

**STATE OF NEW HAMPSHIRE  
PUBLIC UTILITIES COMMISSION**

**DE 13-298**

**RENEWABLE ENERGY INCENTIVE PROGRAM FOR  
COMMERCIAL AND INDUSTRIAL BULK FUEL-FED  
WOOD PELLET CENTRAL HEATING SYSTEMS**

**Order Initiating Program and Approving Application**

**ORDER NO. 25,605**

**December 18, 2013**

**I. PROCEDURAL HISTORY**

On October 11, 2013, the Commission issued a Notice of Opportunity to Comment (Notice) and scheduled a hearing for public comment on a proposal to establish a commercial and industrial renewable energy rebate or incentive program to support the purchase and installation by non-residential property owners of bulk fuel-fed wood pellet central heating systems in New Hampshire. RSA 362-F: 10, VIII authorizes the Commission to establish “additional incentive or rebate programs and competitive grant opportunities for renewable thermal and electric energy projects sited in New Hampshire,” to be supported by the renewable energy fund (REF) created by RSA 362-F:10. Pursuant to this statutory authority, the Commission budgeted \$629,140 of REF funds in State fiscal year 2014 to support such projects.

The Notice solicited comment on the development of the proposed program from stakeholders, including commercial and industrial customers such as businesses, municipalities, non-profits, colleges and universities and owners of multi-family residential buildings, as well as from wood pellet manufacturers and delivery companies, boiler installers, and State and regional experts on the wood pellet market. In particular, the Commission sought comment on the following issues: (1) how to optimize the non-residential bulk fuel-fed wood pellet central

heating system rebate program's benefit to the State, (2) whether there should be a minimum and maximum BTU size requirement for the systems that would be eligible, (3) whether eligibility of a system should be based upon BTU installed capacity or anticipated performance, (4) whether applicants should be required to have completed energy efficiency audits or upgrades before applying for the rebate, (5) whether eligibility should be tiered to encourage a wide variety of applicants, (6) whether there is an optimal rebate amount to incent participation, (7) whether it should be permissible to obtain a rebate in addition to renewable energy credit (REC) eligibility or other incentives for a particular facility, (8) how to maximize the longevity of the systems installed, including whether only systems with warranties of a particular duration should be eligible, (9) whether and what type of thermal storage should be required in relation to the size of eligible systems, and (10) whether heat load calculations should be required as part of the program application.

The Notice scheduled a technical session for October 30, 2013 for interested parties to meet with Staff to discuss the proposed program and related issues. Ten members of the public participated in this technical session. Staff also sought guidance on the proposed program from the Energy Efficiency and Sustainable Energy Board (EESE Board) at a November 8, 2013 meeting. The Commission held a public comment hearing on November 22, 2013, and took written comments both before and after the public hearing. These written comments have been posted by Staff on the Commission's public web site.

On December 11, 2013, Staff filed a memorandum summarizing the comments received and recommending Commission approval of the proposed structure and design of the incentive program. This memo also included a proposed form of the Step 1 Application to be submitted by property owners seeking to participate in the program.

## II. POSITIONS OF PARTIES AND STAFF

### A. Public Commenters

The Commission received oral and written comments from a number of interested parties, including several members of the wood pellet heating system installer community. A general summary description of these comments follows:

1. Program Benefit Optimization. Commenters addressed how best to optimize the proposed program's benefit to the State. The consensus of these comments was that the maximum size of the incentive should be large enough to support the installation of systems of significant size, but not so large that only a small number of projects could fully subscribe the program. A greater number of approved projects would support the further development of robust wood pellet transportation and distribution networks in the State, as well as providing greater visibility throughout the State for the benefits of wood pellet heating systems.

2. BTU Size Requirements. Commenters addressed whether there should be a minimum and maximum BTU size requirement for systems to be eligible for participation in the incentive program. The general consensus of the initial comments received was that the Commission should not specify a minimum or maximum size for eligible systems, but let the cap on the amount of the available incentive and property owners' analysis of project economics determine the size of the systems that would be built with the support of the incentive. In later comments, certain parties expressed concern that, if there were no limit on the theoretical size of an eligible system, larger projects for which the available incentive would not be economically attractive nonetheless might be precluded from future REF-funded requests for proposals (RFPs) conducted by the Commission pursuant to RSA 362-F:10, XI.

Commenters also expressed concern that requiring systems to be sized to meet the entire peak heating load of a non-residential building could result in decreased efficiencies under non-peak heating load conditions, such as during the Spring or Fall seasons, and that the program should provide flexibility with respect to these system sizing considerations, including the use of multiple staged boilers or furnaces in the system.

