

# *SolarWorld Residential Solutions*

Powering American homes for over 35 years



[solarworld.com](http://solarworld.com)





## Welcome to SolarWorld

America's Authority on Solar™ — for more than 38 years.

With roots in the United States back to 1975, SolarWorld continues to serve as a leading visionary for the modern solar industry. Creating and delivering clean, cost-effective solar power is our top priority—not a side project to other business interests.

### **Solar is what we do, and we do it better than anyone else.**

Today, at our manufacturing facility in Hillsboro, Oregon, we sustainably produce solar cells and assemble solar panels. Our state-of-the-art facility is fully automated, boasts 500 megawatts of cell capacity and 350 of panel capacity, and embodies decades of proven solar experience.

At the same time, our sales, marketing, customer service and engineering teams are dedicated to supporting the needs of our customers. Together, we innovate and champion solar to homes and business owners nationwide.

### **At SolarWorld, we believe.**

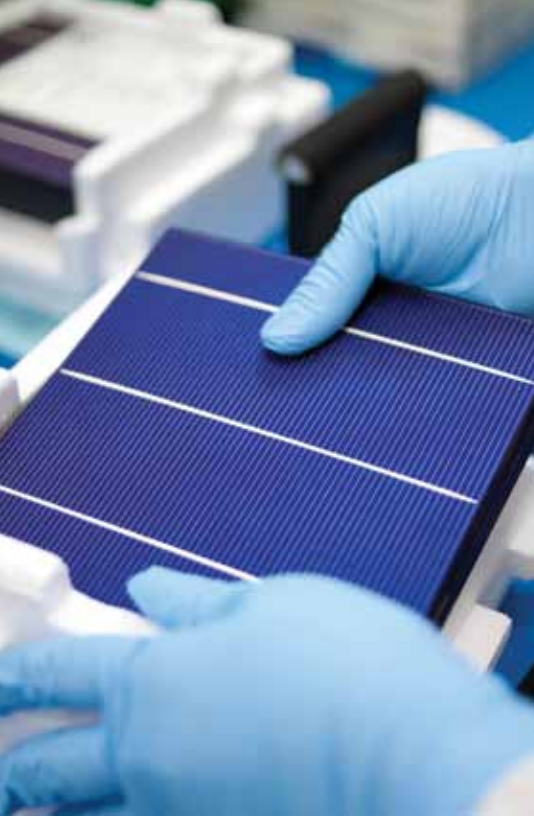
**We believe** that all solar is not created equal.

**We believe** in manufacturing in the markets we serve.

**We believe** in leading a sustainable future.

**We believe** that a solar world is a better world.





## America's solar manufacturer

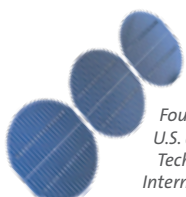
For more than 38 years, SolarWorld has stood alone as the largest solar manufacturer in the U.S. Every day, we work to create American jobs, support the communities we serve, make the Earth a better place and provide relief from rising energy costs.

In 2013 alone, SolarWorld produced **more crystalline silicon solar cells than all other U.S. solar companies combined**. In fact, our factory in Oregon has the capacity to produce a solar panel every 23 seconds.

- » Since 2010, SolarWorld has purchased nearly **\$1 billion of goods and services**, including equipment, supplies, services, parts and raw materials from 47 states and DC.
- » We employ about **700 Americans** in our U.S. manufacturing headquarters in Hillsboro, Oregon.

- » We are **financially strong**, building on more than 38 years of proven industry leadership and success to ensure a strong future.
- » An **innovator and leader**, SolarWorld is responsible for many of the solar industry's most important firsts, as shown below:

