

A Consumer Guide to  
**SOLAR**  
for the  
South Carolina  
**HOMEOWNER**



## About this Guide

### **Dominion Energy South Carolina**

receives numerous inquiries each year from consumers interested in a variety of information about energy efficiency and solar electricity. This guide is intended to serve as a resource to help educate consumers about the many factors to be considered before, during and after installing solar panels on their homes. It is not meant to be a technical guide on how to design or install a system. Homeowners will need to consult with an experienced solar contractor to determine the best system for their property and home's energy needs. Some resources for consumers are also provided. We do not endorse any products in this guide. Information and resources, in part, have been adapted from the *Consumer Guide to Solar Electricity for Your Home, U.S. Department of Energy, 2009*.

## Table of Contents

### **Important First Step**

Ensuring Your Home is Energy Efficient .....	2
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### **Benefits of Solar Electricity**

Solar Electricity Basics .....	3
Types of Solar Panels .....	4
Community Solar at a Glance .....	5
Types of Solar Electric Systems .....	6
Inverters .....	8

### **How To Choose a System**

Roof Requirements .....	9
Space and Orientation .....	9
Condition .....	10
Shading .....	10

### **Installation and Maintenance**

Warranties and Insurance .....	11
Zoning, Permits and HOA Fees .....	11
Utility Permits and Special Requirements .....	11
Maintenance .....	12
Installation and Finding a Contractor .....	12

### **Cost and Financial Incentives**

Cost Considerations and Tax Credits .....	13
Net Energy Metering .....	13
Example Savings for a SC Solar Electric System .....	14
Renewable Energy Certificate (REC) .....	15
Financing .....	15
Buying vs. Leasing Solar Panels .....	16
Rooftop Solar Checklist & FAQ .....	17
Resources .....	20

# IMPORTANT FIRST STEP

## Ensuring Your Home is Energy Efficient

### Efficiency First!

Many people turn to solar energy as a way to save money on utility bills—but remember that your biggest savings will always be the energy you don't use. An energy efficient home ensures that the energy you pay for is used to make you more comfortable. By maximizing your home's energy efficiency first, you can be sure the electricity generated by your solar panels is not lost through leaky ductwork, inadequate insulation or an inefficient heating and cooling system. Reducing your electricity use may also allow you to reduce the size of your solar installation, saving even more money.

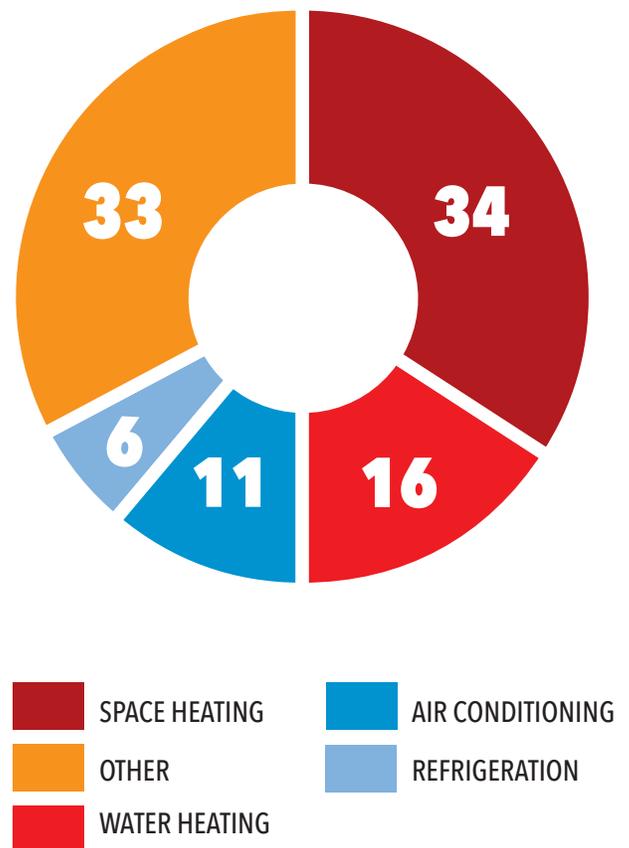
### Easy Energy Savings Tips

- Set thermostat at 68°F or lower in the winter and 78° or higher in the summer
- Check air filters monthly; change when dirty or according to manufacturer guidelines
- Keep HVAC vents and interior doors open to keep air flowing freely to and from the unit
- Have your central heating and cooling system professionally serviced annually
- Set your water heater to 120°F and visually inspect it periodically for leaks
- Unplug appliances, lights, TVs, computers, etc. when not in use

### Quick Projects

- Upgrade your attic insulation to a minimum of R-38 (12-14 inches)
- Caulk, seal, and weather-strip around all seams, cracks and openings to protect against drafts (Pay special attention to windows and exterior doors)
- Replace incandescent light bulbs with ENERGY STAR® compact fluorescent lights (CFLs) or light-emitting diode (LED) bulbs, which use up to 75% less energy
- Install programmable thermostats and set them properly
- Check your ductwork for leaks or tears
- Repair fallen or crushed ducts and use mastic (a plaster-like substance found at your local hardware store) to seal leaks

### Percentage of Your Home's Energy Use



Source: EIA, 2009



## BENEFITS OF SOLAR ELECTRICITY

The advantages to buying a solar electric system include:

- Saving money on your electric bill
- Enjoying reliable, clean power for 25 to 30 years
- Helping to boost our state's economy by creating jobs and new solar companies

### Solar Electricity Basics

**Solar Electric Panels:** Capture light from the sun and convert it to clean power. Solar panels (often called modules) are made by combining many solar cells together. When solar panels are strung together in series, and combined with other components, they become a solar electric system or solar array. A solar electric system can meet part or all of a home's electricity needs.



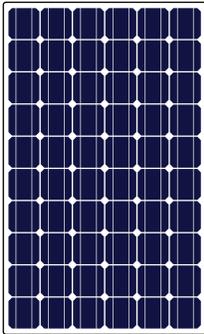
#### Quick Tip

A solar electric system can reduce greenhouse gas emissions by tons. The U.S. Environmental Protection Agency estimates the average American home emits approximately 10.97 metric tons of CO<sub>2</sub> per year due to energy usage.

