

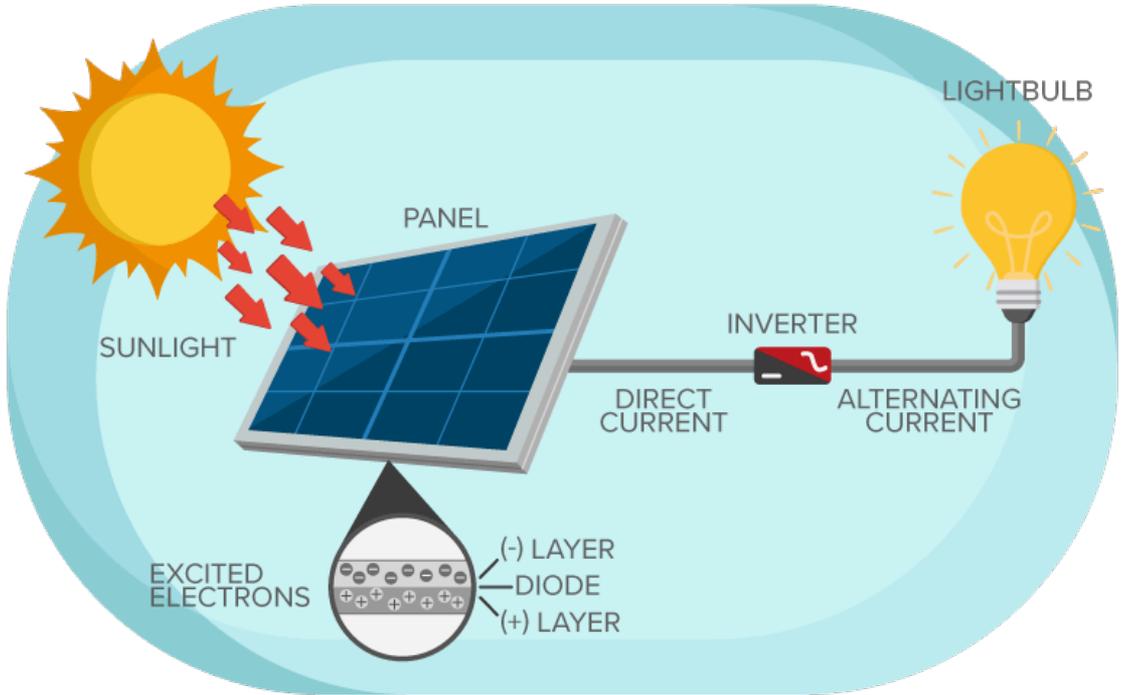
NH
Residential
Solar Basics
Solarize
Monadnock 2020

March 1, 2020

What is Solar?

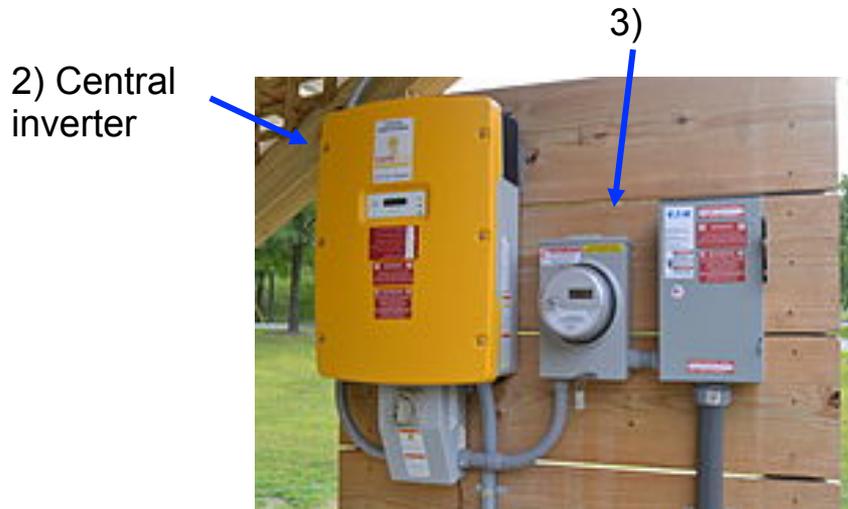
Solar (photovoltaic) is the process of taking sunlight and converting it to electricity.

