Homeowner's Guide to Residential Solar in Central Pennsylvania

Introduction

Thanks for taking time to read this guide to residential solar. In this guide you will learn about the many aspects of choosing to Go Solar in Central Pennsylvania. Please contact us with any addtional questions you may have or to request a free Home Solar Design.

Estimating Solar involves many factors so calculations provided show rough estimates.

717 292-8833 James@GreenLegacySolar.com

Table of Contents

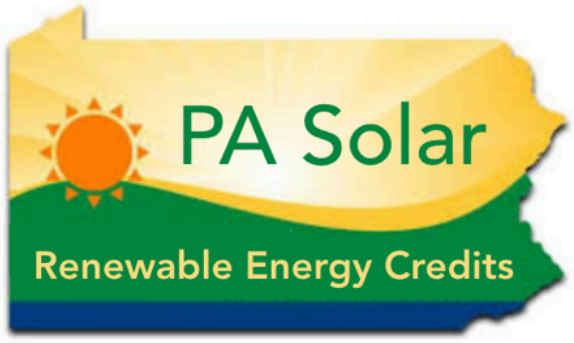
Why Go Solar In Pennsylvania
Benefits of Solar Power
Types of Solar Systems
Determining Your System Size
Locating Your System
Choosing Panels & Equipment
Tax rebates and State Credits
Determining Cost and ROI
Permits and Paperwork
Next Steps

Green Legacy Solar

Why Go Solar in Pennsylvania?

Sun Exposure

You may be suprised to hear that Pennsylvania recieves about 90% of the amount of sun that Florida "the Sunshine State" receives.



SREC's

Pennsylvania offers State Renewable Energy Credits. This means you will actually earn money back for the energy your system generates.

Increased Equity

The Appraisal institute estimates that installing a solar system on your home in PA instantly increases a home's value by an average of $16,000.

No Price Increases

The cost of electricity has gone up an avearge of 3% a year in Pennsylvania. By going solar you are protected from these rising costs.

717 292-8833

James@greenlegacysolar.com

Benefits of Solar Power

Electric Savings

You will save tens of thousands of dollars in electricity costs by Going Solar. If you choose to finance your system, payments will be lower than your current electric bill.

Environmental

By choosing Solar for your home you will reduce your carbon footprint, save clean water, cut down on pollution and preserve the planet for future generations.

Great Inventment

Most homeowners see rates of return that outperform savings, mutual funds and the S&P 500. Systems can be financed for 0% down with several loan options.

Quick ROI

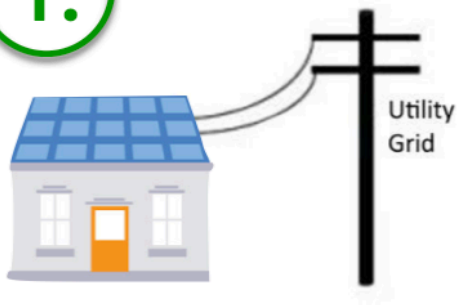
Taking into account federal and state credits, electricity savings and increased home value, your solar system will pay for itself in about three years time.

717 292-8833

James@greenlegacysolar.com

Types of Solar Systems

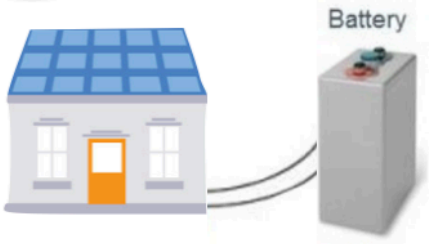
1.



Grid Tied

This is the most economical type of Solar installation. In grid tied solar, the electric grid acts like a bank that buys your excess electricity during the day and sells it back to you at night when your system is not producing power. Although the most economical, this type of system will not produce energy during power outatges.

2.



Off Grid

This type of system is used where there is no utility grid access. Excess energy produced duing the day is stored in batteries to be used at night or on cloudy days. This is the most expensive type of solar system and requires a careful estimate of your daily energy needs to be sure the system will produce all you need year round.

3.

