



# Going Solar?

## Request for Proposals Guide and Template for Nonprofits

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All Points North  
FOUNDATION



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## Introduction

**This guide serves as a resource for nonprofit organizations interested in installing a solar photovoltaic (PV) system at their facilities.**

It draws from tools and resources used in the development of a successful solar project at Dell'Arte International, a nonprofit educational institution located in Blue Lake, Calif. The project was funded by All Points North Foundation.

Informed by lessons learned, this guide serves to demonstrate one way that nonprofit organizations may invest in solar PV to reduce operating costs associated with energy use. Importantly, it also contains a sample request for proposals (RFP) template that includes quality assurance standards that may be used by other nonprofit organizations, schools and municipalities to help reduce some of the soft costs associated with solar project implementation. In addition to providing a straightforward way of vetting contractor qualifications, as well as guiding the development of a scope of work for the project, the RFP template can help ensure competitive pricing is obtained for the project.

While the information contained in this guide is not a substitute for professional consultation, assessment and design, it can help organizations get started, particularly with the important step of choosing professionals with whom to work.



**As technology improves and the renewable energy industry expands, exploring solar is something that nonprofit organizations can tackle with the right guidance on how to get started.**



If you are a tenant in your building, you will need to work closely with the landlord/owner as you consider improvements to the structure. Those organizations that control or own their facility have a less complex approach.

The following outlines the steps nonprofit organizations should consider to assess whether a solar project is right for them.

**1**

### **Assign a Project Manager at the Beginning**

While much of the work of getting started on developing a solar project can be divided, assigning a project manager at the beginning is essential to keep the project on schedule and on budget. This person won't need to have all the answers, but will be the point person when a question comes up, to ensure follow-through, and to coordinate with professionals when the time comes.

**2**

### **Determine Baseline Energy Use**

A basic way to determine current energy usage is to collect electricity bills for the most recent 12 months. Some large facilities may have more than one electrical meter – be sure to separate data by meter, which should be labeled clearly on all bills. Most utilities may provide online access to your electricity usage.

Electricity usage is measured in kWh (kilowatt hours).<sup>1</sup> Bills may divide the total electricity charges in various ways. In some cases, there can be charges per kWh, separate charges for exceeding a specified peak electricity demand, a demand charge or separate charges for power factors that are below a specified amount plus fixed charges. Your solar installation may be able to help you reduce most or all of these charges. This analysis can start simply, but, depending on your utility and the type of electric tariff (rate structure) you are on, could call for some expertise from outside to understand more than an average cost/kWh.

If your utility, like many, charges you for its Environmental Cost Compliance (cleaning up their air and water pollution), it will appear on your bill as a cost/kWh and you can reduce this with every kWh you save or generate.

Most nonprofits and small businesses most likely will have a simple rate structure. Be sure to note which tariff (e.g., Power and Light Medium) you have for your account.

<sup>1</sup> A measure of electrical energy equivalent to a power consumption of 1,000 watts for 1 hour.



### 3

## Assess Opportunity for Efficiency Improvements and Estimate Potential Reductions in Cost

The idea of efficiency first means that using less energy is always the cheapest and easiest option to move towards a cleaner energy future. Data indicates that spending on energy efficiency very often has a quicker payback than installing PV electric generation.

Look for ways to improve energy efficiency in every aspect of your building and day-to-day operations. Many local utilities have programs to help facility owners identify efficiency opportunities and possibly access rebates for various products or projects. Room for improvement also may exist in building

occupants' behaviors or habits, such as turning lights off at night. Adding occupancy sensors to lights or a programmable thermostat to the heating/cooling system also can help. [Energystar.gov](https://energystar.gov) and [energy.gov](https://energy.gov) provide information about building energy efficiency.

Your organization may also choose to get a professional energy audit if the building is quite large and complex.

Your organization also may choose to get a professional energy audit if your building is quite large and complex (e.g., commercial refrigeration systems, water treatment pumps or other large, motorized equipment). Professional audits can be costly. Check with your local board members and sustainability community as many energy advisors can provide their services as a donation to the organization. Once efficiency opportunities have been identified, an estimate of how the improvements can potentially lower overall electricity use can be assessed.

### 4

## Determine If Solar PV Is a Good Fit

The information in this guide focuses on grid-tied solar – that is, solar that is connected to your local electricity grid. You will not need to consider a battery system for your solar at this time since you will remain connected to the grid.

