Find Solar Panels in the UK

Compare Prices and Suppliers of Solar Systems

Save Time
Get up to 3 quotes from local installers for your roof, in your area.

Save Money
Save money by comparing quotes from local installers.

No Obligation
Quotes are free, there is no obligation to buy.

Media & Testimonials Guarantee Scheme GREEN IMATCH

Request Quotes

Type in postcode *

Choose a time-scale *

Get Quotes

Quotes from up to 3 local installers

Quotes are supplied free to the private or top-tier business.

We will match your request with suitable suppliers.

Receive Quotes
You will receive up to four quotes delivered to your inbox.

Get Quotes Now!

Quotes from up to 3 local installers

Guarantee Scheme

Home > Solar Panels > Solar Panels

Updated on 1st Jan 2022 | Author: Jon Hiscock | Written by Mike Sharp

Why Solar Panels in the UK Are a Great Option

Solar panels take advantage of all the cleaner, **free and powerful** free resources they can, including the sun, wind and rain. Although the UK doesn't have the sunshine of Spain, it does have plenty of other **renewable energy** from sunlight which **has the potential to cut your fuel bill in half**.

To help guide your decision, we've created a **comprehensive guide** to everything you need to know about solar panels, including:

- The overall **pictures** of what panels in the UK
- **Financial incentives** to help you get the most out of your investment
- **Pros and cons** of solar panels, and how they can save you money
- Every panel **features affecting efficiency** and the best **models** on offer

In addition, we'll interview the Smart Export Guarantee (SEG), you can even **earn money** for surplus energy exported back to the grid.

Interested in Purchasing Solar Panels?

If you're ready to take the next step in your solar journey and would like to know more about how to make the switch to renewable energy, we can help you. Just **fill in the accounting form** below and one of our **trusted** partners will get back to you shortly. Our service is **unique and completely free**.

Learn More in Our Guide

How Do Solar Panels Work?
Are Solar Panels Efficient?
How Many Solar Panels Do You Need?
How Much Do Solar Panels Cost?
Pros and Cons of Solar Panels in the UK
What Types of Solar Cells Are There?
What Are the Best Solar Panel Suppliers in 2 Years?
7-Step Economic Solar Panel Installation
Do Solar Panels Affect Mortgages?
How Can You Find the Right Solar Supplier?

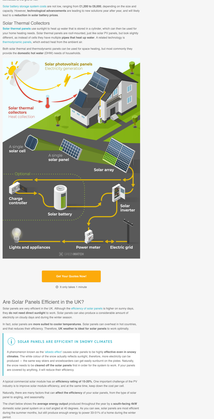
How Do Solar Panels Work?

When speaking about solar panels, it is important to distinguish between **two main types**:

- **Photovoltaic panels** that produce **electricity**
- **Solar thermal panels** that can be used for **heating** purposes

How a Solar Panel System Works

Click on the parts of the system for more information



Solar Photovoltaic Panels

Solar photovoltaic panels (PV) are the most popular type of solar panel in the UK. Photovoltaic systems convert sunlight directly into electricity.

Solar cells are made of semiconductors, such as silicon, which **absorb the sunlight and convert it into electricity**.

Solar cells are connected electrically and packed together in a frame, commonly known as a solar panel. Solar panels are then connected together to form a solar array. Solar PV panels can be fixed on roofs, on walls, facades, and on land. The entire system forms your **solar power system**.

The electrical connections are attached to positive and negative terminals, thus forming an **electrical circuit**. When the sun shines, photons from the sunlight knock electrons out of the semiconductor. The electrons are then captured and the voltage produced as a result of all the electrons feed into the wires. **Jackson Rice** has an exciting graph that the solar cell produces, and how many solar panels convert sunlight into electricity.

Grid-Connected vs. Stand-Alone PV Systems

Grid-connected systems make use of the local utility grid to ensure you are never **without electricity**. It allows you to export any surplus electricity you generate back to the grid, and import power from the grid when your solar panels don't generate enough power. On the other hand, if you want to be completely off the grid and ensure that your solar panels have generated, the grid can supply you.

Stand-alone systems are not connected to the grid, and are typically paired with a **battery system**. These battery systems are designed to generate your power. To provide your appliances **24 hours a day**, you need to store those batteries will be used. Stand-alone systems are used in areas that cannot be connected to a grid, or in remote locations where the cost of connecting to the grid is prohibitively expensive. Stand-alone systems are also used in remote locations where the cost of connecting to the grid is prohibitively expensive.

Solar Battery Storage Systems

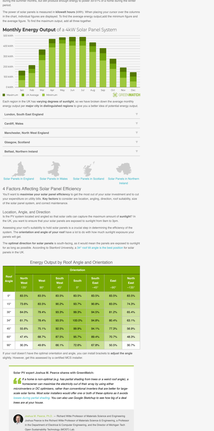
Solar panels generate power when the sun is shining, and when you're due to it during the evenings when your solar panels are not generating electricity. You can make use of solar battery storage, connected to the grid or not.

Solar batteries can last for **10 years** and more, ranging from **£1,200 to £6,000**. Depending on the size and capacity. However, technological advancements are leading to better solutions year after year, and will likely lead to a reduction in solar battery prices.

Solar Thermal Collectors

Solar thermal panels use sunlight to heat up water that is stored in a cylinder, which can then be used for **hot water and heating**. Solar thermal panels are cheaper than solar PV panels, and are also slightly more efficient, on account of only there from modest **pipes that hold water**. In contrast, solar photovoltaic thermosensors panels, which output heat from the ambient air.

