District of Columbia Renewable Energy Incentive Program

Guide to Solar Thermal Incentives

DISTRICT DEPARTMENT OF THE ENVIRONMENT

District Department of the Environment

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1. Introduction & Program Background

The District Department of the Environment (DDOE) offers financial incentives to support the installation of renewable energy systems in the District of Columbia. The Renewable Energy Incentive Program (REIP) is supported by the Sustainable Energy Trust Fund (SETF), which is funded via an assessment paid by Pepco and Washington Gas. The Fund is administered by DDOE, with allocations of $2 million per year continuing to September 30, 2012. The REIP is authorized by the Clean and Affordable Energy Act of 2008 and covers a range of renewable energy technologies. The program has been designed to spur market development and increase local demand for affordable, high quality clean energy systems.

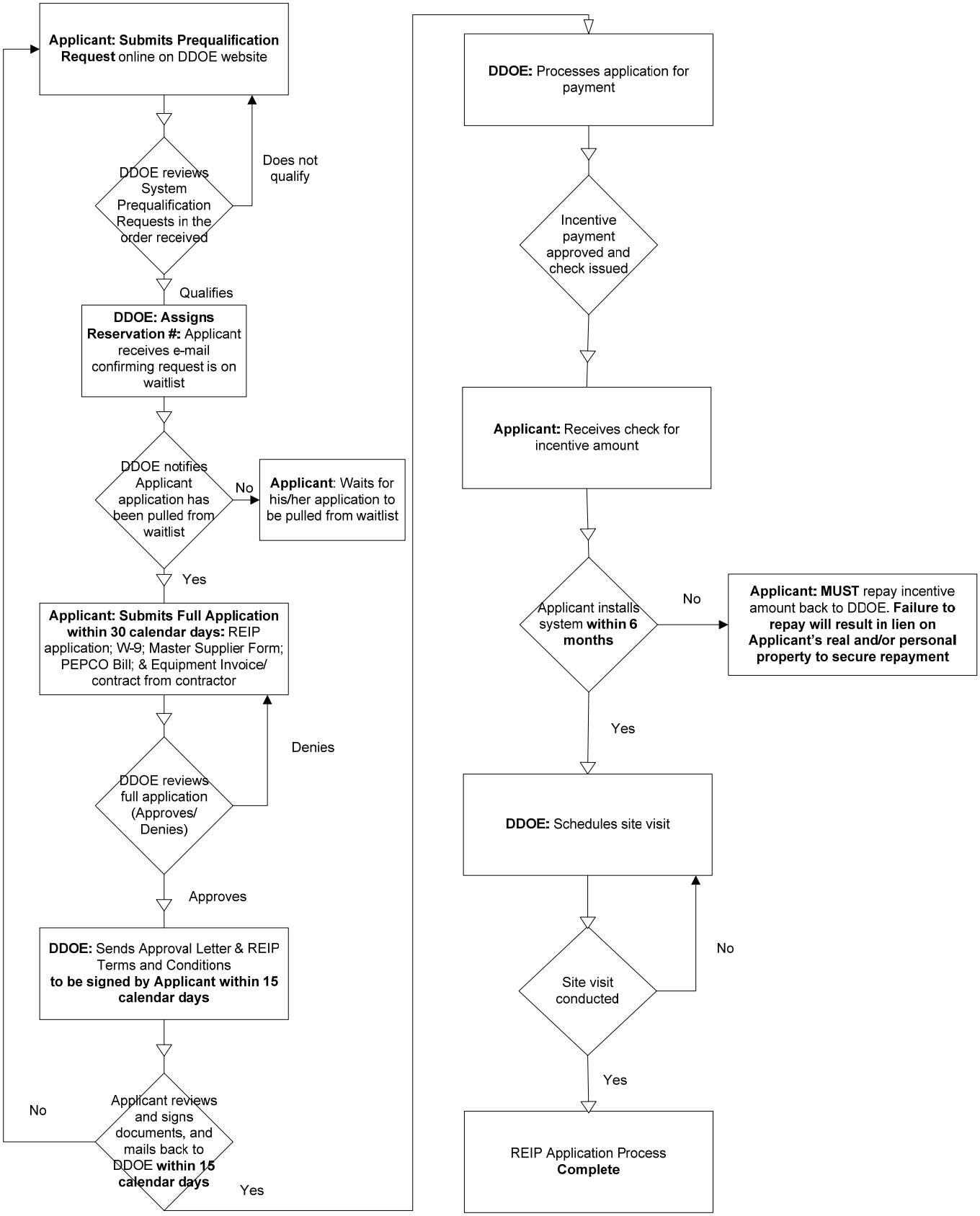
The incentives outlined in this guide cover solar thermal systems that are used to offset use of electricity or gas for radiant/space and/or water heating. Through the use of renewable energy to meet a growing portion of our energy needs, District residents, businesses and institutions can play an important role in reducing greenhouse gas emissions, improving air quality, lowering energy costs, meeting increasing energy demands, and supporting local job creation.

