2), 257-263.

⁴⁵ Census 2021 data is collated and made publicly available by Profile ID, a consultant specialising in demographic mapping to support informed decision-making for communities and by government. The data is available here: <<https://profile.id.com.au/geelong>>.

- Several areas with a high proportion of the population being aged 65 and over.
45. These are vulnerable populations to even very low levels of toxic air emissions. The location of a facility that will generate toxic air pollution in this area would be detrimental to the wellbeing of those people and the health of the community more generally.
 46. Appendix D Air Quality Impact Assessment ('AQIA') to the PHI Application lists a handful of 'sensitive receptors' immediately adjacent to the site, without including schools, childcare centres or aged care facilities despite acknowledging that the radius of interest should be 10km from the facility.⁴⁶
 47. We note further that 'harm' includes the 'cumulative effects of harm arising from an activity combined with harm arising from other activities or factors'.⁴⁷
 48. The Lara and Greater Geelong regions already experience high levels of PM_{2.5} and PM₁₀ air pollution. Data prepared by the Centre for Air Pollution, Energy and Health Research shows that Lara's average annual PM_{2.5} air pollution per cubic metre of air (µg/m³) sits around 7.9-8 while the World Health Organisation's safe level recommendation is 5 or below.⁴⁸ The study also notes that long-term exposure to low levels of air pollution can be just as damaging to human health as shorter exposure to high levels.
 49. It is prudent to proceed on the basis that the Air Pollution Control (APC) measures will not be entirely effective and will therefore have a cumulative negative impact on the air quality in the surrounding area. As the scientific links between waste incinerator air emissions and the risk of detrimental impacts on human health are well established, it is open to the EPA to decide on this basis that the proposed facility would pose an unacceptable risk of harm to human health or the environment.

C.2 General Environmental Duty (section 69(3)(a))

50. The EPA must consider measures PHI has taken or proposes to take in order to comply with the general environmental duty ('GED'). The GED requires that PHI, as a company engaging in an activity that may give rise to risks of harm to human health or the environment from pollution or waste, minimize those risks so far as reasonably practicable.⁴⁹ We note the importance of the GED's focus on risk of harm as distinct from actual harm.
51. It is our submission that the PHI Application does not meet this duty and that the EPA should consider that as inconsistent with granting the development license.
52. It is not possible to incinerate waste in a manner that adequately minimises the risks to human health and the environment from toxic air emissions, waste residues and APCr, and the harmful effects of climate change. Therefore, we submit that the activity itself, as a method of waste management, is not consistent with the GED, and that the EPA should refuse the Application on that basis.
53. The likelihood of the risks associated with long term exposure to air pollution of the types that will emit from this facility eventuating are probable given that even low levels of exposure can produce adverse health outcomes.

⁴⁶ See Application Appendix D Air Quality Impact Assessment, 11 and 12-14.

⁴⁷ *Environment Protection Act 2017* (Vic), s 4(2).

⁴⁸ Josh Nicholas and Andy Ball, 'How Bad is Air Pollution in Australia? Search for your postcode on our Interactive Map', *The Guardian*, May 2023 (online) <<https://www.theguardian.com/environment/ng-interactive/2023/may/04/air-pollution-in-australia-interactive-map-pm25-polluted-hotspots-search-postcode-suburb-where-i-live>>.

⁴⁹ *Environment Protection Act 2017*, s 25(1).

54. The effects on the individuals and communities adversely impacted by resultant poor health could be severe, as discussed in the preceding section of this submission.
55. The state of knowledge on the human health risks associated with waste incineration is sufficient to raise significant doubts about whether the activity can be conducted at all without endangering the local community, even with APC measures in place.⁵⁰
56. Similarly, the state of knowledge on climate change and the adverse health implications of continuing to produce GHGs is sufficient to conclude that this facility could not meet the GED. PHI should know that their calculations in relation to the overall climate impacts are inaccurate and the EPA should not accept them as sufficiently discharging of PHI's duties in relation to minimizing GHG emissions. Instead, in response to the EPA's request for further information on how PHI intends to meet the GED in relation to climate change, PHI continued to commit to its unfounded claims that the facility will have a net climate benefit.⁵¹
57. There are further technological measures PHI could take to meet standards of best practice waste incineration (see section C.4 below). More importantly, there are far better waste management practices which should be promoted in preference to risky waste incineration. These include separate collection and management of waste particularly organics, extensive material recovery processes, and improved management of landfill.
58. Some of the specific areas in which we consider PHI's proposal to inadequately address the risks to human health and the environment and thereby fail to meeting the GED include:
 - a) PHI has not properly considered the state of knowledge on the connection between waste incineration and air emissions that impact the surrounding communities. There are available studies urging caution and noting the serious human health impacts which PHI has not addressed.⁵² PHI does not adequately address the cumulative impact of air pollution and the adverse health impacts that arise from even low levels of exposure to the air emissions produced by waste incinerators.
 - b) The Air Pollution Control methods cannot remove all residual fly ash and rely on high standards of maintenance and compliance, risking cumulative low levels of pollution during standard operation and higher emissions in periods of equipment failure or turning on and off. The proposal does not adequately deal with managing emissions during 'other than normal operating conditions' and the risks these times pose of increased toxic emissions and GHG emissions.
 - c) The chosen site is too near to sensitive receptors, residential areas and agricultural areas. The proponent has not justified the proximity to residences, schools and childcare centers.
 - d) PHI has not fully considered the changing demographic in Lara and Greater Geelong and the health and disadvantage factors of the those who will be impacted by the air emissions of the facility, including future generations impacted by a legacy of pollution residue.
 - e) The proposal does not contain an adequate process for pre-sorting waste to remove waste products that are more likely to produce toxins when combusted, risking higher emission levels and great GHG contributions. Waste acceptance and assessment procedures are lacking in rigor and depend largely on human compliance.

⁵⁰ See, eg, Peter Tait, above n 1.

⁵¹ PHI Memorandum - Response to EPA's Request for Further Information, 5.

⁵² Peter Tait, above n 1.

- f) The proposal does not include a material recovery facility to maximise the retrieval of waste for recycling, again risking higher emission levels and great GHG contributions.
- g) PHI does not deal with the state of knowledge concerning climate change and choice of energy generation technologies.

C.3 Principles of Environment Protection (section 69(3)(c))

59. When determining whether or not to approve the license the EPA must take into account the principles of environment protection.⁵³ In particular we draw your attention to the principles set out below and submit that genuine consideration of these principles requires the EPA to refuse to issue the PHI Development License.
60. We also note that the consideration of the principles of environment protection is not confined to the 'activity' as defined in the EP Act. Instead, the EPA is obliged to conduct a comprehensive assessment of whether granting the PHI Development License is consistent with these principles.

The principle of primacy of prevention

61. The incineration of waste creates unavoidable toxic air emissions. That impact must then be managed by mitigation efforts to capture and contain the toxic emissions. Even if successfully captured, the toxic substances remain in ash residue posing an ongoing threat to human health and the environment.
62. Prevention of harm to human health and the environment is preferred to remedial or mitigation measures. This principle requires the EPA to place greater value on the prevention of the generation of toxic air emissions over the role of Air Pollution Control measures to mitigate the impact or subsequent treatment to permanently contain toxic ash residues. The EPA should consider the Air Pollution Control measures as less favourable method for protection of human health and the environment. In this case, the EPA has an opportunity to prevent the exposure of Lara and surrounds to toxic emissions by refusing to issue this License.
63. In addition, this principle should be applied to the waste management system as a whole. The licensing of waste incineration facilities raises questions about the extent to which this encourages ongoing waste production to support this industry at the expense of encouraging waste reduction and diversion programs. The waste incineration industry depends on securing reliable high-volume waste streams. This is not consistent with the principle of prevention nor State and Federal policies focussed on waste reduction and reuse.

Waste management hierarchy

64. The proponent claims that the facility represents a step up the waste management hierarchy from disposal to energy recovery.⁵⁴ The EPA should be doubtful of this claim.
65. We note that the PHI proposal does not include a pre-sorting facility to extract recyclable material. This means that waste which could potentially be recycled will be directed to incineration and energy recovery which is, in fact, a step down on the waste hierarchy.
66. In 2017 the European Commission released a communication on the role of waste-to-energy in a circular economy noting that waste-to-energy refers to a variety of processes and that these can

⁵³ *Environment Protection Act 2017*, s 69(3)(c).

⁵⁴ The Application, Part 1, xviii.

encompass very different places on the hierarchy.⁵⁵ The Communication notes that ‘high rates of incineration are inconsistent with more ambitious recycling targets’.⁵⁶ For those member states with current high capacity in dedicated incinerators, the Commission recommends ‘phasing out support schemes for waste incineration’ and introducing a moratorium on new facilities and decommissioning older and less efficient ones’.⁵⁷ For member states in a similar position to Victoria, having low or non-existent dedicated incineration capacity, the Commission recommended giving ‘priority to further development of separate [waste] collection schemes and recycling infrastructure’ instead of constructing new waste incinerators.

67. We urge the EPA to consider approval only of facilities which promote the highest possible level of separation of waste and the development of recycling infrastructure. Waste incineration should be a last resort in the waste management hierarchy.

The precautionary principle

68. This is perhaps the most fundamental principle for the EPA to consider in relation to the entire waste-to-energy industry and specifically this Application. As noted above, one 2019 meta-analysis of the health impacts of incinerators concluded:

*...based on a precautionary principle there is insufficient evidence to conclude that any incinerator is safe.*⁵⁸

69. Drawing confident conclusions about the harms that incinerators pose is very difficult. One study noted the complexity in demonstrating linkages between exposure to waste incineration pollution and adverse human health outcomes:

*Unfortunately, precise evaluation of the health impact of waste incinerators can be difficult due to confounding factors, including pollution from industries, automobiles and agriculture chemicals, latency for carcinogenicity, subacute and delayed reproductive/intergenerational effects, mobility of populations and other factors.*⁵⁹

70. The EPA’s commissioned literature review of studies of the health impacts of living in proximity to a waste incinerator discounted the findings that some health effects could be associated with facilities that ‘are presumed to comply with EU IED or equivalent emission standards’ on the basis that it was not possible to be conclusive about the link. That approach is not consistent with a precautionary approach.⁶⁰

71. Indeed, the precautionary principle is embedded in the EP Act for precisely this circumstance, to empower the EPA to take measures to prevent or minimise threats to human health or the

⁵⁵ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, ‘The Role of Waste-to-Energy in the Circular Economy’ COM/2017 34, Brussels (26 January 2017) 3-4.

⁵⁶ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, ‘The Role of Waste-to-Energy in the Circular Economy’ COM/2017 34, Brussels (26 January 2017) 7.

⁵⁷ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, ‘The Role of Waste-to-Energy in the Circular Economy’ COM/2017 34, Brussels (26 January 2017) 7-8.

⁵⁸ Peter Tait, above n 1, 47.

⁵⁹ Peter Tait, above n 1, 1.

⁶⁰ EnRiskS, *A review of the scientific literature on potential health effects in local communities associated with air emissions from Waste to Energy facilities*, Report prepared for EPA Victoria, 8 October 2018, 42.

environment, notwithstanding the lack of full scientific certainty as to nature or extent of the risk of harm.

72. Evidence supports the existence of a risk of serious and irreversible harm to human health and the environment (see section C.1 above). However, even if the EPA lacks scientific certainty that air pollution from waste incineration poses a threat of serious and irreversible harm to human health and the environment, this should not be used as a reason for postponing measures to prevent or minimise those threats. In this case, the EPA has the power to prevent an increase in exposure to several harmful air pollutants by refusing to issue the PHI Development License.
73. To preside over the emergence of a waste incineration industry while there is credible scientific doubt about the safety of these facilities, would be a failure to fully consider and apply the precautionary principle.
74. It is useful to note here that other Australian jurisdictions, acting on the precautionary principle, have seen fit to ban or restrict the development of waste-to-energy facilities because of the risk of harm to human health or the environment. The ACT banned waste incinerators in 2020 stating 'there are cleaner, greener and more efficient ways of managing our waste, than burning it'.⁶¹ NSW restricted the building of waste-to-energy facilities in the Greater Sydney area to ensure human health and environment are protected.⁶² Victoria should take an equally cautious approach to waste-to-energy projects.

Equity

75. This principle requires that the EPA consider whether this project will disproportionately impact certain communities. It raises the question of whether there are environmental justice elements to the decision, which we assert there are.
76. The PHI facility would be sited in Lara, an area already impacted by traffic and industry emissions and high levels of particulate air pollution. The district around Lara is a growth corridor which will see increasing sensitive receptors such as primary schools, childcare centers, aged care facilities and other vulnerable communities.
77. The proponent has not adequately addressed the socio-economic, health and disadvantage factors of the present community in the airshed of the facility or the projected population and social demographic factors over the lifetime of the facility. PHI does not adequately contend with the risk that their proposal places an unfair pollution burden on current and future residents. Given the scientific uncertainty as to the degree of toxic pollution that will result from this waste incinerator, it is cavalier to assert that the local community will not be disproportionately burdened by the imposition of a further risk of harm to human health and the environment.
78. Likewise, the risk of burdening future generations with toxic residues in the form of air and soil pollution accumulating over time via the stacks or in bottom ash is not consistent with maintaining and enhancing the environmental benefits for future generations.
79. We also note that the previous two public consultations on PHI's proposal have received submissions overwhelmingly in opposition. In the initial consultation 95% of submissions opposed the proposal and the remaining submissions made conditional support.⁶³ In the second

⁶¹ Michael Mazengarb, 'ACT set to ban waste incineration for energy, citing community concerns' *Renew Economy* 29 May 2020 (online) <https://reneweconomy.com.au/act-set-to-ban-waste-incineration-for-energy-citing-community-concerns-33706/>.

⁶² State Environmental Planning Policy (Transport and Infrastructure) Amendment (Thermal Energy from Waste) 2022 under the *Environmental Planning and Assessment Act 1979* (NSW).

⁶³ Summary of Submissions Received 24 March – 28 April 2021, EPA Engage Website.

public consultation 97% of submissions opposed the proposal.⁶⁴ If EPA approves the Application, they would not be acting consistently with the community wishes. It is an indication that the EPA may not be guarding the environment and human health to the standard that is expected by communities impacted by the EPA's decision making.

C.4 Best Available Techniques and Technologies (section 69(3)(d))

80. Section 69(3)(d) requires the EPA to consider best available techniques and technologies ('BAT'). Importantly, this consideration is not confined to the activity that is the subject of the application. Therefore, the EPA is required to consider not only BAT for waste incineration, but also more broadly the BAT for waste management and whether waste incineration is best practice.
81. We submit that waste incineration, even when meeting EU standards for waste incineration, is not BAT waste management due to the risks it poses of toxic air emissions and GHG emissions.
82. Even if the EPA was to confine its assessment to waste incineration, the proposed moving grate combustion technology is not considered the most efficient process. Grated incineration used to generate steam is generally inefficient and is not best practice thermal energy recovery. Alternate systems that gasify waste to produce bio-gas are more efficient.
83. The waste streams that PHI propose to use should be processed by a materials recovery facility (MRF) prior to incineration to extract metals, e-waste, contaminants, and any other recyclable materials. Such technology is available and could produce a largely biotic organic residual more suited to more efficient and cleaner thermal energy recovery technologies.
84. Additionally, it is not clear from the PHI application whether the proposed facility would, or could, meet some of the standards established as best available techniques ('BAT') in the 2019 European Parliament Directive on establishing best available techniques for waste incineration.⁶⁵
85. We have particular concerns about the following BAT standards:
 - BAT 5 - BAT is to appropriately monitor channelled emissions to air from the incineration plant during other than normal operating conditions ('OTNOC'). It is not clear from the Application whether PHI intends to monitor stack emissions during OTNOC and how that data will be used or made available to the public. Given that emission increases are most likely during OTNOC, it is crucial that PHI address this BAT standard.
 - BAT 9 – Improving the environmental performance of the facility, BAT requires that the various waste types are identified, characterised, sorted, and segregation in order to ensure efficient combustion and reduce emissions. Further, a rigorous process for accepting, tracking and separately storing waste must be in place. It is not clear whether or how PHI intends to meet this standard.
 - BAT 11 - In order to improve the overall environmental performance of the incineration plant, BAT is to monitor the waste deliveries as part of the waste acceptance procedures. The proposal does not mention radioactivity detection which is this BAT for municipal solid waste. PHI's proposal for visual assessment of waste streams is unlikely to

⁶⁴ Summary of Submissions Received 13 October – 28 October 2021, EPA Engage Website.

⁶⁵ Commission Implementing Decision (EU) 2019/2010 of 12 November 2019 establishing the best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for waste incineration (*notified under document C(2019) 7987*).

comprehensively apprehend the waste types listed by PHI as those that should be rejected in order to ensure air quality impacts are minimised.⁶⁶

- BAT 16 – BAT is to establish and implement operational procedures to limit as far as practicable shutdown and start-up operations. PHI’s application does not address this standard.
- BAT 18 – BAT is to set up and implement a risk-based OTNOC management plan as part of the environmental management system during OTNOC, including:
 - ‘— identification of potential OTNOC (eg. failure of equipment critical to the protection of the environment (‘critical equipment’)), of their root causes and of their potential consequences, and regular review and update of the list of identified OTNOC following the periodic assessment below;
 - appropriate design of critical equipment (eg. compartmentalisation of the bag filter, techniques to heat up the flue-gas and obviate the need to bypass the bag filter during start-up and shutdown, etc.);
 - set-up and implementation of a preventive maintenance plan for critical equipment;
 - monitoring and recording of emissions during OTNOC and associated circumstances;
 - periodic assessment of the emissions occurring during OTNOC (eg. frequency of events, duration, amount of pollutants emitted) and implementation of corrective actions if necessary.’⁶⁷

It is not clear that PHI has addressed these standards or intends to minimise OTNOC occurrences despite this being critical to reducing toxic air emissions.

86. Given that waste incineration is not the BAT for waste management and that the Applicant has not proven they can meet EU BAT for waste incineration, the Application should be refused.

D. Charter of Human Rights and Responsibilities 2006 (Vic)

87. We seek to remind the EPA that consideration of the Victorian *Charter of Human Rights and Responsibilities 2006* should form part of the decision-making process.

88. A May 2022 investigation into conduct by the EPA by the Victorian Ombudsman noted the growing importance of human rights in environmental decision making.⁶⁸ The Victorian Ombudsman stated that proper consideration of those human rights requires understanding of

⁶⁶ See Application Appendix D - Air Quality Impact Assessment, 28.

⁶⁷ Commission Implementing Decision (EU) 2019/2010 of 12 November 2019 establishing the best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for waste incineration (*notified under document C(2019) 7987*), BAT 18.

⁶⁸ Victorian Ombudsman, *Investigation into Environment Protection Authority decisions on West Gate Tunnel Project spoil disposal* (May 2022) <https://www.ombudsman.vic.gov.au/our-impact/investigation-reports/investigation-into-environment-protection-authority-decisions-on-west-gate-tunnel-project-spoil-disposal/#human-rights>.

whether the rights would be interfered with by the decision and seriously considering the impact of the decision on a person's human rights and how this might affect the person.⁶⁹

*Environmental decision making is an emerging area of human rights concern, and an increasingly real concern for millions of people. All the more reason for the EPA to understand its role is not merely that of a science-based regulator, but one with significant community responsibilities.*⁷⁰

89. Those community responsibilities in relation to the PHI Application include proper consideration of the human rights of the surrounding community, in particular s 9 right to life and s 17 right of children to such protection as is in their best interest.
90. Additionally, while not yet adopted into Victorian legislation, the right to a 'clean, health and sustainable environment', recognised by the UN Human Rights Council in October 2021, should inform the EPA's decision making.
91. Approval of projects which risk an increase in the pollutant load on the surrounding residents and workers and which generate GHG emissions is not consistent with respect for those rights and poses unjustified limits on those rights.

E. Climate Change Act 2017 (Vic)

92. A decision by EPA Victoria on a development license is one that is specified in Schedule 1 of the *Climate Change Act 2017* (VIC) ('the Climate Change Act'). As such, s 17 of the Climate Change Act applies to any decision the EPA makes in relation to this application.
93. It is noted that there are no guidelines issued by the Minister under s 17(2)(c) to be considered.
94. We note that the EPA has a duty to consider the two limbs of s 17, that is both the potential impacts of climate change relevant to the decision and the potential contributions to the State's GHG emissions.
95. With regard to the first limb, the EPA should consider that climate change will have an impact on the receiving environment for emissions from the facility. Climate change is expected to decrease the quality of air in numerous ways and have a negative impact on people's health. We have noted above the existing poor air quality in the Lara and Greater Geelong area. We draw attention to the following studies, which demonstrate the association between climate change and respiratory diseases, and climate change and air quality:
 - a) Gennaro D'Amato, Lorenzo Cecchi, Mariella D'Amato, Isabella Annesi-Maesano, 'Climate change and respiratory diseases' *European Respiratory Review* 2014 23: 161-169.⁷¹
 - b) Centres for Disease Control and Prevention, 'Climate change decreases the quality of the air we breathe'.⁷²

⁶⁹ Victorian Ombudsman, *Investigation into Environment Protection Authority decisions on West Gate Tunnel Project spoil disposal* (May 2022) <https://www.ombudsman.vic.gov.au/our-impact/investigation-reports/investigation-into-environment-protection-authority-decisions-on-west-gate-tunnel-project-spoil-disposal/#human-rights>, 14.

⁷⁰ Victorian Ombudsman, *Investigation into Environment Protection Authority decisions on West Gate Tunnel Project spoil disposal* (May 2022) <https://www.ombudsman.vic.gov.au/our-impact/investigation-reports/investigation-into-environment-protection-authority-decisions-on-west-gate-tunnel-project-spoil-disposal/#human-rights>, 6.

⁷¹ See: <https://err.ersjournals.com/content/23/132/161.full>.

⁷² See: https://www.cdc.gov/climateandhealth/pubs/air-quality-final_508.pdf.

c) Asthma and Allergy Foundation of America, webpage 'Climate and Health'.⁷³

96. Increased hot days and heatwaves will exacerbate existing health risks in the region, putting greater pressure on hospitals and emergency services.⁷⁴
97. In considering the proposal's air emissions and the detrimental impacts on human health, the EPA must consider that the environment those emissions are entering and that the health of local communities is changing and likely to be negatively impacted as a result of climate change. The EPA is also obliged to consider the cumulative impacts of climate change that will combine with the impacts of the facility's air emissions, creating worsened health outcomes for the local community.
98. Regarding the second limb, the EPA should not be convinced by PHI's claim that the project will have an overall negative GHG impact. As noted above, the estimate of climate benefits is likely to be significantly overstated, at best. The categorisation of waste-to-energy projects as 'renewable' is deceptive and does not acknowledge the significant GHG emissions that they will contribute, nor that the majority of the calorific value comes from the combustion of plastics. In this way, waste-to-energy electricity generation is more akin to coal and gas fired power for its GHG output than any truly renewable source and should be refused on that basis. The energy generated by this facility will have a carbon intensity figure similar to black coal.
99. Approval of the project will lock in carbon emissions for the operational life of the facility which is contrary to the climate targets of Victoria and Australia's international commitments.

⁷³ See: <https://www.aafa.org/climate-and-health/>.

⁷⁴ Victorian Government, Climate Ready Victoria Report, 5.

Supplementary Submission in response to EPA Consultation on:

Development License Application (APP1004200) made by Prospect Hill International Pty Ltd

Applicant: Prospect Hill International Pty Ltd

Activity site: 164-200 McManus Road, Lara VIC 3212.

Application number: APP1004200

Activity code: A08 (Waste to energy), K01 (Power stations)

prepared by

Environmental Justice Australia on behalf of the **Anti-Toxic Waste Alliance**

20 July 2023

Please note this is a Supplementary Submission, to be read with our original submission made on 13 July 2023.

For further information on this submission, please contact:

[REDACTED]

Lawyer

Environmental Justice Australia

[REDACTED]

Submitted to: permissioning.engagement@epa.vic.gov.au

1. We appreciate the opportunity to make a supplementary submission to the public consultation on the Development License Application APP1004200 by Prospect Hill International Pty Ltd ('the Application'). Please consider these comments in conjunction with those made in our original submission dated 13 July 2023.

A. Climate Impacts

2. Further to our comments in section B.2 of our original submission we make the following points on the climate impacts of the proposal.
3. The proponent appears to assert in the Application that by displacing grid energy generation (the 'grid displacement' argument) and by diverting waste from landfill (the 'landfill diversion' argument) the facility will minimise risk of harm to the environment or human health through net reduction in greenhouse gas ('GHG') emissions.¹
4. A review of relevant literature and science would suggest certain propositions on which the proponent's claims are based are problematic or questionable. In addition to our comments in paragraph 33 of the original submission, we make the following comment on the inappropriateness of PHI's 'grid displacement' argument.
5. We submit that the proposition that the energy generated by the facility will displace 'electricity which would have been generated by fossil fuels'² is unsupported. Specifically, we note the fundamental tension between the requirement to operate continuously to minimise toxic air emissions³ and the detrimental impact that continuous operation has on the GHG emissions of the facility.
6. In order to minimise toxic air emissions, the facility must operate as close to continuously as possible.⁴ It is during other than normal operating conditions ('OTNOC') that toxic air emissions from waste to energy facilities peak. Therefore, the 2019 EU Directive on Best Available Technologies and Techniques for waste to energy projects recommends that facilities should minimise OTNOC occasions by operating continuously and implementing specific practices and technology to deal with the emissions produced during OTNOC.⁵ PHI's proposal states that it intends to operate approximately 90% of the time over the 25 year lifespan on the facility.⁶
7. However, it is increasingly the case that the National Energy Market actually requires highly flexible energy generators, capable of being turned on or off in response to the availability of genuinely renewable energy (predominantly wind and solar).⁷ The need for flexible power generation over 'baseload' is evidenced by the increasing incidence of negative pricing events, during which the price of wholesale electricity goes below zero due to oversupply in the market.⁸

¹ PHI's Memo providing Further Information to the EPA on Air Emissions, GHG Emissions and Odour Emissions, dated 25 October 2022, 5.

² PHI's Further Information above n 1, 5.

³ Commission Implementing Decision (EU) 2019/2010 of 12 November 2019 establishing the best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for waste incineration (*notified under document C(2019) 7987*), BAT 16.

⁴ EU 2019/2010, above n 3, BAT 16.

⁵ EU 2019/2010, above n 3, BAT 5, 16 and 18.

⁶ The PHI Application, Part 1, 36.

⁷ Giles Parkinson, 'Negative pricing events hit record levels, and are worse in coal-fired grids' *Renew Economy* (5 July 2023) online: < <https://reneweconomy.com.au/negative-pricing-events-hit-record-levels-and-are-worse-in-coal-fired-grids/>> and Sophie Vorrath, 'Rooftop solar sends Victoria power prices to zero every day for two months' *Renew Economy* (22 October 2021) online: < <https://reneweconomy.com.au/rooftop-solar-sends-victorian-power-prices-to-zero-every-day-for-two-months/>>.

⁸ Giles Parkinson, above n 7

During low or negative pricing events, the most flexible energy generators are most likely to withdraw from the market in order to avoid the costs associated with supplying electricity at negative prices. These will most frequently be solar and wind generators. By contrast, coal fired power stations and waste incinerators do not have the capability to rapidly turn off generation in response to the fluctuating availability of renewable electricity.

8. We suggest that PHI's claim that their facility will displace fossil fuel energy generation cannot be substantiated if the proposed facility operates continuously, as it is most likely that continuous generation will regularly displace renewable energy generation with a far lower carbon intensity.
9. Additionally, the 'grid displacement' argument is a version of the market substitution argument: that if the carbon is not produced by the proponent, then it will be produced by another, possibly more carbon intensive, facility and therefore those emissions should not be considered material to climate impacts of the proposed facility. PHI's version of this argument assumes that if the Lara waste to energy facility is not built, then the equivalent power will be generated by a more carbon intensive facility. This argument has been considered and rejected by the NSW Land and Environment Court.⁹
10. On this basis that we submit that PHI's 'grid displacement' figure is baseless and if removed from the calculations, the result is an estimated increase of 209,288 tCO₂e annually or 5,230,700 tCO₂e over the lifetime of the project.
11. We submit that this significantly alters the assessment of climate impacts of the proposed facility that the EPA is obliged to make under both the general environmental duty ('GED') in the *Environment Protection Act 2017* (Vic) and the *Climate Change Act 2017* (Vic), particularly the second limb of section 17(2): the potential contribution of the proposal to the State's GHG emissions.
12. Minimising pollution or waste risk 'so far as reasonably practicable' in compliance with the GED requires measuring acceptability of the proposal against leading scientific opinion concerning GHG generation and climate change. That opinion, in our view, is set by the IPCC's 6th Assessment Report as noted in our original submission, and requires 'deep and sustained emissions reductions'.¹⁰ To the extent the proponent indicates 'reasonableness' relies merely on an asserted 'net climate benefit' that is an incorrect construction of the relevant state of knowledge and hence the GED. Unless the proposal can meet the IPCC standard, it does not adequately address the proponent's obligations under the GED. The EPA's assessment of PHI's compliance with the GED should assume that the state of knowledge on energy generation includes these points.

⁹ See the NSW Land and Environment Court decisions: *KEPCO Bylong Australia Pty Ltd v Bylong Valley Protection Alliance Inc* [2021] NSWCA 216 and *Gloucester Resources Limited v Minister for Planning* [2019] NSWLEC 7, [534]-[545].

¹⁰ Intergovernmental Panel on Climate Change (IPCC) 6th Assessment Report, Summary for Policymakers, C.3.

6 September 2023

██████████
Senior Permissioning Officer
Environment Protection Authority (Vic)
By email only: ██████████

Dear ██████████ and the EPA Permissioning Team,

**Prospect Hill International Pty Ltd Development License Application (APP1004200)
[Our reference - 48448]**

We refer to the above Development License Application from Prospect Hill International Pty Ltd (PHI), currently under consideration by the EPA.

We continue to act for the Anti-Toxic Waste Alliance (ATWA) in relation to this matter.

On behalf of ATWA, we make the following further comment on the merit of the application, in addition to ATWA's two earlier submissions on the application dated 13 and 20 July 2023.

Our further comments intend to highlight and to emphasize certain aspects in the state of knowledge applying to waste-to-energy facilities. These matters are material to the EPA's decision-making under subsection 69(3) of the *Environment Protection Act 2017* (Vic).

Non-compliance with GED and best available techniques or technologies: absence of pre-sorting

1. In our previous submissions we highlighted concerns about, and the limited scientific data globally on, the air emissions and consequent human health risks or impacts from facilities similar to that proposed by PHI. Risks of harm to human health or the environment from the proposed facility include those relating to the nature, volumes, dispersal, composition and concentration of those emissions (air pollution emissions).
2. Air pollution emissions emanating from the proposed facility are substantially influenced by waste input streams intended to be used as feedstock, as well as pollution control measures implemented in design, construction and operation.¹ The risk of toxic air

¹ Tom Cole-Hunter, Fay H Johnston, Guy B Marks, Lidia Morawska, Geoffrey G Morgan, Marge Overs, Ana Porta-Cubas and Christine T Cowie, 'The Health Impacts of Waste-to-Energy Emissions: a

pollutants being emitted rises significantly when a facility burns unsorted municipal waste streams and extensive refinement of feedstock is a critical factor in reducing levels of contaminant emissions.²

3. PHI proposed facility lacks pre-sorting of waste feedstock. The proposal has some processes in place to assess incoming waste streams, but it intends to combust municipal solid waste without a significant process to specifically regulate and thereby minimize contaminants derived from the waste stream to 'refuse derived fuel' (RDF).
4. Research of which the Proponent ought to be aware finds that 'it is clear that the input waste stream can substantially influence pollutant emissions'³ and risks of harm associated with air pollution emissions rises significantly where facilities combust unsorted municipal waste streams. The same review emphasizes the importance of regulation and pre-sorting of feedstock as a critical factor in reducing levels of contaminant emissions.⁴
5. In absence of systematic pre-sorting and regulation of waste feedstock, the current proposal cannot be said to reasonably minimize risks of harm from the facility's air pollution emissions (having regard to the existing state of knowledge). Nor can it be said to be designed with respect to best available techniques or technologies. In effect, waste-to-energy technologies only achieve these legal standards where properly and optimally designed.⁵ That is not the case in the PHI proposal.

Non-compliance with GED and best available techniques or technologies: inadequate plans for disposal of waste residue

6. Additionally, the research noted above concludes that careful consideration of the use and disposal of bottom ash and fly ash is crucial to limiting the potential for air, water and soil contamination from toxic concentrations in waste-to-energy waste residues.⁶ One of

Systematic Review of the Literature' *Environmental Research Letters* (2020) 15, 123006 Online: <<https://doi.org/10.1088/1748-9326/abae9f>>, 16.

² Cole-Hunter et al, 13.

³ Cole-Hunter et al, 16.

⁴ Cole-Hunter et al, 13:

'Some of the studies included in this review have highlighted the need for special consideration of the feedstock used for RDF and WtE facilities, given that it is one of the critical issues affecting contaminant emissions, over and above the treatment technology used.... Regulating the pre-sorting of waste for WtE processes can help to maximise complete combustion and minimise carcinogenic emissions... exportable energy in WtE processes...'

⁵ See Cole-Hunter et al, 16:

'The limited evidence from the two epidemiological studies, along with HRAs, LCAs and emissions monitoring studies suggests that the risks to human health from emissions of appropriately designed, properly managed (including feedstock), state-of-the-art WtE incineration plants are relatively lower compared to prevailing alternative waste management practices, including incineration of unsorted waste (without energy recovery) and land fill. Importantly, the waste management hierarchy recommends an emphasis on the reduction of material going to waste before it is re-purposed or recycled, as it is clear that the input waste stream can substantially influence pollutant emissions.'

⁶ Cole-Hunter et al, 16.

the studies notes that heavy metal concentrations pose potential contributions to carcinogen exposure.⁷

7. Given the proposal's uncertainty on the eventual use or disposal of the bottom and fly ash, we submit that the proposal has not adequately dealt with question of the management of remaining waste, particularly contaminated ash. Full life cycle assessments of all waste products arising from the proposal and the potential human health risks have not been given adequate consideration. The proposal cannot be said to be compliant with the state of knowledge on best available techniques and technologies for waste management and waste-to-energy operation.

Shortcomings in assessment methods

8. Methodologies of assessment of effects, impacts or consequences of proposals are integral to the knowledge base informing those proposals. The nature and content of such assessments, specifically in respect of human health, contribute to careful and proper design of the facilities themselves. For example, inclusion of a range of assessment methods, including lifecycle assessment of risks (associated with pollution and waste), would seem to be required, in addition to solely human impact assessment methods employed by the proponent.
9. Additionally, incorporation of sensitivity analyses in assessment for these types of facilities in particular appears to be important – for example, sensitivity of health risks to different waste stream inputs.⁸ These aspects of analysis do not appear in the Proponent's application. The Proponent notes that there will likely be dramatic changes in the waste stream composition over the lifetime of the facility, specifically that there will be a marked reduction in organic content due to changes in waste collection methods.⁹ PHI currently estimates that organics make up 51% of MSW yet fails to model how this significant change in feedstock composition will impact emissions of toxic pollutants or greenhouse gases. In this respect, it is not clear that proper consideration of various environment protection principles, such as use of best available evidence, has informed the proposal.

Failure of proposal to account for uncertainty and precaution

10. It is a primary conclusion of the research we refer to above that there is a significant degree of uncertainty and a limited knowledge base into the health effects of waste-to-energy facilities. The authors of that work urge decision-makers to take a precautionary approach to waste-to-energy facilities 'in the light of the lack of rigorous health evidence'.¹⁰
11. A suitably precautionary and proportionate response would be appear to require the proponent in this case to identify and respond to the types of issues raised in that

⁷ Cole-Hunter et al, 12.

⁸ Cole-Hunter et al, 8.

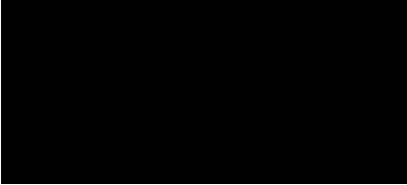
⁹ The Application, Part 1, 75.

¹⁰ Cole-Hunter et al, 16.

research, which includes a focus on rigorous assessment and design outcomes. Those outcomes cannot be said to be reflected in the current proposal.

We would be happy to discuss further.

Yours faithfully



Lawyer

1121671 Zero Waste Australia



Hidden temperatures: emissions implications of temperatures in the post-combustion zone of waste incinerators

Case Study

February 2020 – ToxicoWatch

Introduction



Figure 1 Waste burning at the grid. Waste transported to furnace (photo K. Bouman, 10-12-2019 REC)

Waste-to-Energy incineration plants incorporate a number of methods for ensuring proper combustion and reducing emissions. The industry is guided by a set of environmental standards such as the Best Available Techniques (BAT) for Waste Incineration¹ to minimise the impact of their activities, including emission limits on unintentionally produced persistent organic pollutants.²

Recent studies by ToxicoWatch ‘Hidden Emissions’³ (2018) and ‘Hidden Impacts of Waste Incineration Residues’⁴ (2019) reveal emissions of dioxin, furan and persistent organic pollutants far beyond the legally permitted emission limits.

These case studies are based on research on the most recent of 13 incineration plants in the Netherlands, a ‘state of the art’⁵ waste-to-energy (WTE) incineration plant, *Reststoffen Energie Centrale (REC)*, in Harlingen, the Netherlands.

¹ Best Available Techniques (BAT) Reference Document for Waste Incineration: Industrial Emissions Directive 2010/75/EU (Integrated Pollution Prevention and Control). Available at: ec.europa.eu/jrc/en/publication/eur-scientific-and-technical-research-reports/best-available-techniques-bat-reference-document-waste-incineration-industrial-emissions

² The new formed substances are not produced intentionally, and are therefore called as unintentional persistent organic pollutants (UPOPs).

³ Hidden emissions – A story from the Netherlands. Available at: zerowasteurope.eu/wp-content/uploads/2018/11/NetherlandsCS-FNL.pdf

⁴ The hidden impacts of incineration residues. Available at: zerowasteurope.eu/wp-content/uploads/2019/11/zero_waste_europe_cs_the-hidden-impacts-of-incineration-residues_en.pdf

⁵ When it was built in 2011, it was proudly announced by the Dutch Ministry of Economic Affairs as “a state of the art” installation, the best in Western Europe. Available at: zerowasteurope.eu/2019/06/the-story-of-rec/

This third Case Study is based on work and research performed under the governmental working group 'Fase 2'⁶ which had the objective to research the following questions:

- Is the incinerator complying with the required 2 second residence time above 850 °C in the post-combustion zone?
- What is the halogen content of waste?
- Is there a homogeneous state in temperature in the post-combustion zone?
- Is the polynomial to calculate the temperature in the post-combustion zone correct?
- Is the incinerator being tested under all conditions, even under the worst case scenario?
- Is the oxygen level at the post-combustion zone homogeneous?

Collectively, these questions help to gain a better understanding of the realities of controlling effective temperatures in the post-combustion zone of waste incinerators. Providing a clearer picture of waste incineration emissions.

The importance of temperatures in the post-combustion zone

Temperature is an important feature in the formation and destruction of molecules. A complete combustion breaks down all the molecules into basic elements, while an incomplete combustion produces pollutants like persistent organic pollutants (POPs) in the flue gases.⁷ These newly formed substances are not produced intentionally, and are therefore called unintentional persistent organic pollutants (UPOPs).

Thermal treatment in the post-combustion zone is one of the measures put in place to minimise the emissions of POPs. Specifically, the EU Directive on Industrial Emissions⁸ requires that the temperature of the flue gas in the post-combustion zone of a waste-to-energy plant has to be maintained to a temperature of at least 850 °C for two seconds:

*“Waste incineration plants shall be designed, equipped, built and operated in such a way that the gas resulting from the incineration of waste is raised, after the last injection of combustion air, in a controlled and homogeneous fashion and even under the most unfavourable conditions, **to a temperature of at least 850 °C for at least two seconds**”.*

⁶ REC - Continu verbeteren door constructief samen te werken. Available at: www.omrin.nl/bij-mij-thuis/over-omrin/archief/rec-continu-verbeteren-door-constructief-samen-te-werken

⁷ This processes occur during cooling down and also in cold spots in the post-combustion zone.

⁸ Directive on Industrial Emissions. Available at: eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32010L0075

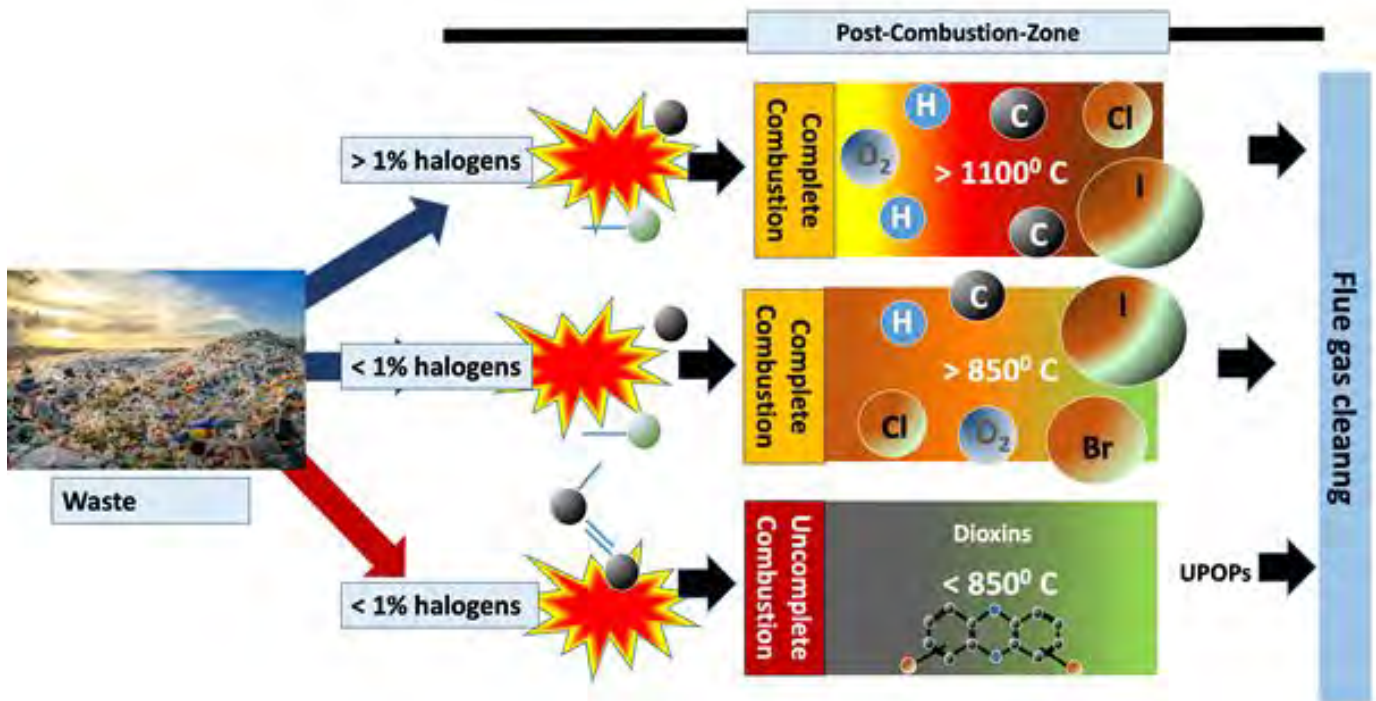


Figure 2: Complete and incomplete combustion (ToxicoWatch)

However, in the presence of halogenated⁹ content of organic substances (such as chlorine) above 1% of the waste content, the Directive on Industrial Emissions requires that a higher temperature of 1100°C should be applied in the post-combustion zone:

"If hazardous waste with a content of more than 1% of halogenated organic substances, expressed as chlorine, is incinerated or co-incinerated, the temperature required to comply with the first and second subparagraphs shall be at least 1100°C".

