

**THE STATE OF NEW HAMPSHIRE  
PUBLIC UTILITIES COMMISSION**

**DE 10-024**

**RENEWABLE ENERGY FUND**

**NOTICE OF OPPORTUNITY TO COMMENT**

**ON ADDITIONAL RENEWABLE ENERGY INCENTIVE PROGRAMS**

Legislation enacted by the General Court in 2008 directed the Commission to establish an incentive program supported by the Renewable Energy Fund (REF) for residential renewable electric generation facilities with a peak generation capacity of less than 5 kilowatts. (RSA 362-F:10, V). The specified incentive is a one-time payment of \$3 per watt of generation capacity, up to a maximum of \$6,000 per facility, or 50 percent of the system costs, whichever is less. In Docket No. DE 09-054, the Commission approved an application process for such incentives. *See* Order No. 24,985 (July 14, 2009) and Order No. 24,020 (October 2, 2009).

Pursuant to RSA 362-F:10, VIII, the Commission, after notice and hearing, by order or rule, may also establish “additional incentive or rebate programs for customer-sited thermal and renewable energy projects” to be supported by the REF. The Commission seeks to determine what additional renewable energy incentive programs for customer-sited renewable thermal and/or renewable electric generation projects for residential as well as commercial and industrial (C&I) customers should be offered. Accordingly, this opportunity for public comment is provided for all issues relevant to the types of additional incentive programs to be funded by the REF and the Commission will follow the same process used in Docket No. DE 09-054.

Considering that the REF currently contains a sum considerably less than initially anticipated, the first question to be addressed is whether the entire balance in the REF, not

otherwise required for the residential rebate program mandated by RSA 362-F:10, V and budgeted administrative expenses, should be reserved for additional incentive programs for customer-sited renewable energy projects, or whether some funds should be used for renewable energy initiatives selected pursuant to a request for proposals as set forth in Puc 2507.03.

The second question to be addressed is what additional incentive programs might be established in light of uncertain future funding levels. The sole source of funds for the REF, other than investment income earned on the fund balance, is alternative compliance payments (ACPs) made by utilities and competitive energy suppliers when they do not acquire enough renewable energy certificates (RECs) to meet the renewable portfolio standards (RPS) under RSA 362-F. For compliance year 2008, \$4,483,917 in ACPs were deposited into the REF in July 2009. For much of the past year it appears that RECs have generally been available for less than the ACP rate suggesting that REF revenue could be minimal in 2010. While RPS compliance requirements gradually increase over time, any corresponding increase in the supply of RECs will likely be in lumpy or uneven increments as new renewable generation is qualified to produce RECs, further suggesting that REF revenue will be uncertain and volatile.

The New Hampshire Office of Energy and Planning has obtained American Recovery and Reinvestment Act (ARRA) funds for a residential solar hot water rebate program in the amount of \$516,000 to be administered by the Commission. In this instance, the ARRA funds may only be used to supplement a state program. To take advantage of these funds, the Commission is considering a residential solar hot water incentive program supported by the REF. Pursuant to the terms of the ARRA grant, the Commission would need to have this program in place by April 21, 2010. The Commission also seeks to establish one or more incentive

programs for C&I customer-sited renewable energy projects of up to 100 kilowatts in capacity by this summer.

To assist in the development of a possible solar hot water incentive program, a technical session will be held on February 26, 2010 starting at 10:00 a.m. to allow interested parties to discuss issues including the appropriate level and form of incentive, content of an application, requirements for qualification for the incentive, and other relevant issues that may be identified. At the technical session parties can also explore the development of additional renewable incentive programs and the overall allocation of available funds in the REF. Participants are advised that one or more Commissioners may attend this technical session. Additional scoping questions related to those noted herein, and a proposed application form for residential solar hot water systems can be found at [www.puc.nh.gov](http://www.puc.nh.gov). Following the technical session, Staff will make a recommendation to the Commission regarding a residential solar hot water program and future steps on other issues.

The Commission will hold a hearing on March 18, 2010 at 10:00 a.m. to receive public comment on Staff's recommendations. Subsequent technical sessions and hearings may be scheduled.

