

# Delaware Electric Cooperative Renewable Resource Program

**Revised**

*For Grant Applications*

*Received on or after*

**January 1, 2012**



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## 1.0 Purpose

The purpose of this policy is to prescribe procedures relating to the Renewable Resource Fund pursuant to 26 Del. C. Chapter 1, Subchapter III-A, §363 the Delaware Renewable Energy Portfolio Standards. It is the goal in establishing this policy to provide a procedure for distributing Renewable Resource Funds through the use of grants.

This policy provides rules of practice and procedure for application and disbursement of Renewable Resource Fund grants to be used in support of energy efficiency technologies, renewable energy technologies, or demand side management programs for and by member-owners of Delaware Electric Cooperative.

## 2.0 Definitions

For purposes of this policy, the following words and phrases shall have the meanings set forth below.

**“Applicant”** means an individual or business entity receiving service from the Cooperative.

**“Class A”** means the class or classes of member-owners with an average monthly peak demand of less than 50 kW over the prior twelve months. Class A may include residential, lighting, small-commercial, irrigation and poultry accounts. Please check with the Cooperative to determine if you qualify for a Class A grant.

**“Class B”** means all classes of member-owner with average monthly peak demand of 50 kW or greater over the prior twelve months. Class B may include large-commercial, primary metered account and some poultry accounts. Please check with the Cooperative to determine if you qualify for a Class B grant.

**“Demand Side Management”** means a device or system(s) that provides for reducing, minimizing or controlling peak demands.

**“Department”** means the Department of Natural Resources & Environmental Control, the Delaware Energy Office, or such other agents as the department or Secretary of the Department may designate.

**“Energy Efficiency Improvement”** Means an increase in productivity or output for a given energy input when compared to convention technologies or practices. Energy efficiency improvements may include equipment replacement, installation of controls, changes in operating practices, or other measures.

**“Energy Efficiency Information Program”** or **“Information Program”** means a program established mainly to educate or inform energy consumers about the environmental and economic benefits of energy efficiency improvements. Energy efficiency information programs may include the demonstration of new technologies of the novel application of existing technologies in order to establish their environmental benefits.

**“Energy Efficiency Technology”** means a hardware device or system that provides an end-use energy service (e.g., lighting, heating, air conditioning, motion, etc.) using less energy per unit of

output than minimum standards allow or available conventional equipment including but not limited to geothermal heat pumps and geothermal heat pump systems.

**“Budget Year”** means the calendar year, January 1 through December 31, for the Cooperative.

**“Freeze Tolerance Limit”** means the temperature below which a Qualifying System for Solar Water Heating might suffer damage attributable to freezing.

**“Fuel Cell”** is an electrochemical energy conversion device which converts the chemical energy from a fuel directly into electricity and heat.

**“Geothermal Heat Pump”** means either an open or closed loop system or direct expansion system that uses the thermal energy of the ground or groundwater as the heat source and heat sink for heating and/or cooling. It may provide both space heating and cooling, cooling only or heating only functions. A closed loop system consists of a ground heat exchanger in which the heat transfer fluid is permanently contained in a closed system. An open loop system consists of a ground heat exchanger in which the heat transfer fluid is part of a larger environment. A direct expansion system consists of a geothermal heat pump system in which the refrigerant is circulated in pipes buried in the ground, rather than using a heat transfer fluid, such as water or antifreeze solution in a separate closed loop, and fluid to refrigerant heat exchanger.

**“Grid-connected”, “Grid-tied” or “Interconnected”** means a condition in which a Qualifying System that is an electrical generating system serves and is electrically connected to an electrical load that is also connected to and served by the Cooperative electrical grid. The delivery or ability to deliver, any portion of the generating capacity into the utility electrical grid is not required, nor must the loads served be only alternating current loads. The Photovoltaic or Wind Turbine systems need only to be capable of serving electrical loads that would otherwise be served by the local utility.

**“Ground mount”** means a solar electrical or solar water heating system that is mounted on the ground fixed to a pole and rack system instead of on a roof, Solar electric and solar water heating systems mounted on an enclosure or non-pole mounted and rack system will be considered a roof mounted solar system.