3. System Anticipated Performance. Commenters were asked to address whether the eligibility of a system should be based upon its BTU installed capacity or anticipated performance, and the consensus of commenters was that capacity size of eligible systems should not be pre-determined and performance standards should be targeted to emissions limits, system efficiency expressed as a percentage based on the higher heating value of the wood pellet fuel, and operational parameters such as automatic conveyance of fuel to the boiler(s) or furnace(s) from the storage bin. Certain commenters initially argued that the program should not be restricted to heating systems using only wood pellets but should also be open to the use of wood chips and other woody biomass fuel sources. Some commented that in order to help foster the developing bulk wood pellet delivery market, limiting the program to wood pellets was important. By the end of the comment period, the consensus of commenters was that the incentive program should be limited to the use of wood pellets as a fuel source, but that boilers or furnaces capable of also burning wood chips should not be excluded from program eligibility.

4. Energy Efficiency Audits. Commenters were asked to address whether applicants should be required to have completed energy efficiency audits or upgrades before applying for the available rebate. The consensus of most commenters was that efficiency audits would provide useful and valuable information, and should be encouraged but not required, in order to simplify the program and enable it to be implemented expeditiously and at lower cost, in

particular for the benefit of municipal and small business applicants. Many commenters agreed that the “Portfolio Manager” program sponsored by the U.S. Environmental Protection Agency (EPA) would be a useful tool to benchmark building energy use. Other commenters maintained that this EPA program should not be used exclusively and the Commission’s recommendation should recognize that other programs may be functionally equivalent or even superior.

5. Tiers to Assess Eligibility. Commenters were asked to consider whether program eligibility should be tiered to encourage a wide variety of applicants with different size projects, and the consensus of commenters was that tiers were neither necessary nor appropriate for the incentive program.

6. Optimal Rebate Amount. Commenters were asked whether there would be an optimal rebate amount to incent participation in the program, and the majority were in concurrence that a rebate of 30% of the total costs of heating system purchase and installation, not in excess of a specified cap amount, would be an appropriate mechanism for allocating the incentive funds to particular eligible projects. Parties generally proposed a rebate cap amount within a range between \$30,000 and \$50,000 for each eligible system.

7. System Eligibility for RECs and Other Incentives. Commenters addressed whether it should be permissible for an eligible heating system project owner receiving a rebate under the program to obtain electric RECs and other available incentives, such as investment or performance tax credits. The consensus of commenters was that there should be no restriction on obtaining a rebate under the program in addition to RECs, tax credits, or any other available incentives available for heating system purchase, installation or operation.

8. System Longevity. Commenters addressed how to maximize the longevity of the heating systems purchased and installed with incentive support, including whether the program

should be limited to systems with warranties of a particular duration. The commenters were in general agreement that system longevity should be an important consideration for project owners and developers, but that the Commission should not require a manufacturer or installer warranty of any minimum duration or with any specific conditions. Commenters emphasized that greater flexibility on this issue would simplify and expedite the application process, to the benefit of municipal and small business applicants in particular.

9. Thermal Storage Requirement. Commenters addressed whether and what type of thermal storage should be required in relation to the size of eligible heating systems. Most commenters agreed that thermal storage would be a highly desirable addition to many non-residential heating systems, but should not be required for program eligibility. Instead, an additional incentive rebate amount should be made available to those eligible project owners that choose to include thermal storage in their new systems. Initially, Staff proposed a rebate amount of \$25.00 per gallon up to \$5,000 for additional thermal storage equipment purchase and installation; subsequent comments from installers and others expressed greater support for a rebate structure of 30% of thermal storage tank and related component purchase and installation costs, up to a maximum rebate amount of \$5,000.

10. Heat Load Calculations. Commenters addressed whether or not heat load calculations should be required as part of the program application process. As with energy efficiency audits, the consensus of commenters was that heat load calculations would be useful and valuable and might be recommended but not required in connection with the incentive program application process.

## B. Staff

Staff filed a memorandum on December 11, 2013 recommending program approval and attaching the proposed Step 1 application form to be submitted for determination of initial program eligibility. A Step 2 application would be submitted by projects selected for program participation in order to claim the incentive funds following installation of the new bulk-fuel fed wood pellet heating system. Staff summarized the stakeholder review process and comments received from installers and other interested parties, as well as the input received from the EESE Board. The Staff memo stated the basis for the policy choices underlying certain of its recommended program design parameters.

