

STATE OF NEW HAMPSHIRE

Inter-Department Communication

DATE: December 2, 2014

AT (OFFICE): NHPUC

NHPUC 2DEC14PM12:07

FROM: Barbara Bernstein 
Sustainable Energy Analyst

SUBJECT: DE 14-237, Rolling Dog Farm, Application for Certification as a REC Eligible Facility – Class I Thermal
Staff Recommends that Interim Eligibility be Granted

TO: Commissioner Robert R. Scott
Commissioner Martin P. Honigberg
Debra A. Howland, Executive Director and Secretary

CC: David J. Shulock, Staff Attorney
Michael Sheehan, Staff Attorney 

Summary

On September 16, 2014, the Commission received an application filed by Ground Energy Support, LLC (GES) on behalf of Rolling Dog Farm. GES is requesting interim Class I Thermal renewable energy certificate (REC) eligibility¹ for Rolling Dog Farm's 72,000 Btu/hr (0.021 megawatt (MW_e)) equivalent, geothermal facility. On October 20, 2014, Mr. Davis of GES submitted a waiver request to serve as the independent monitor for the system. The rules may preclude Mr. Davis to be the independent monitor because GES sold the metering equipment to Rolling Dog Farm.

Staff has reviewed the Rolling Dog Farm certification request and has determined that the project meets the eligibility requirements under RSA 362-F:4, I(b), as an interim Class I Thermal facility and complies with the New Hampshire Code of Administrative Rules Puc 2500. Staff recommends interim approval for the Rolling Dog Farm geothermal facility as a Class I Thermal renewable energy source, effective as of January 1, 2014.² This review reflects recommended changes to the interim Proposed Amendments to Puc 2500. Once the 2500 Rule is final, Rolling Dog Farm will be required to submit a request for final approval to obtain Commission final approval to generate geothermal RECs.

Waiver Request

Rolling Dog Farm proposes to use GES as the independent monitor. GES sold the metering equipment that another party installed. The application recognizes that Puc

¹ Pursuant to Proposed Amendments to Puc 2500 as contemplated by Order No. 25,678 (June 19, 2014) issued in Docket No. DRM 14-095 effective as of July 23, 2014.

² Thermal sources approved during the interim period are eligible to be issued RECs retroactive to January 1, 2014.

2505.09(g) may preclude GES from serving as the independent monitor because the rule states: “No ... source producing useful thermal energy shall use an independent monitor ... who sold or installed the renewable energy system and associated equipment.” GES filed a memo with the application arguing that the rule only prevents those who sold or installed the energy producing equipment from serving as monitors and does not prohibit those, like GES, who sold just the metering equipment. GES argues that those who sell or install meters are not subject to the temptations that may affect system installers to, for example, exaggerate claims of system performance, lessening the need for the rule’s conflict of interest protections. Although that may be the case, the rule also protects against good faith mistakes. If the same person sells and installs the meter and serves as the independent monitor of that meter, there is no independent check of the meter’s accurate performance. Staff thus recommends that the phrase “associated equipment” be interpreted to include the metering equipment and, therefore, that Puc 2505.09(g) precludes GES from serving as an independent monitor for this system because it “sold or installed” the metering equipment.

GES alternatively asked for a waiver of Puc 2505.09(g) so that it may serve as the independent monitor. GES bases its waiver request on its expertise, its independence from the system installer, and on the fact that although GES sold the meter, it was installed by another independent party. GES can thus provide the necessary second look at how the meter is installed and operating. For these reasons Staff recommends that a waiver of Puc 2505.09(g) is appropriate in this case for a period of two years from the date of the secretary letter. Staff further recommends that before the expiration of two years, Rolling Dog should either explain why GES should continue serving as the independent monitor or obtain another independent monitor.

Application Analysis

To qualify as a facility eligible to produce useful thermal energy, Puc 2505.02 (d)³ requires the source to provide the following:

- 1) *The name, address and contact information of the applicant:* The application was filed by J. Matthew Davis, Ph.D., Ground Energy Support, LLC, 2 Washington Street, Suite 217, Dover, NH 03820, on behalf of Rolling Dog Farm, PO Box 150, Lancaster, NH 03584. The primary contact for Rolling Dog Farm is Steven Smith.
- 2) *The name and location of the facility:* Rolling Dog Farm is located at 44 Whitney Road, Lancaster, NH 03584. The initial date of operation using renewable fuels is October 11, 2013.
- 3) *A description of the equipment and meters used to measure useful thermal energy including the manufacturer, model, placement of the sensors in the energy production system, temperature operating range, flow operating range, thermal energy operating range, and pressure operating range, if applicable.* The Rolling Dog Farm uses an Envision Series Geothermal Heat Pump manufactured by WaterFurnace International, Inc. The Model Number is NDV-072.