Solar thermal incentives offered through the REIP are intended to improve the quality, reliability and cost effectiveness of solar thermal systems installed in the District of Columbia. A major goal of this program is to drive innovation by providing incentives for the installation of solar thermal technologies that support the city's sustainability goals and reduce demand for conventional polluting fuels.

Past experiences with solar thermal systems of the last two decades have shown the need for clear standards on system performance, installation, and operations and maintenance protocols. To help ensure the successful implementation of solar thermal systems, the District of Columbia has adopted criteria developed by the Solar Rating and Certification Corporation (SRCC), an independent testing body that certifies the safety and performance of solar heating systems. SRCC guidelines must be understood and incorporated into overall system design and installation of solar thermal projects that are supported by this incentive program. A listing of REIP technical requirements and program checklist are contained in this document

2. REIP Application Process

DDOE REIP Application Process



Step One: Advance Preparation

1. Review program checklist and guidelines.
2. Conduct an energy audit on your home or facility and implement the recommended conservation measures. An energy audit is not required to receive an incentive but is highly advised.
3. Schedule a renewable energy site assessment with a renewable energy installer - All applicants must review program checklist and all guidelines. Before proceeding with an installation, applicants must schedule a site assessment with an area vendor. Please see the list of registered equipment and service providers in Appendix 3

Step Two: Apply for an Incentive

Your installer will assist you in completing your application.

☐ Submit Prequalification Request

After configuring a system to meet the applicant's needs, the installer should assist in completing the online Prequalification Request at http://ddoe.dc.gov/service/apply-renewable-energy-incentive. Upon receipt of the Prequalification Request, REIP staff will send the applicant a REIP Reservation Number which reserves a slot for the project on the waitlist should all funds be expended for the program year. **The Program operates on a first-come, first-served basis and incentive requests are dependent on funding availability.**

☐ Await email notification that application has been pulled from the waitlist. The applicant will be notified via email confirmation. At this time, the applicant may submit a full application.

☐ Submit full application and supporting documents to DDOE, including:

- Completed and signed REIP Application
- Completed and signed REIP Terms & Conditions
- Signed cost estimate or purchase order
- Letter of intent indicating equipment purchase or proof of deposit/payment
- System schematic or line drawing
- Site plan (photos, an aerial map or renderings identifying the location of collectors, their orientation and tilt)
- Shading analysis (if shading exists between 9am and 3pm any time of the year);
- Completed District of Columbia Master Supplier Form
- Completed and signed Form W-9 Federal Tax Identification
- Pepco or Washington Gas bill for address of installation location

DDOE/REIP will only approve projects that have submitted a complete application.

Step Three: Incentive Approval and Incentive Payment

Full applications will be considered and approved/denied in the order received.

1. If the application is approved, DDOE will e-mail an approval letter to the applicant confirming the amount of the incentive.
2. The applicant must sign and return the approval letter within 15 calendar days.
3. Incentive payment requests will be processed upon receipt of the signed approval letter by DDOE. The incentive will be paid within 30-45 days upon receipt by DDOE of all required project documentation including a signed invoice or system contract indicating system equipment has been ordered/purchased.
4. Applicants will have 6 months to complete the installation from the date the incentive check is issued. An additional 6 month extension may be obtained with written approval submitted 5 days before the end of the initial 6 month period. If this condition is unmet, the system owner **MUST** return the incentive amount to DDOE. **Failure to return the incentive amount will result in the placement of a lien on the system owner's real and personal property to secure repayment**.