Staff recommended that the Commission approve an incentive program with the following key parameters:

1. The incentive amount would be 30% of the total costs of the purchase and installation of eligible non-residential bulk-fuel fed wood pellet central heating systems, up to a maximum incentive amount of \$50,000.
2. An additional incentive equal to 30% of the costs of purchase and installation of a thermal storage tank and related components, up to a maximum amount of \$5,000, should be available to eligible project applicants.
3. Eligible heating systems must not exceed 2.5 million BTUs in capacity. The system must include wood pellet storage of not less than three tons, and automatic conveyance of the pellet fuel from the storage container to the burn chamber. The heating appliance must turn itself on in response to a demand for heat, modulate to lower output when the heating load decreases, and turn itself off when the heating load is satisfied.
4. The heating system must have a thermal efficiency rating of 80% or greater using the higher heating value of the fuel<sup>1</sup>, and must have a total particulate matter emissions rating less than or equal to 0.32 pounds per million BTU heat output. Key safety features must also be incorporated into the system, as specified in the application form.

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<sup>1</sup> The “higher heating value” (also known as gross calorific value or gross energy) of a fuel is the amount of heat released by a specified quantity (initially at 25°C) once it is combusted and the products have returned to a temperature of 25°C, taking into account the latent heat of the vaporization of water in the combustion products. This value is derived only under laboratory conditions, and is frequently used in the United States as a standard for solid fuels, instead of the “lower heating value” of fuel, which is more often used in Europe. *Biomass Energy Data Book* (2011), Appendix A, available at <http://cta.ornl.gov/bedb>.

5. Eligible projects should be the primary but not necessarily the exclusive source of heat for the building. Multiple staged boilers or furnaces may be included in an eligible heating system to provide greater output flexibility, but the entire system would only be eligible for a single incentive payment. Dual-fuel boilers or furnaces capable of burning wood chips or other woody biomass in addition to wood pellets would be eligible for the program if the applicant certifies that the fuel used will be wood pellets.
6. Energy efficiency audits should be encouraged but not required. Building energy use benchmarking using the EPA Portfolio Manager program, or an approved functionally equivalent program, should be undertaken prior to submission of the Step 1 application. Heat load calculations should not be required as part of the program application process.
7. Program eligibility should not be subject to tiers. Project owners should not be precluded or restricted from participation in other rebate or incentive programs, from obtaining RECs, or from claiming investment or performance tax credits. Specific warranty terms and conditions should not be required for project eligibility.

Staff supported its recommendation of an incentive amount of 30% of total heating system purchase and installation costs up to \$50,000 by noting that this level of incentive would be maximized for a project with a total cost of \$167,000 and a capacity sufficient to serve as the primary heating source for an approximately 50,000 square foot building. Staff expressed the belief that an incentive up to this maximum amount would be attractive for businesses of various sizes, schools and other municipal buildings, health care and higher educational facilities, and other non-profit institutions and organizations. Staff further noted that the fiscal year 2014 budgeted amount of \$629,140 should be sufficient to fund incentives for at least 12 projects, even if all applicants propose projects eligible for the maximum incentive amount.

With respect to project size limitation, Staff recommended a maximum size for eligible heating systems of 2.5 million BTUs in order to preserve RFP eligibility for larger projects pursuant to RSA 362-F:10, XI. This maximum project size is desirable in Staff's view because purchasers of larger capacity heating systems are less likely to be incented by the capped rebate



amount and should not effectively be excluded from future renewable energy RFPs because they remain technically eligible for this incentive program.

### **III. COMMISSION ANALYSIS**

The proposed incentive program for non-residential bulk fuel-fed wood pellet central heating systems would be supported by the REF created by RSA 362-F:10. Pursuant to RSA 362-F:3, providers of electric service must serve a certain percentage of their load with renewable energy, which is represented by RECs, assigning one REC for each megawatt-hour of renewable power generated. If the electric service provider is unable to acquire a sufficient number of RECs to meet its compliance obligation, then the provider must make an alternative compliance payment into the REF pursuant to RSA 362-F:10, II.

The REF monies thus collected are to be used for the purposes of supporting thermal and electric renewable energy initiatives, including the incentive program under consideration. RSA 362-F:10. Under RSA 362-F:10, X, the Commission must, over each biennial period, reasonably balance the overall amounts expended, allocated or obligated from the REF between the residential and nonresidential sectors, with reference to the amount of retail electricity sales made to customers in each sector.