Solar thermal panels are typically used to supply hot water, and sometimes heating, but most commonly they provide **hot water** for around 60% usage of a household.



Get Your Quotes Now!

Fully Online | 1 Minute

Are Solar Panels Efficient in the UK?

Solar panels are very efficient in the UK. Although the efficiency of your panels is higher on sunny days, they still work on cloudy days and even in the rain. Solar panels are also installed in a position to face your electricity on cloudy days and facing the sunlight between.

In fact, solar panels are more suited to cooler temperatures. Solar panels can overheat in hot conditions, and that reduces their efficiency. Therefore, **UK weather is ideal for solar panels** to work optimally.

SOLAR PANELS ARE EFFICIENT IN SHORT CLIMATES

A photovoltaic known as the "electric effect" causes solar panels to turn light into **effective electricity**. Although the sun's light is free, the cost of the panels and the equipment needed to make it work is expensive. In the same days where and installations can get easily cheaper and more efficient. Recently, the price needs to be **cheaper of the solar panels** that in order for the system to work. If your panels are covered by something, it will impact the efficiency of the solar panels.

A typical commercial solar modules has an **efficiency rating of 15-20%**. One important challenge of the PV industry is to increase module efficiency, and at the same time, keep them the same or lower cost.

Naturally, there are many factors that can **affect the efficiency** of your solar panels, from the type of your panels to the weather conditions.

The best climate, known the **average energy output** produced throughout the year, is **south-facing** with a moderate climate, and a lot of sunlight and of airspace. As you can see, solar panels are most efficient during the summer months, but still produce enough energy to power 20-0% of homes during the winter months.

The power of solar panels is measured in **kilowatt hours** (kWh). When planning your custom over the volcano into that, individual figures are displayed. To find the average energy output and the hours figure and the average hours. To find the average output, add all three figures.

Monthly Energy Output of A 4kW Solar Panel System

Each region in the UK has varying degrees of sunlight, so we have broken down the average energy output per **major city in distinguished regions** to give you a better idea of potential output.

- Lowlands, South East England
- Cardiff, Wales
- Manchester, North West England
- Glasgow, Scotland
- Belfast, Northern Ireland

Solar Panels in England | Solar Panels in Wales | Solar Panels in Scotland | Solar Panels in Northern Ireland

4 Factors Affecting Solar Panel Efficiency

Solar panels are installed on roofs, walls, and land, and the direction of your solar investment and is an important consideration. **Pitch, Aspect** to consider are location, angling, direction, roof suitability, and of the solar panel system, and correct maintenance.

Location, Angle, and Direction

As PV system faced and angled so that solar cells can capture the maximum amount of sunlight? In the UK, the best angle for solar panels is south-facing and between 30-40 degrees.

Assessing your roof's suitability for solar solar panels is a crucial step to determining the efficiency of the system. The **orientation and angle of your** roof have a lot to do with how much sunlight exposure you receive.

The **optimal direction for solar panels** is south-facing, as it would make the panels face the sun throughout the day for as long as possible. According to Stanford University, a 45° roof tilt angle is the best position for solar panels in the UK.

Energy Output by Roof Angle and Orientation

Roof Angle	Orientation						
	North East	North	North West	South East	South	South West	East West
0°	65.6%	65.6%	65.6%	85.0%	85.0%	85.0%	75.3%
10°	73.8%	63.5%	66.4%	93.7%	92.8%	85.8%	74.9%
20°	79.8%	60.8%	66.8%	99.7%	98.0%	85.8%	73.8%
30°	81.7%	58.4%	66.8%	100.0%	98.8%	85.4%	69.1%
40°	80.8%	55.1%	66.0%	98.8%	98.0%	84.2%	63.7%
50°	77.4%	50.7%	64.2%	95.7%	95.7%	81.7%	57.4%
60°	72.1%	45.7%	61.0%	89.8%	91.0%	77.6%	50.2%
90°	61.2%	40.8%	56.1%	72.0%	77.8%	62.0%	36.7%

If you could project from the cardinal directions and angle, you could find and locate in **adjust the angle**. Angles. However, yet this assessed by a certified MCS installer.

Slide 1 Expert Joshua B. Pearce shares with GreenMatch

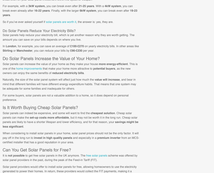
> **Q** If a home is not optimal e.g. has partial shading from trees or a west/east angle, is it worthwhile to install solar panels? Or is it better to wait for better technology? Or is it worthwhile to install solar panels if the roof is not big enough to large scale work force. What are modders would offer, not a lot of those panels are made in Europe anymore, and they are expensive. You can ask use Google Ratings to see how big of a shot there are of your roof.
>
> **A** Joshua B. Pearce, Ph.D. — Richard Mellon President of Western Science and Engineering at Michigan Technological University, Professor of Materials Science and Engineering, Professor of Electrical Engineering, and the Director of Michigan Tech Open Sustainability Technology (MOST) Lab.
> Source: MOST Lab

Roof Suitability

When considering solar panels for your roof, it is important to take into consideration whether the roof is suitable for solar panels. Roof suitability depends on the roof's **age, shape, and size**. A **16ft** system, roof, 10 years of 2000, using up to a total weight of approximately **300kg**.

Nowadays, **most materials** are suitable to **hold solar panels**. – PV only slate and wooden roofs that may be too crisp.

In addition, consider if your roof is large enough to have solar panels in it. You will need at least **20 m²** of unshaded roof space to install a 4kW system, which is the average size for a domestic solar PV system. Ideally, a south-facing roof system requires at least **20 m²** of space.