This notice raises, inter alia, issues related to whether the Commission should establish a residential solar hot water and other renewable incentive programs; how the Commission should allocate limited funds for incentive programs; and whether the Commission should issue a request for proposals for the use of REF monies in lieu of, or in addition to, new incentive programs.

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

**ORDERED**, that a Technical Session be held at 21 S. Fruit St., Suite 10, Concord, New Hampshire on February 26, 2010 at 10:00 a.m., at which Staff will meet with interested members of the public to receive recommendations and comments regarding a solar hot water incentive program and other issues associated with the use of the Renewable Energy Fund; and it is

**FURTHER ORDERED**, that Staff shall file a recommended incentive and application process, including any technical requirements, for a solar hot water heating incentive program by March 12, 2010; and it is

**FURTHER ORDERED**, that a public comment hearing on Staff's recommendation on a solar hot water incentive program and on the other issues raised in this Notice be held on March 18, 2010 at 10:00 a.m.; and it is

**FURTHER ORDERED**, that comments and suggestions may also be filed by email at [executive.director@puc.nh.gov](mailto:executive.director@puc.nh.gov); and it is

**FURTHER ORDERED**, that the Executive Director shall notify all persons desiring to be heard at this hearing by publishing a copy of this Order of Notice no later than February 12, 2010, in a newspaper with general circulation in the state with publication to be documented by affidavit filed with the Commission on or before February 26, 2010.

By order of the Public Utilities Commission of New Hampshire this ninth day of February, 2010.



Debra A. Howland  
Executive Director

Individuals needing assistance or auxiliary communication aids due to sensory impairment or other disability, should contact the Americans with Disabilities Act Coordinator, NHPUC, 21 S. Fruit St., Suite 10, Concord, New Hampshire 03301-2429; 603-271-2431; TDD Access: Relay N.H. 1-800-735-2964. Notification of the need for assistance should be made one week prior to the scheduled event.

**Docket No. DE 10-024**

**Regarding Use of Renewable Energy Fund**

**GENERAL SCOPING QUESTIONS**

**For February 26, 2010 Technical Session and March 18, 2010 Public Hearing**

Preface: Currently, the only source of new moneys for the Renewable Energy Fund (REF) is alternative compliance payments, or ACPs, that are made by utilities and competitive energy suppliers when they do not acquire a sufficient quantity of RECs to meet the renewable portfolio standard requirements of RSA 362-F. For compliance year 2008, \$4,483,917 in ACPs were deposited into the REF in July, 2009. For much of the past year it appears that RECs have generally been available for less than the ACP rate, suggesting that REF revenue could be minimal in 2010. While RPS compliance requirements gradually increase over time, any corresponding increase in the supply of RECs will likely be in lumpy or uneven increments as new renewable generation is qualified to produce RECs, further suggesting that REF revenue will be uncertain and volatile from year to year. This uncertainty underlies some of the following questions:

1. Should the entire balance of moneys in the REF, not otherwise required for residential rebate program mandated by RSA 362-F:10, V and budgeted administrative expenses, be reserved for additional customer-sited renewable energy incentive programs or should some funds be used for renewable energy initiatives selected pursuant to a request for proposals as set forth in Puc 2507.03?

2. How should additional incentive programs be designed in light of uncertain future funding levels? For example, should applicants be allowed to reserve a place in a funding queue or should there be budgeted amounts for different technologies or classes of customers? Should incentive levels vary based on available funding?

3. Is there merit to considering a competitive bid based system where periodically (at least annually) nonresidential applicants place bids for incentives for systems where the lowest bids per unit (of capacity and/or output) were accepted from a bid stack until budgeted funds are exhausted, with bids clearing at a common clearing price or as bid? Might there be a role for electric distribution utilities in administering such a program?

4. What additional programs should be considered? Should there be a renewable electric generation incentive for C&I customers, and if so, up to what size and including what technologies? For renewable thermal systems should there be separate residential and C&I programs or just one program? What technologies should be included in a renewable thermal incentive program, solar thermal for domestic hot water and/or space heating, solar hot air, biomass combustion systems, other?