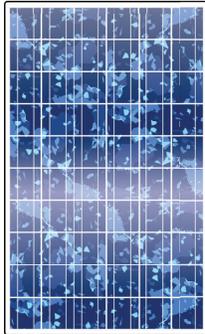
**Solar Electricity:** The conversion of light into electricity by certain materials that absorb photons of light and release electrons. Electricity is produced when these electrons are captured. This phenomenon was first discovered in 1839, but the first photovoltaic module was not produced until 1954. Now, solar cells may power everything from calculators and remote highway signs to homes, commercial buildings, and large power plants. Solar cells power all satellites in space, making them responsible for the world's communications products.

## Types of Solar Panels

There are two conventional types of solar panels: crystalline silicon and thin film. The most common solar cell material is crystalline silicon, but newer materials for making solar cells include thin-film materials such as amorphous silicon and cadmium telluride. More recently, solar companies have begun to use plastic and aluminum foil to produce solar electricity, but it may be several years before these new products become available to consumers.



Monocrystalline



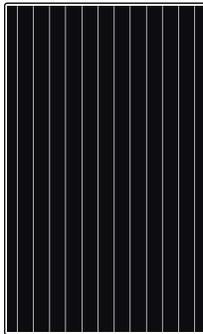
Polycrystalline

### Silicon Solar Panels

These rigid panels come in two types: monocrystalline (made from a single large crystal) and polycrystalline (made from blocks of silicon that contain many small crystals). Silicon solar panels are the most efficient on the market, but also the most expensive. They are also the best-performing panels in low-light conditions. Although polycrystalline solar cells are slightly less efficient than the single-crystal type, **National Renewable Energy Laboratory** (NREL) has measured silicon solar panel efficiencies from 20% to 25% in laboratory conditions.<sup>1</sup> However, South Carolina utility experience suggests normal expected efficiencies of about 16% to 18%.



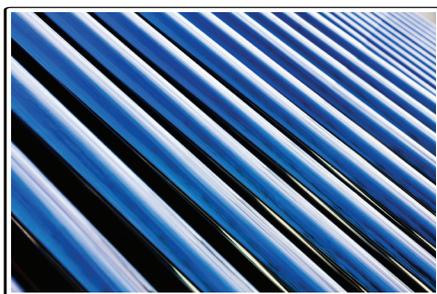
Solar Shingles



Thin Film

### Thin-Film Solar Panels

These flexible solar panels are made by spreading silicon and other solar-producing materials in a very thin layer (about the thickness of a human hair) directly onto a large plate that is usually made of glass or ceramics. Less efficient than silicon solar panels, thin-film solar panels are also less expensive to produce. The thin material of these solar panels makes them ideal as building-integrated solar products such as solar shingles and tiles. The most successful thin-film materials are amorphous silicon, cadmium telluride, and copper indium diselenide. Efficiencies range from 10% to 19%.



Solar Water Heater

### Future Solar Panels

New solar materials that are emerging include lightweight foil-based panels, plastic collectors, and hybrid solar electric/solar water heating collectors. The new hybrid systems capture hot air from the solar electric panels and use it to heat water. Except for the hybrid systems, most of the new materials are not available to homeowners at this time.

<sup>1</sup> "Best Research-Cell Efficiencies." National Renewable Energy Laboratory.



## COMMUNITY SOLAR AT A GLANCE

Interested in solar, but don't have a rooftop ideally suited for photovoltaic (PV) solar? A popular version of a community solar program allows customers (homeowners AND renters) the option to buy a portion of a solar farm without installing panels on their homes. Community solar arrays, sometimes referred to as a solar farm or solar garden, are centralized solar facilities where individual panels are owned by customers who receive credits on their electricity bill for the power produced.

### *Key benefits of Community Solar include:*

- **Production.** The locations of solar farms are optimized for maximum production; panels are angled perfectly in sunny areas.
- **Portability.** When you move, you can take your panel ownership with you to another location in your utility's electric service area. You will continue to get a credit on utility bills reflecting the lower price of electricity you're paying for with community solar.
- **Maintenance.** When participating in a community solar program, there are no maintenance costs for the customer. All maintenance and parts replacement is the responsibility of the project developer/administrator.
- **Transferability.** You can also gift or donate your community solar power at any time within the utility's electric service area at no cost.

Check with your utility provider to determine if Community Solar is a viable option for you.

### Community vs. Rooftop Solar

	Community	Rooftop
Lower electric bills	✓	✓
Local clean energy	✓	✓
Remote installation	✓	
Zero Maintenance	✓	
Easy transfer to family/friends	✓	