Size of the Solar Panel System

Solar panel systems come in different shapes and sizes. The **bigger** the solar panel system, the **more electricity** is generated. After having calculated your electricity needs, you'll get better idea of what size you need.

Commercial solar panels are known to be the **most efficient** type of solar panel on the market, meaning you will **require fewer panels** (and therefore less roof space) to generate as much electricity as a polycrystalline system would.

Maintenance

It's important to carry out the right solar panel maintenance in order to maximise the lifespan of your system. Solar panels are designed to last for 25 years, and with proper maintenance, they can last longer.

Get your **solar inverter** inspected by your installer or by another certified service provider. If you do this yourself, you may risk your warranty or cause you damage your panels or the inverter.

Keep your solar panels free of dirt, debris, and moss. Dirt and debris can cause shading, lowering **power and inverter** from your solar panel system, and moving there down with a greater level. Leaving them dirty can also cause damage to your panels, and moving there down with a greater level.

How Many Solar Panels Do You Need?

Solar panels are measured in **kilowatts** (kW). The average home operates with a 3.5kW power output, while a **4kW** system produces **20 solar panels**.

How many solar panels you need to power your home depends on a few things:

- Your current electricity consumption
- Your energy goals (how much of the consumption you plan to cover)
- Your roof space
- The number of available hours in your area

As these factors differ from home to home, it's important to **assess each household** individually.

The first step is to identify your current energy consumption. Your electricity bill breakdown (kWh), and your average daily consumption, and your average monthly consumption.

HOW TO CALCULATE YOUR SOLAR NEEDS

- Check your electricity bills to get your **power consumption (in kWh)**. You can either calculate results by doubled and use multiplied/divide consumption together for a quarter.
- Decide **on how much of your electricity bills** you want to cover with your solar panels – this can be anything from 10-100%. Your decision will affect the number of solar panels.
- Calculate how many solar panels installed, and how many average sun power always value – ie: if your bill is 3,000 kWh per year, and you want to cover 50% of your electricity bill, you have to make that you don't have enough sun for all the panels you collected.

How Much Do Solar Panels Cost?

The average domestic solar power system costs **£5,000 to £10,000**. How much solar panels cost is largely dependent on how many panels you need for your home, which is dependent on your energy consumption. Generally, the more expensive the system, the more electricity it can generate – and therefore, the more money you can save. Solar panels are a long-term investment, and the initial investment can be quite high. Fortunately, you can get a loan through Smart Export Guarantee (SEG) payments, which ultimately, have long-term **loans to cover** power **£400 per year** on top of that.

The average Solar Panel Cost in **Scotland** is **£4,000 - £6,000**, depending on the amount required. This can be **cheaper than in London**, where the average cost of a solar panel system is roughly £4000 – or roughly 50% cheaper, and **save £1000** from SEG payments additionally.

Nevertheless, you can be limited by these three choices only. The power output is determined by the number of panels and the wattage of each panel, as a result, you can customise the system size according to your needs, and the amount you can afford.

If you are considering commercial solar panels then the sizing will be vastly different, and this will be reflected in the cost.

MOST COMMON SOLAR PANEL SYSTEMS

- 1kW solar panel system
- 2kW solar panel system
- 3kW solar panel system
- 4kW solar panel system
- 5kW solar panel system
- 6kW solar panel system
- 10kW solar panel system

Get Your Quotes Now!

Fully Online | 1 Minute

Are Solar Panels Worth Getting?

Solar panels are a long-term investment, and solar panels much been, making solar panels **financially useful** – it underlines the stimulus environmental benefits. In addition, with additional incentives and grants for the technology, solar panels are becoming **increasingly affordable**.

Solar panels are a long-term investment. The Smart Export Guarantee (SEG) scheme manufacturers the **product guarantee of 10-20 years**. Meaning of this kind, the solar panels, and the solar panel system, will last longer than even or your solar panel investment within the system. Because.

For example, with a **5kW system**, you can save over **£1,000 per year**. With a **6kW system**, you can save even more, already **over £600 per year** on top of that.

Solar panels are a great investment if you plan on selling your home, and the property would be required. This can be – for example, if you have a **5kW system**, you can save over £1,000 per year, and the property value is increased by £5,000 on average. Solar panels are a long-term investment, and **worth £500** from SEG payments additionally.

Nevertheless, you can be limited by these three choices only. The power output is determined by the number of panels and the wattage of each panel, as a result, you can customise the system size according to your needs, and the amount you can afford.

If you are considering commercial solar panels then the sizing will be vastly different, and this will be reflected in the cost.

Pros and Cons of Solar Panels in the UK

There are many advantages of solar panels, and they play a significant role in the progress towards renewable energy. Solar panels are a long-term investment, and the initial investment can be quite high. Fortunately, you can get a loan through Smart Export Guarantee (SEG) payments, and the property value is increased by £5,000 on average. Solar panels are a long-term investment, and **worth £500** from SEG payments additionally.

Are There Grants for Solar Panels in the UK?

In the UK, you can **benefit from a variety of grants** that can help you install solar panel heating opportunities. Currently, there is the **Smart Export Guarantee** and the **Feed-in Tariff** which is ending in March 2019. Nevertheless, there are other options.

The Feed-in Tariff (FIT) was one of the governmental solar panel grants that **encouraged the use of renewable** energy in the UK, and under FIT, you can earn a fixed amount for every kWh of electricity you produce (and for exports to homeowners that generated and exported renewable energy).

