

Solar Up NH



Frequently Asked Questions

Q. What is Solar UP New Hampshire?

A. Solar Up New Hampshire is a program designed to make it easy and affordable for residents and businesses to go solar—that is, to convert sunlight into electricity that we can all use in our homes. It is a regional initiative that towns compete to be part of. Solar Up New Hampshire provides significant discounts off the cost of a solar photovoltaic (PV) system, which is in addition to incentives from the state and federal governments. Solar Up New Hampshire gives residents access to significant savings on the cost of electricity for decades to come.

Q. What is the cost to the town?

A. Town money is not used for the Solar Up program. Solar Up materials are paid for in large part by the installer and grant funds. Other grassroots efforts as well as local program management are handled by volunteers led by the Energy Commissions/Committees in each town or town officials.

Q. Why is the town promoting one installer?

A. The Solar Up program works by giving residents and businesses the benefit of economies of scale. An installer can offer reduced prices by concentrating its efforts in one area and working with the community to spread the word about the program. The more people in the community who sign up, the lower the price goes for everyone, even the first to sign up. But everyone is free to use another installer or, of course, not to go solar at all.

Q. How was the designated installer selected?

A. The process began with Southern New Hampshire Planning Commission issuing a Request for Proposals from installers who were interested in serving the towns participating in Solar Up New Hampshire. After a screening process between SNHPC, the non-profit SmartPower and the towns, a small committee from your town interviewed selected installers and ranked the proposals, based on prices, quality of the equipment to be installed, quality of service, and overall track record. The SNHPC then contracts in good faith with the designated installer for the town.

Q. How do I know if my home is suitable for solar?

A. The most suitable location for a roof-mounted solar PV system is a south-facing roof with little to no shading from nearby trees, chimneys or other obstructions. Any shading on the system can reduce energy output, so it is important to assess the locations of current trees and buildings around your home as well as that of other obstructions that may exist around your home in the future. Advances in panel and inverter technologies can allow homes with some south-east or south-west-facing roofs to benefit from solar PV as well. The installer can give you a free evaluation of the suitability of your home. If your roof does not work you may also consider a ground mounted system.

Q. My roof is old; my roof is metal; my attic is hard to access;...Can I have solar?

A: All of these situations can be handled by a professional installer. If your roof needs to be replaced soon anyway, it may make sense to do that first. The installer can evaluate your situation as part of the free evaluation.

Q. Will drilling holes in my roof to install the solar panels cause leaks in my roof?

A: No. This is an issue that has been successfully addressed by specialized solar roof mounting systems, with professional installations.

Q. Can you put a solar array on an asphalt roof that is older than 5 years?

A. It can be completely acceptable to locate an array on an asphalt shingle roof over 5 years old and the decision to do so is completely dependent upon the condition of the roof, not necessarily the roof's age. Mounting a solar array on a roof can actually extend the life of the roof as the area under the array is shaded from the harmful UV rays. It is important to note however that when a roof is over 10 years old, the owner may want to have a plan to remove the panels in the next 20 years to replace the roof. This is not required, but the owner should be aware it might happen.

Q. If your asphalt shingle roof is over 5 years old should you consider changing it to a standing seam metal roof if you want a mounted PV array?

A. Standing seam metal roofs are very nice and really expensive, but are not required for roof mounted PV arrays. The best solution for solar mounting is really site dependent. Solar PV arrays can be mounted on existing roofs composed of asphalt shingles, standing seam, corrugated metal, rubber membrane as well as ground and pole mounts. Changing a roof to standing seam may be entirely unnecessary, but also may be a solution to consider given that metal will last approximately 50 years.

Q. Will the system produce electricity on cloudy days?

A. Yes, just not as much. Under an overcast sky, panels will produce less electricity than they produce on a clear, sunny day.

