



ENTROPY INVESTMENT MANAGEMENT, LLC
14120 Ballantyne Corporate Place
Suite 400
Charlotte, NC 28277

April 10, 2017

Via Email & Federal Express

Res.filings@puc.ri.gov
Rhode Island Public Utilities Commission
Attn: Luly E. Massaro, Commission Clerk
89 Jefferson Blvd
Warwick, MA 02888

RE: **Orbit Energy Rhode Island, LLC – Renewable Energy Resources Eligibility Form**

Ms. Massaro:

Please accept the enclosed Renewable Energy Resources Eligibility Form on behalf of Orbit Energy Rhode Island, LLC.

Should you have any questions or need anything further, please contact me at 980-272-3862.

Regards,

ORBIT ENERGY RHODE ISLAND, LLC

Tate Glankler
NC State Bar Certified Paralegal

RIPUC Use Only

Date Application Received: ___/___/___
Date Review Completed: ___/___/___
Date Commission Action: ___/___/___
Date Commission Approved: ___/___/___

GIS Certification #:
_____**RENEWABLE ENERGY RESOURCES ELIGIBILITY FORM****The Standard Application Form**

**Required of all Applicants for Certification of Eligibility of Renewable Energy Resource
(Version 8 – December 5, 2012)**

STATE OF RHODE ISLAND PUBLIC UTILITIES COMMISSION**Pursuant to the Renewable Energy Act****Section 39-26-1 et. seq. of the General Laws of Rhode Island****NOTICE:**

When completing this Renewable Energy Resources Eligibility Form and any applicable Appendices, please refer to the State of Rhode Island and Providence Plantations Public Utilities Commission Rules and Regulations Governing the Implementation of a Renewable Energy Standard (RES Regulations, Effective Date: January 1, 2006), and the associated RES Certification Filing Methodology Guide. All applicable regulations, procedures and guidelines are available on the Commission's web site: www.ripuc.org/utilityinfo/res.html. Also, all filings must be in conformance with the Commission's Rules of Practice and Procedure, in particular, Rule 1.5, or its successor regulation, entitled "Formal Requirements as to Filings."

- Please complete the Renewable Energy Resources Eligibility Form and Appendices using a typewriter or black ink.

- Please submit one original and three copies of the completed Application Form, applicable Appendices and all supporting documentation to the Commission at the following address:

Rhode Island Public Utilities Commission
Attn: Luly E. Massaro, Commission Clerk
89 Jefferson Blvd
Warwick, RI 02888

In addition to the paper copies, electronic/email submittals are required under Commission regulations. Such electronic submittals should be sent to Res.filings@puc.ri.gov.

- In addition to filing with the Commission, Applicants are required to send, electronically or electronically and in paper format, a copy of the completed Application including all attachments and supporting documentation, to the Division of Public Utilities and Carriers and to all interested parties. A list of interested parties can be obtained from the Commission's website at www.ripuc.org/utilityinfo/res.html.

- Keep a copy of the completed Application for your records.

- The Commission will notify the Authorized Representative if the Application is incomplete.

- Pursuant to Section 6.0 of the RES Regulations, the Commission shall provide a thirty (30) day period for public comment following posting of any administratively complete Application.

- Please note that all information submitted on or attached to the Application is considered to be a public record unless the Commission agrees to deem some portion of the application confidential after consideration under section 1.2(g) of the Commission's Rules of Practice and Procedure.

- In accordance with Section 6.2 of the RES Regulations, the Commission will provide prospective reviews for Applicants seeking a preliminary determination as to whether a facility would be eligible prior to the formal certification process described in Section 6.1 of the RES Regulations. Please note that space is provided on the Form for applicant to designate the type of review being requested.

- Questions related to this Renewable Energy Resources Eligibility Form should be submitted in writing, preferably via email and directed to: Luly E. Massaro, Commission Clerk at Res.filings@puc.ri.gov.

SECTION I: Identification Information

- 1.1 Name of Generation Unit (sufficient for full and unique identification):
ORBIT ENERGY RHODE ISLAND, LLC
- 1.2 Type of Certification being requested (check one):
☒ Standard Certification ☐ Prospective Certification (Declaratory Judgment)
- 1.3 This Application includes: (Check all that apply)¹
- ☐ APPENDIX A: Authorized Representative Certification for Individual Owner or Operator
- ☐ APPENDIX B: Authorized Representative Certification for Non-Corporate Entities Other Than Individuals
- ☐ APPENDIX C: Existing Renewable Energy Resources
- ☐ APPENDIX D: Special Provisions for Aggregators of Customer-sited or Off-grid Generation Facilities
- ☐ APPENDIX E: Special Provisions for a Generation Unit Located in a Control Area Adjacent to NEPOOL
- ☒ APPENDIX F: Fuel Source Plan for Eligible Biomass Fuels
- 1.4 Primary Contact Person name and title: ZACK MORGAN / DEPUTY GENERAL COUNSEL
- 1.5 Primary Contact Person address and contact information:
Address: 14120 BALLANTYNE CORPORATE PLACE, SUITE 400
CHARLOTTE, NC 28227
- Phone: 980-272-3610 Fax: 704-919-5281
Email: id@entropysolar.com
- 1.6 Backup Contact Person name and title: TATE GLANKLER / PARALEGAL
- 1.7 Backup Contact Person address and contact information:
Address: 14120 BALLANTYNE CORPORATE PLACE, SUITE 400
CHARLOTTE, NC 28277
- Phone: 980-272-3613 Fax: 704-919-5281
Email: id@entropysolar.com

¹ Please note that all Applicants are required to complete the Renewable Energy Resources Eligibility Standard Application Form and all of the Appendices that apply to the Generation Unit or Owner or Operator that is the subject of this Form. Please omit Appendices that do not apply.

- 1.8 Name and Title of Authorized Representative (*i.e.*, the individual responsible for certifying the accuracy of all information contained in this form and associated appendices, and whose signature will appear on the application):

JOHN FOSINA / CHIEF FINANCIAL OFFICER

Appendix A or B (as appropriate) completed and attached? ☐ Yes ☐ No ☒ N/A

- 1.9 Authorized Representative address and contact information:

Address: YORK CAPITAL MANAGEMENT

767 FIFTH AVE, 17TH FLOOR

NEW YORK, NY 10153

Phone: 212-300-1300

Fax:

Email: JFOSINA@YORKCAPITAL.COM

- 1.10 Owner name and title: ORBIT ENERGY RHODE ISLAND, LLC

- 1.11 Owner address and contact information:

Address: 14120 BALLANTYNE CORPORATE PLACE, SUITE 400

CHARLOTTE, NC 28277

Phone: 980-272-3610

Fax: 704-919-5281

Email: id@entropysolar.com

- 1.12 Owner business organization type (check one):

☐ Individual

☐ Partnership

☒ Corporation

☐ Other:

- 1.13 Operator name and title: ORBIT ENERGY RHODE ISLAND, LLC

- 1.14 Operator address and contact information:

Address: 14120 BALLANTYNE CORPORATE PLACE

SUITE 400

CHARLOTTE, NC 28277

Phone: 980-272-3610

Fax: 704-919-5281

Email: id@entropysolar.com

- 1.15 Operator business organization type (check one):

☐ Individual

☐ Partnership

☒ Corporation

☐ Other:

SECTION II: Generation Unit Information, Fuels, Energy Resources and Technologies

- 2.1 ISO-NE Generation Unit Asset Identification Number or NEPOOL GIS Identification Number (either or both as applicable): PENDING
- 2.2 Generation Unit Nameplate Capacity: 3.2 MW
- 2.3 Maximum Demonstrated Capacity: 3.2 MW
- 2.4 Please indicate which of the following Eligible Renewable Energy Resources are used by the Generation Unit: (Check ALL that apply) – *per RES Regulations Section 5.0*
- ☐ Direct solar radiation
 - ☐ The wind
 - ☐ Movement of or the latent heat of the ocean
 - ☐ The heat of the earth
 - ☐ Small hydro facilities
 - ☒ Biomass facilities using Eligible Biomass Fuels and maintaining compliance with all aspects of current air permits; Eligible Biomass Fuels may be co-fired with fossil fuels, provided that only the renewable energy fraction of production from multi-fuel facilities shall be considered eligible.
 - ☐ Biomass facilities using unlisted biomass fuel
 - ☐ Biomass facilities, multi-fueled or using fossil fuel co-firing
 - ☐ Fuel cells using a renewable resource referenced in this section
- 2.5 If the box checked in Section 2.4 above is “Small hydro facilities”, please certify that the facility’s aggregate capacity does not exceed 30 MW. – *per RES Regulations Section 3.32*
- ☐ ← check this box to certify that the above statement is true
 - ☐ N/A or other (please explain) _____
- 2.6 If the box checked in Section 2.4 above is “Small hydro facilities”, please certify that the facility does not involve any new impoundment or diversion of water with an average salinity of twenty (20) parts per thousand or less. – *per RES Regulations Section 3.32*
- ☐ ← check this box to certify that the above statement is true
 - ☐ N/A or other (please explain) _____
- 2.7 If you checked one of the Biomass facilities boxes in Section 2.4 above, please respond to the following:
- A. Please specify the fuel or fuels used or to be used in the Unit: _____
FUEL TO BE USED IS OUTLINED IN ATTACHED FUEL SOURCE PLAN
- B. Please complete and attach Appendix F, Eligible Biomass Fuel Source Plan.
Appendix F completed and attached? ☒ Yes ☐ No ☐ N/A

2.8 Has the Generation Unit been certified as a Renewable Energy Resource for eligibility in another state's renewable portfolio standard?

☐ Yes ☒ No If yes, please attach a copy of that state's certifying order.

Copy of State's certifying order attached? ☐ Yes ☐ No ☒ N/A

SECTION III: Commercial Operation Date

Please provide documentation to support all claims and responses to the following questions:

3.1 Date Generation Unit first entered Commercial Operation: ___ / ___ / ___ at the site.

If the commercial operation date is after December 31, 1997, please provide independent verification, such as the utility log or metering data, showing that the meter first spun after December 31, 1997. This is needed in order to verify that the facility qualifies as a New Renewable Energy Resource.

Documentation attached? ☐ Yes ☐ No ☐ N/A

3.2 Is there an Existing Renewable Energy Resource located at the site of Generation Unit?

☐ Yes

☒ No

3.3 If the date entered in response to question 3.1 is earlier than December 31, 1997 or if you checked "Yes" in response to question 3.2 above, please complete Appendix C.

Appendix C completed and attached? ☐ Yes ☐ No ☒ N/A

3.4 Was all or any part of the Generation Unit used on or before December 31, 1997 to generate electricity at any other site?

☐ Yes

☒ No

3.5 If you checked "Yes" to question 3.4 above, please specify the power production equipment used and the address where such power production equipment produced electricity (attach more detail if the space provided is not sufficient):

SECTION IV: Metering

4.1 Please indicate how the Generation Unit's electrical energy output is verified (check all that apply):

☒ ISO-NE Market Settlement System

☐ Self-reported to the NEPOOL GIS Administrator

☐ Other (please specify below and see Appendix D: Eligibility for Aggregations):

Appendix D completed and attached?

☐ Yes ☐ No ☒ N/A

SECTION V: Location

5.1 Please check one of the following that apply to the Generation Unit:

- ☒ Grid Connected Generation
☐ Off-Grid Generation (not connected to a utility transmission or distribution system)
☐ Customer Sited Generation (interconnected on the end-use customer side of the retail electricity meter in such a manner that it displaces all or part of the metered consumption of the end-use customer)

5.2 Generation Unit address: Corner of Scituate Avenue & Old Pocasset Road
Plat 43, Lot 2 in Johnston, RI 02919

5.3 Please provide the Generation Unit's geographic location information:

A. Universal Transverse Mercator Coordinates: 19T 291067mE 4631369mN

B. Longitude/Latitude: 41 48'24.0"N / 71 30'54.4"W

5.4 The Generation Unit located: (please check the appropriate box)

- ☒ In the NEPOOL control area
☐ In a control area adjacent to the NEPOOL control area
☐ In a control area other than NEPOOL which is not adjacent to the NEPOOL control area ← *If you checked this box, then the generator does not qualify for the RI RES – therefore, please do not complete/submit this form.*

5.5 If you checked "In a control area adjacent to the NEPOOL control area" in Section 5.4 above, please complete Appendix E.