### Industry Firsts



Founded in U.S. as Solar Technology International

1975



First to produce 1 MW in a year

1980



First 1 MW grid-tied system & first UL listing on solar panels

1982



First 25-year stepped warranty

1997



First plus-sorted solar panels

2008



First 25-year linear warranty

2009



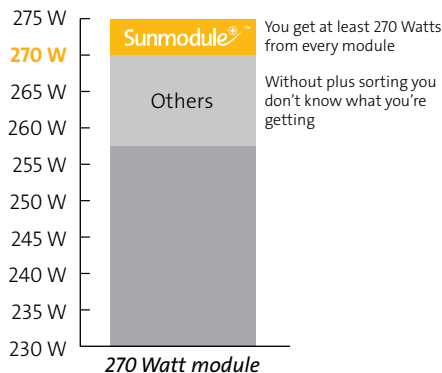


## Industry-leading quality

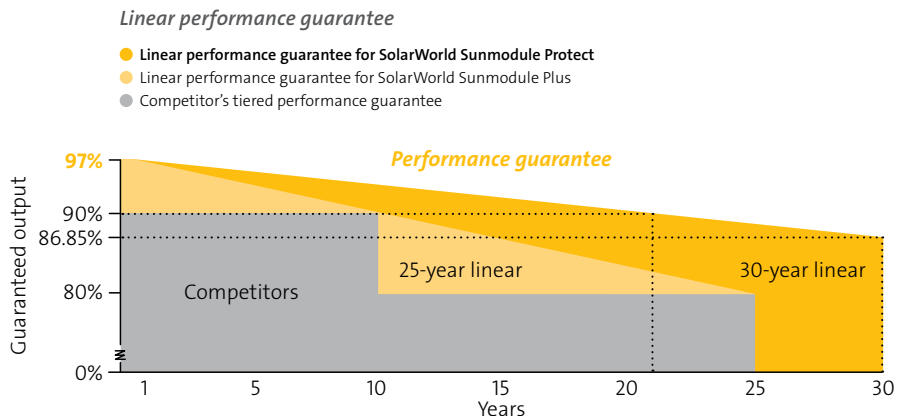
SolarWorld’s Sunmodule solar panels are recognized as the industry standard in quality. We stringently control the entire manufacturing process, ensuring high performance in each and every panel.

- » Every Sunmodule solar panel undergoes quality checks during every second of the manufacturing process, **guaranteeing exceptional power performance for at least the next 25 years.**
- » We have **never had a product recalled** in our entire history.
- » We flash-test then plus-sort our solar panels, which is a fancy way of saying we do everything we can to **ensure the greatest energy yield**, delivering more power to you.
- » SolarWorld has been **ISO 9001 certified** for more than 10 years, which means we’ve been officially recognized for our quality management for a long time now.

### Plus-Sorting



### 25-Year and 30-Year Linear Warranties





## *A passion for the environment, a commitment to community*

Our commitment to sustainability goes deeper than our products. It starts with how we manufacture our products, how we treat our employees and what materials we choose, then extends outward to the communities we serve.

We believe that sustainability begins on the inside. We are proud to perform award-winning, eco-friendly practices all the way through our production process, from raw material procurement to the packaging of our finished products.

- » SolarWorld is a **Green Brands certificate winner** for 2012/2013. The Green Brands certificate is presented exclusively to brands with a **proven track record of environmentally sustainable actions** both inside and outside the company.
- » We have been **certified for our environmental management** since 2010 (ISO 14001).
- » We participate in the Carbon Disclosure Project with our goal to **reduce our carbon emissions by 8% p.a.** in CO<sub>2</sub>e/Wp.
- » We have a commitment to the Global Reporting Initiative.

At the same time, we strive to give back to society through community programs, including Solar2Schools and Solar2World.