A high degree of accuracy in measuring and controlling the aforementioned temperature is therefore required to prevent the formation of POPs. In almost the totality of WTE plants this measurement process is carried out by using practical industrial thermometers.

⁹ The halogens are a group in the periodic table consisting of five chemically related elements: fluorine, chlorine, bromine, iodine, and astatine.

Consistency in measuring the halogen content of waste

One of the concerns of ToxicoWatch has been the determination of the halogen content¹⁰ of the waste content. Halogens are a group of elements such as chlorine found in everyday products such as plastics and electronics which are a significant part of our daily household waste. As stated above, the Directive on Industrial Emissions requires the halogen content to be lower than 1% in the waste content, otherwise higher temperatures are required in the post-combustion zone:

"If hazardous waste with a content of more than 1 % of halogenated organic substances, expressed as chlorine, is incinerated or co-incinerated, the temperature required to comply with the first and second subparagraphs shall be at least 1100 °C".

In principle, to determine the halogen content, a chemical analysis of waste should be done on the waste input (feedstock). However, there is no legal requirement for how often this analysis should be conducted and on which halogens it should focus - **which is a clear loophole in the legislation.**

In the case of the REC incinerator, only two samples of waste were analysed on the halogen content, one in 2011 and one in 2017 on special request of ToxicoWatch. This represents less than 0,000000003% of a total of 2,800,000tonnes of waste incinerated. Raising questions about the lack of control on what is incinerated at the REC incinerator. Notably, the last analysis in 2017 found 0,9% of chlorine, just 0.1% under the limit of hazardous waste. However, other halogens such as bromine were not analysed as it's currently not required by law.

Lack of transparency in monitoring the post-combustion zone temperatures

The lack of transparency from the REC plant in communicating about the actual post-combustion temperatures has been one of the many difficulties in conducting this research.

Although the Directive on Industrial Emissions requires a verification of temperatures in the post-combustion zone within 6 months of premier operation, the REC management did not provide any evidence that this was actually done. Also, prior to initial operation of the incinerators, temperature investigations should have been done under the normal and licensed worst-case conditions to ensure they can meet the temperature requirements for environmentally sound incineration.

In 2014, a Harlinger journalist Jeroen Pietersma was invited to visit the REC plant. In the control room, he observed the temperatures lower than required by the law (See Figure 3). According to the journalist, the manager of the plant explained that this lower temperature was "*a result of combusting wet waste, sewage sludge*".¹¹ After the publication of these results in the media, a representative of the province of Friesland

¹⁰ The halogens are a group in the periodic table consisting of five chemically related elements: fluorine, chlorine, bromine, iodine, and astatine. Halogens are found in every day (disposable) consumption products, which is a significant part of daily household waste.

¹¹ The information is available at ToxicoWatch upon request.

justified the temperature with the excuse that the pyrometers measuring the temperatures were simply too dirty to measure real temperatures.¹²

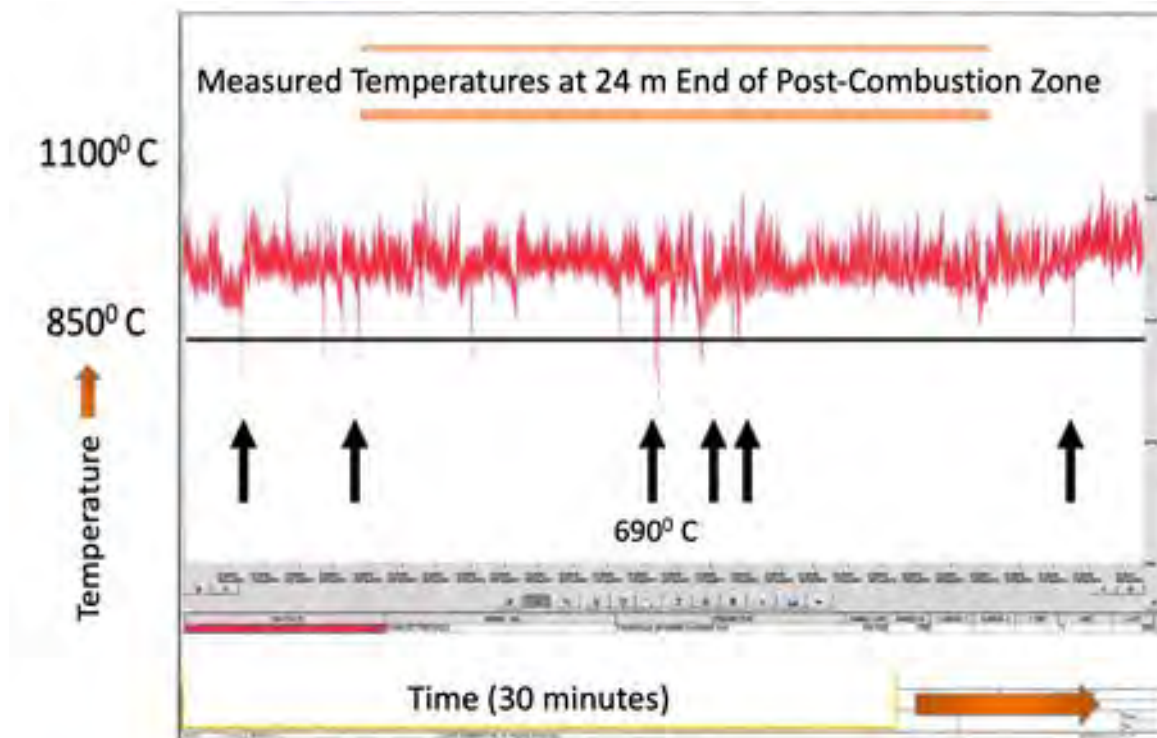


Figure 3: Temperature graph at 24m measurement plane post-combustion zone (HC 22-08-2014, data sheet REC)

The publication of low temperatures in the post-combustion zone raises questions about whether the plant meets the legally required temperature levels. This is particularly worrying as the research has shown that even small changes in temperature can result in large changes in concentrations of UPOPs in the flue gas.¹³

Discrepancies in determining the extent of the post-combustion zone

One of the key issues in measuring the combustion temperatures is the determination of the starting point of the post-combustion chamber. The original documents of the constructor of the facility set the starting point at 18m. At 18m (the so called first measurement plane) is where a homogeneous mixing of air and temperatures can be verified as required.

¹² Idem.

¹³ See for example, De-novo formation of dioxins and furans and the memory effect in waste incineration flue gases. Available at: www.researchgate.net/publication/5282846_De-novo_formation_of_dioxins_and_furans_and_the_memory_effect_in_waste_incineration_flue_gases

Nevertheless, the REC plant, took the secondary air inlet at 14m as the starting point of the post-combustion zone. This is just a few meters from the auxiliary burners (See Figure 4) that supply heat during shutdowns and start-ups.

Combustions is a dynamic process and transient conditions occur regularly, making homogeneous temperatures relevant for POP destruction. Efficient mixing of gases can be monitored at level of 18m. However, no agreement could be achieved between the REC management and the governmental working group on the starting point of the post-combustion zone.

Misplacement of thermometers

A high degree of accuracy in measuring and controlling the temperatures in the post-combustions zone is required to prevent the formation of POPs.

The Directive on Industrial Emissions requires that the measurements should be done near the inner wall of the combustion chamber.

“In waste incineration plants, the temperatures set out in the first and third subparagraphs shall be measured near the inner wall of the combustion chamber. The competent authority may authorise the measurements at another representative point of the combustion chamber¹⁴”.

Best practice, for example, as noted in the English review of Best Available Techniques¹⁵ (BAT) recommends placing the thermometers at the inside wall of the post-combustion chamber to accurately measure the temperatures. This means that the temperature measurements should be conducted at the height of 18m and 24m (See Figure 4).

¹⁴ Article 50 (2) of the Directive on Industrial Emissions. Available at:
<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32010L0075>

¹⁵ In an English review of Best Available Techniques (BAT) it is recommended to place thermometers at the wall of the post-combustion zone. Available at: Review of BAT for New Waste Incineration Issues, R&D Technical Report P4-100/TR Part 2 Validation of Combustion Conditions, D Scott & A Collings

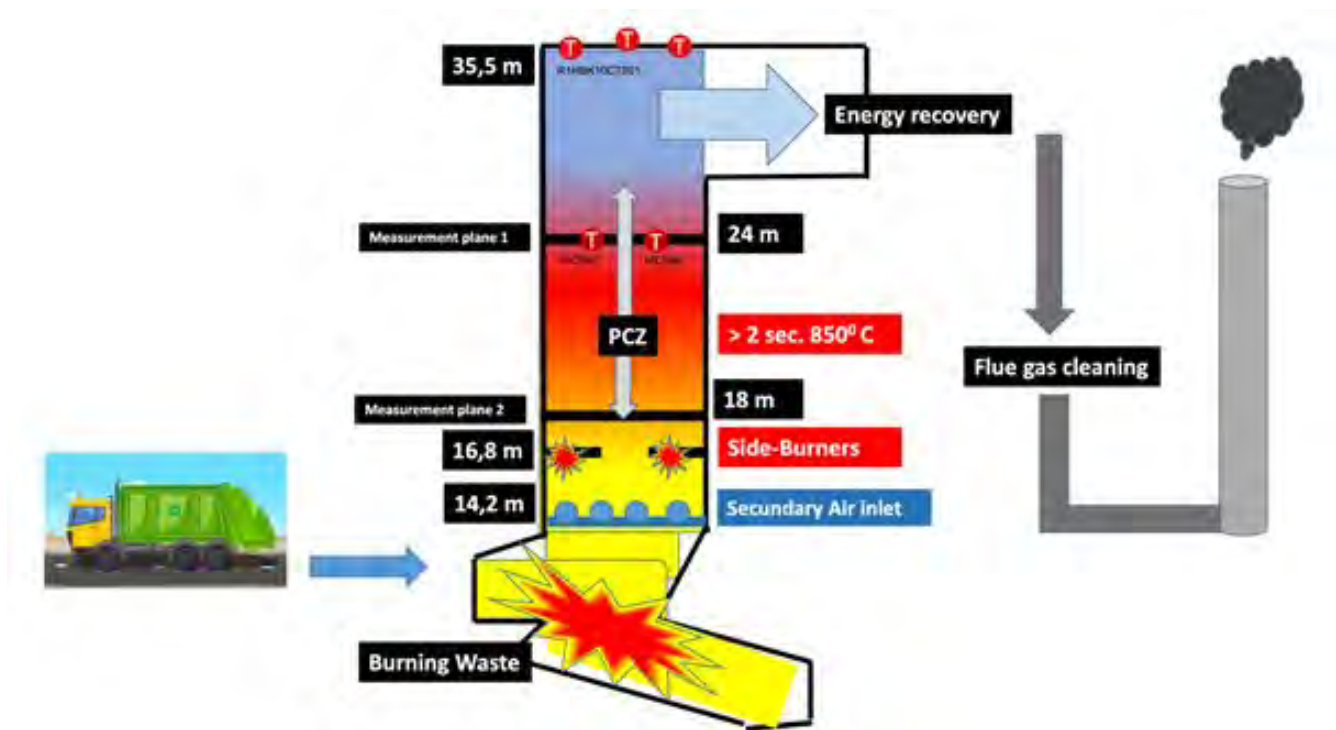


Figure 4: Post-combustion zone

Contrary to these guidelines, the REC incinerator is doing measurement by using pyrometers located at the top of the roof (35,5 m) and adding a figure (so called polynomial) to calculate the temperature in the post-combustion zone. The research shows that the REC is calculating the temperatures at the height of 14,2meters,¹⁶ 4 meters lower than the starting point of the post-combustion chamber.¹⁷ This is the level where the secondary air inlet (14,2m) and the auxiliary burners¹⁸ (16,8m) are situated and meant to maintain the temperature above 850°C. Therefore, these measurements cannot be representative of the homogeneous temperature in the post-combustion zone.

This inaccurate method to determine the starting point of the post-combustion zone could be the result of lacking clear guidelines in the Dutch legislation as regards to the temperature measurements.¹⁹ However, it could also be a problem with enforcement.

In addition, the polynomial or applied addition number was found by the research to be too high (70°C higher).²⁰ Therefore, the polynomial has to be lowered by 70°C. The REC explained that refractory changing (changing of the stones and tiles) is causing the difference in calculated temperatures. However, no change of refractories has taken place, and even if this could have influenced the temperatures, the polynomial is still questionable as the measurements, as shown below, were incomplete and not performed under the worst case scenarios.

¹⁶ Measurement report REC, Harlingen, Netherlands, 21.08.2017, TÜV Report No.: 936/21239402/A Cologne, 21.08.2017

¹⁷ This is a difference of 3,6m and with a temperature gradient of 22,9°C per meter a difference of 83°C exists between these two locations

¹⁸ The auxiliary burners activate automatically to prevent that the temperature of the combustion gas falls below 850 or 1,100 °C whatever the case may be.

¹⁹ Also, the revised European BAT does not specify how the measurements should be done.

²⁰ IDEM

Incomplete temperature measurements

According to TÜV²¹ research of the REC plant, the temperatures in the post-combustion zone should be measured on two cross-section measurement planes at 18m and 24m (see Figure 5). For representative sampling 18 measure points should be taken in a cross-section measurement plane. These measurements of 18 points in one plane each need to be done at 6 different time frames within 4 hours.²² This means a total of 216 measurements. However, according to the report by TÜV, 96 measurements from the total of 216 were not performed due to technical obstructions (see figure 5) resulting in an impaired verification of the 2 seconds residence time of the flue gases above 850°C.

Despite the impaired measurements, the data indicates the existence of cold spots in the post combustion zone, at the level of 30,5m. This strongly indicates the impaired destruction of POPs.

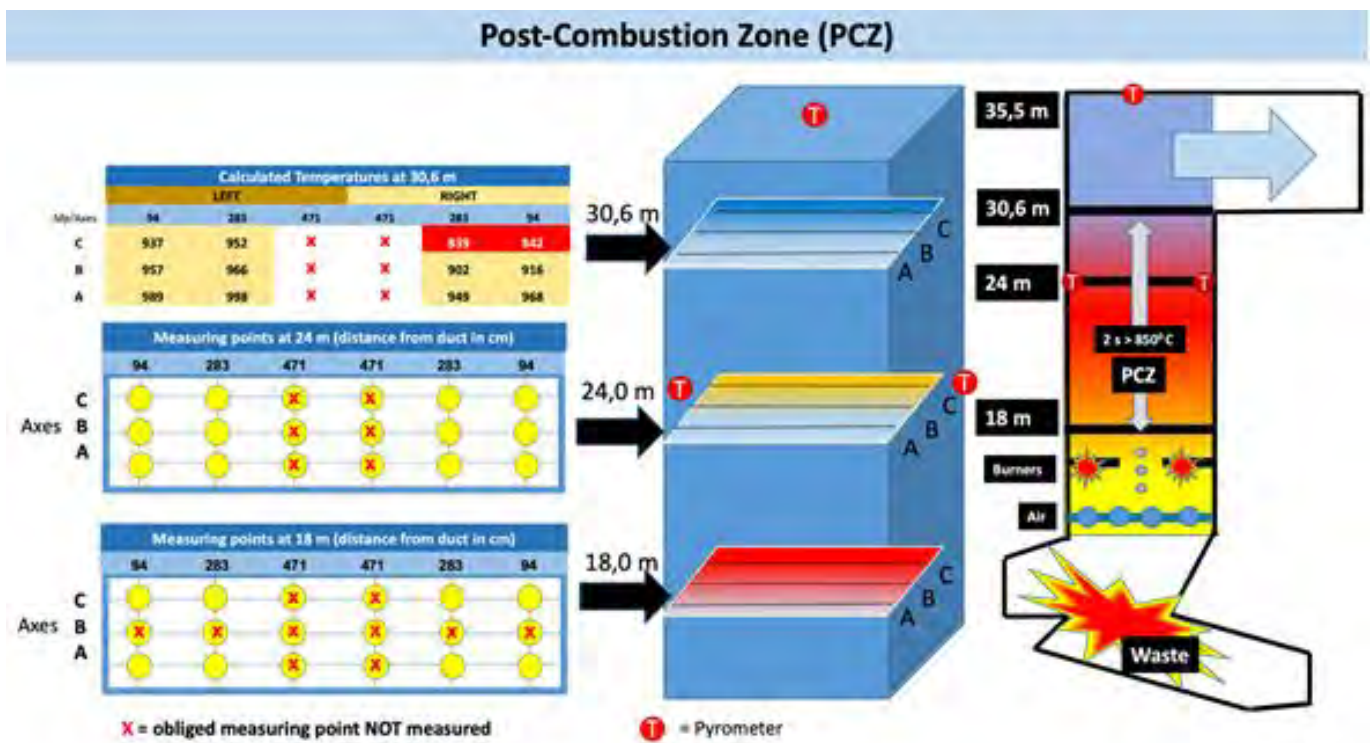


Figure 5: Post-combustion zone and temperature measurements

²¹ Measurement report REC, Harlingen, Netherlands, 21.08.2017, TÜV Report No.: 936/21239402/A Cologne, 21.08.2017

²² IDEM

Challenges with homogeneity in oxygen levels

Complete combustion needs optimal mixing with oxygen. The Directive on Industrial Emissions requires sufficient oxygen levels of 6% in the post-combustion zone with a maximum of a 50% deviation at each measuring point. Figure 6 shows deviations in full and part load conditions of the oxygen levels at REC. Blue circles show deviations of oxygen exceeding 50% deviation limits. It can be concluded that the oxygen levels are far from homogenous, indicating that the optimum mixing of gases is not being reached and not complying the Directive on Industrial Emissions.

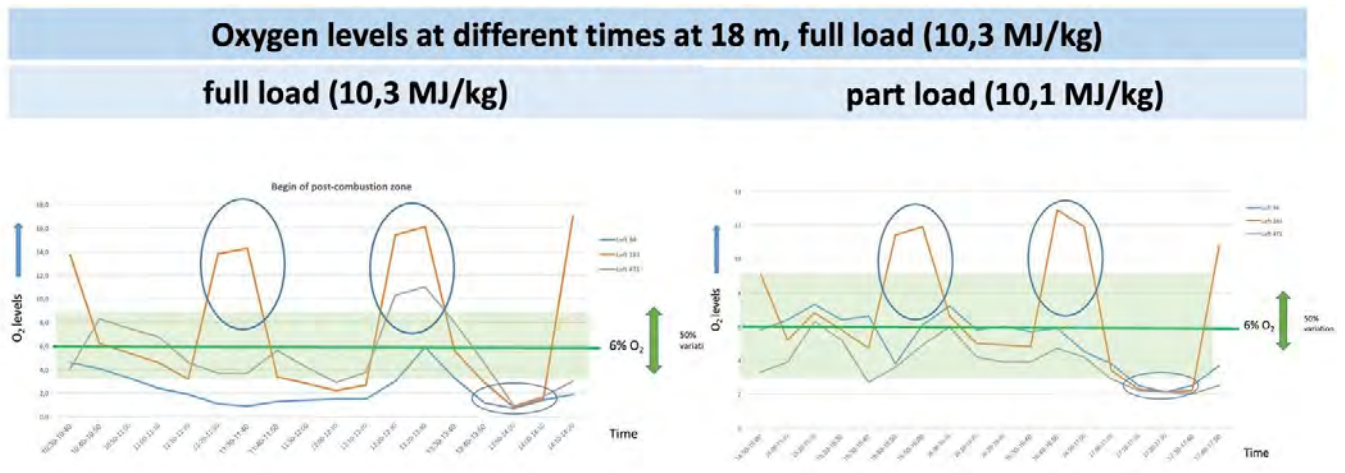


Figure 6: Oxygen measurements. green deviation limits, green line: 6% O₂ level

How the calorific value of waste has further implications related to temperature

The Directive on Industrial Emissions prescribes that waste incinerators must be tested under the most unfavourable conditions. This means, firstly, testing the plant at full and part load, and secondly, testing combustions with different calorific waste. Figure 7 shows the design load of the REC incinerator. According to the recommendations of the working group, the caloric value of waste must have a value between 9 and 15 MJ/kg. The lowest calorific value, the REC incinerator can combust, therefore, is a waste with a value of 9 MJ/kg.²³ Although the REC incinerator regularly burns waste of a low calorific value (sewage sludge), research on the calorific value of waste was performed only on waste with a calorific value of 10.3MJ/kg full load and 10.3 MJ/kg part load, which are normal operating conditions. This suggests that the waste input to the REC incinerator is not being fully appreciated, and the implications of these results are being overlooked. Similarly to the determination of the starting point of the post-combustion zone, no verification of waste combustion under the most unfavourable conditions could be achieved to check whether the incinerator still meets the legally

²³ Measurement report REC, Harlingen, Netherlands, 21.08.2017, TÜV Report No.: 936/21239402/A Cologne, 21.08.2017

required minimum temperature when incineration low calorific waste, sewage sludge.

Incinerator firing diagram

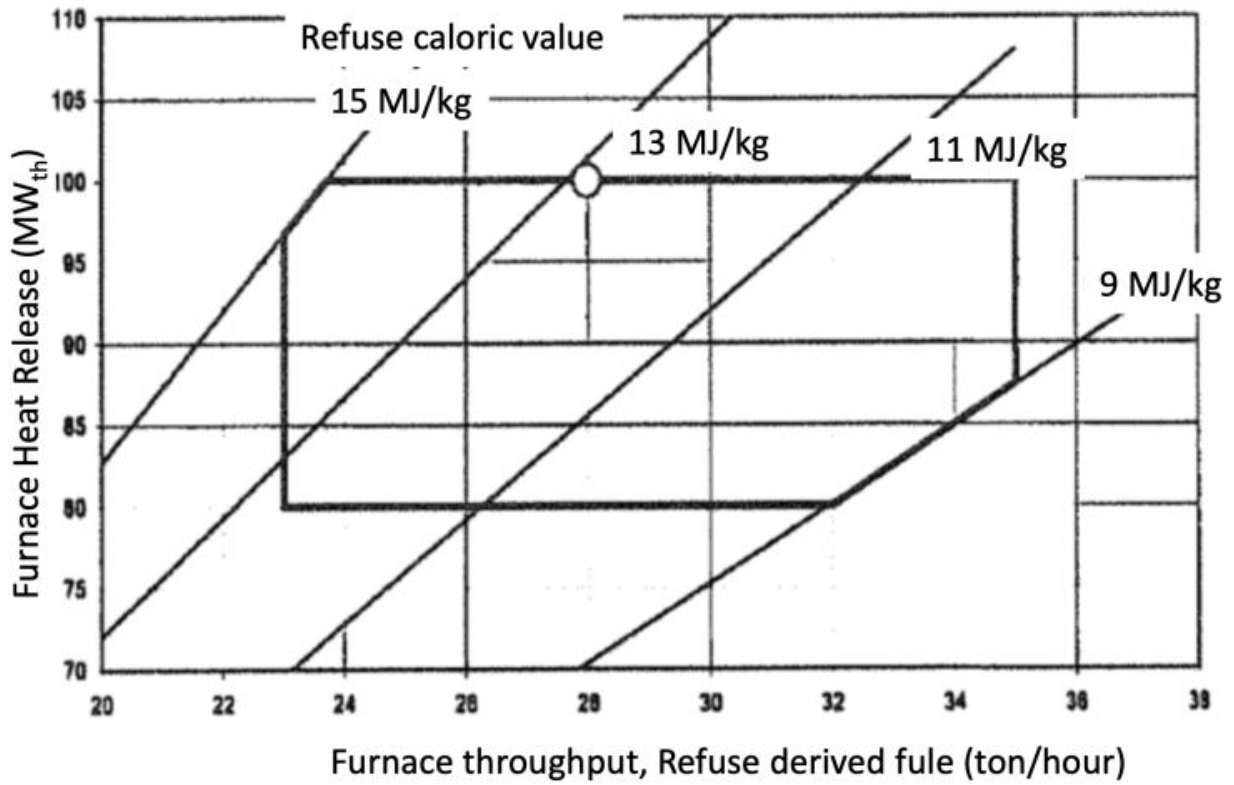


Figure 7: Design Load Case or Firing diagram of the incinerator REC (data REC)

Conclusions and recommendations

The research undertaken as part of the government working group 'Fase 2' indicates that the so-called 'state of the art' REC incinerator does not comply with the 2 seconds residence time above 850°C requirement needed to prevent the emissions of POPs.

The research also reveals high fluctuations of temperature and oxygen differences in the post-combustion zone, as well the existence of cold spots, strongly indicating that the destruction of POPs is impaired.

Moreover, the research further indicates a lack of waste input analysis for the hazardous content (halogen) that could have significant implications on the formation of POPs if the correct temperature is not applied.

Finally, this study has revealed serious shortcomings and legal loopholes in the control of temperatures in waste incineration.

In order to reduce emissions of UPOPs in the environment, a more stringent enforcement of the Directive on Industrial Emissions is recommendable to prevent the formation of unintentional persistent organic pollutants, such as dioxins, and to ensure that waste incinerators apply the best available techniques (BAT) and best environmental practices (BEP).

All incinerators should demonstrate that they comply with the requirement of the 2 seconds residence time of the flue gases above 850°C in a homogenous column of temperatures and oxygen measured with representative sampling even under the most unfavourable conditions.

The results of the REC incinerator case raise important questions for future policy-making concerning the safety of waste incineration, a practice that puts public health and the environment at stake while exacerbating climate change. Europe now has the opportunity to support more sustainable alternatives, while investing in reducing waste in the first place. It's clear that waste incineration is not able to meet the requirement to eliminate POPs, on the contrary, more POPs are produced in the process of burning waste.

Authors: Abel Arkenbout

Editor: Eilidh Robb & Janek Vahk

Zero Waste Europe, 2020



Zero Waste Europe is the European network of communities, local leaders, businesses, experts, and change agents working towards the same vision: phasing out waste from our society. We empower communities to redesign their relationship with resources, to adopt smarter lifestyles and sustainable consumption patterns, and to think circular. zerowasteurope.eu



The ToxicoWatch foundation is a Non-Governmental Organization dedicated to creating a safer and healthier world by advancing the science of toxicology and raising awareness about toxic hazards. toxicowatch.org



Zero Waste Europe gratefully acknowledges financial assistance from the European Union. The sole responsibility for the content of this event materials lies with Zero Waste Europe. It does not necessarily reflect the opinion of the funder mentioned above. The funder cannot be held responsible for any use that may be made of the information contained therein.

Hidden Emissions of Hydrochloric Acid

*Dutch Council of State ruling on subtraction of measurement uncertainty for
HCl emissions by incinerator*

June 9, 2019

The Dutch Council of State has recently ruled that the management of the Waste to Energy plant REC in Harlingen has incorrectly applied the provisions concerning the subtraction of ‘*measurement uncertainty*’ as stated in Annex VI, Part 6, section 1.3 and Part 8, section 1.2 of the IED, the Directive 2010/75/EU on Industrial Emissions¹.

The ruling states that the actual ‘*measurement uncertainty*’ of the continuous Automatic Measuring System (AMS or CEMS) of the REC – which is to be calculated using the results of parallel measurements that must be performed once every five years in the chimney – must be subtracted when correcting the measured emissions.

The ruling implies that the way in which the incinerator reduced the emissions as measured with the AMS was illegal, because the REC subtracted by default the value of the measurement uncertainty that a particular measuring system may – according to the IED – *at most* have in case it is to be installed in an incinerator (e. g. 4 mg/Nm³ for a Hydrochloric Acid (HCl) measuring system). However, the real value – calculated using the results of parallel measurements in 2013 – of the measurement uncertainty of the *actual* HCl measuring system installed in Harlingen is much *smaller* than this default, maximum, value: 0.26 mg/Nm³.

This ruling of the Dutch Council of State is very important. ToxicoWatch cannot rule out that this practice of handling the ‘measurement uncertainty’ in conflict with the IED occurs in more countries². We note that the ruling specifically quotes from a letter of the European Directorate-General for Environment to the appellants³ (see attachment):

‘Obviously, where an instrument used to measure is very precise there is less need to deduct values from the measured results compared to a situation where the instrument is less precise. [...] A practice of deduction maximum fixed values regardless of the accurateness of the instrument therefore does not sit well with the Directive as the services see it’.

¹ <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:334:0017:0119:EN:PDF>

² Amsterdam-based lawyer Henri Sarolea and his scientifically trained co-worker Jan Boekeloo were able to demonstrate the defectiveness of the calculations performed by the waste incinerator. These erroneous results had at first been approved by experts associated with the government, and also by experts advising the highest national court (the Council of State) itself, and in 2015 the Council of State ruled accordingly. With the help of the European Commission’s DGM Sarolea and Boekeloo finally succeeded to convince the Council of State to change their earlier judgement of 2015.

³ Letter of DGM European Commission, July 20, 2017, ref: ENV.E2/MV/ts/CHAP(2016)2410

What are the practical implications of this ruling?

The ruling only considers the HCl emission in the year 2014. In this year the annually averaged emission of hydrochloric acid (HCl) as measured with the installed AMS of the REC was 7.48 mg/Nm³, where the Environmental Permit of the REC allows 5 mg/Nm³. The established – actual – measurement uncertainty of the AMS for HCl of the REC is 0.26 mg/Nm³. So the real emission is 7.22 mg/Nm³, and that is evidently in exceedance of the permitted 5 mg/Nm³ (see Figure 1).

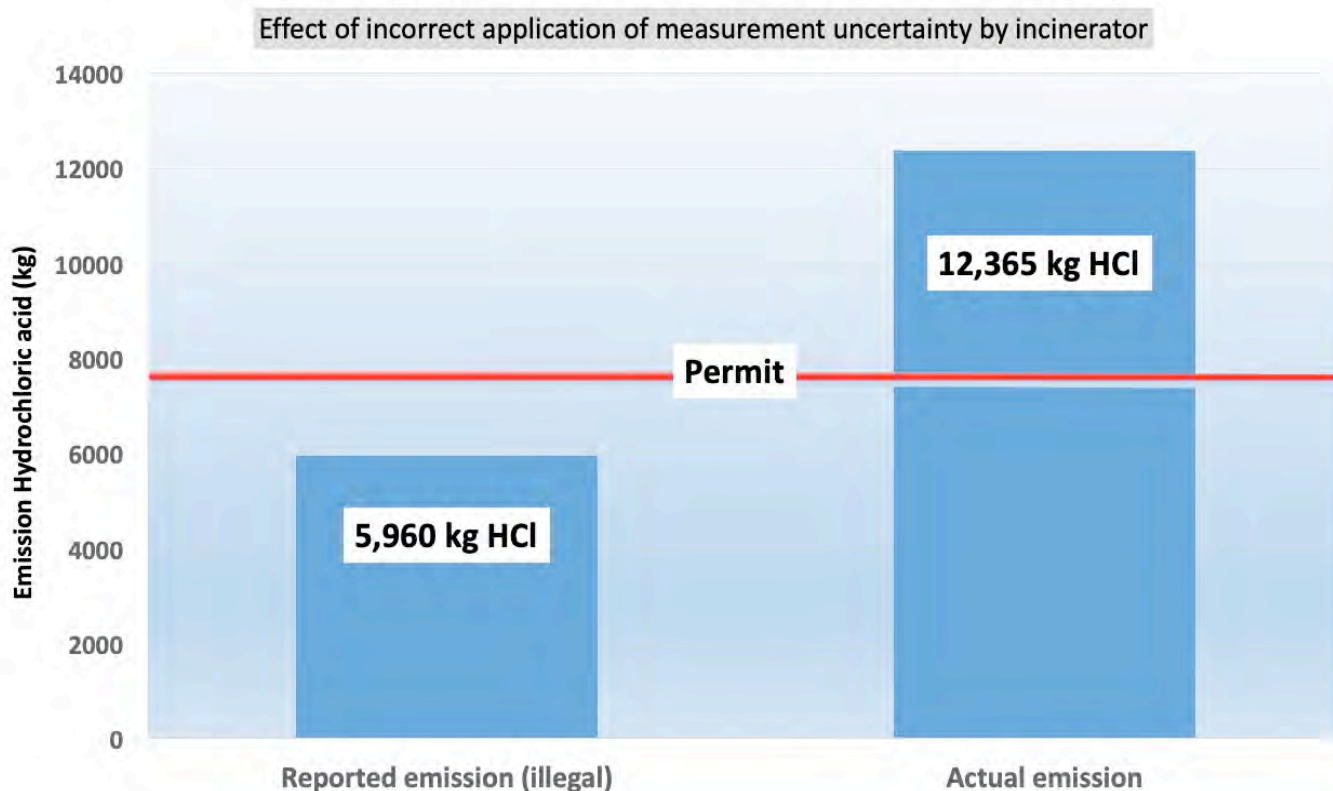


Figure 1: Emission (kg) of HCl in 2014 according to the incinerator (left), and after research by and ruling of the Council of State (right)*

*Note: The exceedance of the Permit increases in the years 2016 and 2017, cf. Figure 2

In order to keep this excessive illegal emission hidden, the REC however bluntly subtracted by default 4 mg/Nm³ from the annually averaged value of 7.48 mg/Nm³, and stated that the resulting 3.48 mg/Nm³ complies with the Permit. The ruling of the Council of State implies the incinerator has for many years emitted thousands of kilos HCl in deviation of the annual emission reports (cf. Figure 2). Experts doubt the incinerator will be able to reduce the hydrochloric acid emissions.

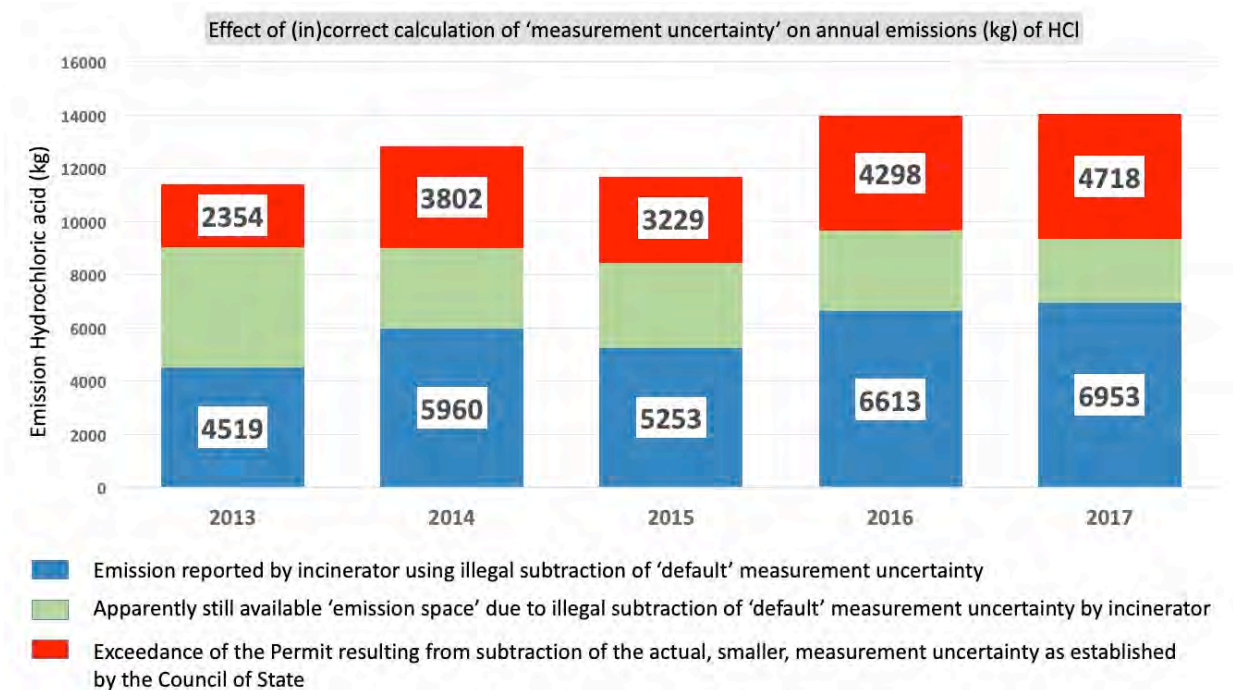


Figure 2: Annual emissions (kg) of HCl resulting from the subtraction of, on the one hand, the larger but incorrect value 4 mg/Nm³ (resulting emission: blue) and, on the other hand, the smaller but correct value 0.26 mg/Nm³ (resulting emission: blue + green + red) for 'measurement uncertainty'



EUROPESE COMMISSIE

DIRECTORAAT-GENERAAL

MILIEU

Directoraat E - Uitvoering en Ondersteuning aan lidstaten

ENV.E.2 - Uitvoering milieumaatregelen

20 JUL. 2017

Brussel,

ENV.E2/MV/ts/CHAP(2016)2410

Mevrouw B. Hofman

Namens: Stichting Afvaloven Nee

E-mail: bastianabcn@yahoo.com

Subject : your complaint

Dear Mrs Hofman,

I refer to your complaint of 14 July 2016 sent to the European Commission and which was registered as CHAP (2016)2410. You have received a separate acknowledgement and there have been informal contacts with my services. We now have completed our assessment, taking also account of explanations received by the Dutch authorities raised in the context of a discussion on the conformity of the Dutch provisions transposing Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions.

Your complaint relates to the Administrative Law Division's ruling of 15 July 2015 which rejected your appeal against a negative decision taken by the Dutch regional authorities on your request for enforcement of legal provisions pertaining to a waste incineration plant in the province of Friesland. Your appeal to the Council was based on the allegation that the authorities (the legislator included) misinterpreted Section 1.3 of Part 6 of Annex VI to Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions where it comes to the correction of measured emissions. To summarise, you claimed that the Directive does not permit the authorities to deduct from the measured emissions the maximum confidence interval referred to in Directive by default whereas the authorities claimed the contrary. You explain that the deduction of a fixed value may lead to distortion by masking the fact of exceedances of the imposed limit values for pollutants. The case at hand concerned the deduction by the authorities of 4 mg/Nm³ for HCL and 0,4 mg/Nm³ for HC, based on Article 5.19 of the Dutch Decree on industrial activities (*Activiteitenbesluit milieubeheer*). The Dutch Council of State however agreed in its ruling with the arguments put forward by the authorities and rejected your appeal.

Key to your complaint is the interpretation of Section 1.3 of Part 6 of Annex VI to Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions and notably whether that provision allows for the standard deduction of a maximum value. It must be emphasised from the start that only the Court of Justice of the European Union is entitled to provide a final interpretations of EU law and that therefore the elements provided hereafter by the Commission services cannot be considered as a final interpretation of the Directive.

More importantly even, it must also be made clear from the start that the text of the Directive does leave some room for arriving at different interpretations. For that reason alone we cannot conclude that the national (judicial) authorities have made a manifest error and that there are sufficient indications of an infringement of EU law. Nevertheless, the services of DG ENV consider that the preferred interpretation of the Directive goes along the lines you have described.

The said section 1.3 of Part 6 of Annex VI to Directive 2010/75/EU provides for the maximum permitted margin of inaccuracy and determines the maximum percentage by which the monitoring results (including on Hydrogen chloride (HCl) and Hydrogen fluoride (HF) which seem in particular at stake in your complaint) may exceed the emission limit value. The relevant parts of the said Part 6 read:

"Annex VI on technical provisions relating to waste incineration plants and waste co-incineration plants, PART 6 on monitoring of emissions

1.1. Measurements for the determination of concentrations of air and water polluting substances shall be carried out representatively.

1.2. Sampling and analysis of all polluting substances including dioxins and furans as well as the quality assurance of automated measuring systems and the reference measurement methods to calibrate them shall be carried out according to CEN-standards. If CEN standards are not available, ISO, national or other international standards which ensure the provision of data of an equivalent scientific quality shall apply. Automated measuring systems shall be subject to control by means of parallel measurements with the reference methods at least once per year.

1.3. At the daily emission limit value level, the values of the 95 % confidence intervals of a single measured result shall not exceed the following percentages of the emission limit values:

<i>Carbon monoxide:</i>	<i>10 %</i>
<i>Sulphur dioxide:</i>	<i>20 %</i>
<i>Nitrogen dioxide:</i>	<i>20 %</i>
<i>Total dust:</i>	<i>30 %</i>
<i>Total organic carbon:</i>	<i>30 %</i>
<i>Hydrogen chloride:</i>	<i>40 %</i>
<i>Hydrogen fluoride:</i>	<i>40 %</i>

Periodic measurements of the emissions into air and water shall be carried out in accordance with points 1.1 and 1.2."

The applicable Dutch legislation is Article 5.19(3) of the Decree on environmental activities (*Activiteitenbesluit milieubeheer*), which reads:

"De waarde van het 95%-betrouwbaarheidsinterval van individuele waarnemingen, op basis waarvan de gemiddelden worden berekend die getoetst worden aan een emissiegrenswaarde, is bij continue metingen niet groter dan de volgende percentages van de emissiegrenswaarde voor de dagelijkse emissies:

(...)

f. zoutzuur: 40% van de emissiegrenswaarde of 4 mg/Nm³;

g. waterstoffluoride: 40% van de emissiegrenswaarde of 0,4 mg/Nm³."

These services would interpret section 1.3 of Part 6 of Annex VI to the Directive (and the related Annex VI, part 8, point 1.2) in the light of its objectives and the general requirement of ensuring that EU law can have its full effect.

In that light these services prefer to read these provisions as meaning that only values which have been determined on a case by case basis on the basis of measurements should be deduced from the values obtained through the measurements. This is in line with the rationale of the Directive, which is to protect the human health and the environment by setting limits on the emissions of pollutants and by requiring measuring these emissions¹. The recognition by the Directive that the measuring instruments can be more or less accurate does in no way imply that measured and/or calculated emissions don't need to reflect reality as close as possible. Obviously, where an instrument used to measure is very precise there is less need to deduct values from the measured results compared to a situation where the instrument is less precise. In other words, although deducting certain values based on uncertainty considerations linked to various elements (different for each installation) including the accuracy of measurement equipment, the measured parameter (sulphur dioxide, NO_x, dust etc.), measurement conditions (gasses moisture, velocity etc.) or type of installation, is in practice a certain necessity, such deduction possibility must be used as restrictive as possible given the objective of the Directive and the need to ensure its full effect. A practice of deduction maximum fixed values regardless of the accurateness of the instrument therefore does not sit well with the Directive as the services see it.

¹ Article 1 on the subject matter reads: "This Directive lays down rules on integrated prevention and control of pollution arising from industrial activities. It also lays down rules designed to prevent or, where that is not practicable, to reduce emissions into air, water and land and to prevent the generation of waste, in order to achieve a high level of protection of the environment taken as a whole."

It would therefore seem that in the case at hand the interpretation given by the national (judicial) authorities, although not manifestly wrong in itself given the room for interpretation which the text of the Directive provides, is not the interpretation which the services would have preferred for ensuring the full useful effect of the Directive under all circumstances.

In the absence of sufficient indications of a manifest error on the side of the national authorities, we therefore do not intend proposing to the Commission the opening of an infringement procedure. Should you however dispose of information liable of changing this conclusion please forward that within four weeks of receipt of this reply.

Yours sincerely,

A handwritten signature in black ink, consisting of a large, sweeping loop on the left side that extends into a long, horizontal line across the middle and right.

Ion Codescu

Head of Unit



Hidden emissions: A story from the Netherlands

Case Study

November 2018 – ToxicoWatch

Although presented as state of the art, the youngest incinerator in the Netherlands is far from a clean: long-term tests reveal emissions of dioxin, furan and persistent organic pollutants far beyond the limits.

The case of the REC plant raises important questions for future policy-making concerning waste incineration and its potential effects on public health and the environment.