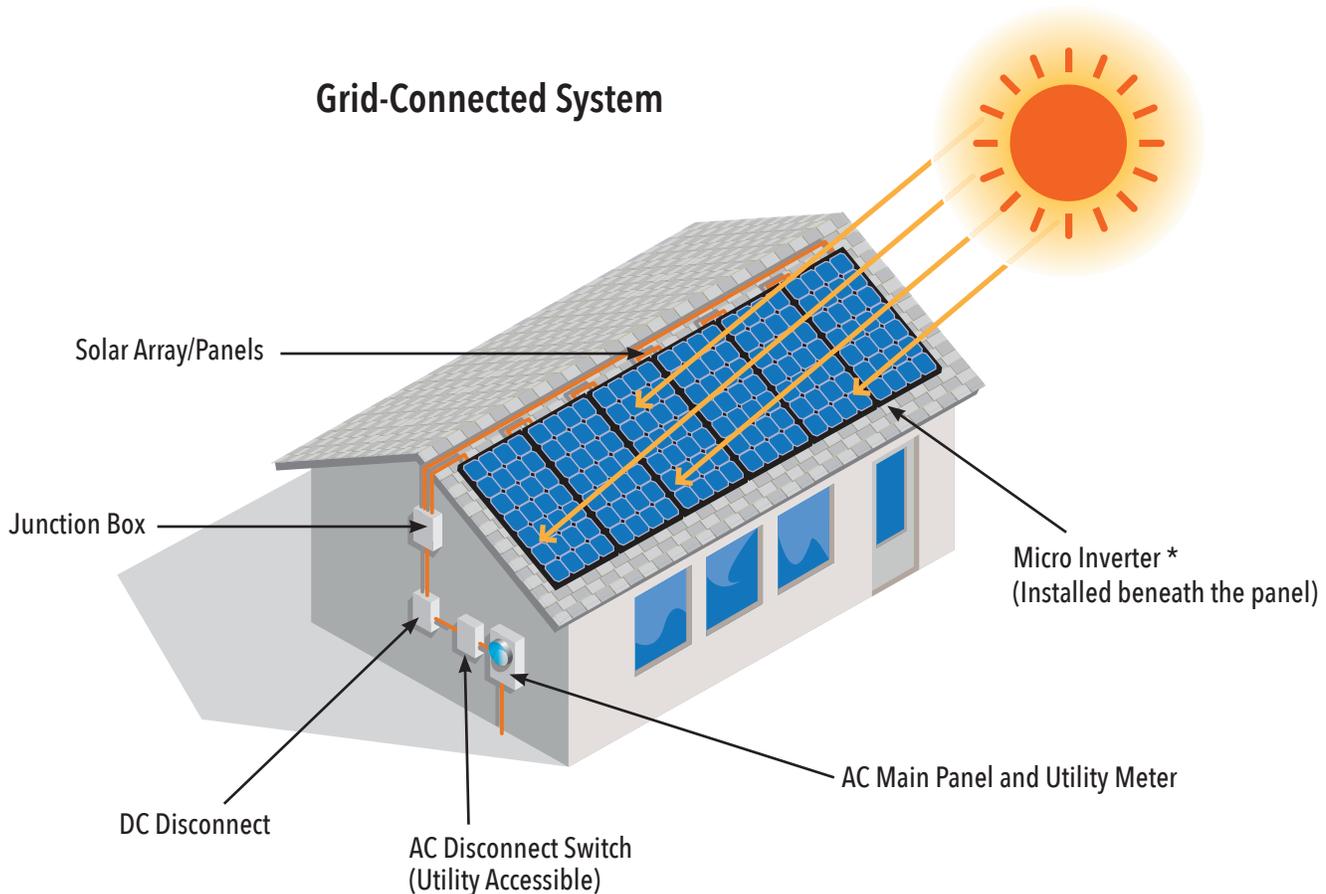
## Types of Solar Electric Systems

A solar electric system is typically made up of solar panels and an inverter. Some may also include a battery and charge controller. The three most common types of solar electric systems are grid-connected, grid-connected with battery backup, and off-grid (stand-alone). Each has distinct applications and components.

### Grid-Connected

In this system, the solar panels are connected to your local utility's electrical grid to complement your normal power supply from your utility company. Grid-connected systems consist of:

- Solar panels mounted on the roof or ground
- An inverter to convert electricity produced by the system from direct current (DC) energy into alternating current (AC) energy (*See pg. 8 to learn about inverters*)
- A junction box that connects the solar panel wiring to the breaker panel on the home
- A meter that displays how much power the home produces and uses
- A disconnect switch that, for safety reasons, prevents the system from sending power to the grid during power outages (this is called *islanding*)
- An interconnection agreement with your utility to ensure your safety and that of others



*\*Note: Other inverter types include string inverters and string inverters with power optimizers. See pg. 8 for details.*

## Grid-Connected with Battery Back-up

Very similar to the grid-connected system, this system adds a “battery bank” to collect the power generated from the solar panels. Power stored in the batteries can be used during power outages. The battery bank collects power produced by the solar panels, sends it to an emergency breaker box and into the home’s power system. The components of this type of system consist of:

- Solar panels mounted on the roof or ground
- An inverter to convert solar electricity from DC energy into AC energy  
*(See pg. 8 to learn about inverters)*
- A battery bank for power storage
- A charge controller to prevent overcharging the battery
- A junction box that connects the solar panel wiring to the breaker panel on the home
- A meter that displays the amount of power used, produced and stored in the battery bank
- A disconnect switch to prevent islanding during power outages
- An interconnection agreement with your utility to ensure your safety and that of others

## Off-Grid or Stand-Alone

Off-grid systems are not tied to any utility power lines and are most common in remote areas where connecting to the utility grid is more expensive than purchasing an off-grid system. In off-grid systems, the solar electric system represents the home’s main source of power. Batteries store unused solar energy for use at night. Generators, small wind systems, and other fuel sources are sometimes used as back-up power when the solar power stored in the batteries is not enough to meet household needs. These systems consist of the following:

- Solar panels mounted on the roof or ground
- An inverter to convert electricity produced by the system from DC into AC energy  
*(See pg. 8 to learn about inverters)*
- A rectifier (sometimes used to change AC to DC and back again to get the most use out of a system)
- A charge controller to prevent overcharging the battery
- A junction box that connects the solar panel wiring to the breaker panel on the home
- A junction box for backup power supply from a generator
- A meter that displays the amount of power used, produced, and stored in the battery bank