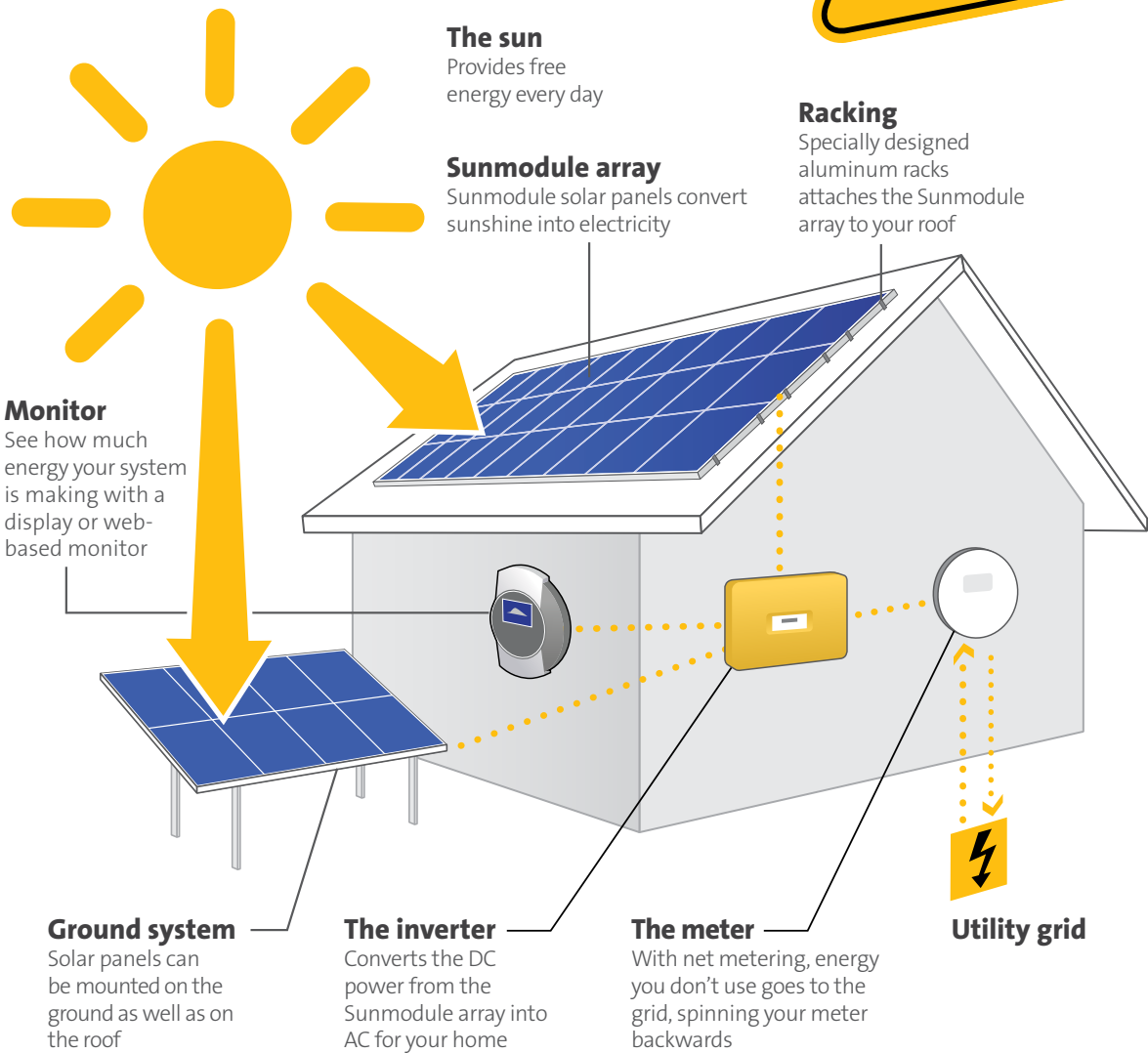
- » Our **Solar2Schools** initiative brings solar to our youth, giving them a firsthand opportunity to learn about renewable energies.
- » Our **Solar2World** initiative brings solar to those who otherwise may be without electricity
- » Our partnership with **Water Missions International** brings clean, safe water to remote villages throughout the world.



