

Incorporating Solar Energy in New Habitat Homes

A Manual for Collaborations between Habitat
Affiliates and Rotary and Rotaract Clubs in the
U.S.

This manual was created by the Renewable Energy Task Force of the Environmental Sustainability Rotary Action Group (ESRAG) with review by the staff of Habitat for Humanity International, local Habitat Chapters, and Rotary International.



ESRAG is an independent, Rotary-affiliated entity and is not an agency of, or controlled by, Rotary International.

Table of Contents

⇒ *Use the links below to quickly navigate the document.*

1. [Overview of Solar for Habitat Affiliates](#)
2. [Going Solar](#)
 - a. [Step 1: Assemble the Team](#)
 - b. [Step 2: Determine the Cost](#)
 - c. [Step 3: Design the Budget](#)
 - d. [Step 4: Homeowner Considerations](#)
 - e. [Step 5: Site Design](#)
 - f. [Step 6: Making the Home Solar-Ready](#)
 - g. [Step 7: Installation](#)
 - h. [Step 8: After Installation](#)
 - i. [Summary](#)
3. [Appendix](#)
 - a. [Resources](#)
 - b. [Examples and Photos](#)
 - c. [Information for Homeowners](#)
 - d. [Examples of Incentives by State](#)
 - e. [Real World Examples of Installation Process and Funding](#)
 - f. [FAQs](#)

Overview of Solar for Habitat Affiliates

Purpose

The purpose of this guidebook is to help Habitat for Humanity affiliates and their local Rotary and Rotaract clubs make rooftop solar available to new Habitat homeowners. The addition of rooftop solar to new Habitat homes will reduce the homeowner's monthly power bills, thereby making the homes more affordable, decrease their carbon footprint, and strengthen the local collaborations between clubs and Habitat affiliates.

Acknowledgements

This document has been prepared by the Environmental Sustainability Rotary Action Group (ESRAG), an independent, Rotary-affiliated entity with expertise in and commitment to environmentally sustainable actions. ESRAG operates independently of Rotary International and The Rotary Foundation as a consultancy resource to Rotary and Rotaract clubs and districts seeking to reduce their environmental footprint through local and international projects. Rotary International extends its appreciation for ESRAG's support of the Rotary-Habitat partnership and for creating this guide to reduce the environmental impact of projects that advance access to safe, long-term housing, improved water and sanitation facilities and hygiene practices, and skills development to strengthen the long-term safety, health, and economic viability of communities partnering with Habitat and Rotary on projects.

Basic Overview of Solar for Habitat

Rooftop solar uses photovoltaic panels that convert the sun's light into electricity which is used by the homeowner. Excess electricity is fed back to the grid, which further offsets the homeowner's monthly electric bill in most states (also known as net metering).

A Habitat 5.4 KW solar installation can save the homeowner \$50-150/month in electricity cost depending on the electric rates in the affiliate's state. In North Carolina,

where the price of electricity is 11.6 cents per kWh, the homeowner is estimated to save approximately \$55 per month initially, which translates into a savings of more than \$24,000 over 30-years assuming the cost of electricity continues to climb by 1.3%. The average solar payback period in the U.S. is just above eight years and can be five to fifteen years, depending on local cost of electricity, incentives and cost of installation.

The Benefits of Adding Solar

The addition of solar panels will result in greater equity, make the home more affordable, and benefit the community, and the planet.

1. Homeowners

The installation of solar significantly decreases monthly power bills for homeowners. In addition to the direct financial impact, homeowners gain benefits in health, information monitoring, and equity.

The installation of solar can help interrupt the cycle of poverty by significantly decreasing monthly power bills. This is because utility bills account for a much higher percentage of monthly income for low-income vs high-income families. Solar electricity production also buffers the homeowner from electricity rate increases. As the cost of electricity rises the savings from the solar system rises at the same rate.

Generating clean electricity protects the homeowner from the health hazards associated with the burning fossil fuels in the home and encourages installation of all electrical appliances. Of note, low-income people of color are statistically more vulnerable to the adverse health consequences of poor indoor air quality (IAQ).

Solar installations have online monitoring systems that allow families to see their energy production and electrical consumption, thereby helping them reduce their consumption and further decrease their energy bills. The addition of solar typically increases the resale value of the home.

In some states, homeowners can benefit from the sale of their solar renewable energy credits (RECs) every year.