The youngest of Dutch incinerators: Reststoffen Energie Centrale

Out of the 13 waste incinerators currently in operation in the Netherlands, the Reststoffen Energie Centrale (REC) is the most recent one. The so-called waste-to-energy plant is located in Harlingen, bordering the UNESCO Wadden Sea coastline in the North of the Netherlands. When it was built in 2011, it was proudly announced by the Dutch Ministry of Economic Affairs as 'a state of the art' installation, the best in Western Europe. However, long-term testing revealed the plant emits dioxin, furans and toxic pollutants far beyond the limits set by EU laws.

Initially, in order to deliver energy to the nearby salt industry plant, the REC incinerator was only supposed to burn Frisian household waste. However, nowadays the waste input comes from everywhere in the Netherlands. Besides household waste, the REC waste input includes also industrial waste, digestate¹ and sewage sludge. Chemical analyses to check the waste input were first undertaken at the start in 2011. It is debatable whether this installation with a post combustion temperature of 850⁰ Celsius is actually capable of combusting the chemical complexity of current 'household' and industrial waste.

Environmental biomarkers and toxic eggs

In 2013, a study by ToxicoWatch found high concentration of dioxins and furans² in eggs of backyard chickens in the surroundings of the REC incinerator^{3 4}. Eggs of backyard chickens are sensitive environmental biomarkers for persistent organic pollutants (POPs) like dioxins⁵. All eggs of backyard chickens in Harlingen, sampled within a radius of 2 km from the REC incinerator, showed a much higher concentration of dioxine than allowed by the EU⁶. Notably, the concentration exceeded 1.7 BEQ/gram fat (Bioanalytical Equivalent)⁷, and the 2.5 picogram TEQ/gram fat⁸ limit set by EU law.

¹ Digestate is the material remaining after the anaerobic digestion of a biodegradable feedstock.

² Polychlorinated dibenzo-p-dioxins and dibenzofurans, PCDD/Fs.

³ Arkenbout, A, 2014. Biomonitoring of dioxins/dl-PCBs in the north of the Netherlands; eggs of backyard chickens, cow and goat milk and soil as indicators of pollution. *Organohalogen Compd.* 76, 1407–1410

⁴ Arkenbout, A, Esbensen KH, 2017. Biomonitoring and source tracking of dioxins in the Netherlands, Eighth World Conference On Sampling and Blending / Perth, Wa, 9–11 May 2017, 117-124

⁵ Witteveen en Bos, Dioxine emissie oktober 2015 – Verspreidingsberekeningen, 2015, rapport LW217-12/16-002.590

⁶ See n=6, Figure 1 black spot

⁷ The values are expressed in Figure 1 in BEQ because analyses are performed with the bioassay of DR CALUX.

⁸ TEQ stands for Toxic Equivalent, picogram is a millionth of a millionth of a gram or 10⁻¹² gram

This means that potentially highly toxic dioxins exceed the maximum limit for consumption of eggs in the environment of Harlingen.

A subsequent national survey⁹ found 50 % of the backyard chicken eggs in the Netherlands were below the maximum limit for dioxins in eggs. However, around the incinerator (Figure 1) all eggs are exceeding the limit for dioxins of 2.5 picogram TEQ/gram fat¹⁰.

A study of dioxin depositions on grass in the direct surroundings of the REC incinerator (see Figure 2) confirms elevated values of dioxins. Moreover, the fingerprints of these dioxins found on grass comply with the congeners found in the flue gases of the incinerator¹¹, tracking the source of dioxin contamination to the emissions of the incinerator.

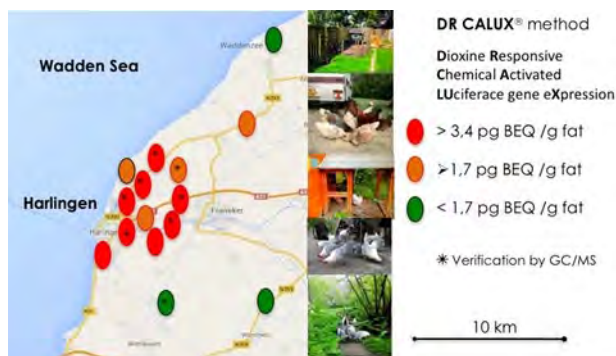


Figure 1: Results dioxins eggs backyard chickens



Figure 2: Dioxin deposition on grass

Dioxine emissions: long-term sampling reveal breaches

Long-term sampling is not mandatory for waste incineration facilities, that mostly rely on pre-announced short-term sampling of 6-8 hours twice a year. After the alarming findings of dioxins in eggs of backyard chickens in the ToxicoWatch study, the local government decided, for the first time in the Netherlands, to perform long-term sampling of flue gases in the REC with the AMESA technique, which stands for **A**dsorption **M**ethod for **S**ampling of dioxins¹². When short- and long-term sampling are carried out in the same period, remarkable differences become visible (Table 1). The results show that short-term sampling seriously underestimates actual dioxin emission levels by factors of 460 - > 1290 (Table 1). The current short-term sampling only represents ~0.2 % of the total yearly operating time, so short-term sampling cannot be considered representative for real dioxin emissions of the REC incinerator¹³.

⁹ Hoogenboom, RL, Ten Dam, G, van Bruggen, M, Jeurissen, SM, van Leeuwen, SP, Theelen, RM, Zeilmaker, MJ, 2016. Polychlorinated dibenzo-p-dioxins and dibenzofurans (PCDD/Fs) and biphenyls (PCBs) in home-produced eggs, Chemosphere, 150, 311-319

¹⁰ Arkenbout, A, Esbensen KH, 2017. Biomonitoring and source tracking of dioxins in the Netherlands, Eighth World Conference On Sampling and Blending / Perth, Wa, 9-11 May 2017, 117-124

¹¹ Arkenbout, A, Esbensen KH, 2017. Biomonitoring and source tracking of dioxins in the Netherlands, Eighth World Conference On Sampling and Blending / Perth, Wa, 9-11 May 2017, 117-124

¹² Tejima H, Nishigaki M, Fujita Y, Matsumoto A, Takeda N, Takaoka M, 2007. Characteristics of dioxin emissions at startup and shutdown of MSW incinerators, Chemosphere 66, 1123-1130

¹³ Arkenbout, A, Olie K, Esbensen KH, 2018. Emission regimes of POPs of a Dutch incinerator: regulated, measured and hidden issues, abstract, <http://bit.ly/2QQcmW1>

Sampling	Hours	ng TEQ/Nm ³	Factor
Short-term, April 2016	6	< 0.00001	
Long-term, April 2016	256	0.01290	> 1290
Short-term, 8 March 2017	6	0.00001	
Long-term, March 2017	690	0.00460	460

Table 1: Comparison of parallel short- and long-term measurements (assumed flow: 230,000 Nm³)

Figure 3 shows the results of a **20,139** hours long-term sampling of dioxins (PCDD/Fs) from August 2015 until December 2017, revealing that excess emissions (“outlier events”) are not exceptional, but rather constitute a regular feature of the REC incineration operation. The results of long-term sampling clearly show the shortcomings of regulatory short-term measurements¹⁴.

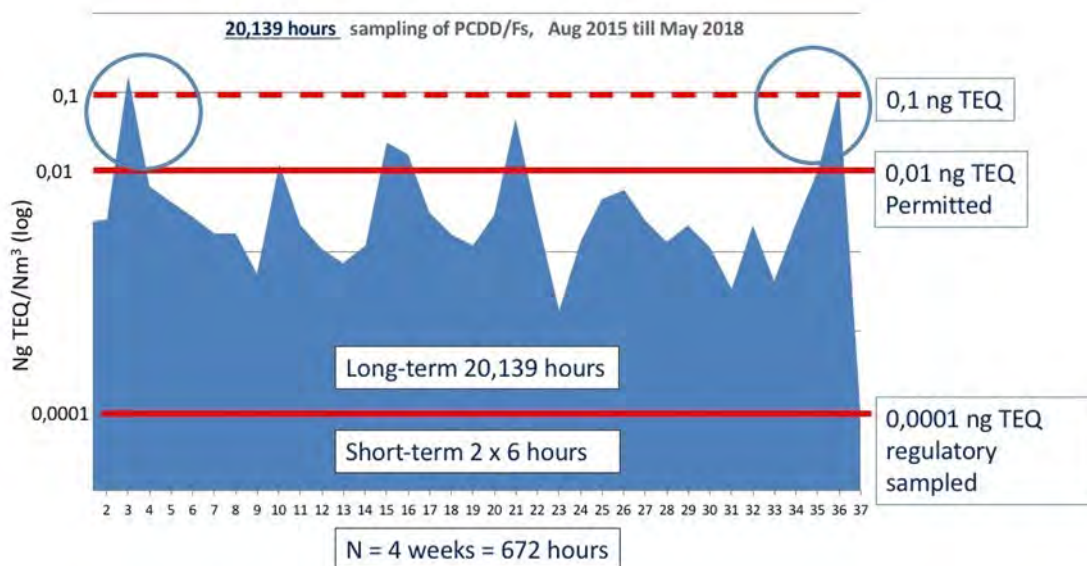


Figure 3: Results of 20,139 hours AMESA long-term sampling PCDD/Fs, REC Harlingen

Announced and presented as “State of the art” and applying with Best Available Techniques /Best Environmental Practices¹⁵, the REC incinerator has a very stringent emission limit of 0.01 ng TEQ/Nm³¹⁶. In Figure 3, a number of excursions above the legal threshold limit can be noted. The horizontal lines indicate from bottom to top the short-term measurements, emission limits set for the REC in the environmental permit, as well as in the permit by the Integrated Pollution Prevention and Control (which is now the IED, International Emission Directive¹⁷). A total number of 12 start-up and shutdown events occurred in the measuring period. The permitted limit of 0.01 ng TEQ/Nm³ was exceeded seven times, and the IED standard of 0.1 ng TEQ/Nm³ twice. As the exceeding of dioxin

¹⁴ Idem

¹⁵ Guidelines on Best Available Techniques and provisional guidance on Best Environmental Practices, relevant to article 5 and Annex C of the Stockholm Convention on Persistent Organic Pollutants, 2007, United Nations Environment Programme

¹⁶ The EU-norm is 0.1 ng TEQ/Nm³

¹⁷ In Dutch: RIE, Richtlijn Industriële Emissies

emissions occurred mostly during start-ups, this 'posed no legal problem' for the facility because the norms are stipulated to 'apply only to steady state operation'. From the very first start-up of the incinerator in Harlingen in 2011, more than 60 start-ups and shutdowns have been (officially) registered. In August 2015 the continuous sampling programme of flue gases for dioxin monitoring AMESA was implemented, but in December 2017 the plant management terminated this long-term sampling program for unstated reasons. With this decision, the management ignored the wish of both the local government and the concerned population to continue AMESA monitoring.

Hidden emissions

One of the reason why the REC incinerator exceeds the dioxins permit levels is the use of bypasses during transient phases, which means that the incinerator emits *without filtering* (Figure 4). In the technical literature this is known as a 'filter bypass mode', 'abatement bypass' or 'dump stacks'. The bypass mode is *structurally* programmed whenever elevated dust emissions occur. Although the plant management had recently promised to stop using bypasses, data don't confirm this has actually happened.

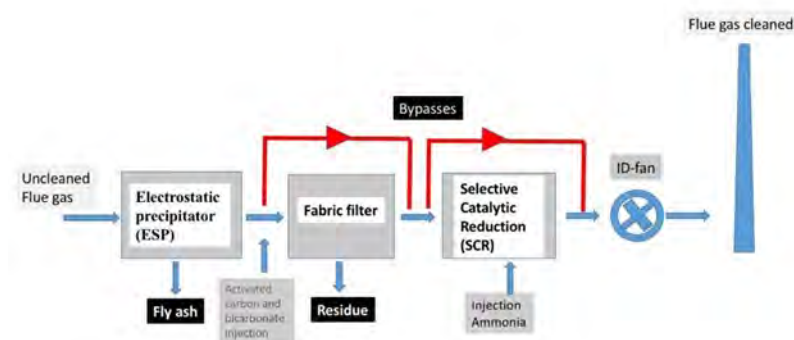


Figure 4: Block diagram flue gas cleaning REC Harlingen with bypasses

Unfortunately, even AMESA cannot perform continuous sampling during transient phases. In all breaches of the permit emission limit (see Figure 3) the long-term sampling by the AMESA was found to be incomplete. During the first outlier event in Figure 3 (exceeding 0.1 ng TEQ/Nm^3), the long-term sampling was interrupted for 10 hours, and for more than 200 hours during the last outlier event. During the 20,139 hours of long-term sampling of the REC incinerator, AMESA was off-line for 1,496 hours¹⁸. While AMESA is mostly on-line (93% of the time), dust emissions especially occur when AMESA is off-line. During start-ups the ID-fan (see Figure 4) is regularly turned off, which results in a shut down and a restart of the AMESA, suspending the test for 3 minutes. When this process is repeated, the long-term sampling will be disabled for a certain time.

¹⁸ Arkenbout, A, Bouman KJAM, 2018. Emissions of dl-PCB, PBB, PBDD/F, PBDE, PFOS, PFOA, and PAH from a waste incinerator, poster Dioxin2018, <http://bit.ly/2RZJe3j>

Start-ups with no filter

Most studies of 'start-ups', including the AMESA long-term sampling, begin to measure when the waste feed is started (see Table 2, phase 4). Data of dioxin emissions before the waste feed starts are less prominent in the literature, but all show elevated dioxin emissions during phases where no waste is burnt ^{19 20 21 22 23 24 25}.

In this study, gravimetric and short-term measurements were performed in the phases before waste combustion in Phase 4 starts. The measurements in Phases 2 (flushing) and 3 (heating up) were performed by the governmental organisation ODRA in 2016, 2017 and 2018. The results show some remarkable elevated dioxin emissions in Phase 1, 2 and 3 of the start-up process.

Table 2 describes the different phases of a cold start-up. This means the installation is already several days inactive and stabilized at room temperature. In phase 3, lasting between 32 and 50 hours, the system is heating up from 15–25⁰ to 850⁰ Celsius, which is the legal binding temperature at which waste can be put on the grate. In this phase, short-term measurements of 4 to 6 hours show all dioxin emissions in excess of the IED limit of 0.1 ng TEQ/Nm³.

Phase 1	Pre-flushing
Phase 2	Flushing (cold)
Phase 3	Heating up
Phase 3B	Flushing (hot)
Phase 4	Starting waste feed
Phase 5	Regular operation



Table 2: Phases of start-up

Figure 5: Emission of dust (dumpstack)

In Phase 2, no short-term measurements are possible, and dust can only be measured by gravimetric methods. Figure 6 shows how an indicative dust load of 73 kg was found in 83 minutes' measure-time, while the incinerator only declared 2 kg dust during this period. Figure 6 clearly shows that the dust emission lasts only 3 minutes. The dust meter of the incinerator is unable to

¹⁹ Tejima H, Nishigaki M, Fujita Y, Matsumoto A, Takeda N, Takaoka M, 2007. Characteristics of dioxin emissions at startup and shutdown of MSW incinerators, *Chemosphere* 66, 1123–1130

²⁰ Hung PC, Chang SH, Buekens A, Chang MB, 2016. Continuous sampling of MSWI dioxins, *Chemosphere* 145, 119-124

²¹ Wang L-C, His HC, Chang JE, Yang XY, Chang-Chien GP, Lee WS, 2007. Influence of start-up on PCDD/F emission of incinerators, *Chemosphere* 67, 1346–1353

²² Chen CK, Lin C, Lin YC, Wang LC, Chang-Chien GP, 2008. Polychlorinated dibenzo-p-dioxins/dibenzofuran mass distribution in both start-up and normal condition in the whole municipal solid waste incinerator, *Journal of Hazardous Materials* 160, 37–44

²³ Li M, Wang C, Cen K, Ni M, Li X. 2018. Emission characteristics and vapour/particulate phase distributions of PCDD/F in a hazardous waste incinerator under transient conditions, *R. Soc. open sci.* 5: 171079

²⁴ Ziogiannis N, Hollingsworth AJ, and Konisky DM, 2018. Understanding Excess Emissions from Industrial Facilities: Evidence from Texas, *Environ. Sci. Technol.*, 52 (5), pp 2482–2490

²⁵ Witteveen en Bos, Dioxine emissie oktober 2015 – Verspreidingsberekeningen, 2015, rapport LW217-12/16-002.590

record excessive flows of dust in a short time. In Phase 1 the REC incinerator estimates the amount of dust emission to be 25-50 kg, but due the incapability of dust emissions meters (only 2% in Phase 2), the real quantity of dust emissions will be much higher. Dust emissions during start-ups without burning waste are structurally emitted without filtering. This has an economical reason: changing of filters, especially the bag or fabric filter is an expensive operation. Although emitting without filtering is prohibited, this practice occurs as a standard. As regards enforcement, penalising breaches is difficult, because emissions are only measured when waste is actually on the grate, and the bypassing system is still being applied (see Figure 5, which likely indicates emissions of dust saturated with dioxines and polycyclic aromatic hydrocarbon (PAHS)).

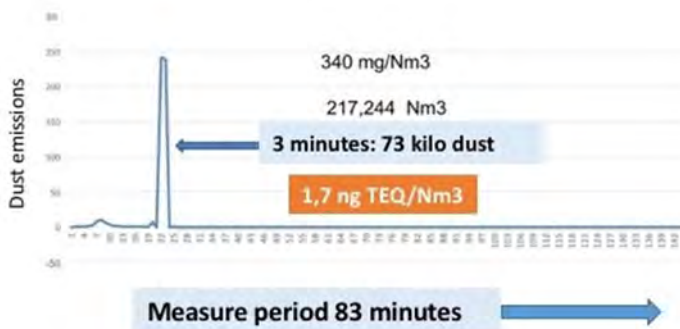


Figure 6: Dust emissions during phase 2 start-up REC Harlingen 2017



Figure 7: Most of the time, bypassing (dump stacks) takes only a few minutes

Although the AMESA test was prepared for operation during the start-up after the annual maintenance stop, it was blocked three times for unstated reasons. According to documents of the REC incinerator, several cleaning operations (flushing) have taken place in Phase 1, but without filtering. Sometimes this cleaning and dust emissions was visible (Figure 5), but most of the time these dump stacks took place at night. In Figure 7, regular patterns of 3-minute dust emissions are shown, just as a result of opening and closing the bypasses.

An exact number of dioxin emissions during start-ups is hard to give, but estimates are 5-10 mg dioxins for one cold start-up event. Annual emissions of the REC incinerator are estimated at around 5 mg dioxins during normal condition²⁶. More often start-ups occur without cooling down. An example is the first calamity in Figure 3, with an uncontrolled combustion of 19 tons of undefined waste, during which AMESA was off-line for more than 10 hours. An official conservative estimate of dioxin emissions is 33 mg²⁷, but this figure is probably much higher, since the waste was wet²⁸ and likely to have a Polyvinyl Chloride, PVC, content above 2% because of an impossibility of pre-separation of PVC). Hot start-ups occur more often than cold start-ups, and these are also being sampled incompletely by AMESA, simply because the cartridge comes in a reset loop and interrupts the sampling. Problems with uncontrolled combustion happened several times in 2018, even the local fire brigades had to intervene, and the plant management seems not to be in control.

²⁶ Witteveen en Bos, Dioxine emissie oktober 2015 – Verspreidingsberekeningen, 2015, rapport LW217-12/16-002.590

²⁷ Idem

²⁸ Information provided by an internal source

Nonetheless, the REC incinerator would be able to defend these emissions during transient stages in courts, since regulations 'only apply to steady state operations' and exclude failure events. It is very difficult to understand this kind of official reasoning of enforcement, which certainly does not benefit the environment or the local population's health.

Breaches in the post-combustion zone

The IED, Directive 2010/75/EU²⁹, requires that the flue gases of a waste incinerator have a residence time of 2 seconds at 850°C in the post combustion zone under homogeneous conditions. Measurements in 2017 (6 years after the start in 2011) by TÜV Rheinland Energy GmbH³⁰ indicate that **the REC incinerator in Harlingen does not comply with this requirement of homogeneity of temperature and oxygen in the post-combustion zone**³¹. The enforcement of these conditions should be more stringent, to ensure the requirements are fulfilled according to guidelines of the Best Available Techniques (BAT) and the Best Environmental Practices (BEP)³². Moreover, the management of the REC plant violates the guidelines in article 5, Annex C of the Stockholm Convention^{33 34} on persistent organic pollutants, and notably the measures to reduce or eliminate releases of unintentional production. Moreover, the management of REC incinerator also acts in violation of article 10 of the Stockholm Convention³⁵, concerning public information, awareness and education, by refusing to disclose data on combustion temperatures, thus raising questions about the capacity of sufficient destruction of unintentionally produced persistent organic pollutants (POPs).

²⁹ DIRECTIVE 2010/75/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 24 November 2010 on industrial emissions (integrated pollution prevention and control), p. 41

³⁰ Measurement report REC, Harlingen, Netherlands, 21.08.2017, TÜV Report No.: 936/21239402/A Cologne

³¹ Arkenbout, A, Sarolea, HA, 2018. Temperature and Oxygen levels in the post-combustion zone of a Waste-to-Energy Incinerator, poster Dioxin2018, <http://bit.ly/2zZrBt5>

³² Guidelines on Best Available Techniques and provisional guidance on Best Environmental Practices, relevant to article 5 and Annex C of the Stockholm Convention on Persistent Organic Pollutants, 2007, United Nations Environment Programme

³³ REGULATION (EC) No 850/2004 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL, 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC

³⁴ Stockholm Convention on Persistent Organic Pollutants (POPs) as amended in 2009, https://www.env.go.jp/chemi/pops/treaty/treaty_en2009.pdf

³⁵ Idem

Unintentionally produced persistent organic pollutants (UPOPs)

As the long-term sampling programme AMESA was extended to analyse other UPOPs^{36 37} in the flue gases, results pointed strongly to incomplete combustion in the REC incinerator.

Notably:

1. Near the incinerator, dioxin-like polychlorinated biphenyls (dl-PCBs) were dominantly found in eggs, milk, grass and soil, especially PCB 126. The coplanar dl-PCBs were prominent in the emissions of the incinerator, 8,5% of the total TEQ (n = 36, 20,139 hours), while other incinerators emit 3 times less dl-PCBs³⁸.
2. Polybrominated diphenyl ethers (PBDEs) were detected during start-ups and shutdowns. In October 2015, 0,434 ng PBDE/Nm³ were measured when the waste supply was blocked and the waste ignited. In 2018, several similar fire calamities took place, but no data of UPOPs exist because AMESA measurements were stopped.
3. Brominated dioxins (polybrominated dibenzodioxines and furans, PBDD/Fs) were detected during start-ups and shutdowns: 5,4 – 8,9 picogram PBDE/Nm³, indicating incomplete combustion of brominated flame retardants³⁹.
4. Polybrominated biphenyls (PBBs) were detected during steady state conditions with concentrations of 0,038 – 0,133 ng/Nm³. Normally these compounds should decompose above 300⁰ Celsius, and the presence of these substances indicate incomplete combustion.
5. Near the incinerator, the rain is regularly polluted with black particles. A CALUX screening test shows high concentrations of benzo(a)pyrene in black deposits on windows and roofs. Although the incinerator should not emit PAH at all (and the REC incinerator has, therefore, no PAH emission licence), all samples (n = 3), during steady state condition, were found to be positive with a PAH concentration of 2,4 – 314,8 ng/Nm³ in the flue gases⁴⁰.
6. Fluorinated compounds as perfluorooctanoic acid (PFOA) was detected in all (n = 6) samples (433 – 794 hours, total 3,929 hours)⁴¹. PFOA should not be detectable at all in modern waste incineration processes. Finding of PFOA in the stack can be an indicator of uncomplete combustion, i.e. not complying with a minimum 2 seconds residence time at 850 °C.

While these facts provide a conservative estimate of UPOPs-related pollution in the area, the actual impact would be much higher, as sampling is interrupted when dust emissions occur.

The finding of such a broad scale of UPOPs signals incomplete combustion, probably caused by insufficient homogeneous temperatures and oxygen levels in the after combustion zone and improper use of the bypasses.

³⁶ Arkenbout, A, Esbensen KH, 2017. Biomonitoring and source tracking of dioxins in the Netherlands, Eighth World Conference On Sampling and Blending / Perth, Wa, 9–11 May 2017, 117-124

³⁷ Arkenbout, A, Bouman KJAM, 2018. Emissions of dl-PCB, PBB, PBDD/F, PBDE, PFOS, PFOA, and PAH from a waste incinerator, poster Dioxin2018, <http://bit.ly/2RZJe3j>

³⁸ Sakurai, T, Weber, R, Ueno, S, Nishino, J & Tanaka, M, 2003. Relevance of coplanar PCBs for TEQ emission of fluidized bed incineration and impact of emission control devices. Chemosphere 53, 619–625

³⁹ Bjurlid F, Polybrominated dibenzo-p-dioxins and furans: from source of emission to human exposure, Örebro University, Repro 12/2017, ISBN 978-91-7529-221-2

⁴⁰ Arkenbout, A, Behnisch P, 2017. PAHs depositions in the environment of a waste incinerator, <http://bit.ly/2Tot84Y>

⁴¹ Arkenbout A, 2018. Long-term sampling emission of PFOS and PFOA of a Waste-to-Energy incinerator, <http://bit.ly/2FtsEro>

Further research is needed to clarify the real impact of emissions of incomplete combustion. Also, whether the change of waste input could lead to an increased change for the occurring of calamities is an aspect that must be considered.

Conclusions and recommendations

The dioxin emissions of the so called 'state of the art' REC incinerator Harlingen continue to be underestimated, and frequently go far beyond the limits set by the environmental permit (0,01 ng TEQ/Nm³). On top of that, the regulatory short-term measurements structurally underestimate dioxin emissions.

The mandatory *pre-announced* controls of dioxin emissions must be replaced by an appropriate scheme of *long-term sampling*. When using approaches like AMESA for long-term sampling, special attention should be paid to interruptions in the monitoring, as it is key for valid long-term sampling to be continuous.

The broad scale of UPOPs emitted by the REC incinerator signals incomplete combustion, probably caused by insufficient homogeneous temperatures and oxygen levels in the after combustion zone, and improper use of bypasses.

In order to reduce emissions of UPOPs in the environment, a more stringent application and a better enforcement of the Stockholm Convention is highly recommendable. The temperature and the oxygen levels in the after-combustion zone should be monitored on-line and duly enforced during normal operation, and this also under the most unfavourable incineration conditions, as mentioned by the Stockholm Convention papers and the IED.

Dioxin emissions during transient stages of start-up and shutdown easily exceed annual emissions during steady state. All dioxin emissions should be taken into account, not only emissions during the ideal steady state operation. Also, excluding emissions that occur during transient stages from monitoring regulations should be stopped immediately.

Moreover, the results of the measurements in the REC incinerator raise important questions for future policy-making concerning what can be accepted as *normal* operating and monitoring conditions for incinerator plants, with respect to their potential effects on public health and the environment. The studies reviewed here show unequivocally that dioxins are *still* a serious issue, that measurement programs *still* show serious shortages, that the health of the population is *still* under threat and there is unfortunately *still* a long way to go to totally eliminate dioxin emissions to the environment.

Acknowledgements

This case study is written by Abel Arkenbout, ToxicoWatch
ToxicoWatch is funded by citizens concerned about industrial pollution in their environment.
The Dutch government funded long-term sampling with the AMESA technique of the waste incinerator Harlingen, national egg monitoring, grass-soil research and TÜV temperature research REC.

ToxicoWatch

NGO ToxicoWatch⁴² is an organization dedicated to creating a safer and healthier world by advancing the science of toxicology and raising awareness about toxic hazards in the environment. ToxicoWatch researches persistent organic pollutants as dioxins, PCBs, PAHs and brominated/fluorinated compounds. Source tracking of POPs in the environment and advising on regional and national level between government and industry. NGO ToxicoWatch is a member of International POPs Elimination Network, IPEN⁴³.

Zero Waste Europe was created to empower communities to rethink their relationship with the resources. In a growing number of regions, local groups of individuals, businesses and city officials are taking significant steps towards eliminating waste in our society.

*Case study by Abel Arkenbout
Editors: Roberta Arbinolo, Janek Vähk and Yianna Sigalou
Zero Waste Europe, 2018*



Zero Waste Europe gratefully acknowledges financial assistance from the European Union. The sole responsibility for the content of this event materials lies with Zero Waste Europe. It does not necessarily reflect the opinion of the funder mentioned above. The funder cannot be held responsible for any use that may be made of the information contained therein.

⁴² Toxicowatch website: www.toxicowatch.org

⁴³ IPEN; www.ipen.org

1119534

PHI – questions/comments:

Fit & Proper Person - Please provide further details in relation to the requirements of section 66(b) of the Environment Protection Act 2017 to demonstrate your financial capacity to comply with any obligations imposed by the permissions sought.

- PHI has not answered this question. Further information required.

Excerpt from Greater Geelong City Council Settlement Boundary – Urban Geelong Long Term Boundary Review:

“There is a major hazard facility approximately 1.2km from the south western corner of the investigation area. Viva Energy Refining Pty Ltd operates on the property at 137-207 McManus Road, Lara.

Clause 13.07-2S of the Geelong Planning Scheme states that planning should “Protect registered or licenced major hazard facilities as defined under Regulation 5 of the Occupational Health and Safety Regulations 2017 from encroachment of sensitive land uses”. Etc..

- Has the Viva Energy/ELGAS plant been consulted about the proposed development? The Viva Energy/ site houses natural gas.
- How will the proposed development ensure that there are no emergencies at the proposed Waste to Energy plant that could affect the Viva Energy site.
- Trucks along McManus Road – will these cause static electricity which could affect the Viva Energy site?

Excerpt from Design and Development Overlay - Schedule 18 (DDO18, Greater Geelong Planning Scheme:

“To ensure development provides a high level of visual amenity when viewed from major transport routes and surrounding non-industrial land use”.

- An 80-metre stack, visible from major transport routes and surrounding non-industrial land use, is in direct contravention to the Design and Development Overlay and will definitely not ensure a high-level visual amenity to Lara, nor will it protect and enhance key environmental, cultural and landscape features, including the rural characteristics of Lara.

Excerpt from the Greater Geelong Planning Scheme also states the following:

“The Lara Energetic Materials Manufacturing Plant Development Plan must address the following issues:

- *Flora and Fauna Assessment;*
- *Indigenous and Non-indigenous Cultural Heritage;*
- *Traffic and Parking Impact Assessment; and Environmental Noise Assessment.*
- *The effect that the use may have on nearby existing or proposed residential areas or other uses.*

All buildings and works shall comprise a maximum gross floor area of 30 000 square metres and a maximum overall height of 15 metres above ground level.”

Whilst the majority of the above issues have been covered by PHI in other documentation, they have noted that the height of the stack will be 80 metres. As the highlighted text states, there is a maximum overall height of 15 metres which the 80-meter stack would directly contradict. Other plant buildings may also contradict this directive.

Further information is also required on the following:

- PHI state power outages will be rare and in these instances back up generators used so that the plant can continue working. What will the noise levels be if generators are required to be used day and night?
- What transport routes will be used? Have transport routes changed due to the new housing on Broderick Road?
- If Broderick Road is a proposed route, have the residents of the new housing development been advised or consulted? How will dust/noise and truck extra traffic affect these new residents?
- How has the distance to the nearest residential abode (180 Minyip Rd) been calculated? Please recheck the distance between the proposed development and the closest residential abode.
- Where will this waste come from?
- Transport of waste – how will odours be contained whilst waste is being transported to the plant?
- Will waste be imported from overseas to the Port of Geelong so that this Waste to Energy facility will remain financially viable?
- A waste to energy plant has been approved for construction Laverton North (Recovered Energy, 28 Alex Fraser Drive). Why do we need another waste to energy plant so close by?
- Why is the EPA considering granting a licence to PHI to construct a Waste to Energy Plant, when these types of plants are now being decommissioned in Europe?
- The Australian Government has committed to achieve zero emissions by 2020 (Long Term Emissions Reduction Plan). If zero emissions are the Government's goal, why is incineration of waste being considered? Incineration can create and release harmful pollutants which may affect the population.

1120190

5/7/2023

Objector of record: [REDACTED] of Lara VIC submission to EPA Victoria.
Re: EPA Victoria - Development Licence Application: Request for further information pursuant to s 50(3) of the Environment Protection Act 2017

Reference to: Document no: IS305100_01.06.22.

Objector comments on document paragraphs:

Fit & Proper Person Page 7

Please provide further details in relation to the requirements of section 66(b) of the Environment Protection Act 2017 to demonstrate your financial capacity to comply with any obligations imposed by the permissions sought.

Objectors comment:

No response is provided to this EPA question in the document.

Given the extensive representations by the applicant on the elaborate and costly aspects of executing all promised measures, this financial capacity question is paramount unless the EPA and the Australian taxpayer are to guarantee covering the cost of compliances, clean up or site abatement.

Air Emissions. Page 1

1. Air emissions

Please provide a direct summary or details of measures proposed to comply with the general environmental duty in relation to air emissions.

Applicant's response: *"Prospect Hill International (PHI) is committed to actively reducing and mitigating potential risks of harm to human health and the environment posed by air emissions arising from site activities. At present, the project is in concept design stage and therefore the current measures proposed to demonstrate compliance with the general environmental duty (GED) are aligned with the conceptual understanding of the plant activities/technologies, in particular implementation of Best Available Techniques (BAT)1.*

It is intended that once the project progresses towards the detailed design stage, additional assessment of potential risks of air emissions arising from site activities to human health and the environment will be undertaken to further inform the controls, monitoring and reporting requirements necessary to meet compliance with section 25(4)(b) of the Environment Protection Act (2017).

Objectors Comment: The above statement disqualifies any reliance on air quality made in this document as the not yet realised "design stage" is to address this.

Odour. Part 3 Page 5

Applicant's response: *"Odorous emissions from the waste are expected to be well controlled and contained within the Plant infrastructure. Any odorous releases from the Plant are anticipated to be rare, short-term events. As such odour dispersion modelling and assessment was not undertaken for this Project.*

Objectors comment: The responses by the applicant are wholly subjective as to what and who would pass judgement on odour emissions being objectionable. The scope of "anticipated but not proven design measures fails to provide what EPA VIC is asking for. The claim that the stack will disperse odours is flawed as prevailing winds will determine how and what is dispersed from the facility into Lara Township.

Reference Plant Information. Page 7

Applicant's response: *"There is limited access to odour assessment reports on active reference plants that are available on public record."*

Objectors comment:

The applicant's responses to the EPA on plant pollution issues are broad, speculative and mainly reactive in nature as to what could be done if this and that was non-compliant. The application promises the world but is short on proven performances.

Noise. Page 8

Objectors comment:

The applicant has wrongfully classified the plant location as being in a "rural area" and therefore the NIRV rural noise limits apply to their projected operations. The property is in the IN2Z industrial zone with large adjacent properties most likely to be affected being residential GRZ1 or high density urban design general residential. Other areas of Lara Township far from the proposed site are zoned rural. The urban noise parameters must be applied to this proposal based on the adjacent existing and expanding GRZ1 residential density that is consistent with urban zones in Victoria.

GHG Page 3

Please provide further details of the expected consistency of the calorific value of waste feedstock in relation to direct GHG emissions. What is the potential variation or impact on the calculation of direct GHG emissions likely to result from changes in the waste feedstock over the operational lifespan of the facility?

Applicant's response:

"The process for estimating calorific values for a new project, when the boiler cannot be used to back calculate values during operations, is to conduct a waste composition audit, followed by a lab analysis of the waste samples collected. Where lab analysis is not done, the literature values for each component are used, preferably from the same country and climate to account for geographical and seasonal variability. Information on calorific values in Victoria, as well as Australia, are currently very limited in publicly available literature."

Objectors comment:

The applicant's responses and admitted lack of a reliable data source does not support that this EPA concern has or even will be addressed or remedied.

Waste to Energy: Objector comment:

As in my initial objecting submission I note that the proposal is devoid of the Energy benefit to any person as part of the scheme. No agreement in principal with energy providers has been submitted. The only likely benefactor to what if any onsite energy generation will occur will perhaps subsidise the plant needs only. No energy benefit to the public disqualifies this proposal as having a "waste to energy" public benefit.

The added GHG from the natural gas fired incinerators is ill defined and unacceptable. I object to the granting of a EPA permit for this project that needs to be relocated away from this existing and expanding high density residential urban area in Lara.


Regards, [REDACTED] Lara VIC 3212

Page 2

1121074

EPA Victoria

200 Victoria Street,
Carlton, VIC, 3053


Lara, 3212, VIC

To whom it may concern,

I am writing to object to the proposed waste to energy plant for Heales Road, Lara. I have outlined my reasoning in the following letter.

No waste streams are as yet contracted for the facility. This creates significant difficulties in the evaluation of the appropriateness of the need for the plant and the impacts of the facility.

There is no data, (nor there cannot be on waste characterisation), this means critical aspects of the application cannot be determined.

We do know that the proposal is to incinerate 400,000 TPA of unsorted Municipal Solid Waste (MSW) and Industrial Waste. Incineration of unsorted MSW is inappropriate for the following reasons:

- The large amounts of wet food wastes (up to 50%) in MSW means that a large amount of energy will be used to drive off the moisture entrained with the wastes. With the plant parasitic loads, it is possible that this plant will produce only very limited amounts of electrical power to export to the grid. The application cites 9.5 MJ/kg as the calorific value of the waste but provides no justification of this number. Incineration is not waste to energy but merely landfill levy avoidance.
- Large amounts of potentially reusable and recyclable material within the waste stream will end up incinerated due to the lack of sorting.
- Variable waste characteristics will result in highly variable air emissions from the boiler gas with a higher probability of exceedances of air emission as the pollution control technology will not be able to manage the variable nature of the flue gases.

Similar comments apply to the incineration of unsorted industrial wastes except for calorific value.

Without any data on fuel characteristics the R1 efficiency calculations have no verifiable basis.

It is clear from the facility layout that there is no scope for waste sorting with removal of recyclable or unsuitable material.

The reference plants cited in the application use British waste data without any basis for comparison to Australian settings.

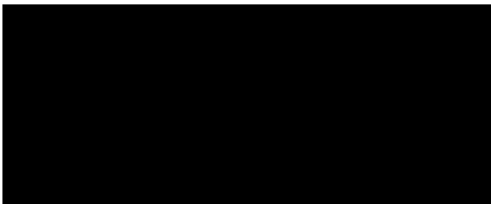
It is clear that the applicant plan on using Chinese sourced plant and equipment for this facility. Yet all the reference facility information is for European and British plants with Japanese or European Technology providers. More clarity is required on the proposed plant suppliers and the track record of performance of that plant with comparable waste streams.

The application is entirely deficient on any detail on the plant and equipment proposed. The application must include detail on exactly what is proposed not a broad brush concept plan. An EPA approval of an application with this very limited amount of data cuts the community out of the process for informed consent. This application is a "bait and switch" with very limited information provided and what is provided relates to different equipment suppliers and waste streams.

The application must provide detailed plans of the plant with information including where the equipment has been used previously and details of the performance of the proposed critical equipment. At a minimum details on the manufacturers and constructors of all critical plant elements must include:

- Waste sorting
- Boiler
- Turbine
- Flue gas treatment
- Ash management

Regards,



Waste to energy objection

Final Audit Report

2023-07-10

Created:	2023-07-10
By:	[REDACTED]
Status:	Signed
Transaction ID:	[REDACTED]

"Waste to energy objection" History



- ✔ Agreement completed.
2023-07-10 - 3:39:59 AM GMT

1121191

Third submission to: Environment Protection Authority

Regarding:

Applicant: Prospect Hill International Pty. Ltd.

Premises: 164-200 McManus Road, Lara, Victoria, 3212

EPA application no. APP1004200

Planning Application no. 2001035

Project no. IS305100

Reference: <https://engage.vic.gov.au/prospect-hill-international-pty-ltd-lara>

From:

Lara Resident, [REDACTED] and

Lara Resident, [REDACTED] and

Lara Resident, [REDACTED]

Date: 10 July 2023

This submission;

- is not copyright
- is not confidential, and does not contain any confidential material
- is not intended to represent the views of any other person or organisation
- is a sincere expression of our opinions, in good faith.

Respectful comments are invited.

Recommendations:

1. That the Environment Protection Authority refuse the Prospect Hill International application for licences to build or operate an Energy from Waste (EfW) or Waste to Energy (WtE) facility at Lara, and ...
2. That the Environment Protection Authority refuse all applications for any licence to construct or operate a Waste to Energy Facility (WtE) facility, or Energy from Waste (EfW) facility, anywhere within the City of Greater Geelong, and anywhere within the Barwon South West consortium of Local Government Areas (LGAs).
3. That the importation of wastes into Victoria for the purpose of thermal treatment, (including Waste to Energy, Energy from Waste, pyrolysis, gasification, other incineration, and the like) be made illegal.

Our comments on the “new information” from PHI

We are in receipt of a third tranche of documents (“new information”) regarding the Prospect Hill International (PHI) proposal for an Energy from Waste (EfW) or Waste to Energy (WtE) facility at Lara. See <https://engage.vic.gov.au/prospect-hill-international-pty-ltd-lara>

We are not pleased that the EPA has again sought public comment.

The third tranche is notable for its non-answers to questions put by the EPA.

Fit and proper person

We have not seen any evidence that PHI or its consultants “Jacobs” have provided the EPA with a name in response to the “Fit and Proper Person” requirements of the Act.

“Please provide further details in relation to the requirements of section 66(b) of the Environment Protection Act 2017 to demonstrate your financial capacity to comply with any obligations imposed by the permissions sought.”

If so, this fact alone is more than enough to eliminate PHI’s application from all further consideration by the EPA under Section 66(b) and Section 74 of the Environment Protection Act.

See <https://www.legislation.vic.gov.au/in-force/acts/environment-protection-act-2017/011>

The permission process should have stopped right there. Accordingly, the EPA should not have troubled the public with any further requests for comment.

Noise abatement

We also note the Applicant’s circular and contemptuous non-answer to the EPA’s new questions about noise abatement.

Cap licence ?

PHI declares that it “intends to apply for a cap licence” in accordance with the requirements of the “Victorian waste to energy framework”, November 2021. See <https://www.vic.gov.au/waste-energy> . But we have seen no evidence that PHI has actually made that application for a cap licence.

How could the EPA grant the current application for licences in the absence of (at least an application for) a cap licence ?