**“Kilowatt”** means the basic unit of electric power equal to 1,000 Watts.

**“Kilowatt-hour”** means the basic unit of electric energy equal to one Kilowatt of power supplied to or taken from an electric circuit steadily for one hour. One-Kilowatt hour equals 1,000 Watt-hours. Electric energy is commonly sold by the Kilowatt-hour.

**“Participating Contractor”** An appropriately Delaware licensed contractor who has submitted to the Department an application designated by the Department with all required attachments and maintains in full force all required insurance and warranties as described in Section 4.6.

**“Passive Solar Design”** A Class A or Class B building design that uses no external mechanical power, such as pumps or blowers, to collect and move solar heat.

**“Photovoltaic”** means a non-mechanical semiconductor device, most commonly made of silicon

that produces direct current (dc) electricity from sunlight.

**“Placed in Service”** means installed, operational, and producing output.

**“Professional Engineer”** means "engineer", as defined in Title 24 Del. C., Chapter 28, *Professional Engineers*, namely, a person who by reason of his or her advanced knowledge of mathematics and the physical sciences, acquired by professional education and practical experience, is technically and legally qualified to practice Professional Engineering, and who is licensed by the Delaware Association of Professional Engineers.

**“PTC”** refers to PVUSA Test Conditions, which were developed to test and compare PV systems as part of the PVUSA (Photovoltaics for Utility Scale Applications) project. PTC are 1,000 Watts per square meter solar irradiance, 20 degrees C air temperature, and wind speed of 1 meter per second at 10 meters above ground level. PV manufacturers use Standard Test Conditions, or STC, to rate their PV products. STC are 1,000 Watts per square meter solar irradiance, 25 degrees C cell temperature, air mass equal to 1.5, and ASTM G173-03 standard spectrum. The PTC rating, which is lower than the STC rating, is generally recognized as a more realistic measure of PV output because the test conditions better reflect “real-world” solar and climatic conditions, compared to the STC rating.

**“Purchaser”** means the purchaser or lessee of a Qualifying System.

**“Qualifying System”** has the meaning as set forth in Section 4.3.2.

**“Renewable Fuel”** means a non-nuclear fuel that can be derived from non-fossil energy sources that are naturally replenishing and virtually inexhaustible.

**“Renewable Resource Fund”** means the fund established by 26 Del. C. Chapter 1, Subchapter III-A, §363(4).

**“Renewable Energy Technology”** or “alternative energy technology” means and includes any of the following machinery, equipment, or real property:

- a. Hydroelectric generators, located at existing dams or in free-flowing waterways, and related devices for water supply and control, and converting, condition, and storing the electricity generated;
- b. Wind equipment, required to capture and convert wind energy into electricity or mechanical power, and related devices for converting, condition and storing the electricity produced;
- c. Solar energy equipment, and related devices necessary for collecting, storing, exchanging, condition or converting solar energy to other use for forms of energy;
- d. Fuel cells and fuel cell systems; and
- e. Biodiesel manufacturing facilities.

**“Retailer”** means the vendor or lessor of a Qualifying System.

**“Solar Pathfinder™”** is a non-electronic instrument that measures the annual solar potential for a given site.

**“Solar Shade Analysis”** means an on site evaluation using a Solar Pathfinder™ or functionally

equivalent device that measures the annual solar potential for the given site.

**“Solar Water Heating”** means the heating of water by use of the sun’s energy rather than electricity or gas or some other means.

**“State”** means the State of Delaware.

**“Ton of Capacity”** means 12,000 British Thermal Units (BTU) per hour of capacity.

**“Watt”** means the basic unit of measure of real electric power, or rate of doing work.

**“Watt-hour”** means the basic unit of measure of electric energy consumption. The total amount of energy used in one hour by a device that requires one Watt of power for continuous operation.

**“Wind Turbine”** means a mechanical/electrical system that converts the kinetic energy of blowing wind into mechanical or electric power.