Step Four: Complete Your Clean Energy System Installation

- Systems must be installed according to all District of Columbia regulations. Typically both plumbing and building permits are required. In addition, historic site permits and other special permits may be required. All work must be performed in accordance with all applicable federal and local codes and standards.
  Pepco should be sent a pre-installation notification before any work begins on the system. Such notification provides ample time for scheduling an appointment. Washington Gas ***should only be notified*** of project installations that include additional natural gas equipment or appliances or require a change in natural gas pressure associated with the installation address indicated on the REIP application. Contact the Pepco Green Power Connection™ Team at (202) 872-3419 or gpc-south@pepco.com; http://www.pepco.com/home/choice/dc/greenpower/ or Contact Washington Gas at (703) 941-4328 (Heat)
- To protect the purchaser against defective workmanship, system or component breakdown, or severe degradation, all systems must carry the original manufacturer's warranty of one year or more, and all installation workmanship must be guaranteed for a minimum of one year. The entire solar generating system must carry a warranty, including thermal modules (panels). Warranties should provide for no-cost repair or replacement of the system or system components, including any associated labor during the warranty period.
- All equipment must be new.

Step Five. Final Inspection

1. Once the project is completed, arrange final inspection from the Department of Consumer and Regulatory Affairs ("DCRA") building and plumbing inspectors.
2. Complete any metering requirements with the utility when applicable.
3. Upon completion of the installation, a System Completion Certificate specific to the technology being supported by the REIP must be completed and provided to the program office. Completion documentation helps to ensure that all installations supported through this incentive meet District of Columbia building, electrical and plumbing codes.
4. Schedule a final inspection with DDOE to verify project completion according to the approval letter.

Additional Requirements

- No system can be removed from the District of Columbia for a period of 10 years following installation.

Shading Analysis

- Applicant's shading diagram or Solar Pathfinder plot must demonstrate minimal shading by trees, buildings and other structures and good direct exposure to the sun between the hours of 9am and 3pm all times of the year.

Incentive Levels

Please see Section 4.

Incentive Rules & Guidelines

Multifamily Residential Dwellings

• Individual condominium owners must obtain written permission from the condo association.
• Condo associations can apply for an incentive, and the system must be connected to a commercial meter (if applicable).
• Apartment buildings are eligible to receive an incentive under this program. The entire project must fall under a single incentive application submitted by the building owner.

Third Party Owners

• Third party owners (e.g. leasing companies) are eligible for this incentive. In these cases, the full amount of the incentive provided by DDOE must be applied as prepayment (as defined in Appendix 1) toward the total cost of the system. Additionally, a third party owner must agree not to discriminate against the property owner, where the system will be located, it's terms and conditions of sale, credit, delivery or price, including service charges, starter charges, and payment plan arrangements.

Solar Heating

• Applicant's shading diagram or Solar Pathfinder plot must demonstrate minimal shading by trees, buildings and other structures and good direct exposure to the sun between the hours of 9am and 3pm at any time of the year.

DDOE retains the right to deny incentive applications based on excessive shading and/or poor orientation of solar collectors or modules.

3. Eligibility Criteria and Requirements

All criteria and requirements listed in the following sections must be met for an application to be deemed eligible. Case-by-case assessments can be discussed with REIP program staff if projects do not meet published requirements.

3.1. Participant Eligibility

To be eligible to receive an incentive for solar thermal system installation, incentive applicants must provide a copy of the electric and/or natural gas distribution bill, if applicable, for the site where the generating equipment will be located. Both residential and commercial customer classes are eligible for the incentive.

The project site must be within the District of Columbia. Additionally, applicants must consent to being surveyed by DDOE and/or an independent program evaluator, and must sign and date all program application forms and related documents as requested.

Applicants must meet all minimum equipment and performance requirements, and solar thermal design and installation standards, prior to receiving an incentive.

All approved solar thermal systems that are designed to be interconnected to the heating or domestic hot water systems are required to have a code compliant interconnection. The operation, and metering requirements for solar thermal systems shall be in accordance with applicable Pepco, Washington Gas, DC Public Service Commission, and Department of Consumer and Regulatory Affairs (DCRA) rules governing solar thermal projects that connect to existing or new DC Water potable water system and/or space heating systems.

