A SOLAR Guide for South Carolina Business Owners

About this Guide

Dominion Energy South Carolina receives numerous inquiries each year from small, mid-size and large business customers interested in information about energy efficiency and solar electricity. This guide is intended to serve as a resource to help educate business owners about the many factors to be considered before, during and after installing solar panels. It is not meant to be a technical or legal guide on how to design or install a system. Business owners will need to consult with an experienced solar contractor to determine the best system for their property. We do not endorse any products in this guide. Information and resources, in part, have been adapted from ***A Consumer Guide to Solar for the South Carolina Homeowner, 2016.***

Quick Tip

Online resources with information on how your business can be more energy efficient include **ENERGY STAR®** and the **U.S. Small Business Administration**. You should also check with your electric utility provider for energy efficiency incentives.

Table of Contents

IMPORTANT FIRST STEP

Ensuring Your Business is Energy Efficient

Many businesses 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 building ensures that the energy you pay for is used to make you, your employees and your customers more comfortable. By maximizing your businesses' 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 through energy efficiency measures may also allow you to reduce the size of your solar installation, saving even more money.

General Guidelines for Building Owners and Property Managers*

Give Your Business a Tune-up

Regularly examine building equipment, systems, and maintenance procedures to make sure your building is operating as efficiently as possible. Tune up heating equipment; inspect ducts and windows and seal any leaks; calibrate thermostats and set them at appropriate temperatures (78 degrees or higher in the summer/68 degrees or lower in the winter); insulate hot water tanks and piping throughout the building; inspect and clean/change air filters.

Improve Lighting Systems

Typically, lighting consumes 25 – 30 percent of energy in non-residential buildings. Improving lighting systems can reduce electricity consumption and improve the comfort of occupants in the building. Compare the lighting schedule with building uses to look for opportunities to turn lights off; replace incandescent bulbs for task lighting with ENERGY STAR qualified LED bulbs; use automatic controls to turn lights off or dim lights in naturally lit spaces.

Take a Look Inside and Out

Reducing the amount of energy used by inefficient office equipment and other products can save energy and money. Purchase ENERGY STAR qualified office equipment whenever possible. Don't waste conditioned air — install window films and add insulation or a reflective roof coating to save energy.

Upgrade Fan Systems

Air-handling systems move air throughout a building and therefore directly affect the comfort of building occupants. Fan systems can be upgraded and adjusted to optimize the delivery of air in the most energy-efficient way. Properly sized fan systems add variable speed drives, and convert to a variable-air-volume system.

Raise the Bar on Heating and Cooling Systems

Heating and cooling systems are large consumers of energy in buildings and offer great opportunities for saving energy. Once you've followed the steps above and reduced the building's cooling loads, retrofit or install energy-efficient models and upgrade boilers and other central plant systems to energy-efficient standards.

** ENERGY STAR®*

BENEFITS OF SOLAR ELECTRICITY

The advantages to buying a solar electric system include:

- Offset energy use
- Reduce energy costs
- Stabilize your energy costs
- Reduce carbon emissions
- 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 businesses' electricity needs.

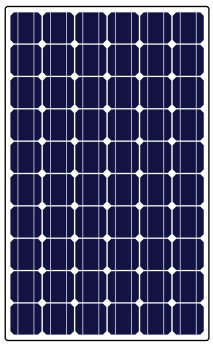
Solar Electricity: The conversion of light into electricity by certain materials that absorb photons of light and release electrons. Electricity is produced when these electrons are captured. This phenomenon was first discovered in 1839, but the first photovoltaic module was not produced until 1954.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

Quick Tip

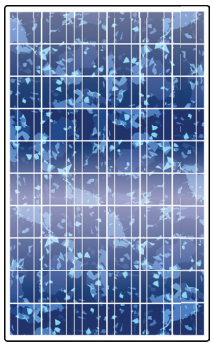
Sustainability and corporate social responsibility are important components of an organization's culture and values. The "green" credentials aligned with installing solar offers businesses a powerful tool to help engage consumer purchasing decisions, creating goodwill and helping to improve bottom line results.