### **3.0 Renewable Resource Fund**

The enabling statute for the implementation of the Renewable Resource Fund can be found at Delaware Code, Title 26, Subchapter III-A, §363 (4) that includes provisions for the Cooperative to establish an independent, self-administered fund to be used in support of energy efficiency technologies, renewable energy technologies, and/or demand side management programs.

### **4.0 Renewable Resource Program**

#### **4.1 General Provisions**

**Funding is limited;** all grants made under the Renewable Resource Program are on a first-come first-served, calendar year, basis. Under no circumstances will grants be issued for land acquisition in association with any project proposed in the Renewable Resource Program.

For 2012 the total annual funds available to the Renewable Resource Program shall be allocated as follows: Small Wind Turbines = 2%, Geothermal Systems = 28%, PV Class A = 50%, PV Class B = 20%. Any allocation of resources not utilized in any particular program may be transferred to one of the remaining programs or allocated to the current backlog. Grants will be awarded on a calendar year basis. Once DEC has awarded grants equal to the total estimated 2012 fund allocation has been reached no further grants will be awarded for 2012.

Of the total funds available through Renewable Resource Program on an annual basis, the grants made for Class A projects shall not exceed 60% of the total funds available and the Class B grants shall not exceed 40% of the total funds available. However any such funding not utilized by either Class A or Class B may be transferred to the other.

## 4.2 Eligibility

The Renewable Resource Program is available to member-owners of the Cooperative receiving distribution delivery and energy supply service from the Cooperative. All eligible equipment and products must be installed in Delaware on an active Cooperative electric account and used solely for the energy requirements of Cooperative member-owners. Grants will not be provided for energy requirements in excess of a member-owners average annual consumption. In determining the average annual consumption the Cooperative will average the prior two years of consumption for the account applicant. Should the account applicant be a new service or have had service for less than two years a comparable account may be used as a substitute for quantifying the average annual consumption.

Funding is limited and to the extent that funds are made available to all Member-Owners of the Cooperative each member-owner shall be permitted to install and receive grant monies for multiple qualifying projects but in no case shall the member-owner receive in excess of \$7,500 in total grant monies for Class A systems and \$10,000 for Class B systems. The maximum total grant money available to any one member-owner shall be capped at \$10,000.

Grants will not be provided for renewable energy systems designed and utilized as an independent power producer or third-party ownership.

## 4.3 Grant Approval Request

Member-owners and contractors applying for grants of photovoltaic, solar water heating, wind, geothermal heat pump, or fuel cells must provide the following information to the Department prior to installing the system:

- 4.3.1 Completed Grant Request Form signed by both member-owner and contractor
- 4.3.2 DEC may require a BPI certified energy audit (new home construction may be exempt) prior to grant approval
- 4.3.3 The type of qualifying system
- 4.3.4 Copy of the member-owner's recent DEC electric bill.  
The electric bill must be from the active account where the installation will take place. New construction must show documentation from the Cooperative that service will be served by the Cooperative.
- 4.3.5 The most recent two year annual average kilowatt-hour consumption for the account at which a photovoltaic, wind turbine and/or fuel cell will be interconnected.
- 4.3.6 System schematic or line drawing. Photovoltaic (PV) and Wind turbine Grants require wiring diagrams, Solar Water Heating (SWH) System grants require plumbing diagrams. Diagrams must be site specific.

#### 4.3.7 Plot plan.

Ground Mounted – PV, SHW and Wind diagrams must show how the equipment will appear onsite in relation to distance from other structures.

Ground Mounted – PV and SWH diagrams must show the mounting surface orientation, slope, length, width, and the location of any possible shade structures.

Geothermal diagrams must show well/loop locations and loop line going in the structure.

Roof Mounted – PV, SWH and wind diagrams are required for all roof installed renewable energy technologies illustrating the following the orientation. Slope, length, width and the location of any possible shade structures

Areas of shading (provide Solar Pathfinder results for cases where shading occurs between 9:00 am and 3:00 pm. Results of the solar shade analysis must determine that 70% of the annual solar path's area is shade free to be considered for a grant. All solar electric and solar water heating systems will be required to submit Solar Pathfinder or equivalent results.

