

**GRIMSBY ENERGY INC. ANAEROBIC DIGESTER
RENEWABLE ENERGY APPROVAL AMENDMENT
MODIFICATION DOCUMENT**

REA #: 8541-9HSGG3

Project Proponent: **Grimsby Energy Incorporated**
231 Roberts Road
Grimsby, Ontario
L3M 5N2

Prepared By: **purEnergy Resources Inc.**
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TABLE OF CONTENTS

1. INTRODUCTION

2. SUMMARY AND RATIONALE FOR MODIFICATIONS

3. ENVIRONMENTAL EFFECTS OF THE PROJECT MODIFICATION AND MITIGATION MEASURES

4. UPDATES TO EXISTING REA REPORTS

5. CONSULTATION

6. CLOSURE

LIST OF APPENDICES

APPENDIX A: Letter to MOECC with Proposal of Change

APPENDIX B: Site Plan

APPENDIX C: Notice of Project Change

1. INTRODUCTION

Grimsby Energy Inc. Anaerobic Digester Facility (GEI Facility) is a Class 3 anaerobic digestion facility with a nameplate capacity of 1,000 kilowatts of electricity (kW_e) located in Grimsby, Niagara Region, Ontario.

The Project's Renewable Energy Approval (REA) was issued on October 1st, 2014, under Ontario Regulation 359/09 of the Environmental Protection Act. The REA was amended on June 26th, 2017 and the REA Amendment was approved on March 1st, 2018. As a result of the REA Amendment, pre-processed liquid SSO and Biosolids were included to the types of Biomass that GEI Facility can receive and process, under Section 38.(2) of the amended REA. As part of the current REA Amendment, GEI kindly requests the removal of Biosolids from the list of approved Biomass in Section 38.(2) of the REA. GEI Facility has not received any Biosolids and will not include them in its Biomass feedstock in the future, either.

GEI Facility is in operation since July, 2017. It receives and treats anaerobic digestion material, with more than 50% in volume being on-farm anaerobic digestion materials. As a result, and considering GEI request to remove Biosolids from the list of approved Biomass in Section 38.(2) of the REA, GEI believes that the anaerobic digestion output of GEI Facility falls under the Exemptions from Part V of the Environmental Protection Act and O. Reg. 347.

This Modification Document provides information regarding the proposed change to the existing REA # 8541-9HSGG3. This document has been prepared to address the requirements of Chapter 10 "Making Changes to Renewable Energy Approval (REA) Projects" of the Technical Guide.

2. SUMMARY AND RATIONALE FOR MODIFICATIONS

GEI Facility receives and treats both on-farm and off-farm anaerobic digestion materials, which do not include Biosolids. Based on the current mix, on-farm anaerobic digestion materials exceed 50 per cent of the total volume.

GEI Facility consists of one (1) primary digester and two (2) secondary digesters with a combined retention time of sixty (60) days. During that period, anaerobic digestion of the organic material takes place, and biogas is produced. The resulting digestate is then pumped to a digestate holding tank, with capacity for six (6) months.

The exemption from Part V of Ont Reg 347 applies when the anaerobic digestion output is made up of at least 50% by volume of on farm anaerobic digestion material. The anaerobic digestion output is contained within the two storage tanks at the GEI facility prior to removal from site. The retention time of the primary and secondary digesters is up to 60 days and with the storage tanks the combined retention time is up to eight months. There may be days when the off-farm anaerobic material exceeds the on-farm material. These daily changes will not affect the quality of the digestate as long as the overall ratio of the materials in the storage tanks is greater than 50% by volume of on-farm anaerobic digestion material at the time material is sent for application on agricultural land as a nutrient.

According to Section 51.1. of the REA, GEI shall continue to maintain an on-site written or digital record of activities undertaken at the Facility, which includes among others:

- quantity and type of waste received at the Facility, including incoming waste analysis results;
- quantity and type of waste shipped from the Facility, including outgoing waste analysis results;
- amount of Processed Organic Waste and/or NASM shipped from the Facility;
- quantity and type of waste processed at the Facility;
- quantity and type of waste stored at the Facility, including the Biomass levels in the storage tanks.