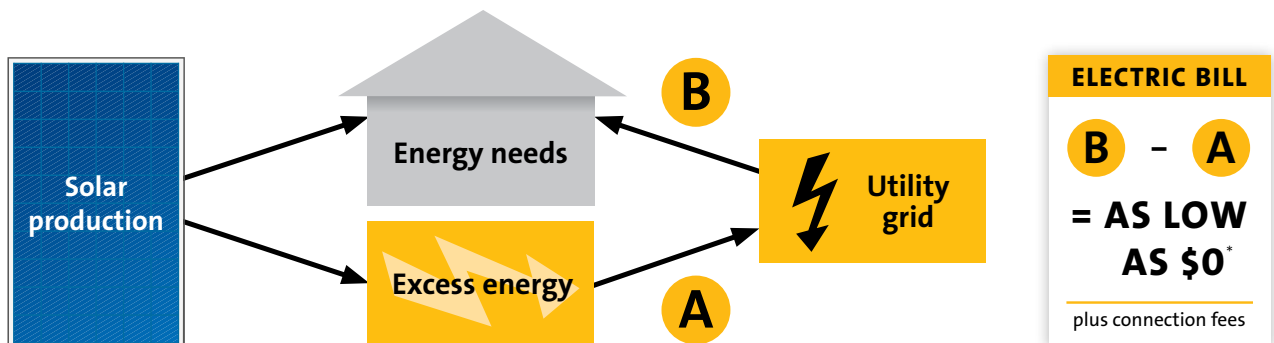
Solar2Schools

Solar2World

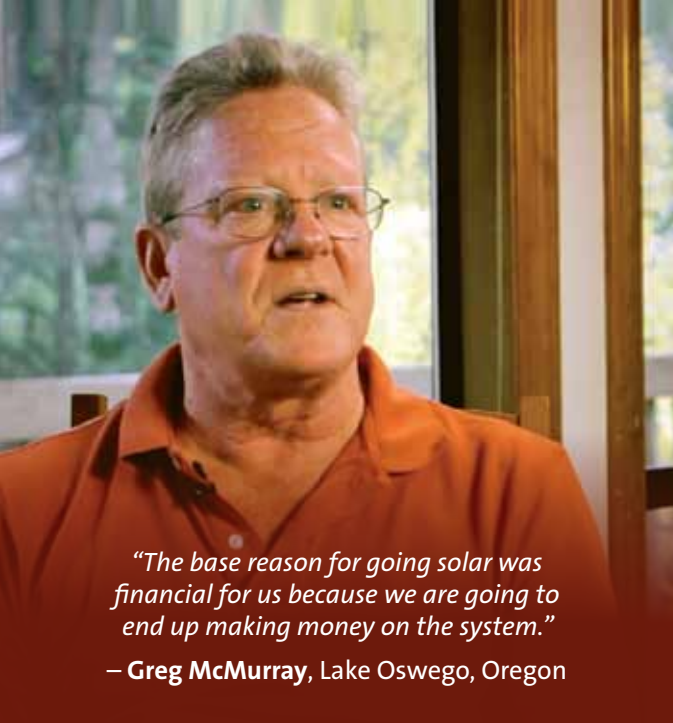
## How solar works



## Net metering

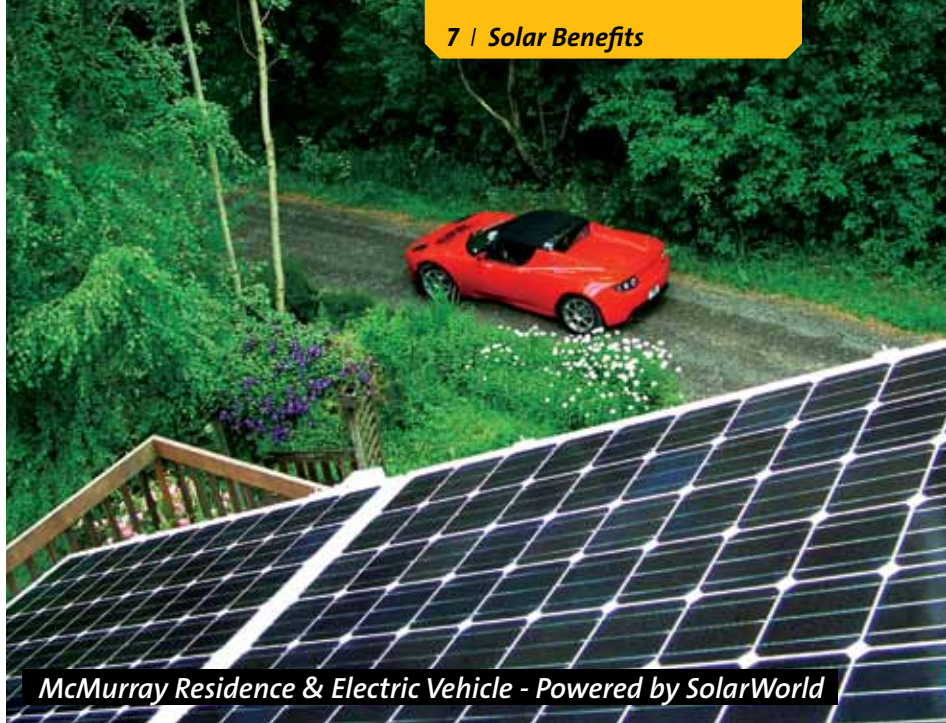


\* Not all systems achieve 100% energy bill reduction.