Wind turbine installation diagrams will detail wind resource infringement areas including but not limited to buildings and trees.

4.3.8 Manual J calculation (geothermal only). A manual J calculation, or equivalent, is required to determine the correct sized requirements for a geothermal system. Manual J calculations, or equivalent, are required for all installations including replacements.

4.3.9 Detailed system design and a predicted performance calculation verified by a Professional Engineer. The professional engineer should not be affiliated with the product manufacturer but knowledgeable and competent in evaluation the product to be installed (Class B solar water heating systems only.)

4.3.10 Copy of the completed and approved interconnection agreement (PV, wind, fuel cell).

4.3.11 Account Aggregation: The aggregation of multiple accounts under the same name or community-owned renewable energy generating facility is permissible under certain conditions.

4.3.11.1 Applications for aggregated generation must identify the host account and the accounts proposed, in priority to receive consumption credit, in aggregation and the two year average annual energy usage.

#### 4.4 Evaluation of Grant Approval Request

Upon receipt of the Grant Approval Request and supporting documents, the Department will perform an evaluation to check the proposal package for its compliance with the requirements noted above. If the proposal package is complete, the Department will process

the Grant Approval and issue a Confirmation and Claim Form to the applicant. All requirements as outlined in Section 4.3 must be provided to the Department prior to processing the grant approval. If all documents are not provided the grant request may be delayed or denied.

The Department will notify the Cooperative which will review and approve the project described in the Grant Approval Request for six (6) months from the date on the Confirmation and Claim Form, for Class A applicants and twelve (12) months from the date on the Confirmation and Claim Form for Class B applicants. Grant requests will be reviewed and approved on a first come-first served basis, viable projects that are not completed within the required time must resubmit a new Grant Approval Request. The original request will become void after the initial approval period. If it becomes necessary to alter the initial proposal submitted to the Department. It is the responsibility of the contractor and customer to provide in writing a detailed explanation of changes to the Department prior to submission of the confirmation and claim form. The Department will review the written changes and may approve the changes and alter the grant amount if necessary. An automatic approval of the submitted changes should not be expected. Proceeding forward with an installation that differs from the submitted proposal could result in either a denial of the grant or a reduced grant amount.

#### 4.5 Claim for and Distribution of Renewable Resource Program Grants

After installation, the member-owner and contractor must provide the following to the Department:

- 4.5.1 Completed Confirmation and Claim form signed by member-owner and contractor
- 4.5.2 Completed BPI certified energy audit if required. Homes meeting the Energy Star rating may be exempt from completing an audit.
- 4.5.2 Copy of electrical, plumbing or building final inspection (it is the responsibility of the customer and contractor to provide any final inspection approval documents if required by code, statute or policy).
- 4.5.3 Copy of completed and approved DEC Interconnection Agreement Final Approval (photovoltaic, wind, fuel cell).
- 4.5.4 Copy of final sales invoice must include: final paid costs, itemized list of installed major system components and costs, labor cost, permits and fees costs, system size (kW for PV and Wind, square feet and gallons for solar hot water, must show paid in full and method of payment. Tons for geothermal, state the five (5) year parts and labor warranty (invoice must include actual price paid, itemized list of components, labor, permit fees, method of payment).
- 4.5.6 Copy of warranty agreement. All qualifying systems receiving a Renewable Resource Grant must have a full 5-year warranty against component failure, malfunction and premature output degradation. The warranty must cover all

components for which the program incentive is granted and cover the full cost of repair and replacement of all components of the system. For professionally installed systems the warranty must cover the labor to remove and replace defective components and systems.

4.5.7 Copy of the Owner's manual – a contractor is required to provide each Program participant with an Owner's Manual. At a minimum, the Owner's Manual shall include the following;

- Name and address of the seller
- System model name or number
- Identification and explanation of system components
- Description of system operation
- Description of system maintenance
- Description of emergency procedures
- Vacation procedures
- Systems warranty
- Copy of plot diagram
- Conspicuous notation that the Owner's Manual shall be passed on to any new owners of the system during the operating life of the system.