Q. Will my system produce power if there is a blackout?

A. Without a battery backup, grid-tied solar PV systems will not operate when the power grid is down. This safety requirement, called “anti-islanding” allows utility linemen to safely repair power lines during a power outage. You may choose to add a battery backup to your solar system to keep the lights on during a blackout, though they cost between \$3,000 and \$15,000.

Q. How long will the installation process take?

A. From the day you sign a contract with an installer, it can take between a few weeks and a few months before your solar PV system will be turned on. The physical installation of the solar system typically takes anywhere from two to three days, but the time it takes to order and receive equipment, secure permits or schedule your installation can vary. Once installed, systems typically will need to be inspected by the town and utility.

Q. Can a ground or pole mount PV array be installed more cheaply than a roof mounted system?

A. This is completely dependent upon the particulars of the system, the site and the amount of electricity the customer wishes to make. It is also dependent upon what the solar installer can offer you as the owner. In most cases today, roof mounted PV arrays are typically less expensive than ground mounts but costs for ground mounts are steadily decreasing.

Q. Are micro-inverters the only way to build a solar array?

A. Micro-inverters, like other module level electronics such as optimizers, can be great options, but they are not the only option and there is not one size that fits all solar PV systems. Micro-inverters can be great to maximize production under partial shading or other site conditions. All solar electronics have to make electricity for a long time to achieve financial benefits: for example, micro-inverters sitting under a hot PV module exposed to the elements for 25 years or more will not last as long as a string inverter in a nice cool basement or in the shade of a building. It makes little sense to use these devices if the site does not call for it, but if it does, they are beneficial. System simplicity increases the probability of a long lived trouble-free PV array.

Q. There is a large up-front cost to install solar PV panels? What if I do not have the money to pay for it?

A. While the simplest solution is to pay cash out of savings, this is not possible for many people, although it may be a little easier than it sounds since you get 30% back as a federal tax credit and a cash rebate from the state within the first year. However, there are at least four other financing options: 1) Borrow against the equity in your home. Today, rates for home loans and home equity lines of credit are quite low. Depending on your specific circumstances, you may find that the yearly loan payments are lower than the overall savings from the solar installation. 2) Take out a personal loan. You pay a higher interest rate for a personal loan that is not backed by the equity in your home. However, there are credit unions, such as St. Mary’s Credit Union, that offer “green” loans with more attractive rates. 3) Install it yourself. If you have home improvement skills or interest (electrical,

carpentry, etc.), there are local, non-profit groups, such as the Hillsborough Area Renewable Energy Initiative (see www.HAREI.org) that help homeowners install their own systems at a reduced cost. The drawback to this method is that there is no warranty on the work, and it requires sweat-equity. 4) Lease the system and/or enter into a Power Purchase Agreement for the output (more details below).

Q. What is a Power Purchase Agreement (PPA)?

A. A solar installer that offers you a PPA will evaluate your home for its solar potential. If it is suitable, they will offer to install a system and sell you electricity for a fixed time period (typically 10-20 years) at a rate that is lower than current electric prices. The deal here is that since the installer is making the investment, they take almost all the profit, but you will pay a lower rate for electricity. The benefit to you is that there is no up-front cost, and you get a currently discounted electricity cost. Issues to check out before signing a contract:

- How much of your electric usage will be covered?
- Can the system owner raise the price of electricity that you pay?
- What happens if the cost of electricity falls below your discounted rate?
- What happens if you want to sell your home and/or there is a lien on the property?
- What happens if you want to make changes to the roof?

Q. What are your Solar Installers Credentials?

A. It is important that your solar PV installer have formal credentials to ensure that a system is properly designed and installed. This includes having a Solar Energy International Solar Professionals Certificate and a NH Electrician's License, but may also include additional certifications such as NABCEP or other technical college degrees. It is a requirement in NH that all metallic structures that are part of a solar PV system are properly bonded by a licensed NH electrician. Also see attached Office of State Fire Marshal's November 27, 2012 Informational Bulletin.