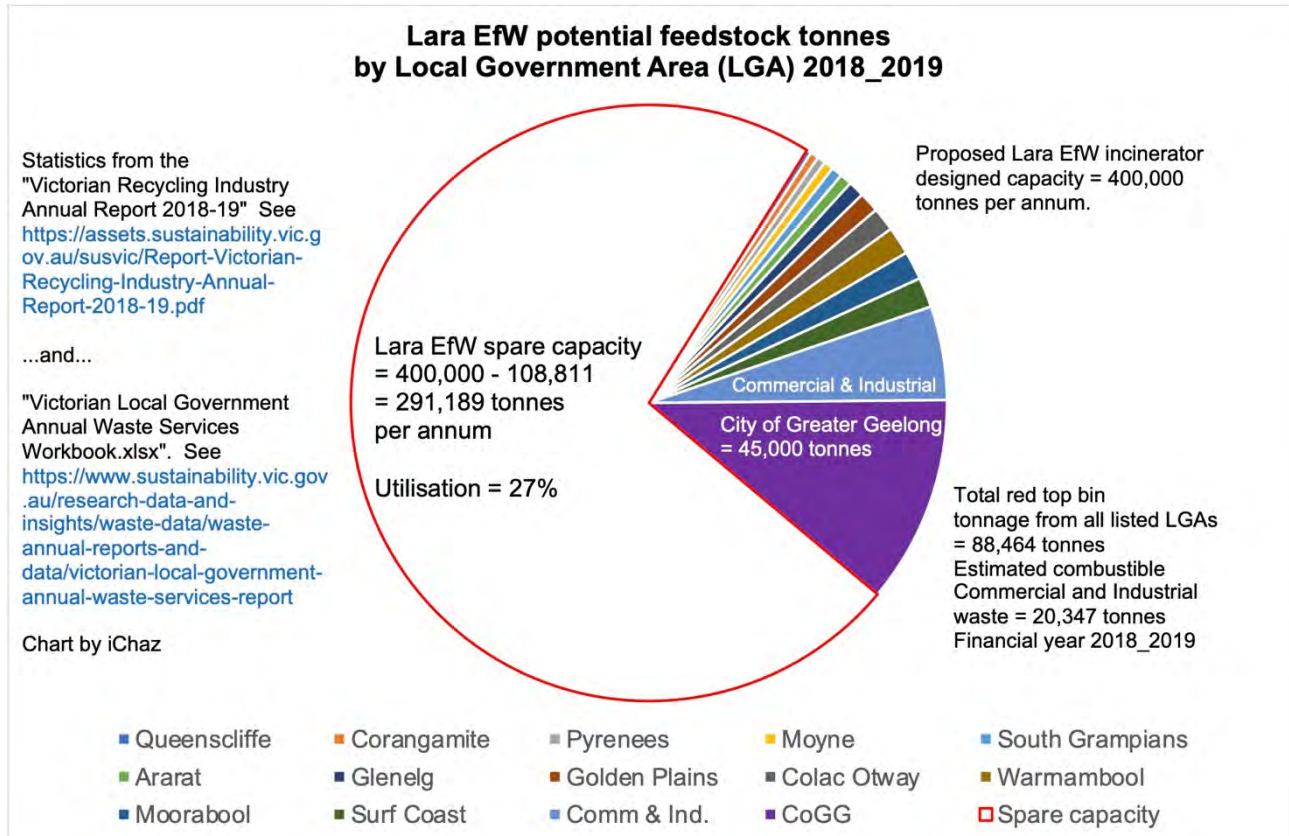


Ongoing fiction

Of greatest concern is the ongoing fiction that ...

“The application proposes a waste-to-energy facility in Lara to service greater Geelong and west metropolitan Melbourne. The facility will be designed to process approximately 400,000 tonnes of waste per year and generate 35 megawatts of electricity.” Quoted from the EPA preamble.

Our calculations, based on official statistics from just before the COVID-19 pandemic, suggest that there are less than 110,000 tonnes of suitable waste per annum realistically available to the proposed Lara EfW, from the western half of Victoria.



There being no planned rail connections between the Lara EfW and any place in Victoria, We are very firmly of the view that the ~290,000 tonne feedstock shortfall will be made up by wastes imported from outside Victoria, arriving mostly in ships from overseas. We believe that **the Lara location is desired for its proximity to the Port of Geelong**, and not for its “service (to) greater Geelong and west metropolitan Melbourne” as claimed.

We regard the import of wastes for this purpose as an abuse of an EPA licence. It should be illegal.

See <https://www.vic.gov.au/recycling-victoria-data-hub>

See also <https://assets.sustainability.vic.gov.au/susvic/Report-Victorian-Recycling-Industry-Annual-Report-2018-19.pdf>



Our previous concerns ignored

We have made two previous submissions to the EPA regarding the PHI application. In those submissions we expressed long lists of concerns. The third tranche of documents has only amplified our disquiet, particularly because it fails to rectify the multitude of defects and omissions in the preceding tranches of documents.

All the objections we have expressed in previous submissions remain firm.

Language

There are many ways to avoid commitment and accountability.

“... it is intended that ...”

“... is aligned with meeting relevant objectives ...”

“... proposes to implement ...”

“... are within acceptable limits ...”

“... will continue to seek opportunities to ...”

“... are not anticipated to deviate significantly ...”

“... is very cognizant of ...”

“... is committed to complying with ...”

“... the goal is to obtain ...”

“... is confident of meeting the criteria ...”

“... is investigating partnership options ...”

“... initiatives that will be rolled out ...”

“... so far as reasonably practicable ...”

“... it is anticipated that ...”

“... is expected to be ...”

“... can comfortably comply with ...”

“... proposed to demonstrate compliance with ...”

“... the proposed approach ...”

“... will be developed during the detailed design stage ...”

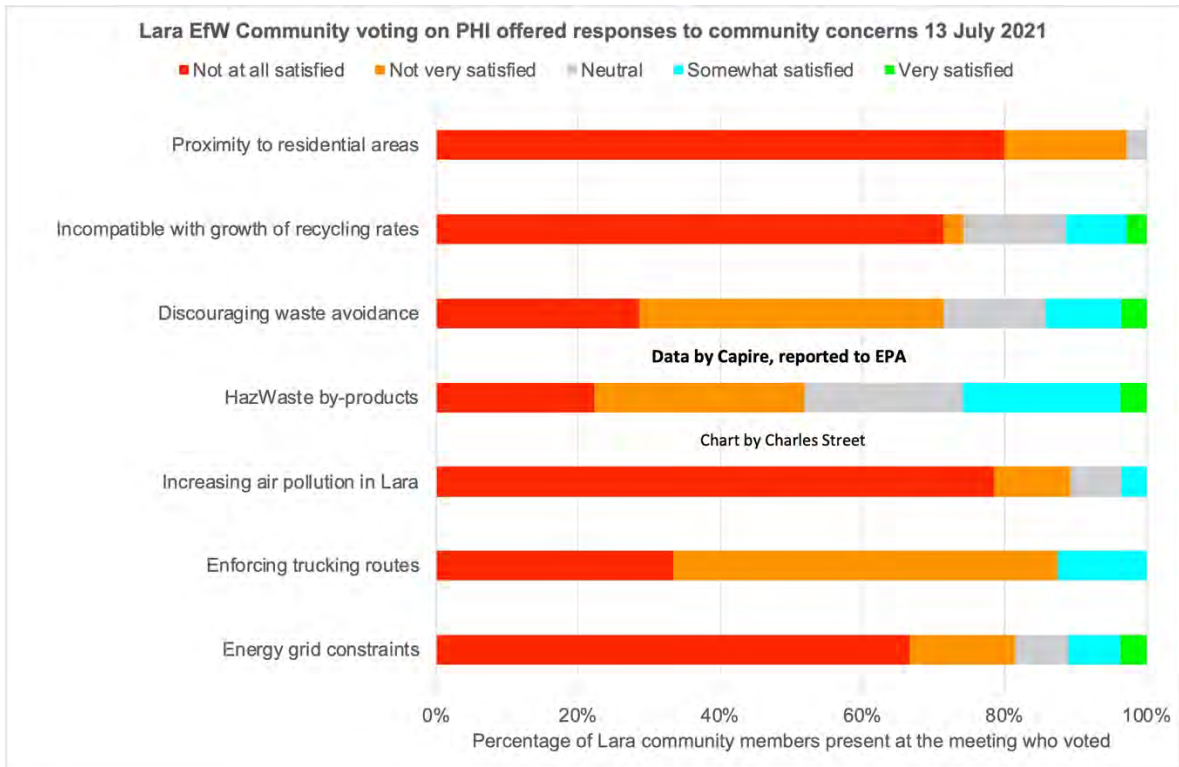


Summary of our expressed concerns about this Application

1. We are not satisfied that the Applicant has nominated a “Fit and Proper Person” to take full responsibility, including financial responsibility, for compliance with EPA licence requirements. This is a fatal flaw.

See Section 66(b) and Section 74 in the Environment Protection Act 2017, at <https://www.legislation.vic.gov.au/in-force/acts/environment-protection-act-2017/010>

2. We find that the Conference of Interested Persons and EPA survey data, confirm the dearth of public support for this project. The project has no social licence.



See Capire report on the “s236 Conference of Interested Persons, Prospect Hill Waste to Energy Facility Proposal” Conference 13 July 2021 in Lara.

Report prepared by “Capire” for EPA Victoria, 27 July 2021.

3. The Applicant seems to be labouring under the erroneous assumption that “more engagement” will somehow overcome the potent well-founded public resistance to this project.
4. We are far from satisfied that the Applicant has consulted appropriately with the local indigenous peoples, that is the Wathaurung Aboriginal Corporation (WAC), the Registered Aboriginal Party. We refer to Application Appendix G “Cultural heritage due diligence assessment”. We consider this report worthless, and frankly, insulting.

See <https://wathaurong.org.au>

5. We are advised that the calculation of distances from properties near the Lara EfW to the EfW site are incorrect. If proven, such errors will affect the predicted impacts of noise from the plant. This matter needs to be investigated.
6. We find that the Applicant’s “receiving inspection” procedures are too vague. There is insufficient explanation of “what happens” and “who pays”, regarding any received feedstock that is rejectable. This is a critical deficiency.

7. We have not found any stipulation that all directors, managers and employees reside within a ten kilometre radius of the proposed EfW facility at Lara. (The “skin in the game” principle.)
8. We find the explanation given by the Applicant regarding sources and quantities of feedstock, completely unbelievable. What we do believe is that the substantial shortfall in feedstock from Victoria will be made up by imported wastes that arrives in ships into the Port of Geelong; an abuse of an EPA licence which should be illegal, we suggest.



9. We see incompatibilities between government policies relating to Waste to Energy facilities, and government policies to increase waste recycling.

See <https://www.vic.gov.au/waste-energy> See also <https://www.vic.gov.au/building-victorias-circular-economy>

The “Barwon South West Waste & Resource Recovery Group”, or BSWWRRG, now part of “Recycling Victoria”, are working on reducing red top bin waste, which is the favoured feedstock of the Lara EfW.

BSWWRRG has written to the EPA as follows;

“The application would appear to be consistent with the strategic intent of the BSWRRIP, but inconsistent with the needs of the Barwon South West region in isolation.”

See

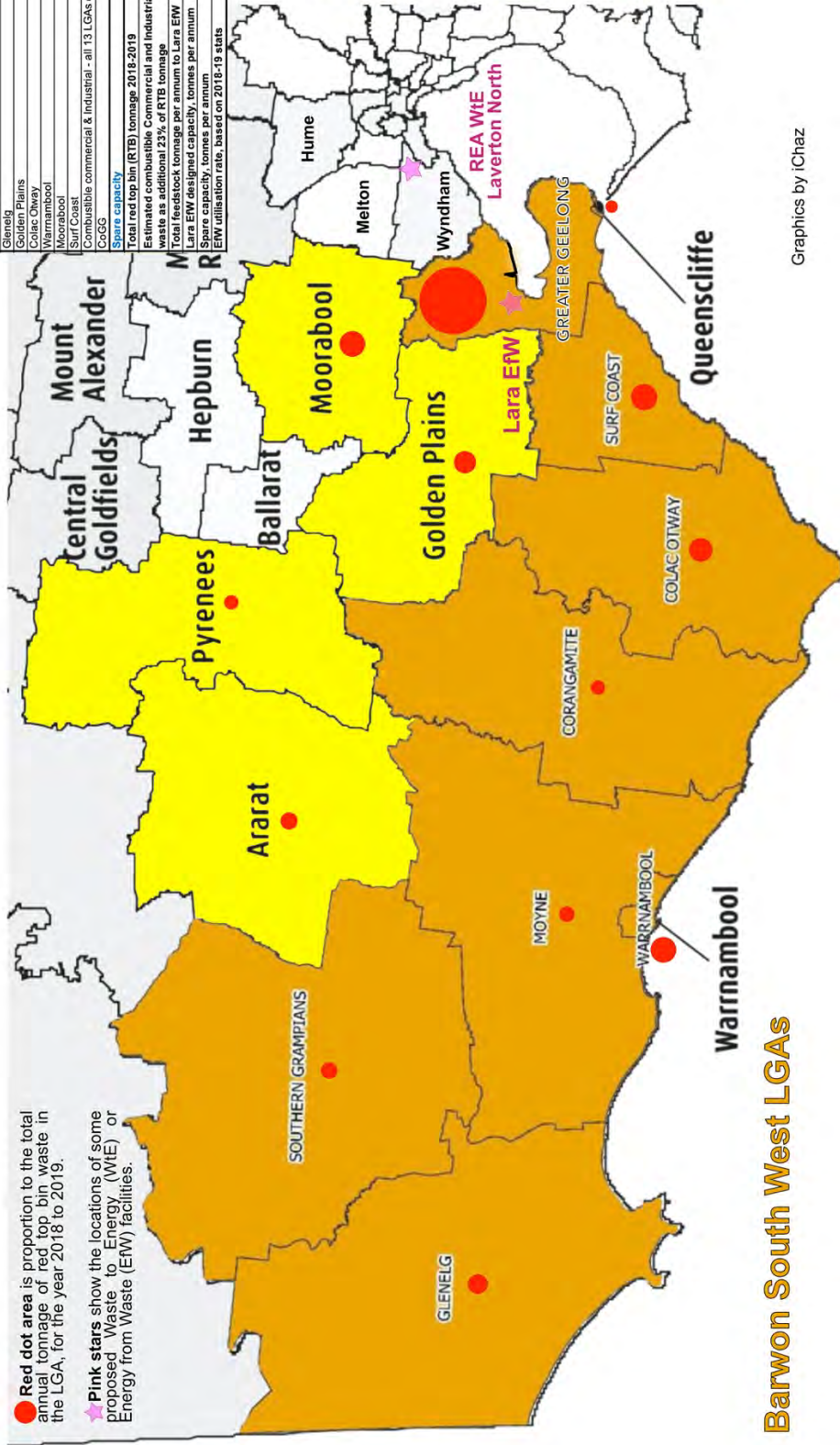
<https://www.geelongaustralia.com.au/common/public/documents/8d7ec5c40d76376-28042020councilagenda-wasteandresourcerecoverystrategy2020-30-strategyattachment3.pdf>

See also https://resources.reduce-recycle.com.au/bswwrrg/wp-content/uploads/2021/03/03222722/30873_BSWWRRG-ORIM_V08.00.pdf

See also <https://www.vic.gov.au/welcome-to-recycling-victoria>

Victoria Local Government Areas red top bin waste 2018 to 2019

LGA	potential supplier of feedstock to the Lara EfW	Potential feedstock: Tonnes per annum 2018_2019
Barwon South West		1,785
Corangamite		1,797
Pyrenees		2,085
Moyne		2,374
South Grampians		2,601
Ararat		3,473
Glennelg		4,416
Golden Plains		5,165
Colac Otway		6,059
Moorabool		6,171
Surf Coast		6,489
Combustible commercial & Industrial - all 19 LGAs combined		20,347
CoGC		45,000
Spare capacity		291,189
Total red top bin (RTB) tonnage 2018-2019		88,464
Estimated combustible Commercial and Industrial (C&I) waste as additional 23% of RTB tonnage		20,347
Total feedstock tonnage per annum to Lara EfW		108,811
Lara EfW designed capacity, tonnes per annum		400,000
Spare capacity, tonnes per annum		291,189
EFW utilisation rate, based on 2018-19 stats		27%



Barwon South West LGAs

Graphics by iChaz

10. We find that the absence, indeed avoidance, of a published Business Case or any other kind of economic justification for this project, is completely unacceptable. We are convinced that the proposal, as described, is clearly economically unviable.

Sensibly, government has imposed a requirement for a Business Case for each new WtE or EfW facility proposal under its 2021 “Framework”.

“Prerequisite information

4. A business case for the proposed facility. The business case should include the following at least:
 - a. project status at the time of application submission
 - b. commercial project milestones already achieved and expected timing for achieving the remaining milestones
 - c. the contract model adopted by the facility (for example, merchant plant or public-private partnership)
 - d. details of any waste feedstock agreements the applicant has obtained or is seeking
 - e. details of any energy or by-product offtake agreements the applicant has obtained or is seeking
 - f. any other commercial and/or financial agreements the applicant has obtained or is seeking.
 - g. expected job creation
 - h. a qualitative assessment of the financial risks of the project
 - i. Any relevant legal compliance matters
 - j. Any relevant technical elements.”

See page 17 in *Victorian waste to energy framework* (2021) at https://www.vic.gov.au/sites/default/files/2022-02/Victorian%20waste%20to%20energy%20framework_0.pdf

Whilst PHI’s current application apparently falls outside the 2021 Framework, the Business Case principle remains sound.

The Department of Treasury and Finance (DTF) has guidelines for the preparation of a Business Case, and we expect the Applicant to make public a Business Case in conformance with the DTF guidelines.

See <https://www.dtf.vic.gov.au/investment-lifecycle-and-high-value-high-risk-guidelines/stage-1-business-case>

Why would any WtE or EfW Applicant wish to avoid the preparation and scrutiny of a Business Case ?

11. We cannot find a pro-forma contract or similar, which would outline the costs and contractual arrangements between the Lara EfW facility and its suppliers. Will the Lara EfW operate as a franchise ? Will Councils be subject to “Put & Pay” contracts ? We don’t know. Put & Pay contracts have contributed to the bankruptcy of councils in Detroit Michigan and Harrisburg Pennsylvania. See <https://www.no-burn.org/wp-content/uploads/Bad-News-for-Recycling-Final.pdf>

12. We object to the absence, indeed avoidance, of an Environment Effects Statement (EES) by the Applicant.

The Applicant has dismissed the need for an EES in the Works Approval Application Appendix B, as follows;

“The Project does not trigger referral criteria for an EES” page 9

“No ecological triggers for an EES are met by the project.”, page 25, and ...

“One of the criteria for an EES referral relates to emissions of GHGs, with the specific trigger being:

“potential greenhouse gas emissions exceeding 200,000 tonnes of carbon dioxide equivalent per annum, directly attributable to the operation of the facility.”

This assessment quantifies the direct emissions attributable to the facility, which (as can be seen within the following chapters) does not exceed the EES criteria threshold and as such, an EES referral has not been made.”
page 94

However, there are clear public health criteria which must be addressed by an EES.

Specifically, the environmental criteria that need to be addressed in an EES include;

- “potential extensive or major effects on beneficial uses of waterbodies over the long term due to changes in water quality, streamflows or regional groundwater levels”
- “potential extensive or major effects on social or economic well-being due to direct or indirect displacement of non-residential land use activities”
- “potential significant effects on the amenity of a substantial number of residents, due to extensive or major, long-term changes in visual, noise and traffic conditions”
- “potential exposure of a human community to severe or chronic health or safety hazards over the short or long term, due to emissions to air or water or noise or chemical hazards or associated transport”
- “potential extensive or major effects on Aboriginal cultural heritage”

See <https://www.planning.vic.gov.au/environmental-assessments/environmental-assessment-guides/ministerial-guidelines-for-assessment-of-environmental-effects/determining-the-need-for-an-ees>

In addition, we challenge the assertion that potential greenhouse gas emissions would be less than “200,000 tonnes of carbon dioxide equivalent (CO₂e) per annum, directly attributable to the operation of the facility”. The 200,000 tonnes of CO₂e estimate is a claim made by the Applicant, without independent verification.

According to the 2021 report by UKWIN,

“...on average, the proportion of CO₂ that was fossil CO₂ was 13 percentage points higher than predicted at the planning or permitting stage – a lower proportion of the energy generated was considered 'renewable' and a higher proportion of the energy was considered 'fossil derived'.

UKWIN also found that incinerators often dispense 'lower levels of electricity generation', which, when considered with these reported higher levels of fossil CO₂ emissions, signifies a higher carbon intensity than promoters of incineration schemes would claim.”

See <https://resource.co/article/ukwin-warns-incinerator-ghg-emissions-often-worse-predicted>

13. We believe that the Lara EfW proposal demonstrates a lack of recognition of the potential effects on the commercial viability of the Lara EfW from competing WtE / EfW facilities planned for Melbourne and beyond, in particular the planned and EPA approved Recovered Energy Australia (REA) facility at Laverton North.

See for example <https://www.recoveredenergy.com.au/laverton-north>

See also <https://dandenong.starcommunity.com.au/news/2022-05-03/council-rejects-waste-contract/>

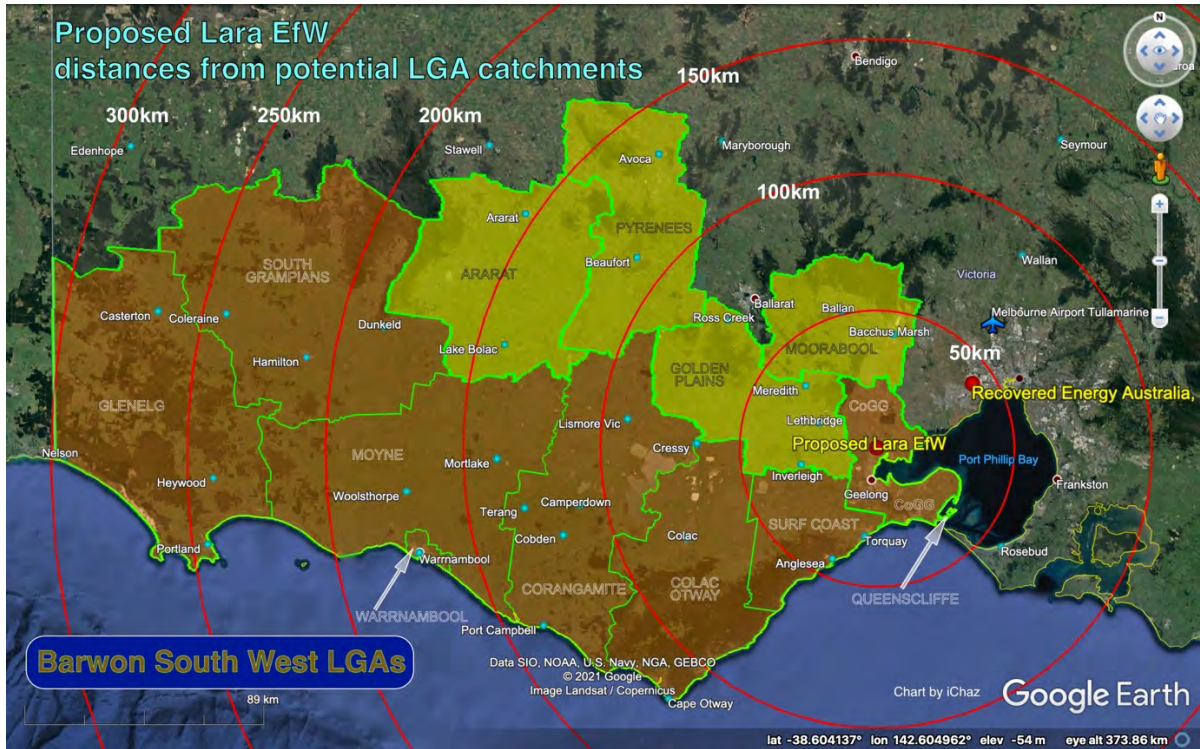
We expect that the Lara EfW will receive no feedstock from Melbourne, nor from LGAs north of Melbourne, because those LGAs will be delivering their garbage loads to the REA facility in Laverton north, landfills, and possibly other WtE facilities within or closer to their LGA.



14. There is a “tyranny of distance” associated with the Lara EfW facility, as proposed.

As there is no planned railroad connection, all deliveries of feedstock from Victoria to the facility would be made by trucks.

If we assume that deliveries would be coming from the entire western half of Victoria, this means that garbage trucks, having collected their loads from townships near the border with South Australia, would then drive up to 300 kilometres east, dump, then drive home empty up to 300 kilometres west.



No Council or garbage contracting service would tolerate this scenario.

It is preposterous.



No rail connection ?

There is a hint at Works Approval Application Part 1, section 7.3 that the Applicant might consider using rail transport at some point in the future;

“Provision has also been made for an additional future train to the east of the main process plant, which would increase the waste input by a further 200,000 tonnes per annum (tpa) to 600,000 tpa in total”.

What lies to the east ? Rail connections to the Port of Geelong, of course.



There would need to be an upgrade to the Lara EfW branch line, but all the tracks, or rail footprints, already exist.





Using the rail lines shown, both existing and to-be-upgraded, a one-way train journey from Corio Quay to the Lara EfW is calculated at 14.5 kilometres.

15. We see no procedure or willingness to provide Continuous Emissions Monitoring System (CEMS) data to the public in real time e.g. via the internet.
16. We have not seen any evidence or intention to conduct training and education to staff and the community regarding acceptable and unacceptable wastes that can be disposed to the EfW facility.
17. We find that the Risk Assessment at Application section 6.3, and the offered Health Impact Assessment are rubbish.

The assessment of risk should conform to the International Standard, ISO 31000.

See [https://infostore.saiglobal.com/en-au/standards/iso-31000-2018-597093_saig_iso_iso_1367729/?utm_source=Transactional&utm_medium=email&utm_campaign=ISO 31000 2018 June2023 APAC](https://infostore.saiglobal.com/en-au/standards/iso-31000-2018-597093_saig_iso_iso_1367729/?utm_source=Transactional&utm_medium=email&utm_campaign=ISO_31000_2018_June2023_APAC)

18. We find that claims of conformance of the Lara EfW to the European Standard 2019 EC BREF are selective and misleading. For example, we believe that there is a lack of recognition of the environmental significance of emissions to air, land and water, and the potential impacts on communities, farms, and waterways in close proximity, especially under “other than normal operating conditions” or “OTNOC”. See [https://eippcb.jrc.ec.europa.eu/sites/default/files/2020-01/JRC118637 WI Bref 2019 published 0.pdf](https://eippcb.jrc.ec.europa.eu/sites/default/files/2020-01/JRC118637_WI_Bref_2019_published_0.pdf)

We believe that the Lara EfW, as described, would not be compliant with BAT 5 with respect to OTNOC conditions. We also believe that there is also significant doubt about the ability of the proposed Lara EfW to comply with BAT 11, BAT 16, BAT 18, and BAT 21.

19. We cannot find any plan or intention to detect and deal with the risk of radioactive contaminants in feedstock materials, despite radioactive materials being on top of the prohibited materials list, therefore noncompliant with BAT 11.
20. We have seen no mention of the establishment of a permanent epidemiological study to determine the nature and extent of health impacts of the Lara EfW on residents of the City of Greater Geelong.

This is not a trivial matter. In a major systematic review, Tait et alia (2020) state;

- “This systematic review highlights significant risks associated with waste incineration as a form of waste management. Many older incinerators were linked with neoplasia (cancers), reproductive issues (pre-term deliveries and birth defects) and other diseases.”
- “This review shows contamination of food and ingestion of pollutants is a significant risk pathway for both nearby and distant residents.”
- “Both local residents ingesting food grown in close proximity to incinerators, as well as more distant populations consuming food transported from areas near an incinerator, are open to exposure.”
- “New incinerators should be located away from areas of food production.”
- “Food grown near an incinerator should be avoided.”

Tait et alia also recommended;

“As a condition of applying for a licence to build waste incinerators, independent third-party conducted baseline population studies and long-term surveillance cohort studies be mandated to measure the longitudinal and emerging effects of the incinerator’s presence on the local community and the environment.”

See <https://onlinelibrary.wiley.com/doi/full/10.1111/1753-6405.12939>

We should also consider the implications of the statement “Food grown near an incinerator should be avoided.” What if food grown in the City of Greater Geelong (CoGG) and surrounding areas is classified by authorities to be “unfit for human consumption” due to contamination from the Lara EfW ?

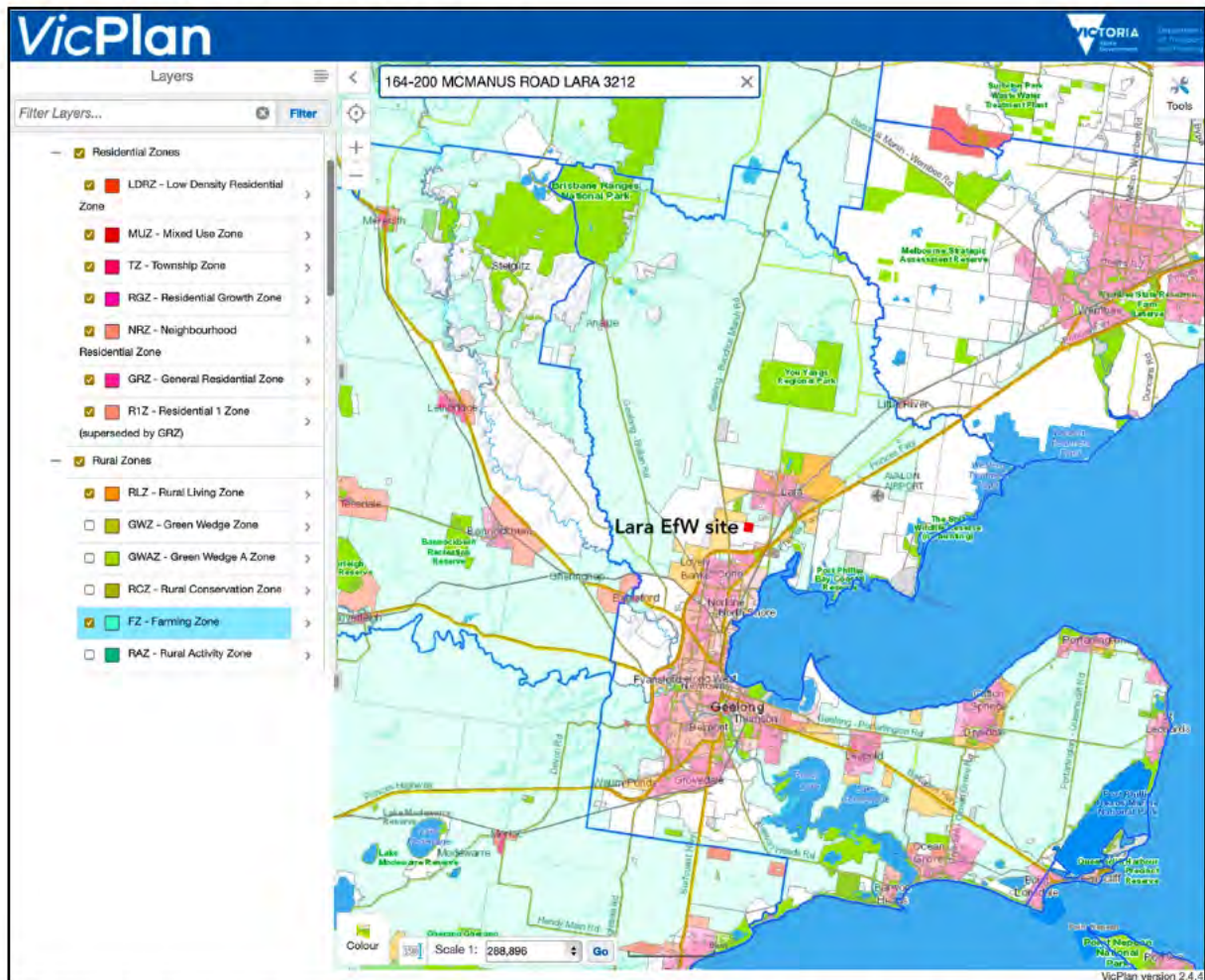
The scandal could also affect export markets.

The economic value of agricultural production in the City of Greater Geelong has been estimated at \$119 million in the 2020/2021 financial year.

See <https://economy.id.com.au/geelong/value-of-agriculture>



The following map highlights the residential areas (red, pink and salmon colours) and farming zones (pale green) in CoGG, potentially within the Lara EfW plume. The blue lines show LGA boundaries.



21. We do not see any procedure for a routine of “walkarounds” of the proposed EfW facility with a view to observing and recording any dead animals, dead vegetation, noise, dust, odour, smoke and any other discernible emanations or impacts possibly arising from the Lara EfW facility.
22. We see no evidence that the Applicant has deposited, or intends to deposit, a bond of at least \$100,000,000 with relevant authorities, in case of disaster attributable to the proposed Lara EfW facility.
23. We have not seen a plan for how the Lara EfW electrical generators would be connected to the Grid, nor any stated uses for that electrical power. If the Lara EfW relied on feedstock only from the western half of Victoria, our calculations suggest that it would produce acceptable electrical output for perhaps four days per week, possibly in breach of BAT 16.
24. Many of the reports from referral authorities have, we find, been misinterpreted by the Applicant. Often these reports state “no objection”, then go on to list a range of “conditions” which make the Lara EfW project impractical or impossible. That is, “when yes means no”.

25. We find that the claim that the “EfW project will reduce GHG (Green House Gas) emissions from landfills by approximately 300,000 tonnes of CO₂-e per annum” is not supported by Council policies. We question the method of calculation.

See

<https://www.geelongaustralia.com.au/common/public/documents/8d7ec5c40d76376-28042020councilagenda-wasteandresourcerecoverystrategy2020-30-strategyattachment3.pdf>

26. We find that the unresolved ownership / operator arrangements, potentially undermining of emergency response, accountability, and liability obligations. Approval of this project cannot take place in a management vacuum.

27. The EPA has become very concerned about exploitation of the waste industry by organised crime.

See

<https://www.epa.vic.gov.au/about-epa/what-we-do/compliance-and-enforcement/tackling-waste-crime/the-state-of-waste-crime-in-victoria>

In Victoria, Europe and elsewhere, there have been significant community impacts, and the corruption of officials. We have not found anything in the Applicant’s documentation which addresses this matter.

See

<https://www.sbs.com.au/ondemand/watch/1928251459702?fbclid=IwAR0RM2AxR1x1HV>

For a New South Wales and Queensland perspective on waste crime, see “Trashed” at <https://www.abc.net.au/news/2017-08-07/trashed/8770146>

A Big Incinerator can turn criminal evidence into formless gas and ash with great efficiency.

28. We need to consider the “white elephant” concept. That is, the immortality of socially and environmental egregious businesses, which become Big Business. And a 400,000 tonne per annum Big Incinerator will be Big Business.

Many casinos, for example, have been found at fault by various inquiries, but none have been closed, because they are simply “too big to fail”. Their overwhelming economic gravitation tends to distort regulatory and political processes.

Once a Big Incinerator is installed, it will be very hard to shut it down, no matter how much harm it does.

29. Whilst there is mention in the Application documents of controls to deal with internal emergencies, we perceive a lack of procedures for dealing with emergencies relating to externalities. For example;

- Fire and flood.
- Remediation of environmental consequences arising from operating conditions which are found to be out of statistical control.
- Dealing with unacceptable consignments of waste (so that they do not end up dumped into Corio Bay).
- Emission (for any reason) of a hazardous plume into air or water.
- Plans for the evacuation of Lara, Corio, and other communities which may be impacted by a major contamination event.

Conclusion

The townships and suburbs between Melbourne and Geelong are now major housing growth areas, with many young families and schools. The region also has major farming operations producing food which must not be contaminated. The operation of a large incinerator in this scenario, with emissions to air, water, and soil, are unacceptable.

Therefore, we respectfully request;

1. That the Environment Protection Authority refuse the Prospect Hill International application for licences to build or operate an Energy from Waste (EfW) or Waste to Energy (WtE) facility at Lara, and ...
2. That the Environment Protection Authority refuse all applications for any licence to construct or operate a Waste to Energy Facility (WtE) facility, or Energy from Waste (EfW) facility, anywhere within the City of Greater Geelong, and anywhere within the Barwon South West consortium of Local Government Areas (LGAs).
3. That the importation of wastes into Victoria for the purpose of thermal treatment, (including Waste to Energy, Energy from Waste, pyrolysis, gasification, other incineration, and the like) be made illegal.

The number and magnitude of the deficiencies in the Applicant's documentation is prodigious. That is undeniable.

Combined with the Applicant's demonstrated unwillingness to correct errors, we consider the Environment Protection Authority has no grounds on which to grant any licence to Prospect Hill International.

Further, if the EPA were to actually grant one or more licences to Prospect Hill International for APP1004200, on the strength of the documentation provided by the Applicant, we consider it reasonable for anti-corruption authorities to take a strong interest in these matters.

Please write to us with your advice that "this proposal has been rejected".

Yours sincerely

[REDACTED]

Lara Resident

[REDACTED]

Lara Resident

[REDACTED]

Lara Resident

Address for correspondence:

[REDACTED]

[REDACTED] Lara, Victoria, 3212

[REDACTED]

1121271

I am writing this to you as a brand new mother, nursing my precious newborn in my arms in the small hours of the night. What you are reading is a plea for your help to ensure the health of not only my child but all babies, children and the wider population of Lara and surrounding areas, where this potentially dangerous waste-to-energy plant has been proposed. The fact is, older style trash incinerators have been proven to be dangerous, with “significant associations” with cancer, birth defects, miscarriage and infant death (Tait et al., 2020). I’m sure you can appreciate why, as someone who has just started creating a family, I am extremely concerned about these adverse effects.

The company proposing to build the Lara plant insists that the plant will be built and monitored with the highest international standards and latest technologies, however after reading several current meta-analyses of available studies on waste-to-energy plants in regards to human health, it is obvious that there simply has not been enough time to accumulate data to know whether the newer waste-to-energy plants are safe for humans to live near. If we cannot be sure that the incinerator would be safe for humans to live near (and we will not be able to draw conclusions about this until we have been able to collect data for years if not decades), then why on earth would we risk our children’s and our own health by placing an incinerator so close to residential areas? There are so many locations the plant could be built that would not be close to where families live.

If the council, Victorian government and the EPA are willing to disregard the strong evidence indicating the poor economic and environmental outcomes of burning rubbish then that’s their prerogative, but I will not allow them to overlook the potential health hazards that these incinerators pose when we simply do not have evidence to prove that they are safe in the long term. All I want is to have the chance to raise my family in a safe environment, an environment where I won’t have to worry that I could miscarry a baby or develop cancer because a company wants to profit off the irresponsible decisions of people who should be putting the safety of their community first.

Please help us. The community is depending on you to keep us safe and the time to do that is now.

* Tait PW, Brew J, Che A, Costanzo A, Danyluk A, Davis M, Khalaf A, McMahon K, Watson A, Rowcliff K, Bowles D. **The health impacts of waste incineration: a systematic review.** *Australia New Zealand Journal of Public Health.* **2020** Feb;44(1):40-48. doi: 10.1111/1753-6405.12939. Epub 2019 Sep 18. PMID: 31535434.

<https://apo.org.au/sites/default/files/resource-files/2019-09/apo-nid260376.pdf>

1121567

**Prospect Hill International Pty Ltd
Waste to Energy Proposal – Lara**

Application No APP1004200. 11 July 2023-07-11

As an objector to the Prospect Hill International (PHI) Waste to Energy (WtE) project proposed for Lara, we would like to respond to your request to provide feedback on PHI's responses outlined in your document issued 18 November 2021 and 9 December 2021.

Item A: EPC Tender Process

Jacobs response included words – “intended”, “goal”, which sounded like a “Just Trust Us” message. They couldn't share information regarding technology suppliers, but I would have thought that listing, say, four potential suppliers of each of the major pieces of equipment they are looking at, or countries involved, would have been a good start to adding transparency for the local community of Lara.

Item B: Waste to Energy Framework

More “Just Trust Us” words from PHI as they explain that they know and understand the Framework process. I guess it was an oversight that they failed to mention the Social Licence which the Framework identifies in Section 1.1 as being ***“critical to the success of a WtE project”***.

Item C: Noise

It does not inspire confidence to hear that Jacobs had incorrectly tabled noise level limits in its original submission and inadequately defined their noise model relating to installed equipment. I guess it was just a coincidence the noise level limits tabled were 11 12dB higher than permitted.

Jacobs Noise Level Assessment Doc. No 15305100 TP 008 Rev2 is presented to clarify the information request. It is 49 pages long and has no Change Column on its front page to identify where the updates are in the document which answer the questions raised.

A similar process was used in Jacobs Initial proposal, with its Disclaimer notes not being shown on the Contents page. Why do I feel that a “Catch Us If You Can” process is being used?

Items D and E: Air Admissions and Greenhouse Gas

More “Just Trust Us” words from Jacobs.

If 400,000 tonnes/year (less ash) is going up the flue into the atmosphere it is reasonable to assume:

- i Carbon based gases will be lighter than air and rise as greenhouse gases.
- ii Nitrogen based gases will be neutral and float somewhere in the surrounding atmosphere.
- lii Sulphur based gases, dioxin, furans, and dust will be heavier than air and will deposit somewhere in the surrounding areas.

Application No APP1004200

The common South to South Westerly winds will take flue gases (ii and iii) over my residence and vegetable garden and also into my recreational areas – walking and cycling tracks, sports grounds, and the You Yangs.

The Jacobs report does not identify where each of the gases mentioned will end up and how much in tonnes/year.

Item F: Odour

Better response than Items E & F, as Jacobs identifies actual design features which will be included in the detail design.

Item G: Fit and Proper Person

It is difficult to believe PHI are Fit and Proper Persons to operate a WtE plant in the Lara Community as:

- i PHI has not operated any WtE plants
- ii The Directors have no WtE experience
- iii Investors are not locked in or covered under “Memorandum of Understanding” (MOU)
- iv O & M WtE companies are not locked in or covered by MOU’s
- v Sources of waste are not locked in or covered by MOU’s

Other Matters

i **Community Engagement** – I commented in my original objection document that the Community Engagement process has been poorly handled. I can now advise you that there has been no improvement. After a nearly 2 year delay objectors are given 3 weeks to respond to PHI’s latest information and the 3 weeks response time coincides with 2 weeks of school holidays.

ii **The 13 July 2021 community session** was restricted to limited number of attendees due to Covid. Many issues were raised and PHI agreed to answer them. Some are still outstanding or have not been resolved e.g.:

- Has the traffic option taking waste trucks past the popular local Aldi store and Saturday markets in Broderick Road been dropped?
- Business case details especially stranded asset liabilities.
- Further community engagement sessions –to allow all of the Lara community to have an opportunity to be heard.

iii **The PHI response** identified many options/BATs which are available for the WtE plant to achieve acceptable performance for the community. How will the community know if the options/BATs are included in the detail design phase? Adding many of the options/BATs after construction has started may not be possible.

Application No APP1004200

iv **New concerns** have been raised which should be considered in the WtE proposal:

- Early closure of Vic coal fired power stations and increased solar PVC generation has occurred over the last 2 years. Will the WtE electricity generation still displace as much fossil fuelled electricity generation, or will it displace solar PVC generation?
- The impact of WtE base load generation of 30MW on the Lara community rooftop solar PVC generation needs to be assessed. If the grid demand is less than generation available, who will get priority to supply – WtE plant or household PVC?
- The agreements reached between the proposed Laverton North WtE proposal owners (Recovered Energy Australia) and the community should be included in the PHI proposal – lowered emission limits, increased community input, stricter operating condition for the WtE plant. Since Best Available Techniques (BAT) are an evolving process, surely the Laverton North WtE represents the latest level of BAT and therefore should be included in PHI’s proposal.
- Need for and Environment Effects Statement (EES). While it appears that many of the requirements of EES have been documented in various correspondences, a formal EES should also be prepared due to the nature of the WtE project in close proximity to Lara residential areas and schools.
- Reduced public confidence in:
 1. Large companies e.g. VW designing in cheat software to beat automotive emissions standards, PWC tax scandal.
 2. Politicians and public servants lack of care for sections of the community e.g. Robodebt.
 3. Local waste management companies and their regulatory watchdogs e.g. recycled material storage in unsafe Melbourne environments, Lara Broderick Road toxic waste stockpile by C&D Recycling and Council inability to prevent it.

Clearly, the **“Trust Us”** approach has significant risk for the local community. More checks and balances and community involvement are required if community expectations are to be met when WtE plants are proposed to be located adjacent to residential areas.

Signed:

██████████

██████████

Date: 12 July 2023

1121636 Geelong Sustainability

13 July 2023

Environment Protection Authority Victoria
EPA Application no. APP1004200
Planning Application no. 2001035
Uploaded via engage.vic.gov.au

PROSPECT HILL WASTE TO ENERGY FACILITY SUBMISSION 3: OPPOSING APPLICATION # 1004200

This is the third submission Geelong Sustainability (GS) has made regarding the proposed Prospect Hill International (PHI) Waste to Energy Facility at 164-200 McManus Road, Lara. This document should be read alongside our previous submissions dated 28 October 2021 and 28 April 2021. Our persistence in responding for a third time matches the strength of our opposition to this facility, which entrenches a linear economy and takes our region in totally the wrong direction.