3.1.1. Applicants/Customers

The Applicant/Customer for non-third party owned systems is the solar thermal system owner at the time the incentive is paid. The Applicant/Customer for third party owned systems is the building owner or party entering into the contract agreement with the third party service provider.

Eligible Organizations/Entities

The following organizations/entities are eligible to apply for REIP incentives:

- Individual residents
- Non-governmental organizations
- Businesses
- Schools (private educational institutions)
- Individual condominium owners with documentation and approval from the condo association.
- Condo associations - system energy production/delivery must be metered.
- Apartments - with application by the building owner. The entire project must be under a single incentive application.
- Third party owners. A third party owner is a system owner who does not own the qualifying building located in the District of Columbia. Third party owners (e.g. leasing companies) are eligible for the REIP. Third party owners, individuals, partnerships, or corporations must be registered with the District of Columbia and/or be a Certified Business Enterprise as certified by the Department of Small and Local Business Development. **In these cases, the full amount of the incentive from DDOE must be applied as prepayment (as defined in Appendix 1) toward the total cost of the system.**

Ineligible Organizations/Entities

The following entities are not eligible to apply for REIP incentives:

- United States Federal government
- Foreign governments and embassies
- Electricity utilities
- Electricity suppliers
- Natural gas utilities
- Natural gas suppliers
- Heating oil suppliers
- District of Columbia government agencies

3.1.2. Installers

All systems supported through the REIP must be installed by an appropriately licensed installer in accordance with District of Columbia law. **Self-installers are not eligible to receive incentives under this program at this time.** The Equipment Seller may also be the same entity as the Installer. If the Equipment Seller is not the Installer, indicate information for the Equipment Seller on the Program Application where indicated.

Installers seeking to be identified on the REIP List of Installers must submit an Installer Participation Application, along with requisite insurance documentation.

Although not required, Installers are encouraged to become certified by the North American Board of Certified Energy Practitioners (NABCEP). For additional information on NABCEP, visit www.nabcep.org.

3.2 Eligible Equipment and System Applications

Eligible solar thermal systems must include collectors that are rated and certified OG-100 by the SRCC, and can supplement existing natural gas, electric, propane, oil or other conventional heating and cooling systems. For new construction, applicants are required to submit modeled efficiency and performance data of any conventional system that would have been installed in lieu of the solar thermal system. In all cases, systems must be installed in compliance with the manufacturers' specifications/installation procedures and with all applicable solar, electrical, plumbing, and building codes and standards.

Integrated Collector/Storage systems, as well as swimming pool heating systems, including spas of all types are not eligible for incentives under this program. Further, systems must use only Glazed Liquid-Type Flat-Plate or Tubular Solar Collectors as defined and certified as to the OG-100 standard of the Solar Ratings and Certification Corporation (SRCC). In systems that are designed to do multiple functions including pool or spa heating, the portions of the system that are dedicated to these functions shall not qualify.

All system components (collectors, controls, sensors, piping, pipe insulation, valves, tanks, heat exchangers, pumps, plumbing,) must be new and must not have been previously placed in service in

any other location or for any other application. **Rebuilt, refurbished, or relocated equipment are not eligible to receive incentives**.

Incentives for nonresidential installations apply to any eligible commercial or institutional facility. Approved technologies are restricted to solar water or space heating, cooling, and process heat systems that offset either:

- **10,000 kWh (341.2 Therms)/year or more** – Collectors shall be rated and certified OG-100 by the SRCC, and the actual energy output shall be determined by an onsite energy meter that meets performance standards established by OIML.
- **10,000 kWh (341.2 Therms)/year or less** – Systems shall be rated and certified by the SRCC, and the energy output shall be determined by one of the following:
  - The SRCC OG-300 annual systems performance rating protocol; or
  - The SRCC OG-100 solar collector rating protocol; or
  - An onsite energy meter that measures the actual energy output and meets performance standards established by OIML.

For more information on SRCC rated systems, testing protocols, and inspection criteria, please visit:
www.solar-rating.org/index.html
www.solar-rating.org/ratings/og300.html

3.2.2. Freeze & Scald Protection Shade

Automatic freeze protection is required on solar thermal hot water systems installed in the District of Columbia. Freezing can occur in flat plate collectors where potable water is the heat transfer fluid when the ambient temperature is as high as 42 °F.

