



Shining Light on Your Solar Questions

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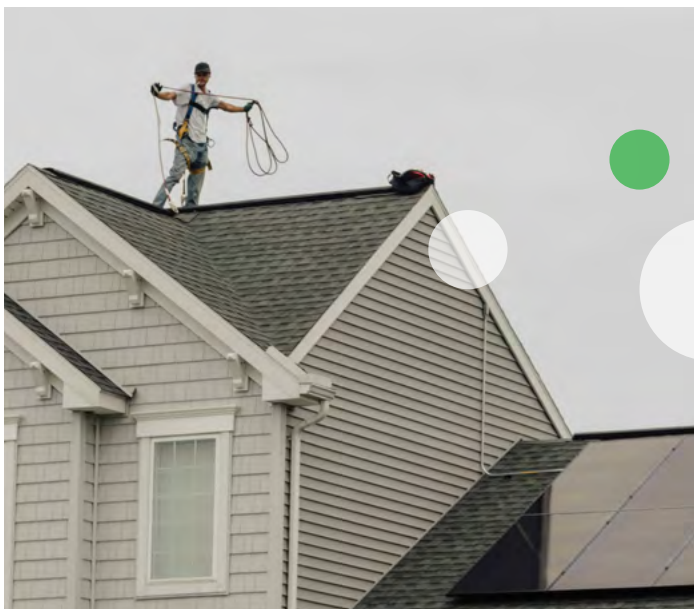
20 years ago, the idea of accessible solar systems may have seemed a bit strange. Today, solar is becoming the prevalent renewable energy choice. Our team is committed to helping you understand the complexity of the solar process. Below, you'll discover what solar is, how it works, and how this home improvement will save you money every month.

How Solar Works?

What Are Solar Panels?

Solar panels, also known as photovoltaic (PV) panels, are devices that convert sunlight into electrical energy. They are a key component of solar power systems, which harness the energy from the sun to generate electricity. Solar panels consist of many solar cells, which are typically made of semiconductor materials such as silicon. The exterior structure of solar panels, such as the glass casings and metal frames, are optimized to produce strong energy capture efficiency while also protecting the panels from damage and overheating.

Solar falls under the family of clean and renewable energy technologies, along with wind, hydro, geothermal, and several others. At its core, clean and renewable energy sources provide power without the ongoing extraction of fossil based fuels thus protecting those limited resources and reducing pollution.



How Do Solar Panels Work?

The fundamental principle behind solar panels is the photovoltaic effect. When sunlight strikes the surface of a solar cell, it excites electrons in the semiconductor material causing them to flow and create an electric current.

Solar cells are arranged and connected in a way that forms a module or a panel. The panel is then mounted on a support structure, often on rooftops or on the ground, to capture sunlight. The direct current (DC) electricity generated by the solar panels needs to be converted to alternating current (AC) to be used in most household appliances. An inverter is used for this purpose. The converted AC electricity is then connected to the grid through the home's meter.

At Lumina Solar, we use microinverters as opposed to central or string inverters which are installed on a per-panel basis. This allows each panel to operate independently so they can maximize production regardless of shading or other factors that may impact the performance of one or more panels. Microinverters also come with monitoring capabilities that allow



users to track the performance of individual solar panels in real-time. This monitoring can provide insights into the overall health of the solar power system and quickly identify any issues or inefficiencies.

What Is Net Metering?

Net metering is another way photovoltaic systems may help lower your overall energy costs. Most simply, it is a billing arrangement for grid-connected solar power systems or other renewable energy sources. It allows solar panel owners to receive credit for excess electricity they generate. When solar production exceeds usage, surplus power is sent to the grid, earning credits. During periods of low production, credits can offset electricity drawn from the grid. Users are billed

only for the “net” electricity consumed, promoting renewable energy adoption and reducing costs. The specifics of net metering policies can vary by location and utility company.

Does Going Solar Provide Energy Independence?

