Leighton, Adele

From: Fortunat Mueller [fortunat@revisionenergy.com]
Sent: Thursday, February 25, 2010 6:27 PM
To: Executive Director,
Cc: Bernstein, Barbara; Osgood, Jon
Subject: RE: NH solar hot water rebates

Please find attached our comments regarding the proposed solar thermal rebate both for tomorrow's technical working session as well as for the Commission's public comment hearing on the 18th of March.
We're very excited that the NH PUC has decided to move forward with a solar thermal rebate and we regret that we're unable to attend these sessions in person but hope that our written comments will be useful to the process. We look forward to working together to create a program which is wildly successful and that all of us can be proud of.

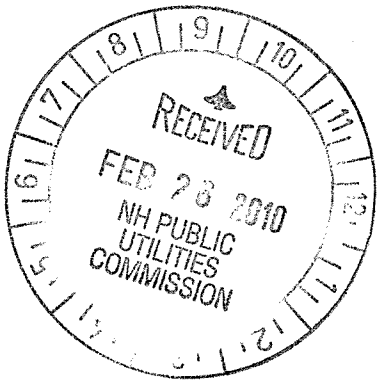
If there is anything that we can do to help the process along, we'd be delighted to help.

Best Regards,

~Fortunat

Fortunat C Mueller, P.E.

ReVision Energy LLC
142 Presumpscot Street
Portland, ME 04103
O: 207.221.6342
C: 207.752.6358
F: 207.221.5342
fortunat@revisionenergy.com



To: executive.director@puc.nh.gov
Comments on : **DE 10-024 ; RENEWABLE ENERGY FUND NOTICE OF OPPORTUNITY TO COMMENT ON ADDITIONAL RENEWABLE ENERGY INCENTIVE PROGRAMS**

Thank you for the opportunity to provide comments on the proposed Incentive for Solar Water heating systems.
As designers and installers of renewable energy systems including both solar hot water and photovoltaic systems for over a decade, we believe that a well designed and implemented incentive program can provide a much needed tailwind for the development of a robust new industry in this space. We're delighted to have the opportunity to try to help the NH PUC get it right.

Our comments on the proposed incentive fall into three categories:

1. Incentive levels and program funding
2. Draft Requirement and form
3. Process

1: From a public policy perspective, the ideal incentive level for a project is the smallest dollar amount which will spur a significant number of projects which otherwise would not go forward in the absence of the incentive. If the dollar amount is too small, it doesn't significantly move the market and you end up just paying out rebates for projects that would have happened even in the absence of an incentive. If the dollar amount is too large, it provides substantial incentives and will move the market, but with a fixed pool of money to spend, it is economically inefficient and doesn't leverage the rate payers contribution as effectively as it might.

In our experience, **a rebate level of between $1,250 and $2,000 for the installation of a residential solar hot water system hits this sweet spot.** When taken together with the 30% federal tax credit, a rebate of this order tends to bring simple payback for a well designed and professionally installed solar thermal systems down to the 5-7 year range. In our experience, this what most customers are looking for to commit to an investment of this scale. We'd encourage the public Utilities commission to create an incentive of roughly this dollar amount.

2: The goal of the incentive program should be to spur as many solar thermal installations as is practical, given the financial constraints on the program. On the other hand, if the incentive also seeks to create a robust industry with long term growth and employment potential for the state, then a secondary requirement for the program is to ensure that system and installation quality remain as high as possible to keep public enthusiasm for this technology high. (Unfortunately, the solar energy industry has ample experience from a few decades ago with the overshoot and collapse that happens when incentives are strong but installation quality is low.)
The goal of maintaining high quality designs and installations can be accomplished either through prescriptive requirements or through reliance on professional installers with

appropriate training and licensure. We believe strongly that the latter is the superior approach as effective solar thermal system design is NOT a one size fits all sort of affair.
While we appreciate the goals of the various prescriptive requirements in the draft rebate application, we do not believe that they will contribute meaningfully to installation quality. In fact they often tie the hands of the professional system designer and defer instead to the author of a form with no specific knowledge of a particular system. Our fear is that this will not only do nothing to ensure high quality installations, but at times is may drive bad design choices, in the interest of qualifying for the maximum rebate. A few specific examples are provided below:

OG300 rating requirement: While the SRCC OG100 rating is a nationally recognized collector quality and performance test, the OG300 rating does NOT require any actual additional system test and is essentially just a measure of a particular company's willingness to pay a fee and submit documentation of a solar 'system'. Unfortunately the result is that virtually the only systems that have the OG300 rating are those that are sold as a on size fits all 'kit', because in these cases a single company has the incentive to pay the fee to have the system rated. As far as we know, the OG300 system are also all based on either gas or electric water heater, ignoring the 58% of New Hampshire homes that heat with oil.
For obvious reasons there are numerous circumstances where the 'kit' is not the right choice for a particular residence which might be much better served by a solar hot water system designed for the specific application. Basing the rebate amount, in part, on the OG300 rating creates perverse incentives in this case where the designed has to choose between the best system and the one that qualifies for the best rebate. We believe that a well designed rebate program should avoid creating this conflict whenever possible.

Percent of Optimal BTU Production Section: Unlike a grid tied photovoltaic system, this calculation is rather complicated to do properly for a solar thermal system and the proposed method (PVWatts) is an unacceptable option. PV Watts is specifically built for modeling the performance of Grid Tied PV systems not solar thermal systems. Among other things a very crucial difference is that the performance of solar thermal systems is always load constrained (can't make more hot water than you use), whereas a grid tied PV system is never load constrained (except on an annual basis). This difference is important and if you encourage people to model solar thermal systems using PV Watts you may well end up with a bunch of really badly designed systems which make all kinds of hot water at times when it isn't useful and don't do anything when they are needed.

I'd strongly urge you to eliminate this whole section of the application all together, as even if you use a modeling tool specifically designed for the purpose (Retscreen, F Chart, T sol, Polysun) the accurate modeling of a solar thermal system can be a complicated matter and requires understanding of details like seasonal boiler efficiency variations etc. There is no way to require installers to provide this level of analysis and without that level of rigor, this entire section is just a meaningless paperwork hoop to jump through and as such I don't t believe it adds any value to the program.

3: As a full service design/build contractor in the renewable energy industry, we spend a considerable amount of effort guiding our customers through the decision making process around the installation of energy upgrades or a renewable energy system. Part of that effort includes assisting our customers with navigating the hurdles of the local, state and federal incentives that are available to them, so obviously **we have a strong interest in seeing a program that is not only well designed, but also administered with customer friendliness in mind**. There are a few elements of the draft incentive program which do not reach this bar. Specifically:

The requirement that a signed installation contract and building permit be included in the pre approval applications defies basic logic and sets up an intolerable Catch 22. If this program is, in fact, an incentive for homeowner to move forward a project they would not otherwise undertake, then it is not reasonable to expect customers to sign an installation contract prior to ' incentive pre approval'. The building permit requirement is even more upside down as it requires the contractor to pull a permit from the municipality before the customer commits to a project (because frequently the customer commitment is contingent on rebate pre approval).

We agree that a building permit (where applicable) is an appropriate requirement as an attachment to the **final** incentive application prior to payment of the rebate, however **it is simply not sensible as a part of the pre project pre application for the reasons stated above**. We understand that these requirements may have been included as 'evidence of intent' to minimize the number of pre applications which are filled out for project with no possibility of going forward and thus tie up funds unnecessarily, however we believe the same objective can be met with a simple signed 'statement of intent' or a relatively short 90-120 day pre approval expiration timeline, and those alternatives don't have the same logistical baggage that the current draft requirements do.

Thank you very much for the opportunity to provide comment on this draft. I'm disappointed that scheduling conflicts will prevent me from attending the technical working session in person but I hope that these written comments will provide a useful input into the process.

We're very excited about the growing solar industry in the State of New Hampshire and look forward to working with policy makers and the PUC to do whatever we can to continue the momentum in this direction.

For comments, or questions, please contact:

Fortunat Mueller, P.E
fortunat@revisionenergy.com