It is important to know the policies of the local utility that serves you. Not all utilities pay for power generated by solar PV systems. Some utilities pay a different rate for power consumed versus power generated. Other utilities have PV solar connection fees that must be considered in the economic analysis. Some of these policies are known as Net Metering and vary from utility to utility. For a quick overview of your state and utility's policies, go to the [Database of State Incentives for Renewable Energy \(DSIRE\)](#).

The Solar Foundation, a nonprofit organization, has created a brief but informative document, "[Considerations for Investing in Solar Energy](#)," which outlines the main points to consider when assessing suitability for solar and as a financial investment.





### *Determine If Solar PV Is a Good Fit: Continued*

Additionally, below is a short checklist adapted from [A Guide to Community Shared Solar: Utility, Private, and Nonprofit Project Development](#) by the U.S. Department of Energy.



- *Assess site for solar access*
- *Evaluate the solar resource*
- *Investigate interconnection options*
- *Research financing options if applicable*



### *Assess the site for solar access*

Solar access can be determined at a basic level by visually identifying areas that avoid shading or blockage of sunlight from adjacent trees or buildings. Solar access of a location can be measured using a sun path diagram that simulates the sun's path across the sky. Many solar designers and installers have this or a similar measurement tool; local utilities or energy organizations may also have them available to borrow or rent. NOTE: In North America, the best location for solar panels is south-facing. Generally, never consider placing them on a north-facing roof.



The site being considered must have good solar access

since even a small amount of shading can affect the whole system's output negatively. If possible,

consider more than one location to evaluate further. Collect general data about the building, such as square footage, roof condition, roof pitch, any existing building plans like structural designs, etc. This information will come in handy when you speak with solar design professionals and your local utility.

**The site being considered must have good solar access since even a small amount of shading can affect the whole system's output negatively.**

Some states have easement or other laws that govern solar access. Check with the local building department to determine if it's possible to limit or prohibit neighboring properties to develop in a way that would decrease the solar access of the proposed installation site. Any additional permitting and environmental compliance requirements should be researched at this time as well. Any time delays or additional cost associated with permitting should be factored into the overall feasibility, timeline and scope of your project.



### Evaluate the solar resource

The second item to consider when developing a solar project is the source of solar – how much sunlight the organization typically receives a day. One of the easiest resources to help you is the National Renewable Energy Laboratory (NREL) [PV Watts Calculator](#). The online calculator uses weather data near any address to determine how many hours of sun is expected based on latitude, longitude and average weather patterns.

Screenshot of PVWatts Calculator.

This tool allows a user to input a pre-determined amount of solar electricity (in kWdc) based on electricity needs, or to draw a system on a Google aerial image of the proposed site.

Drawing a system is an easy way to calculate the approximate system capacity that will fit on any building or land, or to calculate the approximate amount of space the pre-determined system will occupy.

The tool provides an output of estimated kilowatt hours that the system is expected to produce per year. This information can then be used when completing your financial assessment. Note that the tool includes some basic economic analysis capability. However, in general, the economic calculation included in the tool is not sufficient to understand the economic impact on a commercial building, but it's a great start and it's free.

### Customize Your System To Your Roof

On the map below, click the corners of the desired system. Note that the roof tilt and azimuth cannot be automatically determined from the aerial imagery, and consequently the estimated system capacity may not reflect what is actually possible.

System Capacity: 5.1 kWdc (34 m<sup>2</sup>)



Screenshot of sample Google aerial image



### *Investigate interconnection options*

Nonprofit organizations also should consider interconnection options. Having a grid-tied solar system means that an organization will need to work with the local utility to apply for permission to feed the electricity that the system produces into the grid. There are two parts of interconnection:

1) making sure that the building's electrical system is up to code and ready for a solar system; and 2) getting permission from the utility to turn the system on.

A professional should be consulted regarding the existing electrical system. Because the solar modules produce direct-current (DC) power and utilities use alternating current (AC) power, an inverter is used to convert the DC power into AC power. The AC power can then flow to the building's electrical panel and to the building's meter. Making sure all these systems will work with the new solar system is important so that plans can be made for any necessary upgrades and additional upfront costs. Starting an interconnection

process with the utility early in the project development may help identify any additional requirements or upgrades needed to install a grid-tied system. If this sounds overwhelming or too technical, remember that your local North American Board of Certified Energy Professionals (NABCEP)-certified solar installer can do all of this upfront work for you as well. They interface with the utility on behalf of customers every day and speak their language.