The Feed-in Tariff (FIT) was ended in March 2019, however, the Smart Export Guarantee (SEG) replaced it. Under the FIT, consumers to receive the payments as well their agreements, but no new applications are accepted.

Since the 1st of January 2020, the Smart Export Guarantee (SEG) has effectively replaced the FIT. With the SEG, UK homeowners can **earn money for exporting surplus energy** back to the grid.

The SEG requires that all energy suppliers with over 150,000 customers must offer a **tariff** to electricity and gas customers. Suppliers are required to pay a minimum amount for every kWh of electricity, and the rate is **set by above-above**, in general based on **5 suppliers**.

Another option for solar panel funding is the **new VAT reduction** on energy-saving products. If you are over 60 years old, you may be eligible for a free boilers, free insulation, and other energy-saving measures. Contact your local council to find out if you are eligible. Other options include **Green Deal** and **Energy Company Obligation**.

Are Solar Panels Worth Getting?

There are many advantages of solar panels, and they play a significant role in the progress towards renewable energy. Solar panels are a long-term investment, and the initial investment can be quite high. Fortunately, you can get a loan through Smart Export Guarantee (SEG) payments, and the property value is increased by £5,000 on average. Solar panels are a long-term investment, and **worth £500** from SEG payments additionally.

Besides being environmentally friendly, solar panels provide **significant savings** on your electricity bill. While the initial investment can be pricey, the **long-term benefits** of installing a solar system are worth it.

There has been a slight **increase in sunshine hours** over the years, meaning you can get more and more out of your solar panel investment. The graph below shows the average sunshine hours per month.

Average Sun Hours per Day

Since peak sunlight is at least 4 hours per day in most parts of the United States, it makes sense that renewable energy is a popular choice for solar installations. Below is a list of the main advantages and disadvantages of solar panels.

Advantages of Solar Panels

Cheaper Electricity Bills

With an increase in electric prices across the nation, many people are looking for ways to save on their electricity bills. You can **reduce your electricity bills** by incorporating solar panels into your home.

Energy produced by solar panels is completely **free**, and surplus energy can be sold back to the local utility company. Net metering is a popular option.

Earn Money Back

With the Federal Investment Tax Credit (ITC) you can make money back by deducting a portion of the cost of your solar system from your taxes. The ITC covers 26% of the total cost of your solar system. Homeowners can claim the ITC on their taxes. Commercial and non-profit entities can also claim the ITC.

Reduce Your Carbon Footprint

Switching to solar energy significantly **reduces your carbon footprint** and is a green, renewable source of energy. Solar panels do not produce any harmful emissions, unlike other sources of energy. Reducing your carbon footprint helps combat climate change.

Estimates show that domestic solar panels could save around one tonne of CO_2 per year, which means just one installation can **offset** approximately **20 tonnes** of CO_2 over its lifetime.

Energy Independence

Solar panels can **work effectively off your** house. While they work optimally during the sunny months, they still work during the cloudy months and generate electricity on days with low sunlight.

Depending on your location, solar panels do not need them to be effective. They simply need sunlight. Even heavy snow panels can be effective even on cloudy days, and certainly during the winter months.

Low Maintenance Required

Solar panels have an average **lifespan of 25-30 years**, and require very little maintenance over these years. Most manufacturers provide a warranty of at least 10-15 years. Do ensure that your solar panels are kept clean and free from any debris under normal conditions.

Solar panels are very durable. Unlike wind **impact your system** negatively, and you can easily replace any broken or loose brackets.

Solar panels are made of tough glass, which means they are tolerant to severe weather conditions. Even hailstorms or heavy rain are especially well-placating, as rainfall can help clean off any dirt or debris.

Finally, ensure that there are **no tree-covering shadows** over your panels, as this would reduce their efficiency.

Independent from the Grid

Solar panels are ideal in remote areas where extending power lines is connect with electrical power grids. Homeowners can **power their homes** with solar panels, as an efficient, effective **solution** for remote locations or areas of the country.

There is also the possibility of **integrating solar batteries** into your solar panel system. Solar batteries store the energy gathered by solar cells, saving it for rainy days or for use throughout the night.

LONG TERM INVESTMENT

Although solar panels can be considered expensive, you can generate electricity for free in addition. Making use of incentives like the ITC can lead to an earlier break-even point.

Disadvantages of Solar Panels

High Initial Costs

Although the price of solar panels has been steadily decreasing, it still costs around **$3,500 to $15,000** to install them. Although this may seem like a lot, you can quickly **recoup** your costs by exploiting energy to the fullest, and by **selling back** any surplus energy you produce.

Only Works During Daytime

Solar panels are independent of sunlight. Although they do not require direct sunlight to work, they **do require** daylight to generate electricity. Most of the electricity they produce will be during the hottest part and less effective during dark periods.

An effective solution to this is to install to the main power grid at night. Alternatively, homes with a grid-independent system can store energy in solar batteries during the day, which can then be used at night.

Solar Panel Placement

Not everyone has the ideal roof orientation, and this can **reduce the influx** of electricity generation. If you live in an area where there is regular cloudy weather, the efficiency of your solar panels will be lower.

Ensure there are no buildings or trees **blocking sunlight**, and always clear branches and leaves from the panels.

PROS

- Cheaper electricity bills
- Earn money back
- Reduce your carbon footprint
- Year-round efficiency
- Low maintenance
- Independent from the grid

CONS

- High initial costs
- Dependent on sunlight
- Requires ideal roof orientation
- Limited placement

What Types of Solar Cells Are There?

The most common types of commercial solar panels are **monocrystalline panels**, **polycrystalline panels**, and **thin-film solar panels**. There are additional types of solar panels on the market, however, these three are most commonly used for domestic purposes.