2. Local Economy

The solar industry can provide good quality jobs. Installing solar on low-income homes sends the message that solar is for everyone. Solar adoption by Habitat can help lead

the larger building industry to embrace solar, thereby increasing the number of individuals employed in this growing industry.

3. Climate Change

Solar panels generate electricity without burning fossil fuels and hence help protect all of us by decreasing CO2 production and improving air quality. The addition of a 5.4 KW system to one Habitat home saves approximately 270,000 lbs. of carbon and is equivalent to planting more than 3,000 trees or not driving nearly 300,000 miles.

4. Society Benefits from Greater Equity

Although low-income families gain the most benefit from rooftop solar, they are the least likely demographic to have access to this renewable source of energy. The average income of households with solar in the US is \$113,000. High upfront costs and limited financing opportunities create obstacles for low-income families to afford solar.

Low-income families also typically cannot qualify for the 26% federal solar tax credit because they do not pay sufficient federal tax. Therefore, a solar installation costs low-income families 33% more than their wealthier neighbors. This guide can help low-income homeowners access clean, equitable energy.

⇧ [Back to Top](#)

Going Solar

⇒ *Note that this process can be adapted to retrofit existing homes.*

Step 1: Assemble the Team

1. Bring stakeholders together.

You should include leadership and staff of the Habitat affiliate (CEO, CFO and VP construction, board, and other decision makers), an architect if one is already involved, a solar installer if already identified, and members of the local Rotary/Rotaract club(s). Consider inviting a member of the Renewable Energy Task Force of the ESRAG for a discussion of the benefits of solar and a brief overview of the process.

2. Identify a solar champion.

The solar champion will be responsible for seeing the adoption of solar through to completion. This committed person could be a member of Habitat, a Rotarian or Rotaractor, a local solar advocate, or a community leader. You can contact US solar advocacy organizations such as Solar United Neighbors to help identify solar champions in specific geographic areas.

3. Keep a log of your process.

Keep a log of your process and your contacts and consider a primary and secondary point of contact as these will be invaluable if there are staffing changes.

4. Discuss and decide.

Discuss the division of responsibilities and make the decision to move forward.

Step 2: Determine the Cost

1. Identify the number of homes to solarize.

2. Estimate the cost.

Obtain one year of monthly electric bills from a similar Habitat home to help the solar installer determine the optimal size in kilowatt hours (kWh) of the system.

3. Negotiate with licensed solar installers to get the best price.

In 2022, the US nationwide average retail cost of a 5.4 kWh installation is approximately \$15,000. Some contractors may be willing to consider installations at cost or may even donate a system. Solar installers who partner with Habitat to install solar at reduced cost are appropriately seen as supporting their communities and can celebrate the partnership on their and Habitat's platforms. Visit nabcep.org (a database of certified ethical solar installers) to learn more.

Step 3: Design the Budget

Overview

Funding will be country, state- and region-specific. In the US, some states have higher install rates and other states have better incentives. The higher the cost of electricity, the more cost effective the solar system (see more at eia.gov). In 2022, the average US cost of electricity is 10.59 cents per kWh (range 7.51 - 27.55 cents/kWh). Your solar installer will be able to calculate a more precise lifetime savings for the individual homeowner. [Read more here](#) about the average savings of a residential solar installation in the US.

Review available funding sources

1. *Federal*

Currently there is a 26% federal tax credit. Although most Habitat homeowners will not have sufficient income to claim the credit, some may and all should be made aware (see [this homeowner's guide](#) at energy.gov).

2. *States*

Most states have tax credits and/or rebates. Some additional incentives are region specific. **Remember that your installer should be aware of all local and state incentives and rebates and can advise and help you obtain these cost savings.** [See more here](#) to find rebates in your state and region.

3. *Utility companies*

Speak with your local utility. Many power companies offer rebates and incentives. e.g., Duke Energy in North Carolina and South Carolina. **Your installer should be able to assist you.**

4. *Grants*

Talk to your county and municipal government about potential grants. For example, Orange County, North Carolina provided the local Habitat affiliate with a \$95,000 grant to pay for solar installations.

5. *Donations of equipment, labor, and expertise*

Reach out to local businesses and suppliers. For example, Rotarians and Rotaractors in North Carolina contacted Strata Clean Energy, a Durham-based renewable energy company that donated new surplus solar panels to support Habitat projects in their community.