Bimodal

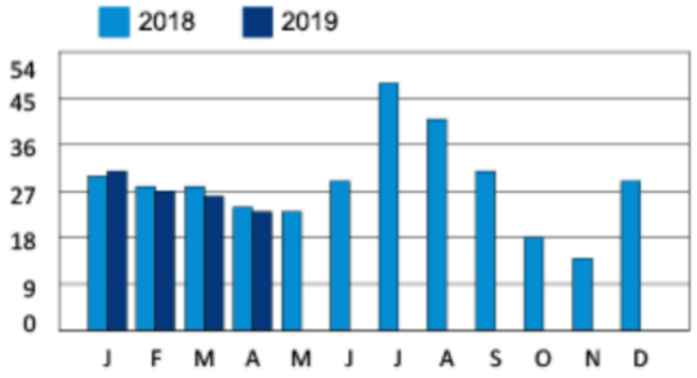
Bimodal systems act like grid tied systems when the grid is operating but in the case of power outages a battery backup system provides energy while the grid is down. This adds significant cost to a grid tied system but offers the benefit of keeping your home powered during blackouts.

717 292-8833

James@greenlegacysolar.com

Determining System Size

The first step is to figure out how much total energy you use each year. Net metering in PA allows you to bank the extra energy you use in the spring, summer and fall to offset lower production in winter. This information can be found on your electric bill.



Yearly Comparison	Total Use	Avg. Monthly
May 2018 - Apr 2019	10298	858
May 2017 - Apr 2018	11208	934

Provided you have good sun exposure to the south, east or west one solar panel will produce roughly 400KwH a year here in PA. To figure out how many panels you will need to offset 100% of your energy use this equation.

Total Yearly Use ÷ 400 = Number of Panels needed

10,298 ÷ 400 = 25.745

26 Solar Panels to Offset 100% of Electric Bill

Calculating Square Footage

A single solar panel requires about 16 sqft of space to mount on your roof. To calculate how much space you will need use this equation.

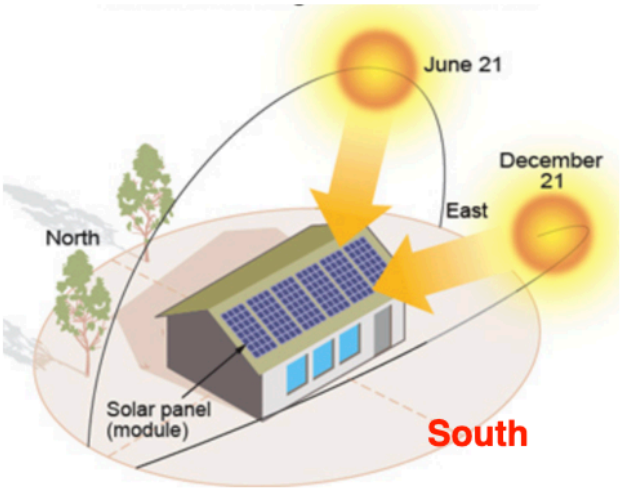
Number of Panels x 16sqft = Square footage of roof space

26 Solar Panels x 16 sqft = 416 sqft of roof space required

717 292-8833 James@greenlegacysolar.com

Locating Your Solar Panels

1. Orientation



Due to the path of the sun through the sky, the best solar production will come from south facing panels but east and west facing will also produce sufficient energy. North facing panels are not recommended. Panels are best tilted at latitude which is about 40 degrees here in PA but will perform well from 25-50 degrees.

2. Shading

The best hours of solar production are between 9am and 3pm. You want to make sure that your solar panels are recieving little to no shade during these times. Remember that shadows will be much longer in winter than in summer.

3. Location

Using your house's existing roof is the most economical way to install solar panels but ground mounted systems can be used if house shading is an issue or in combination with roof mounting to produce maximum energy or sun exposure.

