

# INSTALLING SOLAR ELECTRIC SYSTEMS FOR RESIDENTIAL USE

(Information focused on Otsego County as of October 2014)

The cost of solar panels has dropped significantly to where solar photovoltaic electrical systems can reduce your electricity cost and at the same time help reduce the amount of greenhouse gasses entering the atmosphere. If your roof or yard receives enough sunlight, there are rebates, tax incentives and financial arrangements that make it financially feasible to install solar. You can buy the system outright or you can buy the electricity at a lower price than from the power company with no money upfront.

**Installing a solar electricity system is a significant investment and should be treated just like any other large investment.** Doing your homework and talking to several possible installers is important. There is a list of installers at <https://www.nyseda.ny.gov/Contractors/Find-a-Contractor/Photovoltaic-Installers.aspx>. Additional helpful information is available at this website <https://www.nyseda.ny.gov>.

**The time to make sure you have reduced your electricity needs as much as possible is before you install solar panels.** If you install enough solar to meet your current electricity demand and then cut your usage afterward by installing energy efficient light bulbs or more efficient appliances, you will be wasting money on excess solar capacity. If you are also considering installing a high efficiency electric heating system using heat pumps and possibly geothermal equipment, make sure that is considered as part of any solar project.

**Have a copy of your latest electricity bill to give to the installer.** If possible go to your utility account online and print the last two years of usage. Your provider can also mail this to you. The installer will measure your roof's orientation to the sun and the area available for solar panels to determine whether it receives enough sun to qualify for the NYSERDA rebate. He or she will also determine how much of your annual electricity use can be covered from your solar system given your solar access.

NYSEG and National Grid provide an important feature called "**net metering**," which allows you to put excess electricity from your solar system into the electric grid, building up credit, and take it back later when your system is putting out less than you are using. The Otsego Electric Co-op does not provide net metering at this time. OEC customers may find savings are insufficient to cover the costs of a solar system without net metering.

## Some questions to ask installers:

- ✓ Is your roof in good shape? Will it last as long as the panels?
- ✓ Will your shingle warranty remain in effect? Installers may ask for the manufacturer of your shingle and the company who installed them to check the warranties. (A proper installation with the correct flashing should not void your shingle warranty.)
- ✓ What kind of panels will be used?
  - What is the efficiency rating? Currently most are around 15% but up to 20% is possible at significant extra. (You can often get the power you need more cost effectively by using cheaper panels.)
  - US made or imported? (If that is important to you.)
  - What colors are available? This is more of an aesthetic choice.
- ✓ What kind of inverters will be used and why? The inverters change DC current to AC. (The choice is either micro inverters attached behind each panel or a single larger inverter installed somewhere)

between the panels and the meter. Micro inverters can be more expensive but send information to your computer or phone and identify a problem panel. They also allow other panels to operate if one is faulty. A single inverter may be less expensive but any problem with an individual panel may shut down the whole system and will take time to identify.)

- ✓ What warranties or insurance policies cover the panels, the inverters and the installation for electrical problems or for physical damage like hail?
  - How will the warranty be serviced if there is a problem, especially if the installer is not local? (It appears that problems are rare, but it is important to know how they would be handled.)
- ✓ How long will it take to do the work? (Usually about a week once the installer can get started.)
- ✓ What do you have to do to maintain the system?
- ✓ How does net metering work?
  - How long can you carry forward any credits for putting excess electricity into the grid?
  - What is the best starting date to pick for your net metering cycle?
- ✓ Will your system qualify for a NYSERDA rebate and how much?
- ✓ What State and Federal tax credits are available? Ask your tax preparer whether you can use these credits. If not, a power purchase agreement (see below) may be a better option than outright purchase. For those in historic districts, it might be possible to qualify for the NY State Homeowner Preservation credit, depending on how the system is installed. Check with the State Historic Preservation Office if you are in a historic district or your house is on the State or National Register of Historic Places.
- ✓ What elements on your electric bill will you continue to pay and what elements will be eliminated?
- ✓ Will the installer take care of the necessary paper work and applications? You may need a permit from your Village, City or Town.
- ✓ Ask about either buying the whole installation or just buying the electricity.
  - Buying the system outright requires you to make a large investment upfront. This may give you the best overall cost provided you can use the tax credits. Ask for a cost/benefit summary— your costs for the system and savings versus continuing buying from your current supplier. Loans may be available from NYSERDA or local Banks for the investment costs.
  - Also ask about a power purchase agreement where you provide the location for the panels (on your roof or in your yard) and simply agree to purchase a specific amount of electricity for a period of time at a predetermined price. Many installers can set up the financial arrangements. Be sure it is clear who is responsible for the panels and who will own them at the end of the contract period. If you are happy with the deal, including what your electricity will cost, this is a way to reduce your electricity cost with no money required up front. It is particularly helpful if you do not have enough income to use the tax credits. Note that these agreements are typically for twenty years but the panels can last longer. If the panels become yours at the end of the agreed period, you would pay nothing for the electricity they generate after that date.
- ✓ Installers. You need a certified installer to be eligible for the NYSERDA rebate, which is substantial. Check the website above for certified installers. There are several in and around Otsego County. Also, some of the large national solar providers are starting to spread into upstate New York.