Q. What sort of maintenance is required?

A. Solar PV systems require very little maintenance. Rain showers will generally take care of pollen and dust that fall on your solar panels. If your system is shaded by trees, you may have to trim and maintain branches to protect your system from falling limbs and to minimize shading and maximize production. In extremely snowy winters, you may have to clear snow from your roof to protect your solar panels and maximize winter production. It is important to note that snow will melt off of a tilted system except when there is an extremely heavy snow or prolonged freezing temperatures.

Q. What size system should I install?

A. Every home is different. As such, your system size will be determined by your roof space and electricity needs. The average residential solar system is approximately 7 kW and produces approximately 8,400 kWh per year, but this could be too big or too small for your home. If you use certain technologies that are highly dependent on electricity, such as an electric car or geothermal heating and cooling, you might require a larger system than otherwise. Your installer will work with you to design a system with characteristics that will meet your specific needs. Reducing your electricity demand through energy efficiency

and conservation is another important consideration when sizing a PV system in order to produce only what you need so that you need not pay for excess capacity.

Q. Are Solar PV systems and installations safe?

A. Yes solar PV is a tested, safe and efficient source of energy for your home or place of business. Building code and fire code requirements as well as solar panel manufacture warranties ensure that these systems are safe, last for many years and are installed properly. These code requirements also require that solar PV systems be easily shut down to allow for fire-fighting and access to a roof in case of fire. Fire codes also specify three feet setbacks between the array and roof edge as well as between the top of the array and roof ridge. This prevents filling the entire roof space with solar panels.

Q. Do solar PV panels produce glare and become hot enough to become a fire hazard?

A. No. Solar panels are manufactured with anti-glare technology which incorporates a matte finish inside the panel to eliminate reflective glare. Solar PV panels can reach approximately 350-375 °F in areas of high sun exposure in places such as Arizona. It takes 451 degrees to burn paper. The panels are mounted on rail systems, which provide a 4-6 inch air gap between the panels and the roof, negating this issue by allowing the heat to escape. The typical dark-colored roof shingles found on many homes get just as hot as the solar PV panels. Thus, solar PV panels do not become hot enough to create a fire or ignite a roof or building siding.

Q. How will solar affect my home's value?

A. Typically, solar systems add to a property's value. This is due to the fact that unlike electricity rates, solar rates will never go up. Thus, a solar PV system insulates you from rising electricity rates. Once the system has paid for itself, the electricity it generates is absolutely free!

Q. How much will I save by installing a solar system?

A. Your savings depend on the size of the system you choose, your annual electrical usage, electricity rates, and any financing option that you choose from your Solar Up installer. To start, ask your solar installer how much electricity your new system is expected to produce on an annual basis and then compare that number to how much electricity your household uses to get an idea of how much you could save. Installers can also help you determine how much money you could save if electricity prices escalate over time.

Q. I am confused about my electricity charges; can you explain my service rates?

A. Typically, a residential electricity bill is comprised of charges from a variety of supplier services, mainly: the fixed customer charge, generation services, delivery services, transmission charge, and distribution charge. For further reference, please go to your utilities website and search for "average bill" in the "Rates" section.

Q. Will I still receive a monthly electric bill after installing a solar electric system?

A: Yes. You will receive a monthly bill from your utility company as you always have, but the amount owed will differ depending on your monthly electrical usage. Depending on how your system is sized, you may accrue credits in the more productive summer months which through “net metering” can be carried over and used in the less productive winter months. Even if your system entirely offsets your electrical usage, there is still a flat monthly fee required, in order to be connected to the grid.

Q. Am I required to use the Solar Up installer that was preselected for my community?

A. To take advantage of the tiered pricing structure offered through the Solar Up New Hampshire program, you’ll need to work with your pre-selected installer. However, other solar installers may be able to offer you competitive pricing as well. Residents and businesses in your town or city are free to work with any contractor they wish to do business with, but may feel more comfortable working with the installer that was competitively selected by community leaders.

