



NORTHEAST SUSTAINABLE ENERGY ASSOCIATION

PHOTOVOLTAIC SYSTEMS FOR HOMES AND BUSINESSES

Solar Energy Systems, LLC



SERVING THE NORTHEAST
Based in Greenfield, Massachusetts, NESEA's territory includes 10 Northeastern states: Connecticut, Delaware, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island and Vermont.

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YOUR LOCAL CHAPTER

Philadelphia Solar Energy Association (PSEA)
P.O. Box 42400
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www.phillysolar.org/calendar.htm

SolarWrights, LLC



NEED EXPERT HELP? Go To The SUSTAINABLE GREEN PAGES

NESEA's SUSTAINABLE GREEN PAGES is the Northeastern USA's best green business directory. It includes hundreds of energy experts offering sustainable living and commercial energy solutions in over 30 specialties. Go to NESEA.ORG and find the right expert to realize your green goals, or look for the SUSTAINABLE GREEN PAGES in the fall issue of NESEA's NORTHEAST SUN Magazine.

NESEA.ORG

PHOTOVOLTAIC (PV) SYSTEMS

Harvesting solar energy and converting it into electricity is an effective way for a home or business owner to gain a measure of control over their energy use. PV systems are designed to operate silently and with no moving parts for decades, requiring minimal maintenance. They generally have high initial costs when compared to other energy systems, but state and federal incentives are available to encourage their use.

A PV system can be designed for "stand-alone" operation, independent of the electric utility "grid." This makes sense in remote locations, but often it requires battery storage with additional cost and maintenance requirements. More common today are PV systems that are "interconnected" with the grid, in effect using the utility system as a back-up or supplemental source of power.

The simplest and most common design used in residential and commercial settings is a flat-plate array composed of PV modules. Although these arrays—also called panels—can either be fixed in place or allowed to track the movement of the sun, virtually all are currently fixed due to the higher cost of tracking systems. Some mounting systems allow the owner to change the fixed tilt of the array seasonally to better capture the sun's position throughout the year.

The PV array produces direct current (DC) electricity, and certain applications use the DC directly. It is common that the system includes an inverter, which converts the DC power into alternating current (AC) for use in the home or business. The inverter also contains control and protective equipment to ensure safe operation.

THE NEW AESTHETICS OF SOLAR DESIGN

Many of today's PV system manufacturers have developed innovative designs that improve the overall aesthetic appeal of the system. In addition to roof, pole and ground-mounted models, new systems are being integrated with the structure as roofs, exterior walls and skylights.

NREL



WOULD YOU LIKE A DVD ON SOLAR ELECTRICITY?



The Sustainable Media Network has produced a new 14-minute DVD entitled *Clean Energy News: Buying A Solar Electric System*. It can be purchased on-line at www.sustainablemedia.net for \$19.99 plus shipping. The DVD answers questions about solar technology, cost, system design, installation and incentives. When ordering, enter your name followed by "NESEA" in the same line.

STATE INCENTIVES

Currently, 48 states have some type of solar or renewable incentive—including investment credits, rebates, sales tax, or property tax waivers. Ask your local installer what is available in your area, or visit www.dsireusa.org.

NESEA

For over three decades, NESEA and its chapters have served as a source of inspiration and an exceptional resource for the leaders of a sustainable energy future. We urge you to join us as a NESEA member.

NESEA is a membership organization dedicated to the widespread acceptance and use of sustainable energy in the Northeast. At its core, NESEA is a multi-disciplinary group of practitioners committed to whole systems thinking as the central framework for addressing energy issues. Joined by consumer advocates, these practitioners have worked effectively to pioneer energy-efficient buildings and clean energy solutions, to share their knowledge and to recognize innovation.

PV SYSTEMS AND NET METERING

Under state and federal laws, utilities must allow independent power producers to be interconnected with the utility, which must purchase any excess electricity the producer generates. Throughout the Northeast and in most other states, these laws apply to customers with PV systems.

- With net metering, the customer's electric meter will run backward when the solar electric system produces more power than is needed to operate the home or business. Excess electricity is fed directly into the utility grid and sold to the utility.
- At the end of the monthly billing period, if the customer has generated more electricity than was consumed on site, the utility credits the customer for the net energy produced. If the customer uses more electricity than the PV system generates during the billing period, the customer pays only for the difference.
- Federal and individual state laws regarding net metering specifics are continually being modified. It is advisable to check with your state's utility regulatory agency to understand the current specific interconnection and net metering terms that are available to you.

FINDING A PV INSTALLER - Go to NESEA's **SUSTAINABLE GREEN PAGES** at NESEA.ORG or check in the fall issue of NESEA's **NORTHEAST SUN** Magazine.

NESEA CHAPTERS

Your NESEA membership automatically includes local chapter affiliation:

- Boston Area Solar Energy Association
- Building for Social Responsibility (VT)
- Cape & Islands Renewable Energy Collaborative
- Central Jersey Sustainable Energy Association
- GreenHome NYC
- Maine Solar Energy Association
- New Hampshire Sustainable Energy Association
- Philadelphia Solar Energy Association
- Rhode Island Solar Energy Association
- Solar Energy Association of Connecticut
- Springfield Area Sustainable Energy Association (MA)
- Sustainable Delaware
- UMASS Lowell Solar Energy Association
- Western New York Sustainable Energy Association

**Interested in starting a NESEA chapter?
Call us! 413-774-6051**

DONATIONS

Help advance our mission through your financial support of NESEA. Our 501(c)3 non-profit status makes your gift tax deductible. Contact our office at 413-774-6051 or at NESEA.ORG.

This brochure was written by NESEA members and the US DOE Office of Energy Efficiency and Renewable Energy.

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NESEA is the largest regional chapter of the American Solar Energy Society (ASES).