Solar energy promotes energy independence by enabling individuals to generate their own electricity, reducing reliance on the traditional grid. This self-sufficiency lowers vulnerability to fluctuations in utility prices and contributes to a more stable, predictable energy cost. Solar energy also fosters environmental sustainability by decreasing dependence on fossil fuels and creates local job opportunities.



What Are The Benefits?

There are two major reasons solar energy is being adopted at lightning speed: economic and environmental advantages. If you're looking into investing in solar panels, it's likely that one of these has been a motivating factor.

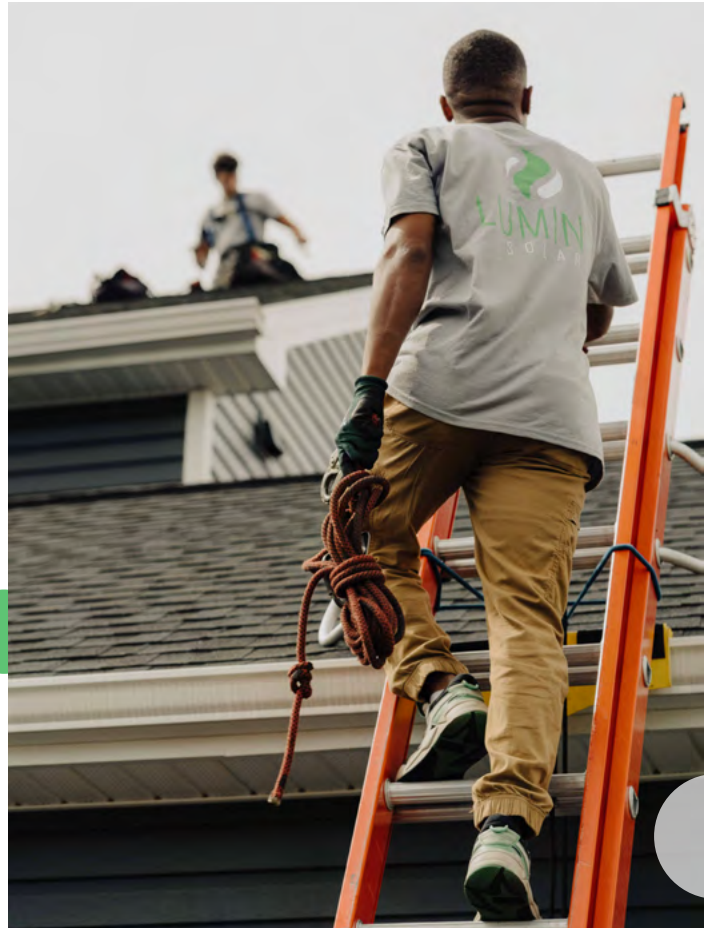
Economic Advantages

On average, utility prices throughout the country rise by over 2% each year and with the lack of utility provider choices in most areas, you're locked into whatever rates they offer. As mentioned in this [2023 article](#), US electricity costs have increased an average of 19.5% from 2015 to 2023. Homeowners in the Mid-Atlantic feel these pains particularly, with some of the most expensive utility rates in the country across the region.

With solar, you are able to produce your own energy and significantly cut the total amount of energy you need to buy from the grid each month. In some cases, you will eliminate your monthly energy charges entirely. While different factors will determine your system's output, the truth is that most people will see substantial savings by making the switch.

SAVE
MONEY

REDUCE CARBON
FOOTPRINT



How Much Money Will I Save?

Everyone's scenario is different, which makes it impossible to give a set number of the savings you can see. Generally, the amount you save will be determined by your system's output. This is impacted by the number of panels your roof is able to accommodate, the pitch of the roof, the amount of shade, the weather in your area, and more.

If you own the panels outright and are able to generate 100% or more of your energy needs, you will see your monthly electricity charges disappear. Those who choose a \$0 down solar loan will see their payments offset by their monthly energy savings. Both of these options are eligible for solar incentives.

If you choose not to own your panels and instead benefit through a Power Purchasing Agreement (PPA - Not available in VA), you will see, on average, a 20-30% reduction in your monthly energy expenses. Though you will not be able to access incentives with the PPA option, it does come with the peace of mind that your system is 100% covered and maintained by the PPA provider.