5. Should incentives be based on some technology-neutral criteria such as \$ per unit of expected renewable output or capacity or should incentives be technology specific? Should there be one incentive per type of application of a system or should they vary in some manner? For example, should there be one fixed incentive for solar thermal systems or should the incentive vary based on the system size and/or whether it provides a space heating supplement? Should

the incentive for solar systems vary with the amount of shading or by orientation (which affect the capacity and output)? Should an incentive for biomass systems be based on the efficiency of such systems including emissions and whether it has combined heat and power?

6. Should there be minimum requirements for energy audits, building performance, or installation of energy efficiency measures as a precondition to qualification for renewable energy incentives? If so, how might such requirements be administered in an efficient manner? Should the incentives vary based on building performance and correct sizing of systems, i.e. should the incentive increase if a customer makes more aggressive energy efficiency investments first, such as by achieving a better Home Energy Rating System score? If incentives are based on projected output or capacity of a system, how should that be squared with correct sizing and ensuring an optimal level of efficiency investment?

7. Should incentives relate to federal tax credits such as by using common qualification standards?

8. Should there be additional incentives for low-income applications, non-profits, and/or governmental entities?

9. Following is a summary of revenue, expenditures, and obligations of the REF to date. Note that the budgeted administrative expenses are for all PUC costs for administering the Renewable Portfolio Standard statute, RSA 362-F, including certification of renewable energy sources to issue RECs and administration of the REF, among other responsibilities, as approved by the legislature in the biennial state budget. The rebates expended and reserved are all for the \$3/watt residential renewable electric generation incentive required by RSA 362-F:10, V. The rebates reserved are for qualified projects that have completed Step 1 of application process, but not yet been completed or paid. How should the balance of funds be allocated?

2009 RENEWABLE ENERGY FUND REVENUE from ACPs	\$ 4,483,917
Less Allowance for FY10 Budgeted Admin. Exp.	(379,281)
Less Allowance for FY11 Budgeted Admin. Exp.	(362,420)
Less REBATES EXPENDED through 1/31/10	(1,157,100)
Less REBATES RESERVED through 1/31/10	<u>(130,680)</u>
UNALLOCATED FUNDS as of 1/31/10	\$ 2,454,436
Allocation for Residential Solar Thermal Incentive Program?	\$ _____
Allocation for Existing Residential Renewable Elec. Rebates?	\$ _____
Allocation for new C&I (nonresidential) Incentive Programs?	\$ _____
Allocation for RFP for Renewable Energy Initiatives?	\$ _____



**DRAFT FOR DISCUSSION (with some questions highlighted)**  
**SOLAR WATER HEATING INCENTIVE PROGRAM**

***Thank you for your interest in the New Hampshire Public Utilities Commission Solar Water Heating Incentive Program.***

The information you need to apply for an incentive payment of \$\_\_\_\_\_ to \$\_\_\_\_\_ follows. Here are basic steps to help you determine if a solar electric system is right for your residence.

1. **The New Hampshire Public Utilities Commission (the Commission) strongly recommends participants have an energy audit prior to installing a solar water heating system.** Energy efficiency and conservation are the first steps in any successful energy improvement plan. The less energy you use, the farther your renewable energy generation will go. You may contact your electric utility to determine if you qualify for an audit through their programs. For more information visit [nhsaves.com](http://nhsaves.com).
2. **Complete a site assessment.** The best way to determine if you have a good location for a solar energy system is to have a professional site assessment. The [Residential Energy Performance Association](#) (REPA) offers a listing of energy professionals in NH. A site assessment will
  - a. Provide information about the suitability of your site for solar;
  - b. Produce an annual production and shading analysis report;
  - c. Determine the best place to locate and orient your system;
  - d. Evaluate the solar resource available at your location; and,
  - e. Offer recommendations on solar applications that are appropriate for your site.

[Should the PUC require a professional site assessment?]
3. **Secure financing.** There are several ways to fund your renewable energy project including a home equity loan, mortgage refinancing, or a capital improvement loan. In addition to this incentive program please be sure to check the following sources:
  - a. A number of municipalities offer a property tax exemption for renewable energy installations.
  - b. [Federal Tax Credits for Consumer Energy Efficiency](#) are available.
  - c. An additional \$750.00 is available for installations that meets the [Solar Rating and Certification Corporation](#) (SRCC) certification including:
    - i. OG-100 certification for solar collectors
    - ii. OG-300 standards the solar water heating system
    - iii. OG-300 standards for product safety, reliability and performance.
    - iv. The water heater must attain at least a 50% solar fraction. In essence, that means at least half of all the energy used to meet your water heating needs must come from the solar hot water system, rather than from backup, non-solar water heating equipment. A minimum ten-year limited warranty for the solar collector, six-year warranty for the storage tank, two-year warranty for the controls and one-year warranty for the piping and parts. [SD also requires a one-year labor warranty – note here?]