³ Initial Proposal 4-10-14.

- 4) *A description of the manufacturer's recommended methods and frequency for meter calibration.* Not applicable for geothermal systems.
- 5) *The rated thermal capacity of the facility.* The rated capacity of the geothermal facility is 72,000 Btu/hr. The useful thermal energy actually produced by the facility is estimated as 45,000 Btu/hr.
- 6) *The GIS facility code.* The NEPOOL-GIS unit identification code for the Rolling Dog Farm geothermal facility has been verified as NON 42866.
- 7) *The name, license number, if applicable, and contact information of the installer of the thermal biomass facility, solar thermal technology or geothermal system, or a statement that the equipment was installed directly by the owner.* The application lists the installer as Appalachian Green Builders, LLC, (Appalachian Green Builders) an International Ground Source Heat Pump Association (IGSHPA) accredited installer in good standing. The address for Appalachian Green Builders is 633 Lehan Road, Bethlehem, NH 03574.
- 8) *The name and contact information of the seller of the thermal equipment.* Appalachian Green Builders, LLC, 633 Lehan Road, Bethlehem, NH 03574, installed both the thermal equipment as well as the heat pump equipment. Water Energy Distributors, Inc., of Hampstead NH was the manufacturer's distributor.
- 9) *The name and contact information of the independent monitor of the facility.* The application lists Matthew Davis, Ground Energy Support, as the independent monitor.⁴
- 10) *An attestation that the project meets the metering requirements of Puc 2506 and the meters were installed according to manufacturer's recommendation.* Timothy M. Roos, P.E. Number 13298, provided an affidavit that the Rolling Dog Farm facility meets the requirements of PUC 2500, including the thermal metering and measurement methodologies and standards and REC calculation methodologies.
- 11) *The manufacturer's guaranteed accuracy of the meters used to calculate thermal energy output.* Ground Energy Support provided documentation of the runtime accuracy. The nominal 1-minute sampling interval used by the GxTracker devices (and recommended by Ground Energy Support), results in a typical daily runtime error of less than 0.5%.
- 12) *For small thermal sources a description of the methodology used to calculate the useful thermal energy pursuant to Puc 2506.04 including the equations and values for the variables in the equations.*

Variable	Definition	Value	Units
HC	Air Conditioning, Heating & Refrigeration Institution (AHRI)	45,000	Btu/hour

⁴ The Commission approved Mr. Davis as an independent monitor of geothermal RECs in DE 14-201, September 5, 2014.

	certified heating capacity at part load		
COP	AHRI Certified Coefficient of Performance	4.1	

- 13) *For large thermal sources, a description of the methodology used to calculate the useful thermal energy pursuant to Puc 2506.04. Not applicable.*
- 14) *The discount factors for meter accuracy pursuant to Puc 2506.05(e) to be applied for REC calculations, if applicable. Not applicable.*
- 15) *The discount factor for operating energy and thermal energy losses pursuant to Puc 2506.05(f) to be applied for REC calculations, if applicable, or a detailed description of the method for determining a discount factor for operating energy and thermal energy losses, if applicable. Not applicable.*
- 16) *If a thermal biomass facility, the following documentation, as applicable.*
- a. For units with a heat input capacity of 100 MMBtu/hour or greater, the nitrogen oxides (NOx) emissions rate in lb/MMBtu, quarterly average.*
 - b. For units with a heat input capacity of 3 MMBtu/hour or greater, the particulate matter emission rate in lb/MMBtu.*
 - c. A description of pollution control equipment or proposed practices for compliance with NOx and particulate matter requirements.*
 - d. For units with a heat input capacity of less than 100 MMBtu/hour, the proposed best management practices that are consistent with the recommendations in the report entitled "Emission Controls for Small Wood-Fired Boilers" prepared for the United States Forest Service, Western Forestry Leadership Coalition by RSG, Inc., May 6, 2010, and available at http://www.wflccenter.org/news_pdf/361_pdf.pdf.*
 - e. ~~Proof that a copy of the completed application has been filed with the department.~~*
- Not applicable for geothermal systems.*
- 17) *All other necessary regulatory approvals that are related to REC requirements, including any reviews, approvals or permits required by the department. Not applicable.*
- 18) *A statement as to whether the facility has been certified under another non-federal jurisdiction's renewable portfolio standards and proof thereof. The Rolling Dog Farm geothermal facility has not been certified under another non-federal jurisdiction's renewable portfolio standard.*
- 19) *A description of how the facility's output is reported to the GIS, including the name and contact information of the independent monitor. The application lists the independent monitor as Matthew Davis, Ground Energy Support. Michael Behrmann, Revolution Energy Aggregation, LLC, will be aggregating the RECs generated from Rolling Dog Farm for sale in the ISO-NE market.*