Appendix E completed and attached?

☐ Yes ☐ No ☒ N/A

SECTION VI: Certification

- 6.1 Please attach documentation, using one of the applicable forms below, demonstrating the authority of the Authorized Representative indicated in Section 1.8 to certify and submit this Application.

Corporations

If the Owner or Operator is a corporation, the Authorized Representative shall provide **either**:

- (a) Evidence of a board of directors vote granting authority to the Authorized Representative to execute the Renewable Energy Resources Eligibility Form, **or**
- (b) A certification from the Corporate Clerk or Secretary of the Corporation that the Authorized Representative is authorized to execute the Renewable Energy Resources Eligibility Form or is otherwise authorized to legally bind the corporation in like matters.

Evidence of Board Vote provided? ☐ Yes ☐ No ☒ N/A

Corporate Certification provided? ☒ Yes ☐ No ☐ N/A

Individuals

If the Owner or Operator is an individual, that individual shall complete and attach APPENDIX A, or a similar form of certification from the Owner or Operator, duly notarized, that certifies that the Authorized Representative has authority to execute the Renewable Energy Resources Eligibility Form.

Appendix A completed and attached? ☐ Yes ☐ No ☒ N/A

Non-Corporate Entities

(Proprietorships, Partnerships, Cooperatives, etc.) If the Owner or Operator is not an individual or a corporation, it shall complete and attach APPENDIX B or execute a resolution indicating that the Authorized Representative named in Section 1.8 has authority to execute the Renewable Energy Resources Eligibility Form or to otherwise legally bind the non-corporate entity in like matters.

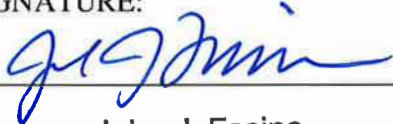
Appendix B completed and attached? ☐ Yes ☐ No ☒ N/A

6.2 Authorized Representative Certification and Signature:

I hereby certify, under pains and penalties of perjury, that I have personally examined and am familiar with the information submitted herein and based upon my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete. I am aware that there are significant penalties, both civil and criminal, for submitting false information, including possible fines and punishment. My signature below certifies all information submitted on this Renewable Energy Resources Eligibility Form. The Renewable Energy Resources Eligibility Form includes the Standard Application Form and all required Appendices and attachments. I acknowledge that the Generation Unit is obligated to and will notify the Commission promptly in the event of a change in a generator's eligibility status (including, without limitation, the status of the air permits) and that when and if, in the Commission's opinion, after due consideration, there is a material change in the characteristics of a Generation Unit or its fuel stream that could alter its eligibility, such Generation Unit must be re-certified in accordance with Section 9.0 of the RES Regulations. I further acknowledge that the Generation Unit is obligated to and will file such quarterly or other reports as required by the Regulations and the Commission in its certification order. I understand that the Generation Unit will be immediately de-certified if it fails to file such reports.

Signature of Authorized Representative:

SIGNATURE:



John J. Fosina

(Title) Chief Financial Officer

DATE:

April 10, 2017

APPENDIX F
(Revised 6/11/10)
Eligible Biomass Fuel Source Plan
(Required of all Applicants Proposing to Use An Eligible Biomass Fuel)

STATE OF RHODE ISLAND PUBLIC UTILITIES COMMISSION
Part of Application for Certificate of Eligibility
RENEWABLE ENERGY RESOURCES ELIGIBILITY FORM
Pursuant to the Renewable Energy Act
Section 39-26-1 et. seq. of the General Laws of Rhode Island

Note to Applicants: Please refer to the RES Certification Filing Methodology Guide posted on the Commission's web site (www.ripuc.org/utilityinfo/res.html) for information, templates and suggestions regarding the types and levels of detail appropriate for responses to specific application items requested below. Also, please see Section 6.9 of the RES Regulations for additional details on specific requirements.

The phrase "Eligible Biomass Fuel" (per RES Regulations Section 3.7) means fuel sources including brush, stumps, lumber ends and trimmings, wood pallets, bark, wood chips, shavings, slash, yard trimmings, site clearing waste, wood packaging, and other clean wood that is not mixed with other unsorted solid wastes⁵; agricultural waste, food and vegetative material; energy crops; landfill methane⁶ or biogas⁷, provided that such gas is collected and conveyed directly to the Generation Unit without use of facilities used as common carriers of natural gas; or neat bio-diesel and other neat liquid fuels that are derived from such fuel sources.

In determining if an Eligible Biomass Generation Unit shall be certified, the Commission will consider if the fuel source plan can reasonably be expected to ensure that only Eligible Biomass Fuels will be used, and in the case of co-firing ensure that only that proportion of generation attributable to an Eligible Biomass Fuel be eligible. Certification will not be granted to those Generation Units with fuel source plans the Commission deems inadequate for these purposes.

⁵ Generation Units using wood sources other than those listed above may make application, as part of the required fuel source plan described in Section 6.9 of the RES Regulations, for the Commission to approve a particular wood source as "clean wood." The burden will be on the applicant to demonstrate that the wood source is at least as clean as those listed in the legislation. Wood sources containing resins, glues, laminates, paints, preservatives, or other treatments that would combust or off-gas, or mixed with any other material that would burn, melt, or create other residue aside from wood ash, will not be approved as clean wood.

⁶ Landfill gas, which is an Eligible Biomass Fuel, means only that gas recovered from inside a landfill and resulting from the natural decomposition of waste, and that would otherwise be vented or flared as part of the landfill's normal operation if not used as a fuel source.

⁷ Gas resulting from the anaerobic digestion of sewage or manure is considered to be a type of biogas, and therefore an Eligible Biomass Fuel that has been fully separated from the waste stream.

This Appendix must be attached to the front of Applicant's Fuel Source Plan required for Generating Units proposing to use an Eligible Biomass Fuel (per Section 6.9 of RES Regulations).

- F.1 The attached Fuel Source Plan includes a detailed description of the type of Eligible Biomass Fuel to be used at the Generation Unit.

Detailed description attached? ☒ Yes ☐ No ☐ N/A

Comments: _____

- F.2 If the proposed fuel is "other clean wood," the Fuel Source Plan should include any further substantiation to demonstrate why the fuel source should be considered as clean as those clean wood sources listed in the legislation.

Further substantiation attached? ☐ Yes ☐ No ☒ N/A

Comments: _____

- F.3 In the case of co-firing with ineligible fuels, the Fuel Source Plan must include a description of (a) how such co-firing will occur; (b) how the relative amounts of Eligible Biomass Fuel and ineligible fuel will be measured; and (c) how the eligible portion of generation output will be calculated. Such calculations shall be based on the energy content of all of the proposed fuels used.

Description attached? ☐ Yes ☐ No ☒ N/A

Comments: _____

- F.4 The Fuel Source Plan must provide a description of what measures will be taken to ensure that only the Eligible Biomass Fuel are used, examples of which may include: standard operating protocols or procedures that will be implemented at the Generation Unit, contracts with fuel suppliers, testing or sampling regimes.

Description provided? ☒ Yes ☐ No ☐ N/A

Comments: _____

- F.5 Please include in the Fuel Source Plan an acknowledgement that the fuels stored at or brought to the Generation Unit will only be either Eligible Biomass Fuels or fossil fuels used for co-firing and that Biomass Fuels not deemed eligible will not be allowed at the premises of the certified Generation Unit. And please check the following box to certify that this statement is true.

☒ ← check this box to certify that the above statement is true

☐ N/A or other (please explain) _____

- F.6 If the proposed fuel includes recycled wood waste, please submit documentation that such fuel meets the definition of Eligible Biomass Fuel and also meets material separation, storage, or handling standards acceptable to the Commission and furthermore consistent with the RES Regulations.

Documentation attached?

☐ Yes ☐ No ☒ N/A

Comments: _____

- F.7 Please certify that you will file all reports and other information necessary to enable the Commission to verify the on-going eligibility of the renewable energy generators pursuant to Section 6.3 of the RES Regulations. Specifically, RES Regulations Section 6.3(i) states that Renewable Energy Resources of the type that combust fuel to generate electricity must file quarterly reports due 60 days after the end of each quarter on the fuel stream used during the quarter. Instructions and filing documents for the quarterly reports can be found on the Commissions website or can be furnished upon request.

☒ ← check this box to certify that the above statement is true

☐ N/A or other (please explain) _____

- F.8 Please attach a copy of the Generation Unit's Valid Air Permit or equivalent authorization.

Valid Air Permit or equivalent attached?

☒ Yes ☐ No ☐ N/A

Comments: _____

- F.9 Effective date of Valid Air Permit or equivalent authorization:

0 1 / 2 0 / 1 6

- F.10 State or jurisdiction issuing Valid Air Permit or equivalent authorization:
Rhode Island

FUEL SOURCE PLAN

I. **Eligible Biomass Fuels**

- Fresh cut flowers, spent plants
- Grass clippings
- Vegetables, fruits, salads
- Sausages, meats, fish
- Breads, pasta, flour, grains
- Coffee grinds/Tea
- Eggs
- Restaurant food waste
- Grease and Fats
- Potatoes, fries, chips, etc
- Dairy products
- Foodstuff
- Oils, vinegars
- Animal fats and meat renderings
- Leaves
- Aquatic plants
- Bakery waste
- Brewery waste
- Potting soil from Lawn and Garden
- Pet food
- Other organic waste as approved

II. Standard Operating Protocols

To ensure that feedstock material received at and processed by the facility will conform with the definition of an “Eligible Biomass Fuel” (EBF) per Section 3.7 of the *Rules and Regulations Governing the Implementation of a Renewable Energy Standard (RES)* effective July 25, 2007, the facility will employ the following measures:

1. All contracts with feedstock suppliers will specify that only EBFs, such as those identified on the attached list from the current feedstock agreement will be delivered to the facility for processing.
2. Each load will be visually inspected by the facility’s Plant Engineer Manager (PEM) for consistency with the feedstock agreement(s) and to ensure that the feedstock is conforming EBF. Any unsuitable material identified would then be stored for future off-site disposal.
3. As an additional control measure to ensure that the feedstock is conforming EBF, after visual inspection, the Process Operator (PO) will collect samples of the feedstock material to evaluate its quality three (3) to four (4) times per day.
4. As a final engineered step in the process to ensure that all feedstock used is conforming EBF, after visual inspection and testing, the feedstock will then be processed by a tornado that will remove any non-conforming material prior to the feedstock being introduced into the digesters. Detailed information regarding the operation of the tornado can be viewed at:

http://www.austep.com/images/AUSTEP_BROCHURE_TORNADO.pdf

III. Contracts with Fuel Supplier

**FIRST AMENDMENT TO
WASTE DELIVERY AGREEMENT
AND
COMMENCEMENT DATE NOTICE**

This **FIRST AMENDMENT TO WASTE DELIVERY AGREEMENT AND COMMENCEMENT DATE NOTICE** (this “**Amendment**”), is made and entered into effective as of this 5 day of April, 2017 (the “**Effective Date**”) by and among **ORBIT ENERGY RHODE ISLAND, LLC**, a Rhode Island limited liability company (“**Receiver**”), and [REDACTED] (“**Supplier**”). Receiver and Supplier shall be collectively referred to as the “**Parties**”, and each individually a “**Party**.”

WHEREAS, Supplier and Receiver entered into that certain Waste Delivery Agreement dated October 13, 2016 (the “**Agreement**”) for the delivery of certain organic waste materials (the “**Conforming Waste**”) to the energy plant located at the corner of Scituate Avenue and Old Pocaset Road, Johnston, Rhode Island (the “**Facility**”); and

WHEREAS, Receiver and Supplier now desire to amend the Agreement as more particularly set forth herein.