These three types of solar panels all produce electricity from sunlight, but it is important to be aware of their differences.

Monocrystalline Solar Panels

Monocrystalline solar panels get their name because they are made of **one piece of silicon**. This means that they are a homogenous panel of solar power on the market, and you can identify them by their sleek, black appearance.

When produced, the material that is used is a single-crystal silicon, which is then cut into wafers. This allows for the electrons to flow freely, resulting in the **high efficiency** stated. This also makes them the **most expensive** domestic solar panel type.

Advantages

- They have the highest efficiency rates on the market.
- They perform better than other types in low-efficiency rates.
- They perform better in a more hot climate.
- Have a minimum power degradation over time.

Disadvantages

- They are the most expensive silicon solar cells on the market.
- The cost of performance suffers as temperatures grow up. However, the loss is still smaller compared to other types of solar cells.
- More waste is produced during the production of monocrystalline wafers. As each of the four sides of the square wafer is cut from a cylindrical ingot, there will be quite a lot of waste which, nevertheless, can be used in the production of polycrystalline panels.

Polycrystalline Solar Panels

Polycrystalline solar panels are produced by **melting several pieces of silicon together** into a rectangular mould, forming the solar cells. As there are multiple crystals in each solar cell, there is more room for electrons to move around, resulting in a lower efficiency than monocrystalline cells.

Polycrystalline panels are easier to produce than monocrystalline ones, and therefore also **cheaper**. They are also more environmentally friendly, as there is less wastefulness in production.

Advantages

- They are cheaper than their monocrystalline counterparts.
- Less wastefulness in production.
- Less sensitive to heat.

Disadvantages

- Polycrystalline panels have a lower energy efficiency at 15-18%.
- They are less space-efficient than monocrystalline panels due to their lower energy efficiency. In other words, you need more physical panels to produce the same amount of energy.
- They have a shorter lifespan than monocrystalline panels, as they are slightly more susceptible to temperature changes, and to degradation over time.

SOLAR PANEL RECYCLING

Solar panels are a clean, green energy source, but what happens when they reach the end of their useful lifespan? Most solar panels can be recycled, and most of the metals are reused. This lessens some of a concern, as high temperatures theoretically could release toxic gases. Thin-film panels can contain small amounts of toxic material.

Thin-Film Solar Panels

Thin-film solar panels are easier to produce as they require **less material**. For their makers, manufacturing costs are lower, and they are cheaper than other types of solar panels. Thin-film solar panels are made by layering thin-film materials onto a substrate and can be made into a flexible panel. There are **various types of thin-film cells**, including silicon, cadmium, and copper.

Thin-film panels are the least efficient on the market and require the most space. They are more resistant to high temperatures, making them suitable for hotter climates.

Advantages

- They are the lightest and most flexible.
- They perform better than other types in high temperature.
- They are less reflective, making them open to less levels of applications, such installing **less panels on rooftops**.

Disadvantages

- They are the least efficient.
- They are not as durable as other types.
- Low energy efficiency also means they are the least space efficient.
- Thin-film panels tend to have the shortest lifespan of the three types.

What Are the Best Solar Panel Systems for a Home?

It is not difficult to find the **best solar panels** in the market in the UK, as there are many different brands and models to choose from. The answer is "what are the best solar panels for my home?" will differ from household to household. It depends on whether you are focused on **efficiency**, **power**, **size**, or **quality**.

To help you, we have compiled a list of the **10 best solar panels** in the UK.

SunPower Maxeon 3
SunPower P19-335-BLK
LG NeON R Black
Risen TR-M7
Q Cells Q.Peak Duo BLK G8
Panasonic HIT N340
Panasonic EVP 340H
Hanwha SolarPlus
JA Solar JAM6-60BK

How to Choose the Best Solar Panels

There are many factors to consider when you are looking for the best solar panels for your home. We have analysed the top 10 solar panels according to the following six criteria:

- **Efficiency:** This refers to how much sunlight is converted into electricity. Monocrystalline and polycrystalline **Power:** The power of a solar panel is measured in watts (W). This figure represents the maximum power it is capable of under standard test conditions.
- **Power Tolerance:** This factor determines how much your system can deviate from its stated power rating. For example, a 300W panel with a power tolerance of +/-5% could deliver a maximum power of 315W (300W x 1.05). Plus the actual power may vary between 285-315W. If the power tolerance is +0/-5W, then the actual output varies between 295W and 300W under ideal test conditions.
- **Temperature Coefficient:** Solar panels lose efficiency as temperatures rise above 25°C. The temperature coefficient tells you how much your panel's power output will decrease for every degree Celsius above 25°C.
- **Power Warranty:** Most panel manufacturers offer warranties on their equipment, ensuring they last for a specified period and will deliver a set amount of power. This is usually 25 years.
- **Product warranty:** This covers any defects and guarantees a panel might be your top priority. The dimensions of the map. Or solar panels are heavy? If so, it
- **Weight:** Knowing how heavy your solar panel system will be is important. If your roof is not very strong, you may need to reinforce it before installation.
- **Product warranty:** Solar panel manufacturers offer warranties on their equipment, ensuring they last for a specified period and will deliver a set amount of power. This is usually 25 years.
- **Size:** Knowing how much space you have available for solar panels is important. If your roof is not very strong, you may need to reinforce it before installation.

Reviewed: Top 10 Solar Panels

SunPower Maxeon 3

SunPower has been dominating solar panels since 1985, and is one of the most well-known US-based solar panel manufacturers on the market. They offer a staggering 25-year product warranty on their panels.