*“The base reason for going solar was financial for us because we are going to end up making money on the system.”*

– Greg McMurray, Lake Oswego, Oregon



McMurray Residence & Electric Vehicle - Powered by SolarWorld

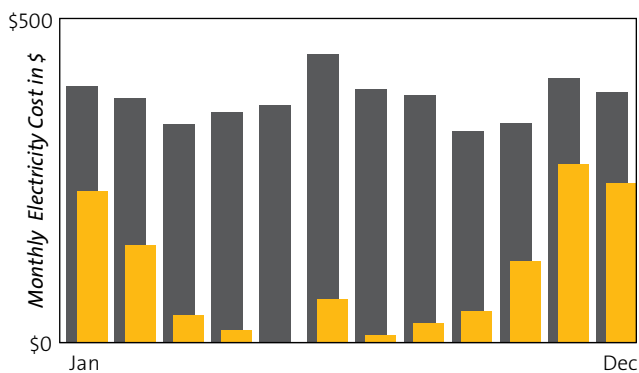
## Great for your wallet. Great for the planet.

Dramatically reduce your electricity costs. Say goodbye to ever-increasing energy rates. Decrease your carbon footprint. With SolarWorld.

- » Many homeowners **save thousands of dollars** each year.
- » **Avoid ever-increasing electricity rates** and peak hour rates.
- » Studies show that **homes with solar sell more quickly, for more** than non-solar homes.
- » **Government incentives can cut 30% or more** off the complete installation cost.
- » No moving parts means **minimal maintenance**.
- » Our **25-year warranty** leaves you worry-free.
- » **Feel good** about reducing the country’s need for nonrenewable resources.

### Monthly electricity bill savings

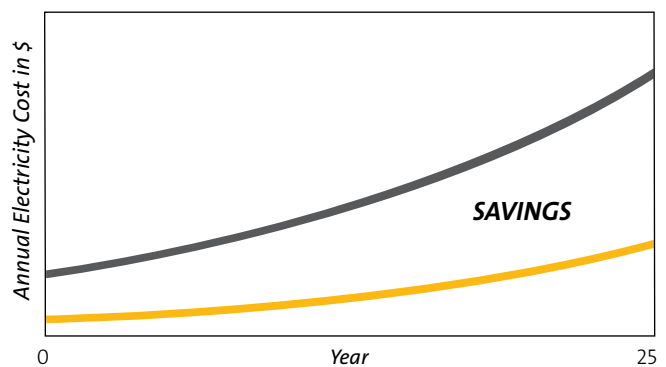
- Before solar
- With solar bill reduced by 72%



Charts are samples from actual installations. Your results may vary.

### Protect against rising energy costs

- Without solar
- With solar





Fortunato Residence - Powered by SolarWorld

*“SolarWorld is such a strong company that we know they will be here for the next 25 years.”*

— Robert Fortunato, Hermosa Beach, California



## All solar panel manufacturers are not created equal

Think all solar panels are the same? Think again. Maximize your return on investment with worry-free performance.

### Experience matters

There are hundreds of young start-up solar companies today, and it's tough to know which panels to choose.

- » A solar panel should last for decades. Select a manufacturer you are confident will be around to **honor warranties as well as service commitments**.
- » Choose a company that **controls all aspects of the manufacturing process**—from wafers to cells and panels—to ensure every component is of the highest quality.
- » **Support America** by buying panels made here on U.S. soil.
- » Look for a proven track record and more than 25 years in business.

### Choose long-term production over efficiency

Many manufacturers are touting efficiency (rated power per square foot) as the most important feature of a solar panel. However, making a panel more efficient can actually limit its long-term performance, yielding less energy over the life of your system.