NOW, THEREFORE, in consideration of the premises and the mutual covenants and agreements of the Parties hereinafter set forth it is hereby agreed by and between the Parties hereto as follows:


1. **Defined Terms.** Capitalized terms not otherwise defined in this Amendment shall have the meaning provided to them in the Agreement.
2. **Conforming Waste.** Schedule 1 attached to the Agreement is hereby deleted in its entirety and **Schedule 1** attached hereto is inserted in lieu thereof.
3. **Commencement Date Notice.**
 - (a) Receiver hereby provides Supplier with written notice that the Facility will commence receiving Conforming Waste from Supplier on April 3, 2017. For purposes of the Agreement, the “Commencement Date” shall be April 3, 2017, and the “Term” shall expire April 2, 2022 unless earlier terminated or modified by written agreement of the Parties.
 - (b) Except as amended by this Amendment, Supplier hereby ratifies the Agreement in its entirety. Section 5(A) of the Agreement is hereby deleted.
4. **Miscellaneous.** Except as expressly modified herein, all terms and conditions of the Agreement remain in full force and effect. This Amendment may be executed via facsimile or .pdf counterparts, may be transmitted electronically by the Parties, and a facsimile or .pdf signature page shall be deemed an original for purposes of this Amendment.

[Signatures begin on following page]

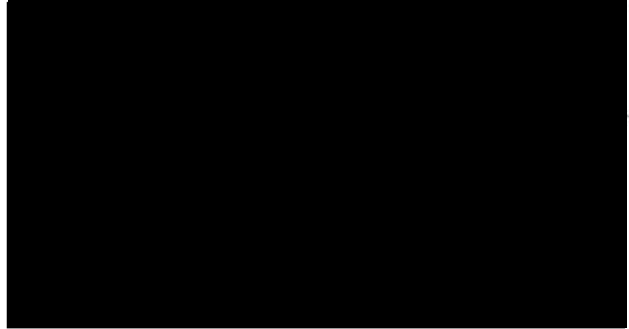
IN WITNESS WHEREOF, Receiver and Supplier have caused this Amendment to be executed by their respective duly authorized officers on the date first written above.

Receiver:

ORBIT ENERGY RHODE ISLAND, LLC,
a Rhode Island limited liability company

By: 
Name: John J. Fosina
Title: Chief Financial Officer

Supplier:



SCHEDULE 1

Acceptable Materials for Receiver Facility

Acceptable Materials

- Fresh cut flowers, spent plants
- Grass clippings
- Vegetables, fruits, salads
- Sausages, meats, fish
- Breads, Pasta, flour, grains
- Coffee grinds/Tea
- Eggs
- Pasta, flour, grains
- Restaurant food waste
- Grease and Fats
- Potatoes, fries, chips, etc.
- Dairy products
- Foodstuff
- Oils, vinegars
- Animal fats and meat renderings
- Leaves
- Aquatic plants
- Bakery waste
- Brewery waste
- Potting soil from Lawn and Garden
- Pet Food
- Other organic waste as approved by Project Owner

Unacceptable Materials

- Plastic bags (pretreatment)
- Styrofoam
- Medicine
- Chemicals
- Dyes, Printing ink
- Glass
- Plastic bottles (pretreatment)
- Metal
- Aluminum
- Treated wood
- Paper (pretreatment)
- Cardboard (pretreatment)
- Rocks, sand
- Batteries
- Fabrics
- Motor oil
- Construction waste
- Clay pots
- Human waste Fertilizers
- Fertilizers
- PET Products
- Cut hair
- Other hazardous or toxic organic & inorganic materials

- * The parties agree that Waste delivered to the Facility may contain small amounts of plastic and glass which constitute food and organic product packaging. Such materials will be removed from the feedstock by Facility machinery prior to entering as digestate into the anaerobic digestion process.

WASTE DELIVERY AGREEMENT

This **WASTE DELIVERY AGREEMENT** (this "**Agreement**"), is made and entered into effective as of this 13th day of October, 2016 (the "**Effective Date**") by and among **ORBIT ENERGY RHODE ISLAND, LLC**, a Rhode Island limited liability company ("**Receiver**"), and [REDACTED] ("**Supplier**"). Receiver and Supplier shall be collectively referred to as the "**Parties**", and each individually a "**Party**."

RECITALS

WHEREAS, Receiver is developing an anaerobic digestion biogas to energy plant located at the corner of Scituate Road and Old Pocasset Road, Johnson, Rhode Island (the "**Facility**") to convert certain organic waste materials (as more particularly set forth in **Schedule 1** to this Agreement, "**Conforming Waste**") into biogas to generate electricity and other end-use products and will accept Conforming Waste for a tipping fee at the Facility as specified on **Schedule 4** to this Agreement (the "**Tipping Fee**") from Supplier and other waste generators and waste haulers for use in the Facility's digesters under the terms of this Agreement;

WHEREAS, Supplier operates a business that generates and/or transports Conforming Waste;

WHEREAS, Receiver desires to accept and Supplier desires to deliver Conforming Waste in accordance with the terms and provisions hereof.

NOW, THEREFORE, in consideration of the premises and the mutual covenants and agreements of the Parties hereinafter set forth it is hereby agreed by and between the Parties hereto as follows:

1. **Term.** Receiver shall notify Supplier in writing (the "**Commencement Date Notice**") of the anticipated date on which the Facility shall commence to receive Conforming Waste (the "**Commencement Date**"), which shall be no fewer than twenty (20) calendar days following the delivery of the Commencement Date Notice. This Agreement shall take effect on the Effective Date and shall remain in effect for a period of five (5) years from the Commencement Date (the "**Term**") unless terminated under the provisions of Section 5. Provided that Supplier is not in default of its obligations in this Agreement, Supplier shall have the option to extend the Term by an additional five (5) years commencing immediately at the expiration of the initial Term (the "**Option**") by providing Receiver with ninety (90) days written notice prior to the expiration of the initial Term.
2. **Delivery and Acceptance of Conforming Waste.**
 - (A) Commencing on the Commencement Date and for the remainder of the Term, Supplier shall deliver Conforming Waste, and Receiver shall accept Conforming Waste, at the Facility in accordance with the delivery schedule attached hereto as **Schedule 2** (the "**Delivery Schedule**"). The Delivery Schedule shall provide for a minimum delivery of 250 short tons of Conforming Waste per Delivery Day (the "**Minimum Daily Delivery Quantity**") and a maximum delivery of 320 short tons of Conforming Waste per Delivery Day (the "**Maximum Daily Delivery Quantity**") as provided on the Delivery Schedule. "**Delivery Day**" means Monday through Friday between 8 AM and 5 PM prevailing Eastern Time and Saturday between 8 AM and 2 PM prevailing Eastern Time. Supplier shall deliver Waste to the Facility only on Delivery Days, except as otherwise mutually agreed by the Parties.
 - (B) If Supplier will be unable to deliver the Minimum Daily Delivery Quantity for five (5) consecutive days, Supplier shall notify Receiver at least seven (7) days prior to such anticipated missed delivery.
 - (C) Receiver shall not be obligated to accept any quantity of Conforming Waste above the Maximum Daily Delivery Quantity, but may, from time to time, elect to do so at its sole discretion by written notice to Supplier. For any Conforming Waste in excess of the Maximum Daily Delivery Quantity tendered for Delivery at the Facility but not accepted by Receiver (the "**Excess Waste**"), Supplier shall have sole responsibility for (i) the cost of transporting such Excess Waste from the Facility and (ii) the legal disposal of the Excess Waste.
 - (D) Supplier shall deliver only Conforming Waste to the Facility. Receiver has no obligation to accept any waste other than Conforming Waste ("**Nonconforming Waste**", together with Conforming Waste, the "**Waste**") at the Facility. Receiver shall be entitled to inspect each delivery of materials and reject any such delivery. If Receiver deems, in its reasonable discretion, any delivered Waste to be Nonconforming Waste, Supplier shall be solely responsible for (i) the cost of transporting such Nonconforming Waste from the Facility and (ii) the lawful disposal of the Nonconforming Waste.
 - (E) Supplier shall notify Receiver immediately on the arrival of a shipment of Conforming Waste at the Facility, which notification shall include a properly completed waste transfer note in the form required by applicable law and attached hereto as **Schedule 3**. Upon arrival at the Facility, the driver shall deliver a copy of such waste transfer note to appropriate personnel at the site office.
 - (F) Supplier shall be responsible for the cost of collecting, transporting and unloading the Conforming Waste delivered to the Receiver. All drivers delivering Waste to the Facility shall be appropriately trained and shall wear suitable personal protective gear.

- (G) All Conforming Waste delivered to the Facility by or on behalf of the Supplier shall be supplied by the Supplier free from all third party rights or interests. Title to and liability for Conforming Waste shall pass to Receiver upon delivery to and acceptance by Receiver at the Facility. Title to and liability for Nonconforming Waste shall remain with Supplier; provided, however, if Receiver fails to reject such Nonconforming Waste in accordance with this Section 2, title to and liability for Nonconforming Waste shall pass to Receiver upon acceptance of Waste by Receiver at the Facility.
- (H) Conforming Waste shall be weighed by Receiver, in accordance with local jurisdiction law and accepted industry practices, by scales maintained by Receiver at the Facility and periodically tested, calibrated and certified by the Rhode Island Department of Labor and Training. The Parties shall use such weights as required for any fees related to the Waste.

3. Price; Payment.

- (A) Supplier shall pay to Receiver a Tipping Fee as specified on the pricing schedule attached hereto as Schedule 4 (the "Pricing Schedule") per short ton of Conforming Waste.
- (B) Weekly during the Term, Receiver shall provide to Supplier an invoice (an "Invoice") that includes (i) the quantities of Conforming Waste, (ii) the applicable Tipping Fee, and (iii) the total amount due to Supplier for the prior week (the "Weekly Payment"). Payment shall be due no later than thirty (30) days following the date of the Invoice (the "Due Date").
- (C) If the Supplier reasonably and in good faith disputes any Invoice or any portion thereof, Supplier shall pay the amount in dispute by the Due Date and shall give the Receiver notice in writing of such dispute ("Dispute Notice") on or prior to the Due Date for such Invoice (the "Dispute Period"), including reasonable documentation to support Supplier's position. If Supplier fails to provide a Dispute Notice within the Dispute Period, the Invoice shall be deemed to have been accepted in full. Upon timely receipt of a Dispute Notice by Receiver, the Parties shall attempt to resolve such dispute amicably. Upon resolution of any disputed amount, the agreed-upon amount shall be adjusted up or down, as the case may be, on the next Invoice. Notwithstanding the above, all Weekly Payments, including those that are currently disputed, shall continue to be paid in accordance with the above paragraph.

4. Default; Remedies.

- (A) The following shall be considered events of default (each a "Default"):
 - 1. The other Party (the "Defaulting Party") (i) becomes insolvent and commences a voluntary proceeding seeking liquidation, reorganization or other relief with respect to itself or its debts or other liabilities; (ii) has a receiver appointed by or for it (and such receiver appointed for it is not discharged or otherwise removed within 60 days after appointment); (iii) has a petition in bankruptcy or reorganization filed by or against it (and in the case of an involuntary petition, such petition is not dismissed or stayed within 60 days); (iv) commits a material breach of its representations or warranties for which there shall be no cure; (v) assigns this Agreement in violation of Section 6; (vi) commits a material breach of its covenants or obligations under this Agreement and fails to cure or diligently prosecute the cure within thirty (30) days following written notice of such alleged breach from the non-breaching Party to the allegedly breaching Party; provided, however, that if the breach is of a nature that cannot reasonably be cured within such thirty (30) day period following written notice, then such period shall be extended for an additional thirty (30) days; or (vii) ceases to do business at any time for thirty (30) consecutive days.
 - 2. Supplier fails to deliver at least the Minimum Daily Delivery Quantity for fourteen (14) consecutive Delivery Days and in the fourteen (14) days thereafter fails to deliver such amounts of Conforming Waste (i) to satisfy its Minimum Daily Delivery Quantity and (ii) to make up for the shortfall of Conforming Waste from the preceding fourteen (14) day period.
 - 3. Supplier fails to deliver any Conforming Waste for a period of seven (7) consecutive days; or
 - 4. Supplier fails to pay any amount due under this Agreement by the Due Date, which failure continues for a period of at least fifteen (15) days following notice thereof delivered by Receiver.
- (B) With the exception of the Default provided in Section 4(A)(2) above, if at any time a Default has occurred, the other Party (the "Non-Defaulting Party") will, without limiting the rights or remedies available to the Non-Defaulting Party under this Agreement or applicable law, have the right:
 - 1. To terminate this Agreement by providing the Defaulting Party written notice of the termination date which shall be no less than thirty (30) days after the date such notice is provided by the Non-Defaulting Party;
 - 2. To withhold any payments due to the Defaulting Party under this Agreement; or
 - 3. To suspend performance due to the Defaulting Party under this Agreement.
- (C) With regard to the Default provided in Section 4(A)(2) above, if at any time such a Default occurs, Receiver shall have the right, in its sole and absolute discretion, to either (1) terminate this Agreement as provided in Section 4(B)(1) above, or (2) present a new Waste Delivery Agreement for consideration by the Supplier taking into account the average amount

of Conforming Waste delivered by Supplier in the twenty-eight (28) days prior to the Default when memorializing the new Minimum Daily Delivery Quantity.