Despite the short timeline, we appreciate the opportunity to respond to the answers provided by PHI consultants, Jacobs to the EPA's questions. We've also reviewed PHI's answers to our queries in our second submission. On both accounts, we are disappointed to find unsatisfactory replies¹ and little, if any, new material. Hence, our third submission will reference and build upon our previous objections.

About Geelong Sustainability

Established in 2007, Geelong Sustainability (GS) is a not-for-profit, incorporated association, registered environmental organisation and charity. Our mission is to empower people to protect and regenerate the planet. GS inspires hope through action and effectively delivers a wide range of community projects, events and advocacy work within the Greater Geelong and G21 region. Our Strategy 2025², aligned to the UN Sustainable Developments Goals (SDGs), seeks to position our region for the bold transformative action required to become a net zero emissions region by 2035. We know a fast and fair transition can deliver economic opportunities and ecological benefits for Geelong and its people. Our activities fall under four pillars aligned to UN Sustainable Development Goals (SDGs) of 1) Climate Action, 2) Renewable Energy, 3) Sustainable Cities and Communities and 4) Circular Economy.

OUR CONCERNS IN A NUTSHELL

All of our key areas of concerns and questions remain:

1. **Feedstock sources** - Where will the waste come from?
2. **Community engagement & acceptance** - Where is the social licence for this project?
3. **Business case - project viability** - Where is the business case that shows the plant is viable?
4. **Operating period & transitional solution** - How can this plant be a transitional waste solution when it is planned to operate for 25 years?
5. **Contamination risks** - Why is there no front-end sorting of waste?
6. **Energy output** - Why is there no agreement with Powercor for energy off-take?
7. **Water usage** - How can PHI justify using 2.5ML of potable water per day?
8. **EES requirement** - Why hasn't the applicant completed an Environmental Effects Statement?

As more facts come to light and studies are published, our concerns about this flawed waste management practice are escalating. These include:

9. **Adverse health impacts** - A systematic literature review has found old and new incinerators carry potential health risks
10. **Energy fallacy** - Further evidence that WtE incineration is not a low carbon source of electricity

¹ <https://engage.vic.gov.au/download/document/31929>

² <https://www.geelongsustainability.org.au/strategy/>

11. **Tech & other problems** - There are delays the implementation of this technology elsewhere in Australia and plants are being shut down overseas
12. **PHI's unsatisfactory answers** to EPA questions

OUR CONCERNS

1. Inadequate feedstock sources

PHI claims the waste will be sourced from *a number of Victorian councils, with a preference for waste from local areas such as the Geelong, Surf Coast and Bellarine areas*. However it is clear that G21 councils don't require this facility and western Melbourne will be served by the already approved plant, Recovery Energy Australia at Laverton. [see Appendix, Fig 1]

The City of Greater Geelong (CoGG) and indeed the entire Barwon South West region are moving to a Circular Economy for waste, with the ultimate goal of zero waste to landfill.^{3, 4} CoGG has set a net zero waste to landfill target by 2030. They are also conducting a food organics trial in Lara and begun its own Hot Rock food organics pilots adjacent to their Garden Organics facility at Anakie.

Barwon Water is utilising its 110-year knowledge of managing water and wastewater to partner with local councils to transform organic waste into valuable resources. From mid-2025, the **Regional Renewable Organics Network (Regional RON)** will start processing up to 40,000 tonnes of household, commercial and industrial organic waste each year, diverting waste from landfill and concentrating it into 8,000 tonnes of products that improve soil quality for agricultural uses, as well as generating renewable energy.

Barwon Water is progressing plans for a biophilic designed facility at their Black Rock Water Reclamation Plant in Connewarre. The RON will provide a local, long-term and lower financial and environmental cost waste solution for councils. It will generate 2.5 gigawatt hours of electricity and create 36 ongoing jobs. This innovative project will lead our region's transition to a circular economy, where materials are continually reused and recycled to increase their life span and reduce waste.⁵

As Greater Geelong and the G21 region are moving towards zero waste solutions, feedstock would need to be sourced from other parts of Victoria. If so then the additional transport emissions and costs will need to be factored in. We trust that PHI would not be permitted to import waste from other states or countries ~ that would be totally unacceptable!

2. Lack of community engagement or a social licence for this project

The Conference of Interested Persons survey data from July 2021 showed a very high dissatisfaction within the community for this project on many fronts including: air pollution, proximity to residential areas, and truck movements.

PHI's response to our query about insufficient community engagement was to blame the COVID lockdown. That may have been true in 2021 but Melbourne's Lockdown ended in October 2021, which is now more than 20 months ago. It is no longer a valid excuse as to why the proponents have not re-engaged with the community and sought to build a social licence for the project. Their reluctance to engage only fosters mistrust and apprehension.

As the proponents have never operated any type of waste facility, the community is entitled to be concerned about their bona fides and capabilities to run the plant safely and efficiently. PHI promises to engage with the community at appropriate milestones **once** the project is approved. Sorry this is not the right sequence and is disrespectful to the community.

3. Business case - project viability

The community has continually called for a business model to be released showing that the plant is commercially viable. However PHI has advised us that as the EfW project is privately funded it doesn't need to release its business plan/case publicly and that the information is commercial in confidence.

³ <https://geelongaustralia.com.au/common/Public/Documents/8d7ec5c40d76376-28042020councilagenda-wasteandresourcerecoverystrategy2020-30-strategyattachment3.pdf>

⁴ <https://www.reduce-recycle.com.au/about-us/regional-plan/>

⁵ <https://www.barwonwater.vic.gov.au/about-us/major-projects/renewable-organics-networks>

The plant has a lifespan of 25 years and hence this technology is inconsistent with Victorian Government statements on the Waste to Energy framework. We note that Infrastructure Victoria warned the state government about over investing in this kind of technology. The community was told there would be a cap of 1 million tonnes per year but now we're told the three plants already approved will not count towards the cap ~ this is grossly shortsighted and no explanation has been given. [see Fig 1, Appendix A]

The community is entitled to be suspicious and fearful of having a stranded asset in its neighbourhood when the project fails to stack up on so many criteria. Lara residents are still recovering from a previous disastrous waste facility, C&D Recycling where the owner went bankrupt and left town. The debacle exposed residents to significant fire and health risks and subsequently cost taxpayers over \$70m in clean-up costs.

4. Operating period - Incineration is not a transitional waste solution

Incineration destroys the material forever, locking in an unsustainable linear approach and impeding innovative circular economy solutions.

In justifying the 25-year operating period, PHI references experiences across Europe and claims the ambitions of governments and councils for a zero waste society in Australia will not occur in the near future (10-20 years). However the truth is that Europe is rapidly realising the error of their incineration practices. The European Commission now classifies waste incineration in the same category as nuclear and coal energy, removing all renewable energy subsidies and funds for this sector. The Commission recommends that EU states decommission old incinerators and not build new ones. Waste to energy incinerators emit more GHGs and toxic air pollutants per unit of energy than most coal, oil and gas technologies. Waste to energy incinerators entrench an unsustainable linear economy based on raw materials extraction and disposal.

Many of PHI's generalised statements are insufficiently contextualised to our region. PHI uses average Victorian data which ignores the enormous strides being taken in our region to better manage our resources including:

- The Regional Renewable Organics Network to commence operations in mid-2025 (described above)
- The City of Greater Geelong's Garden Organics Processing Facility at Anakie and the recent addition of two in-vessel HotRot composting units for food waste⁶
- The best practice management of leachate at the Drysdale landfill site⁷
- The Drysdale Renewable Energy Facility - In 2018, LMS Energy converted this site into a landfill-biogas-to-energy facility. A 1.1MW biogas engine was commissioned, capable of generating approximately 8,900MW hours of reliable, base-load renewable electricity each year. The facility is registered under the Emission Reduction Fund (ERF), and to date (Dec-21) has been issued with 191,225 Australian Carbon Credit Units (ACCUs). From power generation activities alone, the facility will reduce nearly 58,000 tonnes of carbon dioxide emissions (CO₂-e) from being emitted each year.⁸

So it is incorrect to say that without this incinerator our region's residual waste will be generating carbon emissions ~ it won't be. Our region is leading the way with innovative cleantech circular solutions. The state government should recognise this work and not impose contrary options on communities that do not want or need them.

5. Contamination risks - No front end sorting to remove hazardous items

PHI has said that the waste feedstock would exclude all material used within existing recycling programs (i.e. yellow kerbside bins) – only residual waste (i.e. red top kerbside bins) will be targeted. However they are assuming all materials residents place in their red-topped bins are OK to burn. It's an unacceptable processing risk for council waste to be fed directly into the hopper without screening and removal of dangerous and toxic materials like batteries and paint cans etc.

PHI obviously has little insight into the strange and dangerous items people put in their bins. We contend a rigorous front-end sorting process is essential. One presumes it would be a cost escalation that PHI would rather avoid. However without pre-screening of materials, the process would be a major health hazard for the community and a significant workplace health and safety risk.

6. Energy output - No grid connection agreement with Powercor

Despite years of planning, PHI has no agreement with Powercor for how (or even if) the produced energy will be fed into the grid. PHI has advised us that the local electricity network has the capacity to take the electricity

⁶ <https://www.geelongaustralia.com.au/recycling/news/item/8daef2cbcdc35ef.aspx>

⁷ <https://youtu.be/3GiaX6VFLjA>

⁸ <https://lms.com.au/projects>

generated by the EfW plant but they have not even held proper discussions. This is yet another critical project part, PHI has said it will do in the design phase.

We've been advised that a high voltage transmission line would need to be installed to offtake the energy generated by the plant. Without detailed discussions with Powercor, it's unclear whether a grid connection is even feasible. The significant additional infrastructure cost is likely to affect the project's commercial viability.

7. Water usage - Excessive potable water requirement

PHI has indicated it doesn't want to deploy technology that reuses water. Knowing the impending shortfall in town water supply across our region, it's inappropriate for the plant to be allowed to use 2.5 Megalitres of potable water in its cooling towers each day.

While PHI has had discussions with Barwon Water, it remains unknown (and unlikely) whether the plant could readily access recycled water and who would pay to install pipeworks to the site. This important issue should be resolved thoroughly before approval.

8. EES requirement - clear public health and environmental issues

We believe the nature and scale of the proposed Lara WtE plant are such that they warrant an official Environmental Effects Statement (EES). Specifically in relation to these criteria of the Environment Effects Act 1978.

- Potential extensive or major effects on the health, safety or well-being of a human community, due to emissions to air or water or chemical hazards or displacement of residences.
- Potential significant effects on the amenity of a substantial number of residents, due to extensive or major, long term changes in visual, noise and traffic conditions.
- Potential exposure of a human community to severe or chronic health or safety hazards over the short or long term, due to emissions to air or water or noise or chemical hazards or associated transport.
- Potential greenhouse gas emissions exceeding 200,000 tonnes of carbon dioxide equivalent per annum, directly attributable to the operation of the facility.

We contend there are clear public health criteria which must be addressed and the Applicant is wrong in asserting that the proposed Lara EfW does not require an EES.

9. Adverse health impacts - potentially no incinerator is safe

A systematic literature review by Dr Peter Tait from the Public Health Association of Australia found significant health impacts associated with waste incineration. Older incinerators were linked with neoplasia, reproductive issues and other diseases. While newer incinerator technologies with robust maintenance schedules may be less harmful, any diseases from exposures tend to manifest only after many years of cumulative exposure, so it is premature to conclude that these newer technologies will improve safety. The study concluded that there is insufficient evidence to conclude that any incinerator is safe.

The review suggests that incineration is an option that needs to be pursued carefully with close monitoring. Local community groups have a basis for legitimate concern and so siting of incineration facilities needs to take these concerns into account. Early transparent consultation with communities about these facilities is essential.⁹

Note: Fig 2 in Appendix A shows the proximity of residential and agricultural areas to the site.

10. Further evidence that WtE incineration is not a low carbon source of electricity

In March 2022, the Climate Change 2022 Impacts, Adaptation and Vulnerability Working Group II Contribution to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change, warned that time is rapidly running out to keep our planet below a 1.5C temperature increase and that urgent action is needed to drastically reduce greenhouse gas emissions. In this context, the widespread introduction of waste to energy incineration in Australia is cause for significant concern. Waste incinerators emit large volumes of GHGs and toxic air pollutants and create tonnes of hazardous ash that requires disposal. Waste incinerators maintain a linear approach to resource use, further exacerbating climate change by increasing the extraction of new raw materials to feed increasing materials production systems.¹⁰

⁹ <https://zerowasteaustralia.org/2022/04/22/climate-and-health-impacts-of-waste-incinerators-are-worse-than-landfill/>

¹⁰ https://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_SummaryForPolicymakers.pdf

11. The problematic implementation of this technology elsewhere in Australia & overseas

Australia's first incinerator at Kwinana in WA has been in development since 2011 but it's been beset by delays and won't be operational until 2025. Jane Bremmer, Coordinator for Zero Waste Australia says, it's become a costly policy failure for the WA government.¹¹ The 7 councils, signed up to supply waste to the facility, have been locked into waste burning contracts for decades, delivering tonnes of climate and toxic air pollutants and huge stockpiles of toxic ash, that perversely requires secure hazardous waste treatment and landfilling.

The ACT government has concluded that there are better ways to approach the management of waste including through an increased focus on waste minimisation. They have moved to ban waste incineration projects after a number of proposals met with significant community backlash, out of fears of the potential toxic pollution created through the burning of rubbish.¹²

Across Europe and other northern hemisphere countries that had previously embraced waste incineration, there is now a trend away from this technology.^{13, 14}

To better understand the direct climate and pollution impacts that residual waste technologies in Australia create, National Toxics Networks (NTN) engaged Eunomia Consulting UK to assess the current and proposed waste to energy incinerators, landfills and other residual waste technologies in Australia. The study concludes:

Incineration cannot be considered a 'green' or low carbon source of electricity, as the emissions per kWh of energy produced are higher than CCGT (combined cycle gas turbine) and the likely aggregated future marginal source of electricity in Australia. The carbon intensity deficit of residual waste incinerators will increase as the electricity grid decarbonises. The use of incineration is therefore also incompatible with the achievement of local net zero climate change targets in respect of emissions from energy generation, unless coupled with carbon capture and storage. This technology is not yet commercially viable, and its use will considerably increase the cost of waste treatment.¹⁵

12. PHI's unsatisfactory answers to EPA questions

Fit and Proper Person

We are very concerned by PHI's failure to nominate a "Fit and Proper Person" to take full responsibility, including financial responsibility, for compliance with EPA licence requirements. It is very concerning that PHI says it is "investigating partnership options with a range of large investors and O&M EFW companies".

PHI's unwillingness to nominate a Fit and Proper Person is a major shortcoming in their application. It's definitely a red flag to the community.

General environmental duty re. GHG emissions

We dispute their claim that the project "represents an improved environmental outcome for Victoria" We are not convinced by their statement that they will "continue to seek opportunities to reduce energy and greenhouse gas impact of the construction ... and Operational Environment Management Plans (OEMP)".

CONCLUDING REMARKS

Geelong Sustainability urges the EPA to reject the proposed WtE facility at Lara once and for all. If not, given the project's potential to threaten multiple environmental values and human health, then the next step should be to call for an Environmental Effects Statement to be undertaken.

All societies, locally and globally, need to reduce overall waste. Under the state government's Recycling Victoria policy, all local councils are introducing separate household waste bins for food waste & garden vegetation, glass, and recyclables.¹⁶

The Victorian waste to energy framework claims to be 'supporting sustainable and appropriate investment'¹⁷. This should not include incineration. We don't agree with Recycling Victoria (RV) that there is a role for waste to energy investment in Victoria. We are disappointed that the three plants already approved will not be included in the one million tonne per year cap as they total 950,000 tonnes.

¹¹ www.zerowasteaustralia.org

¹² <https://reneweconomy.com.au/act-set-to-ban-waste-incineration-for-energy-citing-community-concerns-33706/>

¹³ <https://www.no-burn.org/europewasteburning/#resistance>

¹⁴ <https://e360.yale.edu/features/in-europe-a-backlash-is-growing-over-incinerating-garbage>

¹⁵ <https://ntn.org.au/eunomia-report-greenhouse-gas-and-air-quality-impacts-of-incineration-and-landfill/>

¹⁶ <https://www.vic.gov.au/transforming-recycling-victoria>

¹⁷ https://www.vic.gov.au/sites/default/files/2022-02/Victorian%20waste%20to%20energy%20framework_0.pdf

Geelong Sustainability contends the incinerator is not required by Geelong or G21 councils and it's most definitely not wanted by our community. We don't want our region dragged in the wrong direction ~ away from our objective for a clean energy circular economy and our regional net zero by 2035 target. Incineration of waste is incompatible with the achievement of local net zero climate change targets.

Our region is already leading the way with innovative cleantech circular solutions. If the state government is serious about transitioning to a zero waste circular economy, it should not impose huge incinerators on communities that do not want or need them.

PHI's vague application is expecting approval before showing how its facility will meet RV's best-practice environment protection requirements, or that it has demonstrated a social licence with affected communities.

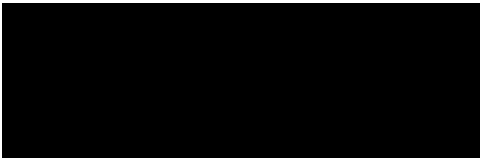
Geelong Sustainability endorses Zero Waste Oz's petition to the Federal Minister for the Environment¹⁸.

*We can't burn our way out of climate change!
We want Zero Waste Solutions not Waste to Energy Incinerator Pollution!*



Thank you for the opportunity to make this additional third submission.

Yours sincerely,



Chief Executive Officer
Geelong Sustainability Group Inc.

¹⁸
<https://www.change.org/p/federal-minister-for-the-environment-remove-subsidies-for-waste-to-energy-incineration-in-australia>

APPENDIX A

Figure 1: Approved VIC Incinerators

1.1. Existing facilities

Pre-existing approved facilities not subject to the cap

Facility	Annual feedstock	Electrical output	Thermal output	Notes
Australian Paper (Maryvale) ⁵	650,000 tonnes	45 MW _e	225 MW _{th}	Electricity and heat to supply on-site paper mill
Recovered Energy Australia (Laverton) ⁶	200,000 tonnes	15.1 MW _e		Output excludes 2.1 MW _e for plant operation; proposed capacity to provide thermal output to nearby properties in future
Great Southern Waste Technologies (Dandenong South) ⁷	100,000 tonnes	7.9 MW _e		
TOTAL	950,000 tonnes	68 MW_e	225 MW_{th}	

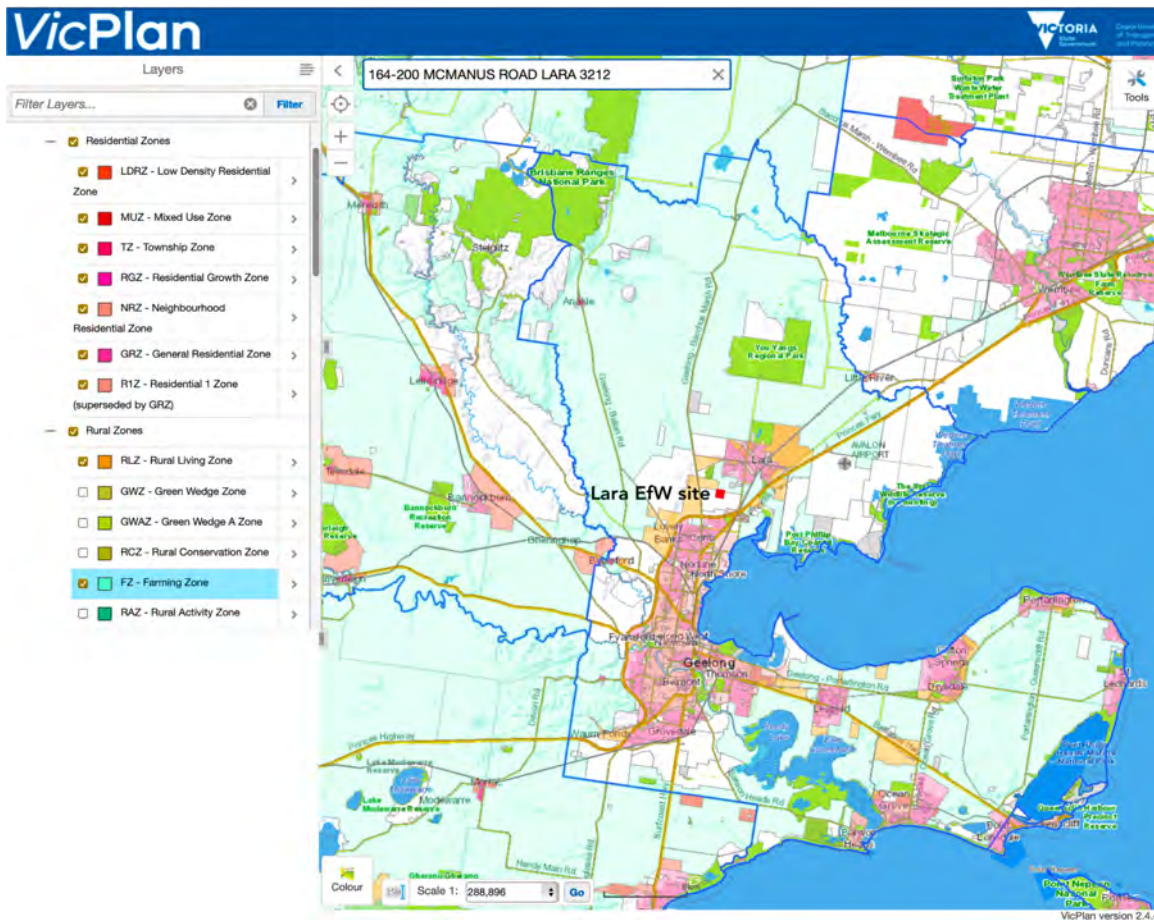
Figure 3 Already approved WtE facility capacity

⁵ <https://engage.vic.gov.au/epa-works-approvals/australian-paper-wa>

⁶ <https://engage.vic.gov.au/epa-works-approvals/recovered-energy-australia>

⁷ <https://engage.vic.gov.au/epa-works-approvals/GSWT>

Figure 2: Zoning of land around the proposed EfW site in Lara



**Davis Advisory on behalf of Viva Energy
Australia Pty Ltd**



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Environment Protection Authority Victoria
200 Victoria Street
CARLTON VICTORIA 3053
By email: contact@epa.vic.gov.au;
By online submission: *Engage Victoria*

13 July 2023

Our Ref: 20231047
Application no. APP1004200

Dear Sir/Madam

**Submission by Viva Energy Australia Pty Ltd
Prospect Hill International Waste to Energy Facility
Activity site: 164-200 McManus Road, Lara VIC 3212**

We continue to act for Viva Energy Australia Pty Ltd, the neighbouring industrial operator and Major Hazard Facility ('**MHF**') licensee of the Lara Liquid Petroleum Gas ('**LPG**') Facility located at 137-207 McManus Road, Lara VIC 3212.

We refer to our previous correspondence to the Environment Protection Authority of 12 July 2023 seeking an extension of time to finalise this submission so that the matters considered by the Environment Protection Authority ('**EPA**'), include that of the adjacent MHF. We understand that the Permission Team/Unit is currently considering this correspondence.

In the interim, we refer to the above Development Licence ('**DL**') Application to EPA under APP1004200 made by Prospect Hill International Pty Ltd ('**Applicant**') for a waste to energy facility proposed at 164-200 McManus Road, Lara, directly adjacent to the Viva Energy's LPG Facility.

We also refer to this Application and to the supporting materials published on the Engage Victoria by the EPA, Jacobs Group Australia Pty Ltd ('**Jacobs**') and understand that the Applicant proposes to develop and use the Activity Site as a *Waste to Energy Facility* which will involve the following:

- Development and operate a facility designed to process approximately 400,000 tonnes of waste per year and generate 35 megawatts of electricity;

- Development and operate a facility which would generate bottom ash, boiler ash and air pollution control residues; and
- the production of 25,538 tonnes of greenhouse gas emissions as a result of the construction of the facility. When operational, we understand that the facility is expected to reduce greenhouse gas emissions by approximately 8 million tonnes over 25 years.

Viva Energy refers to this Application and the material before EPA and by way of this preliminary submission, objects to this DL Application at the Activity Site on the following grounds:

1. **First**, Viva Energy's LPG Facility operates on a 24/7 basis and is licensed by Worksafe Victoria ('**Worksafe**') as a MHF, which means it is a facility licensed to store and manage large quantities of dangerous goods onsite. The Activity Site and proposed *Waste to Energy Facility* is directly adjacent to Viva Energy's MHF (crossing McManus Road in Lara). Viva Energy is concerned that the studies and considerations of environmental and human impact currently before the EPA do not go far enough to consider the potential impacts on, and from, the MHF, nor has such assessment been reported and included in the suite of documentation advertised.
2. **Second**, as a licensed MHF to store, handle, or process large quantities of chemicals and dangerous goods, being classified as a '*highly flammable*' class of facility, it is subject to certain regulatory controls and safety assessments. This classification under the Occupational Health and Safety legislative framework is used to inform the extent of the risk consequence modelled area that is applied to land surrounding the MHF. The Worksafe Inner and Outer Planning Advisory Areas are used as a policy consideration, or land use risk mitigation tool, to determine whether proposed developments and subsequent land use changes are suitable in areas close to MHFs. Based on this, it is understood that the proposed new *Waste to Energy Facility* may be fall within this 'Inner Advisory Planning Area' requiring a further consideration of the proposed activity, volume and class of population present during both the development and the nature of the activity on the Activity Site. Viva Energy is concerned that there is an absence of such an important consideration, which would otherwise impact not only the ongoing operation of Viva's LPG Facility, but also the proposed *Waste to Energy Facility*.
3. **Third**, and further to the above point, there is no material before EPA to show that the relevant prescribed Agency, such as Worksafe, was consulted in relation to this proposed use, the Advisory Zone and the appropriateness of this Application near an operational MHF¹.

¹ Pursuant to s. 69(2) of the Environmental Protection Act ('**EP Act**') and Part 3.2 of the Environment Protection Regulations 2021, EPA as the Authority has the discretion to refer the Application to a prescribed Agency for comment..

Viva Energy would think given the uncertainty of the specific safety and environmental impacts, that would seem appropriate.

4. **Fourth**, Viva Energy is concerned that with without proper consultation with the appropriate Regulatory Agencies (i.e., Worksafe) and industry bodies, such as Viva Energy, the proposed development, based on the studies and material before EPA, presents a risk of setting a precedent to allow and potentially intensify the development and growth of inappropriate land uses near an operational MFH.
5. **Last**, Viva Energy refers to the previous correspondence of 12 July 2023 and notes that whilst the Applicant seeks to engage with Viva Energy on the proposed Waste to Energy Facility, there has been an absence of meaningful engagement and consultation. Viva Energy is concerned, as the adjacent and operational MFH, it has not had the reasonable opportunity to be consulted and/or involved (where appropriate) in the relevant environmental studies into the impacts to, and from, the MFH to the Activity Site.

Viva Energy is finalising a more detailed submission which it will issue to EPA in the coming week. Consistent with sections 53 and 69 of the EP Act and the Charter of Consultation, we request that EPA wait for that full submission before making any final decisions.

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

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[Redacted]

[Redacted]

[Redacted]

[Redacted]

ENVIRONMENT PROTECTION AUTHORITY VICTORIA

DEVELOPMENT LICENCE APPLICATION

PROSPECT HILL INTERNATIONAL WASTE TO ENERGY FACILITY

1. This submission is prepared on behalf of Viva Energy Australia Pty Ltd and Viva Energy Refining Pty Ltd ('together **Viva Energy**'), the neighbouring industrial operator and Major Hazard Facility ('**MHF**') licensee of the Lara Liquid Petroleum Gas ('**LPG**') Terminal (**LPG Terminal**) located at 137-207 McManus Road, Lara VIC 3212.
2. We refer to the Development Licence ('**DL**') Application to the Environment Protection Authority ('**EPA**') under APP1004200 made by Prospect Hill International Pty Ltd ('**Applicant**') for a *waste to energy facility* proposed ('**Proposed Facility**') at 164-200 McManus Road, Lara ('**Activity Site**'), adjacent to Viva Energy's LPG Terminal. We refer to the below figure to show the location of the LPG Terminal by reference to the Proposed Facility, marked up in this figure below.



Above figure: depicting the existing Viva Energy LPG Terminal and in highlighting the Proposed Facility the subject of this DL Application.

3. We refer to recent correspondence of 12 and 13 July 2023 with the EPA requesting an extension of time and providing Viva Energy's preliminary submissions. We have enclosed a copy of that correspondence to this submission and note that the EPA has granted Viva Energy until 26 July 2023 in which to provide its submissions in relation to the Proposed Facility and the DL Application.
4. Viva Energy relies on sections 53 and 69 of the EP Act and EPA's *Charter of Consultation, publication 1928* dated 15 June 2021 which sets out a set of principles for the EPA to achieve during the consultation process¹ before making any final decisions. As such, and further to previous correspondence with the EPA, Viva Energy provides this full submission and feedback on the Applicant's Proposed Facility and DL Application.
5. In making this submission we refer to the DL Application for the Proposed Facility and to the supporting materials exhibited on the Engage Victoria site by the EPA, prepared by Jacobs Group Australia Pty Ltd ('**Jacobs**') and understand that the Proposed Facility will involve the:
 - (a) development and operation of a facility designed to process approximately 400,000 tonnes of waste per year and generate 35 megawatts of electricity;
 - (b) development and operation of a facility which would generate bottom ash, boiler ash and air pollution control residues; and
 - (c) production of 25,538 tonnes of greenhouse gas emissions as a result of the construction of the Proposed Facility. When operational, we understand that the Proposed Facility is expected to reduce its total greenhouse gas emissions by approximately 8 million tonnes over 25 years.

Viva Energy and the Lara LPG Terminal

6. To assist the EPA in the consideration of this submission, Viva Energy sets out the following background into the existing operation of its LPG Terminal:
 - (a) Viva Energy is one of Australia's leading energy companies and has been operating for approximately 110 years, with the Lara LPG Facility in operation from about 1961.
 - (b) Viva Energy's operations consist of, amongst other things, the importation, delivery, and transportation of industrial material such as fuels, lubricants, chemicals, and bitumen through means of pipelines installed within areas subject to long standing easements. Several different industry sectors throughout Victoria and Australia rely heavily on the accessibility and transmission of these materials, including the aviation, mining, and marine sectors.

¹EPA's Charter of Consultation, publication 1928 dated 15 June 2021 provides that:

1. members of the public should have access to the relevant information being considered;
2. members of the public should be given opportunities to participate in decisions made under this EP Act, where appropriate to do so;
3. members of the public should have their interests considered by the EPA in decisions made under this EP Act; and
4. it will recognise and consider the potential impacts of EPA's decisions on stakeholder groups and the broader public, which in this case may include existing industry in the area and potential matters of land use conflict and safety.

- (c) Viva Energy primarily operates its Geelong Refinery to process petroleum or crude oil products refining these into the LPG products which are transferred to, and stored at, the LPG Terminal. LPG products are then distributed to customers/suppliers from the LPG Terminal.
- (d) The LPG Terminal is connected to Viva Energy's Geelong Refinery by a licensed LPG pipeline and as such the LPG Terminal operates 24 hours per day, 365 days per year, providing an integral and key source of energy resources to the industrial, commercial and domestic sector of Victoria and Australia.
- (e) The LPG Terminal is licensed by WorkSafe Victoria ('**WorkSafe**') as a MHF under the *Occupational Health and Safety Act 2004 (Vic)*, which means it is licensed to store, handle, process and/or distribute large quantities of chemicals and dangerous goods as listed in Schedule 14 of the *Occupational Health and Safety Regulations 2017 (Vic)* and specified in the LPG Terminal MHF Licence.

Objection to the DL:

- 7. Viva Energy objects to the Proposed Facility at the Activity Site on the following grounds:

Section 1: Studies do not go far enough to consider impacts

- 8. First, the Activity Site and Proposed Facility is directly adjacent to Viva Energy's MHF (crossing McManus Road in Lara). Viva Energy is concerned that the studies and considerations of environmental and human impact currently before the EPA do not go far enough to consider the potential impacts on, and from, the MHF, nor has such assessment been reported and included in the suite of documentation advertised. These are detailed in the points below:

Stormwater and management of surface run off post landscaping:

- 9. Viva Energy refers to the Jacobs Report L, Landscape and Visual Assessment dated 24 September 2020. In that Report it is proposed that the Activity Site will be screened using vegetation around the boundary of the Activity Site, including at the McManus Road frontage as depicted in the ***landscaped figure*** below.
- 10. Viva Energy understands that:
 - (a) the Activity Site is of a relatively flat topography (subject to the stockpiles identified in the Jacobs Preliminary Site Investigation, Report I dated 21 September 2020) with a slight slope trending from west to east;
 - (b) the LPG Terminal is located to the west of the Proposed Facility Activity Site;
 - (c) surface runoff at the Activity Site is likely to occur from east to low lying areas to the west, potentially affecting the LPG Terminal; and
 - (d) the Activity Site will be subject to substantial landscaping involving a large portion of the site being capped with a concrete cover prior to the construction of the significant plant building and structures.
- 11. There is no information which considers the direction and impact on rainfall flow and stormwater drainage patterns once landscaping and post construction activities and structures are built.

12. As noted above and in the Jacobs Preliminary Site Investigation Report, Viva Energy is situated west of the Activity Site and potentially at risk to stormwater and runoff impacts, particularly following large rainfall events.



Above figure: depicting the post construction and landscaped Proposed Facility.

13. Noting the points above, Viva Energy seeks clarification on those details and how (following the construction of the Proposed Facility and subsequent landscaping) the Applicant seeks to manage:
- (a) both stormwater drainage and rainfall to the west of the site where there is a change to the current topography;
 - (b) whether the proposed landscaping outlined in the material is assessed to adequately absorb large rainfall and stormwater volumes leaving the site (to the west); and
 - (c) any additional measures, such as landscaping and barriers used to address this potential offsite risk.

Management of air dispersion incidents and offensive odour

14. Viva Energy refers to the Jacobs' Air Quality Impact Assessment, Report D dated 6 October 2020 and acknowledges that the studies (and modelling) were conducted to consider air quality impacts and dispersion events and these were assessed against the EPA's guidelines, namely, Energy from waste (EPA, 2017a), Demonstrating Best Practice (EPA, 2017b), Environment Reference Standard, May 2021'.

15. Viva Energy also considers that the nature of the modelling provided in this Report D does not appear to consider the surrounding uses and the impacts to and from the current MHF, nor is it clear that the modelling was in accordance with the updated legislative instruments.
16. Viva Energy also seeks clarification on how the Applicant seeks to manage unintended exceedances of emissions and/or incidents should this occur and whether the studies considered the updated legislative framework.

Management of hazardous waste and HHRA

17. The Applicant proposes to process waste 'feedstock' into energy. In the material before EPA, EnRiskS provide that a MHF licence is not required or triggered given the volumes and nature of the material being processed at the Proposed Facility.
18. It was identified in the Health Impact Assessment, Report F dated 25 January 2021 that there is a risk of hazardous waste material entering and being stored at the Proposed Facility.
19. Viva Energy's primary concern, as a MHF Licensee and one subject to a number of statutory and regulatory obligations, is understanding how the Applicant proposes to manage and mitigate the volumes and storage of potential hazardous material accepted, either incidentally or inadvertently at the Proposed Facility.
20. The Applicant proposes that this risk will be managed through several measures, with the screening process outlined below:
 1. *Waste Acceptance Criteria. This would detail the waste that is deemed hazardous and not accepted by the facility.*
 2. *Waste inspection. This would occur at the waste transfer as well as at the weighbridge upon entry to the facility. If a problem or hazard is suspected the material would be further inspected at an inspection area. Any waste classified as hazardous would be separated and disposed separately. The feedstock would also [be] inspected upon tipping into the bunker.*
 3. *Periodic auditing and independent auditing of feedstock to ensure incoming materials comply with EPA regulatory requirements.*
21. The concern remains that there is a risk that hazardous material may be present at the Proposed Facility without a real understanding of the true volumes and location of the material onsite, until it is reviewed at different stages of the Applicant's operations and auditing process. This means the material may remain unchecked or stored incorrectly posing a potential hazard to the LPG Terminal. Viva Energy requests further information on how the Applicant proposes to manage incidental or accidental volumes and, once identified, the process involved in storing and transporting the hazardous material from the Proposed Facility. The materials exhibited and before EPA do not include any Emergency Response Plan or Hazid Assessment for consideration. Such documents would address such incidental risks. Viva Energy requests a copy of those documents if they are available.
22. The Applicant also provides a Human Health Risk Assessment into the potential risk factors affecting or present at the Proposed Facility. We note that the Risk Assessment concludes that:

- (a) the Proposed Facility and construction and subsequent activity associated with that Proposed Facility would have a negligible impact on community health with one exception. It is unclear from the Report what that exception refers to. Viva Energy seeks clarification of this exception, and whether the conclusion of this Risk Assessment considered the surrounding risks potentially posed to and by the MHF.
- (b) in assessing the community profile, the Applicant considered the population close to the Proposed Facility to be:
 - (i) of a less vulnerable class; and
 - (ii) of a small number.

The community profile does not adequately consider the nature of the population and movement at the LPG Terminal. This information would have been properly considered with consultation.

Land & Groundwater Investigation

- 23. Viva Energy has considered the Preliminary Site Investigation and Investigation into Land and Groundwater Reports prepared by Jacobs and acknowledges that the Applicant will be pursuing further investigations into the status of the groundwater readings at the area close to McManus Road.
- 24. Viva Energy confirms that the nature of its operations at the LPG Terminal is limited to storing and distributing LPG products and is limited to the areas within its LPG Terminal, as set out in its MHF Licence. Viva Energy maintains a high standard in achieving safe and suitable operations as required by its MHF licence.
- 25. Viva Energy welcomes an opportunity to consult with the Applicant on the status and outcome of these further investigations given its preliminary assessment of Viva Energy's activities but also to understand the basis of the classification applied as this is unclear based on the findings in the Investigation Reports.

Transport Assessment

- 26. Viva Energy refers to the Jacobs' Traffic Impact Assessment at Report K acknowledging the desktop assessment that considered the volume and direction of traffic into and out of Heales Road, McManus Road, Bacchus Marsh Road, Broderick Road and Production Way, all of which are roads utilised by Viva Energy's tankers and transportation into and out of the LPG Terminal.
- 27. Subject to the points raised by Viva Energy later in this submission, Viva Energy seeks clarification on the mitigation measures, if any, proposed to be taken by the Applicant to manage and minimise traffic congestion and blockages of Viva Energy's tankers and transportation vehicles which access the LPG Terminal. Its primary concern relates to the increase in the number of vehicles on these roads which has the potential to impact road access, including access for emergency response vehicles in an emergency event.

Section 2: WorkSafe Advisory Area and Unacceptable Risk

Below figure: depicting the WorkSafe Inner and Outer Planning Advisory Area, red indicating the Inner Planning Advisory Area and blue indicating the Outer Planning Advisory Area.



28. The second part of this submission relates to the potential safety and human health affect presented by the proposed land use change and potential for increased population presence on the Activity Site.
- (a) As a MHF licensed to store, handle, and process large quantities of chemicals and dangerous goods, which is classified as a ‘*highly flammable*’ class of facility, the LPG Terminal is subject to certain regulatory controls and safety assessments.
 - (b) This classification under the Occupational Health and Safety legislative framework is used to inform the extent of the risk consequence modelled area that is applied to land surrounding the MHF. The Worksafe *Inner and Outer Planning Advisory Areas* are used as a policy consideration, or land use risk mitigation tool, to determine whether proposed developments and subsequent land use changes are suitable in areas close to MHFs, which also seeks to consider the appropriateness of increased volumes of certain classes of population close to an MHF.
 - (c) It is understood that for the LPG Terminal, the Inner Planning Advisory Area is marked as 300 metres, with the Outer Planning Advisory Area at 1000 metres from the source of a potential risk or incident at the MHF. See the above figure above which shows the Inner and Outer Planning Advisory Area assessment.

- (d) Based on this type of assessment, it is understood that the Proposed Facility will fall within this ‘*Inner Advisory Planning Area*’ requiring a further consideration of the proposed activity, and the volume and class of population present during both the development and operation of the Activity Site.
- (e) We refer to the figure above which shows the proximity of the LPG Terminal to the Proposed Facility. This assessment demonstrates that the bulk of the proposed waste to energy processing operations associated with the tipping hall, waste bunker, boiler room, gas cleaning hall, cooling towers and pump house, switchboard and steam turbine hall (*shown in the earlier landscape Figure*), will fall within that ‘*Inner Planning Advisory Zone*’. We also seek clarification on the nature of the population volume anticipated and whether this has been considered from this perspective.
- (f) We understand that the Proposed Facility also contemplates an office space². The concern with such a change of use in the profile of people present at the Proposed Facility goes to the ability for those persons to respond to emergency situations, normally considered under an Emergency Response Plan. Viva Energy has not identified an Emergency Response Plan in the materials exhibited and seeks the Applicant’s response to this.
- (g) In addition, in the Jacobs Report L, Landscape and Visual Assessment dated 24 September 2020, the Applicant highlights a number of zoning control and planning policy considerations in determining any areas of landscape and visual significance. Whilst a consideration is made of clause 13.07 Greater Geelong Planning Scheme which considers land use compatibility objectives and provisions, the Applicant does not consider the applicable policies under *clause 13.07-2S* which provide land use strategies and objectives for managing, minimising and mitigating any potential exposure of human and property risk from incidents from a MHF:

Major hazard facilities

Objective

To minimise the potential for human and property exposure to risk from incidents that may occur at a major hazard facility and to ensure the ongoing viability of major hazard facilities.

Strategies

- Ensure major hazard facilities are sited, designed and operated to minimise risk to surrounding communities and the environment.
- Consider the risks associated with increasing the intensity of use and development within the threshold distance of an existing major hazard facility.
- Apply appropriate threshold distances from sensitive land uses for new major hazard facilities and between major hazard facilities.

² Jacob’s Health Impact Assessment, Report Appendix F under En RiskS Report titled ‘Energy from Waste – Prospect Hill: Health Impact Assessment’ dated 25 January 2021, page 12 and figure 1.3.

- Protect registered or licenced major hazard facilities as defined under Regulation 5 of the Occupational Health and Safety Regulations 2017 from encroachment of sensitive land uses.
- (h) It does not appear that the Applicant contemplated these types of land use conflict matters or risks to human safety in the assessment prepared and before EPA, a matter required of the Applicant in addressing the General Environmental Duty under the EP Act.
- (i) Viva Energy is concerned that there is an absence of:
- (i) important considerations made by the Applicant of safety and potential human and environmental risks associated with the surrounding activities to the site, including the operational MHF; and
 - (ii) advice or feedback from relevant agencies (for example, WorkSafe) suitably qualified to provide the EPA with guidance on these specific matters of appropriate land use activity, human risk and land use conflict near an existing and operational MHF.

Absence of Referral to WorkSafe

29. Pursuant to Section 69(2) of the EP Act, together with Section 22(1) of the *Environment Protection Regulations 2021 (Vic)*, EPA, as the defined Authority, has the discretion to refer an Application to:

‘... any agency to which the Authority considers it appropriate in the circumstances to refer the application for comment....’

30. Consistent with the above provisions, the EPA has a discretion to consider referring an Application to a relevant agency, such as WorkSafe, where that Applicant may raise some concerns for the use permitted under the relevant planning scheme³, in this case, the Greater Geelong Planning Scheme, clauses 13.07-2S as outlined in the section above.

31. In circumstances where there is an existing and operational MHF adjacent to the proposed Activity Site, it would be reasonable to expect that the EPA would consider seeking the advice of and/or comment from WorkSafe at least to determine and address any gaps in potential risks to human life, safety and environmental impacts which may otherwise be presented as a result of the land use change adjacent to the existing MHF.