6. *Cash donations*

Many donors are eager to see their dollars house the underserved and benefit the planet. For example, Cape Cod Habitat for Humanity received more than \$400,000 donations for their solar program from community donors. Crowdfunding for Habitat solar may also be possible in some communities.

7. *Partnering between Habitat Affiliates and local Rotary clubs*

Habitat affiliates and local Rotary clubs can work together on all aspects of solar installs:

- a. Fundraising. Partnering clubs can help organize fundraisers to raise needed funds, secure sponsorships, and in-kind donations, and bring additional partners to the collaboration. In Orange County, a local Rotary club helped with financing by providing donations, supporting grant applications, obtaining matching Rotary district grant funds, and seeking rebates from the local utility.
- b. Publicity. Jointly publicize this initiative to build knowledge about solar installs, energy consumption, and financial literacy as well as to celebrate renewable energy systems, more broadly, as a necessity to manage future energy availability and cost. Maximize the use of social media.

8. *Gifts in kind*

Habitat could consider negotiating with companies to supply panels and other equipment at markedly reduced cost, as they do for other building supplies.

9. *Homeowner*

Partial financing by the homeowner can help cover funding shortfalls and make the program sustainable, as well as align with Habitat's emphasis on homeowner buy-in. The monthly loan payment should be meaningfully less than the monthly

homeowner savings on the electric bill from solar.

- a. *Option 1:* A small increase in the Habitat mortgage. For example, increasing the mortgage by \$5,000 at 0% interest. The \$20/month that the homeowner would pay would be more than offset by the >\$50/month that the homeowner would save on their electric bill.
- b. *Option 2:* Low interest financing through a green bank. See these financing options for more info: [Clean Energy CU](#) | [Solar Loan Fund](#).

10. *Leasing*

In some US states, companies are allowed to lease panels to individuals.

11. *Solar Renewable Energy Credits*

In some US states, homeowners may be able to sell solar renewable energy credits. Most people use an aggregator ([see more](#) about aggregators).

12. *Power Purchase Agreements*

Power purchase agreements are not legal in all states. [See appendix FAQs](#).

13. *Crowdfunding and solar seed fund*

See an example [here](#).

Step 4: Consider the Homeowner

1. *Educate the homeowner.*

Educate the homeowner about the benefits of solar and show them how to read their monthly electricity use and production data. Homeowners who enjoy the benefits of solar will become advocates for renewable energy. See homeowner handout in appendix.

2. *Address equity issues.*

Not all Habitat for Humanity homeowners will be eligible for solar because of roof orientation, shading from trees, etc. This needs to be discussed and explained to the homeowners.

3. *Discuss liability.*

Solar on duplexes requires deciding whether and how to share ownership/liability of the solar installation. In most cases, each household will need its own inverter.

Step 5: Design the Site

⇒ *Your solar installer should be able to assist with all of the following issues*

1. *Siting, orientation, and angle of roof*

Does the orientation of the home on the site need to be changed to maximize solar gain? Ideally, roof-mounted solar energy systems should be at an angle equal to the latitude of the location where it is installed. However, roof angles between 18 and 45 degrees are usually acceptable.

Solar panels are most effective when installed on south-facing roofs. Involve the solar installer early in the building process so that they can advise you as to the optimal orientation of the roof. [This tool from Google](#) can help get you started.

2. *Ground vs roof mount*

Garden solar (ground mount) may be an option for larger building projects, but space must be set aside in the planning stages and consider the environmental effects of a ground mount's footprint.

3. *Tree and shade analysis*

Your installer can use a shade assessment tool and advise you. Partial shade of even one panel can markedly affect the efficiency of the whole installation. There are ways around this such as choosing another site on your roof that isn't shaded or using micro inverters and power optimizers which enable each solar panel to operate independently. In addition, solar panels with parallel circuitry design limit shading loss to just the shaded area. In the event of partial shade, discuss options with your solar panel provider.

Should trees be cut down or topped or can trimming be avoided?

Tree removal is strictly regulated in many communities. [See more here.](#) Nevertheless, the lifetime output of one 5.4 kWh solar system (after accounting for the CO₂ production from manufacturing and installation) is equivalent to the lifetime carbon absorption of 90 trees. Therefore, from an environmental standpoint, topping, pruning, or removing a few trees for solar may still make sense. Cost, homeowner's desires as well as environmental and aesthetic concerns also must be considered.