### Quick Tip

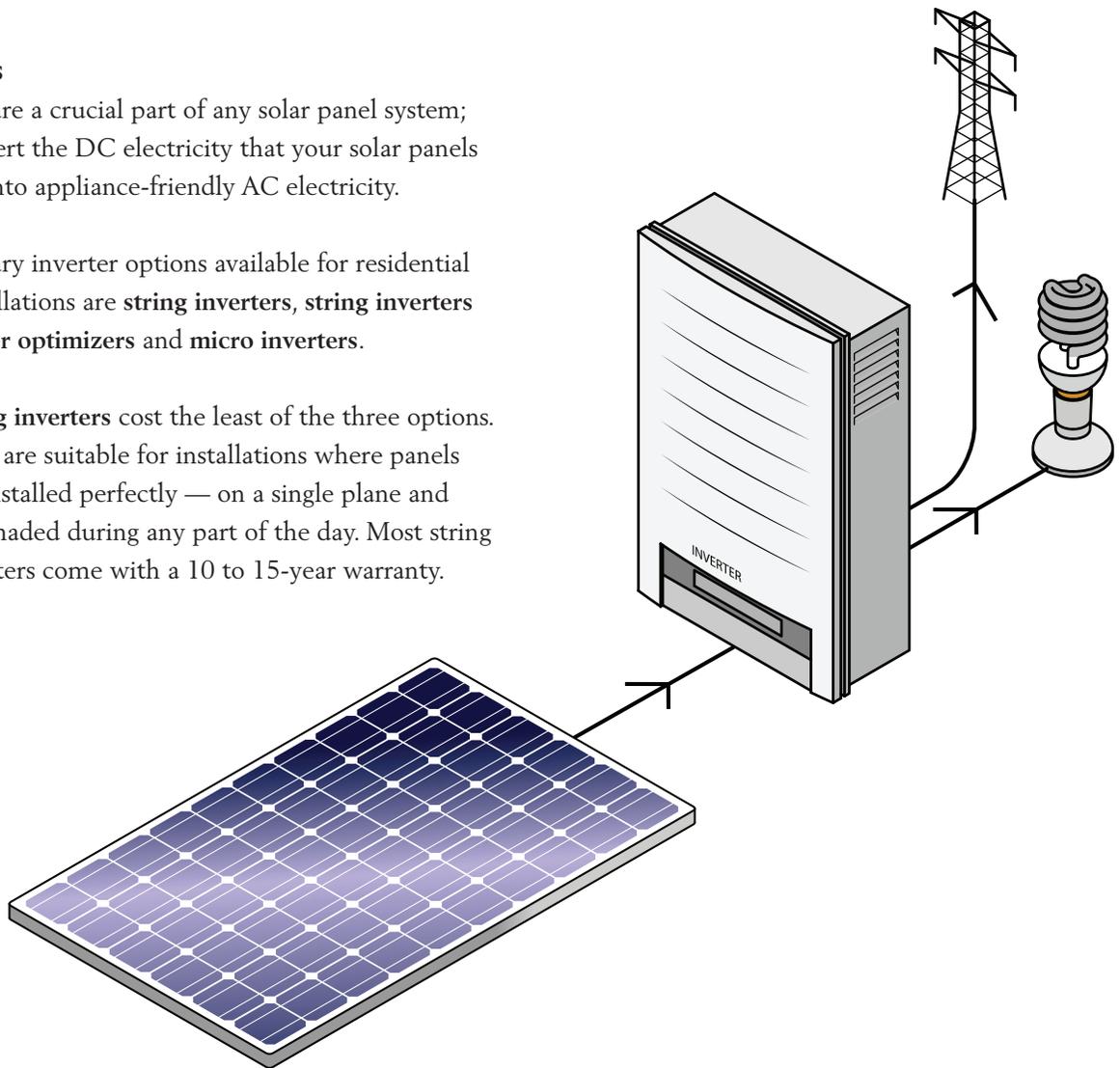
Most homeowners think of adding solar to their home’s roof, but a roof over a carport, garage, or porch that receives no shading from other buildings or trees will also work well. A south-facing roof is most effective.

## Inverters

Inverters are a crucial part of any solar panel system; they convert the DC electricity that your solar panels produce into appliance-friendly AC electricity.

The primary inverter options available for residential solar installations are **string inverters**, **string inverters with power optimizers** and **micro inverters**.

**String inverters** cost the least of the three options. They are suitable for installations where panels are installed perfectly — on a single plane and not shaded during any part of the day. Most string inverters come with a 10 to 15-year warranty.



**String inverters with power optimizers and micro inverters** are more expensive, but are suitable for installations where one or more panels may be shaded, or where panels are installed on multiple planes and/or facing different directions. They also allow you to monitor the power production of each individual panel. Generally, warranties are 10 to 15 years for string inverters with power optimizers and 25 years for micro inverters.

A system that uses **string inverters with power optimizers or micro inverters** will produce slightly more power than a similar system with a string inverter only. This is especially true for shaded or difficult roofs. You should carefully consider whether the increase in electricity production is worth the additional cost.



## HOW TO CHOOSE A SYSTEM

Your home's power requirements, roof type, and solar resource will determine system type and size.

When purchasing a solar electric system, the right choice will depend on how much sunlight your area receives, your budget, how much conventional power you want to offset with solar power, how much room you have on your roof or in your yard, and where the solar panels will be mounted.

### Power Produced by a Solar Electric System

Solar panels are assigned a rating in watts based on the maximum power they can produce under ideal sun and temperature conditions. You can use this rated out-put to estimate the number of panels you'll need to meet some or all of your electricity needs; however, the exact amount of energy produced by a solar electric system also depends on roof orientation and tilt, as well as other factors such as shading, dust, and system efficiency.

### Roof Requirements

Before purchasing a solar electric system, homeowners need to determine available roof space and condition.