### *Some questions to ask the local utility include:*

- What documentation is required to submit with the interconnection application (e.g., building permits, plans, account statements, etc.)? Your local permitting office will also have requirements for issuing an electrical permit.
- Are any rate classes excluded from participating?
- If the account is on an excluded rate class, when and how should it be changed to a valid rate class prior to applying for interconnection?
- Can my contractor complete the application or any other required paperwork for me?



### *Research financing options (if applicable)*

Solar resources that include information about financing options, as well as state and local incentives or rebates, may be found in the U.S. Department of Energy's [Database of State Incentives for Renewables & Efficiency \(DSIRE\)](#).

## Phase 2: Preparation/Action Plan for Installing a Solar PV System

Following the decision to move forward with the installation of a solar PV system, the focus shifts to the steps needed to ensure a timely and on-budget installation.



In this second phase, the action plan your in-house project manager creates to complete the project should include the following steps.

1

### Develop the Scope of Work

The scope of work describes the details of the solar PV system and what the contractor will be expected to provide in their role in the project. The RFP template in this guide provides a comprehensive system description, but your scope of work also is important because it contains specific and unique details about the project.

#### Examples of what might be included as unique to a project:

- Security fencing for ground-mounted systems
- Safe access for future maintenance of the solar modules and inverters
- Education or training of organization staff on maintenance
- Interconnection with the utility
- Operations and maintenance of the system after the installation warranty period
- Participation in a ribbon-cutting or other milestone celebration



Once the scope of work is completed, any staff involved in the project (such as facilities management) and the organization's legal counsel should provide their review of respective details, such as payment terms, insurance requirements and any other details that are specific to how the organization interacts with vendors.



## 2

### Write the Request for Proposals

If your organization requires or prefers a competitive bid process, you will need to issue a request for proposals (RFP). The RFP can be fairly broad, allowing solar professionals to offer their recommended system design and specifications, or fairly specific, to compare bids on pre-determined project specifications. This guide contains an [RFP template](#) that you can tailor to your needs. NOTE: If managing an RFP process seems daunting, you can choose to work with a trusted, well-credentialed solar installer that will provide all of these tasks and scope of work in the aforementioned.

The following section is a walk-through of the RFP template, with the main terminology defined.

### Request for Proposals

A request for proposals (RFP) is a document that outlines your proposed solar project's scope of work for potential solar installers to review and respond to. The RFP also is a chance to outline specific qualifications that the chosen solar contractor should have, as well as any additional terms.

### Cover Page

The cover page of the RFP should contain the most important information – the deadline for submitting proposals, contact information for the person that proposals should be submitted to and any other time-sensitive information. Briefly mention how the project is to be financed and include your annual kWh usage, where you are considering the solar array placement, and the exact address of the building roof or lot for the installation. Provide additional detail in the RFP appendix.

### Deadline for Submitting Proposals

All deadlines associated with the project need to be outlined in the RFP, including the deadline for responding to the RFP itself.



### Pre-proposal Site Visit

This is a chance for contractors interested in bidding to visit the proposed installation site and ask any clarifying questions about the project.

### Scope of Work

This is where the details of the solar PV system are described. This section can be filled out following the RFP template closely; the numbers that are included will be obtained during the feasibility study.

### Terms and Conditions of Contract

This section defines how the project will be completed and can include any policies already in place related to procurement and/or contracts, or it can closely follow the RFP template.

### Eligibility

Contractor eligibility requirements can be pretty straightforward as well. Be sure to review any specific qualifications required by your local jurisdiction and state. The RFP template includes information for the state of California as an example.

### Instructions for Submitting a Proposal

Cover key items that each prospective contractor should include in its job proposal. Be sure to include any additional instructions regarding what form the proposal should be in and how it should be delivered (digital, hard copy), how many copies, etc.



## Schedule

This section highlights key dates in your timeline, including the date and time of the pre-proposal site visit, deadline for submitting proposals, and when work should take place (taking into consideration any special events, facility closures, etc., that would need to be worked around). Please refer to Step 3 on page 13 for [schedule/timeline](#) examples.