4. **Choose an installer.** Choosing a solar installer who provides comprehensive design, equipment, and installation services is an important step. It is best to obtain more than one estimate before hiring an installer. An estimate should include the cost of hardware, shipping, labor, and travel. Be sure to determine the period of time that the installer will honor proposed bids. A good installer will assist in local permitting and rebate forms.
5. **Apply for Step 1 of the two step Incentive Pre-Approval.** Pre-approval will reserve your place in the funding queue. Once the system has been installed at the owner's residence, the homeowner must then complete Step 2 by submitting a **final incentive request form**. The incentive pre-approval expires 12 months from the date this application is approved. Residents who choose to install systems prior to Commission pre-approval may still apply for this rebate, but the application is subject to Commission approval and availability of funds.
6. **Make a copy of your incentive application materials for your own files and mail or deliver the originals to:**

Sustainable Energy Division  
New Hampshire Public Utilities Commission  
21 S. Fruit Street, Suite 10  
Concord, NH 03301-2429

For questions regarding this rebate program, visit the Commission's [Questions and Answers on Rebates for Residential Renewable Energy Systems](#) web page or contact Jon Osgood at [jon.osgood@puc.nh.gov](mailto:jon.osgood@puc.nh.gov) or (603)271-6306.



State of New Hampshire  
Public Utilities Commission  
21 S. Fruit Street, Suite 10, Concord, NH 03301-2429



**STEP 1 DRAFT FOR DISCUSSION**  
**INCENTIVE PRE-APPROVAL APPLICATION**  
**FOR RESIDENTIAL SOLAR WATER HEATING SYSTEMS**

The Public Utilities Commission (the Commission) requires pre-approval for any New Hampshire homeowner seeking an incentive payment of 25% or up to \$\_\_\_\_\_ for a residential solar water heating system. Pre-approval will reserve your place in the funding queue. Once the system has been installed at the owner's residence, the homeowner must then complete Step 2 by submitting a **final incentive request form**. The incentive pre-approval expires 12 months from the date this application is approved. Residents who choose to install systems prior to Commission pre-approval may still apply for this rebate, but the application is subject to Commission approval and availability of funds.

Because the application requires an original notarized signature,  
it will not be accepted if submitted electronically.

**Please submit application and all associated documents to:**  
Sustainable Energy Division  
New Hampshire Public Utilities Commission  
21 S. Fruit Street, Suite 10  
Concord, NH 03301-2429

**TERMS AND CONDITIONS**  
Please read the Terms and Conditions carefully prior to completing the form.

1. Any applicant requesting an incentive payment for any renewable energy system is responsible for meeting all terms and conditions of the program.
2. The incentive payment is 25% of the total system cost or \$\_\_\_\_\_, whichever is less. [Another option many states choose is to provide an incentive based on system output, should NH do so or provide an additional incentive for systems that provide supplemental space heat in addition to domestic hot water? Also should the PUC specify whether the system cost includes installation costs or not?]
3. Installed panels must meet OG-100 standards in order to qualify for the incentive payment. (See <http://www.solar-rating.org/default.htm> for more information.)
4. **Please note that an additional \$750 is available for systems that meet the following criteria:**
  - a. The system meets OG-300 standards as tested by the Solar Rating and Certification Corporation. The OG-300 standard tests for product safety, reliability and performance.
  - b. The water heater must attain at least a .5 solar fraction. In essence, that means at least half of all the energy transferred to the water must come from the sun.
  - a. A minimum ten-year limited warranty for the solar collector, six-year warranty for the storage tank, two-year warranty for the controls and one-year warranty for the piping and parts.
5. You must complete a Final Incentive Request Form (Step 2) to receive your incentive payment. The final incentive request form must be submitted after the installation is complete and within 12 months of the date that this incentive pre-approval form is approved.
6. Residents who choose to install systems, in whole or in part, prior to approval by the Commission may still apply for this incentive payment by submitting both the Step 1 and Step 2 forms but the incentive payment is conditioned on meeting the requirements listed herein and available funding.

