DE 10-212

TO: **Commissioners Getz, Below, Ignatius**

FROM: Kate Epsen

DATE: July 26, 2010

RE: **Commercial and Industrial Renewable Energy Rebate Program - Design Considerations**

Background

The Public Utilities Commission (PUC or Commission) is directed to administer the Renewable Energy Fund (REF) for the purpose of creating and implementing programs and initiatives to incent the installation of renewable energy technologies pursuant to RSA 362-F:10. To facilitate the process of designing and implementing the new state commercial and industrial (C&I) rebate program, this memo outlines program parameter options and other program design considerations. The current budget for the PUC rebate program for customer-sited renewable energy system rebates in the commercial and industrial sector is $1.0 million through June 30, 2011. However, the recent receipt of $1.3 million in RPS alternative compliance payments (ACPs) should be seen as an opportunity to increase funding for this program. The following figure shows the REF budget balance as of June 30, 2010 and as of July 30, 2010, including spent funding and committed funding. In order to comply with HB 1270, going forward, the REF shall spend its money on projects in proportion to the retail sales of residential and non-residential customers. These proportions for the state of NH, as of December 31, 2009, were 41% and 59%, residential retail electric sales and non-residential retail electric sales, respectively. Of the $3.3 million in the REF as of 7/30/2010, and netting out a minimum of $200,000 for a Request for Proposals (RFP), this leaves approximately $1.2 million for residential spending and $1.8 for non-residential spending in the current fiscal year.

Figure 1. Renewable Energy Fund Balance

	$ (Millions)
2009 ACPs into REF	$4.48
Less, Admin.	$0.23
Rebates paid	$1.52
REF Balance 6/30/2010	**$2.73**
2010 ACPs into REF	$1.35
Less, Admin (allocated)	$0.36
Rebates paid	$0.04
Rebates reserved	$0.35
REF Balance 7/30/2010	**$3.33**
C&I set-aside (minimum)	$1.00
Residential PV&Wind	$0.95
SHW budget FY'11	$0.23
RFP (minimum)	$0.20
REF uncommitted Balance	**$0.95**

Given the limited funding in the REF, the program should initially be limited to two technologies: solar photovoltaic (PV) and solar water heating (SWH). In the future there may be sufficient funding and market need to include other renewable technologies. All installations should be limited to 100 kilowatts in capacity, per PUC 2507.03(f). The intent of the incentive design is to ensure high quality systems that meet or exceed rated production while providing greater customer-sited renewable energy in New

Hampshire.

Incentive levels

The rebate levels under consideration for PV are in the range of $2.00/Watt to $0.50/Watt. These levels are based upon the high level of participation at $3/Watt in the residential sector (with a potential need to lower the level in order to preserve ongoing funding), the economies of scale that medium commercial-sized systems will be better able to achieve, limited program funding, and the availability of both net-metering and Renewable Energy Credit (REC)-aggregation at the state level, together with available tax credits on the federal level. The rebate levels, on a per Watt basis, may be set uniformly for all project sizes or on a declining-tier basis. The declining-tier type of rebate would decrease the $/Watt as a project grew in size. For example, a 70 kW project might receive $1.25/Watt for the first 20 kW and $1.00/Watt for the next 35 kW and $0.75/Watt for the remaining 15 kW. The benefit of a declining-tier rebate is that the award is better tailored to economies of scale achieved by relatively larger systems, while still giving a reasonable incentive to the smaller ones.

Rebate levels for SWH are more difficult to set in the New Hampshire market, given the relative lack of local experience with the technology, few installers in the local market that can design and install a large system, and the limited funding of the overall program. It is likely that the rebate would need to be more lucrative than for PV in order to materially grow the market, despite the cost-effectiveness of the technology. This is also due to other barriers facing SWH technology, which include the fact that it is a more complex system, it has greater ongoing maintenance considerations, and generally has less public visibility and slower uptake. Nevertheless, it is a technology that has great potential to significantly reduce fossil fuel-use and related costs in the state. Options for the rebate levels include $/rated (or modeled) Btu production, with a cap on the total award amount. For example, the rebate may be set at $0.07/kBtu/year, capped at $50,000.

Program Caps

Creating a C&I rebate program that caps the total rebate amount per project is a common approach to renewable energy incentive programs. While other state or utility programs may place the cap at approximately 30-50% of total project costs, given the limited funding of the Commission program, a lower cap may be a better option. This would allow the money to be spread among more projects, together with an absolute cap on awarded funds for each project. An example of this would be such that the PV rebate is set at $1.25/Watt, capped at 25% of total project costs, and has a maximum total award of $50,000. This approach does not restrict the size of a given project; it allows the project owner/applicant to size the project according to onsite demand and other parameters while preventing over-sizing with the intent to maximize the absolute rebate. In order to foster a diversity of system sizes, the Commission should consider lifting the cap for a limited number of large projects, of sizes ranging from 75-100 kW, or, hold a reverse auction in which the applicants

submit bids for the rebate, and whichever project(s) is viable needing the lowest rebate level shall be awarded the rebate.