## Appendices

Any pertinent supplementary information should be included in the appendices. This may include photos of the proposed install location, electricity usage information or information gathered during the feasibility study. Examples of helpful site photos and descriptions are included in the sample RFP template.

It's important to follow robust contracting protocols to protect your organization. Engage with your legal counsel to review your finished RFP, especially terms, conditions and eligibility.



### 3

## Determine Your Timeline and Your Contractor's Work Schedule



A sample timeline might look something like this:

**December** Prepare scope of work.

**January** Prepare request for proposals (RFP) and have it reviewed by internal staff and legal counsel.

**February** Advertise the RFP.

**Mid-February** Schedule the pre-proposal site visit for a couple weeks after the RFP is advertised.

**March** Review the proposals for the project and select a contractor. Begin working with the contractor on details, such as contract terms and the work schedule.



A sample work schedule may look like this:

**Week 1** The contractor takes an initial deposit so that materials can be ordered.

**Weeks 5-6** Materials arrive and are delivered to the site.

**Week 7** Depending on the size of the job and contractor's crew, installation may take place in as little as four days. Note the electricity to the facility will need to be turned off to complete interconnection of the system with the main electrical panel.

**Week 8** Complete any follow-up and wait for permission to turn the system on. The project details should be provided to the local utility for purposes of applying for interconnection. The schedule for this will vary depending on the utility's process. Your installer will handle this.

### 4

## Find Qualified Solar Installers

Finding qualified solar installers is as easy as going to the [North American Board of Certified Energy Practitioners \(NABCEP\)](#).

You may want to send your RFP to a list of qualified contractors or call them directly. Let them know that an RFP packet is available digitally on a website or in hard copy at the organization's office. You may also want to advertise the RFP by posting it on the organization website and/or social media page(s), via a local Builder's Exchange Plan Room and/or by putting a brief ad in the local papers. Be sure to include key deadlines and contact information – even though those will be included in the RFP itself, listing key details in introductory text will help them get noticed.

Once the RFP is issued, the next step will be to select a contractor for your project. In this third and final phase, plan for the following.



### 1

#### Schedule Pre-proposal Site Visits

Ideally, all bidders should visit the site and meet key project personnel before bidding. A scheduled pre-proposal (or pre-bid) site meeting often is the most efficient way to accomplish this.

A pre-bid site visit typically includes introduction of key staff, then a tour of the facility areas where the main solar components will be installed. This often includes the proposed roof or ground area for the solar modules, the electrical meter and main electrical panel(s) and any wire conduits or visible wire “runs.” Set aside time after the tour to go through the RFP to help clarify the project details, any specific project constraints and instructions on submitting a proposal. This may include or end in a question-and-answer forum with the prospective bidders. If not already provided, a contractor may ask for copies of electricity bills or additional details about what the organization is looking for in a contractor. The pre-bid site visit is also a chance for you to ask questions of the contractors to determine if they might be a good fit for the project.



#### Questions you may want to ask could include:

- Is there anything in the RFP that needs clarification?
- Do you foresee any obstacles to the project so far?
- Do you have previous experience with similar project scopes?
- Have you worked with nonprofit organizations before?
- Who will be our project manager and point person after we sign a contract?
- Who is the licensed electrician for this permit and installation? Is that person a subcontractor?
- What subcontractors will you involve on our project?
- What is your standard monitoring system included in your bid?



### *Schedule Pre-proposal Site Visits: Continued*

Not all solar contractors will work with all financing mechanisms. For example, a contractor may focus on only purchases, and some may offer and/or specialize in solar leases and power purchase agreements (PPA). Some states do not allow PPAs. It will be important that the RFP describe any special requirements around financing that a contractor will need to be aware of or include in the proposal.

## 2

## Review Proposal Bids and Choose Your Contractor

There generally are two main components of an RFP to review: responsiveness and responsibility.

### Responsiveness

Responsiveness of a bidder is determined by how well they address the scope of work put forth in the RFP. For example, if the project calls for 5kWdc of solar production on the roof, then the proposal should include a design and price for a 5kWdc rooftop system. Please note that the system may be slightly less or more than the 5000 watts DC since solar panels come in various sizes and wattages (which change year to year) and the best fit and price for your system can only be determined by a detailed layout at the time. A contractor may propose something other than what has been detailed in

the RFP, but it is up to each organization to determine if it would be in their best interest to consider a wide range of design proposals or limit responsiveness of a proposal to a narrowly defined scope. Only limit the scope if you are sure your RFP size and design is exactly what you need based on detailed analysis. Generally, it is a good idea to accept alternative proposals. For instance, a contractor may propose an alternate PV

panel that produces less energy, but costs significantly less. It could be in your best financial interest to pick the alternative.