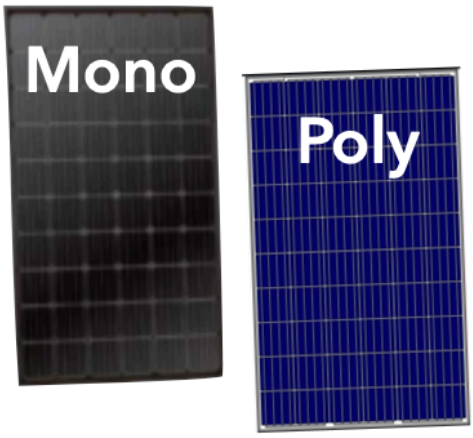
717 292-8833

James@greenlegacysolar.com

Choosing Panels & Equipment

Mono or Poly Crystalline?

Most likely you will want to choose a Monocrystalline silicon solar panel over Polycrystalline. Mono Solar cells are cut from a single piece of silicon while Poly Cells are made by pressing together many slivers. Monocrystalline panels have better output and longer production lives than Polycrystalline Panels.



Price Per Watt

Unless space is at a premium you may not be served by choosing the highest wattage panel. It's important to pay attention to price per watt. For instance a 460W Panel may produce more energy but will cost you much more than a 430W panel. If you have the space, adding four panels is much more cost effective.

Twenty 460W panels produce 7200W costing $6,840

VS.

Twenty Two 430W panels produce 7440W costing $4,464

Asthetics

Many homeowners prefer the all black panel over the older style grid. The clean lines blend better with roofs for greater curb appeal.

717 292-8833

James@greenlegacysolar.com

Determing System Cost

1. Grid tied Solar Systems are usually priced by cost per watt. To figure out roughly how big your system will be, multiply the number of panels (See Determining System Size) by 430 watts.

20 panels x 430 = 8,600 Watt System

2. Now multipy the System Watts by the cost per watt. Green Legacy's streamlined appoach allows us to install at $2/watt which is 20-25% less than the Regional Average.

Installation Cost Comparison

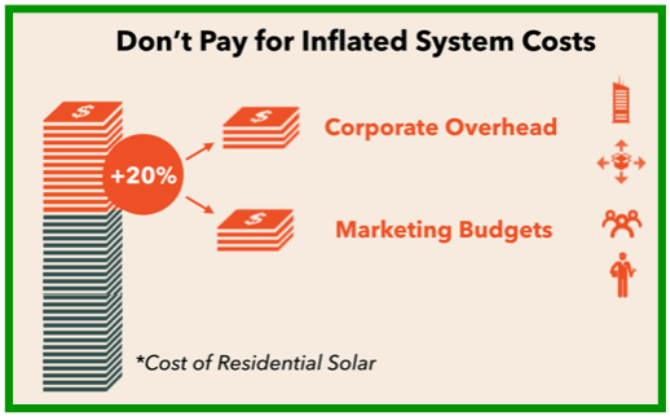
Average 10 kW System

VS

Green Legacy Solar	Regional Average
Cost per Watt: $2	Cost per Watt: $2.50 -$3
System Cost After ITC Tax Credit:	System Cost After ITC Tax Credit:
$14,800	$18,500-$22,200

8,600w x $2 = $17,200 System Cost

3. Apply the Federal Tax Credit. Multiply your system cost by 0.7 to get the total cost after tax credit. In addition to the tax credit you will also recieve SREC credits each year amounting to even more savings.



$17,200 System Cost x 0.7 = $12,040 *Cost After Credit*

4. To roughly determine how long it will take for your system to pay for itelf divide the Cost After Credit by your yearly electricity costs.

$12,040 System Cost ÷ $1,800 = 6.6 Years

Payoff period may be sooner due to rising electricity costs and SREC credits

717 292-8833

James@greenlegacysolar.com

Permits and Paperwork

Utility Interconnection Agreement

Most Electrical Power in Pennsylvania is supplied by either PPL or Metropolitan Edison/First Energy. Your application will need to include specific site and equipment manufacturers information. After installation, proof of a certified electrical insprection is required before you can activate your system.

Building Permits

A permit to install Solar Panels on your home must be issued by your local township. Building and electrical plans must be included in order for the permit to be evaluated and approved. After installation, the township will send an inspector to ensure that the work was done according to plan and all building codes were properly followed.

No need to worry about all these forms if you install with Green Legacy because we handle all the paperwork.