What Are Solar Incentives?

Renewable energy is becoming a priority of governments at the local, state, and federal levels. To encourage the wider adoption of solar energy, a variety of incentives are available to offset installation costs and save you money over time.

What Are Federal Incentives?

Federal Solar Investment Tax Credit (ITC) allows you to claim a 30% tax credit on the total cost of your solar system. It's an excellent way to help offset installation costs when purchasing your new system.

These benefits were set to taper off, but the government recently renewed the benefits through 2032. Both homeowners and business owners can claim the ITC.

What Are State & Local Incentives?

Different states and municipalities offer their own programs to help residents go solar at a reduced cost. These typically come in the form of tax breaks, cash rebates on a portion of installation costs, and sales tax exemptions. Another common incentive is an exception for property tax hikes that are due to solar increasing property values.

Several counties and cities also offer their own benefits for going solar. Once you add up every available incentive, you can see substantial cuts to the initial investment needed to go solar. Our solar consultants will help you explore the specific incentives available within your state and zip code.





What Are Solar Renewable Energy Credits (SRECs)?

If you've been looking into solar, you've probably come across the term SRECs. They're another facet of the solar incentive structure that helps lower your overall energy costs. At a basic level, SRECs are credits generated the more you use your solar system. In an effort to increase green energy usage, utility companies are required to generate a certain amount of their energy through renewables. However, they also have the opportunity to help subsidize your green energy production to meet their given quotas.

SRECs are somewhat like solar energy stocks. One SREC is earned for every 1,000 kWh of electricity produced by a solar system. By simply using your system, you are working toward earning more SRECs over time.

What Can I Do With SRECs?

Once you've generated an SREC, it can be sold on an SREC Marketplace. You'll work with an SREC Broker, who will help you

list your credit on the marketplace. From there, utility companies can purchase your credits. Since this can be a daunting task, many solar providers, such as Lumina, offer to manage this for you in-house and send your earnings directly to you. The price for each SREC ranges by state. You can see the current value of SRECs in your state [here](#). Solar Renewable Energy Credits shouldn't be considered a way to generate consistent income. Rather, the money you generate can be a nice boost to help offset your system and energy costs overall.

Is Solar A Good Home Improvement Strategy?



Solar systems are unique in the realm of home improvement. While remodeling your kitchen or installing new windows can raise your property value, these improvements rarely provide the consistent ROI delivered by going solar. Aesthetic updates can suffer from the whims of subjective tastes, lowering their overall value. However, solar provides measurable benefits to the function of your home itself by slashing energy costs.

Does Going Solar Improve Property Value?

Many renovations are completed with the hope of increasing one's property value, but these improvements can depreciate in value faster than you may expect. Solar delivers the double benefits of energy savings and a big bump in property value.

A study conducted by Zillow showed that property values increased by 4% following a solar installation. In some markets, this number climbed as high as 5.5%. This is a substantial improvement on top of the regular monthly savings benefits.



What Are The Environmental Benefits of Going Solar?

Electricity generation is an undisputed factor in global carbon emissions. According to the EPA, a significant percentage of our electricity is generated through the usage of coal and natural gas. These have a substantial impact on the environment. By going solar, you



can join the growing number of home and business owners doing their part to decarbonize our electricity grid and build a brighter future.

The downsides of using fossil fuels to generate electricity are clear.

- The emission of greenhouse gases can reduce air quality, contributing to the development of respiratory diseases.
- Waterways can become contaminated, either through fuel leaks or the disposal of hazardous materials.
- A drain on water resources due to the need for water cooling systems in fossil-fuel-dependent power plants.
- Significant land usage for production and fuel transportation.
- Damage to plant and animal ecosystems through environmental pollution.

By contrast, solar is a renewable energy with zero emissions in its operation. It's a sustainable way to generate electricity and build a healthier environment for you and your community.



What Is The Process?