- (D) Notwithstanding the foregoing, the rights and remedies contained in this Section 4 are cumulative with the other rights and remedies available under this Agreement or at law or in equity.

5. **Termination.**

- (A) Supplier may terminate this Agreement without penalty should Receiver not achieve the Commencement Date prior to [REDACTED]

- (B) Receiver may terminate this Agreement (1) should a material change in law prevent it from operating the Facility profitably using prudent industry practices, and (2) pursuant to Sections 4(B) or 4(C) of this Agreement. In the event Receiver terminates this Agreement in accordance with Section 4, Receiver shall use commercially reasonable efforts to mitigate such costs and expenses.

6. **Assignment; Change of Control.**

- (A) [REDACTED]

- (B) Any assignment of this Agreement by Supplier shall require the prior consent of Receiver, which consent shall not be unreasonably withheld, conditioned or delayed; provided, however, that Supplier may assign this Agreement, upon prior written notice to Receiver, to an affiliated entity which is directly or indirectly controlled by or under common control with Supplier.

7. **Force Majeure.** A "Force Majeure Event" means the occurrence of any event or circumstance beyond the reasonable control of a Party which results in the failure or delay by such Party of some performance under this Agreement, in full or part, including, but not limited to, the following: an act of God; war (declared or undeclared); sabotage; riot; civil unrest or disturbance; terrorist activity; economic sanction or embargo; epidemic; civil strike, explosion; fire; volcanic activity; earthquake; action of the elements; hurricane; flood; impassable roads; the binding order of any applicable governmental authority; the delay of or failure to act on the part of any Governmental Authority; failure or unavailability of equipment, supplies or products; or Change in Law. Upon the occurrence of a Force Majeure Event, the affected Party shall immediately notify the unaffected Party of the Force Majeure Event and include the nature and expected impact of the event. During the period of the Force Majeure Event, neither Party shall be deemed to be in breach of this Agreement or otherwise liable to the other Party for performance or non-performance of its obligations (other than payment obligations) under the terms of this Agreement. The affected Party shall use reasonable efforts to resolve the Force Majeure Event, to the extent that resolution of the Force Majeure Event may be reasonably controlled by such Party. Upon cessation of the Force Majeure Event, the affected Party shall give prompt written notice to the unaffected Party.

8. **Representations and Warranties.**

- (A) Each Party is duly organized, validly existing and in good standing under the laws of the state of its formation and the execution and delivery by such Party of, and the performance of its obligations under, this Agreement has been duly authorized by all necessary action, does not and will not require any further consent or approval of any other Person.
- (B) The Parties shall perform their obligations hereunder in compliance with any and all applicable laws and governmental regulation.
- (C) Supplier represents, warrants and covenants that all Waste delivered to the Facility shall be Conforming Waste.
- (D) Receiver represents, warrants and covenants that the Facility has been issued permits, licenses, certificates or approvals required by valid and applicable laws, ordinances and regulations necessary to allow the Facility to accept, treat, incinerate and/or dispose of Conforming Waste.
- (E) Other than as set forth herein neither Party makes any representation or warranty concerning the Facility, either Party's capabilities to enter into and execute the obligations of this Agreement. Except for the representations and warranties contained within this Agreement, neither Party has relied on any additional statements of the other Party or its affiliates.

9. **Indemnification; Limit of Liability.** Each Party (the "Indemnifying Party") shall indemnify, save harmless and defend the other Party and its directors, officers, employees and agents (collectively, the "Indemnified Party") from and against any and

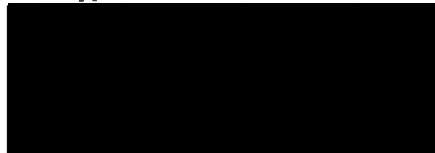
all claims, losses, damages, injuries, and liability, and all costs and expenses attributable thereto (including attorneys' fees for counsel reasonably acceptable to the Indemnified Party), resulting from or arising directly or indirectly, out of, or in consequence of, or involving or relating to, (i) the performance or any breach of this Agreement by the Indemnifying Party or (ii) the breach of a covenant, representation or warranty by the Indemnifying Party set out in this Agreement. This indemnity shall not apply in the instance of a deliberate or negligent act or omission, fraud, intentional misrepresentation or willful misconduct by the Indemnified Party. **NEITHER PARTY, ITS AFFILIATES, SUBCONTRACTORS, AGENTS AND EMPLOYEES, SHALL BE LIABLE TO THE OTHER PARTY FOR ANY INCIDENTAL, INDIRECT, SPECIAL, PUNITIVE, CONSEQUENTIAL LOSSES OR DAMAGES.**

10. **Governing Law; Arbitration; Venue.** This Agreement shall be governed by the laws of the State of Rhode Island. Any action brought to interpret or enforce any provisions of this Agreement shall be resolved exclusively by arbitration administered by the American Arbitration Association (AAA) in accordance with its Commercial Arbitration Rules. The place of arbitration shall be Charlotte, North Carolina.
11. **Insurance.**
 - (A) Each Party, at its own expense, shall maintain general liability insurance with a reputable insurance company in the amount of \$1,000,000.00 per occurrence and \$2,000,000.00 in the aggregate.
 - (B) Supplier shall additionally maintain in force:
 1. Worker's compensation insurance at statutory levels.
 2. Motor vehicle liability insurance insuring against bodily injury and property damage claims arising out of the ownership, use, or maintenance of any motor vehicle at a minimum amount of \$1,000,000.00.
 - (C) Each of the Parties shall provide evidence of the above insurance upon request.
12. **Relationship of the Parties.** The relationship of the Parties under this Agreement is that of independent contractors and is not intended to create a partnership or any other co-owned enterprise.
13. **Entire Agreement.** This Agreement constitutes the entire agreement between the Parties relating to the subject matter hereof and supersedes all prior agreements, understandings, negotiations, whether oral or written, of the Parties. No amendment or modification to the terms of this Agreement shall be effective unless in writing signed by duly authorized representatives of all Parties hereto.
14. **Non-Waiver; No Third Party Beneficiaries.** No waiver by a Party of any of its rights in this Agreement shall be construed as a waiver of any other right, matter or default nor a waiver of any subsequent breach of the same or any provision. All waivers shall be in writing signed by the waiving Party. This Agreement is made and entered into for the sole benefit of the Parties, and their permitted successors and assigns, and no other Person shall be a direct or indirect legal beneficiary of, have any rights under, or have any direct or indirect cause of action or claim in connection with this Agreement.
15. **Survival of Provisions.** The terms of this Agreement shall survive for a period of three (3) years following the termination of this Agreement.
16. **Confidentiality; Publicity.** Supplier undertakes to keep the contents of this Agreement and any information relating to or arising out of its operation confidential and shall not disclose the same to any third party during the Term and for a period of two (2) years thereafter. Notwithstanding the foregoing, Supplier may disclose confidential information (a) to its legal and technical advisors who are under a similar contractual or legal restriction on disclosure of such information, (b) to the extent required by law, order of a court or any regulatory authority having jurisdiction over Supplier, and (c) to the extent that such information is already in the public domain other than by breach of this Section or the breach of a third party of any obligation of confidentiality. Neither Party may make any press release, public announcement or disclosure of this Agreement without the prior written consent of the other, which consent shall not unreasonably be withheld, delayed or conditioned. Notwithstanding the foregoing, Receiver may disclose information regarding this Agreement for the purposes of financing.
17. **Severability; Further Assurances.** In the event that any provision of the Agreement shall be found to be void or unenforceable, all other provisions shall remain in full force and effect unless the provisions which are void or unenforceable shall substantially affect the rights or obligations granted to or undertaken by either Party. If further instruments are necessary or desirable to carry out the terms of this Agreement, the other Party will execute and deliver all such instruments and assurances reasonably necessary and proper to carry out the terms of this Agreement.
18. **Notices.** All notices required or permitted under the terms of this agreement shall be delivered to the following addresses of each Party (as such addressed may be modified from time to time by notice to the other Party) and may be delivered by express courier, first class mail or by electronic means (email or facsimile transmission). Notices shall be deemed received when actually received, if delivered by express courier or electronic means, or in the case of first class mail, 5 days following mailing.

To Receiver:

Orbit Energy Rhode Island, LLC
14120 Ballantyne Corporate Place, Suite 400
Charlotte, NC 28277
Attn: David March
Email: david.march@entropyim.com

To Supplier:



19. Execution. This Agreement may be executed via facsimile or .pdf counterparts, may be transmitted electronically by the Parties, and a facsimile or .pdf signature page shall be deemed an original for purposes of this Agreement.

[Signatures begin on following page]

IN WITNESS WHEREOF, Receiver and Supplier have caused this Agreement to be executed by their respective duly authorized officers on the date first written above.

Receiver:

ORBIT ENERGY RHODE ISLAND, LLC,
a Rhode Island limited liability company

Supplier:

By: _____

John J. Fosina

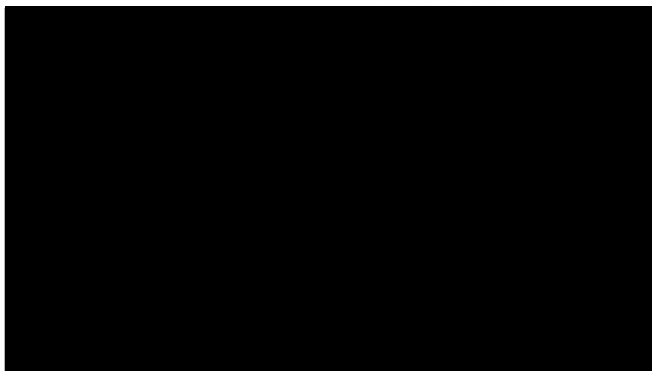
Title: _____

John J. Fosina
Chief Financial Officer

Name: _____

Date: _____

October 13, 2016



SCHEDULE 1

Acceptable Materials for Receiver Facility

Acceptable Materials	Unacceptable Materials
<input type="checkbox"/> Solid organic waste <input type="checkbox"/> Liquid organic waste <input type="checkbox"/> Fresh cut flowers <input type="checkbox"/> Silage <input type="checkbox"/> Stall Wastes <input type="checkbox"/> Produce <input type="checkbox"/> Sausages, meats, fish <input type="checkbox"/> Breads <input type="checkbox"/> Eggs <input type="checkbox"/> Pasta, flour, grains <input type="checkbox"/> Fat <input type="checkbox"/> Grease <input type="checkbox"/> Potatoes, fries, chips, etc. <input type="checkbox"/> Dairy products <input type="checkbox"/> Vegetable Oils <input type="checkbox"/> Animal fats and meat renderings <input type="checkbox"/> Leaves <input type="checkbox"/> Seaweed <input type="checkbox"/> Bakery waste <input type="checkbox"/> Brewery waste <input type="checkbox"/> Dog Food <input type="checkbox"/> Other organic waste as approved by Receiver	<input type="checkbox"/> Plastic bags * <input type="checkbox"/> Styrofoam <input type="checkbox"/> Medicine <input type="checkbox"/> Chemicals <input type="checkbox"/> Dyes <input type="checkbox"/> Glass * <input type="checkbox"/> Plastic bottles * <input type="checkbox"/> Metal <input type="checkbox"/> Treated wood <input type="checkbox"/> Rocks, sand <input type="checkbox"/> Batteries <input type="checkbox"/> Fabrics <input type="checkbox"/> Motor oil <input type="checkbox"/> Construction waste <input type="checkbox"/> Clay pots <input type="checkbox"/> Human waste Fertilizers <input type="checkbox"/> Fertilizers <input type="checkbox"/> PET Products <input type="checkbox"/> Cut hair <input type="checkbox"/> Other non-organic waste detrimental to the operation of Receiver as may be described from time to time <input type="checkbox"/> Free Liquids > 5% by weight of load <input type="checkbox"/> Toxic substances <input type="checkbox"/> Any other materials that are not Acceptable Materials
<p>* Waste comprised (i) exclusively of these items or (ii) of a majority of these items will constitute Nonconforming Waste. However, the Parties hereby acknowledge and agree that Conforming Waste may contain small amounts of these items incidental to food or organic product delivery and packaging.</p>	

SCHEDULE 2

Delivery Schedule

Anticipated Feedstock Delivery Type and Volumes

Feedstock Type	Delivery Frequency	Yearly Volume (TPA equivalent)
Organic Food Waste	Daily, Monday through Saturday (21-day month average)	80,000 short tons

SCHEDULE 3

Form of Conforming Waste Transfer Note

CONFORMING WASTE TRANSFER NOTE

(Keep this page and copy it for future use. Please write as clearly as possible)

Section A - Description of Conforming Waste

A1 Description of Conforming Waste being transferred:

A2 Weight of Conforming Waste:

A3 Analysis of Conforming Waste: Attached as Exhibit A

A4 Photo of Conforming Waste: Attached as Exhibit B

Section B - Current holder of Conforming Waste - Transferor

B1 Full name

Company name and address

B2 Are you:

The producer of the waste?