7. Incentives are subject to the availability of funds received by the Commission under RSA 362-F; complete applications will be processed in the order in which they are received.
8. This incentive payment is available only for the installation of new commercially available solar water heating systems including the collectors, pumps, rack, glycol, permits, wiring, storage tank, plumbing, labor, and associated equipment installed by a qualified installer who is a sole proprietorship, company, corporation limited liability company, or other organization authorized to conduct business in the State of New Hampshire that is normally commercially engaged in the installation of solar water heating systems. [Homeowners may self-install if the homeowner has commissioned a professional site assessment?] [Should the PUC offer proportionally smaller incentives for self-installs, since those systems will cost less. Also, full incentives for self-installs could cause underqualified homeowners to lean toward a self-install, leading to more system failures. Not many states allow self-installs to be eligible; should the PUC at least require inspection by a building inspector or a licensed plumber; and/or that self-installers attend a workshop?]
9. Adding panels onto an existing system or replacing equipment does not constitute an eligible project.
10. The solar water heating system must be located on or at the applicant's New Hampshire residence, which may include a second home that the residential owner occupies at least part of the year.
11. Used parts or self-installer labor cannot be included in the cost of the facility.
12. Any solar water heating system must comply with all manufacturers' requirements and the State Building Code pursuant to RSA 155-A:1, IV including the National Electric Code 2008 and any applicable local codes or ordinances.
13. Any solar water heating system is subject to inspection and monitoring by the Commission, the State Fire Marshal and local code authorities or their agents for safety and performance.
14. All program requirements and documentation must be complete and submitted in order to receive approval for an incentive payment. Payment of the incentive may be subject to inspection of the facility by an agent of the Commission to confirm that the system is operational and consistent with the application.
15. Certain information, including system details, zip code, and total installed costs of systems installed with program support, may be available to the public and may be publicly posted. Additional information may be released upon official request. Specific personal information including Social Security number, name, telephone numbers, and email, street and mailing addresses (but not town or zip code) will remain confidential to the extent permitted under state law.
16. The Commission reserves the right to request system performance data for a period of ten (10) years after issuing the incentive.
17. The incentive recipient may be liable to the State of New Hampshire for the entire amount of the incentive if the incentive is obtained fraudulently.
18. Any incentive received under this program may be treated as taxable income by the IRS. It is the responsibility of the recipient of this incentive payment to consult with his or her tax advisor to determine the correct tax treatment of these payments. Applicants who do not provide their social security number on the Step 2: Final Incentive Request Form will not be eligible for reimbursement.

## APPLICANT INFORMATION

Name: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

Town/City: \_\_\_\_\_

State: \_\_\_\_\_

Zip Code \_\_\_\_\_

Installation Address (if different): \_\_\_\_\_

Town/City: \_\_\_\_\_

State: \_\_\_\_\_

Zip Code \_\_\_\_\_

Telephone: \_\_\_\_\_

Cell: \_\_\_\_\_

Email Address: \_\_\_\_\_

Are you aware that energy conservation improvements are generally the most cost effective means of reducing your energy consumption? **YES**  **NO**

What is your Home Heating Index? \_\_\_\_\_ visit <http://www.nhsaves.com/homeheating/> to determine this calculation.

Have you performed an energy audit of your home and undertaken energy efficiency measures? **YES**  **NO**   
*If yes, please summarize your activities:*

If you would like to learn more about improving energy efficiency, please visit [www.nhsaves.com](http://www.nhsaves.com), <http://necarbonchallenge.org/index.jsp>, [http://extension.unh.edu/news/2009/09/energy\\_answers\\_info\\_line\\_opens.html](http://extension.unh.edu/news/2009/09/energy_answers_info_line_opens.html) and [www.energystar.gov](http://www.energystar.gov).