- » Some panel manufacturers crowd solar cells together and up against the frame. The result: shading from mounting components, excess accumulation of dirt over the cells, and reduced potential for light capture and energy production.
- » Ensure that your system will **produce energy for several decades**, while being subjected to natural elements.
- » Make your purchase decision on **proven real-life, long-term system performance**—not how much power a single panel can produce in optimal laboratory conditions.





*Sunmodule Plus*



*Sunmodule Protect*



*Sunmodule Plus Black*

## *Benefit from maximum energy output*

SolarWorld's Sunmodule solar panels are designed, tested and manufactured with attention to every detail. The result: maximum energy output for your solar investment.

### *Designed for the real world*

In the real world, it rains, it snows and the wind blows. Our panel design is artfully configured to **increase performance during decades of exposure to real-world conditions**. This is exactly why our solar panels are actively converting sunlight to energy all over the world—on farms, in parking lots and even in national parks.

### *Made from the highest quality materials*

Solar cells are the engines that power solar panels, which is why we don't trust anyone else to make them for us. To guarantee peak performance and reliability, we apply our stringent quality requirements on all our materials—and very few suppliers are able to meet our strict standards—then **we manufacture our own solar cells right here in the U.S.**

Call us control freaks, but our proprietary components and processes consistently exceed industry standards.

### *A promise to believe in*

Many companies claim to have higher power solar panels, yet they are rarely available to the average homeowner. With the capacity to produce more than 500 MWs of our high-powered cells and assemble more than 350 MWs of our high-quality panels, we know we can deliver what we promise.





Solar Community - Hawaii



Rooftop System - Oregon



Ground-Mount System - Florida



Rooftop System - Oregon

## Harnessing the sun for maximum performance

Choosing Sunmodule panels is a great first step to creating a powerful solar system. Now you will need to find the right location for your system to unleash its full potential.

### Solutions for every home, every location

Where should solar panels be installed to generate maximum energy? A SolarWorld installer will work closely with you to choose the best location and system size for your home energy needs.

#### Rooftop solar systems

**Rooftop systems are the most popular option for homeowners.** Residential roofs typically have enough available space and, if unshaded and facing toward between SSE and SSW, are well-suited for optimal energy production.

SolarWorld rooftop solar systems:

- » **Withstand extreme environmental conditions** while maintaining the integrity of your roof.
- » Can be **installed on nearly any roof**—sloped or flat.
- » Helps **keep your home cooler in the summer** by providing shade from the sun and **warmer in the winter** by creating a heat barrier.

- » Can **help to offset utility costs of an electric vehicle charger** for a truly clean-powered vehicle.

#### Ground solar systems

If you have a need for a larger system than your roof area will accommodate, a ground-mounted system may be right for you if you have space on your lot.

SolarWorld ground-mounted solar systems:

- » Anchor to the ground to ensure **stability**.
- » **Withstand extreme environmental conditions.**
- » Can be **installed on nearly any contour** at a variety of heights and tilt angles.
- » Have options for raised mounting structures to provide power to the home and **shade for people or vehicles**.



*Rooftop System - Utah*



*Ground-Mount System - California*



*Solar Community - Oregon*



*Black Ground-Mount System - West Virginia*



*Rooftop System - New Jersey*



*Black Rooftop System - Pennsylvania*



*"We have a turnkey service where all you have to do is sign some paperwork. There's a lot of setup work for this and we take care of it all."*

– Keith Knowles, SolarWorld Authorized Installer

## *Worry-free design and installation*

Since SolarWorld solar systems are guaranteed for at least 25 years of peak power production, proper system design and installation is critical.

### **Superior solar installation**

SolarWorld partners with only the best, most experienced solar installers to ensure the highest quality designs and installations. Since our network spans the U.S., we promise a worry-free installation wherever you live.

#### *Proven experience*

Our installation partners are among the most professional and experienced in the industry. Our systems are **installed to last** without damaging your roof or property.

#### *Factory trained & audited*

We don't trust just anyone with the installation of our solar panels. The SolarWorld Residential Installer program requires a **thorough review** of each contractor's business and installation practices. Partners are **factory-trained** in safety and best installation practices, as well as **routinely audited** to ensure they meet and exceed our high standards.