☐

The importer of the waste?

☐

Other?

☐

**Section C - Party collecting Conforming Waste - Transferee /
Address of Transfer**

C1 Full name

ORBIT ENERGY RHODE ISLAND, LLC

Company name and address / Transfer Location:

**CORNER OF SCITUATE ROAD AND OLD POCASET ROAD
JOHNSON, RHODE ISLAND**

Transferor's signature

Name

Representing

Transferee's signature

Name

Representing: **ORBIT ENERGY RHODE ISLAND, LLC**

E

SCHEDULE 4

Tipping Fees





RHODE ISLAND

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

235 Promenade Street, Providence, RI 02908-5767

TDD 401-222-4462

20 January 2016

Mr. Efim Monosov
c/o Mr. Rick Mandile
SAGE Environmental, Inc.
172 Armistice Blvd.
Pawtucket, RI 02860

Dear Mr. Monosov:

The Department of Environmental Management, Office of Air Resources has reviewed and approved your application for the construction, installation and operation of a biogas-to-electricity facility to be located at Plat 43, Lot 2, at the corner of Scituate Avenue and Old Pocasset Road in Johnston, RI.

Enclosed is a minor source permit issued pursuant to our review of your application (Approval Nos. 2302-2312).

Any source with the potential to emit greater than major source thresholds as defined under Air Pollution Control Regulation No. 29, "Operating Permits" is subject to the Operating Permit Program. Your facility is currently subject to the Operating Permit Program as an Emissions Cap Source, with allowable emissions restricted to below the major source threshold. An emissions cap means any emission limitation or physical or operational limitation, imposed in a federally enforceable document that establishes the maximum quantity of emissions which may be released from a stationary source. The Office of Air Resources considers this minor source permit an emissions cap. Air Pollution Control Regulation No. 28, "Operating Permit Fees" requires stationary sources with an emissions cap to pay an annual compliance/assurance fee of \$350.00. Notification concerning the payment of this fee will be mailed to you during the fall of this year.

If there are any questions concerning this permit, please contact me at (401)-222-2808, extension 7028 or at aleida.whitney@dem.ri.gov.

Sincerely,

A handwritten signature in cursive script, appearing to read "Aleida M. Whitney".

Aleida M. Whitney
Senior Air Quality Specialist
Office of Air Resources

cc: Johnston Building Official



30% post-consumer fiber

**STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR RESOURCES**

MINOR SOURCE PERMIT

ORBIT ENERGY RHODE ISLAND, LLC

APPROVAL Nos. 2302-2312

Pursuant to the provisions of Air Pollution Control Regulation No. 9, this minor source permit is issued to:

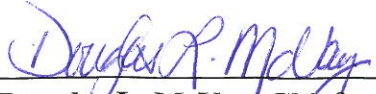
Orbit Energy Rhode Island, LLC

For the following:

Installation of a 2.0 MW Caterpillar lean-burn engine, Model No. MWM TCG 2020 V20 2.000K (Approval No. 2302) and a 1.2 MW Caterpillar lean-burn engine, Model No. MWM TCG 2020 V12 1.200K (Approval No. 2303). The engines shall fire biogas containing 200 ppm hydrogen sulfide or less. Each engine is equipped with an air pollution control system consisting of a Selective Catalytic Reduction (SCR) system and an oxidation catalyst (Approval Nos. 2304-2307). Installation of an Austep odor control wet scrubber and biofilter to control odors generated from the Reception Building (Approval Nos. 2308 & 2309). Installation of one 22.37 MMBtu/hr and one 16.77 MMBtu/hr Austep enclosed flares (Approval Nos. 2310 & 2311) to burn excess biogas. Installation of a wet, packed tower Austep scrubber (Approval No. 2312) to control ammonia emissions from the digestate dryer.

Located at: *Plat 43, Lot 2, corner of Scituate Ave. & Old Pocasset Road,
Johnston, RI*

This permit shall be effective from the date of its issuance and shall remain in effect until revoked by or surrendered to the Department. This permit does not relieve Orbit Energy Rhode Island, LLC from compliance with applicable state and federal air pollution control rules and regulations. The design, construction and operation of this equipment shall be subject to the attached permit conditions and emission limitations.



**Douglas L. McVay, Chief
Office of Air Resources**



Date of Issuance

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR RESOURCES

Permit Conditions and Emission Limitations

Orbit Energy Rhode Island, LLC

Approval Nos. 2302-2310

I. The following requirements are applicable to:

- The Caterpillar, Model No. MWM TCG 2020 V20 2.000K, 2.0 MW, lean burn, spark ignition internal combustion engine (Approval No. 2302), equipped with SCR (Approval No. 2304) and an oxidation catalyst (Approval No. 2305).
- The Caterpillar, Model No. MWM TCG 2020 V12 1.200K, 1.2 MW, lean burn, spark ignition internal combustion engine (Approval No. 2303), equipped with SCR (Approval No. 2306) and an oxidation catalyst (Approval No. 2307).

A. Emission Limitations

1. 2.0 MW Unit

a. Nitrogen Oxides (as Nitrogen Dioxide (NO₂))

The emission rate of nitrogen oxides discharged to the atmosphere from the engine exhaust shall not exceed 0.50 pounds per megawatt-hour (lb/MWh) or 1.00 pounds per hour, whichever is more stringent.

b. Carbon Monoxide (CO)

The emission rate of carbon monoxide discharged to the atmosphere from the engine exhaust shall not exceed 0.60 pounds per megawatt-hour (lbs/MWh) or 1.20 pounds per hour, whichever is more stringent.

c. Volatile Organic Compounds (VOC)

The emission rate of volatile organic compounds discharged to the atmosphere from the engine exhaust shall not exceed 0.91 pounds per megawatt-hour (lb/MWh) or 1.82 pounds per hour, whichever is more stringent.

d. Sulfur Dioxide (SO₂)

- (1) The sulfur content of all biogas burned in the engine shall not exceed 200 ppm by volume, dry.
- (2) The emission rate of sulfur dioxide discharged to the atmosphere from the engine exhaust shall not exceed 1.18 pounds per hour.

e. Particulate Matter (as PM)

The emission rate of particulate matter discharged to the atmosphere from the engine exhaust shall not exceed 0.16 pounds per megawatt-hour (lb/MWh) or 0.32 pounds per hour, whichever is more stringent.

f. Ammonia (NH₃)

- (1) The concentration of ammonia discharged to the atmosphere from the engine exhaust shall not exceed 5 ppmv, on a dry basis, corrected to 15 percent O₂ (one-hour average).
- (2) The emission rate of ammonia discharged to the atmosphere from the engine exhaust shall not exceed:
 - (a) 0.13 pounds per hour
 - (b) 3.12 pounds per day
 - (c) 1092.78 pounds in any consecutive 12-month period

g. Listed Toxic Air Contaminants

The emissions of acrolein, benzene, 1,3-butadiene, ethylene dibromide and formaldehyde discharged to the atmosphere from the engine exhaust shall not exceed the levels specified in the following table:

Pollutant	lbs/hour	lbs/day	lbs/year
Acrolein	1.69×10^{-4}	--	1.42
Benzene	0.020	0.486	170.00
1,3-Butadiene	--	--	2.43
Ethylene dibromide	--	1.24×10^{-3}	0.435
Formaldehyde	0.021	0.514	180.00

h. Opacity

Visible emissions from the engine exhaust shall not exceed 10% opacity.

2. 1.2 MW Unit

a. Nitrogen Oxides (as Nitrogen Dioxide (NO₂))

The emission rate of nitrogen oxides discharged to the atmosphere from the engine exhaust shall not exceed 0.50 pounds per megawatt-hour (lb/MWh) or 0.60 pounds per hour, whichever is more stringent.

b. Carbon Monoxide (CO)

The emission rate of carbon monoxide discharged to the atmosphere from the engine exhaust shall not exceed 0.60 pounds per megawatt-hour (lbs/MWh) or 0.72 pounds per hour, whichever is more stringent.

c. Volatile Organic Compounds (VOC)

The emission rate of volatile organic compounds discharged to the atmosphere from the engine exhaust shall not exceed 0.91 pounds per megawatt-hour (lb/MWh) or 1.11 pounds per hour, whichever is more stringent.

d. Sulfur Dioxide (SO₂)

(1) The sulfur content of all biogas burned in the engine shall not exceed 200 ppm by volume, dry.

(2) The emission rate of sulfur dioxide discharged to the atmosphere from the engine exhaust shall not exceed 0.71 pounds per hour.

e. Particulate Matter (as PM)

The emission rate of particulate matter discharged to the atmosphere from the engine exhaust shall not exceed 0.16 pounds per megawatt-hour (lb/MWh) or 0.19 pounds per hour, whichever is more stringent.

f. Ammonia (NH₃)

- (1) The concentration of ammonia discharged to the atmosphere from the engine exhaust shall not exceed 5 ppmv, on a dry basis, corrected to 15 percent O₂ (one-hour average).
- (2) The emission rate of ammonia discharged to the atmosphere from the engine exhaust shall not exceed:
 - (a) 0.08 pounds per hour
 - (b) 1.92 pounds per day
 - (c) 672.00 pounds in any consecutive 12-month period

g. Listed Toxic Air Contaminants

The emissions of acrolein, benzene, 1,3-butadiene, ethylene dibromide and formaldehyde discharged to the atmosphere from the engine exhaust shall not exceed the levels specified in the following table:

Pollutant	lbs/hour	lbs/day	lbs/year
Acrolein	1.02×10^{-4}	--	0.853
Benzene	0.012	0.291	102.00
1,3-Butadiene	--	--	1.46
Ethylene dibromide	--	7.47×10^{-4}	0.261
Formaldehyde	0.013	0.312	108.0

h. Opacity

Visible emissions from the engine exhaust shall not exceed 10% opacity.

B. Operating Requirements

1. Biogas shall be the only fuel fired in the engines.
2. All biogas shall be directed through the hydrogen sulfide (H₂S) pretreatment system prior to being fired in the engines.
3. The maximum firing rate for the 2.0 MW engine shall not exceed 35,000 ft³/hr of biogas.
4. The maximum firing rate for the 1.2 MW engine shall not exceed 21,000 ft³/hr of biogas.

5. Each engine shall not operate more than 8400 hours in any consecutive 12-month period.
6. Each engine must be equipped with an automatic fail-safe block valve, which must be designed to stop the flow of biogas in the event of an engine failure.
7. In the event that an engine is not operational, all biogas from the anaerobic digester system shall be routed to a flare.
8. There shall be no bypassing of the air pollution control system for each engine during start-up, operation, or shutdown.
9. The owner/operator shall maintain and operate the hydrogen sulfide (H₂S) pretreatment system, and each SCR and oxidation catalyst system according to the manufacturer's design specifications and operating procedures.