### Space and Orientation

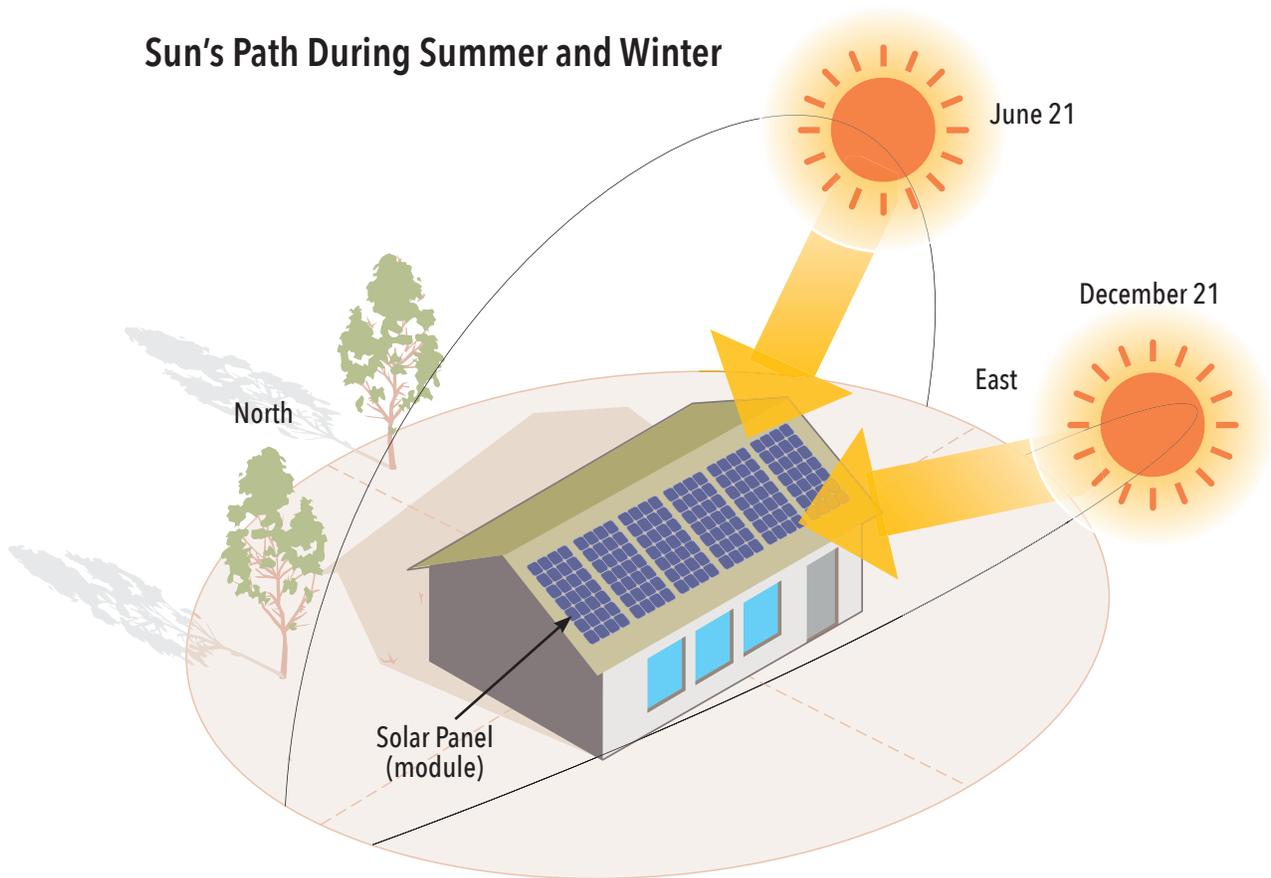
For maximum performance, your solar electric system needs about 75 to 100 square feet of unshaded south-facing roof or yard space for every kilowatt of electricity produced. If your roof does not face south, you can still use a solar electric system, but the performance will be about 5% less with a southeast- or southwest-facing system. Eastern, western, and northern exposures will show an even greater drop in performance, so be sure you understand how such a system will meet your expectations.

Roof pitch is also important to capture the path of the sun, but the requirements vary with location. Your solar vendor and installer should be able to tell you how the pitch of your roof will affect the performance of your system. When a south-facing roof is not available, some people install solar electric systems on garage roofs or use them as window awnings and porch coverings. If you have a shortage of roof space, panels can be mounted on a pole or in your yard. Ground-mounted systems are great for homes with large yards. Some systems come mounted on a tracker that follows the sun's movement.

## Condition

If your roof materials are more than 15 years old, you may want to consider replacing them when you purchase your solar electric system; otherwise you will need to remove your entire solar electric system whenever you update your roofing materials. Most solar vendors recommend using roofing material that will last as long as the system, which is about 25 to 30 years. Make sure the roof can hold the weight of the system, which is estimated at three to five pounds per square foot, depending on the type of technology used and installation methods. In addition, be certain to ask your installer about the structural integrity of your existing roof and its ability to safely support solar panels.

### Sun's Path During Summer and Winter



## Shading

Shading a panel reduces its performance because it blocks sunlight. The most common items that shade solar panels are trees, chimneys, nearby buildings, pipes, skylights, and vents. To determine possible shading problems, consult a solar professional who uses a software program that can estimate site shading. Some people will examine a proposed location throughout the day and year to see how the area shading changes. For example, shading in an area can change from summer to winter because the sun's path changes.

## INSTALLATION & MAINTENANCE

Before purchasing a solar electric system, homeowners need to be aware of issues that affect system installation and maintenance.

### Warranties and Insurance

Most solar electric systems come with a 25-year output warranty, but maintenance may be required to comply with a manufacturer's warranty. Inverter warranties are typically offered at 10 to 15 years for string inverters and string inverters with power optimizers. The average warranty for micro inverters is 25 years. Since these warranties don't cover workmanship/installation, you may wish to consider yearly maintenance contract, if available. Most homeowner insurance policies will cover the systems, but check with your insurance agent to be sure. Also, be sure to ask your insurance agent if you need to be aware of any installation issues that could affect coverage for the roof, such as roof penetrations during system installation.

***Selling Into the Sun: Price Premium Analysis of a Multi-State Dataset of Solar Homes*** is available online and includes a comprehensive study of the value of solar to a home's resale value. Information is based on an analysis of data on PV homes and non-PV homes in eight states. Similar information on the resale value of PV South Carolina homes is not available.

**CLICK HERE** to view the full report: [emp.lbl.gov/sites/all/files/selling-into-the-sun-jan12.pdf](http://emp.lbl.gov/sites/all/files/selling-into-the-sun-jan12.pdf)

**CLICK HERE** to view a summary/fact sheet of the report: [emp.lbl.gov/sites/all/files/lbnl-6942e-fullreport-factsheet.pdf](http://emp.lbl.gov/sites/all/files/lbnl-6942e-fullreport-factsheet.pdf)

### Zoning, Permits, and Homeowners Association (HOA) Fees

Local zoning laws may restrict where you can place solar panels on your home. Check with your city and county to find out about any restrictions. In South Carolina, homeowners' associations are allowed to restrict the placement of solar panels, so if you are part of a community governed by a homeowners' association, check before signing a contract. Homeowners will need to obtain any building or other local permits required before installation. Typically, your installer will assist you in obtaining permits and clearance from the city/county where you live.