#### *Success that speaks for itself*

SolarWorld Residential Installers exercise professional business practices, and are required to undergo background checks and maintain positive customer reviews.



# Suntrol Portal

## Smith Family

### System information

#### General

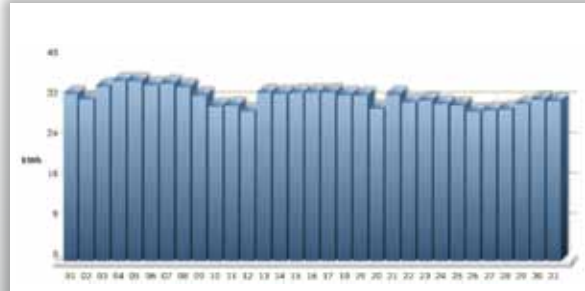
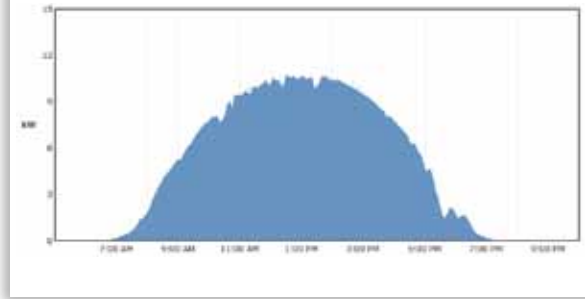
Location	97124 Hillsboro United States
Commissioning	Jul 14, 2011

#### System information

System power	3.25 kWp
Modules	13 x SW 250 mono *
Inverters	SMA SB 4000US
System type	Pitched roof double layers
Mounting type	
Orientation	0° (S)
Pitch	30°

#### Output

Output since commissioning	2,467.36 kWh
CO <sub>2</sub> saved since commissioning	3,807.74 lb.
Income	\$ 259.07



## Monitoring your system's performance

With SolarWorld, you can see your system in action, view your savings in real-time and share the results with others. Anytime, anywhere.

### Monitoring systems

Is your SolarWorld system delivering on its promise? You'll always have the answer with monitoring systems available through our best-in-class partners. You will be able to easily monitor all aspects of your system's performance. This includes the inverters, yield forecast and degradation calculations.

### Suntrol Portal & Suntrol App

Using information from your monitoring system, the Suntrol portal and app let you see your energy savings in action—at home or on the go—using any smart phone, tablet or computer. You can even show your friends, family and neighbors how you are saving the Earth and saving money at the same time.

### Suntrol App



## Have questions? We have answers.

### Financials

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#### How much does a solar electric system cost?

The cost of your solar investment will vary greatly depending on the size of the system, your location and available incentives. To find out what a SolarWorld system will do to your electric bill, go to [solarworld.com](http://solarworld.com) and schedule your free solar consultation with a SolarWorld installer.

#### What incentives are available to me?

SolarWorld solar systems sold in the U.S. are eligible for a 30% federal tax credit. Additional state, local and utility incentives exist in many areas, further lowering the net cost of your investment. Ask a SolarWorld installer about available incentives in your area.

#### Can my electric bill really be \$0?

Some solar systems produce more electricity than is used each month, bringing net electricity costs to \$0. However, there is still a minimal connection fee (typically about \$100 per year) to remain connected to the electrical grid.

#### Do I get paid for my extra energy production?

Currently, most of America is under a system known as Net Metering, which allows your net electricity costs to be reduced to zero, but no further. In a select few places in the U.S., you can be paid for any excess electricity you create, in what is known as a Feed-In Tariff system.

### Installation

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#### Does a solar system require permits?

Yes. Your SolarWorld installer will handle all the paperwork to make the process quick and easy.

#### Can I install solar panels myself?

It is not recommended. The process requires both licensed electrical and roofing skills to ensure the system is safe and optimally designed for 25+ years of production.

### Maintenance

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#### How much maintenance does a solar system need?

With no moving parts and at least a 25-year expected life-span, SolarWorld solar panels require very little maintenance. In fact, their design ensures that they remain relatively clean as long as they are exposed to rain or a quick rinse with a garden hose every few months.

### Weather

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#### Is solar a viable option in cold climates?