HOW SOLAR PANELS WORK



Anatomy Of Solar

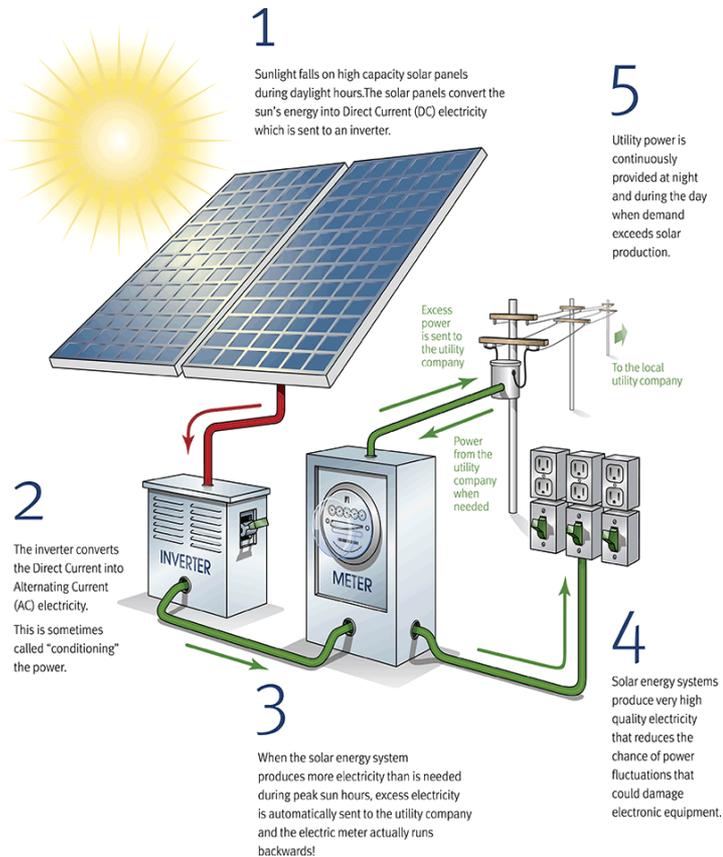
- 1) Photovoltaic (PV) panel .
- 2) Inverter (transform DC current into AC current).
- 3) Power Meter for measuring how much AC current is produced.



2) Alternate style of inverter where there is 1 for each solar panel.



Overview of Solar at Your Home



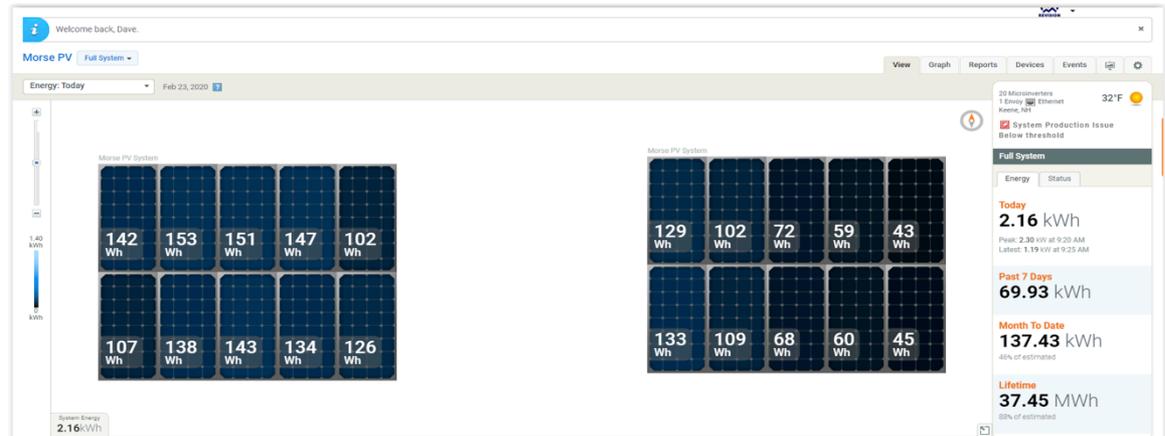
How Solar Power Works On Your Home By Solar Power for Homes Network