These Maxeon 3 panels are one of the most powerful domestic solar panels on the market, with an efficiency of 22.6% and a power output of 370W. The power tolerance is +5/-3% and the temperature coefficient is -0.29% for every °C increase above 25°C, and -0.04% efficiency loss.

SunPower Maxeon 3 Specifications

Type	Power	Efficiency	Power Tolerance	Temperature Coefficient	Size	Weight
Mono	420W	22.6%	+5W/-3W	-0.29% / °C	1.046 x 1.046 x 40mm	18 Kg

- **Product warranty:** 25 years.
- **Performance degradation:** 1% first year, then 0.2% per year
- **Maximum annual load:** 2,400 Pa

In addition, the SunPower Maxeon 3 panel has the lowest performance degradation rate of any solar panel. Not only do it's degradation in the first year, and it's a very compact panel. It also boasts one of the highest maximum power outputs and a low 0.29% C rating, meaning your panels would perform better than most in hot weather.

SunPower's Maxeon 3 is one of the highest quality panels currently on the market, so if you can afford a premium product that will deliver a very high degree of efficiency, then this is your solution.

SunPower P19-335-BLK

The SunPower P19-335-BLK is a similar version that is suitable for limited space. Its slenderness allows for a lightweight, compact design. At just 15 Kg, this monocrystalline panel still has 335W of power and an efficiency rate of 19%.

SunPower P19-335-BLK Specifications

Type	Power	Efficiency	Power Tolerance	Temperature Coefficient	Size	Weight
Mono	335W	19.0%	+10W/-0W	-0.27% / °C	1.046 x 1.046 x 40mm	15 Kg

- **Product warranty:** 25 years.
- **Performance degradation:** 2% first year, then 0.25% per year
- **Maximum annual load:** 2,400 Pa

SunPower's 25-year product warranty will give you peace of mind. The P19-335 panel also comes with a generous power tolerance of +10/-0W, meaning it will never deliver less than its stated power. Finally, the panel assumes the standard performance degradation rate of 2.0 0.25 %.

This panel is a very well-rounded option and a great option if weight is your top priority. Then the Sunpower P19-335 model is for you.

Vogt PANDA BIFACIAL 70GL

Vogt Solar is a German company that manufactures solar panels and is based in Crimo. The Vogt PANDA BIFACIAL 70GL is a very well-rounded option that both sides of the panel, which is ideal for ground-mounted systems or for those with a flat roof. The panel's efficiency is 20.4%, and it has the best of the power. This model delivers up to 365W and is ideal for a flat roof.

Although it is compact in size — with an astounding 35% more power — the PANDA BIFACIAL 70GL is the heaviest panel on our list, at 21 kg. It has a slightly lower power tolerance than other models, however, the performance degradation and temperature coefficient are above average.

Vogt PANDA BIFACIAL 70GL Specifications

Type	Power	Efficiency	Power Tolerance	Temperature Coefficient	Size	Weight
Mono	365W	20.0%	+5W/-0W	-0.34% / °C	1.975 x 992 x 40mm	21 Kg

- **Product warranty:** 10 years.
- **Performance degradation:** 2.0% first year, then 0.3% per year
- **Maximum annual load:** 2,400 Pa

Vogt offers the shortest product warranty of the solar panels on our list, at just 10 years. However, the company's performance guarantee is 30 years, which is very generous. Finally, the maximum wind load is the highest rated of all on the list. This means that the panel can withstand winds of up to 140 mph.

This is a great option for a panel of ground-mount solar panel. Vogt's PANDA BIFACIAL 70GL panel could be a great option.

LG NeON R 340W

LG, the South Korean electronics giant, is also a prominent solar panel manufacturer. Its NeON R series of solar panels are very well-rounded. The LG NeON R 340W is the most efficient panel on our list, and has the second highest efficiency rating at an rate of 21.1%, just 0.8% less than the most efficient.

The most impressive feature of the panel is its maximum annual load of 5,400 Pa. This means the NeON R 340W panel can withstand winds of up to 338 mph, stronger than most hurricanes.

LG NeON R Specifications

Type	Power	Efficiency	Power Tolerance	Temperature Coefficient	Size	Weight
Mono	340W	21.1%	+5W/-0W	-0.26% / °C	1.042 x 1.038 x 30mm	18 Kg

- **Product warranty:** 25 years.
- **Performance degradation:** 2.0% first year, then 0.25% per year
- **Maximum annual load:** 5,400 Pa

The NeON R 340W panel has a low temperature coefficient of -0.2% per °C increase, ensuring it will perform well in hot weather. It also has a very low degradation rate of 0.25% per year, which is one of the most impressive features as a panel is a lightweight solar panel, weighing just 18 Kg.

Risen NU-M7 370W

The Tokyo-based, internationally recognised electronics manufacturer started producing photovoltaic products in 2011. Risen's NU-M7 370W panel is a very well-rounded option, with an efficiency of 20.4% and 370W. This is ideal for roofs with limited space. It has an above-average power tolerance of +3W/-0W and average temperature coefficient of -0.35% / °C.

Risen NU-M7 Specifications

Type	Power	Efficiency	Power Tolerance	Temperature Coefficient	Size	Weight
Mono	370W	20.4%	+3W/-0W	-0.35% / °C	1.960 x 992 x 40mm	22 Kg

- **Product warranty:** 10 years.
- **Performance degradation:** 2.0% first year, then 0.7% per year
- **Maximum annual load:** 2,400 Pa

The NU-M7 370W panel has a very 10-year warranty, which is amongst the shortest product warranty on our list. However, it does have a very generous performance guarantee of 30 years. Plus, the panel's maximum wind load is 2,400 Pa, which is average.

