14.0 Conclusion

Climate change and its consequent manifestations (e.g. higher temperatures, rising sea levels, melting of polar ice caps, desertification, ecosystem destabilisation, and more frequent and more intense natural disasters) are a major global threat to biodiversity, ecosystem services and ecological integrity (Commonwealth of Australia, 2009). It is also recognised as the biggest known health threat to humanity (WHO, 2021). Globally, this has been known since the 1970s. After decades of international meetings and summits, there is now a recognised urgency to act swiftly and meaningfully to slow down climate change. Two mechanisms through which Australia and most other countries of the world are seeking to achieve reductions in future greenhouse gas emissions and to lessen the impact of climate change are the Paris Climate Accord and the Glasgow Climate Pact. These agreements require systemic changes to many aspects of our lives, including how our electricity is generated, distributed and consumed. Fundamental to this is the transition away from the reliance on fossil fuel energy sources, and the development of utility-scale renewable energy generators.

Renewable energy can take many forms (solar PV, solar thermal, wind, geothermal, tidal, pumped hydro, etc.); in the market led Australian context, the levelised cost of energy (LCOE) is an important driver to renewable energy development. Notwithstanding the pricing of carbon, these alternative energy generators must be cost-competitive with the fossil fuel generators if they are to experience the uptake required across the world to set us on the path to decarbonisation. Of all the available renewable energy resources, wind and solar PV generation have the lowest LCOE for a new-build utility-scale generator within Australia (Graham et al, 2020).

Solar PV pervades the diurnal generation to the point that prices in the National Electricity Market are now often negative throughout some daytime pricing periods. This is attributable to the broad uptake of domestic rooftop solar, as well as utility scale solar PV projects. As the coal-fired generation fleet is anticipated to retire in the coming years, there will be further demand for daytime renewable energy to feed into the grid. When the sun goes down, the solar PV generation is no longer available and the NEM must rely on other renewable energy sources. Batteries and pumped hydro will play some part in this; however, the transition to a significantly decarbonised electricity generation sector is ideally suited to the complementary wind generation profile that exists throughout much of Queensland. Due to the unique wind resources in Queensland, the development of wind farms is an increasingly important component of a firmer renewable energy generation sector across the NEM.

With the benefit of hindsight and learning from past difficulties in bringing effective renewable energy projects online in other states, the Queensland Government and AEMO has, through the QREZ initiative, sought to strategically identify the best places for future renewable energy projects in Queensland. The identification of REZs encourages, across the sector, a lower impact and better-coordinated provision of generation assets (with all the additional infrastructure required) than would have otherwise been achieved in a laissez-faire fashion, which can often lead to generation, transmission and distribution problems. The Northern QREZ is one of the locations earmarked for the future concentration of renewable energy projects.

It is recognised that the Northern QREZ is a vast area. Key factors to determine the most prospective places within the Northern QREZ for renewable energy projects (and in this case, wind farm projects) include certainty of wind resource, ready access to the grid (i.e. high voltage transmission lines) and appropriate separation from dense settlements. Meeting these requirements has a significant positive impact on the LCOE of a given project.

The Project is located in such an ideal place; it has a rare excellent wind resource, strong grid infrastructure with capacity to handle the generation from the Project, and a sparsely populated Project area and surrounds.

The WTQWHA is located close to the Project, with a separation distance of at least 600 m from the closest Project infrastructure. CWF maintains that the site selection prerequisites described above cannot be reasonably met in other locations that are located further from the WTQWHA in this part of the Northern QREZ. Therefore, CWF sought to ensure that the Project design was undertaken with the primary driver of avoiding and minimising potential impacts

to the WTQWHA and other MNES, all while having the "bigger picture" of the LCOE, the Northern QREZ and the decarbonisation of the local, regional, national and global economies in mind.

Detailed studies across the Project area since 2017 have helped to inform the Project design. The Project is now less than 50% of its original proposed size, and avoids what the Project team determined to be "no-go" areas due to their high levels of ecological and cultural sensitivity. Following feedback from stakeholders since the EPBC Act referral and advancement of the feasibility studies, a further eight wind turbines have been removed to reduce the clearing in wet sclerophyll forest with an associated reduction in access roads by 27 km and relocation of the southern substation and associated reduction in internal overhead transmission lines by 4 km. These significant changes further reduce the clearing in wet sclerophyll forest by 31%. Construction involving earth disturbance activities during the peak wet season months of January to March will also be avoided.

A significant increase in biodiversity offsets are proposed, to ensure a net positive impact, including three significant areas totalling more than 6,855 ha, primarily located immediately adjacent to the WTQWHA, including the largest patch of intact wet sclerophyll forest adjacent to the Tully Falls National Park, and the creation of formal connectivity between Koombooloomba National Park and Yourka Reserve Nature Refuge.

A significant focus will be placed by CWF on the rehabilitation of areas impacted by construction that are not required for operational activities (see the Preliminary Rehabilitation Plan in **Appendix K**); this will go a considerable way to addressing some of the permanent impacts associated with habitat removal and fragmentation.