Q. Will installing a solar system increase my tax base?

A. It can depending on whether your town has in place a local property tax exemption for solar PV systems. While your property value will likely increase, some towns have in place property tax exemptions for renewable clean energy systems. Claims for these exemptions must be filed with the assessor or select board in your town. Make sure to contact your local tax assessor’s office for more information. Such an exemption may also apply to solar water, wind turbine systems or wood-heating energy resources, regardless of the type of facility the system serves.

Q. Does homeowner’s insurance cover my system?

A. If you prefer to own your system directly and either purchase it outright or finance it via a loan, you should check with your insurance agent to find out whether your system will be covered under your existing policy.

Q. Are state incentives available for my system?

A. Yes, see the New Hampshire PUC website at: <http://www.puc.nh.gov> for information about the state’s residential renewable energy rebate programs. As of September 18, 2015 and order of the PUC, there is now a reduction of the incentive payment level to \$0.50 per watt up to a maximum of \$2,000, or 30% of the total system cost, whichever is less. This modification goes into effect for applications received after October 2, 2015. Prior to October 2, 2015, the incentive program will continue to provide for \$3,750 or 50% of total facility cost, whichever is less. There is also a residential solar hot water rebate program. While there was a temporary hold in place regarding the rebate program this summer; given the high demand for these rebates and limited program funding as well as continuing decreases in solar prices, the PUC Commission determined that the state rebate program should continue to operate under the current terms and conditions.

Q. Will Electric Utility Companies in NH continue to support solar PV installations?

A. There is currently a 50 MW cap statewide on solar PV installations and this cap is quickly being approached now. Liberty Utilities hit their cap allocation level at the end of July and Eversource has enough solar PV projects in the pipeline to potentially hit their cap relatively soon. Unitil is the furthest away from hitting their cap, with about 35% of their allocation online or under review. A piece of legislation that would lift the cap is currently being considered for the special session in the fall, as a bridge to the 2016 legislative session in January 2016. Approval of this legislation would likely ensure that additional residential and small commercial solar PV installations will be able to be developed throughout the state in FY 2016.

Q. Are federal incentives available for my system?

A. The federal government currently provides an investment tax credit equal to 30% of your system's total installed cost, net of state incentives. This can be claimed on your 2015 or 2016 tax return. This tax credit is set to be reduced to 10% starting on January 1, 2017.

STATE OF NEW HAMPSHIRE DEPARTMENT OF SAFETY
John J. Barthelmes, Commissioner



Division of Fire Safety
OFFICE OF THE STATE FIRE MARSHAL
J. William Degnan, State Fire Marshal



Office: NH Incident Management Center, 110 Smokey Bear Blvd., Concord, NH
Mailing Address: 33 Hazen Drive, Concord, NH 03305
PHONE 603-223-4289, FAX 603-223-4294 or 603-223-4295
TDD Access: Relay NH 1-800-735-2964 ARSON HOTLINE 1-800-400-3526

INFORMATIONAL BULLETIN

BULLETIN #	TITLE			DATE ISSUED
2013-02	Solar Installations			11/27/2012
SUPERSEDES	RELEASED BY	APPROVED BY	SOURCE	SUPERSEDED BY
See below	DS	RBF	Electrical Safety & Licensing Electricians' Board	

On November 27, 2012 the Electricians' Licensing Board (Board) voted unanimously that all the metallic structure components of a PV system are required to be installed by a New Hampshire licensed electrician under the scope of RSA 319-C.

After receiving public input at an open forum, held on October 23, 2012, the Board voted in favor of the following motion, the installation of the metallic support structure, fittings, raceways, conductors and electrical equipment are considered part of the electrical installation and therefore are required to be installed by a New Hampshire licensed electrician. This would include any bonding jumpers or devices identified for grounding or bonding of the metallic frames of PV modules, metallic mounting structures or other metallic equipment.

This current decision of the Board supersedes any prior decisions and informational bulletins regarding licensure requirements relating to PV installations.