Based on the above, the anaerobic digestion output of GEI Facility would fall under the Exemptions from Part V of the Environmental Protection Act and O. Reg. 347 stated under Section 3.1.21 of O. Reg. 347:

3. (1) *The following wastes are exempted from Part V of the Act and this Regulation:*

21. *Anaerobic digestion output that is intended for application on agricultural land as nutrient,*
- i. if it was generated by a regulated mixed anaerobic digestion facility, or*
 - ii. if the anaerobic digestion materials did not contain sewage biosolids or human body waste and at least 50 per cent, by volume, of the total amount of anaerobic digestion materials were on-farm anaerobic digestion materials.*

3. ENVIRONMENTAL EFFECTS OF THE PROJECT MODIFICATION AND MITIGATION MEASURES

The land application of the anaerobic digestion output of GEI Facility on farm units will not result in a change of the Biomass rates, receipt rates, and waste storage currently allowed at the existing REA [Section 38(4)].

GEI shall continue to maintain an on-site written or digital record of activities undertaken at the Facility, according *Section 51* of the REA. Annual reports summarizing the operation of the Facility will continue to be submitted to the District Manager by March 31st following the end of each operating year. These records of activities and annual reports shall provide evidence that the percentage of on-farm anaerobic digestion materials received and treated at the GEI Facility is at least 50% in volume at the time of removal of material intended as a nutrient for application on agricultural land.

No additional potential environmental impacts have been identified as a result of the land application of the anaerobic digestion output of the GEI Facility on farm units. The project site will not be affected, and no additional equipment will be needed.

4. UPDATES TO EXISTING REA REPORTS

The Exemption of the anaerobic digestion output of GEI Facility from Part V of the Environmental Protection Act and O. Reg. 347, based on the volume of on-farm material that GEI Facility treats (more than 50%) and the land application of the anaerobic digestion output will not result in a change of the Biomass rates, receipt rates, and

waste storage currently allowed in the REA. The project site will not be affected, and no additional equipment will be needed.

Considering the above, the REA Reports have not been modified or updated as a result of the proposed modification.

5. CONSULTATION

The Notice of Project Change (Appendix C) and this Modification Document will be submitted to the MOECC.

In order to ensure that the community is adequately informed of the proposed change, the Notice of Project Change and this Modification Document will be posted on the Project website(www.grimsbyenergy.com) together with the REA Reports and the REA Approval.

A letter will be issued to the Town of Grimsby and to Niagara Region, as well as to the First Nations Groups identified by the MOECC as having a potential interest in the project.

CLOSURE

The assessment of the proposed modification has been made in accordance with O.Reg. 359/09 and the MOECC's Technical Guide. The Exemption of the anaerobic digestion output of GEI Facility from Part V of the Environmental Protection Act and O. Reg. 347 and the land application of the anaerobic digestion output would not result in new negative environmental effects or associated mitigation measures beyond those already identified in the original REA for the Project.

purEnergy Resources Inc.



Prepared by: Gerhard Klammer, CEO

APPENDIX A: Letter to MOECC with Proposal of Change

July 19th, 2018

Ministry of the Environment Approvals Branch
Renewable Energy Approval Unit
2 St. Clair Avenue West, Floor 12A
Toronto, ON M4V 1L5

Attention:

Director, Ministry of the Environment, Approvals Branch – Renewable Energy Approvals

CC: Mr. Mohsen Keyvani, Ministry of the Environment, Approvals Branch

CC: Mr. Chris Medland, Ministry of the Environment Niagara District Office

RE: Request for Amendment to the REA for Grimsby Energy Inc. Anaerobic Digester Facility (GEI Facility) REA Reference Number 8541-9HSGG3

Dear Director,

Grimsby Energy Inc. (GEI) received a Renewable Energy Approval (REA) on October 1st, 2014 under Ontario Regulation 359/09 for the construction, installation, use, operation, maintenance and retiring of a Class 3 anaerobic digestion facility with a nameplate capacity of 1,000 kilowatts of electricity (kWe) in Grimsby, Ontario. GEI would like to submit an application for an amendment to the REA to address that the anaerobic digestion output of the GEI Facility is exempt of Part V of the Environmental Protection Act and O. Reg. 347.