The Design Process

Each property has its own unique capabilities when it comes to going solar. Our team takes the time and care to provide a detailed analysis and design for your property that will maximize capacity and efficiency. Some aspects we look at include:

Roof Space: How many panels your property can accommodate? What are permitting requirements in your county and how they apply to your property.

Placement and Pitch How should the panels be designed to gain the most exposure to sunlight during the day?

Budget and Energy Needs: What sized system fits your specific needs?

Our initial analysis is conducted with the use of recent satellite imagery in combination with advanced 3D modeling programs.

We factor in all of the before mentioned aspects along with local weather data and sun paths to give us realistic production projects. Then, once a design is agreed upon, we perform a detailed in-person property survey to complete the planning of your custom-tailored solar system.



The Installation Process

At Lumina Solar, we try to make the installation process as straightforward and stress-free as possible. Unlike some home improvement projects, solar installation tends to be minimally disruptive and time-efficient.

- Our crew arrives early on installation day and begins the process of attaching your solar system.
- Most installations are completed within one day, though the size of your system and the weather conditions can have an impact on this.
- We schedule an inspection with the local utility authority. This is required before your solar system can operate.
- Once this inspection is complete, you are given Permission to Operate (PTO) and your solar system can be turned on. You can now begin generating clean renewable energy!



What Are Additional Options / Factors I Should Consider?

We want you to get the most out of your new solar system. Every customer has different needs and may want to explore add-ons and additional services to improve their solar array.

Battery Storage

If you want to save the extra energy your system generates, you'll need a battery storage system. Typically this energy will be sent back to the grid and you'll receive energy credits. Instead, you can choose to install a battery storage system that can function as backup generator, powering your home with your saved electricity in the event of a grid outage.

EV Chargers

The electric vehicle industry is seeing massive growth. If you're an electric vehicle (EV) owner, you may want to explore the option of home EV chargers. Forget having to worry about stopping at a charging station on the way to work. Instead, you can connect your EV charger to your home solar system, saving time and money.

Roofing Services

A solar installation relies on the stability of your roof. In some instances, roofing damage or age may prevent you from having solar panels installed. Or, over time, your roof may sustain damage after you've already installed your solar system. In either event, Lumina Solar is here to help address both your solar and roofing needs! We offer in-house roofing services and related maintenance such as removal and reinstall. Our solar consultants can help you determine if your roof is ready for solar and provide additional information on roof related pricing and services.

Manufacturer Warranties & Lumina Protection Plus+

Your Lumina Solar system is protected by a comprehensive warranty. Solar panels are built to last, but in the event that your system experiences a malfunction or damage of some kind, you have warranty coverage to help you get your solar installation back to full strength.

With Lumina Protection Plus+, you get an extended **30-year warranty on Parts, Labor, and Roof Penetrations**. This warranty is an AM Best and A Rated insurance policy backed by [SolarInsure](#) and layers over your standard warranty from the equipment manufacturers.

mid-atlantic

► SOLAR INSTALLER

Maintenance

A solar system is an investment, one you want to maintain throughout its lifespan. While solar panels are made to withstand the elements, over time they can still suffer from damage, malfunctions, and wear and tear. You'll want to ensure you recruit a solar care team to provide proper maintenance to your system. Luckily, Lumina has dedicated customer care and a maintenance staff to address any issues that may possibly arise.



About Lumina Solar

Founded in 2018, Lumina Solar brought together some of the Mid-Atlantic's best solar professionals to make going solar more accessible to home and business owners alike. We're committed to providing honest and effective solar solutions that help you cut your costs and take control of your energy. In the years since, we're proud of the impact we've been able to make on the lives of customers throughout the region.

Lumina Facts & Achievements

- Service Area: MD, PA, DC, Northern VA, and Northern DE.
- [500+ Five-Star Google Reviews](#)
- [2023 REC Installer of the Year](#)
- [2022 Top Workplaces for Baltimore Metro Area](#)
- [2023 Top Workplaces for USA](#)
- [1/10 NABCEP Certified Companies Nationwide](#)



Our team of industry veterans is here to help you make the switch. [Contact us](#) when you are ready to see how much solar can save you!

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