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

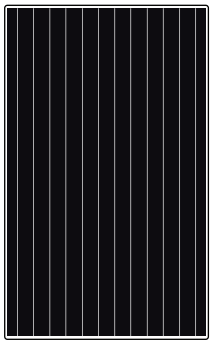


Polycrystalline

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.[1] However, South Carolina utility experience suggests normal expected efficiencies of about 16% to 18%.

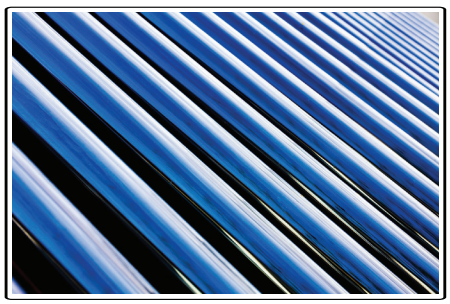
Solar Shingles



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 dieseline. 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.

[1] *"Best Research-Cell Efficiencies." National Renewable Energy Laboratory.*

Energy Storage

If you install batteries to back up your solar electric system, they can provide emergency power in areas with frequent storms, hurricanes, and other natural disasters. Several technologies for battery storage, including lithium ion, are emerging as add-ons for solar installations, but cost is still a barrier for many business owners. In addition to price, you should consider the battery's capacity, voltage and life cycle.

Community Solar

Community or shared solar allows some utility customers the option to buy a portion of a solar farm without installing solar at your business. Community solar arrays, sometimes referred to as solar farm or solar garden, are centralized solar facilities with individual panels available for purchase or subscription by customers who receive credits on their electricity bill for the power produced. Check with your utility provider to determine availability of community solar for non-residential customers.

Solar Electric System Type

A solar electric system is typically made up of solar panels and an inverter. For businesses, a grid-connected system is the most commonly used.

Grid-Connected

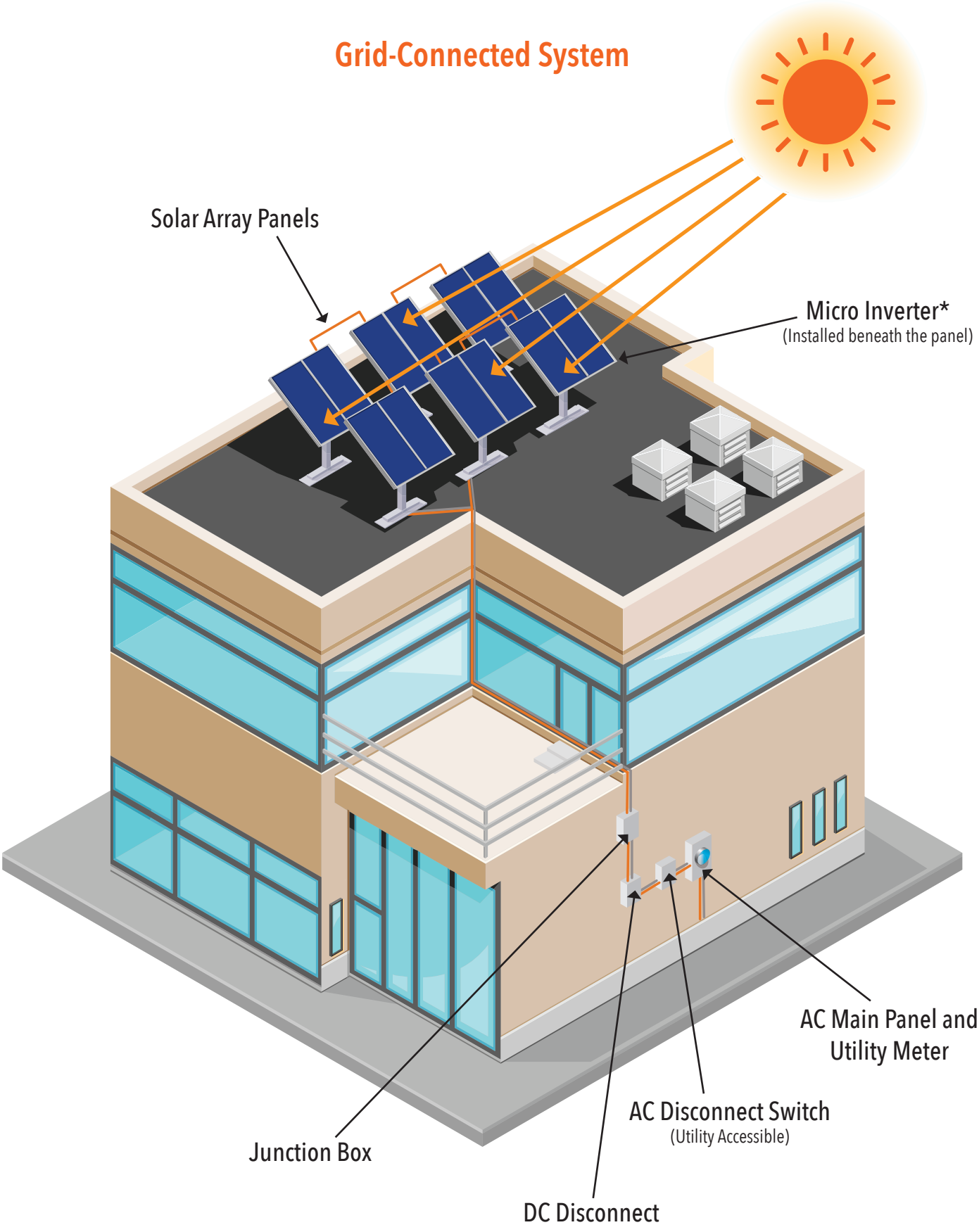
In this system, the solar panels are connected to your local utility's electrical grid to complement your normal power supply from your utility company. Grid-connected systems generally consist of:

- 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. 7 to learn about inverters)*
- A junction box that connects the solar panel wiring to the breaker panel on the property
- A meter that displays how much power the property produces and uses
- A disconnect switch that serves as a safety device to prevent back-feed for linemen working in the area
- An interconnection agreement with your utility to ensure your safety and that of others

Quick Tip

For businesses, a grid-connected system is the most commonly used, offering the option for rooftop or ground-mounted solar panels. This type of system will not power your business during a utility power outage and includes a disconnect switch that serves as a safety device to prevent back-feed for linemen working in the area.

Grid-Connected System



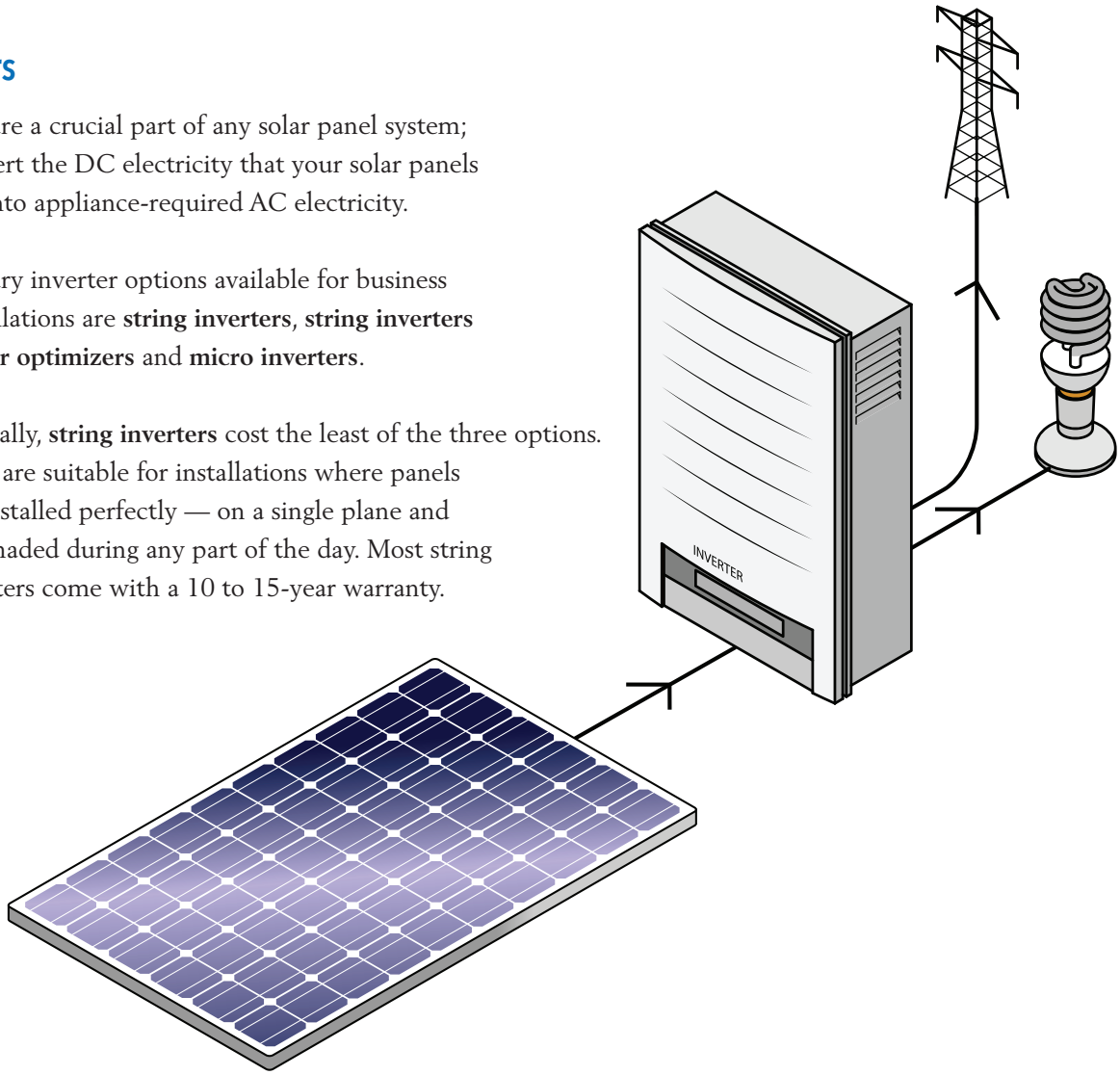
**Note: Other inverter types include string inverters and string inverters with power optimizers. See pg. 7 for details.*

Inverters

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

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

Typically, **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 microinverters.

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 property'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 the immediate area, 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.

Size of System

You may size your system to offset all or part of your business' energy usage. In South Carolina, to qualify for net energy metering, your system must not be more than the lesser, of 1,000 kilowatts (1,000 kW AC) or 100% of contract demand.

Roof Requirements

Before purchasing a solar electric system, you need to determine available roof space and condition. Non-residential systems may be mounted on flat or sloped roofs. Take into consideration any existing obstructions on your roof, like HVAC units or other equipment, that your installer will need to work around. Systems may also be ground-mounted if you have dedicated land space adjacent to your business. While rooftop systems are the most common, ground-mounted systems can be more cost effective in certain situations. Another option growing in interest are solar carports for non-residential use.

Quick Tip

Several factors impact the "type" of solar system you choose for your business. While shading and roof pitch may not support rooftop solar, a potential alternative may include a ground-mounted solar system, pending availability of dedicated land space adjacent to your business. Review the advantages of each with your solar contractor.

Space and Orientation

For maximum performance, your solar electric system needs about 75 to 100 square feet of unshaded south-facing roof or area 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 parameters/requirements vary with location and for businesses with flat roofs. Your solar vendor and installer should be able to tell you how the pitch of your roof will affect the performance of your system, including recommendations for buildings with flat roofs. When a south-facing roof is not available, some businesses install solar electric systems on parking garage roofs (if applicable) or use them as awnings. If you have a shortage of roof space, panels can be mounted on a pole or in the immediate area (ground-mounted) if space/land is available. 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.