Tax Forms

Along with the usual 1040 tax form you will need to file Form 5695 to claim your Federal Investment Tax Credit.

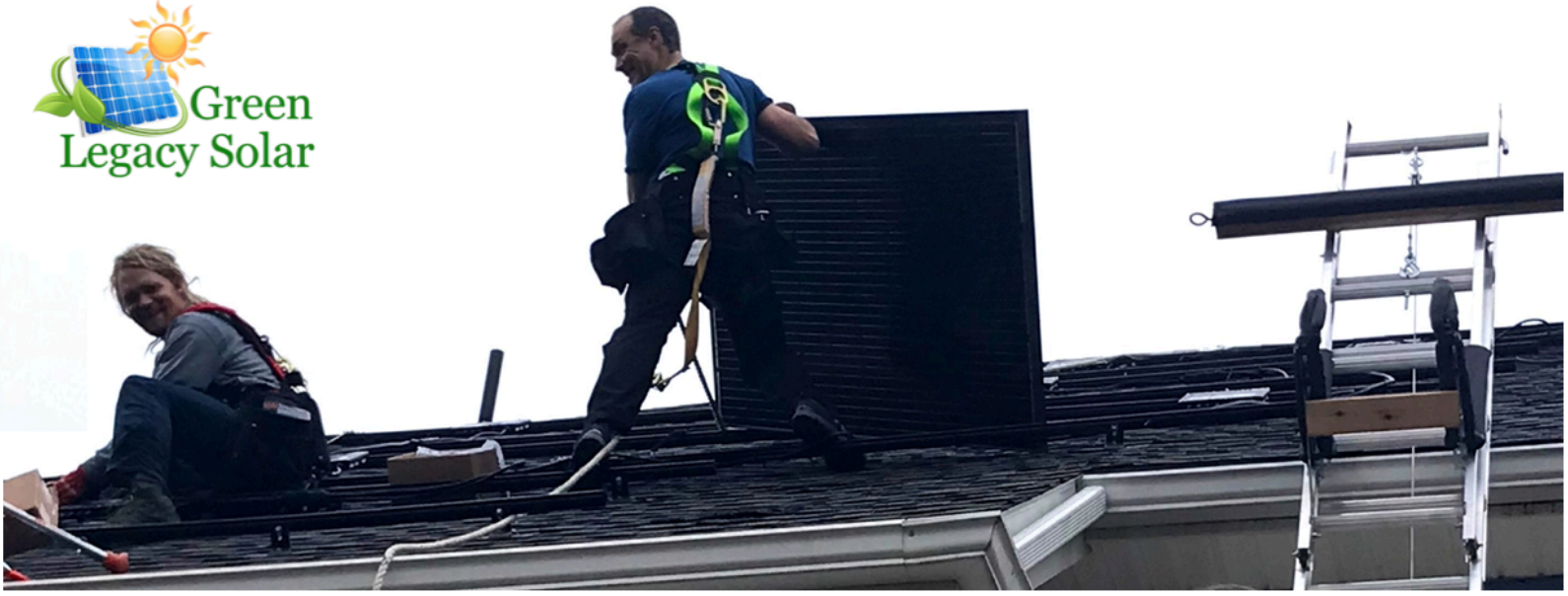
SREC Application

In order to receive State Renewable Energy Credits your system will need to be regitered and certified by the state.

717 292-8833

James@greenlegacysolar.com

Green Legacy Solar



Choosing an Installer

When choosing a Solar Installer be sure to look for NABCEP Certified Installation Professionals. This is the industries highest standard for Solar Certification. Also be sure that your installer is fully licensed and insured.

NABCEP™
BOARD CERTIFIED
PV Installation Professional

Next Steps in Going Solar

- Request Quote
- Approve Design
- We Pull Permits
- System Install
- Celebrate Solar

Green Legacy Solar is committed to installing the most advanced equipment at the best possible prices. We are in this business preserve the natural envirionment one home at a time and we know the best way to do that is to offer you a system, price, and warranty that makes Going Solar easy. Schedule your free, no pressure Solar Home Evaluation Today.

717 292-8833

James@greenlegacysolar.com