Upon receipt of the completed Confirmation and Claim Form and all final documentation pertaining to the project as noted in Section 4.5.1-4.5.6, the Department will evaluate the Confirmation and Claim Form and the required accompanying documents for consideration of final grant approval and submit the completed application package to the Cooperative. In the event grants cannot be paid immediately each completed grant package will be placed in queue for payment by the Cooperative. As new funds are collected the next complete package awaiting grants will be paid out. The contractor and member-owner are fully responsible for insuring that all forms and documentation have been supplied and the system meets all program requirements. The Department and/or the Cooperative may make an inspection of the systems prior to final grant approval.

The Department will acknowledge receipt of the final documentation for grant award in a reasonable time, generally within 30 days of receipt. The Department will provide the Cooperative with a determination that all grant requirements have been met. The Cooperative will ordinarily process the payment to the applicant, however, if the applicant so requests in writing and documentation reflects the installation cost to the applicant was reduced directly from the purchase price, the Cooperative will process the payment to the retailer, installing contractor or applicant.

Upon written request to the Department, and subject to Cooperative approval and availability of funds, the Cooperative will pay the grant in two installments. Fifty percent (50%), or one-half, of the qualifying grant amount paid after the equipment is delivered to the installation site and all required permits, approvals, certifications from all jurisdictions having authority are secured. The remaining fifty percent (50%) is paid when the system is operational and approved by the utility and/or appropriate inspection agent. The Department and the Cooperative reserve the right to review any installation prior to any partial or final grant payment. The Cooperative reserves the right to suspend or revise this option at any time.

#### 4.6 Renewable Resource Program Participating Contractor Guidelines & Self Installation Guidelines

4.6.1 Participating contractors shall at all times comply with the requirements of the Delaware Energy Office as a requirement for eligibility for funding through this program. Any contractor found to have violated the Cooperatives rules, practices and procedures may be subject to dismissal from participation in the Renewable Resource Program. The Cooperative shall notify the Delaware Energy Office of any contractor violations.

##### 4.6.2 Limitation of Funds

The Program funds are limited. The Participating Contractor shall follow program guidelines to insure approval of funds prior to installing a qualifying system. The contractor will also inform their existing customers of any and all changes to the Renewable Resource Fund program within seven (7) days of programmatic changes. If it is found that contractors are using unethical tactics to sell renewable energy systems based on false or misleading information or claims about renewable energy systems or the Renewable Resource Program the Cooperative and/or the Department may impose sanctions up to and including suspension as a participating contractor. If grant funds are not available for payment at the time of completion completed projects will be placed in a queue as DEC receives the final authorization from the Energy Office.

##### 4.6.3 Self Installations

Renewable Resource Funds may be awarded to applicants that choose to act as the general contractor (self installation) for the installation of their renewable energy system. Member-owners who install their own systems or act as the general contractor shall adhere to any and all requirements as established by the Energy Office to be eligible for grants.

Applicants must submit a signed warranty statement by the applicant stating that the workmanship is self-warranted for 5 years. The applicant must also submit the product warranties showing coverage for at least 5 years on the major components (e.g. solar panels).

#### 4.7 Code Compliance

All qualifying systems must be installed in accordance with the standards and specifications of the manufacturers of the components in the system, in compliance with all applicable local electric and building codes, local ordinances and these guidelines. Where discrepancies, if any, exist with these guidelines and local codes, local codes shall govern.

### **5.0 Renewable Energy Technologies**

#### 5.1 Photovoltaic Systems

### 5.1.1 Grant Limits

Subject to availability of funds, the DEC Renewable Resource Program offers grants for grid-connected photovoltaic systems installed by qualified contractors and member-owners in the following amounts:

Class A (less than 50 kW) and Class B (over 50 kW)

First 5 kW	\$0.90 per watt
Over 5kW	\$0.45 per watt

Non-Profit Organizations

First 5 kW	\$1.05 per watt
Over 5kW	\$0.52 per watt

Grants will not exceed \$7,500 per Class A systems and \$10,000 per Class B and non-profit member-owners.