Generally, it is a good idea to accept alternative proposals.

### Responsibility

Responsibility of a bidder is determined by how qualified they are to perform the scope of work. What qualifications the bidder must possess also are at the discretion of the organization. Basic qualifications are laid out in the [sample RFP template](#), but additional qualifications might include whether or not the contractor is local, how many projects the contractor has completed before, references from past project owners, a contractor's willingness to work with staff, how many years the contractor has been in business, how easy they are to get a hold of, etc. It is important that an organization determine the best value for its unique situation and goals.

Professional credentials are one indication of a PV installer's knowledge and qualifications.

[The North American Board of Certified Energy Practitioners \(NABCEP\)](#) offers a well-respected voluntary certification program for PV installers.

Although it's not essential, an organization may want to use a scoring matrix or criteria to determine the winning proposal. Keeping it vague means that subjective criteria can be used when choosing the contractor, but not having criteria may also make it difficult to choose a winner if there are several qualified responses.



3

### Write the Contract

Once a contractor has been selected, that company will provide a sales and installation agreement for your review. As previously mentioned, it is critical that your organization's legal team reviews and approves any contracts and participates in any negotiations.



4

### Ensure Inspections and Commissioning of the System Are Completed

A solar installer should take care of any required paperwork associated with connecting the system to the grid and getting authorization from the local utility to interconnect and turn it on. Once the system is turned on, have the installer lead a tour of the operating system so that staff can begin to become familiar with all the operating components. If a building inspector is scheduled to inspect, be sure to accompany them to become aware of any deficiencies that need to be resolved. Commissioning of the system will be complete once it has been verified that the system is operating as it should – this means that electricity production will be recorded in the monitoring system. Any equipment specifications, warranty information and other records should be stored for easy reference.

5

### Monitor and Maintain Your System

While fairly simple for PV systems, maintenance is essential to long-term management of your organization's solar system. Modules may need to be cleaned, but more importantly, meters and inverters need to be monitored to ensure that the system is operating as expected. Various monitoring systems are available, offering options from instant email alerts when an inverter malfunctions to online daily performance monitoring. A good monitoring system enables a system manager to minimize down time, protecting the participant's investment. The project budget should include funds for monitoring, ongoing maintenance costs (specify how many years you are willing to prepay for operations and maintenance, or "O&M") and warranty parts replacement. In particular, it is helpful to include a reserve fund for future inverter replacement, which might occur in 10 to 15 years. Standard monitoring systems can be basic, web-based portals. If you require more, such as a graphical user interface or touchscreen kiosks or a monitor in the lobby, make sure you scope this out in the RFP package.

6

### Publicize the Project

Other than get the go-ahead to connect to the grid and turn your system on, the most exciting part about a solar project may be getting to talk about it. Reaching out to local news organizations (newspapers, television, radio and online media) is a great starting point to publicize the installation. Often they are looking to tell local news stories that connect with their audiences. Consider hosting a ribbon-cutting ceremony following the installation and include key personnel from the nonprofit, local politicians, the contractor and the funder, if appropriate.

**Dell'Arte International is a nonprofit organization that houses the work of a community of artists located in the town of Blue Lake, Calif., population 1,300.**



### About Dell'Arte

For 40 years, the organization has combined original productions by the Dell'Arte Company, the School's international graduate actor training program and its local annual Mad River Festival to create pride of place and community development in the region. Dell'Arte pioneered "theatre of place," unique performances made by, for and with the community. Unlike any other on the American theatre map, Dell'Arte's artistic reach is throughout Humboldt County and around the world.



### Sustainability: A Local Value

Entrepreneurship and ecological sustainability are central to the Humboldt Bay community. Innovations in solar technology and installation, as well as leadership in rebuilding entire ecological systems, are commonplace the area. One of its local organizations, the Redwood Coast Energy Authority (RCEA), is working to advance sustainability practices throughout the region, reduce energy consumption and establish energy self-sufficiency. RCEA's management and technical expertise guided Dell'Arte's solar project from conception through implementation.