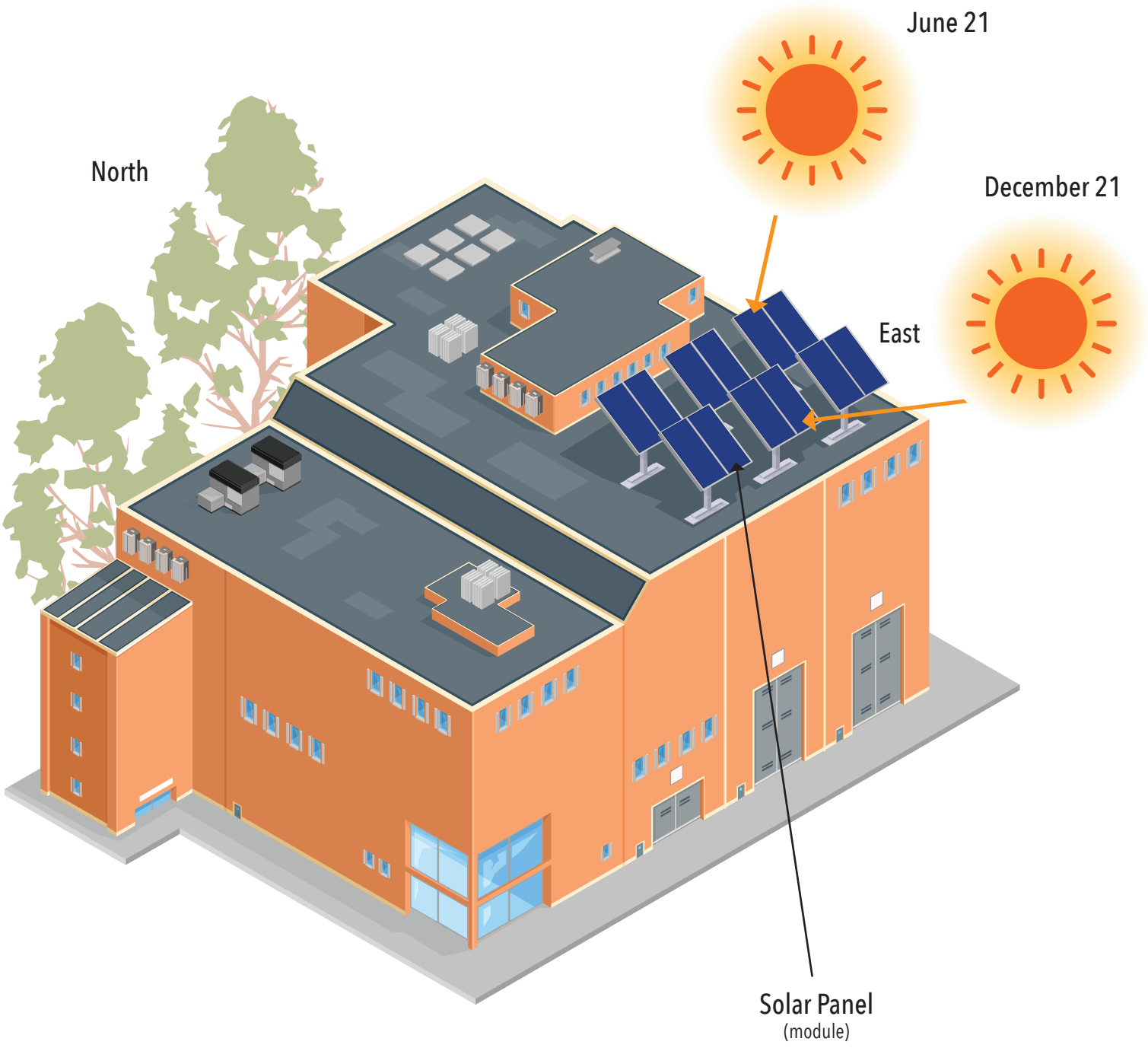
Quick Tip

Prior to installation, it is very important that you contact your electric utility provider to confirm you have all necessary permits, documentation and any special requirements to support the interconnection agreement for your solar system.

Shading

Shading a panel reduces its performance because it blocks sunlight. The most common items that shade solar panels are trees, nearby buildings, skylights, and vents. To determine possible shading problems, consult a solar professional who uses a software program that can estimate site shading. Some businesses 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.