This PER demonstrates how the Project design has evolved to avoid impacts on MNES to the extent practicable while balancing the need to access the wind resource as a replacement for fossil fuels to mitigate climate change. Consequently, in **Section 8.0** the Project is assessed as having a significant residual impact on five individual MNES (the magnificent brood frog, the masked owl and the northern greater glider). These significant residual impacts are unavoidable. However, the PER has shown that these unavoidable SRIs can be offset in accordance with, and beyond the minimum requirements of, the EPBC Act Offsets Policy.

Sufficient suitable areas are available on host properties (i.e. within the Project site) for land-based offsets for the magnificent brood frog, masked owl and northern greater glider of more than five times the area disturbed. Indirect offsets are also proposed in the form of contribution towards research of up to $250,000 for the magnificent brood frog given there is little known scientifically about this species.

Significantly, CWF has made an industry-leading commitment to rehabilitate 70 % of the Project footprint, to restore habitat and connectivity, a first of its kind. Rehabilitation will reduce the construction footprint from 1,071.1 ha (3.4% of the Project area) to an operational footprint of 107.2 ha (0.4% of the Project area) and a minimum rehabilitation area of 674 7 ha over time, with rehabilitation activities involving local community, traditional owners and non-government organisations.

Combined, the significant biodiversity offsets of more than five times the area cleared, and rehabilitation of 70% of the disturbance area (e.g. revegetation) will result in a net positive impact on biodiversity while mitigating climate change by replacing fossil fuel with renewable wind energy.

Importantly, the PER has demonstrated that the Project will not have a significant residual impact on the WTQWHA; all direct impacts within the WTQWHA are avoided, there is a multitude of land uses within 5 km and 10 km of the WTQWHA boundary, and the Project proposes to impact merely 0.17% of wet sclerophyll forests within the Wet Tropics bioregion. The Project also represents a step towards addressing climate change, which is recognised as the most significant threat to the WTQWHA, with long term monitoring showing declines in the distribution and population sizes of many species, particularly at elevations of over 600 m (WTMA, 2019). In this context, it is important to note that the carbon lifecycle of the Project demonstrates a clear and overwhelmingly significant benefit; the conservative assessment provided in **Section 13.2** of this PER shows that the Project will be carbon neutral within 1.5 years of operation, and will offset 20 times the carbon liability associated with the construction of the Project when compared with a similar-sized coal fired power station.

In **Section 3.0** of this PER, the Project has considered and discounted alternative forms (including more intensive configurations), together with the no-project alternative, and considers the Project as proposed in this PER to be the optimal configuration – balancing the Project objectives of efficient utilisation of high-quality renewable energy resources with the existing environment, MNES, and engagement with and responses to feedback received from engagement with a broad range of stakeholders. The significant residual impacts associated with the Project presents a complexity that needs to be considered within the broader objectives and drivers of the Project. This is a challenge for the decarbonisation of the NEM, where in Queensland economic wind resources proximal to high voltage transmission lines are located along the ridgelines of the Great Dividing Range which have not historically been cleared due to the topography. However, all efforts were taken to avoid impacts to the extent practical during the feasibility study process, in particular the siting of fixed infrastructure. Residual impacts are unavoidable and will be appropriately offset.

The Project will provide significant net benefit to the Ravenshoe Community and Tablelands Regional Council local government area in the form of socio-economic benefits during the construction and operational phases. Economic stimulus is estimated at $100 m to $250 m in direct and indirect expenditure in the local region during the construction phase (see **Section 13.1.2.1**). To ensure enduring value during the operational phase, the CWF Project has made a commitment to an industry-leading Community Benefit Fund of approximately $500,000 per annum for the life of the Project. Based on feedback from the community, it is expected that the Community Benefit Fund would contribute towards social housing and emergency relief initiatives, to be determined by the Community Advisory Committee and feedback from community stakeholders via surveys and direct engagement. The Indigenous Land Use Agreement signed in May 2022provides further benefits for the traditional owners of the land Jirrbal #4 including access to country in addition to financial, training and employment initiatives.

The Project also provides significant benefits at a larger scale in the form of Queensland Government's commitment towards 70% renewable energy by 2032 and in satisfying LCOE imperatives, and the broader global driver for renewable energy projects to replace fossil fuel generation sources. These measures are necessary at a global level to address climate change and in turn mitigate a key threatening process to the WTQWHA and the various MNES within the Project area.

For these reasons, the Project advances the principles of ESD and the objects and requirements of the EPBC Act (see **Table 14-1** and **Table 14-2** respectively).

