

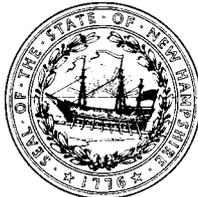
THE STATE OF NEW HAMPSHIRE

29 mac

CHAIRMAN  
Martin P. Honigberg

COMMISSIONERS  
Robert R. Scott  
Kathryn M. Bailey

EXECUTIVE DIRECTOR  
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**PUBLIC UTILITIES COMMISSION**  
21 S. Fruit Street, Suite 10  
Concord, N.H. 03301-2429

April 6, 2016

Her Excellency, Governor Margaret Wood Hassan  
and the Honorable Council  
State House  
Concord, NH 03301

Her Excellency and Honorable Councilors:

**REQUESTED ACTION**

Authorize the New Hampshire Public Utilities Commission (Commission) to award grant funds in the amount of \$200,000.00 to the University of New Hampshire, Vendor #177867, to install a steam turbine electric generator in Rudman Hall, from Governor and Council approval through June 30, 2017. Funding is 100% Renewable Energy Fund (REF), a non-lapsing special fund continually appropriated to the Commission pursuant to RSA 362-F:10.

02-81-81-811510-54540000 Renewable Portfolio Standard 362-F:10

	FY2016	Total
010-081-54540000-073-500579 Grants to Institutions – State	\$200,000.00	\$200,000.00

**EXPLANATION**

Pursuant to RSA 362-F:10, the Commission is charged with administering the Renewable Energy Fund (REF), the purpose of which is to support thermal and electrical renewable energy initiatives. On September 25, 2015, the Commission issued a Request for Proposals (RFP) pursuant to RSA 362-F:10 XI that requires the Commission to issue, on an annual basis, an RFP for renewable energy projects in the commercial and industrial sectors funded by grants from the REF.

The Commission received eight proposals requesting a total of \$3.2 million in funds in response to the RFP. The University of New Hampshire and three (3) others have been selected to receive a total of \$1,025,000 in this funding round. Attachment A provides additional information on the grant review and award process.

With these funds, the University of New Hampshire will install and operate a steam turbine electric generation unit in Rudman Hall. The steam is generated at the Campus' Combined Heat and Power (CHP) plant which burns landfill gas – a renewable energy source .

The grant is contingent on sufficient REF funds being available upon the effective date of the grant agreement. These funds have already been allocated to this RFP round, and are being held in the fund. In the event that the REF funds are insufficient or are no longer available, General Funds will not be requested to support this program.

Respectfully submitted,



Martin P. Honigberg  
Chairman

Attachments:

Agreement with Exhibits  
2015 Grant Review Process  
Table of 2015 REF Grant Awards  
Project Specific Facts and Figures

## ATTACHMENT A – 2015 GRANT REVIEW PROCESS

The Public Utilities Commission (PUC) issued a Request for Proposals (RFP) on September 25, 2015 for renewable energy projects in the commercial and industrial sectors which would be eligible to generate Class I, Class I Thermal, or Class IV renewable energy certificates (RECs). The RFP was generally similar to that issued in the prior year. The RFP required that the project create certain classes of renewable energy certificates, which would be available for use by electricity providers for compliance with the renewable portfolio standard requirements in New Hampshire. Pursuant to RSA 362-F:10, the RFP is funded with monies from the Renewable Energy Fund and issued on an annual basis.

The RFP was widely circulated electronically to members of the Energy Efficiency and Sustainable Energy Board (EESE Board), regular attendees at EESE Board meetings, additional stakeholders known to have an interest in energy policy and programs, and the NH Municipal Association. The RFP was posted on the PUC website for the full submission period, and it was advertised in the New Hampshire Union Leader on September 28, 29, and 30, 2015. All responses were due by November 13, 2015. The Commission received eight (8) proposals requesting a total of \$3.17 million in grant funds for projects with a combined estimated project value of \$8.38 million.

The PUC employed a two-tier grant review process to evaluate the proposals. The initial review team consisted of three members including Stephen Eckberg (PUC Sustainable Energy Division), Joe Fontaine (Air Resources Division, DES) and Rick Minard (NH Office of Energy and Planning)<sup>1</sup>. The second tier review team consisted of Public Utilities Commissioners including: Chairman Martin Honigberg; Commissioner Robert Scott; and Commission Kathryn Bailey.