### **INSTALLATION INFORMATION**

Anticipated start date: \_\_\_\_\_ Anticipated date of completion: \_\_\_\_\_

Will you install the solar water heating system yourself? **YES**  **NO**

If yes, please initial here indicating that you are requesting a waiver of the requirements that you must provide a signed contract with a primary installer or vendor **Initials:** \_\_\_\_\_

### **INSTALLER (if not self-installed)**

Installer Name: \_\_\_\_\_ Company: \_\_\_\_\_

Name: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

Town/City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code \_\_\_\_\_

Telephone: \_\_\_\_\_ Cell \_\_\_\_\_

Email : \_\_\_\_\_

**Years of Experience in Solar Installation:** \_\_\_\_\_

### **ELECTRICIAN (if necessary and if not self-installed)**

Name (if different than installer): \_\_\_\_\_

Mailing Address: \_\_\_\_\_

Town/City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code \_\_\_\_\_

Telephone: \_\_\_\_\_ Cell \_\_\_\_\_

NH Electrician license number (if applicable): \_\_\_\_\_

**Years of Experience in Solar Installation:** \_\_\_\_\_

## PLUMBER (if not self-installed)

Name (if different than installer): \_\_\_\_\_

Mailing Address: \_\_\_\_\_

Town/City: \_\_\_\_\_

State: \_\_\_\_\_

Zip Code \_\_\_\_\_

Telephone: \_\_\_\_\_

Cell \_\_\_\_\_

NH Plumbers license number (if applicable): \_\_\_\_\_

Years of Experience in Solar Installation: \_\_\_\_\_

**SOLAR WATER HEATING SYSTEM INFORMATION** Have you reviewed information about SDHW systems available at [http://www.energysavers.gov/your\\_home/water\\_heating/index.cfm/mytopic=12850](http://www.energysavers.gov/your_home/water_heating/index.cfm/mytopic=12850)?

YES  NO

Does your solar water heating system meet the OG100 or OG300 protocol? (if YES, you may be eligible for a larger incentive payment.)

## COLLECTOR INFORMATION

Do your collectors meet OG-100 protocol? YES  NO

**Please list the manufacturer and model number for each of the collectors to be used for this installation:**

Manufacturer *					
Model Number *					
BTU Rating of Collectors (Btu/day)[or kBtu/day to be consistent with SRCC ratings summary, Clear C conditions]					
Number of Collectors					
Total BTU Rating kBtu/day (number of collectors x collector rating)					
Total System BTU Rating (add Total BTU Rating for each manufacturer):					

Do your solar collectors have freeze protection? YES  NO  Describe: \_\_\_\_\_

## SOLAR HOT WATER STORAGE TANK [Are these potentially useful questions to ask?]

Tank Manufacturer:	Model Number(s):	# of Tanks

## WHAT FUEL IS USED TO PROVIDE BACKUP DOMESTIC WATER HEATING?

electric \_\_\_\_\_ natural gas \_\_\_\_\_ oil \_\_\_\_\_  
propane \_\_\_\_\_ wood \_\_\_\_\_ other (please describe) \_\_\_\_\_

## CONTROL SYSTEM INFORMATION

Control System Manufacturer:		Model Number(s):	
------------------------------	--	------------------	--

## CIRCULATION PUMP INFORMATION

Circulation Pump Manufacturer:		Model Number(s):	
--------------------------------	--	------------------	--

## PERCENT OF OPTIMAL BTU PRODUCTION

[Should there be an 80% threshold except in extraordinary circumstances?] Note: The applicant must provide a detailed site map that clearly illustrates all obstructions and their respective heights and distances from the system as well as panoramic photos of the horizon taken from the installation location from due east through south to due west. A shading analysis must also be provided if the applicant cannot claim 0% shading below.

Azimuth (180°=true south): \_\_\_\_\_ degrees    Tilt (horizontal=0°) = \_\_\_\_\_ degrees

1. Optimal Annual Production (BTU): \_\_\_\_\_

Go to [www.nrel.gov/rredc/pvwatts](http://www.nrel.gov/rredc/pvwatts) or use Concord, NH as a default at:

[http://rredc.nrel.gov/solar/codes\\_algs/PVWATTS/version1/US/New\\_Hampshire/Concord.html](http://rredc.nrel.gov/solar/codes_algs/PVWATTS/version1/US/New_Hampshire/Concord.html). Use total array output, optimal azimuth (180°) and tilt (43.2° for Concord or actual latitude), no shading, and .77 derating factor. [Should the PUC provide guidance for converting kBtus/day, calculated earlier, to kW, as required by PVWATTS? PVWATTS is really for grid-connected systems, so several programs direct applicants to use RETScreen instead ([http://www.retscreen.net/ang/g\\_solarw.php](http://www.retscreen.net/ang/g_solarw.php)) or just ask for analysis from Solar Pathfinder, etc.. This section may be overkill for SHW, which is less sensitive to shading than PV. Self-installers may have trouble with this section unless mandated as part of a required site assessment.]