Sun's Path During Summer and Winter



PLANNING FOR YOUR SOLAR INSTALLATION

The planning cycle for a business interested in installing a solar electric system can be 1-2 years. Before purchasing a system, you need to be aware of any issues that could affect system installation and maintenance.

Zoning, Permits and Special Association Fees

Local zoning laws may restrict where you can place solar panels on your business. Check with your city and county to find out about any restrictions. Property associations, architectural review boards and/or historic districts may restrict the placement of solar panels, so if you are part of a community governed by a specific property association or review board, check before signing a contract. Businesses 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 operate.

The Interconnection Process, Utility Permits and Special Requirements

South Carolina Interconnection Standards include requirements for connecting solar and other electrical generation systems to the grid. These rules apply to your business and your electric utility provider and are completely separate from the contract agreement with your solar installer.

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:

- Interconnection Application and Fee
- System Size
- Single-line Diagram
- Engineering Study *(depending on size and location of system; typically includes additional fee)*
- Program Application
- Certificate of Insurance
- City/County Inspection
- Utility Onsite Inspection
- Power purchase agreement *(depending on size of system)*

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.

Check your general liability insurance for coverage of your solar system. 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.

Property Taxes

At this time, South Carolina does not offer a solar property tax exemption or an exemption on sales tax when purchasing a solar system. Consult with your tax advisor on any potential tax implications.

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** are good references, and the **South Carolina Office of Regulatory Staff** also maintains a list of solar-certified leasing companies.

Installing solar panels on your business 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 your business.

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: **llr.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?

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.

Quick Tip

Carefully review the maintenance agreement with your solar contractor. Make certain you fully understand all terms and conditions with system upkeep, replacement parts and maintenance requirements that may have an impact on your manufacturer's warranty.

COST AND FINANCIAL INCENTIVES

Many financial incentives are available to businesses to help offset system cost.

Cost

Non-residential solar electric systems cost on average $1.75 to $3 per watt installed, but new technologies are bringing the costs down every year. South Carolina businesses with sufficient tax liability can take advantage of federal and state tax credits with the purchase and installation of a solar electric system to reduce the cost. Keep in mind that costs may vary by installer and are subject to change at any time. Be sure to get at least 2-3 cost estimates from solar contractors that offer non-residential installations.

Investment Tax Credits for Businesses

Tax credits only apply if you owe or paid enough in taxes to balance your credit. You'll reduce your tax liability, but you will not receive a check if you do not pay taxes. Consult your tax advisor. Non-profit and tax exempt organizations will not qualify for these 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**

*Federal tax credit reduces to 26% for systems placed in service after 12/31/19 and before 01/01/21. After that, projects that start construction in 2020 and 2021 will receive 26% and 22%, respectively. All projects must be completed by 2024 to obtain these ITC rates. Please consult your tax advisor.

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

Accelerated Depreciation

Under the federal Modified Accelerated Cost-Recovery System (MACRS), businesses may recover investments in certain property through depreciation deductions. The MACRS establishes a set of class lives for various types of property, ranging from three to 50 years, over which the property may be depreciated. A number of renewable energy technologies are classified as five-year property (26 USC § 168(e)(3)(B)(vi)) under the MACRS, which refers to 26 USC § 48(a)(3)(A), often known as the energy investment tax credit or ITC to define eligible property. Such property currently includes*:

- a variety of solar-electric and solar-thermal technologies
- fuel cells and microturbines
- geothermal electric
- direct-use geothermal and geothermal heat pumps
- small wind (100 kW or less)
- combined heat and power (CHP)
- the provision which defines ITC technologies as eligible also adds the general term "wind" as an eligible technology, extending the five-year schedule to large wind facilities as well

*For more information on the federal MACRS, see IRS Publication 946, IRS Form 4562: Depreciation and Amortization, and Instructions for Form 4562.