Step 6: Make the Home Solar Ready

⇒ See [this planning guide](#) for solar ready buildings.

1. It is ideal, but not necessary, that homes be all-electric.
2. Run conduit to the utility-required point of connection (usually at the meter or the house's mains panel).
3. Identify and install a charging point for future EVs (electric vehicles).
4. There is no need to reinforce the roof.
5. Life expectancy of roofing material needs to be at least 25 years.
6. Consider adding a programmable thermostat (required in some US states).
7. Identify space for future battery storage.

Step 7: Install Solar Panels

1. Permitting and installation will be done by the installer.
2. You will need to coordinate with the solar installer and with the power company. This is critical if the power company issues rebates.
3. If the power company offers a rebate for nonprofits, then Habitat should sign the net metering agreement; otherwise, the homeowner signs.

Step 8: After installation

1. Arrange for local inspection and grid interconnection.
2. Finalize any rebate with the power company if they offer one. In some states the homeowner may need to sign a net metering agreement.
3. Notify homeowners if they are eligible for federal/state tax rebates.

4. No significant maintenance costs are anticipated. Any unforeseen maintenance cost could be the responsibility of the homeowners association (HOA) if there is one. You should try to negotiate a labor guarantee for 10 years with the installer. Inverters are typically warranted for 10-15 yrs. The cost of inverters in 15 years should be a fraction of the current cost. Solar panels usually have a 25-year warranty.
5. The solar system should be added to homeowner's insurance.
6. Monitor output from panels. Monitoring can be made public and posted on an affiliate's website, social media, or email newsletter. Electricity use data is very informative for the family and can change behavior and thus help the family save more money.
7. Solar panels are unlikely to adversely affect the roof. Indeed, because they block the sun's UV from hitting the roof, they may increase shingle longevity.
8. Follow up with the homeowner to answer questions and address concerns.
9. The impact of solar on property taxes varies by state. .
10. If available, the homeowner can register to sell Solar Renewable Energy Credits.

Summary

⇒ *This suggested order of priority for the first installation(s) may help you plan.*

1. **Identify a solar champion** who will see the process through.
2. **Negotiate the lowest possible cost** with the installer.
3. **Discuss the locally available rebates** from utilities, local government, and state with the installer.
4. **Check for any other grants** ([see more here](#)).
5. **Advertise your intent** to add solar via website, Facebook, etc., and solicit donations.
6. **Engage with your local Rotary club(s).**

7. **Consider soliciting donations** from solar equipment manufacturers.
8. **Slightly increase the mortgage.** Whether or not there is a funding shortfall, consider increasing the homeowner's mortgage by a small amount such as \$5,000 (\$20/month). The homeowner will still save at least \$30/month on their electric bill, and the mortgage increase will help the program become sustainable.
9. **Select and educate the homeowner.**
10. **Let your solar installer guide you** through the installation process.

↑ [Back to Top](#)

Appendix

Resources

Planning

[Sunroof Solar Planning Tool | Google](#)

[State Electricity Profiles | U.S. Energy Information Administration](#)

Costs and Incentives

[Database for State Incentives in the USA | NC Solar Center](#)

[Solar Installed System Cost Analysis | NREL](#)

[Rebate Programs by State | DSIRE](#)

[Solar Rebates and Incentives by State | Clean Energy Authority](#)

[Solar Incentives by State | UnboundSolar](#)

[Tax Exemptions for Solar | Solar Reviews](#)

[Costs of Leasing vs Buying Solar Panels | Consumer Reports](#)

[Greenhouse Gas Equivalencies Calculators | EPA.gov](#)

[Clean Energy Credit Union](#)

[Solar Energy Loan Fund](#)

Reviews and Support

[Solar Panel Savings in 2022 | Solar Reviews](#)

[Solar Supply Chain Traceability Protocol | SEIA](#)

[Certifications for Solar Professionals | NABCEP](#)

[Amicus Solar Cooperative | Amicus](#)

[Solar Adoption in Terms of Access and Equity | Renewable Energy World](#)

[Energy, Economic, and Environmental Benefits of the Solar America Initiative | NREL](#)

[⬆ Back to Top](#)

Examples and Photos



Graph of Sample Annual Energy Consumption and Solar Power Production. The family saved \$750 on their electric bill in 12 months (N.C.)