2. Actual Annual Production without Shading (BTU): \_\_\_\_\_

Use total facility output, actual tilt and azimuth, .77 derating factor, and no shading.

3. Percent loss from shading: \_\_\_\_\_%

Use a Solmetric SunEye, Solar Pathfinder, or other similar device to quantify the percent loss from shading. You may enter 0% loss from shading if no obstruction is closer than 3 times the height that the obstruction extends above the solar collectors. [Would it be better to go with a time frame shading criteria here (i.e. if there is no shading 9 a.m. to 3 p.m., you can enter 0...) or ask if there is a clear view of the sky above 18° of the horizon from due east through south to due west?]

4. Actual Annual Production with Shading (#2 x (1-#3)): \_\_\_\_\_ BTU

5. Ratio of Actual Production to Optimal Annual Production ((#4/#1) x 100): \_\_\_\_\_%

6. Is this percentage greater than 80%?                      **YES**       **NO**       If NO, please explain in an attachment why you don't meet this performance threshold.

## REQUIRED ATTACHMENTS

These items (copies) must be attached to the application:

Attached

- |   |                          |
|---|--------------------------|
| 1. Signed contract with qualified installer or evidence of intent (if applicable)                                       | <input type="checkbox"/> |
| 2. Detailed site map and panoramic or directional photos of the installation site                                       | <input type="checkbox"/> |
| 3. Quantified shading analysis if applicant cannot enter 0% shading<br>(See note in Percent Optimal Production.)        | <input type="checkbox"/> |
| 4. Building permit or other documentation that the facility meets local zoning regulations<br>(if none, please explain) | <input type="checkbox"/> |
| _____   |                          |
| 5. <u>Results of your Home Heating Index calculation.</u>   | <input type="checkbox"/> |

Note: In the final incentive request form you will be expected to provide paid invoices, pictures of the installation, and documentation that the system has been inspected by a local building code official or NH licensed electrician/plumber, unless the installation team includes a NH licensed electrician.

### INCENTIVE CALCULATION

<b>1</b>	Total Facility Cost:	
<b>2</b>	For Line 3 enter <b>25% of line 1 or 100 % or \$_____</b> , whichever is less (\$_____ max)	
<b>3</b>	For systems that meet the conditions set forth under <b><i>Terms and Conditions # 4</i></b> for OG 300 certification add \$750.00	
<b>4</b>	<b>Total Requested Incentive</b>	

### DECLARATION

The Undersigned applicant declares under penalty of perjury that:

- 1) the applicant intends to purchase and install the SDHW system described in this application;
- 2) the applicant has read and understands the terms and conditions set forth in this application with attachments and has agreed to abide by those requirements;
- 3) the information provided in this form is true and correct to the best of his or her knowledge; and
- 4) the applicant agrees that the system and documents supporting the application may be audited and inspected by the Commission or an agent of the Commission.

Applicant's Signature \_\_\_\_\_ Date: \_\_\_\_\_

Only one signature needed per household.

Subscribed and sworn before me this \_\_\_\_ (day) of \_\_\_\_\_ (month) in the year \_\_\_\_

County of \_\_\_\_\_

State of \_\_\_\_\_

\_\_\_\_\_  
Notary Public/Justice of the Peace

My Commission expires \_\_\_\_\_

For questions regarding this rebate program, see the incentive program FAQ website at [www.puc.state.nh.us/Sustainable%20Energy/RenewableEnergyRebatesQAs-residential.htm](http://www.puc.state.nh.us/Sustainable%20Energy/RenewableEnergyRebatesQAs-residential.htm), or contact Jon Osgood at jon.osgood@puc.nh.gov or (603)271-6306.

[Will you be requiring meters? Or conducting spot checks of installations?]