Overall, the Risen NU-M7 370W model can be the best solar panel for those looking to invest in a reasonably priced, high-efficiency panel.

Q Peak Duo BLK G8 340W

Q CELLS is a German solar panel manufacturer that offers robust and reliable products, including the Q Peak Duo BLK G8 series. The most powerful of the series is the 340W panel, which has an efficiency rate of 19.8%.

Q CELLS Q Peak Duo BLK G8 Specifications

Type	Power	Efficiency	Power Tolerance	Temperature Coefficient	Size	Weight
Mono	340W	19.8%	+10W/-0W	-0.34% / °C	1.740 x 1.038 x 30mm	19 Kg

- **Product warranty:** 12 years.
- **Performance degradation:** 2% first year, then 0.5% per year
- **Maximum annual load:** 5,400 Pa

Q Cells offers a 25-year product warranty, which is average the shortest product warranty on our list. However, it does have a very generous performance guarantee of 25 years. Plus, the panel's maximum wind load is 5,400 Pa, which is average.

Overall, the Q Peak Duo BLK G8 340W panel can be the best solar panel for those looking to invest in a reasonably priced, high-efficiency panel.

Panasonic HIT N340

Panasonic has been producing solar panels since 1975 and has become a premium manufacturer, selected by many companies for their own solar panel systems. The company's HIT N340 panel has a very high efficiency rate of 19.8%, and a temperature coefficient of -0.258% / °C, being one of 0.258% of the efficiency for every 1°C increase.

Panasonic HIT N340 Specifications

Type	Power	Efficiency	Power Tolerance	Temperature Coefficient	Size	Weight
Mono	340W	19.8%	+10W/-0W	-0.258% / °C	1.046 x 1.046 x 40mm	18 Kg

- **Product warranty:** 25 years.
- **Performance degradation:** 1% first year, then 0.37% per year
- **Maximum annual load:** 2,400 Pa

Panasonic offers a very generous 25-year product warranty, and a very low degradation rate of 0.37% per year. This means that the panel will deliver a very high level of power for many years to come.

Although the HIT N340 panel is a lightweight solar panel and has a maximum wind load of 2,400 Pa, Overall, it is a great photovoltaic solar panel.

Panasonic EVP 340H

Panasonic's EVP 340H is a very well-rounded solar panel. It has a good power output of 340W and a very low degradation rate, at a single only 18kg. Despite it being a less powerful version of the N340 model, it still has a minimum efficiency of 19.8%.

Panasonic EVP 340H Specifications

Type	Power	Efficiency	Power Tolerance	Temperature Coefficient	Size	Weight
Mono	340W	19.8%	+10W/-0W	-0.258% / °C	1.046 x 1.046 x 40mm	18 Kg

- **Product warranty:** 25 years.
- **Performance degradation:** 1% first year, then 0.37% per year
- **Maximum annual load:** 2,400 Pa

Panasonic offers a very generous 25-year product warranty, and a very low degradation rate of 0.37% per year. This means that the panel will deliver a very high level of power for many years to come.

Although the EVP 340H panel is a lightweight solar panel and has a maximum wind load of 2,400 Pa, Overall, it is a great photovoltaic solar panel.

JA Solar JAM6-60BK (HJ0BK)

JA Solar, a Chinese company, is one of the lowest-price solar manufacturers on our list, but has already established itself as a reliable brand. The company's JAM6-60BK (HJ0BK) panel has a maximum power output of 310W, and an efficiency rate. If you are a need of a slim, lightweight solar panel, then this JA Solar model might be the best solar panel for you.

JA Solar JAM6-60BK (HJ0BK) Specifications

Type	Power	Efficiency	Power Tolerance	Temperature Coefficient	Size	Weight
Mono	310W	17.7%	+5W/-0W	-0.41% / °C	1.650 x 991 x 35mm	15 Kg

- **Product warranty:** 12 years.
- **Performance degradation:** 2% first year, then 0.7% per year
- **Maximum annual load:** 2,400 Pa

The company offers a 12-year warranty, and degrades only a 2% efficiency loss after the first year, which is average. However, the panel's 0.7% annual degradation rate is amongst the lowest efficiency of the list.

What Are the Most Reliable Solar Panel Manufacturers?

Since the popularity of the use of renewable energy, there has been an increase in solar panel manufacturers on the global market. In Scandinavia, we have seen a very rapid industry expansion that have been producing solar panels for decades. While some companies on the market have been working diligently in solar energy technology.

Here is a breakdown of the **10 solar panel manufacturers** currently on the market:

SUNPOWER · LG · Panasonic · Canadian Solar · SHARP · Hanwha Q CELLS · SOLARIA · trina solar · JA SOLAR · Q CELLS

Get Your Quotes Now!

Every Quote, 1 Details

7-Step Domestic Solar Panel Installation Guide

The **solar panel installation process** could be done entirely by a DIY enthusiast, but it is generally best left to a professional. Here is a guide to the solar panel installation process.

Before installing your solar panels, an MCS certified installer will come and **assess your roof**. Their surveyor will analyse factors, such as roof orientation and angling, roof type, roof lines, and any trees or buildings that could weigh it down.

To give you an idea of the solar panel installation process, follow our step-by-understated 7-step guide:

Step 1: Erect the Scaffolding

To ensure safety for the installation, scaffolding will be erected around your house.

Step 2: Attach Roof Anchors

Roof anchors are attached to the roof rafters or purlins. The team starts out by attaching the roof anchors, which will hold the frame for the solar panels. The type of anchors used depends on the type of roof the your home has.

