

Powered By the Sun

Photovoltaic and Solar Thermal Systems



What are Photovoltaics?

Photovoltaic or PV systems convert sunlight directly into electricity that can serve a portion of your electrical needs. PV systems are connected to your electrical service panel and are used to supplement your existing utility service. When the PV system is generating more electricity than you use, it is as if the meter spins backwards, and you will receive a credit for the excess power from your utility. This process is known as net metering. With proper location, a PV system works anytime the sun is shining. It works best when facing south and must not be shaded by trees, nearby buildings, or other obstructions.

Why Buy a PV System?

- PV systems are gentle on the environment. In contrast with electricity generated by fossil fuels, PV-generated electricity creates no noise, air or water pollution
- Provides long term stabilization of electrical cost
- When combined with a battery backup system, a PV unit can provide you with power when utility power is out
- NYSERDA provides incentives for up to 7kW or less for residential, 25kW or less for not-for-profit and 50kW or less for commercial sites
- Federal and NYS Tax Credits*

How Much Does a PV System Cost and What are the Benefits?

A seven-kilowatt system will produce about 8,200 kilowatt hours of electricity annually. A typical New York State residential home uses about 9,500 kilowatt hours annually. For a typical seven kilowatt PV residential system, the approximate installed cost is \$42,000 before incentives. NYSERDA's PV Incentive Program and potential tax credits* can significantly reduce the same system to approximately \$16,537.

*You may qualify for up to 30% federal and 25% (up to \$5,000) of New York State tax credits for your primary residence. (Always consult with your qualified tax professional or accountant to determine your eligibility for tax credits.)

NYSERDA, a public benefit corporation, offers objective information and analysis, innovative programs, technical expertise and funding to help New Yorkers increase energy efficiency, save money, use renewable energy, and reduce their reliance on fossil fuels. NYSERDA professionals work to protect our environment and create clean-energy jobs. NYSERDA has been developing partnerships to advance innovative energy solutions in New York since 1975.

For more information or to find an eligible PV installer visit nyserdanyny.gov/solar

For information about energy efficiency programs for your home or business, visit nyserdanyny.gov or call 1-877-NY-SMART

How Much Can You Save?

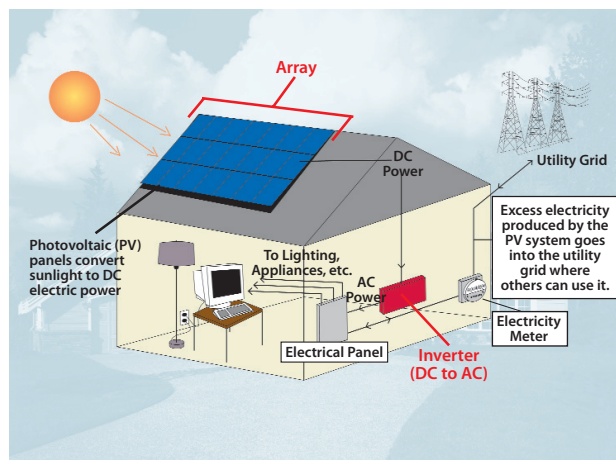
It depends on:

- how much electricity you use
- the size of the PV system
- how sunny the local area is
- the orientation of the PV panels
- how much you pay your utility for electricity

For example:

A seven-kilowatt PV system located on the south-facing roof can typically offset 70–80% of a home's electricity needs. When combined with improving the energy efficiency, the savings on your electric bill can be even more significant.

Typical Grid-Connected PV System (Without Battery Backup System)



Photovoltaic and Solar Thermal Systems



What Is Solar Thermal (ST)?

Solar Thermal is a technology that uses the sun's energy to heat water. It is not the same as photovoltaics (PV), which uses the sunlight to create electricity. With proper location, an ST system works anytime the sun is shining. The amount of heat produced is directly related to the amount and intensity of sun that a site receives.

Why Buy an ST System?

Although a Solar Thermal System cannot produce 100% of the hot water needs of a home all year round, it can save money on heating domestic hot water and reduce your carbon footprint.

What Incentives are Available for an ST System?

- NYSEDA provides incentives for the installation of new Solar Thermal systems for the production of hot water displacing electrically-heated hot water. System incentives are capped at \$4,000 for residential systems and \$25,000 for nonresidential applicants
- Federal and NYS Tax Credits*

How Much Can You Save?

It depends on:

- how much domestic hot water you use
- the size of the ST System
- how sunny the local area is
- the orientation of the ST panels
- how much you pay to heat your domestic hot water

How Much Does a Solar Thermal System Cost and What are the Benefits?

A two panel ST system will save about 2,800 kilowatt hours of electricity annually. A typical New York state residential home uses about 3,500 kilowatt hours annually to heat hot water. An approximate installed cost for a typical two panel ST system for a home is \$9,500–\$11,000 before incentives.

NYSEDA's ST Incentive Program and potential tax credits* can significantly reduce the same system to approximately \$2,925–\$4,000.

*You may qualify for up to 30% federal and 25% (up to \$5,000) of New York State tax credits for your primary residence. (Always consult with your qualified tax professional or accountant to determine your eligibility for tax credits.)

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Typical ST System