The initial review team scored all proposals using the scoring criteria set forth in the RFP and those requirements set forth in NH Code of Administrative Rules Puc 2508.02 (b) and (c). The team scored all proposals using the pre-published scoring criteria developing a score for each from 0-100 points. Following the initial scoring, the team interviewed five (5) applicants. The review team assigned values for the factors outlined in the RFP which resulted in the final scores; ranks; and funding recommendations.

The initial review team met with the Commissioners to brief them on the committee's recommendations. The Commissioners were provided with project descriptions for those projects recommended for funding and had an opportunity to ask questions of members of the initial review team. The Commissioners approved the review team's recommendations to award grant funds for four (4) renewable energy projects totaling \$1,025,000.

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<sup>1</sup> Oversight was provided by Karen Cramton, Director of the PUC's Sustainable Energy Division.

**Attachment B**

**Proposed Renewable Energy Project Competitive Grant Awards 2015**

	<b>Town/City</b>	<b>Technology (Capacity)</b>	<b>Total Project Costs</b>	<b>Proposed Grant Funding</b>	<b>Annual Renewable Energy Credits &amp; Type</b>	<b>Cost Effectiveness (Grant \$ / 10yrs-REC)</b>	<b>Contract End Date</b>
Ever Better Hydro	Pittsfield	Hydro (415kW)	\$600,000	\$200,000	1,400 Class IV (or Class I)	\$14.29	6/30/2017
Froling LLC	Peterborough	Biomass Thermal	\$627,000	\$300,000	3,186 Class I T	\$9.42	6/30/2017
Pemi-Baker Cooperative School District	Plymouth	Biomass Thermal	\$1,100,000	\$325,000	1,909 Class I T	\$17.02	12/31/2016
University of New Hampshire	Durham	Landfill Gas fueled Steam Electric Generation	\$600,000	\$200,000	402 Class IV	\$33.33	6/30/2017
<b>TOTAL</b>			<b>\$2,927,000</b>	<b>\$1,025,000</b>			

**Attachment C**  
**University of New Hampshire**  
**Steam Turbine Generator Project**  
**Facts and Figures**

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The University of New Hampshire will add a new back-pressure steam turbine at Rudman Hall on the UNH Campus in Durham, NH. Rudman Hall receives high-pressure steam (HPS) from the landfill gas fired combined heat and power (CHP) plant on campus. A small amount of the HPS is used in the building as process steam, but the majority is run through pressure reducing valves installed in the basement of Rudman Hall to create low pressure steam (LPS) used for heating and cooling in the building. The steam use in the building is year round and continuous. The new steam turbine will be installed in parallel with the existing pressure reducing valves. The new turbine will generate electricity *and* reduce the steam pressure for its use in the building processes. The new turbine will, in effect, generate electricity from what has been waste energy.

**Technical Specifications:**

Nameplate Rating: 200 kW Steam Generating Station  
To operate at estimated 35% capacity factor

**Grant Cost Effectiveness<sup>i</sup>:** \$33.33/REC

**Funding Analysis:**

Total Project Cost: \$600,000  
Leveraged Funds: \$400,000  
Grant Amount: \$200,000 (approximately 33% of total project cost)  
Payback Period<sup>ii</sup>: 10 years (based on Total Project Cost and Generation Value)  
6.7 years (based on Leveraged Funds and Generation Value)

**Financial and Environmental Benefits:**

Energy Generation: 600,000 kilowatt hours per year  
Generation Value<sup>ii</sup>: \$59,940 per year  
Cost Savings: per kWh savings for University of New Hampshire  
Life Expectancy: 20+ years  
CO<sub>2</sub> Avoided: 219 tons/year

**Renewable Portfolio Standard RSA 362-F:1 Criteria:**

- Generates 600 Class I renewable energy certificates (RECs) per year
- Supports fuel diversity
- Keeps energy dollars in state
- Reduces the amount of greenhouse gases, nitrogen oxides and particulate matter emissions; thereby improving air quality and public health
- Reduces energy costs for University of New Hampshire

**Attachment C**  
**University of New Hampshire**  
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**Facts and Figures**

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**Transmission and Distribution:**

Transmission:

The system will be interconnected to the UNH distribution grid. The cost of any required upgrades due to interconnection will be the responsibility of the facility owner. It is anticipated that all of the energy generated will be used on campus.