All installed systems must meet freeze protection requirements set forth by the SRCC. System eligibility requires maintenance requirements to be clearly explained in the owner's manual, and maintenance service should be included in the installation contract. Clear labels must warn against substituting toxic antifreeze fluid for propylene glycol.

Important Note: Systems that utilize recirculation or open circulation systems freeze protection are NOT eligible for REIP Solar Thermal incentives.

Recirculation

The risks associated with open loop direct circulation/recirculation freeze protection systems are myriad, and may result in system failure or a shortened equipment life. Direct Circulation or Recirculation freeze protection systems on open systems may also encounter stagnation problems during the summer or periods of low use.

Drainback Systems

Drainback systems have been shown to be one of the most effective freeze-protection installations when properly designed. These systems have no valves to fail and when the pumps are off, the collectors are empty, thereby assuring freeze-protection and auto shut-off if the water in the storage tank becomes too hot.

Glycol Systems

Closed loop glycol systems are an alternative to drainback systems. Active closed loop systems use electric pumps, valves, and controllers to circulate the heat-transfer fluid, usually a glycol-water antifreeze mixture, through the collectors. This glycol-water antifreeze mixture makes closed-loop glycol systems effective in areas subject to freezing weather. Maintenance requirements must be clearly explained in the owner's manual, and maintenance service should be offered as an option in the contract. Clear labels must warn against substituting toxic antifreeze fluid for propylene glycol.

Integrated Collector/Storage

Not eligible under this program.

Scald Protection

An anti-scald valve is required, and all water heating systems must meet the minimum OG300 requirement for a mixing valve. Acceptable anti-scald valves include ASSE 1017, 1016 or 1070 certified anti-scald valves. The following valves are certified by the American Society of Safety Engineers and are acceptable for use in this program:

- **ASSE 1016** valves that are for points of use such as showers and taps, and are typically installed in new construction.
- **ASSE 1017** valves that are installed downstream from the conventional water heater. The output temperature is adjustable and on some models can be as high as 160°F. They are intended for use where higher temperatures are needed downstream, such as for hydronic space heating, but should be at the lowest acceptable temperature. If a high temperature ASSE 1017 valve is used, an ASSE 1070 valve should be used downstream from the heating loads and before the showers and taps.
- **ASSE 1070** valves can be used in conjunction with ASSE 1017 valves, by providing a 110°F max set point downstream from higher temperature branches closer to end-use points.

3.2.3. Shade

Eligible project sites cannot experience significant shading between the hours of 9am and 3pm year-round. Applicants are required to provide a copy of their Solar Pathfinder chart, or printed output from Solmetric SunEye or a similar shade calculating device for sites where significant shading is or may be an issue.

The Applicant must show evidence of the system sizing with the submittal of the full REIP application.

3.2.4. Energy Efficiency

For residential sites, DDOE offers free high quality energy audits through **DDOE's Energy Administration's Home Energy Rating System (HERS) Program visit** **http://ddoe.dc.gov/service/free-home-energy-audits-ddoe**. It is recommended that households implement efficiency measures where appropriate. For nonresidential sites, the customer should consider scheduling a comprehensive commercial energy efficiency audit prior to installing any renewable energy system.

3.2.5. Roof Loading

Adequate structural design must be completed to insure that the system collectors can withstand local wind and snow loading design parameters. On commercial projects, a registered structural professional engineer (PE) stamped drawing is required.

3.2.6. Metering

An onsite energy meter that meets performance standards established by OIML are acceptable. As metering technology evolves and real-time data are compiled, DDOE will implement revised metering protocols to attain and analyze system performance.

3.2.7. Stagnation

Stagnation and subsequent overheating is a risk that must be addressed in the system design. A temperature and pressure relief valve is required at the collector or on the solar loop. No isolation valves should be between the collector and the pressure relief valve. Lastly, the pressure relief drain line should be directed to a safe area that will not cause damage to the roof mounting or other surface or injury to persons.

3.2.8. Owner's manual

A manual or manuals must be provided with each solar thermal system. The manual should provide the system owner with information per SRCC OG300 requirements.

3.2.9. Warranty Requirements

All systems must have a minimum of a 10-year manufacturer's warranty on the solar collector(s), minimum of 1-year and up to 5-years based on manufacturer's warranty on the individual balance of system components and 1-year warranty on installation labor and workmanship.