We have reviewed Staff's recommended structure and design for the proposed incentive program and the form of initial eligibility application, in light of the comments submitted by installers and other interested stakeholders in writing and during the public hearing. We commend Staff for designing an incentive program which strikes a reasonable and appropriate balance between program integrity and flexibility by adopting key project parameters while otherwise permitting market forces and individual initiative to allocate funds among what we expect will be a diverse group of program applicants. We believe the proposed program

represents an important corollary to the existing residential bulk fuel-fed wood pellet central heating system incentive program.

We address in particular the size of the available incentive amount and the size of the projects eligible to participate in the proposed program. Staff recommends an incentive in the amount of 30% of total heating system purchase and installation costs up to a maximum of \$50,000, noting that this level of incentive would be maximized for a project with a total cost of \$167,000 and a capacity sufficient to serve as the primary heating source for an approximately 50,000 square foot building. An incentive up to this maximum amount should be attractive for businesses of various sizes, schools and other municipal buildings, health care and higher educational facilities, and other non-profit institutions and organizations. The initial budgeted amount of \$629,140 for State fiscal year 2014 should be sufficient to fund incentives for at least 12 projects under this program, even if all applicants propose projects eligible for the maximum incentive amount. We find that the recommended maximum rebate amount is reasonable and appropriate.

With respect to project size limitations, Staff has proposed a maximum size for eligible heating systems of 2.5 million BTUs, citing the need to preserve RFP eligibility for larger projects under RSA 362-F:10, XI. Pursuant to RSA 362-F:10, XI, RFPs for non-residential renewable energy projects must provide opportunities for those projects “that are not eligible to participate in incentive and rebate programs developed by the commission under RSA 362-F:10, V and RSA 362-F:10, VIII.” We find that the recommended maximum project size is reasonable and appropriate, because purchasers of larger capacity heating systems are less likely to be incented by the capped rebate amount of the existing rebate program and so should not effectively be excluded from future renewable energy RFPs because of their theoretical

eligibility for the rebate program. In addition, the Commission's rules regarding the REF provide that we may "establish a rebate program for customer-sited renewable energy projects of up to 100 kilowatts or equivalent thermal output", to be supported by funds equivalent to "not less than 20 percent of Class I, II, III and IV alternative compliance payments received on an annual basis . . ." N.H. Code Admin. Rules Puc 2507.03(e) and (f); *see also* N.H. Code Admin. Rules Puc 2507.04. We do not construe these rules to limit our authority to approve an incentive program for non-residential property owners installing projects larger than 100 kilowatts or the equivalent thermal output<sup>2</sup>. Instead of limiting additional programs, this rule dedicates a portion of the REF to such smaller energy projects. The rebate program we establish today exists in combination with the existing small system programs.

In summary, the proposed incentive program is well-designed to achieve an appropriate balance between ensuring program integrity and encouraging flexibility and expediency in the approval and development of eligible renewable energy projects. It should prove successful in promoting the use of a locally-produced renewable energy resource to meet the central heating needs of a diverse group of non-residential property owners and has the potential to deliver state-wide economic benefits through further development of the markets for wood pellet heating system sales and installation, and wood pellet fuel production and distribution. We direct Staff to implement the incentive program, including the development of a final Step 2 application form, as soon as possible, so that the many benefits of the program may be realized for the State and its citizens. In order to facilitate the administration of the program, we authorize Staff to make clerical and other non-material modifications to the application forms and process without

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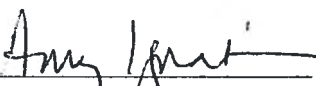
<sup>2</sup> The thermal output equivalent of 100 kilowatts is 341,200 BTUs. *See* RSA 362-F:6, V. We understand this size of heating system would be sufficient for an approximately 13,000-15,000 square foot building. In contrast, the 2,500,000 BTU maximum project size recommended by Staff would have an electric energy equivalent of approximately 773 kilowatts.


further Commission approval by filing such modifications in this docket and posting the modifications to the Commission's website.

**Based upon the foregoing, it is hereby**

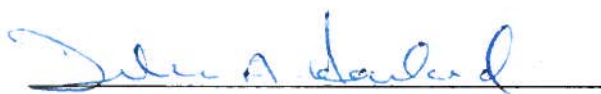
**ORDERED**, that Commission administration of an incentive program using renewable energy funds to support the purchase and installation by non-residential property owners of bulk fuel-fed wood pellet central heating systems in New Hampshire, as more particularly described in this Order and in the attached Step 1 application form, is hereby APPROVED.

By order of the Public Utilities Commission of New Hampshire this eighteenth day of December, 2013.

  
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Amy Ignatius  
Chairman

  
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Robert R. Scott (KNS)  
Commissioner

Attested by:

  
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Debra A. Howland  
Executive Director