### Utility Permits and Special Requirements

It is very important that you contact your electric utility provider early in the process to confirm you have all of the necessary permits, documentation and any special requirements to support the interconnection agreement for your system prior to installation. A typical checklist will include the following:

- |  |  |
|--|--|
| <input type="checkbox"/> Net Energy Metering Application | <input type="checkbox"/> Net Energy Metering Interconnection Agreement |
| <input type="checkbox"/> One-line Diagram of the System  | <input type="checkbox"/> Certificate of Homeowner's Insurance          |
| <input type="checkbox"/> Application Fee                 | <input type="checkbox"/> City/County Inspection                        |
| <input type="checkbox"/> Utility Onsite Inspection       |  |

## Maintenance

Proper maintenance of your system will keep it running smoothly. Most vendors recommend a yearly maintenance check by your installer, but you should carefully review the maintenance instructions shown in the system manual with your system provider. Systems with electronic components usually require replacement parts within 10 to 15 years for string inverters and string inverters with power optimizers, and 25 years for micro inverters.

## Installation and Finding a Contractor

Using a professional, licensed contractor to install your solar electric system can prevent problems with the system caused by improper installation and maintenance. Professional installers can also help with paperwork for tax credits and rebates. The **North American Board of Certified Energy Practitioners (NABCEP)** maintains a list of certified system installers. The **South Carolina Solar Council**, **South Carolina Business Alliance**, and the **South Carolina Office of Regulatory Staff** also maintain lists of solar leasing companies.

Installing solar panels on your home requires a large investment and a great deal of thought and pre-planning. When choosing a contractor, make certain that you do your homework, ask the right questions, and obtain bids from at least three solar contractors. You want to do everything possible to ensure you have enough information to make an informed decision about what's best for you and your family.

### Information You Should Verify

- Does the contractor have any complaints pending at the SC Department of Labor, Licensing and Regulation, Contractor's Licensing Board?  
See: [lr.state.sc.us/POL/Contractors/](http://lr.state.sc.us/POL/Contractors/)
- Is the contractor affiliated with and/or have membership with local, state and/or national organizations relevant to the work they are doing?
- Does the contractor have reviews on the **Better Business Bureau** website?
- Does the contractor have workers' compensation and liability insurance, and if so, how much?

Use the downloadable checklist on page 17 provided as a guide to help you understand the process of installing solar panels on your home.



### Quick Tip

While there are many variables that may impact timing of your installation, the average length of time it takes to install a complete solar electric system, from ordering equipment to commissioning, is about three months.



## COST AND FINANCIAL INCENTIVES

Many financial incentives are available to homeowners to offset system cost.

### Cost

Residential solar electric systems cost on average \$3 to \$5 per watt installed, but new technologies are bringing the costs down every year. South Carolinians with sufficient tax liability can take advantage of federal and state tax credits for the purchase and installation of a solar electric system to reduce the cost. After these tax credits are applied, the average 6-kilowatt (6,000-watt) system will cost an estimated \$9,000 (see pg. 14 for example savings). However, the cost per watt usually goes down as the system size increases. Keep in mind that costs may vary by installer and are subject to change at any time.

### Residential Tax Credits

	FEDERAL	SOUTH CAROLINA
AMOUNT OF CREDIT	30%*	25%
EXPIRATION	12-31-19	Not scheduled to expire
ANNUAL MAXIMUM	Limited to taxable income	\$3,500 per year for up to 10 years or 50% of tax liability, whichever is less**

\* Tax credit reduces to 26% for systems placed in service after 12/31/19 and before 01/01/21.  
Reduces to 22% for systems placed in service after 12/31/20 and before 01/01/22.

\*\* In South Carolina, this can be carried over for a maximum of 10 years and a total of \$35,000.

### IMPORTANT NOTE ABOUT TAX CREDITS

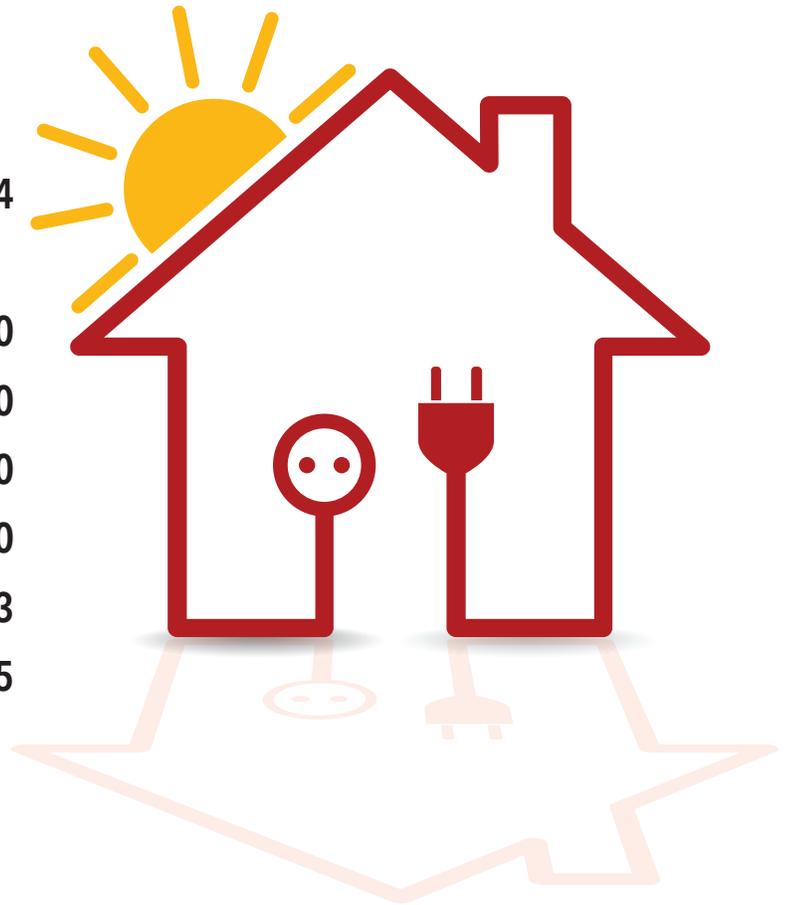
Tax credits only apply if you owe enough in taxes to balance your credit. You'll reduce your tax liability, but you will not receive a check if you do not owe taxes. See your tax advisor.