4. Incentive Structure

The REIP Solar Thermal Incentive Program is based on a flat percentage rate of installed system cost. Incentives are capped at a maximum of $5,000 for a residential system or $7,000 for a commercial system for each applicant site per program year. **An applicant may only apply for one incentive per unique address per program year.**

Residential: an applicant may apply for one of the following incentives:

- Solar Thermal (water heating): 20% of the installed cost up to a maximum of $5,000
- Solar Thermal (space heating): 20% of the installed cost up to a maximum of $2,000
- Solar Thermal (combined system): 20% of the installed cost up to a maximum of $5,000

Collectors shall be rated and certified OG-100 by the SRCC, and the actual energy output shall be determined by an onsite energy meter that meets performance standards established by OIML. Installers must also comply with the criteria necessary for SRCC OG-300 certification. When making part substitutions, installers are responsible for ensuring they use only make, model and size

components listed or allowed by each OG300 certification package. Certified SRCC system components are available from the collector/solar thermal system manufacturer.

SRCC system ratings for residential installations must identify the following minimum annual energy offsets: Gas Offset – 60 Therms, Electric Offset – 1,200 kWh/yr

Combined space and water heating system may receive incentives for the entirety of the system, with components having an SRCC OG300 certification.

Nonresidential: an applicant may apply for one of the following incentives:

- Solar Thermal (water heating): 15% of installed cost up to a maximum of $7,000
- Solar Thermal (space heating): 15% of cost up to a maximum of $2,000
- Solar Thermal (combined system): 15% of the installed cost up to a maximum of $7,000

Example
Large System (Family of 6-8)
(2) 4’ x 10’ roof-mounted collectors
120 gallon storage tank
SRCC Rating – 3,200 kWh/year (*published value*)
Initial System Cost approximately $10,000-$12,500

Residential Incentive - $10,000 * .20= $2,000, Incentive amount = $2,000
Final cost to consumer = $8,000 less any federal tax credit taken after deducting incentive amount when taxes are filed for the year the system is installed.

5. Self-Installation

Self-installations are not currently allowed under this program.

For a listing of Washington area renewable energy aggregators, installers and suppliers, refer to the program website.

6. Program inquiries:

Renewable Energy Incentive Program
District Department of the Environment
1200 1st Street NE, 5th Floor
Washington, DC 20002
Phone: 202.535.2600 Fax: 202.535.2881
Email: greenenergy@dc.gov
http://ddoe.dc.gov/service/green-energy-dc

7. Technical inquiries:

Please consult a system reseller or installer for questions specific to your particular system. A list of area dealers and installers is available on our web site http://ddoe.dc.gov/service/apply-renewable-energy-incentive

APPENDIX 1: DEFINITIONS AND GLOSSARY OF TERMS

AIR-TYPE COLLECTORS: are collectors in which the sun heats air rather than water in the collector. They are most commonly used for space heating applications.

ACTIVE SYSTEM: A solar heating or cooling system that requires external mechanical power to move the collected heat.

AMBIENT TEMPERATURE: The temperature of the surrounding air.

AUTONOMOUS OPERATION: Self-contained operation, capable of existing independently.

AZIMUTH: The angular measure between due south and the point on the horizon directly below the sun.

BALANCE OF SYSTEM (BOS): Components of a photovoltaic/thermal system other than the photovoltaic or solar thermal array and load.

BRITISH THERMAL UNIT (BTU): The quantity of heat needed to raise the temperature of one pound of water one degree Fahrenheit.

COEFFICIENT OF HEAT TRANSMISSION: The rate of heat loss in BTU per hour through a square foot wall or other building surface when the difference between indoor and outdoor air temperatures is one degree Fahrenheit.

DSLBD: Department of Small and Local Business Development.

DDOE: District Department of the Environment.

ENERGY: The capacity for doing work.

FLAT PLATE COLLECTOR: A solar collection device in which sunlight is converted into heat on a plane surface without the aid of reflecting surfaces to concentrate the rays.

GLAZED LIQUID-TYPE SOLAR COLLECTORS: are stationary collectors in which a liquid is heated by the sun and has a cover of glass or other transparent material. They are the most common type of collectors, and are often used for domestic water heating and space heating systems.

HERS: Home Energy Rating System Program.