GEI Facility receives and treats both on-farm and off-farm anaerobic digestion materials. Based on the current mix, on-farm anaerobic digestion materials exceed 50 per cent (it is actually higher than 60 per cent; please see Appendix 1) of the total volume.

Based on the above, the anaerobic digestion output of GEI Facility would fall under the Exemptions of Part V of the Environmental Protection Act and O. Reg. 347 stated under Section 3.1.(21) of O. Reg. 347:

3. (1) The following wastes are exempted from Part V of the Act and this Regulation:

21. Anaerobic digestion output that is intended for application on agricultural land as nutrient,

- i. if it was generated by a regulated mixed anaerobic digestion facility, or*
- ii. if the anaerobic digestion materials did not contain sewage biosolids or human body waste and at least 50 per cent, by volume, of the total amount of anaerobic digestion materials were on-farm anaerobic digestion materials.*

Proposed Changes

GEI is requesting an update of *Section 45. End Use of Processed Material* of the REA to include the possibility of land application of the anaerobic digestion output on farm units, based on the percentage of on-farm anaerobic digestion materials, which is at least 50% in volume.

Proposed Operations

The land application of the anaerobic digestion output of GEI Facility on farm units will not result in a change of the Biomass rates, receipt rates, and waste storage currently allowed at the existing REA [Section 38(4)].

GEI shall continue to maintain an on-site written or digital record of activities undertaken at the Facility, according *Section 51* of the REA. Annual reports summarizing the operation of the Facility will continue to be submitted to the District Manager by March 31st following the end of each operating year. These records of activities and annual reports shall provide evidence that the percentage of on-farm anaerobic digestion materials received and treated at GEI Facility is at least 50% in volume.

GEI will as well test the anaerobic digestion output on a monthly basis and will forward the lab reports with the nutrient values to the farm units which will land apply the anaerobic digestion output. Furthermore, GEI will notify the local MOECC office each time anaerobic digestion output will leave the GEI Facility. This notification will include tonnage, the date of leaving the GEI Facility as well as the name of the farm unit the anaerobic digestion output will be shipped to.

Potential Environmental Impacts

No additional potential environmental impacts have been identified as a result of the land application of the anaerobic digestion output of the GEI Facility on farm units. The project site will not be affected, and no additional equipment will be needed.

Mitigation Measures and Contingency Plans

In the event that the volume of on-farm anaerobic digestion materials received and treated at GEI Facility does not reach at least 50% of the total volume, the anaerobic digestion output will not be land applied. It will be either stored in the existing digestate holding tanks or it will be handled according current Section 45 of the REA.

Consultation Activities

GEI will undertake the following consultation activities:

- A letter will be issued to the Town of Grimsby and to Niagara Region;
- A letter will be sent to the First Nations Groups identified by the MOE as having a potential interest in the project; and
- A summary of consultation activities related to this change, as well as any correspondence with the public, First Nations Groups or government agents regarding the proposed change will be compiled and sent to the Director of the Ministry of Environment Approvals Branch and copied to the local district office.

Conclusions

No changes to the project site, use, operation, maintenance and retiring of the GEI Anaerobic Digester Facility have been identified as a result of the proposed changes. Thus, GEI believes that the exemption of Part V of the Environmental Protection Act and O. Reg. 347 for the anaerobic digestion output of the GEI Facility is a minor amendment to the currently approved REA.

With this Letter, GEI respectfully requests from the MOECC the exemption of Part V of the Environmental Protection Act and O. Reg. 347 as described above for the anaerobic digestion output of the GEI Facility. We are at a critical juncture at our operation and failure to act immediately will leave us with a limited set of options including but not limited to closing down our operation. GEI is available should there be any questions regarding this Letter and the proposed change described in it.

Proponent Contact Information:

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Cobourg, ON K9A 4S3
Phone: 905 4318007
email: gerhard.klammer@pureenergyinc.com

Sincerely,



Gerhard Klammer
CEO
purEnergy Resources Inc.