Habitat solar installation in Illinois (*photo courtesy of Aur Beck*).



Habitat solar installation in Orange Co, North Carolina (*photo courtesy Southern Energy Management*)



Proud owners of solar, this house was Habitat for Humanity of Orange Co, North Carolina's first solar installation.





Photos of the homeowners and homes built by Habitat for Humanity of Orange County, North Carolina.



Volunteers helping solar installers in Illinois (*photo courtesy of Aur Beck*).



Habitat solar installation in Illinois (*photo courtesy of Aur Beck*).

Information for Homeowners



(photo courtesy GiveSolar)

How Solar Energy Works

Solar panels change sunlight into electricity which powers your home. Any extra electricity your solar panel produces that you do not use immediately is sent to the electric grid and further reduces your monthly electric bill. You should expect to save money each month. You will save more in the summer than the winter because there is more sunshine in the summer.

Your solar panels produce clean energy, which protects the health of your family and our planet. Over the next 30 years, your solar panels will reduce the amount of carbon polluting the air by 300,000 lbs., which is the same as planting more than 3,500 trees or not driving nearly 350,000 miles. In the US, your monthly electric bill will show you how much money your solar panels are saving you. Indeed, you will be able to monitor your solar electricity production and your power consumption. Your solar installer will show you how.

Maintenance and Tips

Solar panels do not damage your roof and are designed to last for 30 years. During that time, they will make electricity every day, saving you money. The solar system will save you even more money in the future if, as is likely, the price of electricity increases. Indeed, the solar installation should save you money for more than 30 years.

Solar panels do not usually need to be cleaned. Typically, they require no maintenance and have a 25-year warranty.

Your home and your solar panels are connected to the electric grid so that you always have as much power as you need in your home even when the sun is not shining. Although you have solar panels, if there is a local grid power outage, you will lose power to your home just like your neighbors unless you have a storage battery.

When landscaping, remember to plant shrubs and dwarf trees because large trees over time can shade the solar panels and decrease your savings.

In the US, the addition of solar often does not increase property taxes, but it depends on state regulations. Let your homeowner's insurance company know that you have a solar system. The panels should be covered by your insurance.

[Here are some simple choices](#) that could lower your electric bill further and save you more money.

⬆ [Back to Top](#)

Examples of Incentives by US State (as of 2022)

⇒ *Specific municipalities may have additional incentives. Your solar installer should be fully aware of the incentives and rebates specific to your location.*

⇒ *Find incentives available in your state [at this link](#).*

Connecticut

- [Solar rebate](#)
- Approximately \$2,000 paid to the contractor after install
- Sales tax exemption on all solar equipment
- No property tax increase after install
- Net metering
- Loan program; families can borrow up to \$2,500 at 0-6% over 10 years
- Federal solar income tax credit; only families who pay sufficient federal taxes can claim this credit.

California

- [DAC-SHSH](#). This program, run by GRID alternatives, enables income-qualified homeowners in DACs to receive no-cost rooftop solar installations.
- Local rebates; \$500-5,000
- Net metering
- Federal solar income tax credit

North Carolina

- Duke Energy rebates, residential or nonprofits. Habitat for Humanity is eligible for a rebate specifically for nonprofit organizations (0.75c/watt) as long as they file for rebate before the electric bill is turned over to the client.
- Federal income tax credit
- Solar addition does not increase property taxes
- Net metering
- [Regional rebates](#)

Boulder, Colorado

- [\\$200 rebate](#)
- Sales tax incentive
- Property tax exemption
- Can apply for a climate action fund grant

Real-World Examples of Installation Process and Funding

In the fall of 2018, only 50 out of 1200 Habitat affiliates were adding solar. Some of these installations were made possible by the generosity of local solar installers. For example, Rotarian Aur Beck of Advanced Energy Solutions donated solar installation on 6 Habitat homes.

Below are examples of the efforts of three Habitat affiliates and their supporters.

1. Habitat for Humanity, Orange County, North Carolina

Single pilot solar install (2020-2021)

- *Funding*
 - East Chapel Hill Rotary donated \$6,500.
 - Southern Energy Management (SEM), a local solar installer, provided and installed the system at cost.
 - Duke Energy provided a rebate of \$3,750 to the local Habitat Affiliate.
- *Installation and permitting*
 - Habitat staff educated the homeowners about the financial and environmental benefits of the solar system. After two weeks, the homeowners decided that they wanted this free system. After the install, they were so excited that their neighbors asked if they could have solar also.
 - SEM did site evaluation, chose and supplied the panels and all the equipment, and did the install and permitting. The Habitat construction supervisor coordinated with SEM to facilitate the install and with Duke Energy to obtain the rebate and the grid interconnection.