HYDRONIC HEATING: is a heating system that uses tubing to run a hot liquid beneath the floor, along base board heaters, or through radiators, this is also referred to as **radiant heating.**

HYBRID SYSTEM: A power system consisting of two or more power generating subsystems. This term is also used for heat pump water heaters.

INSOLATION: The amount of energy in sunlight reaching an area. Usually expressed in watts per square meter (W/m^2), but also expressed on a daily basis as watts per square meter per day ($W/m^2/day$).

KILOWATT (kW): 1,000 Watts.

KILOWATT-HOUR (kWh): 1,000 Watt-hours. A typical residence in the United States consumes about 1,000 kilowatt-hours each month at a price in the range of $.06 to $.15 per kilowatt-hour.

LIFE CYCLE COST (LCC) ANALYSIS: A form of economic analysis to calculate the total expected cost of ownership over the lifespan of the system. LCC analysis allows a direct comparison of the costs of alternative energy systems, fossil fuel generators, or the extension of utility power lines.

LOAD: Any device or appliance in an electrical circuit that uses power, such as a light bulb. Thermal loads are any heating applications such as providing hot water for laundry or bathing, or radiant space heating systems, or hot air for space heating.

MAINTENANCE COSTS: Any costs incurred in the upkeep of a system. These costs may include replacement and repair of components.

OPERATING COSTS: The costs of using a system for a selected period.

NABCEP: North American Board of Certified Energy Practitioners.

PASSIVE SYSTEM: A solar heating or cooling system that uses no external mechanical power to move the collected solar heat. Note: Photovoltaic systems are generally considered active systems even though they have no moving parts except electrons.

PEAK SUN HOURS: The equivalent number of hours per day when solar *irradiance* averages 1,000 w/m^2. For example, six peak sun hours means that the energy received during total daylight hours equals the energy that would have been received had the irradiance for six hours been 1,000 w/m^2. Source: http://www.ecowho.com/defn/p/Peak+Sun+Hours/f536b

PEAK WATTS (WP): The maximum power (in watts) a solar array will produce on a clear, sunny day while the array is in full sunlight and operating at 25 degrees Celsius. Actual wattage at higher temperatures is usually somewhat lower.

POWER: The rate of doing work or energy that is consumed or generated. Power is measured in Watts or horsepower.

PREPAYMENT: The deposit paid towards the cost of the system, which includes, but is not limited to, down payments, forward payments of expected fees/bills or money used to establish a contract.

RADIATION: The flow of energy through open space via electromagnetic waves, such as visible light.

REIP: Renewable Energy Incentive Program.

SETF: Sustainable Energy Trust Fund.

SOLAR RADIATION: is radiant energy emitted by the sun from a nuclear fusion reaction that creates electromagnetic energy.

SOLAR THERMAL COLLECTOR: is a solar collector designed to collect heat by absorbing sunlight.

SRCC: Solar Rating and Certification Corporation.

WATT (W): A measure of electric power or amount of work done in a unit of time and equal to the rate of current flow (amps) multiplied by the voltage of that flow (volts). One amp of current flowing at a potential of one volt produces one Watt of power.

WATT-HOUR (Wh): A measure of electrical energy equal to the electrical power multiplied by the length of time (hours) the power is applied.

APPENDIX 2: REFERENCES AND RESOURCES

Maintaining Your Thermal System

Safety

With respect to both maintenance inspections and troubleshooting, a proper knowledge of safety and potential hazards cannot be overemphasized. Service personnel should familiarize themselves with the hazards and safety precautions listed below.

Pressure and Plumbing Safety

- Check all valves, pipes, collectors and system for proper operation.
- Insure that all fluid flow is metered properly.

Maintenance

All thermal systems must be inspected and maintained on a regular basis. This preventive maintenance ensures that systems are operating effectively and, in many cases, prevents problems from occurring. Maintenance inspections require a minimal amount of time and are very simple once the procedure is understood and maintenance records are developed. Some of the procedures can be carried out by the system owner, but most should be conducted only by trained technicians familiar with solar thermal collectors, systems and other components in addition to the knowledge of proper safety procedures. A well maintained system is the best insurance against future problems.

General Guidelines

- Inspect system twice per year (Spring and Fall).
- Develop and maintain inspection forms and records.