C. Monitoring Requirements

1. Each engine shall be equipped with a non-resettable elapsed time meter to indicate, in cumulative hours, the elapsed engine operating time for the unit.
2. Each generator shall be equipped with a kilowatt-hour meter to indicate, in cumulative kilowatt-hours, the power generated by the engine-generator set.
3. Biogas flow to each engine shall be continuously measured and recorded.
4. Each engine shall be equipped with an air-to-fuel ratio controller.
5. The owner/operator shall continuously measure and record the inlet temperature of each SCR system and oxidation catalyst system.
6. The owner/operator shall continuously measure the pressure drop across the catalyst bed of each SCR system and oxidation catalyst system.
7. The owner/operator shall install and operate an alarm system on the urea injector in such a manner that an operator will be alerted if the urea flow is outside the designed manufacturer's design range.
8. The owner/operator shall install, operate, and maintain a continuous parameter monitoring system (CPMS) for each engine according to the requirements in paragraphs (a) through (c) below. The CPMS system shall monitor the SCR urea solution injection rate and operating temperature at the SCR inlet in order to maintain these parameters within the ranges recommended by the manufacturer to achieve compliance with the limits in this permit.
 - a. The CPMS must collect data at least once every 15 minutes.

- b. The temperature sensor must have a minimum tolerance of 2.8 degrees Celsius (5 degrees Fahrenheit) or 1 percent of the measurement range, whichever is larger.
 - c. Urea shall not be injected during start-up or shutdown unless the catalyst bed is at, or above, the manufacturer's specified minimum operating temperature of 632°F (350°C).
- 9. The owner/operator shall prepare a site-specific monitoring plan for the CPMS that addresses the monitoring system design, data collection, and the quality assurance and quality control elements outlined in paragraphs (a) through (f) of this section.
 - a. The performance criteria and design specifications for the monitoring system equipment, including the sample interface, detector signal analyzer, and data acquisition and calculations;
 - b. Sampling interface (*e.g.*, thermocouple) location such that the monitoring system will provide representative measurements;
 - c. Equipment performance evaluations, system accuracy audits, or other audit procedures;
 - d. Ongoing operation and maintenance procedures.
 - e. At least annually the owner/operator shall conduct the CPMS equipment performance evaluation, system accuracy audits, or other audit procedures specified in your site-specific monitoring plan.
 - f. The owner/operator shall conduct a performance evaluation of each CPMS in accordance with the site-specific monitoring plan.
- 10. The owner/operator shall monitor the ammonia emissions from each SCR system according to the following schedule:
 - a. For the first 18,000 hours of catalyst life, the ammonia concentration (ppm) and mass emission rate (lb/hr) after the SCR system shall be measured during the initial and each subsequent performance test required by Condition D.1 using Conditional Test Method 27 (CTM-027) or another method approved by the Office of Air Resources.
 - b. After 18,000 hours of catalyst life, the ammonia concentration (ppm) shall be measured every 750 operating hours until the SCR catalyst is replaced. CTM-027 is not required for this periodic monitoring. The test method used for this periodic monitoring shall

be approved by the Office of Air Resources prior to the performance of this monitoring.

This testing schedule may be revised by the Office of Air Resources if it determines, based on the ammonia emissions testing, that the above schedule is not sufficient to monitor compliance with Condition I.A.1.f and I.A.2.f of this permit.

D. Compliance Demonstration/Stack Testing

1. Within 180 days of start-up, initial performance testing shall be conducted for each engine for nitrogen oxides, carbon monoxide, volatile organic compounds, and ammonia.

For nitrogen oxides, carbon monoxide, and volatile organic compounds, performance testing shall be conducted in accordance with 40 CFR 60.4244. The test report shall indicate the engine power in (kW and BHP) during the test and the biogas heating value. To demonstrate compliance with this permit, the performance test results shall also be reported in lb/hr and lb/MWh. To demonstrate compliance with NSPS 40 CFR Part 60, Subpart JJJJ emission limits, the performance test results shall also be reported in g/bhp-hr.

For ammonia, performance testing shall be conducted using Conditional Test Method 27 (CTM-027) or another method approved by the USEPA and the Director.

Thereafter, emissions testing for each engine shall be conducted every 8760 hours of operation or every 3 years, whichever is first, to determine compliance with the nitrogen oxides, carbon monoxide, volatile organic compounds, and ammonia emission limitations. Each emission test for nitrogen oxides, carbon monoxide, and volatile organic compounds shall be conducted in accordance with the procedures specified in 40 CFR 60.4244. Each emission test for ammonia shall be conducted using Conditional Test Method 27 (CTM-027) or another method approved by the USEPA and the Director.

2. Additionally, during the initial performance test, the owner/operator shall measure the emissions of sulfur dioxide, particulate matter, 1,3-butadiene, acrolein, benzene, ethylene dibromide and formaldehyde from each engine to demonstrate compliance with the emission limitations in Conditions I.A.1.d-g and I.A.2.d-g of this permit.
3. A stack testing protocol shall be submitted to the Office of Air Resources and the USEPA at least 60 days prior to the performance of any emissions test. The owner/operator shall provide the Office of Air Resources and the USEPA at least 60 days prior notice of any emissions test.

4. All test procedures used for stack testing shall be approved by the Office of Air Resources and the USEPA prior to the performance of any stack test.
5. The owner/operator shall install any and all test ports or platforms necessary to conduct the required stack testing, provide safe access to any platforms and provide the necessary utilities for sampling and testing equipment.
6. All testing shall be conducted under operating conditions deemed acceptable and representative for the purpose of assessing compliance with the applicable emission limitations.
7. All emissions testing must be observed by the Office of Resources to be considered acceptable, unless the Office of Air Resources provides written authorization to the owner/operator to conduct the testing without an observer present.
8. A final report of the results of the initial and subsequent performance tests shall be submitted to the Office of Air Resources and the USEPA no later than 60 days following completion of the testing.

E. Recordkeeping and Reporting

1. The owner/operator shall, on a monthly basis, no later than 15 days after the first of each month, determine and record the following for each engine for the previous month:
 - a. The hours of operation and the total hours of operation for the prior consecutive 12-month period.
 - b. The fuel use.
 - c. The gross electrical power generated in kilowatt-hours.

The owner/operator shall keep records of this determination and provide such records to the Office of Air Resources or its authorized representative and EPA upon request.

2. The owner/operator shall notify the Office of Air Resources, in writing, within 15 days of determining that the hours of operation in any consecutive 12-month period exceeds 8,400 hours for each engine.
3. The owner/operator shall, on a daily basis, measure and record the O₂ content in the exhaust of each engine and the date, time and measurement shall be recorded. The owner/operator shall keep records of this determination and provide such records to the Office of Air Resources or its authorized representative and EPA upon request.

4. The owner/operator shall, on a daily basis, measure and record the pressure drop across each catalyst bed and the date, time and measurement shall be recorded. The owner/operator shall keep records of this determination and provide such records to the Office of Air Resources or its authorized representative and EPA upon request.
5. The owner/operator shall maintain the following records:
 - a. The inlet temperature of each SCR system and oxidation catalyst system;
 - b. All records monitored and recorded by each CPMS including the urea solution injection rate, date, and time.
6. The owner/operator shall notify the Office of Air Resources in writing, within 15 days of determining that the urea solution injection rate was outside of the range recommended by the manufacturer. The date, time, duration of exceedance, and the measured injection rate shall be provided.
7. The owner/operator shall, on a monthly basis, no later than 15 days after the first of the month, determine the total quantity of acrolein, ammonia, benzene, 1,3-butadiene, ethylene dibromide and formaldehyde discharged to the atmosphere from each engine during the previous month. Hourly emission averages shall be calculated for acrolein, ammonia, benzene and formaldehyde. These hourly averages shall be used for comparison to the hourly emission limitations. Daily emission totals shall be calculated for ammonia, benzene, ethylene dibromide, and formaldehyde to be used for comparison the daily emission limitations. Monthly and annual emission averages shall be calculated for acrolein, ammonia, benzene, 1,3-butadiene, ethylene dibromide and formaldehyde to be used for comparison to the annual emission limitations. The owner/operator shall keep records of this determination and provide such records to the Office of Air Resources upon request.
8. The owner/operator shall notify the Office of Air Resources in writing, within 15 days of determining that the total quantity of acrolein, ammonia, benzene, 1,3-butadiene, ethylene dibromide or formaldehyde, discharged to the atmosphere from the 2.0 MW engine or the 1.2 MW engine exceeds the hourly, daily, or annual emission limitations.
9. The owner/operator shall develop a maintenance plan for the engines and air pollution control systems and shall maintain records of all maintenance conducted.
10. The owner/operator shall notify the Office of Air Resources in writing of the date whenever the catalyst is replaced for each SCR system.

11. The owner/operator shall notify the Office of Air Resources in writing of the date whenever the catalyst is replaced for each oxidation catalyst system.

F. Other Permit Conditions

1. The emission limitations of Conditions A.1 and A.2 shall not apply during engine startup/shutdown conditions. Engine startup shall be defined as the first ten minutes of firing following the initiation of firing. Engine shutdown shall be defined as the cessation of operation for any purpose.
2. The owner/operator is subject to the requirements of 40 CFR 60, Subpart A (General Provisions) and Subpart JJJJ (Standards of Performance for Stationary Spark Ignition Internal Combustion Engines). Compliance with all applicable provisions therein is required.

II. The following requirements are applicable to:

- The 22.37 MMBtu/hr Austep Enclosed Flare (Approval No. 2310)
- The 16.77 MMBtu/hr Austep Enclosed Flare (Approval No. 2311)

A. Emission Limitations

1. 22.37 MMBtu/hr Unit

- a. Nitrogen Oxides (as Nitrogen Dioxide (NO₂))

The emission rate of nitrogen oxides discharged to the atmosphere from the flare shall not exceed 0.24 pounds per million BTU or 5.44 pounds per hour, whichever is more stringent.

- b. Carbon Monoxide (CO)

The emission rate of carbon monoxide discharged to the atmosphere from the flare shall not exceed 0.12 pounds per million BTU or 2.72 pounds per hour, whichever is more stringent.

- c. Volatile Organic Compounds (VOC)

The emission rate of volatile organic compounds discharged to the atmosphere from the flare shall not exceed 0.02 pounds per million BTU or 0.54 pounds per hour, whichever is more stringent.

d. Sulfur Dioxide (SO₂)

- (1) The sulfur content of all biogas burned in the flare shall not exceed 200 ppm by volume, dry.
- (2) The emission rate of sulfur dioxide discharged to the atmosphere from the flare shall not exceed 1.26 pounds per hour, whichever is more stringent.

e. Particulate Matter (as PM)

The emission rate of particulate matter discharged to the atmosphere from the flare shall not exceed 0.02 pounds per million BTU or 0.34 pounds per hour, whichever is more stringent.

f. Listed Toxic Air Contaminants

The emissions of the following listed toxic air contaminants discharged to the atmosphere from the flare shall not exceed the levels specified in the following table:

Pollutant	lbs/hour	lbs/day	lbs/year
Acrolein	5.53×10^{-5}	--	0.031
Benzene	1.64×10^{-4}	3.94×10^{-3}	0.092
Ethylene dibromide	--	8.57×10^{-6}	2.00×10^{-4}
Formaldehyde	3.48×10^{-4}	8.36×10^{-3}	0.195

g. Opacity

The flare shall be operated with no visible emissions.