Ten installations (2021-2022)

The optimal size of the system was changed from 5.0 kWh to 5.4 kWh after reviewing the average monthly electricity usage of similar Habitat homes in the area.

- *Funding*
 - Rotary District provided a District Grant of \$6,000.
 - Orange County provided a grant of \$95,000.00.
 - Duke Energy offered rebates in \$40,000.00 (anticipated).
 - Strata Clean Energy donated 100 solar panels.

- A local business donated 100 five-year-old used panels.
 - SEM donated solar install for an average cost of \$7,500 per install (cost savings of \$9,500 over retail price).
 - \$66,000 will remain in a solar fund to help make the program more sustainable.
- *Installation*
 - The local Habitat affiliate ran conduit and coordinated with Duke Energy and SEM.
 - *After install*
 - For duplex installations, any unlikely maintenance cost will be covered by their HOA.

The Habitat affiliate has been able to monitor the monthly electrical savings of the system, which has given them concrete evidence that they are helping their homeowners save money by installing solar.

The process for subsequent installations was easier after the first installation, including interfacing with the installer and homeowners and obtaining the rebates.

- *Future Plans*
 - The Duke Energy rebate ends in 2023.
 - The Habitat affiliate is considering partial homeowner funding through a small increase in the mortgage, e.g. \$5,000 at 0% interest which will cost the homeowner \$20/month while saving \$55/month on the electric bill.
 - The stakeholders plan to apply for a County Grant in 2022.
 - Local Rotary clubs will apply for Rotary District Grants.
 - Strata Clean Energy will donate another 160 new solar panels in 2022.
 - Starting in 2023, the affiliate plans to add solar on at least 15 homes per year.
 - The affiliate went back to their architects to be sure as many of their homes as possible could receive solar and roof orientation was changed to maximize solar energy gain.



Photos of homes built by Habitat for Humanity of Orange County, North Carolina.



Photos of homes built by Habitat for Humanity of Orange County, NC (*Courtesy Southern Energy Management*)

2. Habitat For Humanity of Cape Cod

Habitat For Humanity Cape Cod (Habitat Cape Cod) has demonstrated what can be achieved and what obstacles can be overcome when there is commitment to adding solar. Since 2009, they solarized 48 homes, and all but out of their last 30 homes has solar. All installations have been done at no additional cost to the homeowner.

Habitat Cape Cod also leads the way in energy efficient homes. Since 2018, their homes have consistently received the best HERS ratings of any Habitat affiliate in the US.

- *Funding*
 - Cape Cod Light Compact
 - Private donations and foundations (\$400,000 in private donations)
 - SREC/Now SMART credits (retained by the affiliate or funder)
 - Rebates and incentives (MA SAVE energy efficiency incentives and equipment rebates)
 - Net metering credits (directed to Office/Restore accounts in the interim period between solar installation and closing)



Photo of Habitat Cape Cod home builds (*Courtesy of E2 Solar, Dennis, Massachusetts*).

3. Central Valley Habitat for Humanity (Bridgewater, Virginia)

In October 2020, Central Valley Habitat partnered with [GiveSolar](#) to explore solar programs for the affiliate. A proof-of-concept project was identified and implemented on a duplex in Broadway, Virginia.

In February of 2021, the Central Valley Habitat Board approved a proposal made by GiveSolar to develop a \$100,000 revolving Solar Seed Fund to finance future solar installs. Donations in the amount of \$149,820 were raised between December 2020 and November of 2021.

- *Funding*
 - Crowdfunding donations: \$39,505
 - Businesses: \$13,700
 - Faith Communities: \$ 6,940
 - Family endowments: \$60,000
 - Solar United Neighbors: \$29,675
- *Installation/Permitting*
 - Installations and permitting are managed by a licensed solar installation company. Habitat homeowners and volunteers participate in a “solar barn-raising” to assist in the installation of the solar modules.
- *After Install*
 - Homeowner education regarding solar and energy efficiency is conducted. Homeowners can choose to participate in a solar tracking program that collects data on energy produced by solar, net electricity usage, savings from solar, and electricity bills.
- *Future Plans*
 - Central Valley Habitat will administer the Solar Seed Fund for the next five years. They plan to use the fund to install solar on 20 homes at the rate of approximately four each year. At the end of five years, the Central Valley HFH board will evaluate the merits of continuing the project.