### Net Energy Metering

South Carolina law requires investor-owned utilities to give homeowners credit for excess power produced by their solar electric systems. That means your local investor-owned utility gives you credit for every kilowatt-hour of solar power not consumed by your home, reducing your electricity bill. Please consult your utility company for specific information.

## EXAMPLE SAVINGS FOR A SC SOLAR ELECTRIC SYSTEM\*

Average Monthly Utility Bill <sup>A</sup>	<b>\$147.74</b>
Estimated System Size	<b>6kW</b>
System Cost (at \$3.50 per installed watt)	<b>\$21,000</b>
Federal Tax Credit (30%)	<b>-\$6,300</b>
SC State Tax Credit (25%)	<b>-\$5,250</b>
Estimated System Cost After Tax Credits	<b>\$9,450</b>
Estimated Annual Energy Costs	<b>\$1,773</b>
Estimated Annual Value of Electricity Produced <sup>B</sup>	<b>\$1,045</b>
Estimated Payback Period in Years	<b>9</b>



Most solar electric systems last 25 to 30 years and pay for themselves in 9 to 10 years after state and federal tax credits are applied for eligible customers. Utility incentives, like performance-based or upfront incentives, can lower the payback period to as few as 6 years. If you install batteries to back up your solar electric system, it can provide emergency power in areas with frequent storms, hurricanes, and other natural disasters.

<sup>A</sup> Based on 1,187 kWh/month consumption and EIA average price of 12.45 cents/kWh for South Carolina as of July 2014.

<sup>B</sup> Calculated using the NREL PVWatts Calculator tool with irradiance and weather data for Columbia, SC under optimal conditions.

\* Example savings are estimates only. Consult with a solar installer and tax advisor to confirm total costs and eligibility for tax incentives.

Using the NREL PVWatts Calculator, it is estimated that an average 1-kilowatt system with optimal orientation and tilt will produce between 1,400 and 1,500 kilowatt hours per year depending on its location in the state. A normal 4 kilowatt system can be expected to offset about 30% of the electricity needs of an energy-efficient home. That number could be lower or higher depending on the amount of sunlight (regardless of climate) your home receives each year and the energy efficiency of your home.

## Renewable Energy Certificate (REC)

A renewable energy certificate, also known as a renewable energy credit, represents the property rights to the environmental, social, and other non-power qualities of renewable electricity generation. A REC, and its associated attributes and benefits, can be sold separately from the underlying physical electricity associated with a renewable-based generation source.

RECs provide buyers flexibility:

- In procuring green power across a diverse geographical area.
- In applying the renewable attributes to the electricity use at a facility of choice.

This flexibility allows organizations to support renewable energy development and protect the environment when green power products are not locally available.

Each utility/state handles RECs differently. Consult with your utility on the availability of RECs for your solar generation. **(Source: EPA)**

## Financing

If you can't purchase a system outright, consider financing. Several resources are available for financing a solar electric system including:

- Home refinance
- First mortgages
- Construction loans
- Home equity loans
- Banks (many will finance for less than prime rate)
- Solar vendors (some provide financing)
- Leasing (see comparison chart on pg.16 for buying/leasing)

Mortgage loans and home equity loans offer several advantages: longer terms, lower interest rates than conventional bank loans, and tax-deductible interest. In addition, adding a solar electric system to a loan at the same time that you build, buy, or refinance will reduce paperwork and simplify the purchase.

## What should my solar bid include?

The following elements should be included on the bid you receive from the solar installer:

- Total cost from start to finish (including design and construction)
- Additional cost factors resulting from unique design considerations on your property (most installations will not require these)
- Equipment
- Labor
- Permits
- Tax
- Any applicable state and federal tax credits and other incentives
- Make and model number of equipment
- Warranty information for each component
- Expected operation and maintenance costs
- Projected monthly, annual, and lifetime energy generation based on orientation, shading, etc. and estimated costs and savings
- Finance options: cash, loan or lease

## Important Facts: Buying vs. Leasing Solar Panels

	BUYING	LEASING
<b>OVERVIEW</b>	Purchasing a renewable energy system from an approved contractor or manufacturer means paying for it up front or financing your purchase through a bank loan. You own the entire solar energy system, which most manufacturers guarantee for up to 25 years.	Leasing allows you to “rent” the renewable energy system for a set period of time. Generally, you pay a fixed monthly rate no matter how much energy the system produces each month.
<b>BENEFIT</b>	<ul style="list-style-type: none"> <li>• Lower monthly electricity bills.</li> <li>• Greater return on investment.</li> <li>• Increased home value.</li> <li>• Minimum 10-year warranty for string inverters and string inverters with power optimizers; 25 years for micro inverters.</li> <li>• Possible federal and state tax incentives and other deductions.</li> </ul>	<ul style="list-style-type: none"> <li>• Lower monthly electricity bills</li> <li>• No large, upfront financial investment.</li> <li>• Typically no costs for system operations, monitoring and maintenance.</li> <li>• Fixed monthly rate regardless of how much electricity produced.</li> <li>• Usually break even or save money in the first year.</li> <li>• Generally provide performance guarantees.</li> </ul>
<b>COST</b>	<ul style="list-style-type: none"> <li>• Expensive components like the inverter may need to be replaced after warranty.</li> <li>• Extended service agreement for maintenance, repairs and insurance.</li> </ul>	<ul style="list-style-type: none"> <li>• The monthly price of your lease may accelerate over time.</li> </ul>
<b>POTENTIAL FINANCIAL RISKS</b>	<ul style="list-style-type: none"> <li>• You are responsible for maintenance costs.</li> <li>• A performance monitoring system may be necessary as an add-on service to maximize energy production.</li> </ul>	<ul style="list-style-type: none"> <li>• If lease provider goes out of business, it may cease to provide contracted operations and maintenance.</li> <li>• Check for purchase (buyout) options in your contract.</li> </ul>
<b>ADVICE</b>	You may be able to finance your purchase of a solar or renewable energy system by taking a home equity loan or secure line of credit, which is often eligible for tax deductions. Be sure to speak with your tax advisor about the implications before your purchase.	Agreements are longterm, and specific fees may rise over time. Be sure to understand any changes in your monthly rate over the lifetime of the solar lease agreement, and ask about purchase options. Prepaid leases may also help reduce your monthly payments.



