



CONNECTICUT CLEAN ENERGY FUND

Connecticut Clean Energy Fund Geothermal Heat Pump Incentive Program November 24, 2010

Overview

Using funds received as part of the federal economic stimulus package (under the American Recovery and Reinvestment Act – ARRA) to stimulate the development of renewable energy and green jobs in Connecticut, the Connecticut Clean Energy Fund (CCEF) is pleased to introduce a geothermal heat pump incentive program. The following document provides an overview of the program. Interested parties are strongly encouraged to conduct their own thorough research of the alternatives, starting with the U.S. Department of Energy website:

http://www.energysavers.gov/your_home/space_heating_cooling/index.cfm/mytopic=12670

Geothermal heat pumps are a mature technology, with many well-qualified, experienced contractors serving the Connecticut area. Multiple quotes should be solicited for any project, both to identify possible options for the system, and to encourage competitive pricing. The Connecticut Light & Power Company and the United Illuminating Company, Connecticut's two major investor-owned electric utilities, have offered incentives (funded by the Connecticut Energy Efficiency Fund – "CEEF") for geothermal heat pump systems for several years. The CCEF program will be conducted in parallel with the utility-run program, and projects may qualify for both incentives. At a minimum, all projects must comply with the energy efficiency requirements of the applicable CEEF program for geothermal heat pumps, so application to those programs is essential. Separate application to these programs is required (see: <http://www.ctsavesenergy.org/> for more information).

Because the CCEF program is entirely supported with federal funding, certain rules apply to the contracting parties that may not apply to the CEEF program. Careful attention to the rules and requirements of both programs is suggested. For example, Section 106 of the National Historic Preservation Act requires all CCEF geothermal heat pump projects to be reviewed by the State Historic Preservation Office before approval can be given. All projects larger than ten tons must submit a National Environmental Policy Act questionnaire to CCEF along with the rebate application, and cannot start construction until approval is received from the EPA.

Geothermal Heat Pump Incentive Program

Applications will be open to all Connecticut homeowners, businesses or organizations who wish to install ground source heat pump (GSHP) systems, also known as "geothermal" systems, as the primary heating and cooling system for their buildings. Incentives will be available for both new construction and for new systems for existing buildings (retrofits). Upgrades or replacements for existing geothermal systems will be evaluated for a partial incentive on a case-by-case basis.

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Systems based on “open loop” designs, where ground water is used directly as the circulating heat transfer fluid, will not be eligible for incentives. Funding is expected to last for approximately until April, 2012, during which the results will be evaluated for possible continuation under CCEF funding.

Program Objectives

- Support approximately 200 residential and commercial GSHP system applications per year, through April of 2012.
- Increase public awareness of, and interest in, the technology of GSHP systems as a practical, economical means of heating and cooling buildings.
- Provide information and experience which will help establish a foundation for long-term, healthy growth in the GSHP industry with declining reliance on state-sponsored incentives.
- Directly stimulate the growth of companies and jobs in the GSHP industry in Connecticut.

The program will be continuously evaluated to learn from the response of the market to optimize the incentive structure while meeting the installation objectives.

Project Eligibility

Most people recognize that it can be a waste of money to install an expensive heating and cooling system in a building that is used infrequently. Similarly, it does not make economic sense to install a relatively expensive GSHP system in a building that is thermally inefficient. Money expended on basic improvements in insulation and air infiltration will usually be more than offset by a reduction in the size of the heat pump system that will be required to maintain comfort. Consequently, CCEF requires that all buildings applying for a rebate under this program (except for properties listed in the National Register of Historic Places) be brought up to a minimum standard of thermal efficiency. The Connecticut Energy Efficiency Fund supports several programs that provide financial incentives to help you reduce the amount of energy used in your home or business (see <http://www.ctenergyinfo.com/energy-programs.htm> for more information).