Solar barn-raising volunteers in Harrisonburg, Virginia, on January 28, 2022.

⇧ [Back to Top](#)

Frequently Asked Questions

⇒ *See more frequently asked questions [here](#).*

Is the US Federal Investment Tax Credit (ITC) going to change?

The Build Back Better Act is stalled in the senate and may not pass. The Act would increase the ITC from the current federal tax credit of 26% to 30% from 2022 through 2031 and would make the credit refundable (Direct Pay), meaning homeowners with limited tax liability would get a refund for the unused portion of the credit, rather than having to carry the credit forward to a future year. This bill would make funding solar for low-income homeowners easier and more equitable. If passed, refundability would not start until 2024.

Do solar panels reduce roof temperature?

Yes, solar panels reduce the amount of heat reaching the roof by 38%, keeping a building's roof 5 degrees cooler than portions of a roof exposed to sunlight directly.

Are solar panels illegal in Florida?

No, solar panels are not illegal in Florida, and HOAs cannot prevent rooftop solar adoption.

Is solar covered by the homeowner's insurance policy?

Most solar energy systems, including the paneling on the roof, are considered a permanent attachment. Like a security system or a deck, solar panels are considered part of the home and therefore can be protected by a homeowner's policy.

However, because of outdated concerns within the insurance market in Florida, one should shop around for insurance. [See more here](#).

Can you install solar in areas of the country that have hurricanes?

Concerns about wind and solar damage are also misplaced. "A lot of data shows that solar panels help hold a roof down. They're beneficial, not detrimental," said Philip Fairey, Director of the Florida Solar Energy Center, a research organization based at the University of Central Florida. The center was created by the Florida Legislature in 1975 to research all aspects of solar energy. In fact, one solar company gave examples of roof shingles that were damaged in a hurricane, except for where the solar panels were.

Do solar panels adversely affect roof integrity?

No, solar panels do not adversely affect roof integrity when installed correctly.

What are the expected maintenance costs?

Most solar systems require little to no repairs or replacements. If any part of the solar equipment is likely to fail, it is the inverter. The guarantee for inverters is typically 10-15 years. It is expected that the cost of a new inverter in 15 years will be at most a few hundred dollars. Fortunately, solar panels also come with manufacturer warranties that are typically 25 years, helping protect the homeowner in case of faulty equipment. Most solar panels are installed at an angle and are cleaned naturally by the rain.

Solar will typically decrease the monthly power bill by >50%, but not 100%, so it is important to set appropriate expectations.

Are there any landscaping limitations?

It is recommended to plan future landscaping with dwarf trees and shrubs so that tree shade does not become a problem over time.

Is snow on solar panels a problem?

Panels are designed to withstand snow. Because of their solar orientation, snow usually melts fast and in doing so cleans the panels, just like snow on your car. A Norwegian company has developed a method for melting snow on panels for industrial and large installation use. [See more here](#).

What is a PPA?

A solar *power purchase agreement* (PPA) is a financial agreement where a developer installs solar on a customer's property at little to no cost. The developer sells the power generated to the customer at a fixed rate that is typically lower than the local utility's rate, thus offsetting the customer's purchase of electricity from the grid. The developer receives the income from the sale of electricity as well as any tax credits and other incentives generated from the system and is responsible for the operation and maintenance of the system for the duration of the agreement.

How bad is air pollution?

Globally, air pollution is the fourth leading risk factor for mortality and contributed to an estimated 6.7 million deaths in 2019. The National Renewable Energy Laboratory (NREL) estimated that emissions reductions resulting from the Solar America Initiative, known as the widespread adoption of renewable energy, will have a positive impact on a range of respiratory and cardiovascular health issues as well as decreasing workdays lost because of illness. [See more here](#).

What is net metering?

Net metering is an electric billing mechanism that allows the excess energy produced by the solar panels to be stored by the electric grid and is credited back to the homeowner.

⬆ [Back to Top](#)

Draft 3/13 ESRAG/ RETF contact Elizabeth Henke (ebbwww@gmail.com) v
12-July-022-RI.