Step 3: Attach the Frame

After the anchors have been installed, it's time to attach the frame, which is made up of aluminum bars. The frame will hold the solar panels in place and protect them from the elements.

Step 4: Install the Solar Panels

Once the frame has been attached, the installers will place the solar panels into the frame. The panels are clamped to the aluminum bars — by hand or using a drill — in order to ensure a secure fit. Finally, the installers will connect the solar panels to the inverter, which converts the DC power into AC power, which is the form of electricity used in the home.

Step 5: Wire the Solar Panels

The last of the panels are connected mechanically to the frame, but they need to be wired together. In most cases, the panels come wired from the manufacturer. However, some installers may need to connect the inverter, which converts the DC power into AC power.

The inverter is a component of the solar array that converts the electricity generated from the panels into AC electricity, which is the form of electricity used in the home.

Step 6: Connect to the Electrical Grid

The final step in the installation process involves connecting the solar panels to the electrical grid. In most cases, the panels come wired from the manufacturer. However, some installers may need to connect the inverter, which converts the DC power into AC power.

The inverter is a component of the solar array that converts the electricity generated from the panels into AC electricity, which is the form of electricity used in the home.

Step 7: Inspection and Permission to Operate

The final step in the installation process involves connecting the solar panels to the electrical grid. In most cases, the panels come wired from the manufacturer. However, some installers may need to connect the inverter, which converts the DC power into AC power.

The inverter is a component of the solar array that converts the electricity generated from the panels into AC electricity, which is the form of electricity used in the home.

COMPONENTS THAT MIGHT NEED REPLACEMENT

Inverters are the component in a solar array with the shortest lifespan. Good quality inverters need replacing every 10-15 years. Solar PV inverter replacement costs range depending on a number of factors but typically start from £500.

During the time of the wiring installation, the electricity supply to the household will need to be shut off.

Step 6: Make Final Connections to the Consumer Unit

After the panels are wired to the inverter, the final connections to the consumer unit will be made. A generation meter will also be connected, which measures how much electricity your panels actually produce. Smart meters and solar panels work together very well and can make meter reading far easier.

Step 7: Test the Solar Panels

After the panels, the inverter, and the generation meter are all wired together, the installation needs to be tested. Once this is complete, the solar panel installation process has been successfully completed.

Do You Need Planning Permissions for Solar Panels?

In **England, Scotland, and Wales, you are not required to apply** for any planning permissions for most domestic solar panel installations — for both PV and heating installations.

There are, however, restrictions on installations of certain sizes. If your solar panels protrude more than 200mm from your roof, you will need to apply for permission first.

In addition, if your building is within a conservation area, you will need to adhere to some planning permission guidelines.

Do Solar Panels Affect House Insurance?

In most cases, when you install solar panels on your roof, your insurance should cover you under the current terms. However, since a solar panel installation results in a **change to the home structure**, it is always advised to contact your current insurance provider before proceeding with the installation.

It's important to note that your home insurance **may not include a cover** for any damage by your solar panel or theft of the system. Therefore, it's important to confirm with your insurance provider that your panels will also be covered.

Installing solar panels is a worthwhile investment for both homes and companies. They are a great step towards sustainability, reduce utility bills, and can even be a way for you to **earn money back**.

How Can You Find the Right Solar Supplier in the UK?

It is important to find an installer that you feel comfortable with, and that can answer any question you may have.

Solar panels can be expensive, and you want to be sure you find the right solar supplier for your home. You should **compare solar panel providers** and their respective options, and make sure you pick a reliable and certified installer.

*We know that finding the right solar panel supplier might mean investing a lot of time to do research. We want to make this process simpler for you, by providing you with up to **4 quotes from different suppliers in your area**. This service is completely **free** for you, and is **non-binding**. All you need to do is **fill in the contact form** at the top of the page. We will then get back to you as soon as possible to ask you some further questions, and will then connect you with the most suitable installers. You can rest assured that you get the best quotes on solar panels!*

Get Your Quotes Now!

It only takes 1 minute

Written by

Attila Tamas Vekony

UX Manager

Attila is the UX Manager at GreenMatch. He holds a degree in international business with four years of coordination experience in marketing, user experience, and content creation. Attila likes to write about solar energy, heating technology, environmental protection, and sustainability. His and his team's articles appeared in well-known sites such as The Conversation, Earth911, EcoWatch, and Gizmodo.

Contributors:

Contact me:

Related Links

Flexible Solar Panels | Free Solar Panels | Solar Generator | Solar Panel Facts | Solar Panel Grants | Solar Panel Investment | Solar Panels for Boats | Solar Panels for Camping | Solar Panels for Motorhomes | Solar Tiles | Solar Panels in England | Solar Panels in Northern Ireland | Solar Panels in Scotland | Solar Panels in Wales | Photovoltaic Cells | Solar Blinds | Commercial Solar Panels

Related Blog Posts

How Much Does a Solar Battery Storage System Cost (And Is It Worth It?)

Read more

Solar Panel Installation and Maintenance

Read more

Pros and Cons of Solar Energy

Read more

What Is the Installation Cost of Solar Panels?

Read more

Disclaimer: *GreenMatch aims to provide information to users to help them to lead a more sustainable lifestyle. The content found on GreenMatch and its service are free for all users. We may, however, earn a commission from sales generated through our site. This has no additional cost to the users and does not affect their purchase. We earn a commission from the companies we collaborate with; this helps us run the site and keep our service free. You can read more about us here.*

Change cookie settings