### 5.1.2 Accepted Products and Equipment

#### 5.1.2.1 Grid Interconnected

All photovoltaic modules must be certified by a nationally recognized testing laboratory as meeting the requirements of the most recent version of Underwriters Laboratory Standard 1703.

All qualifying grid-connected systems must comply with the Institute of Electrical and Electronic Engineers Standards Board (IEEE) 929, Recommended Practice for Utility Interface of Photovoltaic (PV) Systems, IEEE 1547, Standard for Interconnecting Distributed Resources with the Electric Power Systems and the appropriate generation interconnection requirements of the Cooperative's Technical Requirements for Parallel Operations.

All inverters must be certified by a nationally recognized testing laboratory for safe operation and be certified as meeting the requirements of Underwriters Laboratory Standards 1741, Standard for Static Inverters and Charge Controllers for Use in Photovoltaic Power Systems.

All grid interconnected systems must be designed and installed to comply with the National Electric Code (NEC).

The system installed must meet a minimum collective array size of 500 watts

Battery backup systems are not eligible for grants.

#### 5.1.2.2 Non-Grid Interconnected or Stand-Alone

All photovoltaic modules must be certified by a nationally recognized testing laboratory as meeting the requirements of the most recent version of

## Underwriters Laboratory Standard 1703.

### 5.1.3 Array Orientation and Tilt

Optimum array orientation is a 180° true bearing. However, the program accepts solar arrays oriented between South of due East and South of due West or between 80° and 260° true bearing. Systems installed between 260° and 80° true bearing or North of due East and North of due West are not eligible for a Renewable Resource Program Grant.

Optimum array tilt is equal to the latitude at the installation site. However, the program accepts array tilt parameters as specified by the module manufacturer which may allow for tilts greater than and less than latitude.

### 5.1.4 Array Shading

Photovoltaic arrays shall be installed such that the array has a minimum of six (6) hours of unobstructed sunshine daily inclusive of solar noon. A "solar window" of eight (8) hours of unobstructed sunshine is preferred.

The installing contractor is responsible for insuring that the system is free from shading. The installing contractor shall perform a "Solar Shade Analysis" on all installations and provide documentation for each grant application to ensure the array meets the minimum daily sunshine requirements. Results of the solar shade analysis must determine that 70% of the annual solar path's area is shade free to be considered for a grant.

### 5.1.5 Aesthetics

Aesthetics must be considered in the design and mounting of the photovoltaic array. The designing contractor must provide a roof schematic complete with roof dimensions, array placement, orientation and areas of shading to the Department prior to installation. The designing contractor must configure the modules in an aesthetically pleasing manner free from shading. The quality of the aesthetics shall be determined either by the Cooperative and/or the Department.

## 5.2 Solar Water Heating

### 5.2.1 Grant Limits

Subject to availability of funds, the Renewable Resource Program offers grants for solar water heating systems installed by qualified contractors and member-owners up to 20% of the total installed cost. Grants will not exceed \$3,000 per Class A systems and \$7,500 per Class B systems.

Solar water heating systems integrated into a radiant heating application are eligible for a grant up to 20% of the installed cost of the solar energy portion of the system. Grants will not exceed \$5,000 per Class A systems and \$7,500 per Class B systems.

### 5.2.2 Accepted Products and Equipment

A solar water heating system must be designed to reduce or eliminate the need for electric or gas heated water.

All qualifying Class A solar water heating systems must be certified to meet the Solar Rating and Certification Corporation's (SRCC) OG-300, Operating Guidelines and Minimum Standards for Certifying Solar Water Heating Systems: An Optional Solar Water Heating System Certification and Rating Program and have a Freeze Tolerance Limit of minus 21 degrees Fahrenheit without electrical power.

All qualifying Class B solar water heating systems and solar energy systems integrated into a radiant heating application must utilize collectors certified to meet the Solar Rating and Certification Corporation's (SRCC) OG-100, Operating Guidelines for Certifying Solar Collectors only.