Source: *Database of State Incentives for Renewables & Efficiency*

The Depreciation Bonus

The federal ***Economic Stimulus Act of 2008,*** enacted in February 2008, included a 50% first-year bonus depreciation (26 USC § 168(k)) provision for eligible renewable-energy systems acquired and placed in service in 2008. The allowance for bonus depreciation has since been extended and modified several times since the original enactment, most recently in December 2015 by the ***Consolidated Appropriations Act Of 2015***. Equipment placed in service before January 1, 2018 can qualify for 50% bonus depreciation. Equipment placed in service during 2018 can qualify for 40% bonus depreciation. And equipment placed in service during 2019 can qualify for 30% bonus depreciation.

For guidance on bonus depreciation, including information relating to the election to claim either 50% or 100% bonus depreciation, retroactive elections to claim 50% bonus depreciation for property placed in service during 2010, and eligible property, please see IRS Rev. Proc. 2011-26.

Source: *Database of State Incentives for Renewables & Efficiency*

Quick Tip

As you work through the decision-making process to install solar, consider the combination of utility incentives, federal and state tax credits, depreciation and financing to ensure your solar array investment achieves a desired payback.

Financing Non-residential Solar Installations

Access to capital can be a significant barrier for businesses looking to install solar. Traditional financing can be difficult to secure, but some commercial banks are beginning to offer solar energy loans. However, loans for energy efficiency equipment and systems are typically available at the federal and state level. The following loan programs are not intended to be exhaustive. There may be other federal, state and utility loan programs to available to you.

U.S. Small Business Administration (SBA)

The SBA is a good resource for identifying loan programs to assist businesses with energy efficiency upgrades. Learn more at **https://www.sba.gov/managing-business/running-business/green-business-guide/environmental-grants-loans**.

Energy Efficiency Revolving Loan Fund

The Energy Efficiency Revolving Loan Fund is administered by the Business Development Corporation via a contract with South Carolina Jobs-Economic Development Authority. The primary target of this program is business and industry, although utilities, non-profits and government entities may be eligible under certain circumstances.

The general amount of funds loaned per project is between $50,000 and $1,000,000, although exceptions can be made. The loans are to be paid back after one and one half times the projected payback period of the loan (e.g. a borrower has 6 years to pay off a loan with a 4 year projected payback). The maximum loan term is 10 years. Interest rates will vary depending upon the transaction.

To apply for funding, applicants must first commission a technical analysis by a Professional Engineer, a Certified Energy Manager, or an Accredited Commercial Energy Manager to identify the most cost-effective energy measures to install. The applicant should then use the technical analysis to step is to complete the application and then submit both the application and the analysis. **http://energy.sc.gov/incentives/eerl.**

ConserFund

ConserFund is a revolving loan program administered by the South Carolina Energy Office for energy-efficiency improvements in state agencies, public colleges or universities, school districts, local governments, and private 501 (c)(3) organizations. The loan program is focused on supporting the implementation of energy-efficient improvements that provide long-term cost reductions and energy savings. To learn more: **http://www.energy.sc.gov/incentives/conserfund.**

Types of Solar Programs and Utility Incentives

In order to interconnect with your electric utility, you will need to determine the type of interconnection or program that will best suit your business needs. Your cost impacts could vary based on the type of program that you enroll in through your utility company. In South Carolina, the most common solar programs for non-residential customers are Net Energy Metering and Buy All/Sell All.

Net Energy Metering

Under net energy metering, you receive a credit for every kilowatt-hour of solar power not consumed by your business, reducing your electricity bill. If you generate more energy than you use, you receive an energy credit on your monthly bill. If you use more energy than you generate, you owe the net amount.

Buy All/Sell All

Under a buy all/sell all arrangement, you would continue to buy under your current non-residential rate for electric service and receive a monthly bill credit for all of your solar generation. The bill credit rate will vary depending on your utility company.

Your utility may offer upfront rebates on your system purchase or performance-based incentive rates for your solar generation. Please consult your utility company for specific information on incentives and other program options.

Metering

Utility solar programs in South Carolina may require the installation of a second bi-directional meter. The second meter is referred to as the generation meter. This meter measures all of the output from your solar installation. Although, you may be required to add an additional meter base, the utility company will typically cover the cost of the meter.