2. 16.77 MMBtu/hr Unit

a. Nitrogen Oxides (as Nitrogen Dioxide (NO₂))

The emission rate of nitrogen oxides discharged to the atmosphere from the flare shall not exceed 0.24 pounds per million BTU or 4.08 pounds per hour, whichever is more stringent.

b. Carbon Monoxide (CO)

The emission rate of carbon monoxide discharged to the atmosphere from the flare shall not exceed 0.12 pounds per million BTU or 2.04 pounds per hour, whichever is more stringent.

c. Volatile Organic Compounds (VOC)

The emission rate of volatile organic compounds discharged to the atmosphere from the flare shall not exceed 0.02 pounds per million BTU or 0.41 pounds per hour, whichever is more stringent.

d. Sulfur Dioxide (SO₂)

- (1) The sulfur content of all biogas burned in the flare shall not exceed 200 ppm by volume, dry.
- (2) The emission rate of sulfur dioxide discharged to the atmosphere from the flare shall not exceed 0.94 pounds per hour, whichever is more stringent.

e. Particulate Matter (as PM)

The emission rate of particulate matter discharged to the atmosphere from the flare shall not exceed 0.02 pounds per million BTU or 0.25 pounds per hour, whichever is more stringent.

f. Listed Toxic Air Contaminants

The emissions of the following listed toxic air contaminants discharged to the atmosphere from the flare shall not exceed the levels specified in the following table:

Pollutant	lbs/hour	lbs/day	lbs/year
Acrolein	4.15×10^{-5}	--	0.023
Benzene	1.23×10^{-4}	2.95×10^{-3}	0.069
Ethylene dibromide	--	6.44×10^{-6}	1.50×10^{-4}
Formaldehyde	2.61×10^{-4}	6.27×10^{-3}	0.146

g. Opacity

The flare shall be operated with no visible emissions.

B. Operating Requirements

1. Biogas shall be the only fuel combusted in each flare.
2. All biogas shall be directed through the hydrogen sulfide (H₂S) pretreatment system prior to being combusted in the flares.
3. Each flare shall not operate more than 560 hours in any consecutive 12-month period.

4. Excess biogas generated from the anaerobic digesters and not combusted by the engines, shall be treated by the flares before discharge to the atmosphere.
5. The minimum operating temperature of each flare shall be 1800°F.
6. The minimum residence time of biogas in the combustion chamber of each flare shall be 0.3 seconds.
7. Each flare shall be operated at all times when biogas is being vented to it.
8. Each flare shall be operated and maintained according to its design specifications whenever biogas is being routed to the device.

C. Monitoring Requirements

1. Temperature Monitoring
 - a. The owner/operator shall install, calibrate, operate, and maintain a temperature monitoring device equipped with a continuous recorder and having a minimum accuracy of ± 1 percent of the temperature being measured expressed in degrees Celsius or ± 0.5 degrees Celsius, whichever is greater.
 - b. The thermocouple used to measure flare operating temperature shall be above the flame zone and at least three feet below the top of the flare shroud.
 - c. The owner/operator shall verify the accuracy of the temperature monitor once each calendar year with a reference temperature monitor (traceable to National Institute of Standards and Technology (NIST) standards or an independent temperature measurement device dedicated for this purpose). During accuracy checking, the probe of the reference device shall be at the same location as that of the temperature monitor being tested.
2. The owner/operator shall install, calibrate and maintain a gas flow rate measuring device that shall measure and record the flow of biogas to the each flare continuously when the flare is in operation.
3. The pressure in the biogas line and gasometer (gasholder) shall be continuously monitored and recorded.
4. The hours of operation of each flare shall be continuously monitored and recorded.

5. Each flare shall be equipped with a failure alarm and biogas supply valve shut-off system to isolate the flare from the biogas supply line and to notify a responsible party of the shutdown.
6. Each flare shall be equipped with an interlock system that ensures ignition of the pilot flame before biogas is discharged to the device.

D. Compliance Demonstration/Stack Testing

1. Compliance with the emission limitations specified in Conditions II.A.1 and Conditions II.A.2 shall be demonstrated within 180 days of startup of each flare. Additionally, during the initial performance test, the owner/operator shall measure the emissions of 1,3-butadiene. Testing shall be conducted in accordance with the test methods in 40 CFR 60 as amended or another EPA approved method which has been accepted by the Director.
2. A stack testing protocol shall be submitted to the Office of Air Resources at least 60 days prior to the performance of any stack tests. The owner/operator shall provide the Office of Air Resources at least 60 days prior notice of any performance test.
3. All test procedures used for stack testing shall be approved by the Office of Air Resources prior to the performance of any stack tests.
4. The owner/operator shall install any and all test ports or platforms necessary to conduct the required stack testing, provide safe access to any platforms and provide the necessary utilities for sampling and testing equipment.
5. All testing shall be conducted under operating conditions deemed acceptable and representative for the purpose of assessing compliance with the applicable emissions limitation.
6. All stack testing must be observed by a representative of the Office of Air Resources to be considered acceptable, unless the Office of Air Resources provides prior written authorization to the owner/operator to conduct the testing without an observer present.
7. A final report of the results of stack testing shall be submitted to the Office of Air Resources no later than 60 days following completion of testing.

E. Recordkeeping and Reporting

1. The owner/operator shall maintain the following records and provide such records to the Office of Air Resources upon request:
 - a. The operating temperature of each flare;
 - b. The biogas flow rate to each flare;

- c. The pressure in the biogas line and gasometer (gasholder).
2. The owner/operator shall, on a monthly basis, no later than 15 days after the first of each month, determine and record the hours of operation for each flare for the previous month. The owner/operator shall keep records of this determination and provide such records to the Office of Air Resources upon request.
 3. The owner/operator shall notify the Office of Air Resources, in writing, whenever the hours of operation in any 12-month period exceeds 560 hours for any flare.
 4. The owner/operator shall, on a monthly basis, no later than 15 days after the first of the month, determine the total quantity of acrolein, ammonia, benzene, ethylene dibromide, and formaldehyde discharged to the atmosphere from each flare during the previous month. Hourly emission averages shall be calculated for acrolein, benzene and formaldehyde. These hourly averages shall be used for comparison to the hourly emission limitations. Daily emission totals shall be calculated for benzene, ethylene dibromide and formaldehyde to be used for comparison the daily emission limitations. Monthly and annual emission averages shall be calculated for acrolein, benzene, ethylene dibromide and formaldehyde to be used for comparison to the annual emission limitations. The owner/operator shall keep records of this determination and provide such records to the Office of Air Resources upon request.
 5. The owner/operator shall notify the Office of Air Resources in writing, within 15 days of determining that the total quantity of acrolein, ammonia, benzene, ethylene dibromide, or formaldehyde discharged to the atmosphere from the 22.37 MMBtu/hr flare or the 16.77 MMBtu flare exceeds the respective hourly, daily or annual emission limitations in Conditions II.A.1 and II.A.2 of this permit.
 6. All 3-hour periods of operation during which the average combustion temperature of a flare was more than 50°F below the average combustion temperature during the most recent performance test at which compliance was determined constitute exceedances that shall be recorded and reported. The owner/operator shall maintain up-to-date, readily accessible records for all 3-hour periods of operation during which the average combustions temperature was more than 50°F below the average combustion temperature during the most recent performance test at which compliance was determined.

III. The following requirements are applicable to the Austep double-stage, cross flow, packed tower wet scrubber associated with the digestate drying process (Approval No. 2312):

A. Emission Limitations

1. Ammonia

- a. The total quantity of ammonia emissions discharged to the atmosphere from the wet scrubber shall not exceed:

- (1) 5.62 pounds per hour; and,
- (2) 134.88 pounds per day; and,
- (3) 47,208 pounds in any consecutive 12-month period.

- b. Ammonia emissions generated from the digestate drying process shall be reduced by 85% or greater before discharge to the atmosphere.

2. Volatile Organic Compounds (VOC)

- a. The total quantity of VOC emissions discharged to the atmosphere from the wet scrubber shall not exceed 8.38 pounds per hour.

- b. VOC emissions generated from the digestate drying process shall be reduced by 70% or greater before discharge to the atmosphere.

3. Particulate Matter (as PM/PM₁₀/PM_{2.5})

- a. The total quantity of particulate matter emissions discharged to the atmosphere from the wet scrubber shall not exceed 1.69 pounds per hour.

- b. Particulate matter emissions generated from the digestate drying process shall be reduced by 90% or greater before discharge to the atmosphere.

4. Opacity

Visible emissions from the wet scrubber exhaust shall not exceed 10% opacity (six-minute average). Where the presence of uncombined water is the only reason for failure to meet the requirements of this condition, such failure shall not be a violation of this permit.

5. Odors

Any air contaminant or combination of air contaminants discharged to the atmosphere from the wet scrubber shall not create an objectionable odor beyond the property line of this facility.

B. Operating Requirements

1. All ammonia, VOC and particulate matter emissions generated from the digestate drying process shall be captured, contained and routed to the wet scrubber for treatment prior to discharge to the atmosphere.
2. The digestate dryer shall not operate more than 8400 hours in any consecutive 12-month period.
3. Water shall be used as the scrubbing liquid in the first stage of the wet scrubber and be supplied at a rate no less than 396 gallons per minute.
4. The water make-up rate for the first stage of the wet scrubber shall be maintained at or above 1 gallon per minute.
5. Sulfuric acidic solution shall be used as the scrubbing liquid in the second stage of the wet scrubber and shall be supplied at a rate no less than 396 gallons per minute.
6. The owner/operator shall maintain and operate the wet scrubber according to the manufacturer's design specifications and operating procedures whenever the digestate dryer is emitting air contaminants.

C. Monitoring Requirements

1. The following parameters shall be monitored continuously and checked a minimum of once per day and the date, time and measurement shall be recorded:
 - a. The pH of the scrubbing liquid in the first and second stage;
 - b. The pressure drop across the wet scrubber; and
 - c. The scrubbing liquid flow rate and water make-up rate for each stage.
2. The hours of operation of the digestate dryer and wet scrubber shall be continuously monitored and recorded.

D. Compliance Demonstration/Stack Testing

1. Within 180 days of start-up of the wet scrubber, emissions testing shall be conducted to demonstrate compliance with Conditions III.A.1-4. In addition, emissions testing shall be conducted to determine and quantify individual species of volatile organic compounds (VOC) emissions and to determine if there are emissions of any hazardous air pollutants.
2. A stack testing protocol shall be submitted to the Office of Air Resources for review at least 60 days prior to the performance of any stack tests. The owner/operator shall provide the Office of Air Resources at least 60 days prior notice of any stack test.
3. All test procedures used for emissions testing shall be conducted in accordance with Appendix A of 40 CFR 60 or another method approved by the Office of Air Resources and U.S. Environmental Protection Agency (EPA) prior to the performance of any emissions tests.
4. The owner/operator shall install any and all test ports or platforms necessary to conduct the required stack testing, provide safe access to any platforms and provide the necessary utilities for sampling and testing equipment.
5. All testing shall be conducted under operating conditions deemed acceptable and representative for the purpose of assessing compliance with the applicable emissions limitation.
6. All emissions testing must be observed by the Office of Air Resources to be considered acceptable, unless the Office of Air Resources provides written authorization to the owner/operator to conduct the testing without an observer present.
7. A final report of the results of stack testing shall be submitted to the Office of Air Resources no later than 60 days following completion of testing.

E. Recordkeeping and Reporting

1. The owner/operator shall maintain the following records and provide such records to the Office of Air Resources upon request:
 - a. Records of the pH of the second stage scrubbing liquid, pressure drop across the scrubber, scrubbing liquid flow rate and water make-up flow rate measurements for each stage for the wet scrubber.
 - b. Records of all maintenance performed on the wet scrubber and monitoring equipment.
2. The owner/operator shall, on a monthly basis, no later than 15 days after the first of each month, determine and record the hours of operation for the

digestate dryer for the previous month. The owner/operator shall keep records of this determination and provide such records to the Office of Air Resources upon request.

3. The owner/operator shall notify the Office of Air Resources, in writing, whenever the hours of operation in any 12-month period exceeds 8,400 hours for digestate dryer.
4. The owner/operator shall, on a monthly basis, no later than 15 days after the first of the month, determine the total quantity of ammonia discharged to the atmosphere from the wet scrubber during the previous month. Hourly emission averages shall be calculated. The hourly averages shall be used for comparison to the hourly emission limitations. Daily emission totals shall be calculated for ammonia to be used for comparison to the daily emission limitation. Monthly and annual emission averages shall be calculated to be used for comparison to the annual emission limitation. The owner/operator shall keep records of this determination and provide such records to the Office of Air Resources upon request.
5. The owner/operator shall notify the Office of Air Resources in writing, within 15 days of determining that the total quantity of ammonia discharged to the atmosphere from the wet scrubber exceeds the hourly, daily or annual emission limitations in Conditions III.A.1.a(1)-(3) of this permit.