Class B solar water heating systems will be required to submit a detailed system design and a predicted performance calculation verified by a Professional Engineer (P.E.)

Solar water heating systems integrated into solar pool heating systems for any reason will not be eligible for funding.

### 5.2.3 Collector Orientation and Tilt

Optimum collector array orientation is a 180° true bearing. However, the program accepts solar collectors oriented between South of due East and South of due West or between 80° and 260° true bearing. Systems installed between 260° and 80° true bearing or North of due East and North of due West are not eligible for a Renewable Resource Program Grant.

Optimum collector tilt is equal to the latitude at the installation site. However, the program accepts collector tilt parameters as specified by the collector manufacturer which may allow for tilts greater than and less than latitude.

### 5.2.4 Collector Shading

All collectors shall be installed such that the collector array has a minimum of six (6) hours of unobstructed sunshine daily inclusive of solar noon. A "solar window" of eight (8) hours of unobstructed sunshine is preferred.

The installing contractor is responsible for insuring that the system is free from shading. The installing contractor shall perform a "Solar Shade Analysis" on all installations and provide documentation for each grant application to ensure the array meets the minimum daily sunshine requirements. Results of the solar shade analysis must determine that 70% of the annual solar path's area is shade free to be considered for a grant.

### 5.2.5 Aesthetics

Aesthetics must be considered in the design and mounting of the solar water heating collectors. The designing contractor must complete a roof schematic complete with roof dimensions, collector placement, orientation and areas of shading to the Department prior to installation. The designing contractor must configure the collectors in an aesthetically pleasing manner. This shall be determined solely by the Cooperative and/or Department.

## 5.3 Small Wind Turbines

### 5.3.1 Grant Limits

Subject to availability of funds, the DEC Renewable Resource Program offers incentives of \$1.25 per watt not to exceed \$2,500 for small grid-connected wind turbines installed by a qualified contractor for a qualified member-owner. Small wind turbines shall be at least 500 Watts.

### 5.3.2 Capacity Limits

Qualifying wind turbine systems shall be at least 500 Watts.

The Cooperative and/or Department may reject applications if the location of the proposed wind turbine system has an inadequate wind resource for reasonable utilization of the equipment as recommended by the turbine manufacturer. Wind resources can vary significantly; therefore, the contractor and member-owner must take care that the location has adequate wind for the turbine selected. It is strongly recommended that a professional evaluation of your specific site be completed. The Cooperative and/or Department may require additional evidence of feasibility prior to approving the grant reservation.

### 5.3.3 Accepted Products and Equipment

#### 5.3.3.1 Grid Interconnected

All qualifying grid-connected small wind systems must use Underwriters Laboratory listed equipment and comply with the Institute of Electrical and Electronic Engineers Standards Board (IEEE) 929, Recommended Practice for Utility Interface of Photovoltaic (PV) Systems, IEEE 1547, Standard for Interconnecting Distributed Resources with the Electric Power Systems and the appropriate generation interconnection requirements of the Cooperative's Technical Requirements for Parallel Operation.

All inverters or other systems used in interconnection must be certified by a nationally recognized testing laboratory for safe operation and be certified as meeting the requirements of Underwriters Laboratory Standards 1741, Standard for Static Inverters and Charge Controllers for Use in Photovoltaic Power Systems.

All grid interconnected systems must be designed and installed to comply with the National Electric Code (NEC).

Wind turbines may only be considered eligible if they are listed on the California Energy Commission Emerging Renewables Program List of Eligible Small Wind Turbines.

## 5.4 Fuel Cells

### 5.4.1 Grant Limits

Subject to availability of funds, the DEC Renewable Resource Program offers grants for grid-connected fuel cells installed by qualified contractors and member-owners up to 20% of the total installed cost for fuel cell systems operating on a renewable fuel source. Grants will not exceed \$7,500 for Class A systems and \$10,000 for Class B systems.