Example Savings for a Non-residential SC Solar Electric System (Buy All/Sell All)

Non-Residential 100kW System

100kW @ $2.75/W	**$275,000 system cost**
30% Federal ITC*	**$82,500 tax credit**
25% State ITC*	**$35,000 tax credit (capped amount)**
	= $157,500 net system cost
100 kW multiplied by 1,500 kWh/kW	**= 150,000 annual (estimated) kWh production**
150,000 kWh X 18 cents / kWh incentive	**= $27,000 annual bill credit**
$157,500 system cost / $27,000 annual bill credit	**= 5.8 year payback**

Financing and Depreciation Not Included

* Tax credits are dependent upon your business' tax liability.

Note: The "Example Savings" above is for illustrative purposes only.

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 business owners 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: *Database of State Incentives for Renewables & Efficiency*

** In South Carolina, RECs are retained by the utility*

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

Quick Tip

Installing solar at your business requires a great deal of thought and pre-planning. When choosing a contractor, a minimum of three bids is highly recommended to ensure you have enough information to make an informed decision about what's best for your business.

Rooftop Solar Checklist and FAQ

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

Solar Installation Checklist	Business Responsibility	Installer Responsibility	Need More Information
Who obtains permits and authorizations?	☐	☐	☐
Who confirms that my roof is strong enough for the increased loads and determining if I need a structural upgrade?	☐	☐	☐
Who is responsible for a post-installation roof inspection?	☐	☐	☐
Who is responsible for a post-installation roof repair?	☐	☐	☐
Who handles structural damages other than to the roof resulting from the installation?	☐	☐	☐
Who handles consequential damages, such as ceiling damage, from the installation?	☐	☐	☐
Does my property association and/or historic district or another entity have covenants or restrictions with respect to installing rooftop solar?	☐	☐	☐
What safety standards must be followed and who provides oversight?	☐	☐	☐
Who removes and reinstalls the system when my roof needs to be replaced/repaired?	☐	☐	☐
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?	☐	☐	☐
If there is a hardware warranty issue, who is responsible for the costs of removing the old panel and installing the replacement panel?	☐	☐	☐
Who handles equipment replacement while the hardware is under warranty?	☐	☐	☐
What are the consequences and remedies for the installer's warranty if the installer goes out of business?	☐	☐	☐
What are the consequences and remedies for the hardware warranty if the hardware manufacturer goes out of business?	☐	☐	☐
What are the insurance requirements to have a system on my business?	☐	☐	☐
Who satisfies applicable electric codes for any existing and new wiring?	☐	☐	☐
Who provides notice and what other provisions apply if the installer or inspector needs access to my business?	☐	☐	☐
Who makes sure the installation meets any applicable fire department policies?	☐	☐	☐
Who is responsible for ongoing maintenance and what are the maintenance standards?	☐	☐	☐
Who controls customer data derived from the installation?	☐	☐	☐

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 rates 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 or buy all/sell all 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 non-residential 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 non-residential 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 location?	
Do you have a builder's permit and electrician's license (REQUIRED)? Do you have any special certifications such as NABCEP?	
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

Notes

Resources

Center for Sustainable Energy	**energycenter.org**
Database of State Incentives for Renewables and Efficiency (DSIRE)	**dsireusa.org**
Edison Electric Institute	**eei.org**
ENERGY STAR	**energystar.gov**
Environmental Protection Agency	**epa.gov**
North American Board of Certified Energy Practitioners (NABCEP)	**nabcep.org**
National Renewable Energy Laboratory	**nrel.gov**
PV Watts	**pvwatts.nrel.gov**
Dominion Energy South Carolina	**DominionEnergySC.com/BusinessSolar**
South Carolina Energy Office	**energy.sc.gov/incentives**
Solar Energy Industries Association	**seia.org**
Solar Energy News	**solarenergy.net**
South Carolina Office of Regulatory Staff	**regulatorystaff.sc.gov**
South Carolina Solar Business Alliance	**solarbusinessalliance.com**
South Carolina Solar Council	**scsolarcouncil.org**
U.S. Department of Energy	**energy.gov**
U.S. Department of Energy – Energy Savers	**energysavers.gov**
U.S. Small Business Administration	**sba.gov**

For more information, contact:

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