Table 14-1 Assessment of the Project's Compliance with the Objects of the EPBC Act (s. 3)

Object of the Act (s.3)	Project Compliance
(a) to provide for the protection of the environment, especially those aspects of the environment that are matters of national environmental significance;	Central to the design of the Project has been the avoidance and minimisation of impacts on areas of highest ecological, social and cultural value within the Project area. The Project is an important part of Australia's efforts to combat climate change and is located in an area characterised by excellent wind resource, ready access to the national electricity grid, and a remote location away from dense settlements. To this end, the Project, if designed in a manner that avoids and minimises impacts to MNES, will (a) contribute to the protection of the environment, (b) promote ESD and (c) promote the conservation of biodiversity by making a significant contribution towards decarbonising the local, regional, national and international economy. In doing so, it will contribute meaningfully to the reduction of climate change; the most critical threatening process to the WTQWHA and the MNES within and around the Project area.
(b) to promote ecologically sustainable development through the conservation and ecologically sustainable use of natural resources;	
(c) to promote the conservation of biodiversity;	

Object of the Act (s.3)	Project Compliance
(d) to promote a co-operative approach to the protection and management of the environment involving governments, the community, land-holders and indigenous peoples;	As described within **Section 11.0** of this PER, CWF has sought to engage meaningfully with the full cross-section of stakeholders associated with the Project. This includes community members via community information sessions and engagements with Government such as Tablelands Regional Council and non-Government organisations such as Terrain NRM. Engagement is recognised as an ongoing process and the Project has provided a range of mechanisms to do so, such as a dedicated website, shopfront and Ravenshoe, development of a Community Advisory Group and ongoing Community Information Sessions for key Project milestones such as the publication of this PER. The establishment of the Community Advisory Group for the Project provides a key conduit in a cooperative approach to the protection and management of the environment through the delivery of this Project.
(e) to assist in the co-operative implementation of Australia's international environmental responsibilities;	The Project will represent a contribution to Australia's obligations under the Paris Climate Accord and the Glasgow Climate Pact, to help achieve reductions in future greenhouse gas emissions and to lessen the impact of climate change.
(f) to recognise the role of indigenous people in the conservation and ecologically sustainable use of Australia's biodiversity; and	CWF recognises the importance of Jirrbal knowledge of the site and their past, present and ongoing connection to the Land. The Jirrbal People #4 are a key stakeholder group for this Project. CWF has a signed Cultural Heritage Management Plan in October 2020 with the Jirrbal People #4 and the Indigenous Land Use Agreement signed in May 2022. The Jirrbal People #4 are custodians of important local knowledge about the conservation and ecologically sustainable use of the Land within the Project area.
(g) to promote the use of indigenous peoples' knowledge of biodiversity with the involvement of, and in co-operation with, the owners of the knowledge.	

Table 14-2 Assessment of the Project's Compliance with the Principles of ESD (s. 3A)

Principle of ESD (s.3A)	Project Compliance
(a) Decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations.	The objectives for the Project are macro-scale and long-term; they primarily relate to the obligations that Australia has under international agreements such as the Paris Climate Accord and the Glasgow Climate Pact, to help achieve reductions in future greenhouse gas emissions and to lessen the impact of climate change. As described in **Section 13.1** of this PER, the Project will present substantial economic and social opportunities for the township of Ravenshoe, the satellite towns around Ravenshoe and the broader Tablelands Regional Council LGA. This PER has demonstrated that impacts to any MNES are likely to be short-term, particularly with (a) the commitment to rehabilitation of areas not required post-construction, and (b) considering the major benefits associated with the Project's carbon lifecycle assessment. The Project is located in the Northern Queensland

Principle of ESD (s.3A)	Project Compliance
	Renewable Energy Zone, an area identified by the Queensland Government as being high in wind resources.
(b) If there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.	**Sections 5.0**, **6.0** and **8.0** of this PER respectively (a) describe the potential impacts of the Project, (b) present the avoidance, minimisation and mitigation measures to address these potential impacts, and (c) assess the expected significant residual impact on each MNES associated with the Project. For unavoidable significant residual impacts on MNES, an Offset Management Strategy is proposed (**Appendix O**). This identifies, with a sufficient level of confidence, that there will be net positive outcomes for the MNES impacted by the Project. Furthermore, the Project will contribute to the global efforts to prevent and slow down the effects of climate change.
(c) The principle of inter-generational equity – that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations.	The objectives of this Project are to make efficient use of the Project area's excellent wind resources and grid capacity. The Project will help to contribute to the reduction of climate change; the most critical threatening process to the MNES within and around the Project area. Central to this concept, and therefore this Project, is inter-generational equity and the conservation of biological diversity and ecological integrity.
(d) The conservation of biological diversity and ecological integrity should be a fundamental consideration in decision-making.	
(e) Improved valuation, pricing and incentive mechanisms should be promoted.	This principle of ESD requires that environmental factors are included in the valuation of assets and services. This principle is relevant to the Project in that the carbon lifecycle assessment presented in **Section 13.0** of this PER demonstrates a significant benefit in undertaking the Project from a carbon perspective. Over its operational life, the Project is expected to abate the generation of 20 times the carbon footprint of the Project (calculated from materials, transportation, vegetation clearing). This is assessed through comparison with the operation of a coal-fired power station with an equivalent generation capacity to the Project over this 30-year time period.