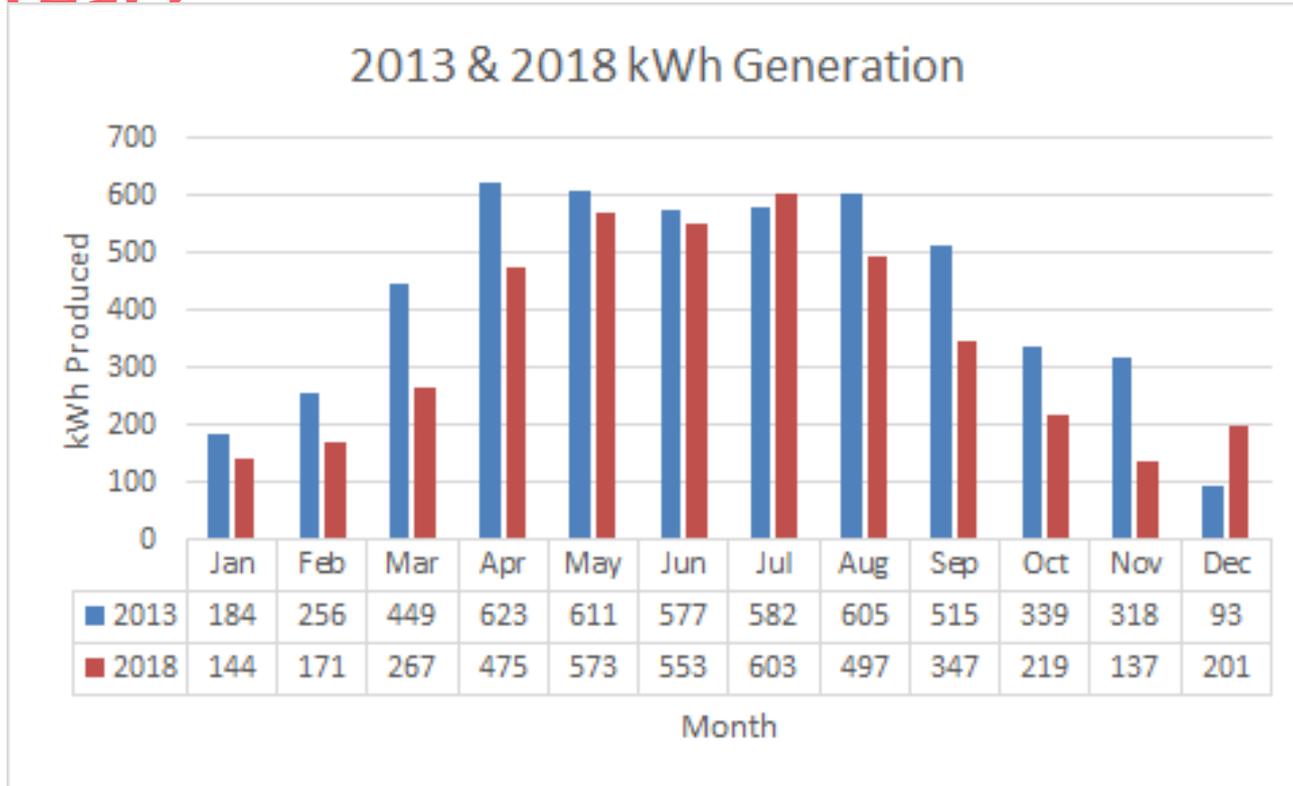
Monitoring of the PV System

Most PV systems come with a website or an App that allows:

- 1) Homeowner monitoring of the instantaneous condition of the system
- 2) Generation of weekly or monthly electricity production reports
- 3) E-mail warnings if the system is not functioning correctly.



Does Electricity Production Vary During the Year?



Yes it does.

2 years of actual generation data is shown for a home in Keene.

Process for Getting Solar at Your Home

- 1) Is your home a good candidate? (Software from Keene State College is a helpful option.)
- 2) Site visit from installer(s) to get detailed evaluation
- 3) Determine your home's usage of electricity from past electric bills.
- 4) Receive proposals for a system to fit your electricity usage.
- 5) Determine financing if you desire it.
- 6) Sign installation contract.
- 7) Installer will get permits from the town.
- 8) Schedule installation.
- 9) Install PV system.
- 10) Town inspection and Eversource installation of bi-directional meter.
- 11) Homeowner turns on the PV system
- 12) Start being an electricity generator!!!!**

What Will the Installer Look at During Site Visit??

- 1) Roof sun exposure; North, South, West, East.
- 2) Pitch of the roof.
- 3) Type of roof covering (shingles, cedar, tin, slate). Slate is a show stopper.
- 4) Condition of current roof covering. Solar panels last 25-30 years.
- 5) Shade from trees or other structures that could block the sun from the panels.
- 6) Strength of the roof structure.
- 7) Options of ground mount or system on an outbuilding instead of roof mount
- 8) Where to run the electric lines from panels to your current electric meter.
- 9) Current electric usage from your past 12 months of bills.

How Much Space Does Solar Use?

A typical residential installation will be 10-40 solar panels.

Each panel can produce about 320 watts. (3.2 kW is 10 panels, 12.8 kW is 40 panels).

Each solar panel is about 5.5 feet x 3.5 feet (~20 square feet/ panel)

The control panels take up only a small amount of space, and may be in your basement or outside.

Battery Option

Batteries are not part of a standard photovoltaic system.

Yes, batteries can be integrated into your residential photovoltaic system at additional cost.

If you do not have batteries, when your house loses power from Eversource, you will NOT have any power at all even if **your panels are producing energy at the moment**.

Eversource will shut down your photovoltaic system when Eversource has a delivery problem to protect their lineworkers who are working to fix the outage.

The only way for you to have power during an Eversource outage is to have batteries that are storing some of the excess energy you generate, with specific circuits to isolate your system during a grid outage.