32. Viva Energy refers to the WorkSafe referral advice letter and response to EPA dated 12 October 2021. In order to address WorkSafe’s concerns about proximity, WorkSafe recommended the following conditions be included to the DL (if granted):

- (a) [Prior to commencing the works the] *Applicant must provide a Hazard Identification (Hazid) Study report that considers all potential hazardous events and their impact on safe operations. These events may be internal to the facility or external (e.g. large gas release or fire at the proximal major hazard facility).*

³ see further Section 22(5) *Environment Protection Regulations 2021 (Vic)*.

(b) [Prior to commencing operations, the] *Applicant must provide a copy of the site Emergency Response Plan that includes actions to be taken to protect personnel and property in the event of a major incident (large gas release, fire/explosion or toxic gas release) at the Viva Lara LPG Terminal.*

33. Viva Energy notes that it is unclear from the exhibited material how the Applicant intends to address these conditions, nor was a copy of either Hazid Study or Emergency Response Plan included.
34. Viva Energy requests a copy of the two documents and, if the documents have not yet been drafted, that it be given an opportunity to consult at the point that these Studies and Plans are being prepared.
35. Viva Energy requests that given any consideration to refer the matter for review, comment and advice from a relevant authority (such as the Hazid Study or Emergency Response Plan) involves a consideration of the LPG Terminal, Viva Energy is included in and/or is provided with a copy of, the final response issued by WorkSafe or other relevant authority.

Appropriate growth & development for Lara

36. Viva Energy is concerned that without proper consultation with the appropriate regulatory agencies (i.e., WorkSafe) and industry bodies, such as Viva Energy, the Proposed Facility, based on the studies and material before the EPA, presents a risk of setting a precedent to allow and potentially intensify the development and growth of inappropriate land uses near an operational MHF.

Section 3: Meaningful and timely consultation

37. Finally, Viva Energy refers to its correspondence of 12 and 13 July 2023 and notes that whilst the Applicant notes in the material before EPA that it seeks to engage with Viva Energy on the Proposed Facility, there has been an absence of meaningful engagement and consultation.
38. Viva Energy confirms that it:
 - (a) did not receive the letter distributed to the local area in July 2020;
 - (b) did not receive a notification of the community discussion and information briefing conducted over Microsoft Teams on 29 July 2020, however Viva Energy does note that it has recently identified planning notices which were provided by Greater Geelong City Council on 23 July 2021.
 - (c) was not consulted during the time the Applicant consulted key stakeholders, industry and authorities in relation to the concept design, use of technologies and considered traffic volume and routes considered on Heales and McManus Roads, Lara as outlined in Jacobs Report M, Concept Design dated 15 April 2020;
 - (d) was not consulted during the time the Applicant consulted surrounding users and industries in relation to the traffic assessment and study conducted into the preferred access routes to the Proposed Facility, as highlighted in Jacobs Report M, Traffic Impact Assessment dated 26 October 2020; and
 - (e) was not contacted or approached by the Applicant, or its representatives in relation to the Proposed Facility and DL Application.

39. Viva Energy refers to the Applicant's responsibilities under the EP Act and is concerned that, as the adjacent and operational MHF, it has not had the reasonable opportunity to be consulted and/or involved (where appropriate) in the relevant environmental studies into the impacts to, and from, the MHF to the Activity Site.
40. Viva Energy welcomes an opportunity to have a comprehensive meeting with the Applicant to consider the DL, the Proposed Facility and the points raised in this submission.

Viva Energy thanks the EPA and the Applicant for considering this submission and welcomes the opportunity to consult further with both the EPA and the Applicant.

**Davis Advisory
Solicitors for the Submitter, Viva Energy Australia Pty Ltd**

Dated: 26 July 2023

Development licence assessment report

Environment Protection Act 2017

Appendix F: BATT assessment

Table 28: Environmental management systems (BAT 1)

BAT conclusion	Application	Assessment	Condition/s
<p>BAT 1: To improve the overall environmental performance, BAT is to elaborate and implement an environmental management system (EMS) that incorporates all of the following features: (i) – (xxviii)</p>	<p>The application has identified an Operations Management System (OMS) as the primary management framework for delivery of the project. Site or phase-specific management plans will be developed under the OMS. This includes a Construction Environmental Management Plan (CEMP), a commissioning plan, and Operations Environmental Management Plan (OEMP). An EMS would also form part of the OMS.</p> <p>Under the OMS, the following certifications would be sought:</p> <ul style="list-style-type: none"> Quality System certification to AS/NZS ISO 9001:2016 Safety System certification to AS/NZS 45001:2018 Environmental Management System certification to AS/NZS ISO 14001:2016 	<p>EPA is satisfied that the proposed control measures are consistent with the techniques to improve the overall environmental performance of the WtE facility in BAT 1 subject to condition.</p>	<p>The applicant must provide to EPA before commencing commissioning:</p> <ul style="list-style-type: none"> a summary report of the site Environmental Management System (EMS) prepared in accordance with ISO 14001 or Regulation (EC) NO 1221/2009 and the BATC 2019 and make available for inspection all documents and procedures which form part of the EMS. <p>This must include, but is not limited to a:</p> <ul style="list-style-type: none"> Waste Stream Management Plan; Residual Waste Management Plan; Community And Stakeholder Engagement Plan; Complaints Response Plan; Air Emission Management Plan; Odour Management Plan; Other Than Normal Operating Condition Management Plan; Accident Management Plan; Diffuse Dust Emission Management plan; and Noise Management Plan <p>This is incorporated into Condition DL_R01(1).</p>

Table 29: Monitoring (BAT 2–8)

BAT conclusion	Application	Assessment	Condition/s
<p>BAT 2: BAT is to determine either the gross electrical efficiency, the gross energy efficiency, or the boiler efficiency of the incineration plant as a whole or of all the relevant parts of the incineration plant.</p>	<p>The application has specified a preliminary energy efficiency performance standard using the R1 method. The application has estimated an average R1 of 0.77. This is above the criteria of >0.65 to be considered genuine energy recovery.</p>	<p>EPA notes that the application has specified a preliminary energy efficiency performance standard. This will be updated and reviewed at the detailed design phase incorporating EPC and final plant and equipment selection and results of a 12-month waste audit.</p> <p>EPA is satisfied that the proposed is consistent with the for determining the energy efficiency of the incineration plant techniques in BAT 2 subject to condition.</p>	<p>The applicant must include:</p> <ul style="list-style-type: none"> Testing of the boiler efficiency as part of plant commissioning to determine its gross energy efficiency of the incineration plant as a whole or of all the relevant parts of the incineration plant. <p>This is required under Conditions DL_G03(10), DL_R04(7), and DL_R01(7).</p>

BAT conclusion	Application	Assessment	Condition/s
<p>BAT 3: BAT is to monitor key process parameters relevant for emissions to air and water including those given below.</p>	<p>The application details proposed key process parameters relevant for emissions to air in Sections 7.4.6.2.8 and RFI response dated 10/11/2022. The application proposes to continuously monitor key process parameters including:</p> <ul style="list-style-type: none"> • stack gas flow; • temperature; • pressure; • gas moisture content; • oxygen; • carbon dioxide; • total dust; • total organic carbon; • hydrogen chloride; • hydrogen fluoride; • sulphur dioxide; • oxides of nitrogen as nitrogen dioxide; • carbon monoxide; • ammonia; and • mercury 	<p>EPA is satisfied that the proposed control measures are consistent with the techniques for monitoring key process parameters in BAT 3 subject to condition.</p>	<p>The applicant must include:</p> <ul style="list-style-type: none"> • a Continuous Operating Monitoring System capable of monitoring all key process parameters for emissions to air and water as specified in BATC 3 of the BATC 2019 <p>This is incorporated into Condition DL_G03(7).</p>
<p>BAT 4: BAT is to monitor channelled emissions to air with at least the frequency given below and in accordance with EN standards. If EN standards are not available, BAT is to use ISO, national or other international standards that ensure the provision of data of an equivalent scientific quality</p>	<p>The application details proposed key process parameters relevant to emissions to air in Sections 7.4.6.2.8 and RFI response dated 10/11/2022. The application proposes continuous monitoring of key process parameters including:</p> <ul style="list-style-type: none"> • oxygen; • carbon dioxide; • total dust; • total organic carbon; • hydrogen chloride; • hydrogen fluoride; • sulphur dioxide; • oxides of nitrogen as nitrogen dioxide; • carbon monoxide; • ammonia; and • mercury. <p>Periodic testing of:</p> <ul style="list-style-type: none"> • dioxins; and • heavy metals. 	<p>EPA is satisfied that the proposed control measures are consistent with the techniques for monitoring of channelled emissions to air in BAT 4 subject to conditions.</p>	<p>The applicant must include:</p> <ul style="list-style-type: none"> • a Continuous and Non-continuous Emission Monitoring Systems to be installed on each flue in the multiflued stack capable of measuring all substances/parameters compliant with the standards and minimum monitoring frequencies as specified in BAT 4 of BATC 2019; • including continuous emission monitoring of carbon monoxide, total dust, total organic carbon, total volatile organic carbon, hydrogen chloride, hydrogen fluoride, sulphur dioxide, oxides of nitrogen expressed as NO₂, ammonia, and mercury. • including in all operating scenarios, including steady state, unsteady state, all transient, part load, and start-up and shutdown operating conditions as defined in the IED 2010/75/EU. <p>This is incorporated into condition DL_G03(7). Before commencing construction, the applicant must also provide an emission management plan that includes:</p> <ul style="list-style-type: none"> • an Air Emissions Management Plan including: • an air pollution risk management framework prepared in accordance with EPA Publications 1961 'Guideline for assessing and minimising air pollution' dated February 2022 and 1695 'Assessing and controlling risk: A guide for business' dated April 2020; • flue gas emission monitoring program for normal operating conditions compliant with the frequency and standards of the EU IED 2010/75/EU and BREF and BATC 2019; • flue gas emission monitoring program for Other Than Normal Operating Conditions compliant with frequency and standards of the EU IED 2010/75/EU and BREF and BATC 2019 to include the reporting of CEMS and COMS data during such conditions; • commissioning monitoring and sampling plan methodology for demonstrating compliance with the Directive 2010/75/EU of the European Parliament and emission performance standards specified in condition DL_G03 of the treated flue gas by the completion of commissioning and prepared in accordance with EPA Publication no. 440.1 'A Guide to the Sampling and Analysis of Air Emissions and Air Quality', dated 2002; • monitoring of the following indicators: Condensable particulate matter, PM2.5 and PM10, Polycyclic Aromatic Hydrocarbons, Polychlorinated biphenyls, Volatile Organic Compounds,

BAT conclusion	Application	Assessment	Condition/s
			<p>Polyhalogenated dibenzo- dioxins/furans, Chlorinated polycyclic aromatics and Chlorinated monocyclic aromatics;</p> <ul style="list-style-type: none"> • continuous and non-continuous monitoring of those pollutants and parameters as otherwise specified in conclusions BAT 4 and 5 of the BREF and BATC 2019; • monitoring of the content of unburnt substances in gasifier bottom ash/slag at the frequencies and standards specified in conclusion BAT 7 of the BREF and BATC 2019; and • an ongoing system for identifying and investigating chemicals of concerns based on operational audits of the targeted waste feedstock accepted at the facility. <p>This is incorporated into Condition DL_R04(10).</p> <p>In addition, EPA also requires:</p> <ul style="list-style-type: none"> • installation on each flue in the multi-flue stack, a device capable of sampling in stack: • long-term mass concentrations of polychlorinated dibenzodioxins (PCDD) and polychlorinated dibenzofurans (PCDF), for periods of up to one month for each flue; and • short-term mass concentrations of PCDD and PCDF. <p>This is incorporated into Condition DL_W08.</p>
<p>BAT 5: BAT is to appropriately monitor channelled emissions to air from the incineration plant during OTNOC.</p>	<p>The application details proposed key process parameters relevant for emissions to air in Sections 7.4.6.2.8 and RFI response dated 10/11/2022. The application proposes continuous monitoring of key process parameters detailed against BAT 4 above. A backup CEMS system is also provided.</p>	<p>EPA is satisfied that the proposed control measures are consistent with the techniques for monitoring of channelled emissions to air during OTNOC in BAT 5 subject to condition.</p>	<p>Before commencing construction, the applicant must provide an emission management plan that includes:</p> <ul style="list-style-type: none"> • a flue gas emission monitoring program for Other Than Normal Operating Conditions compliant with frequency and standards of the EU IED 2010/75/EU and BREF and BATC 2019 to include the reporting of CEMS and COMS data during such conditions. <p>This is incorporated into Condition DL_R04(10).</p> <p>The applicant must also provide to EPA before commencing commissioning:</p> <ul style="list-style-type: none"> • a summary report of the site Environmental Management System (EMS) prepared in accordance with ISO 14001 or Regulation (EC) NO 1221/2009 and the BATC 2019 and make available for inspection all documents and procedures which form part of the EMS. This must include, but is not limited to: • an Other Than Normal Operating Condition Management Plan. <p>This is incorporated into Condition DL_R01(1).</p>
<p>BAT 6: BAT is to monitor emissions to water from FGC and /or bottom ash treatment with at least the frequency given below and in accordance with EN standards. If EN standards are not available, BAT is to use ISO, national or other international standards that ensure the provision of data of an equivalent scientific quality.</p>	<p>The application details proposed measures to manage water, wastewater, and stormwater in Sections 10 and Appendix M 'Concept design report'. Where fit-for-purpose, wastewater such as that generated by IBA drainage will be used in the wet bottom ash handling system which is a net consumer of water. The FGCS has been designed to be wastewater-free.</p>	<p>EPA is satisfied that the proposed control measures are consistent with the techniques for monitoring of emissions to water in BAT 6 subject to condition.</p>	<p>Before commencing construction, the applicant must provide a report of the final detailed designs and schematics of the WtE plant and equipment, including:</p> <ul style="list-style-type: none"> • a report of the final detailed designs of water, wastewater, and stormwater infrastructure: <ul style="list-style-type: none"> • demonstrating implementation of BAT for stormwater and wastewater management consistent with all relevant conclusions of the BREF and BATC 2019; • a final water balance for the activity site; • final detailed designs of the stormwater detention pond and wastewater holding pond determined in accordance with the final water balance; • investigation of options for alternative water supply to substitute use off potable water and other recommendations of Barwon Water in correspondence titled 're: EPA VICTORIA WORKS APPROVAL APPLICATION NO.1004200 PROSPECT HILL INTERNATIONAL – 164-200 MCMANUS RD LARA VIC', dated 20 April 2021; and • accompanying Wastewater and Stormwater Management and Monitoring Plan/s. <p>This is incorporated into Condition DL_R04(16).</p>
<p>BAT 7: BAT is to monitor the content of unburnt substances in slags and bottom ashes at the</p>	<p>The application in Section 9.2.1.3 details the composition of bottom ash generated by WtE facilities. Section 9.3 of the application specifies the outgoing waste categorisation and sampling</p>	<p>EPA is satisfied that the proposed control measures are consistent with the techniques for monitoring</p>	<p>Before commencing construction, the applicant must also provide an emission management plan that includes:</p>

BAT conclusion	Application	Assessment	Condition/s
incineration plant with at least the frequency given below and in accordance with EN standards	and testing program to be implemented will be developed in accordance with EPA requirements. Australian Standard Leaching Procedure (ASLP) AP4439.2 and AS4439.3 are specified as such standards. Sampling and analysis are to be conducted by a laboratory accredited by NATA in accordance with EPA Publication IWRG701 'Sampling and Analysis of Waters, Wastewaters, Soils and Wastes'.	and monitoring frequency of the content of unburnt substances in slags and bottom ashes at the incineration plant in BAT 7 subject to condition.	<ul style="list-style-type: none"> monitoring of the content of unburnt substances in bottom ash at the frequencies and standards specified in conclusion BAT 7 of the BREF and BATC 2019. This is incorporated into Condition DL_R04(10).
BAT 8: For the incineration of hazardous waste containing POPs, BAT is to determine the POP content in the output streams (e.g. slags and bottom ashes, flue gas, waste water) after the commissioning of the incineration plant and after each change that may significantly affect the POP content in the output streams.	n/a	n/a	n/a

Table 30: BAT 3 – key process parameters relevant for emissions to air and water

Stream/Location	Parameter(s)	Monitoring
Flue gas from the incineration of waste	Flow, oxygen content, temperature, pressure, water vapour content	Continuous measurement
Combustion chamber	Temperature	
Waste water from wet FGC	Flow, pH, temperature	
Waste water from bottom ash treatment plants	Flow, pH, conductivity	

Table 31: BAT 4 – monitoring channelled emissions to air.

Substance/parameter	Process	Standard(s)	Minimum monitoring frequency	Monitoring associated with
NOx	Incineration of waste	Generic EN standards	Continuous	BAT 29
NH3	Incineration of waste when SNCR and /or SCR is used	Generic EN standards	Continuous	BAT 29
N2O	Incineration of waste in fluidised bed furnace Incineration of waste when SNCR is operated with urea	EN 21258 (3)	Once every year	BAT 29
CO	Incineration of waste	Generic EN standards	Continuous	BAT 29
SO2	Incineration of waste	Generic EN standards	Continuous	BAT 27
HCl	Incineration of waste	Generic EN standards	Continuous	BAT 27

Substance/parameter	Process	Standard(s)	Minimum monitoring frequency	Monitoring associated with
HF	Incineration of waste	Generic EN standards	Continuous	BAT 27
Dust	Bottom ash treatment	EN 13284-1	Once every year	BAT 26
	Incineration of waste	Generic EN standards and EN 13284-2	Continuous	BAT 25
Metals and metalloids except mercury (As, Cd, Co, Cr, Cu, Mn, Ni, Pb, Sb, Tl, V)	Incineration of waste	EN 14385	Once every six months	BAT 25
Hg	Incineration of waste	Generic EN standards and EN 14884	Continuous	BAT 31
TVOC	Incineration of waste	Generic EN standards	Continuous	BAT 30
PBDD/F	Incineration of waste	No EN standard available	Once every six months	BAT 30
PCDD/F	Incineration of waste	EN 1948-1, EN 1948-2, EN 1948-3	Once every six months for short-term sampling	BAT 30
		No EN standard available for long-term sampling, EN 1948-2, EN 1948-3	Once every month for long-term sampling	BAT 30
Dioxin-like PCBs	Incineration of waste	EN 1948-1, EN 1948-2, EN 1948-4	Once every six months for short-term sampling	BAT 30
		No EN standard available for long-term sampling, EN 1948-2, EN 1948-4	Once every month for long-term sampling	BAT 30
Benzo[a]pyrene	Incineration of waste	No EN standard available	Once every year	BAT 30

Table 32: BAT 5 – monitoring channelled emissions to air.

Substance/parameter	Process	Standard(s)	Minimum monitoring frequency	Monitoring associated with
Total organic carbon (TOC)	FGC	EN 1484	Once every month	BAT 34
	Bottom ash treatment		Once every month (1)	
Total suspended solids (TSS)	FGC	EN 872	Once every day (2)	
	Bottom ash treatment		Once every month (1)	
As	FGC	Various EN standards available (e.g. EN ISO 11885, EN ISO 15586 or EN ISO 17294-2)	Once every month	
Cd	FGC			
Cr	FGC			
Cu	FGC			
Mo	FGC			
Ni	FGC			
Pb	FGC			
	Bottom ash treatment			
Sb	FGC			
Tl	FGC			
Zn	FGC			
Hg	FGC	Various EN standards available (e.g. EN ISO 12846 or EN ISO 17852)	Once every month	

Substance/parameter	Process	Standard(s)	Minimum monitoring frequency	Monitoring associated with
Ammonium-nitrogen (NH4-N)	Bottom ash treatment	Various EN standards available (e.g. EN ISO 11732, EN ISO 14911)	Once every month (1)	
Chloride (Cl-)	Bottom ash treatment	Various EN standards available (e.g. EN ISO 10304-1, EN ISO 15682)		
Sulphate (SO42-)	Bottom ash treatment	EN ISO 10304-1		
PCDD/F	FGC	No EN standard available	Once every month (1)	
	Bottom ash treatment		Once every six months	

Table 33: BAT 7 – monitoring the content of unburnt substances in slags and bottom ashes.

Parameter	Standard(s)	Minimum monitoring frequency	Monitoring associated with
Loss on ignition	EN 14899 and either EN 15169 or EN 15935	Once every three months	BAT 14
Total organic carbon	EN 14899 and either EN 13137 or EN 15936		

Table 34: General environmental and combustion performance (BAT 9–18)

BAT conclusion	Application	Assessment	Condition/s
<p>BAT 9: In order to improve the overall environmental performance of the incineration plant by waste stream management (see BAT 1), BAT is to use all of the techniques (a) to (c) given below, and, where relevant, also techniques (d), (e) and (f)</p> <p>(a) Determination of the types of waste that can be incinerated. Based on the characteristics of the incineration plant, identification of the types of waste which can be incinerated in terms of, for example, the physical state, the chemical characteristics, the hazardous properties, and the acceptable ranges of calorific value, humidity, ash content and size.</p> <p>(b) Setup and implementation of waste characterisation and pre-acceptance procedures These procedures aim to ensure the technical (and legal) suitability of waste treatment operations for a particular waste before the arrival of the waste at the plant. They include procedures to collect information about the waste input and may include waste sampling and characterisation to achieve sufficient knowledge of the waste composition. Waste pre-acceptance procedures are risk- based considering, for example, the hazardous properties of the waste, the risks posed by the waste in terms of process safety, occupational safety and environmental impact, as well as the information provided by the previous waste holder(s).</p> <p>(c) Setup and implementation of waste acceptance procedures</p>	<p>The application details the proposed WtE plant and equipment including the furnace and heat recovery boiler in Section 7.4. Section 7.4.1 of the application states that the moving grate incinerator technology has been selected due to its proven international track record of thermally treating MSW and C&I wastes.</p> <p>Sections 8.2-8.4 of the application summarises preliminary desktop research of waste for both MSW and C&I wastes. This research has relied on publicly available information and research conducted as part of a previous works approval application assessed by EPA.</p> <p>The application has committed to undertake a waste audit of targeted MSW. This will provide further analytical and waste characteristic data such as the combustion parameters of the waste material. The audit will be conducted over a 12-month period and account for seasonality. The audit would be conducted in accordance with Sustainability Victoria's 'Guidelines for the auditing of Kerbside Waste in Victoria'. This audit will inform the final detailed design of the facility.</p> <p>Section 8.6.2 of the application details a preliminary Waste Acceptance Criteria. Only MSW and C&I wastes will be included in the acceptance criteria. The application does not</p>	<p>EPA is satisfied that the proposed treatment technology is a robust and technically mature process for treating MSW and C&I wastes.</p> <p>EPA is also satisfied with the preliminary waste identification desktop research provided in the application and the proposed 12-month waste characterisation audit of targeted waste streams to inform the final detailed design of the facility.</p> <p>EPA is also satisfied with the preliminary waste acceptance procedures and Waste Acceptance Criteria detailed in the application to be further updated based on the 12-month waste characterisation audit.</p> <p>EPA is satisfied that the proposed control measures are consistent with an appropriate combination of the techniques (a)-(c) for improving the overall</p>	<p>Before commencing construction, the applicant must satisfy the following set of conditions to validate that the targeted waste feedstock is fully aligned with the capabilities of the facility. The conditions require:</p> <ul style="list-style-type: none"> a final Waste Characterisation Report including: <ul style="list-style-type: none"> results of waste characterisation audit or audits of the physical, chemical, hazardous properties, and calorific value analysis results representative of the target waste feedstock to inform the detailed design of the facility. details of the methodology used for collecting the waste composition data. audit results of a minimum 12-month period accounting for potential seasonality in the targeted waste feedstock composition; and an accompanying waste flow analysis informing the selection of the waste characterisation audit or audits. <p>This is incorporated into Condition DL_R04(1).</p> <p>Before commencing construction, the applicant must provide:</p> <ul style="list-style-type: none"> a final Waste Acceptance Criteria in a form or manner consistent with the BREF and BATC 2019 that will inform waste supply agreements to ensure targeted waste feedstock received at the activity site is within the operational and design specifications of the facility. <p>This is incorporated into Condition DL_R04(3).</p> <p>Before commencing construction, the applicant must provide final waste acceptance procedures consistent with the BREF and BATC 2019 including:</p>

BAT conclusion	Application	Assessment	Condition/s
<p>Acceptance procedures aim to confirm the characteristics of the waste, as identified at the pre-acceptance stage. These procedures define the elements to be verified upon the delivery of the waste at the plant as well as the waste acceptance and rejection criteria. They may include waste sampling, inspection and analysis. Waste acceptance procedures are risk-based considering, for example, the hazardous properties of the waste, the risks posed by the waste in terms of process safety, occupational safety and environmental impact, as well as the information provided by the previous waste holder(s). The elements to be monitored for each type of waste are detailed in BAT 11.</p>	<p>propose to accept any hazardous waste streams.</p> <p>Section 8.6.3 of the application details waste identification and tracking methods to be implemented including weighbridge inspection of arriving vehicles, waste carrier information and associated documentation, visual inspections at the waste transfer station (before arriving on site) or at the WtE facility. Section 8.6.4 of the application details independent auditing to be conducted over the first three years of the WtE facility's operations. The audits will be conducted by a suitably qualified person. The purpose of the operational audits is to confirm compliance of incoming waste with the Waste Acceptance Criteria and any requirements under an EPA operating licence.</p> <p>Section 7.4.2.4 of the application includes provision of an area within the tipping hall to conduct audits or inspections of up to 10 tonnes of waste.</p> <p>Sections 7.4.2.2 and 7.4.2.4 of the application includes provision of a waste vehicle quarantine area for waste loads non-compliant with the Waste Acceptance Criteria. The tipping hall will also include areas for segregating rejected untreated waste or hazardous materials.</p> <p>Implementation of the Waste Acceptance Criteria is included in the risk assessment in Section 6.3 of the application.</p>	<p>environmental performance of the facility in BAT 9 subject to conditions.</p>	<ul style="list-style-type: none"> • ongoing waste auditing and analysis procedures and waste tracking system: • waste delivery monitoring procedures including: <ul style="list-style-type: none"> • radioactivity detection; • weighing of the waste deliveries; • visual inspection; and • periodic sampling of waste deliveries and analysis of key properties and substances. • specification of all material, including recyclable material, hazardous material, e-waste, industrial, priority, or reportable priority waste, which is to be removed from the waste before incineration; and • that only waste which would otherwise be disposed of to landfill will be accepted at the facility. <p>This is incorporated into Condition DL_R04(3).</p> <p>Before commencing construction, the applicant must provide:</p> <ul style="list-style-type: none"> • a report of the final detailed designs and schematics of the facility optimised to treat the waste characteristics specified in the Waste Acceptance Criteria required under Condition DL_R04(2) and waste acceptance procedures of Condition DL_R04(3). <p>Submission of the reports, designs, and schematics listed in these conditions must be endorsed by a suitably qualified EPA-appointed auditor (or alternative expert approved by the EPA in writing). EPA has included this requirement to add an additional level of certainty and robustness and achieve the highest level of technical oversight over the proposed activities.</p>
<p>(d) Setup and implementation of a waste tracking system and inventory</p> <p>A waste tracking system and inventory aims to track the location and quantity of waste in the plant. It holds all the information generated during waste pre-acceptance procedures (e.g. date of arrival at the plant and unique reference number of the waste, information on the previous waste holder(s), pre-acceptance and acceptance analysis results, nature and quantity of waste held on site including all identified hazards), acceptance, storage, treatment and /or transfer off site. The waste tracking system is risk-based considering, for example, the hazardous properties of the waste, the risks posed by the waste in terms of process safety, occupational safety and environmental impact, as well as the information provided by the previous waste holder(s).</p> <p>The waste tracking system includes clear labelling of wastes that are stored in places other than the waste bunker or sludge storage tank (e.g. in containers, drums, bales or other forms of packaging) such that they can be identified at all times.</p>			
<p>(e) Waste segregation</p> <p>Wastes are kept separated depending on their properties in order to enable easier and environmentally safer storage and incineration. Waste segregation relies on the physical separation of different wastes and on procedures that identify when and where wastes are stored.</p>			
<p>(f) Verification of waste compatibility before the mixing or blending of hazardous wastes</p> <p>Compatibility is ensured by a set of verification measures and tests in order to detect any unwanted and /or potentially dangerous chemical reactions between wastes (e.g. polymerisation, gas evolution, exothermic reaction, decomposition) upon mixing or blending. The</p>			

BAT conclusion	Application	Assessment	Condition/s
<p>compatibility tests are risk-based considering, for example, the hazardous properties of the waste, the risks posed by the waste in terms of process safety, occupational safety and environmental impact, as well as the information provided by the previous waste holder(s).</p>			
<p>BAT 10. In order to improve the overall environmental performance of the bottom ash treatment plant, BAT is to include output quality management features in the EMS (see BAT 1).</p>	<p>The application has not specified the inclusion of an output quality management feature as part of an EMS consistent with BAT 1.</p> <p>As noted in consideration of BAT 7 above, the application in Section 9.2.1.3 details the composition of bottom ash generated by WtE facilities.</p> <p>Section 9.3 of the application specifies the outgoing waste categorisation and sampling and testing program to be implemented will be developed in accordance with EPA requirements. Australian Standard Leaching Procedure AP4439.2 and AS4439.3 are specified as such standards.</p> <p>Sampling and analysis are to be conducted by a laboratory accredited by NATA in accordance with EPA Publication IWRG701 'Sampling and Analysis of Waters, Wastewaters, Soils and Wastes'.</p>	<p>EPA notes the application does not specify the inclusion of an output quality management feature in an EMS consistent with BAT 1. As an operational requirement EPA is satisfied to incorporate this into a condition requiring a Residual Waste Management Plan.</p> <p>On this basis EPA is satisfied that the proposed control measures are consistent with the techniques for improving the overall environmental performance of the bottom ash treatment plant in BAT 10 subject to condition.</p>	<p>Before commencing construction, the applicant must provide a Residual Waste Management Plan that:</p> <ul style="list-style-type: none"> classifies all residual waste generated at the activity site in accordance with Schedule 5 of the Environment Protection Regulations 2021, EPA Publications 1827.2 'Waste classification assessment protocol' (March 2021), 1828.2 'Waste disposal categories – characteristics and thresholds', and 1968.1 'Guide to classifying industrial waste', (August 2021); details the management, reuse, and disposal of incinerator bottom ash, boiler fly ash, and flue gas cleaning system solid residues; details provision for the disposal of residual wastes to landfill only where no other treatment or reuse option is available; details the location of landfills or appropriately permissioned activity sites that will accept the facility's residual wastes; details the incinerator bottom ash output quality features to be part of the EMS including quality assurance and control procedure, testing regime of the various solid residue fractions, and includes, but is not limited to, such details as sampling, measurement procedures, and frequencies; identifies end-of-life risks for reuse or disposal of residual waste; identify disposal options and specify the fate of residual waste that fail to meet the quality assurance and control procedures. <p>This is incorporated into Condition DL_R04(15).</p>
<p>BAT 11. In order to improve the overall environmental performance of the incineration plant, BAT is to monitor the waste deliveries as part of the waste acceptance procedures (see BAT 9(c)) including, depending on the risk posed by the incoming waste, the elements given below</p>	<p>As noted in considerations of BAT 9 above, the application includes provisions for monitoring waste deliveries. The application proposes measures such as weighbridges (one for entering vehicles and one for exiting vehicles), visual inspections, quarantine facilities, and auditing facilities.</p>	<p>EPA is satisfied that the proposed control measures are consistent with the techniques for improving the overall environmental performance of the WtE plant in BAT 11 subject to conditions.</p>	<p>Before commencing construction, the applicant must provide a Waste Management Acceptance Procedure that includes:</p> <ul style="list-style-type: none"> a final waste acceptance procedure consistent with the BREF and BATC 2019 including: <ul style="list-style-type: none"> ongoing waste auditing and analysis procedures and waste tracking system; waste delivery monitoring procedures including: <ul style="list-style-type: none"> radioactivity detection; weighing of the waste deliveries; visual inspection; and periodic sampling of waste deliveries and analysis of key properties and substances. specification of all material, including recyclable material, hazardous material, e-waste, industrial, priority or
<p>Waste type Municipal solid waste and other non-hazardous waste</p> <p>Waste delivery monitoring</p> <ul style="list-style-type: none"> Radioactivity detection Weighing of the waste deliveries Visual inspection Periodic sampling of waste deliveries and analysis of key properties/substances (e.g. calorific value, 	<p>Section 8.6.2 of the application details a preliminary Waste Acceptance Criteria. Only MSW and C&I wastes will be included in the acceptance criteria. The application does not propose to accept any hazardous waste streams.</p>		

BAT conclusion	Application	Assessment	Condition/s
<p>content of halogens and metals/metalloids). For municipal solid waste, this involves separate unloading.</p>	<p>Section 8.6.3 of the application details waste identification and tracking methods to be implemented including weighbridge inspection of arriving vehicles, waste carrier information and associated documentation, visual inspections at the waste transfer station (before arriving on site) or at the WtE facility. Section 8.6.4 of the application proposes independent auditing of incoming waste over the first three years of the WtE facility's operations. The audits will be conducted by a suitably qualified person.</p>		<p>reportable priority waste, which is to be removed from the waste before incineration; and</p> <ul style="list-style-type: none"> that only waste which would otherwise be disposed of to landfill will be accepted at the facility. <p>This is incorporated into Condition DL_R04(3). Before commencing construction, the applicant must also provide:</p> <ul style="list-style-type: none"> a report of the final detailed designs and schematics of the storage facilities for the targeted waste feedstock, rejected or quarantined waste, and chemical and fuel storage: <ul style="list-style-type: none"> demonstrating implementation of BAT consistent with all relevant conclusions of the BREF and BATC 2019; and designed in accordance with EPA Publication 1698 'Liquid storage and handling guidelines' dated June 2018. <p>This is incorporated into Condition DL_R04(5).</p>
<p>BAT 12: In order to reduce the environmental risks associated with the reception, handling and storage of waste, BAT is to use both of the techniques given below.</p> <p>(a) Impermeable surfaces with an adequate drainage infrastructure</p> <p>Depending on the risks posed by the waste in terms of soil or water contamination, the surface of the waste reception, handling and storage areas is made impermeable to the liquids concerned and fitted with an adequate drainage infrastructure (see BAT 32). The integrity of this surface is periodically verified, as far as technically possible.</p> <p>(b) Adequate waste storage capacity</p> <p>Measures are taken to avoid accumulation of waste, such as:</p> <p>the maximum waste storage capacity is clearly established and not exceeded, taking into account the characteristics of the wastes (e.g. regarding the risk of fire) and the treatment capacity;</p> <ul style="list-style-type: none"> the quantity of waste stored is regularly monitored against the maximum allowed storage capacity; for wastes that are not mixed during storage (e.g. clinical waste, packed waste), the maximum residence time is clearly established. 	<p>Section 7.4.2.4 of the application specifies the surface of the waste tipping hall will be suitably designed regarding the static and dynamic loads of waste delivery vehicles. The surface will be constructed of a high-quality abrasion resistant floor finish. This is to provide suitability for front end loader waste clean-up activities.</p> <p>Section 7.4.2.5 of the application specifies the waste bunker will be constructed of robust concrete. It will be a water retaining structure to prevent waste leachate penetrating to land or groundwater. The permeability of the bunker will be tested before use. It will be designed to be resistant to chemical attack from elements of the waste and waste leachate.</p> <p>Section 7.4.2.5 of the application specifies the waste bunker will have a storage capacity of five days below the height of the tipping hall floor. It will be also designed to store waste above that height for additional storage during emergency scenarios.</p>	<p>EPA is satisfied that the proposed waste storage capacity specified in the application. The proposed measures are generally consistent with those outlined in the BREF 2019. It notes that, in general, MSW is stored in enclosed buildings for a period of 4-10 days, influenced by waste delivery/collection patterns. EPA is satisfied that the proposed control measures are consistent with the techniques for reducing risks associated with the reception, handling, and storage of waste in BAT 12 subject to conditions.</p>	<p>Before commencing construction, the applicant must also provide:</p> <ul style="list-style-type: none"> a report of the final detailed designs and schematics of the storage facilities for the targeted waste feedstock, rejected or quarantined waste, and chemical and fuel storage and associated containment and draining infrastructure: <ul style="list-style-type: none"> demonstrating implementation of BAT consistent with all relevant conclusions of the BREF and BATC 2019; and designed in accordance with EPA Publication 1698 'Liquid storage and handling guidelines' (June 2018). <p>This is incorporated into Condition DL_R04(5).</p>
<p>BAT 13: In order to reduce the environmental risk associated with the storage and handling of clinical waste, BAT is to use a combination of the techniques given below.</p>	<p>N/A</p>	<p>N/A</p>	<p>N/A</p>
<p>BAT 14: In order to improve the overall environmental performance of the incineration of waste, to reduce the</p>	<p>The application in Sections 7.4.1 and 7.4.2.6 specifies that waste blending and mixing will</p>	<p>EPA is satisfied that the proposed control measures</p>	<p>The development licence allows development of a moving grate incineration waste to energy plant consisting of a flue</p>

BAT conclusion	Application	Assessment	Condition/s
<p>content of unburnt substances in slags and bottom ashes, and to reduce emissions to air from the incineration of waste, BAT is to use an appropriate combination of the techniques given below.</p> <p>(a) Waste blending and mixing Waste blending and mixing before incineration includes for example the following operations:</p> <ul style="list-style-type: none"> • bunker crane mixing; • using a feed equalisation system; • blending of compatible liquid and pasty wastes. <p>In some cases, solid wastes are shredded before mixing. Not applicable where direct furnace feeding is required due to safety considerations or waste characteristics (e.g. infectious clinical waste, odorous wastes, or wastes that are prone to releasing volatile substances). Not applicable where undesired reactions may occur between different types of waste (see BAT 9(f)).</p> <p>(b) Advanced control system See Section 2.1 BATC 2019 Generally applicable.</p> <p>(c) Optimisation of the incineration process See Section 2.1 of BATC 2019 Optimisation of the design is not applicable to existing furnaces.</p>	<p>occur in the waste bunker before incineration. This will be conducted by the crane operator to homogenise the waste.</p> <p>The application proposes installation or utilisation of a combination of techniques (a) waste blending and mixing before incineration using bunker crane mixing (b) advanced control system utilising the CEMS/COMS process parameters.</p>	<p>are consistent with the techniques for the overall environmental performance of the incineration of waste, to reduce the content of unburnt substances in slags and bottom ashes, and to reduce emissions to air from the incineration of waste in BAT 14.</p>	<p>gas cleaning system for each incineration process line which has:</p> <ul style="list-style-type: none"> • two incineration process lines, each consisting of a moving grate, furnace and heat recovery boiler, steam turbine and generator, wet bottom ash extraction system, fly-ash solids recovery and handling system, and advanced control system. <p>This is incorporated into Condition DL_G03(3).</p>
<p>BAT 15: In order to improve the overall environmental performance of the incineration plant and to reduce emissions to air, BAT is to set up and implement procedures for the adjustment of the plant's settings, e.g. through the advanced control system (see description in Section 2.1), as and when needed and practicable, based on the characterisation and control of the waste (see BAT 11).</p>	<p>The application also proposes optimisation of the incineration process through enforcement of the Waste Acceptance Criteria, periodic waste auditing, furnace combustion control, boiler cleaning, and rapid flue gas cooling. This includes an advanced control system and CEMS/COMS process parameter monitoring.</p>	<p>EPA is satisfied that the proposed control measures are consistent with the techniques for the overall environmental performance of the incineration plant and to reduce emissions to air in BAT 15.</p>	<p>The development licence allows development of a moving grate incineration waste to energy plant consisting of a flue gas cleaning system for each incineration process line which:</p> <ul style="list-style-type: none"> • Two incineration process lines, each consisting of a moving grate, furnace and heat recovery boiler, steam turbine and generator, wet bottom ash extraction system, fly-ash solids recovery and handling system, and advanced control system. <p>This is incorporated into Condition DL_G03(3).</p>
<p>BAT 16: In order to improve the overall environmental performance of the incineration plant and to reduce emissions to air, BAT is to set up and implement operational procedures (e.g. organisation of the supply chain, continuous rather than batch operation) to limit as far as practicable shutdown and start-up operations.</p>	<p>The application provides an overview of the facility's operations in Section 7.9. This includes operate on a baseload of 24 hours per day, 7 days a week, with the exception of maintenance outages.</p> <p>Estimated volume of truck trips expected to the plant each week as 430 trips to the plant for MSW and 60 truck trips for ash and scrap metal removal from the activity site.</p> <p>The application includes an estimation of shutdown periods:</p> <ul style="list-style-type: none"> • Annual outage: 21 days per boiler (one boiler will be shut down while the other is in operation) 	<p>EPA notes that final contracting arrangements are yet to be established or finalised. However, EPA is satisfied that the proposed operational measures are consistent with the techniques for the overall environmental performance of the incineration plant and to reduce emissions to air in BAT 16.</p>	<p>EPA will impose a suitable worded operating licence conditions to ensure optimisation of supply chains for continuous plant operations and the elimination or reduction so far as reasonably practicable the frequency and occurrence of shutdown and start-up operations.</p>

BAT conclusion	Application	Assessment	Condition/s
	<ul style="list-style-type: none"> Boiler major outage: 42 days every four years Turbine overhaul: 21 days four every. <p>The application proposes continuous rather than batch operations.</p>		
<p>BAT 17: In order to reduce emissions to air and, where relevant, to water from the incineration plant, BAT is to ensure that the FGC system and the wastewater treatment plant are appropriately designed (e.g. considering the maximum flow rate and pollutant concentrations), operated within their design range, and maintained so as to ensure optimal availability.</p>	<p>The application has provided performance parameters of the proposed facility in Appendix M 'Concept Design Basis Report'. The performance of the FGC system is benchmarked against all relevant BAT-AELs of the BREF and BATC 2019.</p> <p>The final detailed design of the facility will be prepared following the EPC tender process and the selection of plant and equipment vendors.</p>	<p>EPA notes that is subject to the additional 12-month waste characterisation audit as well as the EPC tender process and the selection of plant and equipment vendors.</p> <p>EPA is satisfied that the proposed control measures are consistent with the techniques for reduce emissions to air and, where relevant, to water from the incineration plant in BAT 17 subject to condition.</p>	<p>Before commencing construction, the applicant must provide a report of the final detailed designs and schematics including:</p> <ul style="list-style-type: none"> a report of the final detailed designs and schematics of the flue gas cleaning system; demonstrating optimisation to treat the waste characteristics specified in the Waste Acceptance Criteria; demonstrating capability to operate within the performance standards specified in condition DL_G03(4)(f); designed considering the maximum flow rate and pollution concentrations and maintain optimal availability; supported by computerised fluid dynamics modelling; and accompanied by an updated Air Quality Impact Assessment based on the final detailed design of the flue gas cleaning system prepared in accordance with EPA Publications 1961 'Guideline for assessing and <i>minimising air pollution</i>' dated February 2022. <p>This is incorporated into Condition DL_R04(9).</p>
<p>BAT 18: In order to reduce the frequency of the occurrence of OTNOC and to reduce emissions to air and, where relevant, to water from the incineration plant during OTNOC, BAT is to set up and implement a risk based OTNOC management plan as part of the Environmental Management System (see BAT 1) that includes all of the following elements:</p> <ul style="list-style-type: none"> identification of potential OTNOC (e.g. failure of equipment critical to the protection of the environment ('critical equipment')), of their root causes and of their potential consequences, and regular review and update of the list of identified OTNOC following the periodic assessment below; appropriate design of critical equipment (e.g. compartmentalisation of the bag filter, techniques to heat up the flue gas and obviate the need to bypass the bag filter during start-up and shutdown, etc.); setup and implementation of a preventative maintenance plan for critical equipment (see BAT 1(xii)); monitoring and recording of emissions during OTNOC and associated circumstances (see BAT 5); periodic assessment of the emissions occurring during OTNOC (e.g. frequency of events, duration, 	<p>The application has identified an Operations Management System (OMS) as the primary management framework for delivery of the project. Site or phase-specific management plans will be developed under the OMS. This includes a Construction Environmental Management Plan (CEMP), a commissioning plan, and Operations Environmental Management Plan (OEMP). An EMS would also form part of the OMS.</p> <p>Under the OMS, the following certifications would be sought:</p> <ul style="list-style-type: none"> Quality System certification to AS/NZS ISO 9001:2016 Safety System certification to AS/NZS 45001:2018 Environmental Management System certification to AS/NZS ISO 14001:2016. <p>The application has also proposed the risk assessment or Project Risk Register is a live document that will be maintained and updated over the life of the Project. This will include its development being informed by a hazard and operability study (HAZOP).</p>	<p>EPA notes this technique is in line with the principles and application of the GED. The application's proposed measures to comply with GED are assessed above.</p> <p>EPA is satisfied that the proposed control measures are consistent with the techniques for reduce emissions to air and, where relevant, to water from the incineration plant during OTNOCs in BAT 18 subject to condition.</p>	<p>The applicant must provide to EPA before commencing commissioning:</p> <ul style="list-style-type: none"> a summary report of the site Environmental Management System (EMS) prepared in accordance with ISO 14001 or Regulation (EC) NO 1221/2009 and the BATC 2019 and make available for inspection all documents and procedures which form part of the EMS. <p>This must include, but is not limited to:</p> <ul style="list-style-type: none"> a waste stream management plan a Residual Waste Management Plan a Community and Stakeholder Engagement Plan a Complaints Response Plan an Air Emission Management Plan an Odour Management Plan an Other Than Normal Operating Condition Management Plan an accident management plan a diffuse dust emission management plan a Noise Management Plan <p>This is incorporated into Condition DL_R01(1).</p>