Distribution:

The Commission's rules provide that:

A distribution utility may perform an annual calculation to determine the net effect of net metering on its default service and distribution revenues and expenses in the prior calendar year. Pursuant to Puc 203, the commission shall determine by order, after notice and hearing, the utility-specific method of performing the calculation and applying the results, as well as a reconciliation mechanism to collect or credit any such net effects with appropriate carrying charges and credits applied. (N.H. Code Admin. Rules Puc 903.02(o))

This rule is intended to implement RSA 362-A:9, VII, which provides that:

A distribution utility may perform an annual calculation to determine the net effect this section had on its default service and distribution revenues and expenses in the prior calendar year. The method of performing the calculation and applying the results, as well as a reconciliation mechanism to collect or credit any such net effects with appropriate carrying charges and credits applied, shall be determined by the commission.

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<sup>i</sup> The PUC a metric defined as the grant amount divided by the total number of RECs over ten (10) years of energy production as a key criteria in evaluating and choosing grantees

<sup>ii</sup> Simple payback calculated based only on total project costs (and leveraged funds) and generation value for ease of comparison among all the projects. Eversource default service rate = \$0.0999/kWh as of 1/1/2016 comprised of \$0.0872 energy rate + \$0.0172 Merrimack Scrubber Temporary Rate.

**COOPERATIVE PROJECT AGREEMENT**

between the

STATE OF NEW HAMPSHIRE, **Public Utilities Commission**

and the

**University of New Hampshire** of the UNIVERSITY SYSTEM OF NEW HAMPSHIRE

- A. This Cooperative Project Agreement (hereinafter "Project Agreement") is entered into by the State of New Hampshire, **Public Utilities Commission**, (hereinafter "State"), and the University System of New Hampshire, acting through **University of New Hampshire**, (hereinafter "Campus"), for the purpose of undertaking a project of mutual interest. This Cooperative Project shall be carried out under the terms and conditions of the Master Agreement for Cooperative Projects between the State of New Hampshire and the University System of New Hampshire dated November 13, 2002, except as may be modified herein.
- B. This Project Agreement and all obligations of the parties hereunder shall become effective on the date the Governor and Executive Council of the State of New Hampshire approve this Project Agreement ("Effective date") and shall end on **6/30/17**. If the provision of services by Campus precedes the Effective date, all services performed by Campus shall be performed at the sole risk of Campus and in the event that this Project Agreement does not become effective, State shall be under no obligation to pay Campus for costs incurred or services performed; however, if this Project Agreement becomes effective, all costs incurred prior to the Effective date that would otherwise be allowable shall be paid under the terms of this Project Agreement.
- C. The work to be performed under the terms of this Project Agreement is described in the proposal identified below and attached to this document as Exhibit A, the content of which is incorporated herein as a part of this Project Agreement.

Project Title: **Rudman Hall Steam Turbine Generator Project**

- D. The Following Individuals are designated as Project Administrators. These Project Administrators shall be responsible for the business aspects of this Project Agreement and all invoices, payments, project amendments and related correspondence shall be directed to the individuals so designated.

**State Project Administrator**

Name: Eunice Landry  
 Address: NH Public Utilities Commission  
21 S. Fruit St., Suite 10  
Concord, NH 03301-2429

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Phone: 603-271-2431

**Campus Project Administrator**

Name: Dianne Hall  
 Address: University of New Hampshire  
Sponsored Programs Administration  
51 College Rd. Rm 116  
Durham, NH 03824

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Phone: 603-862-1942

- E. The Following Individuals are designated as Project Directors. These Project Directors shall be responsible for the technical leadership and conduct of the project. All progress reports, completion reports and related correspondence shall be directed to the individuals so designated.

**State Project Director**

Name: Karen Cramton  
 Address: NH Public Utilities Commission  
21 S. Fruit St., Suite 10  
Concord, NH 03301-2429

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Phone: 603-271-6012

**Campus Project Director**

Name: Adam Kohler  
 Address: Rudman Hall  
6 Leavitt Lane  
University of New Hampshire  
Durham, NH 03824

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Phone: 603-862-5491

F. Total State funds in the amount of \$200,000 have been allotted and are available for payment of allowable costs incurred under this Project Agreement. State will not reimburse Campus for costs exceeding the amount specified in this paragraph.

Check if applicable

Campus will cost-share \_\_\_\_\_ % of total costs during the term of this Project Agreement.

Federal funds paid to Campus under this Project Agreement are from Grant/Contract/Cooperative Agreement No. \_\_\_\_\_ from \_\_\_\_\_ under CFDA# \_\_\_\_\_. Federal regulations required to be passed through to Campus as part of this Project Agreement, and in accordance with the Master Agreement for Cooperative Projects between the State of New Hampshire and the University System of New Hampshire dated November 13, 2002, are attached to this document as Exhibit B, the content of which is incorporated herein as a part of this Project Agreement.