### Quick Tip

If you purchase a home with a renewable energy system, its value is incorporated into the purchase price of your home. Generally, a solar system will increase a home's value and is viewed positively by potential homebuyers. If you have a lease agreement, you will need to work with the service provider to transfer the lease to the new homeowner. In some cases, you may be able to buy out the remainder of the contract at fair market value.

# Rooftop Solar Checklist and FAQ

Use this checklist as a guide to help you understand the process of installing solar panels on your home.\*



## Solar Installation Checklist

	Homeowner Responsibility	Installer Responsibility	Need More Information
Who obtains permits and authorizations?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Who confirms that my roof is strong enough for the increased loads and determining if I need a structural upgrade?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Who is responsible for a post-installation roof inspection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Who is responsible for a post-installation roof repair?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Who handles structural damages other than to the roof resulting from the installation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Who handles consequential damages, such as ceiling damage, from the installation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Does my homeowner's association or another entity have covenants or restrictions with respect to installing rooftop solar?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
What safety standards must be followed and who provides oversight?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Who removes and reinstalls the system when my roof needs to be replaced/repared?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If there is a warranty issue, can you coordinate repairs or do you have to let the manufacturer or installer (if not you) have an opportunity to resolve the issue?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If there is a hardware warranty issue, who is responsible for the costs of removing the old panel and installing the replacement panel?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Who handles equipment replacement while the hardware is under warranty?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
What are the consequences and remedies for the installer's warranty if the installer goes out of business?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
What are the consequences and remedies for the hardware warranty if the hardware manufacturer goes out of business?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
What are the insurance requirements to have a system on my home?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Who satisfies applicable electric codes for any existing and new wiring?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Who provides notice and what other provisions apply if the installer or inspector needs access to my home?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Who makes sure the installation meets any applicable fire department policies?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Who is responsible for ongoing maintenance and what are the maintenance standards?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Who controls customer data derived from the installation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Cost Considerations FAQs**

**Notes/Comments**

What payment options do you offer?

Do you handle paperwork for federal and state incentives?

Do you offer packaged systems or any incentives to help lower my costs?

What financial assumptions regarding utility costs were used when determining life-cycle benefits of the installation?

What assumptions regarding tax credits and production curves were used in determining life-cycle benefits of the installation?

What assumptions on continuation and terms of net energy metering were used in determining life-cycle benefits of the installation?

**Other Considerations FAQs**

How many years have you been in business?

What experience do you have in this area?

What installations have you completed in my community?

How many installations have you done that are similar to the one I am planning?

Can you provide a portfolio or a list of recent projects, as well as two to three references for me to contact?

Do you specialize in residential or commercial installations?

What products and services do you offer?

With which products are you most familiar?

Why do you recommend these products for my installation?

How do they compare to other products/technologies?

Are they UL listed with warranties?

**Other Considerations FAQs**

**Notes/Comments**

Will my roof be strong enough for the increased loads or will I need a structural upgrade?

Can you provide information on any special zoning, permits and/or code requirements for my particular neighborhood?

Do you have a builder's permit and electrician's license (REQUIRED)? Do you have any special certifications?

Are you a member of any solar trade organization, such as the Solar Energy Indust. Assoc., S.C. Solar Alliance or S.C. Solar Council?

What type of insurance do you carry?

Do you have any pending or active judgments against you?

Will the installation withstand hurricane force winds?

*\*Checklist and FAQs adapted, in part, with information and resources from the Edison Electric Institute (EEI).*

**Notes**

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## Resources

Center for Sustainable Energy	<a href="http://energycenter.org">energycenter.org</a>
Database of State Incentives for Renewables and Efficiency (DSIRE)	<a href="http://dsireusa.org">dsireusa.org</a>
Edison Electric Institute	<a href="http://eei.org">eei.org</a>
ENERGY STAR	<a href="http://energystar.gov">energystar.gov</a>
Environmental Protection Agency	<a href="http://epa.gov">epa.gov</a>
Florida Solar Energy Center	<a href="http://fsec.ucf.edu">fsec.ucf.edu</a>
North American Board of Certified Energy Practitioners (NABCEP)	<a href="http://nabcep.org">nabcep.org</a>
National Renewable Energy Laboratory	<a href="http://nrel.gov">nrel.gov</a>
PV Watts	<a href="http://pvwatts.nrel.gov">pvwatts.nrel.gov</a>
Dominion Energy South Carolina	<a href="http://DominionEnergySC.com/Solar">DominionEnergySC.com/Solar</a>
South Carolina Energy Office	<a href="http://solar.sc.gov">solar.sc.gov</a>
Solar Energy Industries Association	<a href="http://seia.org">seia.org</a>
Solar Energy News	<a href="http://solarenergy.net">solarenergy.net</a>
South Carolina Office of Regulatory Staff	<a href="http://regulatorystaff.sc.gov">regulatorystaff.sc.gov</a>
South Carolina Solar Business Alliance	<a href="http://solarbusinessalliance.com">solarbusinessalliance.com</a>
South Carolina Solar Council	<a href="http://scsolarcouncil.org">scsolarcouncil.org</a>
U.S. Department of Energy	<a href="http://energy.gov">energy.gov</a>
U.S. Department of Energy – Energy Savers	<a href="http://energysavers.gov">energysavers.gov</a>

For more information, contact:

**Dominion Energy South Carolina**

**[DominionEnergySC.com/Solar](https://www.dominionenergy.com/south-carolina/solar)**

1-866-660-3705