- 20) *The name and telephone number of the facility's operator, if different from the owner.* The facility is operated by Steven Smith, 44 Whitney Road, Lancaster, NH.
- 21) *Such other information as the applicant wishes to provide to assist in classification of the facility.* The applicant provided ample information to complete the evaluation.
- 22) *For thermal biomass renewable energy technologies, the manufacturer's rated thermal efficiency.* Not applicable.
- 23) *For a solar thermal facility, the Solar Rating and Certification Corporation (SRCC) rating of the system.* Not applicable.
- 24) *For a geothermal facility, the coefficient of performance and the energy efficiency ratio of the system.* Not applicable.
- 25) *An attestation by the applicant that the project is installed and operating in conformance with any applicable building codes.* An affidavit was provided by Steven P. Smith stating that the geothermal heat pump system installed 44 Whitney Road, Lancaster is installed and operating in compliance with applicable building codes.
- 26) *An affidavit by the owner attesting to the accuracy of the contents of the application.* An affidavit was provided by Steven P. Smith stating that the geothermal heat pump system installed 44 Whitney Road, Lancaster is installed and operating in compliance with applicable building codes.
- 27) *An affidavit by a professional engineer that is licensed in New Hampshire and in good standing attesting that the renewable energy source meets the requirements of this part.* Timothy M. Roos, P.E. Number 13298, provided an affidavit that the Rolling Dog Farm facility meets the requirements of PUC 2500, including the thermal metering and measurement methodologies and standards and REC calculation methodologies.

For thermal sources requesting eligibility to be issued certificates for the period January 1, 2014 until 60 days following the effective date of this part, the application shall include the following information for that interim period which information shall be submitted no later than 60 days following the effective date of this part:

1. *If requesting eligibility to be issued thermal certificates, the information required under Puc 2505.02(d), except as outlined in Puc 2505.02(e)(2) See above.*
2. *In lieu of the information required by Puc 2505.02 (d) (11) through (13), a thermal source may submit a detailed explanation of the methodology used to measure and calculate thermal energy and an attestation by a professional engineer that is licensed in New Hampshire and in good standing that the methodology for measuring useful thermal energy and calculating certificates is sound.* Not applicable.

Recommendation

Staff has reviewed the Rolling Dog Farm application for Class I Thermal certification of its geothermal facility, and can affirm it is complete pursuant to New Hampshire Code of Administrative Rules Puc 2500. Staff recommends that the Commission grant interim approval for the Rolling Dog Farm geothermal biomass facility as a Class I Thermal renewable energy source eligible to produce RECs effective as of January 1, 2014. Staff further recommends that a waiver of Puc 2505.09(g) is appropriate in this case for a period of two years from the date of the secretary letter to allow GES to serve as the independent monitor for the Rolling Dog Farm facility.

SERVICE LIST - EMAIL ADDRESSES - DOCKET RELATED

Pursuant to N.H. Admin Rule Puc 203.11 (a) (1): Serve an electronic copy on each person identified on the service list.

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Docket #: 14-237-1 Printed: December 02, 2014

FILING INSTRUCTIONS:

- a) Pursuant to N.H. Admin Rule Puc 203.02 (a), with the exception of Discovery, file 7 copies, as well as an electronic copy, of all documents including cover letter with:

DEBRA A HOWLAND
EXECUTIVE DIRECTOR
NHPUC
21 S. FRUIT ST, SUITE 10
CONCORD NH 03301-2429

- b) Serve an electronic copy with each person identified on the Commission's service list and with the Office of Consumer Advocate.
- c) Serve a written copy on each person on the service list not able to receive electronic mail.