Applicants for the Geothermal Heat Pump Incentive Program must meet the following criteria:

- **Residential** dwellings (new construction and retrofit)
 - If the home is in the service area of Connecticut Light & Power or United Illuminating, then application must also be made to the utilities' geothermal system rebate program.
 - All new homes must be ENERGY STAR-rated.
 - Existing homes (retrofits) must participate in the utilities' Home Energy Solutions Program (or comparable audit/upgrade program) prior to installation.

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- All recommended cost-effective shell upgrades must be made before incentives will be disbursed for a geothermal system. Blower door test results following leak sealing must be 1 cfm/sf or less. If results indicate a higher leakage, the homeowner must install shell improvements that produce a documented leakage test result of 1 cfm/sf or less before the incentive for the geothermal system incentive can be paid.
- If eligible, then owners of existing homes must apply for the WRAP or UI Helps program and fully implement the recommended measures to upgrade the shell of their home.
- Developers may apply for incentives for up to 25 individual, free-standing residential dwellings if applications are submitted separately, although these applications will be processed under the “commercial” program rules. Only owner-occupied dwellings of four or fewer units and individual condominium units will be treated as “residential” projects under the program rules.
- **Commercial, industrial & institutional buildings** (new construction and retrofit)
 - Facilities must meet or exceed current Connecticut building code standards for efficiency. Applicants are required to participate, if eligible, in one or more of the energy efficiency programs funded by the Connecticut Energy Efficiency Fund. In particular, for projects involving new construction or major renovations, participation in the “Energy Conscious Blueprint” program is highly recommended.
 - Retrofit projects must provide evidence of the building’s energy efficiency. Documentation may include the final report(s) from energy efficiency program participation, a copy of the COMcheck Compliance Certificate (see <http://www.energycodes.gov/comcheck/> for more information) or a report from an independent energy auditor.
 - A copy of the “Manual N” thermal load calculations, or equivalent, must be included with the application.
 - While approval of a rebate may be given before the installation of measures needed to bring a structure up to the efficiency standards enumerated above, documentation of the measures that have been implemented to meet the above requirements must be provided to CCEF prior to the disbursement of any incentive funds.

All residential projects must be completed and commissioned within six months of the date of approval of incentive funding under this program. Commercial projects must be completed within one year of approval. Exceptions may be granted for extenuating circumstances if application is made to CCEF in writing at least three months prior to the deadline.

Equipment Eligibility

- Heat pumps must meet federal Energy Star requirements (see http://www.energystar.gov/index.cfm?c=geo_heat.pr_geo_heat_pumps).
- Heat pumps must be commercially available, with manufacturers’ warranties.

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- All systems must be designed and installed by an IGSHPA-accredited installer or Certified GeoExchange Designer (for a current list of accredited installers, see: <http://www.igshpa.okstate.edu/directory/directory.asp>).
- Only closed-loop (water/glycol or DX) GSHP technologies are eligible. Open-loop designs, including standing column wells, will not be incented.
- Residential system rebates will be limited to 6 tons (cooling capacity) per dwelling unit.
- Commercial system incentives will be limited to 100 tons (cooling capacity), except for schools, which will be limited to a maximum of 150 tons.
- Minimum capacity: Residential projects must provide at least 50% of the total heating load for the area to be served by the system, based on estimated usage. If supplemental heating is required for more than 5% of the predicted annual heating energy requirement (total annual Btus, not peak demand), then it must be provided by some means other than electric resistance heating.
- Maximum capacity: 100% of the peak heating or cooling load, whichever is greater.
- Upon completion, a Verification of Installed Performance (VIP) form must be submitted, and systems must meet 85% of the rated Coefficient of Performance (COP) or Energy Efficiency Ratio (EER) and 85% of the rated capacity of the system.