G. Check if applicable

Article(s) \_\_\_\_\_ of the Master Agreement for Cooperative Projects between the State of New Hampshire and the University System of New Hampshire dated November 13, 2002 is/are hereby amended to read:

H.  State has chosen **not to take** possession of equipment purchased under this Project Agreement.  
 State has chosen **to take** possession of equipment purchased under this Project Agreement and will issue instructions for the disposition of such equipment within 90 days of the Project Agreement's end-date. Any expenses incurred by Campus in carrying out State's requested disposition will be fully reimbursed by State.

This Project Agreement and the Master Agreement constitute the entire agreement between State and Campus regarding this Cooperative Project, and supersede and replace any previously existing arrangements, oral or written; all changes herein must be made by written amendment and executed for the parties by their authorized officials.

IN WITNESS WHEREOF, the University System of New Hampshire, acting through the **University of New Hampshire** and the State of New Hampshire, \_\_\_\_\_ have executed this Project Agreement.

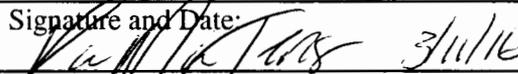
**By An Authorized Official of:**

**University of New Hampshire**

Name: Karen M. Jensen

Title: Manager, Sponsored Programs Administration

Signature and Date:

 3/11/16

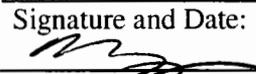
**By An Authorized Official of:**

**NH Public Utilities Commission**

Name: Martin P. Honigberg

Title: Chairman

Signature and Date:

 4/5/16

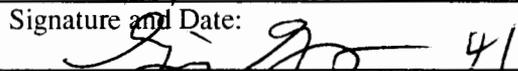
**By An Authorized Official of: the New**

**Hampshire Office of the Attorney General**

Name: Brian Buonamano

Title: AAG

Signature and Date:

 4/4/16

**By An Authorized Official of: the New**

**Hampshire Governor & Executive Council**

Name:

Title:

Signature and Date:

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## EXHIBIT A

- A. Project Title:** UNH Rudman Hall Steam Turbine Electric Generation Project
- B. Project Period:** March 23, 2016 - June 30, 2017
- C. Objectives:** See Scope of Work
- D. Scope of Work:** This project consists of installing a new back-pressure steam turbine electric generating unit in the Rudman Hall building at UNH's Durham campus. Rudman Hall receives high pressure steam (HPS) from the combined heat and power (CHP) plant on campus. The majority of the HPS is run through a pressure reducing valve in Rudman Hall to create low pressure steam (LPS) for use in the building. The new steam turbine will be installed in parallel with the existing pressure reducing valve. The output of the steam turbine will be electric energy and LPS for use in the building. The energy input to the new turbine is 100% "waste" energy which would otherwise be vented to the atmosphere.
- E. Deliverables Schedule:** Campus agrees to prepare and submit progress reports to the State, in a form and manner prescribed by the State. The first report will cover activities related to project design, development and construction up through June 30, 2016 with the report due August 1, 2016. The second report will be cover the period from July 1, 2016 through September 30, 2016 with the report due November 1, 2016. The third report will cover the period October 1, 2016 through December 31, 2016 with the report due February 1, 2017. All reports thereafter will be due on February 1<sup>st</sup> after the end of the preceding calendar year continuing for a period of ten (10) years. Any activities or benefits that occurred as a result of the grant not included in the scope of services should also be noted in reports. All reports submitted after the installation of the will provide data on the amount of electric energy produced (annual kWh). The Campus also agrees to submit a completed application to the NH Public Utilities Commission to become eligible to produce Renewable Energy Certificates (RECs) and to market such RECs to electricity providers in New Hampshire.
- F. Budget and Invoicing Instructions:** Campus will submit invoice to State on regular Campus invoice forms upon purchase of turbine. Invoice for reimburseable costs will be based on actual project expenses incurred and paid during the invoicing period, and shall show current and cumulative expenses. State will pay Campus within 30 days of receipt of each conforming invoice. Campus will submit a final expense report showing total project costs within 75 days of project end date. Invoices will be submitted to: Business Office, NH Public Utilities Commission, 21 S. Fruit St., Suite 10, Concord, NH 03301-2429 with a CC to Director, Sustainable Energy Division at the same address.

Steam turbine     \$200,000