IV. The following requirements are applicable to the Austep odor control wet scrubber (Approval No. 2308) followed by a biofilter (Approval No. 2309) associated with the Receiving Building and biopulper tank:

A. Emission Limitations

1. Odors

Any air contaminant or combination of air contaminants discharged to the atmosphere from the wet scrubber and biofilter shall not create an objectionable odor beyond the property line of this facility.

B. Operating Requirements

1. All feedstock shall be received in enclosed trucks or containers and unloaded inside the Reception Building.
2. All access doors to the receiving building shall be kept closed at all times except when feedstock delivery trucks are entering or exiting the building.
3. The Reception Building air system shall be designed to continuously provide a negative draft throughout the building.

4. Odorous air from the receiving building and biopulper tank shall be captured and routed to the wet scrubber followed by a biofilter for treatment prior to discharge to the atmosphere.
5. The owner/operator shall maintain and operate the wet scrubber and biofilter in accordance with the manufacturer's operating procedures and good air pollution control practice.
6. Facility grounds shall be kept clean and free of exposed biomass waste and vehicle tires shall be cleaned, if necessary, to prevent tracking of biomass waste offsite.

C. Monitoring Requirements

1. The following parameters shall be monitored continuously and checked a minimum of once per day and the date, time and measurement shall be recorded for the wet scrubber:
 - a. The pH of the scrubbing liquid;
 - b. The pressure drop across the wet scrubber; and
 - c. The scrubbing liquid flow rate and water make-up rate.
2. The following parameters shall be monitored continuously and checked a minimum of once per day and the date, time and measurement shall be recorded for the biofilter:
 - a. The pH;
 - b. The temperature;
 - c. The moisture content; and
 - d. The differential pressure.

D. Recordkeeping and Reporting

1. The owner/operator shall maintain the following records and provide such records to the Office of Air Resources upon request:
 - a. Records of the pH, scrubbing liquid flow rate and water make-up rate for the wet scrubber.
 - b. Records of the pressure drop readings across the wet scrubber.
 - c. Records of the pH, moisture content, temperature, and differential pressure of the biofilter.

V. The following requirements are applicable to operations on a facility-wide basis:

A. Emission Limitations

1. Volatile Organic Compounds (VOCs)

The total quantity of VOC emissions discharged to the atmosphere from all operations conducted at the entire facility shall not exceed 8,167 pounds of VOC per calendar month based upon a 12-month rolling average.

2. Hazardous Air Pollutants (HAPs)

The total quantity of HAP emissions discharged to the atmosphere from the entire facility shall not exceed 1,500 pounds of any one (1) HAP or 4,000 pounds of any combination of HAPs per calendar month based upon a 12-month rolling average. Hazardous Air Pollutant shall mean an air pollutant which has been listed pursuant to Section 112(b) of the Clean Air Act Amendments of 1990.

3. Listed Toxic Air Contaminants

The total quantity of emissions discharged to the atmosphere from the entire facility, of any listed toxic air contaminant, with the exception of acrolein, ammonia, benzene, 1,3-butadiene, ethylene dibromide, and formaldehyde shall not exceed the minimum quantity for that contaminant as specified in Appendix A of Air Pollution Control Regulation No. 9, during a calendar year. Emissions from activities exempted from the provisions of APC Regulation No. 22 in subsection 22.2.2 are not included in this limitation.

4. Odors

Any air contaminant or combination of air contaminants discharged to the atmosphere from the facility shall not create an objectionable odor beyond the property line of this facility. Odor evaluations shall be conducted according to the provisions of Air Pollution Control Regulation No. 17.

B. Monitoring Requirements

1. The owner/operator shall, upon startup and at least daily, measure the hydrogen sulfide concentration (in ppm by volume) at both the inlet and the outlet of the H₂S pretreatment system and the date, time and measurement shall be recorded.

2. The following parameters for the H₂S pretreatment system shall be monitored continuously and checked a minimum of once per day and the date, time, and measurement shall be recorded:

a. The pH of the scrubbing liquid;

- b. The pressure drop across the H₂S pretreatment system; and
 - c. The scrubbing liquid flow rate in the H₂S pretreatment system.
3. All monitoring equipment used for measuring all parameters required by this permit shall be calibrated periodically, consistent with the manufacturer's recommendations.

C. Recordkeeping and Reporting

1. The owner/operator shall maintain the following records and provide such records to the Office of Air Resources upon request:
 - a. The pH of the scrubbing liquid;
 - b. The pressure drop across the H₂S pretreatment system;
 - c. The scrubbing liquid flow rate in the H₂S pretreatment system; and
 - d. The hydrogen sulfide concentration (in ppm by volume) at both the inlet and the outlet of the H₂S pretreatment system
2. The owner/operator shall notify the Office of Air Resources in writing, within 15 days of determining that the concentration of H₂S in the biogas at the outlet of the hydrogen sulfide pretreatment system exceeds 200 ppm, by volume, dry.
3. The owner/operator shall, on a monthly basis, no later than the last day of the following month, determine the total quantity of VOC discharged to the atmosphere from all operations at the entire facility. Monthly and 12-month rolling averages shall be calculated. The owner/operator shall keep records of this determination and provide such records to the Office of Air Resources upon request.
4. The owner/operator shall notify the Office of Air Resources in writing, within 15 days of determining that the total quantity of VOCs discharged to the atmosphere from all operations at this facility exceeds 8,167 pounds per calendar month (12-month rolling average).
5. The owner/operator shall, on a monthly basis, no later than the last day of the following month, determine the total quantity of HAP emissions discharged to the atmosphere from all operations at the entire facility. Monthly and 12-month rolling averages shall be calculated. The owner/operator shall keep records of this determination and provide such records to the Office of Air Resources upon request.
6. The owner/operator shall notify the Office of Air Resources in writing, within 15 days of determining that the total quantity of HAP emissions

discharged to the atmosphere from all operations at this facility exceeds 1,500 pounds of any one (1) HAP or 4,000 pounds of any combination of HAPs per calendar month (12-month rolling average).

7. The owner/operator shall, for each calendar year, determine the total quantity of each listed toxic air contaminant in Appendix A of Air Pollution Control Regulation No. 9 discharged to the atmosphere from all operations at the entire facility excluding acrolein, ammonia, benzene, 1,3 butadiene, ethylene dibromide, and formaldehyde. The owner/operator shall keep records of this determination and provide such records to the Office of Air Resources upon request.
8. The owner/operator shall notify the Office of Air Resources in writing, within 15 days of determining that the total quantity of emissions discharged to the atmosphere from the entire facility, of any listed toxic air contaminant excluding acrolein, ammonia, benzene, 1,3 butadiene, ethylene dibromide, and formaldehyde, exceeds the minimum quantity for that contaminant as specified in Appendix A of Air Pollution Control Regulation No. 9. In accordance with Air Pollution Control Regulation No 22, this notification shall be included in the annual air pollution inventory.
9. The owner/operator shall notify the Office of Air Resources in writing of the date of actual initial start-up of each device permitted under this permit no later than fifteen days after such date.
10. Any breakdown or malfunction of the engines or flares resulting in the discharge of biogas gas shall be reported to the Office of Air Resources within one hour after the occurrence. A written report of any breakdown or malfunction shall be submitted within five (5) days of the breakdown or malfunction. The following information shall be provided in each report:
 - a. The date the breakdown or malfunction occurred
 - b. The suspected reason for the malfunction
 - c. The corrective action taken
 - d. The time needed to make repairsA copy of each report shall be kept at the facility.
11. The owner/operator shall notify the Office of Air Resources of any anticipated noncompliance with the terms of this permit or any other applicable air pollution control rules and regulations.
12. The owner/operator shall notify the Office of Air Resources in writing of any planned physical or operational change to any equipment that would:

- a. Change the representation of the facility in the application.
- b. Alter the applicability of any state or federal air pollution rules or regulations.
- c. Result in the violation of any terms or conditions of this permit.
- d. Qualify as a modification under APC Regulation No. 9.

Such notification shall include:

- Information describing the nature of the change.
- Information describing the effect of the change on the emission of any air contaminant.
- The scheduled completion date of the planned change.

Any such change shall be consistent with the appropriate regulation and have the prior approval of the Director.

13. The owner/operator shall notify the Office of Air Resources, in writing, of any noncompliance with the terms of this permit within 30 calendar days of becoming aware of such occurrence and supply the Director with the following information:

- a. The name and location of the facility;
- b. The subject source(s) that caused the noncompliance with the permit term;
- c. The time and date of first observation of the incident of noncompliance;
- d. The cause and expected duration of the incident of noncompliance;
- e. The estimated rate of emissions (expressed in lbs/hr or lbs/day) during the incident and the operating data and calculations used in estimating the emission rate;
- f. The proposed corrective actions and schedule to correct the conditions causing the incidence of noncompliance.

14. The owner/operator shall maintain properly signed, contemporaneous operating logs or other relevant evidence to document actions during startup/shutdown periods.

15. All records required in this permit shall be maintained for a minimum of five years after the date of each record and shall be made available to representatives of the Office of Air Resources or its authorized representative and EPA upon request.

D. Other Permit Conditions

1. To the extent consistent with the requirements of this permit and applicable federal and state laws, the equipment shall be designed, constructed and operated in accordance with the representation of the equipment in the permit application.
2. Employees of the Office of Air Resources and its authorized representatives shall be allowed to enter the facility at all times for the purpose of inspecting any air pollution source, investigating any condition it believes may be causing air pollution or examining any records required to be maintained by the Office of Air Resources.
3. At all times, including periods of startup, shutdown and malfunction, the owner/operator shall, to the extent practicable, maintain and operate the facility in a manner consistent with good air pollution control practice for minimizing emissions. The general duty to minimize emissions does not require you to make any further efforts to reduce emissions if levels required by this permit have been achieved. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Office of Air Resources which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures and inspection of the source.
4. The emission and dispersion characteristics of all sources of acrolein, ammonia, benzene, 1,3 butadiene, ethylene dibromide, and formaldehyde at the facility shall be consistent with the parameters used in the air quality modeling to demonstrate that the emissions of acrolein, ammonia, benzene, 1,3 butadiene, ethylene dibromide, and formaldehyde from the facility do not cause or contribute to air pollution in violation of RI Air Pollution Control Regulation No. 22. The Office of Air Resources, in its sole discretion, may reopen this minor source permit if it determines that the emission and dispersion characteristics have changed significantly and that emission limitations must be revised and/or added to this permit to ensure compliance with RI Air Pollution Control Regulation No. 22.

E. Malfunctions

1. The owner/operator may seek to establish that a malfunction of any air pollution control system that would result in noncompliance with any of the terms of this permit or any other applicable air pollution control rules and regulations was due to unavoidable increases in emissions attributable

to the malfunction. To do so, the owner/operator must demonstrate to the Office of Air Resources that:

- a. The malfunction was not attributable to improperly designed equipment, lack of preventative maintenance, careless or improper operation or operator error;
- b. The malfunction is not part of a recurring pattern indicative of inadequate design, operation or maintenance;
- c. Repairs were performed in an expeditious fashion. Off-shift labor and overtime should be utilized, to the extent practicable, to ensure that such repairs were completed as expeditiously as practicable.
- d. All possible steps were taken to minimize emissions during the period of time that repairs were performed.
- e. Emissions during the period of time that the repairs were performed will not:
 - (1) Cause an increase in the ground level ambient concentration at or beyond the property line in excess of that allowed by Air Pollution Control Regulation No. 22 and any Calculated Acceptable Ambient Levels; and
 - (2) Cause or contribute to air pollution in violation of any applicable state or national ambient air quality standard.
- f. The reasons that it would be impossible or impractical to cease the source operation during said period.
- g. The owner/operator's actions in response to the excess emissions were documented by properly signed, contemporaneous operating logs or other relevant evidence.

This demonstration must be provided to the Office of Air Resources within two working days of the time when the malfunction occurred and contain a description of the malfunction, any steps taken to minimize emissions and corrective actions taken.

The owner/operator shall have the burden of proof in seeking to establish that noncompliance was due to unavoidable increases in emissions attributable to the malfunction.