Contractor Requirements (residential projects)

- Must have a licensed heating/cooling contractor and an IGSHPA-certified geoechange designer on staff, or
- Must be registered with the Connecticut Department of Consumer Protection as a Home Improvement Contractor or New Home Builder and
- Must affirm that only properly licensed and accredited installers will be used as subcontractors.
- Must carry appropriate liability and workers' compensation insurance.
- Must have at least five (5) referenced installations.
- Otherwise-qualified contractors who do not have the requisite five installations will be given "provisional" status, restricting contractor to one incented project at a time.

Contractor Requirements (commercial projects)

- Must have licensed heating/cooling contractor and an IGSHPA-certified geoechange designer on staff, or
- Must affirm that only properly licensed and accredited installers will be used as subcontractors.
- Must carry appropriate liability and workers' compensation insurance.
- Must have at least five (5) referenced installations.
- Otherwise-qualified contractors will be given "provisional" status, restricting contractor to one incented project at a time.
- Must "buy American" on projects for all government-owned buildings.

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- Must agree to pay “prevailing wages” to on-site construction workers (Davis-Bacon Act applies) and maintain required payroll records.

Inspections

- All new construction, prior to installation, for energy efficiency rating (HERS).
- Review of all commissioning reports, upon project completion.
- Site inspection of first three projects of any type, per contractor.
- If all were satisfactory, then spot checks thereafter.
- If significant problems with any, then next three projects will be inspected.

Level of Support for Individual Awards

The incentives will be in the form of a rebate based on system capacity. For new GSHP systems, the full incentive, as outlined below, will be offered to qualifying projects. For upgrades or partial replacement of existing systems, a partial incentive, not to exceed 50% of the amounts below, may be offered after CCEF reviews the application.

There will be a total of \$4,500,000 in rebate funds available between December 2009 and April 2012. Rebates will be awarded to qualifying projects on a “first come, first served” basis, according to the following schedule:

Rebate amount (Initial rate at start of program):

- Residential (new construction) -- \$1,200 per ton of air-conditioning capacity
- Residential (retrofits of existing building) -- \$2,000 per ton
- Commercial for-profit -- \$1,200 per ton
- Not-for-profit -- \$2,000 per ton

Maximum project size incented per installation as follows:

- Residential – 6 tons
- Non-residential – 100 tons (schools – 150 tons)

NOTE: The incentive will be reduced as the program progresses toward its installed capacity goal of over 3,000 tons, according to the following schedule:

<i>Incentive vs. Program Goals</i>			
<i>Type of Project</i>	<i>Incentive per ton</i>		
	First 1000 tons	Next 500 tons	As of 5/14/10
Residential Retrofit	\$2,000	\$2,000	\$1,200
Residential New	\$1,200	\$1,200	\$1,050
Commercial For Profit	\$1,200	\$1,200	\$1,050
Commercial Not-For-Profit	\$2,000	\$2,000	\$1,750

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Maximum incentive payout:

Total incentive payout under this program to any one entity (homeowner, project owner or contractor) over the course of this program through April 30, 2012, shall not exceed \$500,000, regardless of eligibility otherwise. The rebate incentive will be paid directly to the homeowner or the project owner (for all commercial projects).

Environmental Attributes

CCEF shall be entitled to all environmental attributes or credits or certificates that are produced or associated with the geothermal equipment, including but not limited to greenhouse gas credits, emissions credits, tradable carbon credits, and all other types of tradable emission reduction commodities, however named, that are presently known or designated or may be created by law or rule in the future.

Applications

Applications will be processed in the order in which they are received. NOTE: Only complete applications will be processed. Incomplete applications will not be acted upon, will be discarded by CCEF and the applicant will be notified. Until further notice, two complete “hard” copies of the application form and all required supporting information must be delivered by mail or courier to CCEF at the address given below. Applications submitted by facsimile, email or other electronic means will not be accepted. The basic application form may be downloaded from our website at: www.ctcleanenergy.com/geothermal.

All comments should be directed to Dave Ljungquist via email at info@ctcleanenergy.com or at 865 Brook Street, Rocky Hill, CT 06067-3444.