### Qualified Bidders

Due to the community's sustainability values, five local qualified bidders expressed interest in Dell'Arte's modest project. Most of the contractors were fully scheduled for the year. Two bidders submitted proposals and both were within the budget delineated by a grant from All Points North Foundation.

### Challenges

Dell'Arte's building is a two-story redwood structure originally built in 1911 for the Blue Lake Odd Fellows. In 1974, Dell'Arte transformed this building into a theatre training center, and in the 1990s retrofitted it to meet seismic compliance standards. Due to the historic nature of the building, the organization needed to modify its inverter design to integrate with its existing electrical system. Separately, the organization discovered that the building was not grounded, which was rectified prior to the solar system installation.

From a scheduling point of view, Dell'Arte needed to undertake the planning and bid preparation around its seasonally full schedule, and target the installation after its annual summer arts festival. Fortunately, the installation time was short – about seven days.



## Dell'Arte's Success

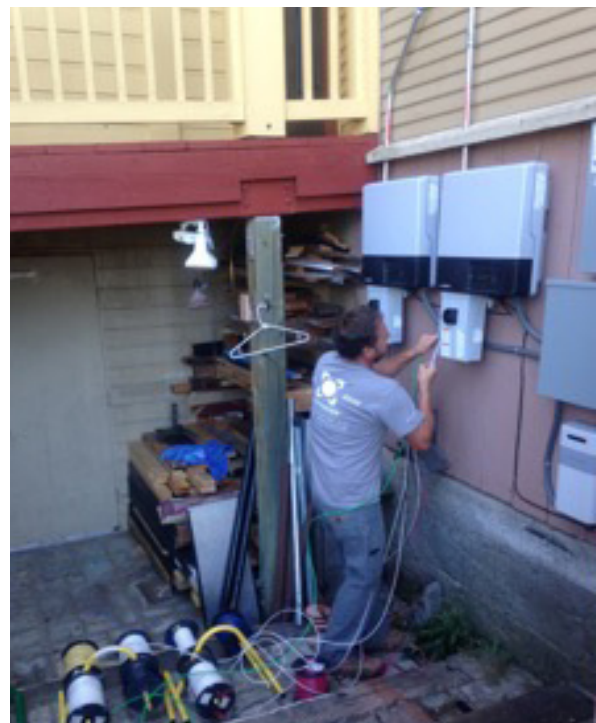
The project was successful for several reasons: sufficient funding, able technical support, adept project management, expert contractors and abundant sunshine that is unique in the Northern California coastal location.

Going solar is part of Dell'Arte's ongoing environmental and sustainability effort. The organization has gone digital with its summer festival guide, enhanced recycling efforts and switched its lighting to LEDs. With its solar energy going on line, Dell'Arte saved 90 percent on its Pacific Gas & Electric bill in the first month.

All photos courtesy of Dell'Arte



**Left:** The crowd gathering for the Solar Project Ribbon Cutting Ceremony at the Dell'Arte Annual Welcome Back Open House.



**Above:** Westhaven Solar, the contractor for the Dell'Arte Project, begins to run wires from the inverters mounted on the outside of the building (photo courtesy of Dell'Arte).

**Right:** A man-lift was rented to easily move materials to the roof of the facility (photo courtesy of Dell'Arte).



The following is a range of information, interactive tools, organizations and other resources you may find helpful as you consider and plan for your organization's solar installation project.



### Resources

- [A Guide to Community Shared Solar: Utility, Private, and Nonprofit Project Development](#) from The Solar Foundation
- [Considerations for Investing in Solar Energy](#) from The Solar Foundation
- [Database of State Incentives for Renewable Energy \(DSIRE\)](#) from the U.S. Department of Energy
- [Energystar.gov](#) from the U.S. Department of Energy
- [Project Sunroof](#) from Google
- [PVWatts Calculator](#) from the National Renewable Energy Laboratory
- [Solar Panel Tilt Calculator](#) from GoGreenSolar.com

### Online Magazines

- [Solar Builder](#)
- [Solar Industry](#)
- [Solar Power World](#)
- [Solar Today](#)

### Organizations

- [American Solar Energy Society](#)
- [National Renewable Energy Laboratory](#)
- [North American Board of Certified Energy Practitioners](#)
- [The Solar Foundation](#)
- [U.S. Department of Energy](#)