BAT conclusion	Application	Assessment	Condition/s
amount of pollutants emitted) and implementation of corrective actions if necessary.	<p>The application has also detailed specific controls such as:</p> <ul style="list-style-type: none"> Air Emissions Management Plan Odour Management Plan Noise Operational & Maintenance manuals and effective maintenance schedules. <p>The measures are designed to provides a system for implementing the ongoing steps in controlling air pollution risks consistent with minimising risk of harm so far as reasonably practicable and is consistent with the requirements</p>		

Table 35: BAT 14 – BAT-associated environmental performance levels for unburnt substances in slags and bottom ashes from the incineration of waste

Parameter	Unit		BAT-AEPL
TOC content in slags and bottom ashes (1)	Dry wt-%		1–3
Loss on ignition of slags and bottom ashes (1)	Dry wt-%		1–5

Table 36: Energy efficiency (BAT 19–20)

Best available technique conclusion	Application	Assessment	Condition/s
<p>BAT 19: In order to increase the resource efficiency of the incineration plant, BAT is to use a heat recovery boiler.</p>	The application proposes energy recovery via a heat recovery boiler.	EPA is satisfied that the proposed control measures are consistent with the techniques for increasing resource efficiency in BAT 19.	<p>The development licence allows development of a moving grate incineration waste to energy plant consisting of:</p> <ul style="list-style-type: none"> A power plant which recovers heat or electricity generated from the process so far as reasonably practicable and is designed to achieve the BAT-Associated Energy Efficiency Levels of the BREF and BATC 2019, including an average R1 energy efficiency of 0.77 (calculated in accordance with methodologies specified in EPA Publication 1559.1 'Guideline – Energy from waste' dated July 2017). <p>This is incorporated into Condition DL_G03(10).</p>
<p>BAT 20: In order to increase the energy efficiency of the incineration plant, BAT is to use an appropriate combination of the techniques given below.</p> <p>(a) Drying of sewage sludge After mechanical dewatering, sewage sludge is further dried, using for example low-grade heat, before it is fed to the furnace. The extent to which sludge can be dried depends on the furnace feeding system. Applicable within the constraints associated with the availability of low-grade heat.</p> <p>(b) Reduction of the flue gas flow</p>	<p>The application details the proposed WtE plant and equipment including the furnace and heat recovery boiler in Section 7.4.</p> <p>The application proposes the application proposes flue gas recirculation consistent with technique (c), use of an economiser pass to recover additional energy from the flue gases consistent with technique (e), and use of high steam conditions with an expected boiler outlet steam condition of 440°C and 64 bar consistent with technique (f).</p>	EPA is satisfied that the proposed control measures are consistent with an appropriate combination of the techniques for increasing energy efficiency in BAT 20.	<p>Before commencing construction, the applicant must provide a report of the final detailed designs and schematics of the WtE plant and equipment, including:</p> <ul style="list-style-type: none"> a report of the final detailed designs and schematics of the facility optimised to treat the waste characteristics specified in the Waste Acceptance Criteria required under condition DL_R04(2) and waste acceptance procedures of DL_R04(3), including: <ul style="list-style-type: none"> a heat and chemical mass balance based on the waste characteristics detailed in the final Waste Acceptance Criteria;

<p>The flue gas flow is reduced through, e.g.:</p> <ul style="list-style-type: none"> improving the primary and secondary combustion air distribution; flue gas recirculation (see Section 2.2). <p>A smaller flue gas flow reduces the energy demand of the plant (e.g. for induced draught fans). For existing plants, the applicability of flue gas recirculation may be limited due to technical constraints (e.g. pollutant load in the flue gas, incineration conditions).</p>			<ul style="list-style-type: none"> a firing envelope or stoker diagram demonstrating the capacity of the facility to process the waste characteristics detailed in the final Waste Acceptance Criteria; BAT-Associated Energy Efficiency Levels and R1 efficiency calculations based on the final Waste Acceptance Criteria demonstrating compliance with each of the applicable efficiency measures of 25-35% gross electrical efficiency or 72-91% gross energy efficiency of the BREF and BATC 2019; and implementation of all relevant requirements set out in condition DL_G03 and DL_W08 of this development licence. <p>This is incorporated into condition DL_R04(7).</p>
<p>(c) Minimisation of heat losses</p> <p>Heat losses are minimised through, e.g.:</p> <ul style="list-style-type: none"> use of integral furnace-boilers, allowing for heat to also be recovered from the furnace sides; thermal insulation of furnaces and boilers; flue gas recirculation (see Section 2.2); recovery of heat from the cooling of slags and bottom ashes (see BAT 20 (i)). <p>Integral furnace-boilers are not applicable to rotary kilns or to other furnaces dedicated to the high-temperature incineration of hazardous waste.</p>			
<p>(d) Optimisation of the boiler design</p> <p>The heat transfer in the boiler is improved by optimising, for example, the:</p> <ul style="list-style-type: none"> flue gas velocity and distribution; water/steam circulation; convection bundles; online and offline boiler cleaning systems in order to minimise the fouling of the convection bundles. <p>Applicable to new plants and to major retrofits of existing plants.</p>			
<p>(e) Low-temperature flue gas heat exchangers</p> <p>Special corrosion-resistant heat exchangers are used to recover additional energy from the flue gas at the boiler exit, after an ESP, or after a dry sorbent injection system.</p> <p>Applicable within the constraints of the operating temperature profile of the FGC system.</p> <p>In the case of existing plants, the applicability may be limited by a lack of space.</p>			
<p>(f) High steam conditions</p> <p>The higher the steam conditions (temperature and pressure), the higher the electricity conversion efficiency allowed by the steam cycle.</p> <p>Working at high steam conditions (e.g. above 45 bar, 400 °C) requires the use of special steel alloys</p>			

<p>or refractory cladding to protect the boiler sections that are exposed to the highest temperatures.</p> <p>Applicable to new plants and to major retrofits of existing plants, where the plant is mainly oriented towards the generation of electricity.</p> <p>The applicability may be limited by:</p> <ul style="list-style-type: none"> the stickiness of the fly ashes; the corrosiveness of the flue gas. 			
<p>(g) Cogeneration</p> <p>Cogeneration of heat and electricity where the heat (mainly from the steam that leaves the turbine) is used for producing hot water/steam to be used in industrial processes/activities or in a district heating/cooling network.</p> <p>Applicable within the constraints associated with the local heat and power demand /or availability of networks.</p>			
<p>(h) Flue gas condenser</p> <p>A heat exchanger or a scrubber with a heat exchanger, where the water vapour contained in the flue gas condenses, transferring the latent heat to water at a sufficiently low temperature (e.g. re- turn flow of a district heating network). The flue gas condenser also provides co- benefits by reducing emissions to air (e.g. of dust and acid gases).</p> <p>The use of heat pumps can increase the amount of energy recovered from flue- gas condensation.</p> <p>Applicable within the constraints associated with the demand for low-temperature heat, e.g. by the availability of a district heating network with a sufficiently low return temperature.</p>			
<p>(i) Dry bottom ash handling</p> <p>Dry, hot bottom ash falls from the grate onto a transport system and is cooled down by ambient air. Energy is recovered by using the cooling air for combustion.</p> <p>Only applicable to grate furnaces.</p> <p>There may be technical restrictions that prevent retrofitting to existing furnaces.</p>			

Table 37: BAT 19 and 20 – BAT-AEELs for the incineration of waste

Plant	MSW, other non-hazardous waste and hazardous wood waste		Hazardous waste other than hazardous wood waste	Sewage sludge
	Gross electrical efficiency	Gross energy efficiency	Boiler efficiency	
New plant	25–35	72–91	60–80	60–70
Existing plant	20–35			

Table 38: Emission to air – diffuse emissions (BAT 21–24)

BAT conclusion	Application	Assessment	Condition/s
<p>BAT 21. In order to prevent or reduce diffuse emissions from the incineration plant, including odour emissions, BAT is to:</p> <ul style="list-style-type: none"> • store solid and bulk pasty wastes that are odorous and /or prone to releasing volatile substances in enclosed buildings under controlled sub-atmospheric pressure and use the extracted air as combustion air for incineration or send it to another suitable abatement system in the case of a risk of explosion; • store liquid wastes in tanks under appropriate controlled pressure and duct the tank vents to the combustion air feed or to another suitable abatement system; • control the risk of odour during complete shutdown periods when no incineration capacity is available, e.g. by: • send the vented or extracted air to an alternative abatement system, e.g. a wet scrubber, a fixed adsorption bed; • minimise the amount of waste in storage, e.g. by interrupting, reducing or transferring waste deliveries, as a part of waste stream management (see BAT 9); • store waste in properly sealed bales. 	<p>The application details proposed measures to manage diffuse emissions including odour emissions in sections 4.2.7 and RFI response (10/11/2022).</p> <p>The application proposes that the waste tipping hall and waste bunker will be operated under negative pressure or controlled sub-atmospheric pressure while at least one boiler line is operational. The boilers are designed to operate independently. The boilers will be designed to combust the extracted air.</p> <p>The applicant includes provision of a backup odour control system. This will include maintenance of negative pressure in the waste tipping hall and waste bunker using a forced fan. The air will be treated through a carbon odour control filter. Treated air will be discharged from a dedicated 20 m high stack.</p> <p>Backup power systems will be provided for OTNOCs and to power the backup odour control system.</p>	<p>EPA is satisfied that the proposed control measures are consistent with the techniques for preventing or reducing odour emissions in BAT 21.</p>	<p>The development licence allows development of a moving grate incineration waste to energy plant consisting of:</p> <ul style="list-style-type: none"> • a fully enclosed negatively pressured waste tipping hall and storage bunker, which includes: <ul style="list-style-type: none"> ○ fire detection and protection systems; ○ incoming waste audit, waste load-out, and rejected waste quarantine, and other related waste sampling facilities; and ○ backup odour control system. <p>This is incorporated into Condition DL_G03(2). Before commencing construction, the applicant must provide a report of the final detailed designs and schematics of the WtE plant and equipment, including:</p> <ul style="list-style-type: none"> • a report of the final detailed designs and schematics of the primary and backup odour control systems: <ul style="list-style-type: none"> ○ demonstrating implementation of BAT for odour emissions during normal and other than normal operation conditions consistent with all relevant BREF and BATC 2019; ○ demonstrating the efficacy of the negative pressure odour management control system so far as reasonably practicable during normal and other than normal operation conditions; ○ an Odour Management Plan that provides for the ongoing assessment of odour emissions during commissioning, normal, and other than normal operating conditions in accordance with EPA Publication 1883 'Guidance for assessing odour' dated June 2022; and ○ an updated odour impact assessment prepared in accordance with EPA Publication 1883 'Guidance for assessing odour' dated June 2022. <p>This is incorporated into Condition DL_G03(12).</p>

BAT conclusion	Application	Assessment	Condition/s
<p>BAT 22: In order to prevent diffuse emissions of volatile compounds from the handling of gaseous and liquid wastes that are odorous and /or prone to releasing volatile substances at incineration plants, BAT is to introduce them into the furnace by direct feeding.</p>	N/A	N/A	N/A
<p>BAT 23: In order to prevent or reduce diffuse dust emissions to air from the treatment of slags and bottom ashes, BAT is to include in the Environmental Management System (see BAT 1) the following diffuse dust emissions management features:</p> <ul style="list-style-type: none"> • identification of the most relevant diffuse dust emission sources (e.g. using EN 15445); • definition and implementation of appropriate actions and techniques to prevent or reduce diffuse emissions over a given time frame. 	<p>The application has identified an Operations Management System (OMS) as the primary management framework for delivery of the project. Site or phase-specific management plans will be developed under the OMS. This includes a Construction Environmental Management Plan (CEMP), a commissioning plan, and Operations Environmental Management Plan (OEMP). An EMS would also form part of the OMS.</p> <p>Under the OMS, the following certifications would be sought:</p> <ul style="list-style-type: none"> • Quality System certification to AS/NZS ISO 9001:2016 • Safety System certification to AS/NZS 45001:2018 • Environmental Management System certification to AS/NZS ISO 14001:2016. <p>The application has also proposed the risk assessment or Project Risk Register is a live document that will be maintained and updated over the life of the Project. This will include its development being informed by a hazard and operability study (HAZOP).</p> <p>The application has also detailed specific controls such as:</p> <ul style="list-style-type: none"> • Air Emissions Management Plan; • Odour Management Plan; and • Noise Operational & Maintenance manuals and effective maintenance schedules. <p>The application has identified these control measures for reducing and managing dust emissions in Section 6.3.</p>	<p>EPA is satisfied that the identification and proposed control measures are consistent with the techniques for preventing or reducing diffuse dust emissions from treatment of slags and bottom ash in BAT 23 subject to condition.</p>	<p>The applicant must provide to EPA before commencing commissioning:</p> <ul style="list-style-type: none"> • a summary report of the site Environmental Management System (EMS) prepared in accordance with ISO 14001 or Regulation (EC) NO 1221/2009 and the BATC 2019 and make available for inspection all documents and procedures which form part of the EMS. <p>This must include, but is not limited to a:</p> <ul style="list-style-type: none"> • Waste Stream Management Plan; • Residual Waste Management Plan; • Community And Stakeholder Engagement Plan; • Complaints Response Plan; • Air Emission Management Plan; • Odour Management Plan; • Other Than Normal Operating Condition Management Plan; • Accident Management Plan; • Diffuse Dust Emission Management Plan; and • Noise Management Plan. <p>This is incorporated into Condition DL_R01(2).</p>
<p>BAT 24: In order to prevent or reduce diffuse dust emissions to air from the treatment of slags and bottom ashes, BAT is to use an appropriate combination of the techniques given below.</p> <p>(a) Enclose and cover equipment. Enclose/encapsulate potentially dusty operations (such as grinding, screening) and /or cover conveyors and elevators. Enclosure can also be</p>	<p>The application details proposed measures to manage diffuse dust emissions from slags and bottom ashes in sections 6.3 and 9.2.</p> <p>The application proposes IBA processing within an enclosed and dedicated building with a dust extraction system. Pre-treatment and maturation storage will also be stored within enclosed structures.</p>	<p>EPA is satisfied that the proposed control measures are consistent with a combination of the techniques for preventing or reducing diffuse dust emissions in BAT 24 subject to condition.</p>	<p>Before commencing construction, the applicant must provide a report of the final detailed designs and schematics of the WtE plant and equipment, including:</p> <ul style="list-style-type: none"> • a report of the final detailed design and schematics of the bottom ash treatment system and residual waste storage and buildings:

BAT conclusion	Application	Assessment	Condition/s
<p>accomplished by installing all of the equipment in a closed building. Installing the equipment in a closed building may not be applicable to mobile treatment devices.</p>			<ul style="list-style-type: none"> demonstrating implementation of BAT for bottom ash treatment and management consistent with the BREF and BATC 2019; the steps followed to ensure iterative consideration through all the planning and design phases of the project, and eventual adoption of all opportunities to minimise the risk of harm from bottom ash treatment and management to human health and environment so far as reasonably practicable, consistent with the General Environmental Duty; and an accompanying monitoring plan consistent with the BREF and BATC 2019 including dust extraction systems, defuse dust emissions, and water emissions. <p>This is incorporated into Condition DL_R04(14).</p>
<p>(b) Limit height of discharge Match the discharge height to the varying height of the heap, automatically if possible (e.g. conveyor belts with adjustable heights). Generally applicable.</p>			
<p>(c) Protect stockpiles against prevailing winds. Protect bulk storage areas or stockpiles with covers or wind barriers such as screening, walling or vertical greenery, as well as correctly orienting the stock- piles in relation to the prevailing wind. Generally applicable.</p>			
<p>(d) Use water sprays. Install water spray systems at the main sources of diffuse dust emissions. The humidification of dust particles aids dust agglomeration and settling. Diffuse dust emissions at stockpiles are reduced by ensuring appropriate humidification of the charging and discharging points, or of the stockpiles them- selves. Generally applicable.</p>			
<p>(e) Optimise moisture content. Optimise the moisture content of the slags/bottom ashes to the level required for efficient recovery of metals and mineral materials while minimising the dust release. Generally applicable.</p>			
<p>(f) Operate under sub- atmospheric pressure. Carry out the treatment of slags and bottom ashes in enclosed equipment or buildings (see technique a) under sub-atmospheric pressure to enable treatment of the extracted air with an abatement technique (see BAT 26) as channelled emissions. Only applicable to dry-discharged and other low-moisture bottom ashes.</p>			

Table 39: Emissions to air – channelled emissions – emissions of dust, metals and metalloids (BAT 25–26)

BAT conclusion	Application	Assessment	Condition/s
<p>BAT 25: In order to reduce channelled emissions to air of dust, metals and metalloids from the incineration of waste, BAT is to use one or a combination of the techniques given below.</p>	<p>The application details proposed measures to manage emissions to air in in Sections 12, Section 4.2.6, Appendix D: Air Quality Impact Assessment, and RFI response dated 10/11/2022.</p>	<p>EPA is satisfied that the proposed control measures are consistent with the techniques for reducing dust,</p>	<p>The development licence allows development of a moving grate incineration waste to energy plant consisting of a flue gas cleaning system for each incineration process line which:</p>

BAT conclusion	Application	Assessment	Condition/s
<p>(a) Bag filter See Section 2.2. Generally applicable to new plants. Applicable to existing plants within the constraints associated with the operating temperature profile of the FGC system.</p>	<p>The application proposes installation of (a) bag filters and (c) injection of lime and activated carbon powder as part of the FGC system.</p>	<p>metals, and metalloids emissions in BAT 25.</p>	<ul style="list-style-type: none"> a minimum includes an advanced selective non-catalytic reduction system, flue gas recirculation system, a dry or semi-dry absorbent reactor system, an activated carbon injection system, and a filter baghouse. <p>It must be capable of:</p> <ul style="list-style-type: none"> operating within the BAT-AEL ranges for new plants contained in BAT 25, BAT 27, BAT 28, BAT 29, BAT 30 and BAT 31 of BATC 2019 under transient, part load, and start-up and shutdown operating conditions; and meeting the lower end of the BAT-AEL ranges for new plant contained in BAT 25, BAT 27, BAT 28, BAT 29, BAT 30 and BAT 31 of BATC 2019 during commissioning and under all other operating conditions. <p>This is incorporated into Condition DL_G03(4). Before commencing construction, the applicant must provide a report of the final detailed designs and schematics of the WtE plant and equipment, including:</p> <ul style="list-style-type: none"> a report of the final detailed designs and schematics of the flue gas cleaning system <ul style="list-style-type: none"> demonstrating optimisation to treat the waste characteristics specified in the Waste Acceptance Criteria; demonstrating capability to operate within the performance standards specified in condition DL_G03(4)(f); designed considering the maximum flow rate and pollution concentrations and maintain optimal availability; supported by computerised fluid dynamics modelling; and accompanied by an updated Air Quality Impact Assessment based on the final detailed design of the flue gas cleaning system prepared in accordance with EPA Publications 1961 'Guideline for assessing and <i>minimising air pollution</i>' dated February 2022. <p>This is incorporated into Condition DL_R04(9).</p>
<p>(b) Electrostatic precipitator See Section 2.2 Generally applicable.</p>			
<p>(c) Dry sorbent injection See Section 2.2. Not relevant for the reduction of dust emissions. Adsorption of metals by injection of activated carbon or other reagents in combination with a dry sorbent injection system or a semi-wet absorber that is used to reduce acid gas emissions. Generally applicable.</p>			
<p>(d) Wet scrubber See Section 2.2. Wet scrubbing systems are not used to remove the main dust load but installed after other abatement techniques, to further reduce the concentrations of dust, metals and metalloids in the flue-gas. There may be applicability restrictions due to low water availability, e.g. in arid areas.</p>			
<p>(e) Fixed- or moving- bed adsorption. See Section 2.2. The system is used mainly to adsorb mercury and other metals and metalloids as well as organic compounds including PCDD/F, but also acts as an effective polishing filter for dust. The applicability may be limited by the overall pressure drop associated with the FGC system configuration. In the case of existing plants, the applicability may be limited by a lack of space.</p>			
<p>BAT 26: In order to reduce channelled dust emissions to air from the enclosed treatment of slags and bottom ashes with extraction of air (see BAT 24(f)), BAT is to treat the extracted air with a bag filter (see Section 2.2).</p>	<p>The application details proposed measures to reduced channelled dust emissions to air from the enclosed treatment of bottom ashes in section 9.2.1.2 of the application. The application proposes installation or utilisation of a dust extraction system in the IBA processing shed with bag filter.</p>	<p>EPA is satisfied that the proposed control measures are consistent with the techniques for channelled dust emissions to air from the enclosed treatment of bottom ashes in BAT 26.</p>	<p>The development licence allows development of a moving grate incineration waste to energy plant consisting of a flue gas cleaning system for each incineration process line which:</p> <ul style="list-style-type: none"> a bottom ash treatment system and building including an enclosed: <ul style="list-style-type: none"> pre-treatment storage hall; processing shed with dust extraction system and bag filter; and maturation hall. <p>This is incorporated into Condition DL_G03(14).</p>

Table 40: BAT 25 – BAT-AELs for channelled emissions to air of dust, metals and metalloids from the incineration of waste

Parameter	BAT-AEL	Averaging period
Dust	< 2–5 (1)	Daily average
Cd+Tl	0,005–0,02	Average over the sampling period
Sb+As+Pb+Cr+Co+Cu+Mn+Ni+V	0,01–0,3	Average over the sampling period

Table 41: BAT 26 – BAT-AELs for channelled dust emissions to air from the enclosed treatment of slags and bottom ashes with extraction of air

Parameter	BAT-AEL	Averaging period
Dust	2–5 (mg/Nm ³)	Average over the sampling period

Table 42: Emissions to air – channelled emissions – emissions of HCl, HF and SO₂ (BAT 27–28)

Best available technique conclusion	Application	Assessment	Condition/s
<p>BAT 27. In order to reduce channelled emissions of HCl, HF and SO₂ to air from the incineration of waste, BAT is to use one or a combination of the techniques given below.</p> <p>(a) Wet scrubber See Section 2.2 There may be applicability restrictions due to low water availability, e.g. in arid areas.</p> <p>(b) Semi-wet absorber See Section 2.2 Generally applicable.</p> <p>(c) Dry sorbent injection See Section 2.2 Generally applicable.</p> <p>(d) Direct desulphurisation See Section 2.2. Used for partial abatement of acid gas emissions upstream of other techniques. Only applicable to fluidised bed furnaces.</p> <p>(e) Boiler sorbent injection See Section 2.2. Used for partial abatement of acid gas emissions upstream of other techniques. Generally applicable.</p>	<p>The application details proposed measures to manage emissions to air in Sections 12, Section 4.2.6, Appendix D Air Quality Impact Assessment, and RFI response dated 10/11/2022.</p> <p>The application proposes installation or utilisation of one or two (c) dry or semi-dry absorbent reactor system.</p>	<p>EPA is satisfied that the proposed control measures are consistent with the techniques for reducing emissions of HCl, HF, SO₂ in BAT 27.</p>	<p>The development licence allows development of a moving grate incineration waste to energy plant consisting of a flue gas cleaning system for each incineration process line which:</p> <ul style="list-style-type: none"> a minimum includes an advanced selective non-catalytic reduction system, flue gas recirculation system, a dry or semi-dry absorbent reactor system, an activated carbon injection system, and a filter baghouse. <p>It must be capable of:</p> <ul style="list-style-type: none"> operating within the BAT-AEL ranges for new plants contained in BAT 25, BAT 27, BAT 28, BAT 29, BAT 30 and BAT 31 of BATC 2019 under transient, part load, and start-up and shutdown operating conditions; and meeting the lower end of the BAT-AEL ranges for new plant contained in BAT 25, BAT 27, BAT 28, BAT 29, BAT 30 and BAT 31 of BATC 2019 during commissioning and under all other operating conditions. <p>This is incorporated into Condition DL_G03(4). Before commencing construction, the applicant must provide a report of the final detailed designs and schematics of the WtE plant and equipment, including:</p> <ul style="list-style-type: none"> a report of the final detailed designs and schematics of the flue gas cleaning system <ul style="list-style-type: none"> demonstrating optimisation to treat the waste characteristics specified in the Waste Acceptance Criteria; demonstrating capability to operate within the performance standards specified in condition DL_G03(4)(f); designed considering the maximum flow rate and pollution concentrations and maintain optimal availability; supported by computerised fluid dynamics modelling; and accompanied by an updated Air Quality Impact Assessment based on the final detailed design of the flue gas cleaning system prepared in accordance with EPA Publications 1961 'Guideline for assessing and <i>minimising air pollution</i>' dated February 2022. <p>This is incorporated into Condition DL_R04(9)</p>
<p>BAT 28. In order to reduce channelled peak emissions of HCl, HF and SO₂ to air from the incineration of waste while limiting the consumption of reagents and the amount of residues generated from dry sorbent injection and semi-wet absorbers, BAT is to use technique (a), or both of the techniques given below.</p>	<p>The application details proposed measures to manage emissions to air in Sections 12, Section 4.2.6, Appendix D Air Quality Impact Assessment, and RFI response dated 10/11/2022.</p>	<p>EPA is satisfied that the proposed control measures are consistent with the techniques for reducing emissions of HCl, HF, SO₂ in BAT 28.</p>	<p>Before commencing construction, the applicant must provide a report of the final detailed designs and schematics of the WtE plant and equipment, including:</p> <ul style="list-style-type: none"> a report of the final detailed designs and schematics of the flue gas cleaning system <ul style="list-style-type: none"> demonstrating optimisation to treat the waste characteristics specified in the Waste Acceptance Criteria;

Best available technique conclusion	Application	Assessment	Condition/s
<p>(a) Optimised and automated reagent dosage</p> <p>The use of continuous HCl and /or SO₂ measurements (and/or of other parameters that may prove useful for this purpose) upstream and /or downstream of the FGC system for the optimisation of the automated reagent dosage. Generally applicable.</p>	<p>The application proposes (a) optimisation and automated reagent dosage through continuous measurement of ammonia for dosing optimisation and (b) recirculation of reagents.</p>		<ul style="list-style-type: none"> demonstrating capability to operate within the performance standards specified in condition DL_G03(4)(f); designed considering the maximum flow rate and pollution concentrations and maintain optimal availability; supported by computerised fluid dynamics modelling; and accompanied by an updated Air Quality Impact Assessment based on the final detailed design of the flue gas cleaning system prepared in accordance with EPA Publications 1961 'Guideline for assessing and <i>minimising air pollution</i>' dated February 2022. <p>This is incorporated into Condition DL_R04(9).</p>
<p>(b) Recirculation of re- agents</p> <p>The recirculation of a proportion of the collected FGC solids to reduce the amount of unreacted reagent(s) in the residues.</p> <p>The technique is particularly relevant in the case of FGC techniques operating with a high stoichiometric excess.</p> <p>Generally applicable to new plants. Applicable to existing plants within the constraints of the size of the bag filter.</p>			

Table 43: BAT 27 and 28 – BAT-AELs for channelled emissions to air of HCl, HF and SO₂ from the incineration of waste (mg/Nm³)

Parameter	BAT-AEL		Averaging period
	New plant	Existing plant	
HCl	< 2–6	< 2–8	Daily average
HF	< 1	< 1	Daily average or average over the sampling period
SO ₂	5–30	5–40	Daily average

Table 44: Emissions to air – channelled emissions – emissions of NO_x, N₂O, CO and NH₃ (BAT 29)

Best available technique conclusion	Application	Assessment	Condition/s
<p>BAT 29. In order to reduce channelled NO_x emissions to air while limiting the emissions of CO and N₂O from the incineration of waste and the emissions of NH₃ from the use of SNCR and /or SCR, BAT is to use an appropriate combination of the techniques given below.</p>	<p>The application details proposed measures to manage emissions to air in in Sections 12, Section 4.2.6, Appendix D Air Quality Impact Assessment, and RFI response dated 10/11/2022.</p> <p>The application proposes installation of (b) flue gas recirculation system and (c) selective non-catalytic reduction system.</p>	<p>EPA is satisfied that the proposed control measures are consistent with the techniques for reducing emissions of NO_x, N₂O, CO, and NH₃ in BAT 29.</p>	<p>The development licence allows development of a moving grate incineration waste to energy plant consisting of a flue gas cleaning system for each incineration process line which:</p> <ul style="list-style-type: none"> a minimum includes an advanced selective non-catalytic reduction system, flue gas recirculation system, a dry or semi-dry absorbent reactor system, an activated carbon injection system, and a filter baghouse. <p>It must be capable of:</p> <ul style="list-style-type: none"> operating within the BAT-AEL ranges for new plants contained in BAT 25, BAT 27, BAT 28, BAT 29, BAT 30 and BAT 31 of BATC 2019 under transient, part load, and start-up and shutdown operating conditions; and
<p>(a) Optimisation of the incineration process</p> <p>See Section 2.1</p> <p>Generally applicable.</p>			
<p>(b) Flue gas recirculation</p> <p>See Section 2.2</p> <p>For existing plants, the applicability may be limited due to technical constraints (e.g. pollutant load in the flue gas, incineration conditions).</p>			

Best available technique conclusion	Application	Assessment	Condition/s
(c) Selective non-catalytic reduction (SNCR) See Section 2.2 Generally applicable.			<ul style="list-style-type: none"> meeting the lower end of the BAT-AEL ranges for new plant contained in BAT 25, BAT 27, BAT 28, BAT 29, BAT 30 and BAT 31 of BATC 2019 during commissioning and under all other operating conditions. <p>This is incorporated into Condition DL_G03(4).</p> <p>Before commencing construction, the applicant must provide a report of the final detailed designs and schematics of the WtE plant and equipment, including:</p> <ul style="list-style-type: none"> a report of the final detailed designs and schematics of the flue gas cleaning system <ul style="list-style-type: none"> demonstrating optimisation to treat the waste characteristics specified in the Waste Acceptance Criteria; demonstrating capability to operate within the performance standards specified in condition DL_G03(4)(f); designed considering the maximum flow rate and pollution concentrations and maintain optimal availability; supported by computerised fluid dynamics modelling; and accompanied by an updated Air Quality Impact Assessment based on the final detailed design of the flue gas cleaning system prepared in accordance with EPA Publications 1961 'Guideline for assessing and <i>minimising air pollution</i>' dated February 2022. <p>This is incorporated into Condition DL_R04(9).</p>
(d) Selective catalytic reduction (SCR) See Section 2.2 In the case of existing plants, the applicability may be limited by a lack of space			
(e) Catalytic filter bags See Section 2.2 Only applicable to plants fitted with a bag filter.			
(f) Optimisation of the SNCR/SCR design and operation Optimisation of the reagent to NO _x ratio over the cross-section of the furnace or duct, of the size of the reagent drops and of the temperature window in which the reagent is injected. Only applicable where SNCR and /or SCR is used for the reduction of NO _x emissions.			
(g) Wet scrubber See Section 2.2. Where a wet scrubber is used for acid gas abatement, and in particular with SNCR, unreacted ammonia is absorbed by the scrubbing liquor and once stripped, can be recycled as SNCR or SCR reagent. There may be applicability restrictions due to low water availability, e.g. in arid areas.			

Table 45: BAT 29 – BAT-AELs for channelled NO_x and CO emissions to air from the incineration of waste and for channelled NH₃ emissions to air from the use of SNCR and/or SCR (mg/Nm³)

Parameter	BAT-AEL		Averaging period
	New plant	Existing plant	
NO _x	50–120	50–150	Daily average
CO	10–50	10–50	
NH ₃	2–10	2–10	

Table 46: Emissions to air – channelled emissions – emissions of organic compounds (BAT 30)

BAT conclusion	Application	Assessment	Condition/s
BAT 30. In order to reduce channelled emissions to air of organic compounds including PCDD/F and PCBs from the incineration of waste, BAT is to use techniques (a), (b), (c), (d), and one or a combination of techniques (e) to (i) given below.	<p>The application details proposed measures to manage emissions to air in Sections 12, Section 4.2.6, Section 7.4.5, Appendix D Air Quality Impact Assessment, and RFI response dated 10/11/2022.</p> <p>The application proposes installation of a combination of efficient online and offline boiler cleaning (d) rapid flu-gas cooling,</p>	<p>EPA is satisfied that the proposed control measures are consistent with the techniques for reducing emissions of organic compounds in BAT 30.</p>	<p>The development licence allows development of a moving grate incineration waste to energy plant consisting of a flue gas cleaning system for each incineration process line which:</p> <ul style="list-style-type: none"> a minimum includes an advanced selective non-catalytic reduction system, flue gas recirculation system, a dry or semi-dry absorbent reactor system, an activated carbon injection system, and a filter baghouse. the filter baghouse design is to be sufficient for retrofit of catalytic filter bags for removal of additional dioxins and
<p>(a) Optimisation of the incineration process See Section 2.1. Optimisation of incineration parameters to promote the oxidation of organic compounds including PCDD/F and PCBs present in the waste, and to prevent their and their precursors' (re) formation. Generally applicable.</p>			

BAT conclusion	Application	Assessment	Condition/s
<p>(b) Control of the waste feed</p> <p>Knowledge and control of the combustion characteristics of the waste being fed into the furnace, to ensure optimal and as far as possible, homogeneous and stable incineration conditions.</p> <p>Not applicable to clinical waste or to municipal solid waste.</p>	<p>and (e) dry/semi-dry sorbent injection.</p>		<p>furans if the activated carbon injection is insufficient to reduce relevant indicators so far as reasonably practicable.</p> <p>It must be capable of:</p> <ul style="list-style-type: none"> operating within the BAT-AEL ranges for new plants contained in BAT 25, BAT 27, BAT 28, BAT 29, BAT 30 and BAT 31 of BATC 2019 under transient, part load, and start-up and shutdown operating conditions; and meeting the lower end of the BAT-AEL ranges for new plant contained in BAT 25, BAT 27, BAT 28, BAT 29, BAT 30 and BAT 31 of BATC 2019 during commissioning and under all other operating conditions. <p>This is incorporated into Condition DL_G03(4).</p> <p>The development licence requires installation of:</p> <ul style="list-style-type: none"> For each flue in the multi-flue stack, a device capable of sampling in stack: <ul style="list-style-type: none"> long-term mass concentrations of polychlorinated dibenzodioxins (PCDD) and polychlorinated dibenzofurans (PCDF), for periods of up to one month for each flue; and short-term mass concentrations of PCDD and PCDF. <p>This is incorporated into Condition DL_W08.</p> <p>Before commencing construction, the applicant must provide a report of the final detailed designs and schematics of the WtE plant and equipment, including:</p> <ul style="list-style-type: none"> a report of the final detailed designs and schematics of the flue gas cleaning system <ul style="list-style-type: none"> demonstrating optimisation to treat the waste characteristics specified in the Waste Acceptance Criteria; demonstrating capability to operate within the performance standards specified in condition DL_G03(4)(f); designed considering the maximum flow rate and pollution concentrations and maintain optimal availability; supported by computerised fluid dynamics modelling; and accompanied by an updated Air Quality Impact Assessment based on the final detailed design of the flue gas cleaning system prepared in accordance with EPA Publications 1961 'Guideline for assessing and <i>minimising air pollution</i>' dated February 2022. <p>This is incorporated into Condition DL_R04(9)</p>
<p>(c) Online and offline boiler cleaning</p> <p>Efficient cleaning of the boiler bundles to reduce the dust residence time and accumulation in the boiler, thus reducing PCDD/F formation in the boiler.</p> <p>A combination of online and offline boiler cleaning techniques is used.</p> <p>Generally applicable.</p>			
<p>(d) Rapid flue gas cooling</p> <p>Rapid cooling of the flue gas from temperatures above 400 °C to below 250 °C before dust abatement to prevent the de novo synthesis of PCDD/F.</p> <p>This is achieved by appropriate design of the boiler and /or with the use of a quench system. The latter option limits the amount of energy that can be recovered from the flue gas and is used in particular in the case of incinerating hazardous wastes with a high halogen content.</p> <p>Generally applicable.</p>			
<p>(e) Dry sorbent injection</p> <p>See Section 2.2.</p> <p>Adsorption by injection of activated carbon or other reagents, generally combined with a bag filter where a reaction layer is created in the filter cake and the solids generated are removed.</p> <p>Generally applicable.</p>			
<p>(f) Fixed- or moving- bed adsorption.</p> <p>See Section 2.2.</p> <p>The applicability may be limited by the overall pressure drop associated with the FGC system. In the case of existing plants, the applicability may be limited by a lack of space.</p>			
<p>(g) SCR</p> <p>See Section 2.2.</p> <p>Where SCR is used for NOx abatement, the adequate catalyst surface of the SCR system also provides for the partial reduction of the emissions of PCDD/F and PCBs.</p> <p>The technique is generally used in combination with technique (e), (f) or (i).</p> <p>In the case of existing plants, the applicability may be limited by a lack of space.</p>			
<p>(h) Catalytic filter bags</p> <p>See Section 2.2</p> <p>Only applicable to plants fitted with a bag filter.</p>			
<p>(i) Carbon sorbent in a wet scrubber</p> <p>PCDD/F and PCBs are adsorbed by carbon sorbent added to the wet scrubber, either in the scrubbing liquor or in the form of impregnated packing elements. The technique is used for the removal of PCDD/F in general, and also to prevent and /or reduce the re-emission of PCDD/F accumulated in the</p>			

BAT conclusion	Application	Assessment	Condition/s
scrubber (the so-called memory effect) occurring especially during shutdown and start-up periods. Only applicable to plants fitted with a wet scrubber.			