### 5.4.2 Accepted Products and Equipment

#### 5.4.2.1 Grid Interconnected

All Qualifying fuel cells systems must utilize a renewable fuel source and meet the National Fire Protection Association (NFPA) 853 for Stationary Fuel Cell Power Plants, the Institute of Electrical and Electronic Engineers Standards Board (IEEE) 519-Recommended Practices and Requirements for Harmonic Control in Electric Power Systems, the most current version of the American National Standards Institute (ANSI) Z21.83 for Fuel Cell Power Plants, and input and output protection functions should be in compliance with ANSI C37.2 Device Function Number Specifications.

All grid interconnected systems must be designed and installed to comply with the National Electric Code (NEC).

## 6.0 Energy Efficiency Technology Program

### 6.1 Geothermal Heat Pump Systems

#### 6.1.1 Grant Limits

Subject to availability of funds, the DEC Renewable Resource Program offers grants for geothermal heat pump systems installed by qualified contractors and member-owners at the following rates:

##### Class A:

\$800 per ton for the first two (2) tons and \$700 per ton thereafter but not to exceed \$5,000 per dwelling for Class A systems installed with an Energy Efficiency Ratio (EER) of 18.0 and Coefficient of Performance (COP) of 3.6.

##### Class B:

\$800 per ton for the first two (2) tons and \$700 per ton thereafter but not to exceed

\$10,000 per Class B systems with an Energy Efficiency Ratio (EER) of 18.0 and Coefficient of Performance (COP) of 3.6 or greater.

#### 6.1.2 Accepted Products and Equipment

Qualifying geothermal heat pump systems must be sized in accordance with good heating, ventilation and air conditioning design practices for the occupancy, location and structure. Contractor shall provide a Manual J calculation, or other equivalent calculation, to determine proper size of equipment.

All qualifying systems must have a warranty for protection of the integrity and performance of the system for at least five years. All units installed under this program must have a minimum EER of 18.0 and COP of 3.6. Qualifying systems must meet the following:

Closed loop systems shall qualify under rating conditions in accordance with ISO 13256-1.

Open loop systems shall qualify under rating conditions in accordance with ISO 13256-1.

DX systems shall qualify under rating conditions in accordance with ARI 870.

#### 6.1.3 Grant Application

Application for grants of geothermal heat systems shall be made applicable to the provisions of 4.0.

### 6.2 Lighting

The Cooperative will evaluate lighting retrofits of Class A and B accounts. Applications will be reviewed by the Cooperative and must contain a detailed quantification of cost savings and energy savings.

The Cooperative will, from time to time, purchase efficient light bulbs to be distributed to member-owners at annual meeting, civic events, etc.

## 7.0 Demand Side Management

### 7.1 General Provisions (To be determined)

## 8.0 Severability

If any section, subsection, paragraph, sentence, phrase or word of these policies is declared unconstitutional by a court of competent jurisdiction, the remainder of these policies shall remain unimpaired and shall continue in full force and effect, and proceedings there under shall not be affected.

## Renewable Resource Fund Grant Limits

*Revised January 1, 2012*

<b><u>Photovoltaic</u></b>	<u>Class A &amp; Class B</u>	<u>Non-Profit</u>
First 5 kW	\$0.90	\$1.05
Over 5 kW	\$0.45	\$0.52

<u>Maximum Grant</u>	<u>Class A</u> \$7,500	<u>Class B &amp; Non-Profit</u> \$10,000
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<b><u>Solar Water Heating</u></b>	<u>Not to Exceed</u>	<u>Class A</u>	<u>Class B</u>
Solar Water Heater Only	20%	\$3,000	\$7,500
Solar Water Heating (integrated)	20%	\$5,000	\$7,500

<b><u>Wind</u></b>	<u>Class A and Class B</u>
\$1.25 per Watt	\$2,500

<b><u>Fuel Cells</u></b>	<u>Not to Exceed</u>	<u>Class A</u>	<u>Class B</u>
	20%	\$7,500	\$10,000

<b><u>Geothermal Heat Pumps</u></b>	<u>Per Ton</u>	<u>Class A</u>	<u>Class B</u>
EER-18/COP=3.6    First 2 tons	\$800	\$5,000	\$10,000
Over 2 tons	\$700		