Appendix 1:

Dry Material Total: up to July 16th, 2018: 5805 tonnes

Non-Ag material through the dry feeder: 750 tonnes (600 tonnes Dog Food and 150 tonnes of paunch manure, Chicken material and other materials that were Dry Feeder Fed)

Ag Material is then $5805 - 750 = 5055$ tonnes

Assume 1 tonne is 2.29 m³ (pomace, peppers and silage all close to this number).

$5805 * 2.29 \text{ m}^3 = 11\,576 \text{ m}^3$ of Ag Material through Feeder

Liquid Ag Material: (Manure for starting the site): 1392 m³

Total Ag Material: $11576 \text{ m}^3 + 1392 \text{ m}^3 = 12968 \text{ m}^3$

Non-Ag Liquid material

7183 m³ of liquid material material inventoried in records.

Dog food 600 tonnes (1.2 tonnes per bucket) is 1140 m³ of material.

Solid chicken material 150 tonnes (1.6 tonnes/bucket) is 210 m³ material

Total Non-Ag Material is $7183 + 1140 + 210 = 8533$

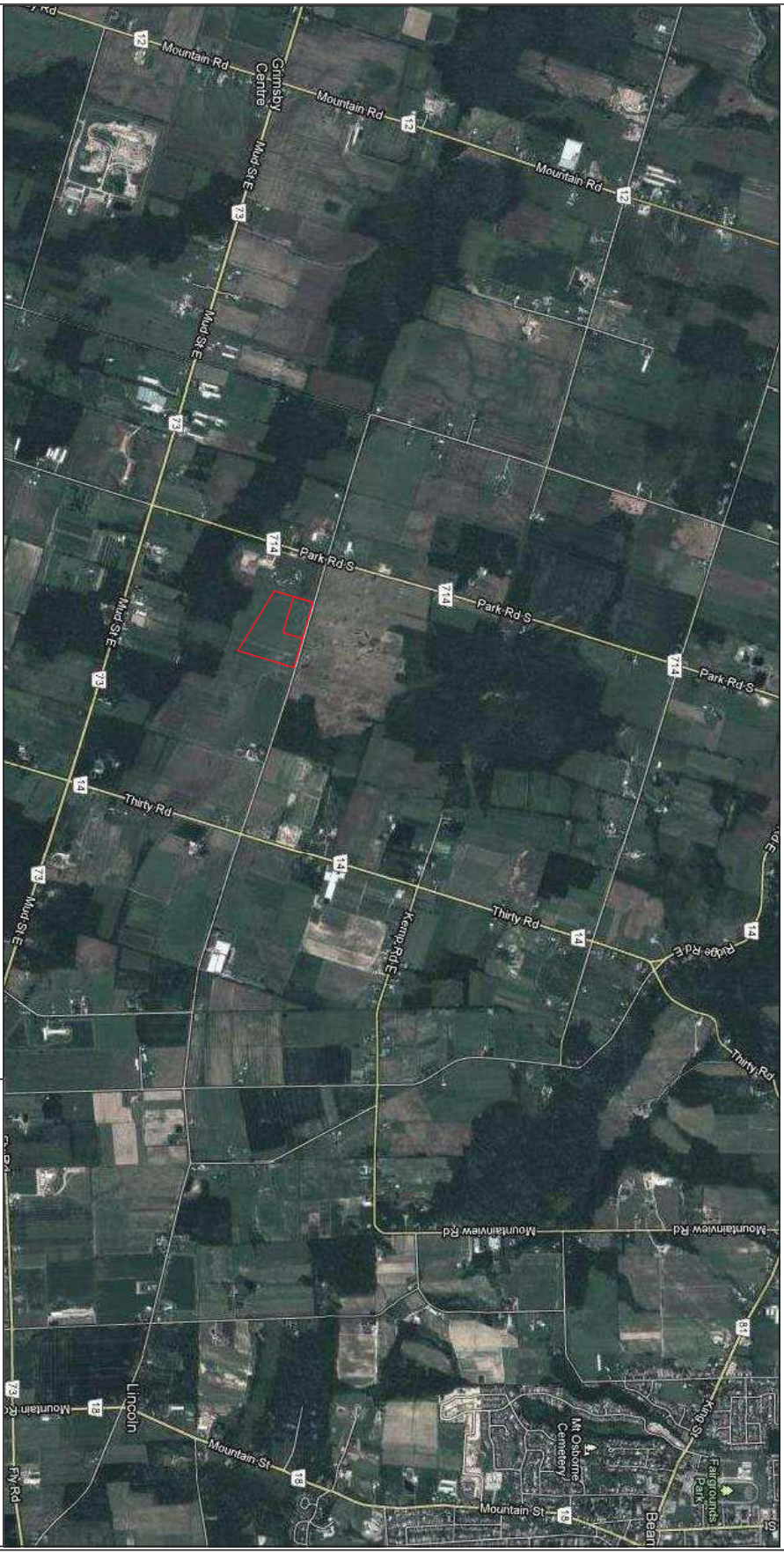
Total Material = $12968 + 8533 = 21501 \text{ m}^3$