Table 47: BAT 30 – BAT-AELs for channelled emissions to air of TVOC, PCDD/F and dioxin-like PCBs from the incineration of waste

Parameter	Unit	BAT-AEL		Averaging period
		New plant	Existing plant	
TVOC	mg/Nm ³	< 3–10	< 3–10	Daily average
PCDD/F	ng I-TEQ/Nm ³	< 0,01–0,04	< 0,01–0,06	Average over the sampling period
		< 0,01–0,06	< 0,01–0,08	Long-term sampling period
PCDD/F + dioxin-like PCBs	ng WHO-TEQ/Nm ³	< 0,01–0,06	< 0,01–0,08	Average over the sampling period
		< 0,01–0,08	< 0,01–0,1	Long-term sampling period

Table 48: Emissions to air – channelled emissions – emissions of mercury (BAT 31)

BAT conclusion	Application	Assessment	Condition/s
<p>BAT 31: In order to reduce channelled mercury emissions to air (including mercury emission peaks) from the incineration of waste, BAT is to use one or a combination of the techniques given below.</p> <p>(a) Wet scrubber (low pH) See Section 2.2. A wet scrubber operated at a pH value around 1. The mercury removal rate of the technique can be enhanced by adding reagents and /or adsorbents to the scrubbing liquor, e.g.:</p> <ul style="list-style-type: none"> oxidants such as hydrogen peroxide to transform elemental mercury to a water-soluble oxidised form; sulphur compounds to form stable complexes or salts with mercury; carbon sorbent to adsorb mercury, including elemental mercury. <p>When designed for a sufficiently high buffer capacity for mercury capture, the technique effectively prevents the occurrence of mercury emission peaks. There may be applicability restrictions due to low water availability, e.g. in arid areas.</p> <p>(b) Dry sorbent injection See Section 2.2. Adsorption by injection of activated carbon or other reagents, generally combined with a bag filter where a reaction layer is created in the filter cake and the solids generated are removed. Generally applicable.</p> <p>(c) Injection of special, highly reactive activated carbon Injection of highly reactive activated carbon doped with sulphur or other reagents to enhance the reactivity with mercury. Usually, the injection of this special activated carbon is not continuous but only takes place when a mercury peak is detected. For this purpose, the</p>	<p>The application details proposed measures to manage emissions to air in Sections 12, Section 4.2.6, Section 7.4.5, Appendix D Air Quality Impact Assessment, and RFI response dated 10/11/2022.</p> <p>The application proposes installation of a combination of (b) dry/semi-dry sorbent injection and (c) injection of activated carbon.</p>	<p>EPA is satisfied that the proposed control measures are consistent with the techniques for reducing emissions of mercury in BAT 31.</p>	<p>The development licence allows development of a moving grate incineration waste to energy plant consisting of a flue gas cleaning system for each incineration process line which:</p> <ul style="list-style-type: none"> a minimum includes an advanced selective non-catalytic reduction system, flue gas recirculation system, a dry or semi-dry absorbent reactor system, an activated carbon injection system, and a filter baghouse. the filter baghouse design is to be sufficient for retrofit of catalytic filter bags for removal of additional dioxins and furans if the activated carbon injection is insufficient to reduce relevant indicators so far as reasonably practicable. <p>It must be capable of:</p> <ul style="list-style-type: none"> operating within the BAT-AEL ranges for new plants contained in BAT 25, BAT 27, BAT 28, BAT 29, BAT 30 and BAT 31 of BATC 2019 under transient, part load, and start-up and shutdown operating conditions; and meeting the lower end of the BAT-AEL ranges for new plant contained in BAT 25, BAT 27, BAT 28, BAT 29, BAT 30 and BAT 31 of BATC 2019 during commissioning and under all other operating conditions. <p>This is incorporated into Condition DL_G03(4). Before commencing construction, the applicant must provide a report of the final detailed designs and schematics of the WtE plant and equipment, including:</p> <ul style="list-style-type: none"> a report of the final detailed designs and schematics of the flue gas cleaning system

BAT conclusion	Application	Assessment	Condition/s
<p>technique can be used in combination with the continuous monitoring of mercury in the raw flue- gas. May not be applicable to plants dedicated to the incineration of sewage sludge.</p>			<ul style="list-style-type: none"> demonstrating optimisation to treat the waste characteristics specified in the Waste Acceptance Criteria; demonstrating capability to operate within the performance standards specified in condition DL_G03(4)(f); designed considering the maximum flow rate and pollution concentrations and maintain optimal availability; supported by computerised fluid dynamics modelling; and accompanied by an updated Air Quality Impact Assessment based on the final detailed design of the flue gas cleaning system prepared in accordance with EPA Publications 1961 'Guideline for assessing and <i>minimising air pollution</i>' dated February 2022. <p>This is incorporated into Condition DL_R04(9).</p>
<p>(d) Boiler bromine addition Bromide added to the waste or injected into the furnace is converted at high temperatures to elemental bromine, which oxidises elemental mercury to the water-soluble and highly adsorbable HgBr₂. The technique is used in combination with a downstream abatement technique such as a wet scrubber or an activated carbon injection system. Usually, the injection of bromide is not continuous but only takes place when a mercury peak is detected. For this purpose, the technique can be used in combination with the continuous monitoring of mercury in the raw flue gas. Generally applicable.</p>			
<p>(e) Fixed- or moving- bed adsorption. See Section 2.2. When designed for a sufficiently high adsorption capacity, the technique effectively prevents the occurrence of mercury emission peaks. The applicability may be limited by the overall pressure drop associated with the FGC system. In the case of existing plants, the applicability may be limited by a lack of space.</p>			

Table 49: BAT 31 – BAT-AELs for channelled mercury emissions to air from the incineration of waste (µg/Nm³)

Parameter	BAT-AEL		Averaging period
	New plant	Existing plant	
Hg	< 5–20	< 5–20	Daily average or average over the sampling period
	1–10	1–10	Long-term sampling period

Table 50: Emissions to water (BAT 32–34)

BAT conclusion	Application	Assessment	Condition/s
<p>BAT 32: In order to prevent the contamination of uncontaminated water, to reduce emissions to water, and to increase resource efficiency, BAT is to segregate wastewater streams and to treat them separately, depending on their characteristics.</p>	<p>The application details proposed measures to manage water, wastewater, and stormwater in Sections 10 and Appendix M 'Concept design report'.</p> <p>The application proposes to manage separately or segregate wastewater from stormwater. Where fit-for-purpose, wastewater such as that generated by IBA drainage will be used in the wet bottom ash handling system which is a net consumer of water. The FGCS has been designed to be wastewater-free. Cooling tower blowdown will be discharged to sewer</p>	<p>EPA is satisfied that the proposed control measures are consistent with the techniques for preventing the contamination of uncontaminated water, to reduce the emission to water and increase resource efficiency in BAT 32 subject to condition.</p>	<p>Before commencing construction, the applicant must provide a report of the final detailed designs and schematics of the WtE plant and equipment, including:</p> <ul style="list-style-type: none"> a report of the final detailed designs of water, wastewater and stormwater infrastructure: <ul style="list-style-type: none"> demonstrating implementation of BAT for stormwater and wastewater management consistent with all relevant conclusions of the BREF and BATC 2019; a final water balance for the activity site; final detailed designs of the stormwater detention pond and wastewater holding pond determined in accordance with the final water balance; investigation of options for alternative water supply to substitute use off potable water and other recommendations of Barwon Water in correspondence

BAT conclusion	Application	Assessment	Condition/s
	under a Trade Waste Agreement if not fit-for-purpose for reuse.		<p>titled 're: EPA VICTORIA WORKS APPROVAL APPLICATION NO.1004200 PROSPECT HILL INTERNATIONAL – 164-200 MCMANUS RD LARA VIC', dated 20 April 2021; and</p> <ul style="list-style-type: none"> • accompanying Wastewater and Stormwater Management and Monitoring Plan/s. <p>This is incorporated into Condition DL_R04(16).</p>
<p>BAT 33: In order to reduce water usage and to prevent or reduce the generation of wastewater from the incineration plant, BAT is to use one or a combination of the techniques given below.</p>	<p>The application details proposed measures to manage water, wastewater, and stormwater in Sections 10 and Appendix M 'Concept design report'.</p> <p>The application proposes installation or utilisation of a combination of techniques (a) wastewater-free FGC techniques and (c) harvesting and reuse of stormwater.</p>	<p>EPA is satisfied that the proposed control measures are consistent with the techniques for reducing water usage and preventing or reducing the generation of wastewater from the incineration plant in BAT 33.</p>	<p>Before commencing construction, the applicant must provide a report of the final detailed designs and schematics of the WtE plant and equipment, including:</p> <ul style="list-style-type: none"> • a report of the final detailed designs of water, wastewater, and stormwater infrastructure: <ul style="list-style-type: none"> • demonstrating implementation of BAT for stormwater and wastewater management consistent with all relevant conclusions of the BREF and BATC 2019; • a final water balance for the activity site; • final detailed designs of the stormwater detention pond and wastewater holding pond determined in accordance with the final water balance; • investigation of options for alternative water supply to substitute use off potable water and other recommendations of Barwon Water in correspondence titled 're: EPA VICTORIA WORKS APPROVAL APPLICATION NO.1004200 PROSPECT HILL INTERNATIONAL – 164-200 MCMANUS RD LARA VIC', dated 20 April 2021; and • accompanying Wastewater and Stormwater Management and Monitoring Plan/s. <p>This is incorporated into Condition DL_R04(16).</p>
<p>(a) Waste-water-free FGC techniques Use of FGC techniques that do not generate wastewater (e.g. dry sorbent injection or semi-wet absorber, see Section 2.2). May not be applicable to the incineration of hazardous waste with a high halogen content.</p>			
<p>(b) Injection of wastewater from FGC Wastewater from FGC is injected into the hotter parts of the FGC system. Only applicable to the incineration of municipal solid waste.</p>			
<p>(c) Water reuse/recycling Residual aqueous streams are reused or recycled. The degree of reuse/recycling is limited by the quality requirements of the process to which the water is directed. Generally applicable.</p>			
<p>(d) Dry bottom ash handling Dry, hot bottom ash falls from the grate onto a transport system and is cooled down by ambient air. No water is used in the process. Only applicable to grate furnaces. There may be technical restrictions that prevent retrofitting to existing incineration plants.</p>			
<p>BAT 34. In order to reduce emissions to water from FGC and /or from the storage and treatment of slags and bottom ashes, BAT is to use an appropriate combination of the techniques given below, and to use secondary techniques as close as possible to the source in order to avoid dilution.</p>	<p>N/A, the application does not propose emission to waters from FGC and /or from the storage and treatment of bottom ashes.</p>	<p>N/A</p>	<p>N/A</p>
<p>Primary techniques (a) Optimisation of the incineration process (see BAT 14) and /or of the FGC system (e.g. SNCR/SCR, see BAT 29(f)) Organic compounds including PCDD/F, ammonia/ammonium</p>			
<p>Secondary techniques</p>			
<p>Preliminary and primary treatment (b) Equalisation All pollutants (c) Neutralisation</p>			

BAT conclusion	Application	Assessment	Condition/s
Acids, alkalis (d) Physical separation, e.g. screens, sieves, grit separators, primary settlement tanks Gross solids, suspended solids Physico-chemical treatment (e) Adsorption on activated carbon Organic compounds including PCDD/F, mercury. (f) Precipitation Dissolved metals/metalloids, sulphate (g) Oxidation Sulphide, sulphite, organic compounds (h) Ion exchange Dissolved metals/metalloids (i) Stripping Purgeable pollutants (e.g. ammonia/ammonium) (j) Reverse osmosis Ammonia/ammonium, metals/metalloids, sulphate, chloride, organic compounds Final solids removal (k) Coagulation and flocculation Suspended solids, particulate-bound metals/metalloids (l) Sedimentation Suspended solids, particulate-bound metals/metalloids (m) Filtration Suspended solids, particulate-bound metals/metalloids (n) Flotation Suspended solids, particulate-bound metals/metalloids			

Table 51: BAT 32–34 – BAT-AELs for direct emissions to a receiving water body

Parameter	Process	Unit	BAT-AEL
Total suspended solids (TSS)	FGC Bottom ash treatment	mg/l	10–30
Total organic carbon (TOC)	FGC Bottom ash treatment		15–40
Metals and metalloids	As	FGC	0,01–0,05
	Cd	FGC	0,005–0,03
	Cr	FGC	0,01–0,1
	Cu	FGC	0,03–0,15
	Hg	FGC	0,001–0,01

	Ni	FGC		0,03–0,15
Parameter		Process	Unit	BAT-AEL (1)
	Pb	FGC Bottom ash treatment		0,02–0,06
	Sb	FGC		0,02–0,9
	Tl	FGC		0,005–0,03
	Zn	FGC		0,01–0,5
Ammonium-nitrogen (NH ₄ -N)		Bottom ash treatment		10–30
Sulphate (SO ₄) ²⁻		Bottom ash treatment		400–1 000
PCDD/F		FGC	ng I-TEQ/l	0,01–0,05

Table 52: Material efficiency (BAT 35–36)

BAT conclusion	Application	Assessment	Condition/s
<p>BAT 35: In order to increase resource efficiency, BAT is to handle and treat bottom ashes separately from FGC residues.</p>	<p>The application details proposed FGC residue management in Section 9 including IBA management in and FGC residues in Section 9.2.</p> <p>The application does not propose to mix or blend IBA and FGC residue waste streams. They will be stored, handled, and disposed of separately.</p>	<p>EPA is satisfied that the proposed control measures are consistent with the techniques for increasing resource efficiency in BAT 35.</p>	<p>Before commencing construction, the applicant must provide a report of the final detailed designs and schematics of the WtE plant and equipment, including:</p> <ul style="list-style-type: none"> a report of the final detailed design and schematics of the bottom ash treatment system and residual waste storage and buildings: <ul style="list-style-type: none"> demonstrating implementation of BAT for bottom ash treatment and management consistent with the BREF and BATC 2019; the steps followed to ensure iterative consideration through all the planning and design phases of the project, and eventual adoption of all opportunities to minimise the risk of harm from bottom ash treatment and management to human health and environment so far as reasonably practicable, consistent with the General Environmental Duty; and an accompanying monitoring plan consistent with the BREF and BATC 2019 including dust extraction systems, defuse dust emissions, and water emissions. <p>This is incorporated into Condition DL_R04(14).</p> <p>Before commencing construction, the applicant must provide a report of the final detailed designs and schematics of the WtE plant and equipment, including:</p> <ul style="list-style-type: none"> The Applicant must submit a Residual Waste Management Plan that: <ul style="list-style-type: none"> classifies all residual waste generated at the activity site in accordance with Schedule 5 of the Environment Protection Regulations 2021, EPA Publications 1827.2 'Waste classification assessment protocol' dated March 2021, 1828.2 'Waste disposal categories – characteristics and thresholds', and 1968.1 'Guide to classifying industrial waste', dated August 2021; details the management, reuse, and disposal of incinerator bottom ash, boiler fly ash, and flue gas cleaning system solid residues; details provision for the disposal of residual wastes to landfill only where no other treatment or reuse option is available; details the location of landfills or appropriately permissioned activity sites that will accept the facility's residual wastes; details the incinerator bottom ash output quality features to be part of the EMS including quality assurance and control procedure, testing regime of the various solid residue fractions, and includes, but is not limited to, such details as sampling, measurement procedures, and frequencies; identifies end-of-life risks for reuse or disposal of residual waste;

BAT conclusion	Application	Assessment	Condition/s
			<ul style="list-style-type: none"> identify disposal options and specify the fate of residual waste that fail to meet the quality assurance and control procedures. <p>This is incorporated into condition DL_R04(15).</p>
<p>BAT 36: In order to increase resource efficiency for the treatment of slags and bottom ashes, BAT is to use an appropriate combination of the techniques given below based on a risk assessment depending on the hazardous properties of the slags and bottom ashes.</p>	<p>The application details proposed FGC residue management in Section 9 including IBA management in Section 9.2.</p>	<p>EPA is satisfied that the proposed control measures are consistent with the techniques for increasing resource efficiency in BAT 36.</p>	<p>Before commencing construction, the applicant must provide a report of the final detailed designs and schematics of the WtE plant and equipment, including:</p> <ul style="list-style-type: none"> a report of the final detailed design and schematics of the bottom ash treatment system and residual waste storage and buildings: <ul style="list-style-type: none"> demonstrating implementation of BAT for bottom ash treatment and management consistent with the BREF and BATC 2019; the steps followed to ensure iterative consideration through all the planning and design phases of the project, and eventual adoption of all opportunities to minimise the risk of harm from bottom ash treatment and management to human health and environment so far as reasonably practicable, consistent with the General Environmental Duty; and an accompanying monitoring plan consistent with the BREF and BATC 2019 including dust extraction systems, defuse dust emissions, and water emissions. <p>This is incorporated into condition DL_R04(14).</p> <p>Before commencing construction, the applicant must provide a report of the final detailed designs and schematics of the WtE plant and equipment, including:</p> <ul style="list-style-type: none"> The Applicant must submit a Residual Waste Management Plan that: <ul style="list-style-type: none"> classifies all residual waste generated at the activity site in accordance with Schedule 5 of the Environment Protection Regulations 2021, EPA Publications 1827.2 'Waste classification assessment protocol' dated March 2021, 1828.2 'Waste disposal categories – characteristics and thresholds', and 1968.1 'Guide to classifying industrial waste', dated August 2021; details the management, reuse, and disposal of incinerator bottom ash, boiler fly ash, and flue gas cleaning system solid residues; details provision for the disposal of residual wastes to landfill only where no other treatment or reuse option is available; details the location of landfills or appropriately permissioned activity sites that will accept the facility's residual wastes; details the incinerator bottom ash output quality features to be part of the EMS including quality assurance and control procedure, testing regime of the various solid residue fractions, and includes, but is not limited to, such details as sampling, measurement procedures, and frequencies; identifies end-of-life risks for reuse or disposal of residual waste; identify disposal options and specify the fate of residual waste that fail to meet the quality assurance and control procedures. <p>This is incorporated into Condition DL_R04(15).</p>
<p>(a) Screening and sieving</p> <p>Oscillating screens, vibrating screens and rotary screens are used for an initial classification of the bottom ashes by size before further treatment. Generally applicable.</p>	<p>The application proposes to develop an onsite bottom ash treatment system. The intended purpose of the treatment process is to enable its reuse as an aggregate. This is subject to proof-of-performance verification during commissioning and operation to ensure the material is fit-for-purpose. Such trials would be subject to EPA permissioning requirements.</p>		
<p>(b) Crushing</p> <p>Mechanical treatment operations intended to prepare materials for the recovery of metals or for the subsequent use of those materials, e.g. in road and earthworks construction. Generally applicable.</p>	<p>The final treatment process will be determined through the EPC tender process and as part of finalising the detailed designs of the facility. The application has outlined bottom ash treatment processing incorporating techniques of (a) screening and sieving, (b) crushing, (d) recovery of ferrous and non-ferrous metals, and (e) ageing or maturation.</p>		
<p>(c) Aeraulic separation</p> <p>Aeraulic separation is used to sort the light, unburnt fractions commingled in the bottom ashes by blowing off light fragments. A vibrating table is used to transport the bottom ashes to a chute, where the material falls through an air stream that blows uncombusted light materials, such as wood, paper or plastic, onto a removal belt or into a container, so that they can be returned to incineration. Generally applicable.</p>			
<p>(d) Recovery of ferrous and non-ferrous metals</p> <p>Different techniques are used, including:</p> <ul style="list-style-type: none"> magnetic separation for ferrous metals; eddy current separation for non-ferrous metals; induction all-metal separation. <p>Generally applicable.</p>			
<p>(e) Ageing</p> <p>The ageing process stabilises the mineral fraction of the bottom ashes by uptake of atmospheric CO₂ (carbonation), draining of excess water and oxidation. Bottom ashes, after the recovery of metals, are stored in the open air or in covered buildings for several weeks, generally on an impermeable floor allowing for drainage and run-off water to be collected for treatment.</p>			

BAT conclusion	Application	Assessment	Condition/s
The stockpiles may be wetted to optimise the moisture content to favour the leaching of salts and the carbonation process. The wetting of bottom ashes also helps prevent dust emissions. Generally applicable.			
(f) Washing The washing of bottom ashes enables the production of a material for recycling with minimal leachability of soluble substances (e.g. salts). Generally applicable.			

Table 53: Noise (BAT 37)

Best available technique conclusion	Application	Assessment	Condition/s
BAT 37: In order to prevent or, where that is not practicable, to reduce noise emissions, BAT is to use one or a combination of the techniques given below.	The application details proposed measures to reduce noise emissions in sections 4.2.9 and 13 and in Appendix E - NIA (24/08/22).	EPA is satisfied the applicant has generally identified a combination of measures consistent with techniques (a)-(e) of BAT 37.	Before commencing construction, the applicant must provide a report of the final detailed designs and schematics of the WtE plant and equipment, including:
(a) Appropriate location of equipment and buildings Noise levels can be reduced by increasing the distance between the emitter and the receiver and by using buildings as noise screens. In the case of existing plants, the relocation of equipment may be restricted by a lack of space or by excessive costs.	The application proposes such engineering controls as specific wall and roof cladding as part of the design of buildings housing major noise emitting equipment. This includes 100 mm thick concrete in the wall and roof cladding of the boiler room for example. The application also proposes use of cooling towers with low-noise variable speed fan, and the design of the waste crane and bunker to minimise vibration and noise, and the temporary use of a silencer during boiler stream blowing during hot commissioning.	A combination of these techniques is considered necessary to ensure the facility's operation does not contribute to unreasonable noise as prescribed under the EP Regulations.	<ul style="list-style-type: none"> a report of the final detailed designs and schematics of the noise attenuation controls, including: <ul style="list-style-type: none"> demonstrating implementation of BAT to minimise noise emissions consistent with the BREF and BATC 2019; the steps followed to ensure iterative consideration through all the planning and design phases of the project, and eventual adoption of all opportunities to minimise the risk of harm from noise to human health and environment so far as reasonably practicable, consistent with the General Environmental Duty; the noise mitigation measures to be implemented at source, and their itemised acoustic performance, including controls to mitigate low frequency noise and noise from truck movements occurring outdoors, and address potential noise character; an assessment conducted in accordance with the Noise limit and assessment protocol for the control of noise from commercial, industrial and trade premises and entertainment venues (Noise Protocol, publication 1826) and consistent with the provisions of EPA Publication 1997 'Technical guide: Measuring and analysing industry noise and music noise' dated July 2021, that must: <ul style="list-style-type: none"> demonstrate that the contribution of the project to the effective noise level at noise sensitive areas will not exceed the noise limits calculated in accordance with Part I of the Noise Protocol minus 10 decibels (10 dB); consider measurement/calculation uncertainty; and detail contingency measures to be implemented to address, as necessary, the risk of exceedance of the project noise design objectives or of the noise limits of the Regulations, supported by evidence of their effectiveness.
(b) Operational measures These include: <ul style="list-style-type: none"> improved inspection and maintenance of equipment; closing of doors and windows of enclosed areas, if possible; operation of equipment by experienced staff; avoidance of noisy activities at night, if possible; provisions for noise control during maintenance activities. Generally applicable.	The NIA also details control measures to be investigated further at the detailed design phase of the project. This includes: <ul style="list-style-type: none"> 'Substituting the cooling tower fans with low-noise fans. Installing bespoke acoustic silencers for the stack and major fans Selecting equipment with lower noise emissions Enclosing and /or lagging noise sources within the buildings Including sound absorptive internal linings on the inside wall and /or roof cladding surfaces within the buildings 	EPA is satisfied that the applicant has identified a suitable and feasible range of techniques consistent with BAT 37 to be investigated further pending the EPC tender process and final selection of the plant and equipment vendors. EPA considers that the applicant must consider and where reasonably practicable implement a combination of these additional technique at the detailed design phase of the project.	
(c) Low-noise equipment This includes low-noise compressors, pumps and fans. Generally applicable when existing equipment is replaced, or new equipment is installed.		Confirmation of suitable implementation of BAT techniques at the detailed design phase would be subject to both endorsement of an EPA-appointed auditor and EPA	
(d) Noise attenuation Noise propagation can be reduced by inserting obstacles between the emitter and the receiver. Appropriate obstacles include protection walls, embankments and buildings.			

Best available technique conclusion	Application	Assessment	Condition/s
<p>In the case of existing plants, the insertion of obstacles may be restricted by a lack of space.</p> <p>(e) Noise control equipment/ infrastructure This includes:</p> <ul style="list-style-type: none"> • noise-reducers; • equipment insulation; • enclosure of noisy equipment; • soundproofing of buildings. <p>In the case of existing plants, the applicability may be limited by a lack of space.</p>	<ul style="list-style-type: none"> • Considering alternative wall and /or roof cladding with more appropriate sound transmission properties • Rearranging the plant layout by using large buildings to provide additional acoustic shielding of major noise sources from the nearest noise receivers.' 	<p>before commencing construction on the facility.</p>	<ul style="list-style-type: none"> • an updated assessment of the risk associated with low frequency noise emitted from all noise sources associated with the project, consistent with the provisions of EPA Publication 1996 '<i>Noise guidelines: Assessing low frequency noise</i>' dated June 2021, including details of measures to be implemented to address, as necessary, the risk of unreasonable noise associated with the emission of low frequency noise, supported by evidence of their effectiveness; • a commissioning measurement program intended to ensure the acoustic objectives of the project, including (but not limited to) project noise design objectives and effectiveness of measures for low frequency noise, are satisfied at the onset of operation.

OFFICIAL
Development licence assessment report

Environment Protection Act 2017

Appendix G: Referral agency responses

April 20, 2021

[REDACTED]
Senior Project Manager
Development Assessment
EPA Victoria
works.approvals@epa.vic.gov.au

Dear Sir,

**Re: EPA VICTORIA WORKS APPROVAL APPLICATION NO.1004200
PROSPECT HILL INTERNATIONAL - 164-200 MCMANUS RD LARA VIC**

I write in response to the referral for the above mentioned Works Approval relating to a waste to energy facility in Lara. As it relates to Barwon Water, the proponent has requested a sewer and water connection for the facility.

Barwon Water has reviewed the documentation and raises no objections to the Works Approval proceeding, however wishes to have further detailed discussions with the proponent during the detailed design phase to minimise impact to our services. Specific servicing comments are outlined below.

Water resources & use of alternative water sources

According to the Works Approval application documentation (page 119) and further discussions with Jacobs, the project will require up to 1,000 ML/year of water supply (based on peak demand) with the plant expected to be in production by 2025. Given the significant volume of water required, Barwon Water strongly encourages that the detailed design investigate opportunities to source alternative 'fit for purpose' water supply to substitute use of potable water where possible. Options which should be investigated by the proponent include:

- Reducing demand through optimised design and reuse onsite;
- Localised rainwater and/or stormwater harvesting. There could be potential to source stormwater from the City of Greater Geelong who has a stormwater detention basin adjacent to site;
- Potential for sewer mining from the adjacent Lara sewerage system to produce a recycled water of suitable quality for the facility;
- Recycled water from Barwon Water's Northern Water Plant in Corio. The plant is currently fully allocated however it could potentially be upgraded to supply recycled water to this facility.

The above options should be investigated to ensure that the final potable water demand is reduced as much as is practicable. Barwon Water would welcome further discussions with the proponent as the detailed design progresses.

Water Supply System

From a water supply perspective, the Prospect Hill proposal cannot be supplied from the existing infrastructure alone and additional water mains are required to provide the required volumes. A new DN225 water main is to be extended from the existing DN300 main on the corner of Heales and McManus Roads. The DN225 should connect to the DN150 main in Production Way and the tapping for the site should be from the DN225. The extension is approx. 840m and is to be fully funded by the proponent. Further discussions should occur during detailed design to determine proposed pressure and flow requirements.

Sewerage Network

From a sewerage perspective, the proposal will discharge to a gravity sewer and sewer pump station in Production Way. This pump station, Lara SPS No.8 has a pump duty of 19.8L/s. It has capacity to accommodate the approx. 4-6L/s expected from the waste to energy facility.

That said is Barwon Water's preference that the proponent makes every effort to minimise discharges to sewer from this facility through the reuse of water onsite and by the removal of stormwater from any trade waste proposals.

Trade Waste

There are several waste streams outlined as trade waste within this proposal. Of these, Barwon Water would push for those that are attributed to stormwater to be appropriately treated and directed to the stormwater network, where reasonable. If this cannot be achieved, controls must be implemented to guarantee ongoing wastewater quality and minimise the impact of this volume on the receiving network.

The discharge from the remaining streams, largely produced through the blowdown process, is intended to meet Barwon Water's quality acceptance standards. As such, Barwon Water has no concerns regarding acceptance of this trade waste, provided these standards are maintained.

Summary

In line with comments provided above, Barwon Water does not object to the granting of a Works Approval for the waste to energy facility at 164-200 McManus Road Lara. We look forward to continuing to work closely with the proponent during the detailed design phase to minimise impact to our region's water resources and our water and sewer networks. For further enquiries, please contact [REDACTED], Network Planning Co-ordinator on [REDACTED]

Yours Faithfully,



Manager - Asset Planning

CITY OF GREATER GEELONG

PO Box 104, Geelong VIC 3220
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ENVIRONMENT PROTECTION AUTHORITY
181 WILLIAM STREET
MELBOURNE VIC 3000

28 April 2021

Our Ref: D21-194926
Your Ref: 609228

Dear [REDACTED]

Re: EPA VICTORIA WORKS APPROVAL APPLICATION NO. 1004200

Thank you for your correspondence dated 26 March 2021 in respect of the above works approval application.

The City of Greater Geelong (CoGG) has considered the above application as a Referral Authority.

Overall, the information hereby provided by Council's relevant internal departments is included for your review and consideration.

The recommended conditions, notes, additional areas required for information and further commentary are hereby included for EPA's purpose in assessing and determining the works approval application.

Yours sincerely

A handwritten signature in black ink, appearing to read "JR", written over a light grey background.

JOHN RUSH

**STATUTORY PLANNING COORDINATOR
CITY DEVELOPMENT**

[REDACTED]

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Council Engineering Department Response

As I understand, there is a high pressure gas pipeline underneath McManus Road, which greatly impacts the ability to construct the road itself, however this appears to terminate/originate at 137-169 McManus Road (Viva Energy Refining).

The site currently does not have a constructed road on its northern and western boundaries. The nearmap (GIS) history shows some civil works (which appear to be drainage and sewerage) occurring in both roads circa 2014 and 2015, however the roads were never completed. It is not known if Council will be responsible for the construction of these roads or if it will be the developer's responsibility. It has been a while since I've seen a plan of the ultimate road layout of the GREP, however it is assumed Production Way and McManus Rd were always intended to link up.

The plan in the TIA shows an entry and exit access points for trucks in Production Way just to the west of the existing road truncation, so at the very least this developer will have to construct Production Way from the existing truncation to about 100 m to the west.

There are no concerns about the proposed amount of truck movements to/from the site.

The staff car park is accessed from McManus Rd adjacent to the site's southern boundary. McManus Rd is unsealed at this point. McManus Rd has an existing spray sealed surface for about 190 m north of Heales Rd. There is another 210-220 m to the proposed site access.

The existing spray seal in McManus Rd appears to be very basic, and would not be suitable for any B Doubles or Higher Mass vehicles. The site plan shows that any vehicle could use this access to get to anywhere on the site.

The TIA indicates that the facility will require at least 80 car spaces. The staff car park, as shown on the site plan in the TIA, does not indicate 80 car spaces.

A larger scale plan will have to be provided to show these car spaces. 80 car spaces would appear logical based on the commentary in the TIA, however there should be space reserved for any overflow car parking, say 20 additional spaces. And can be formal or informal car spaces.

For a 24 hour per day operation, it is expected that the entire site will be illuminated at night. Plans shall be provided to show impact of this lighting in the area.

There are no other concerns about this proposal at this stage.

Environmental Health Response

Key issues for Referral Unit to consider?

- Odour, noise reports submitted

Reasons for conditions

The noise, health and air assessment reports have been reviewed. The recommendations that have been outlined in the reports as further preventive measures have been added to the recommended permit non-standard conditions. Although many of these conditions will be addressed by the EPA works approval Environmental Health believe that they should be added regardless.

There is also a standard condition for the applicant to conduct a noise and air quality assessments after opening to ensure of compliance with the SEPP's and all other relevant legislation.

Non-Standard Conditions

Air Quality

In accordance with the Air Quality Impact Assessment Report developed by Jacobs and dated the 6 October 2020 the applicant must comply with the State Environment Protection Policy - Air Quality Management (SEPP AQM).

Noise Attenuation

In accordance with the Noise Assessment Report developed by Jacobs dated 19 September 2020 the following is to be completed to mitigate any noise disturbances and further prevent disruption to the surrounding amenity and nearest receptors;

- Application of acoustic attenuation in the form of noise "barrier" walls or enclosure. The 'barrier is to have a mass per unit area in the order of 15 kg/m² and be contiguous without any gaps.
- Application of acoustic insulating constructions for building door and walls.
- The use of attenuators on extract systems.

Health Impact

In accordance with the Health Impact Assessment Report developed by Environmental Risk Sciences and dated 28 October 2020 the following recommendations are to be put into place,

- Further development of the proposed feedstock delivery protocols into an operational management plan to address the discovery and proper disposal of hazardous waste, should it be present in feedstock.
- Appropriate testing and management of waste materials generated during operations, with compliance with all relevant current regulations in relation to waste disposal and/or re-use.

Standard Conditions

Recommended Permit Conditions

Contact Person

The telephone number of a person responsible for the operation of the premises shall be displayed in a prominent position on the external façade at all times such that adjoining neighbours have a point of contact regarding excessive noise and other amenity issues. This shall at all times be maintained to the satisfaction of the Responsible Authority.

Noise assessment after opening

At the written request of the Responsible Authority, the permit holder must submit a report prepared by a suitably qualified acoustic engineer which assesses any impacts of noise and/or compliance with the SEPP N-1 and the NIRV and provide any necessary recommendations to achieve compliance where noncompliance is identified or address any other issues as appropriate. Any recommendations of the assessment deemed appropriate by the Responsible Authority must be implemented within a timeframe specified by the Responsible Authority.

Plant and Equipment Insulation

All external plant and equipment must be acoustically treated or placed in soundproof housing to reduce noise to a level satisfactory to the Responsible Authority.

All air-conditioning units are to be placed in an appropriate location or alternatively acoustically treated to reduce noise to a level satisfactory to the Responsible Authority.

Air Quality Assessment after opening

At the written request of the Responsible Authority, the permit holder must submit a report prepared by a suitably qualified person assesses any impacts of air quality and/or compliance with the SEPP (AQM) and provide any necessary recommendations to achieve compliance where noncompliance is identified or address any other issues as appropriate. Any recommendations of the assessment deemed appropriate by the Responsible Authority must be implemented within a timeframe specified by the Responsible Authority.

Dust Emissions

Dust control measures to prevent emissions that may cause nuisance to adjoining properties must be implemented to the satisfaction of the Responsible Authority. Such as but not limited to:

- Identifying potential sources of dust and airborne particulates and processes which may generate dust and airborne particulates; and implementing dust and airborne suppression measures, including (but not limited to) covering materials and/or applying a light water spray, applying sprays before or during turning, but also avoiding excessive water- logging of organic materials and runoff;
- cessation of some activities during windy days

Light Emissions

Outdoor lighting must be designed, baffled and located to the satisfaction of the Responsible Authority to prevent any adverse effect on adjoining properties

General Amenity

The amenity of the area must not be detrimentally affected by the use or development through the:

- Transport of materials, goods or commodities to or from the land;
- Appearance of any building, works or materials;
- Emission of noise, artificial light, vibration, odour, fumes, smoke, vapour, steam, soot, ash, dust, waste water, waste products, grit or oil;
- Presence of vermin;

to the satisfaction of the Responsible Authority.

Notes

Environmental Health has considered the information submitted with the application for a planning permit at the abovementioned property. Environmental Health has no objection to the granting of a planning permit providing the following notes are included within:

Comply with SEPPs

Noise emitted from the premises must comply with the State Environment Protection Policy (Control of Noise from Commerce, Industry and Trade), No. N-1.

Noise emitted from the premises must not exceed the recommended levels as set out in Noise from Industry in Regional Victoria (NIRV; EPA Publication 1411, 2011) or as amended.

Construction Noise for large scale developments

Noise during construction is to be managed (and noise generating activities carried out within prescribed times) in accordance with the Environment Protection Authority Publication no. 1254 – Noise Control Guidelines.

Ensure compliance with any Commercial Noise regulations, Councils Local Laws and obtain permits where and when required

Mosquito

Any water retention basin/wetland which we would like to point out that could breed mosquitoes. We highly recommend any basins are designed in a way to discourage mosquito breeding by implementing such techniques are steep edges, water depth greater than 60cm and regular water movement. Long term success in preventing mosquito breeding at this early stage is vital. Good urban design principals on water management are critical to minimise any potential man made mosquito breeding sites as there are natural breeding sites in the area.

Environment Response

Having reviewed the works approval application we have provided comments/queries below, I've attempted to keep them to the works authority only in relation to potential ecological impacts from the proposal.

- Works approval application (parts 1-3)
- Appendix H – Flora and Fauna Assessment
- Appendix I – Land and Groundwater Contamination Assessment
- Appendix J – Land and Groundwater Contamination Site Investigation Report

Native vegetation

Section 2.3 of the application refers to potential permit triggers for native vegetation removal under 52.17, though 52.16 is referenced elsewhere in the report and in Appendix H.

To assist the proponent moving forward, the Greater Geelong Ring Road Employment Precinct Native Vegetation Precinct Plan applies to the site and its immediate surrounds. The site, as mentioned in Appendix H, does not contain any native vegetation in the NVPP.

The works approval application references upgrades to adjoining roads to facilitate the additional volume of traffic, and connections to the electrical grid. No report submitted with the application considers potential impacts to biodiversity from these ancillary (but critical to the success of the project) pieces of infrastructure. If applicable these impacts need to be defined moving forward and considered in any approval, focussing solely on the title at 164-200 McManus Road may make the impact appear smaller than they are. If native vegetation removal is required outside of the NVPP then the correct trigger is 52.17.

Water (ground and surface)

The downstream environment of the proposal includes Hovells Creek and Limeburners Lagoon/Bay, a wetland of state, national and international significance.

It provides significant habitat value and is home to a number of listed species and communities. While there is negligible risks from surface water impacting this area if stormwater is treated appropriately, there are several references throughout the documentation of groundwater moving from east to west from the site and eventually entering Hovells and the Bay. Similar to the approach taken to native vegetation, the groundwater assessments focus on the risk to groundwater onsite, and mainly relate to existing contamination potentially affecting the project.

As far as I can tell, *outside of table 6.5 in Part 1 of the application*, there is no consideration of how the groundwater table will be protected from contamination resulting from the proposal, a key consideration given that the waste bunker (at least, potentially also the leachate pond) will be constructed below the existing groundwater table. More information about how this risk will be mitigated is required.

If impacts to areas outside the title are identified, the proponent may wish to revisit the recommendations and conclusions relating to implications for approvals relating to biodiversity and the environment, in particular if impacts to downstream environs are unable to be appropriately mitigated.

General Comments

Due to the preliminary nature of the proposal, there are a number of assumptions throughout the reports, including impacts to the environment and human health, some of these are of concern (including noise and PM2.5/PM10). I assume that as the project becomes more defined there may be capacity to clarify/refine these impacts and provide greater surety on these measures.



Recycling Victoria

Department of Environment, Land, Water and Planning

PO Box 500, East Melbourne,
Victoria 8002 Australia
recycling.vic.gov.au

24 January 2022

██████████
Senior Permissioning Officer
Permissioning Unit
EPA Victoria
GPO BOX 4395
MELBOURNE 3001

Dear ██████████

EPA REQUEST FOR ADVICE: LARA WASTE TO ENERGY (WTE) DLA NO 1004200

Thank you for your correspondence of the 16 January 2022 seeking further advice from Recycling Victoria (RV) on the above development licence application (DLA).

RV has reviewed the request for information from EPA to inform its consideration of the application and notes EPA's request to provide advice on:

- “(i) any changes required to the previous responses including any updated due to recent changes to the EP Act and s426. (Authority may refuse applications for certain facilities if Plans not observed)*
- (ii) EPA are also wanting to seek RV advice on the waste volumes presented in the application for the MRRRG region. The BSWRRG response notes the waste volumes for Colac Otway, Surf Coast, Greater Geelong appear accurate (but would be likely impacted by changes to waste management policy and practice, such as introduction of a dedicated four bin collection service). The MWRRG response notes ‘the underlying assumptions of tonnage commitments from metropolitan Melbourne cannot be relied upon particularly given competition with landfill disposal options in the west and north of Melbourne’.*
- (iii) the accuracy of the potentially available waste volumes via councils, commercial operators, transfer stations”.*

Since the initial responses from MWRRG and BSWRRG significant legislative changes have occurred including the release of the Victorian Waste to Energy Framework (November 2021), the establishment of Recycling Victoria on 1 July 2022 and the introduction of the Circular Economy (Waste Reduction and Recycling) Act 2021 (CE Act 21) and amendments via the *Environment Legislation Amendment (Circular Economy and Other Matters) Act 2022* (ELA Act 22).

Amendments to the *Environment Protection Act 2017* (EP Act 2017) include transitional provisions (Part 16.10—Victorian Waste and Resource Recovery Infrastructure Planning Framework (VWRRF)) that keep the VWRRF that includes the Statewide Waste and Resource Recovery Infrastructure Plan (SWRRIP), Metropolitan Waste and Resource Recovery Implementation Plan 2016 (Metro Implementation Plan) and Barwon South West Waste and Resource Recovery Implementation Plan (Barwon South West Implementation Plan) in operation. Part 16.5—Transitional provisions: Waste and Resource Recovery Groups provides for the Head, Recycling Victoria to become successor in law to Waste and Resource Recovery Groups (WRRG's) and their respective Implementation Plans.

These transitional provisions in the EP Act 2017 ensure the continuity and applicability of the VWRRF to EPA decision making and the operation of the SWRRIP, Metro Implementation Plan 2016 and Barwon South West Implementation Plan whose relevant provisions have been previously outlined in correspondence in April 2021.

Any personal information about you or a third party in your correspondence will be protected under the provisions of the *Privacy and Data Protection Act 2014*. It will only be used or disclosed to appropriate Ministerial, Statutory Authority, or departmental staff in regard to the purpose for which it was provided, unless required or authorized by law. Enquiries about access to information about you held by the Department should be directed to foi.unit@delwp.vic.gov.au or FOI Unit, Department of Environment, Land, Water and Planning, PO Box 500, East Melbourne, Victoria 8002.



OFFICIAL

EPA is also seeking feedback from RV on potential future waste volumes for this facility. You will note the Lara Project is not being progressed through any government procurement processes. The facility will be privately operated, and as such the waste feedstocks will be privately negotiated between the proponent and waste generators. RV is not able to provide any further clarity on the quantum, source or location of waste that may ultimately be processed at this facility. This unknown and specific information will need to be provided by the applicant and agreements and/or when contracts are put in place. Waste streams and environmental impacts will need to be analysed to EPA's satisfaction.

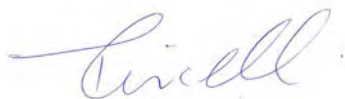
The CE Act 2021 provides for RV to license, oversee and regulate thermal waste to energy facilities through a waste to energy scheme. The WtE Framework notes that: "to manage any risks of over-reliance on waste to energy, Recycling Victoria is committed to placing a 1 million tonne per year cap on the amount of residual waste that can be sent to thermal waste to energy in Victoria to 2040". The WtE scheme will be guided by regulations that are still in development.

This does not in any way imply that this DL application would meet the needs, expectations and requirements of any future WtE scheme licence application or cap allocation. The applicant will need to keep abreast of this developing regulatory regime and its potential applicability to their proposed development.

RV reiterates that it does not object to the DLA to the extent that RV is satisfied the application is not inconsistent with the VWRRF, SWRRIP and Metropolitan and Barwon South West Implementation Plans as outlined above.

If you have any further queries, please do not hesitate to contact [REDACTED] Principal Planner RV at [REDACTED]

Yours sincerely



Tony Circelli
Head Recycling Victoria



Department of Environment,
Land, Water and Planning

PO Box 500, East Melbourne
Victoria 8002 Australia
delwp.vic.gov.au

██████████
Senior Project Manager
EPA Victoria

via email: ██████████

Dear ██████████

**REFERRAL OF EPA VICTORIA WORKS APPROVAL APPLICATION NO. 1004200 TO THE
MINISTER FOR PLANNING**

Thank you for your letter of 26 March 2021, to the Hon Richard Wynne, Minister for Planning regarding the works approval application for waste to energy facility at Lara. I am responding under delegation from the Minister.

In response to the matters raised:

- (i) The proposed works are allowed by the planning scheme. There are no conditions which are specified in the Industrial 2 Zone.
- (ii) The proposed use for a waste to energy facility is a Section 2 land use under Clause 33.02-1 and therefore a permit is required for the use. A permit for buildings and works is also required under Clause 33.02-4 and 43.02 of the Greater Geelong Planning Scheme.
- (iii) A permit has not been issued under the *Planning and Environment Act 1987* for the proposed works.
- (iv) The Minister for Planning is considering an application for a permit under the *Planning and Environment Act 1987*. The application was received on 1 December 2020 and further information has been requested. The application number is PA2001035.
- (v) The proposed works are not prohibited by the planning scheme.

If you have any further queries, please contact ██████████ or
email ██████████

Yours Sincerely,

██████████

Manager, Development Approvals and Design,

12/04/2021

1 Malop Street Geelong VIC 3220
PO Box 279 Geelong VIC 3220
Telephone 03 4243 7000 Fax 03 4243 9321
www.worksafe.vic.gov.au



Reference: MH21/00059/39

12 October 2021

██████████
Senior Project Manager
Development Assessments
Environment Protection Authority Victoria
200 Victoria Street
CARLTON VIC

Dear ██████████

EPA Works Approval Application No. 1004200, Prospect Hill International Waste-to-Energy facility, 164-200 McManus Road, Lara VIC 3212.

Thank you for the opportunity to comment on the above Works Approval application, involving a proposal by Prospect Hill International Pty Ltd (PHI) to develop a facility that will generate electricity from combustion of waste otherwise destined for landfill.

The scope of WorkSafe Victoria's review of such applications is limited to potential incidents involving risks from Dangerous Goods that will be stored and handled at the facility or are already present in the surrounding area.

On the basis of the information provided by PHI in support of its application, WorkSafe is satisfied that the applicant is likely to comply with relevant requirements of the Dangerous Goods Act and its subordinate legislation, particularly the Dangerous Goods (Storage and Handling) Regulations 2012. It also appears that the facility will not store or handle any notable quantities of the materials listed in schedule 14 of the Occupational Health and Safety Regulations 2017, and thus it will not be considered for licensing as a major hazard facility (MHF).

WorkSafe would like to make comment however, about the proximity of the proposed development to the Viva Lara LPG Terminal located at 137-207 McManus Road, Lara. The Viva Lara facility is a licensed MHF that stores and handles large quantities of highly flammable materials. A significant proportion of the land on which the proposed energy from waste (EfW) plant is to be built, lies within the nominated Inner Safety Area (ISA) for the MHF. The ISA represents the zone in which there is potential for fatality and significant damage to property in the event of a high consequence, low likelihood major incident occurring at the MHF, such as a gas release, large fire or explosion.

On this basis, WorkSafe recommends adding the conditions below to the Works Approval, to ensure that the operational integrity of the EfW plant is not compromised from an environmental or safety perspective, by its location close to a major hazard facility.

Condition to be discharged prior to commencing works:

Applicant must provide a Hazard Identification (hazid) Study report that considers all potential hazardous events and their impact on safe operations. These events may be internal to the facility or external (e.g. large gas release or fire at the proximal major hazard facility).

Condition to be discharged prior to commencing operations:

Applicant must provide a copy of the site Emergency Response Plan that includes actions to be taken to protect personnel and property in the event of a major incident (large gas release, fire/explosion or toxic gas release) at the Viva Lara LPG Terminal.

If you have any questions, please contact [REDACTED] or via email [REDACTED]

Yours sincerely,

A handwritten signature in blue ink, appearing to read "Simon Farrar".

Simon Farrar
Director
Major Hazards and Dangerous Goods
Regulated Industries
WorkSafe Victoria