Energy Efficiency

Including a program requirement or added incentive to facilitate onsite energy efficiency (EE) improvements is recommended. Properly sizing any renewable energy system involves first reducing the onsite load (thermal or electric). Requiring an energy audit is the obvious first step, but other options to facilitate increased energy efficiency may include retro-commissioning, pipe and building envelope insulation, pre-rinse spray devices (restaurants), tank wraps, water flow aerators/restricting, lighting upgrades, programmable thermostats, and appliance upgrades, to name just a few.

Here is a brief example of how this could be done programmatically: The project site must undergo an energy audit whereby if the audit's recommended measures with an expected simple payback period of three years or less are installed, the applicant may receive additional cents per installed watt as an adder to the base rebate. There might be one adder for the audit, and an additional adder for installed recommended measures resulting from the audit.

Other Considerations

Other program considerations include the following:

- The commercial or industrial entity must have been in operation/existence for a set amount of time. This would better ensure continuity, project completion, and relative permanence of occupancy in the structure on which the system will be installed.
- Stringent material and labor warranties.
- Installer certification of system and estimated production.
- Prorating the total funding by quarter, e.g. allocating $250k per quarter in order to prevent the possibility of program "sell-out" in the first months, or to preserve potential funding for an added technology.

Existing Rebate Programs in other New England states

Maine—Efficiency Maine (EM) offers PV rebates for both residential and C&I customers in the amount of $2/Watt up to a maximum of $2,000. An energy audit is required before the rebate is paid and the results must be submitted to EM. Efficiency Maine offers the same rebate for residential or commercial solar water heating systems: 25% of cost or $1,000, whichever is less. Installation must be done by a program-approved qualified installer. Visit http://www.efficiencymaine.com/renewable-energy/solar for more information. The solar thermal rebate does not require any energy efficiency investments or an audit.

Connecticut—The CCEF offers a commercial and industrial rebate of $500 per MMBtu of predicted output for October-March for solar water heating systems, maximum of $50,000 per installation to commercial for-profit entities and $900 per MMBtu, maximum of $82,500 per installation for not-for-profit entities. An energy audit and efficiency upgrades are strongly recommended, though not required, as part of this program. CT does not offer a C&I PV rebate program at this time.

Massachusetts—The State of Massachusetts, through the Massachusetts Clean Energy center (CEC), offers rebates for PV systems from 1-200 kW for commercial and industrial entities. The rebate program, which is now closed due to high subscription, offered rebates in declining tiers, beginning at $1.50/Watt for the first 25 kW, $1.00/Watt for 25-100 kW and then $0.50/Watt for 101-200 kW. This program also has rigorous EE requirements, including an energy audit, evidence that the applicant has joined the Energy Star Partnership, and implementation of measures resulting from energy audit for projects greater than 50 kW. For solar water heating, National Grid (Gas) offers a commercial and industrial solar water heating rebate based upon the estimated first-year gas savings, up to 50% of project costs, and a maximum of $100,000 for a single project on an existing building or $250,000 for a single project on new construction. The funding is limited for this program and it is considered a pilot. Applicants are required to perform an energy audit.

Vermont-The Vermont Energy Investment Corporation offers both PV and SHW rebates for the commercial and industrial sector. For PV, the rebate is a declining tier structure, where the first 10 kW receives $1.50/Watt, the next 50 kW (up to 60 kW) receives $1.00/Watt and the next 90 kW (up to 150 kW) receives $0.50/Watt. There is a slightly higher incentive for non-profits, municipalities, schools, and hospitals. The maximum award is $110,000 (35% of project costs for non-profits, schools, etc.). The SHW C&I incentive is set at $1.50/100 Btu/day up to 1 MMBtu/day, with a maximum possible award of $15,000. This incentive rises to $3.00/100 Btu/day up to 200 kBtu/day, with a maximum possible award of $30,000 for non-profits, etc. There is no energy audit or efficiency requirement for either program.

Staff Recommendations

Staff recommends that the C&I program include the following features:

- A budget of $1.75 million through June 30, 2011.
- Eligible technologies limited to solar PV and solar thermal, which the budget being flexibly allocated where the initial target is 75% of the budget for PV projects and 25% for solar thermal projects. The Commission should retain flexibility with this ratio so that funding between the two technologies can be adjusted depending upon demand.
- The PV rebate is a declining tier structure, beginning at $1.25/Watt for the first 20 kW, $1.00/Watt for the next 35 kW and $0.75/Watt for the remaining 45 kW, capped at 25% of project costs or $50,000, whichever is less. The Commission should also consider lifting this cap for a limited number of large projects, to be decided on a first come-first serve basis.
- The solar thermal rebate should be set at $0.07 cents/rated or modeled kBtu/year, capped at $50,000.

- A requirement that PV or SHW projects include an energy audit at the project building site, coupled with a threshold of installed recommended measures.
- A requirement that applicant sites must have been in operation/existence for a minimum of 2 years.
- A requirement that installed technologies have stringent material and labor warranties and performance certifications.