Ratio:

$8533/21501 = 0.3968$

Therefore, current ratio is 39% Non-Ag and 61% Agricultural material.

APPENDIX B: Site Plan



GRIMSBY ENERGY INC.
442 SOBIE RD.

FIGURE 1
SITE LOCATION



Riepma
CONSULTANTS INC.
R R 1, Georgetown, Ontario L7G 4S4



GRIMSBY ENERGY INC.
442 SOBIE RD.

FIGURE 2
SITE AREA



Riepma
CONSULTANTS INC.
R R 1, Georgetown, Ontario L7G 4S4

APPENDIX C: Notice of Project Change



NOTICE OF A PROPOSED CHANGE **TO A RENEWABLE ENERGY PROJECT**

Project Name: Grimsby Energy Inc. Anaerobic Digester

MOECC Reference Number: 8541-9HSGG3

IESO Reference Number: FIT-F5NTWMA

Project Location: 424 Sobie Rd, Grimsby Town, Regional Municipality of Niagara, L3M 4E7

Dated at Grimsby this the 23rd of July 2018

Grimsby Energy Inc. (GEI) is planning to engage in a renewable energy project in respect of which the issuance of a renewable energy approval is required. The project is subject to the provisions of the *Environmental Protection Act (Act)* Part V.0.1 and Ontario Regulation 359/09 (Regulation). This notice must be distributed in accordance with section 16.0.1 of the Regulation. This notice is being distributed to make the public aware of a **proposed change to the project**.

Project Description and Proposed Change:

Pursuant to the Act and Regulation, the facility, in respect of which this project was originally proposed to be engaged in, consists of a Class 3 anaerobic digestion facility with a nameplate capacity of 1,000 kilowatts of electricity (kW_{el}).

A **change is being proposed** to the project: the exemption of the anaerobic digestion output of GEI Facility of Part V of the Environmental Protection Act and O. Reg. 347, based on the volume of on-farm material that GEI Facility treats (more than 50%)

The anaerobic digestion output of GEI Facility falls under the Exemptions of Part V of the Environmental Protection Act and O. Reg. 347 stated under Section 3.1.(21) of O. Reg. 347:

3. (1) The following wastes are exempted from Part V of the Act and this Regulation:

- 21. Anaerobic digestion output that is intended for application on agricultural land as nutrient,*
- i. if it was generated by a regulated mixed anaerobic digestion facility, or*
 - ii. if the anaerobic digestion materials did not contain sewage biosolids or human body waste and at least 50 per cent, by volume, of the total amount of anaerobic digestion materials were on-farm anaerobic digestion materials.*

Based on the above, the anaerobic digestion output of GEI Facility would be exempted of Part V of the Environmental Protection Act and O. Reg. 347 and could be land applied.

The project location is shown in the map below.

Documents for Public Inspection

A Modification Report has been prepared regarding the proposed change. The Modification Report and the approved REA Reports are available for public inspection at the project website (www.grimsbyenergy.com).

Project Contacts and Information

To learn more about the project proposal or to communicate concerns, please contact:

Proponent Contact Information:

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