Yes. A general rule of thumb is that if you can clearly see your solar panels, they can produce electricity. In fact, given equal sunlight, a solar panel on a cold day will out-produce a solar panel on a hot day.

#### How do solar systems fair in extreme weather conditions?

Sunmodule solar panels can withstand high wind and snow loads. In fact, they are rated higher than any other solar panels under UL standards.

#### How does snow affect a solar system's performance?

While snow will decrease production while it is on your panels, it should not damage your system when designed and installed properly. Given the angle of the panels and their tendency to produce some heat, the snow will fall off your panels faster than it would fall off your roof, quickly returning your system to its full potential.

### Blackouts

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#### Will my system still generate power during a blackout?

For the safety of workers attempting to fix power outages, solar systems that are connected to the electrical grid are required by utility regulations to shut off during blackouts. SolarWorld recommends battery backup or traditional generators in places where blackouts occur regularly.

## *Off-grid systems*

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### **Can I take my home off the electrical grid?**

Yes, provided you install optional battery-backup systems to provide power when your demands exceed your production, such as at night. While a SolarWorld installer can help you install such a system, it is not typically recommended for several reasons. First, batteries add significant costs to your system, extending your payback period. Second, you may not be eligible for some incentives if you do not connect your system to your utility. Lastly, staying connected to the grid ensures you will rarely ever be without power, unlike batteries that have a limited lifespan and storage capacity.

## *Selling your home*

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### **I don't plan on being in my home for 25 years. Why would I add solar?**

People move more frequently now than ever before, but that shouldn't impact your solar decision. A solar system can save you money today and even pay for itself in as little as five to seven years. Even if you move before your solar investment is completely paid off, studies show the cost will likely be returned in added value to your home. Plus, your home will most likely sell faster. Who doesn't want a home with a guaranteed low electric bill? Our warranty is even transferrable one time to a new owner.

## *Roof integrity*

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### **How does a solar system affect my roof integrity?**

With proper design and installation following industry best practices, your roof should maintain all its pre-solar integrity. SolarWorld audits and trains all our Authorized Installers on these best practices so that you can rest easy knowing that your roof will be okay. Be sure to ask your installer about any guarantees they offer on their installation quality.

## *Safety*

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### **Are there any fire, electrical or other dangers from a solar system?**

Similar to any other electrical component, proper installation will greatly limit any dangers. However, you should still take care to ensure your system is not easily accessible by children or animals who could potentially damage the system and possibly injure themselves. If your system becomes damaged in any way, immediately seek assistance from a professional installer or electrician.

## *Insurance*

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### **Can a solar system be insured?**

While SolarWorld does warranty solar panels for 10 years on workmanship and 25 years on energy production, we do not cover damage from external sources or theft. However, most homeowner insurance policies will cover your solar panels in these cases. Check with your insurance provider.

## *Homeowners Associations / Neighbors*

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### **Can my HOA or neighbors prevent me from installing a solar system?**

In a lot of cases, no. Currently, 39 states have solar access laws that provide varying degrees of protection against restrictions that can be imposed on you. Your local SolarWorld installer will be able to discuss the laws and policies in your area.

## *Pools*

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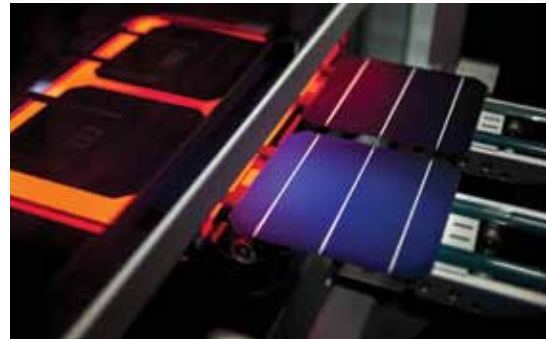
### **Can SolarWorld's solar panels heat my pool?**

Most pools are heated by natural gas, so solar electric power will not be able to assist in heating outdoor swimming pools. However, our solar panels do offset the power used by a pool's electric pumps.

# America's Authority on Solar™



SolarWorld factory – Hillsboro, Oregon



Yosemite National Park • 672 kW



Pearl Harbor • 2.4 MW



Cincinnati Zoo • 1.6 MW



**SolarWorld Americas**  
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