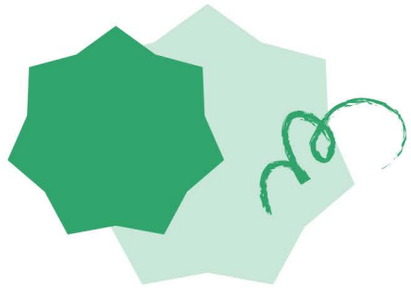
Your complete solar installation guide

Your complete guide to solar installation

Are you ready to harness the power of the sun and embark on a solar energy adventure? Got lots of questions about solar, what to expect at installation, and what's best for you? Then our Egg Solar guide is just the thing you need. With expert advice and top tips, we're here for you every step of the way!

Before you choose your solar provider, it's important that you understand the installation process. Don't worry, we've got you covered! Our guide covers the A-Z of solar installation.



What's in the guide?

Naturally, we've made every effort to ensure that the information in this guide is up to date. Prices, government incentives, and other relevant information are all accurate as of October 2023.

Introduction to Solar Panels Installation

At Egg, we spend plenty of time singing the praises of solar panels, but what about the nitty-gritty technical stuff that nobody wants to talk about? There's a general lack of awareness around solar panel installation and it's a major reason for the lower levels of adoption. We want to make this process simple and jargon-free for you so you can do what's best for your home – the one you live in and the one you live on - i.e. planet Earth!

Let's jump right into it.

First things first, let's talk about the basics and what you need to know

Put simply, solar energy is one of the cleanest and most abundant renewable energy sources, harnessing the incredible power of the sun. Solar energy is produced by converting sunlight into electricity with two types of technologies:

1. Solar photovoltaics (PV)

Solar panels use photovoltaic cells which convert sunlight into energy. When the energy comes in contact with the cell's internal field, electricity flows!

2. Concentrating solar-thermal power (CSP).

CSP uses mirrors to concentrate sunlight onto a receiver. The sunlight heats fluid in the receiver, which can then be used to generate electricity or stored for later use. Generally speaking, this applies to industrial applications.

Solar energy is expressed in kilowatt-hours (kWh)

A kilowatt-hour (kWh) is a unit of energy that measures how much energy you are using. No, it's not the number of kilowatts you are using per hour! It is simply the unit of measurement. Sounds pretty confusing, we know. Here are some examples that will help you calculate your energy consumption easily.

One kilowatt-hour is the amount of energy you would use if you kept a 1,000 watt appliance running for one hour.

Your kWh usage is calculated by multiplying the wattage of each appliance by the number of hours you use it per day. For example, if you use a 50 watt alarm clock for 8 hours per day, it uses 400 Wh (watt-hours) per day. To convert watt-hours to kilowatt-hours, divide by 1,000. So, in this case, your alarm clock uses 0.4 kWh per day!

Different appliances use different amounts of energy, so it takes different amounts of time to use up a kWh.

1. A 2000 watt oven would use 1kWh in half an hour

2. A 100 watt light bulb would consume 1kWh if left on for 10 hours.

3. An electric shower of 10,000 watts would take your usage up to 1kWh in just six minutes!

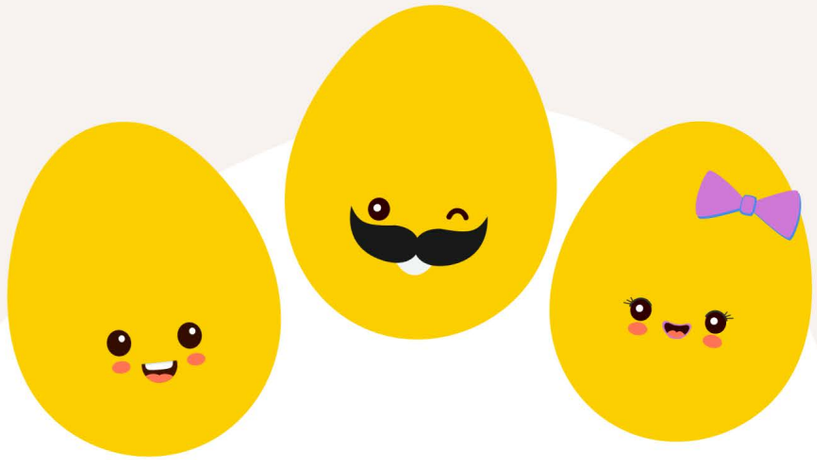
How much energy does an average UK home consume in a week?

According to Ofgem, the average UK household consumes approximately 55 kWh of electricity and 225 kWh of gas per week. This is based on a household with 2.4 people living in it.

Of course, it's important to note that energy consumption can vary widely from home to home depending on a number of factors, including:

- The size and type of home you have
- The number of people living in the home
- The energy efficiency of your home and its appliances
- The climate
- Lifestyle choices

Don't worry, we'll get into each of these factors, and how they could impact you, in more detail below.



Did you know?

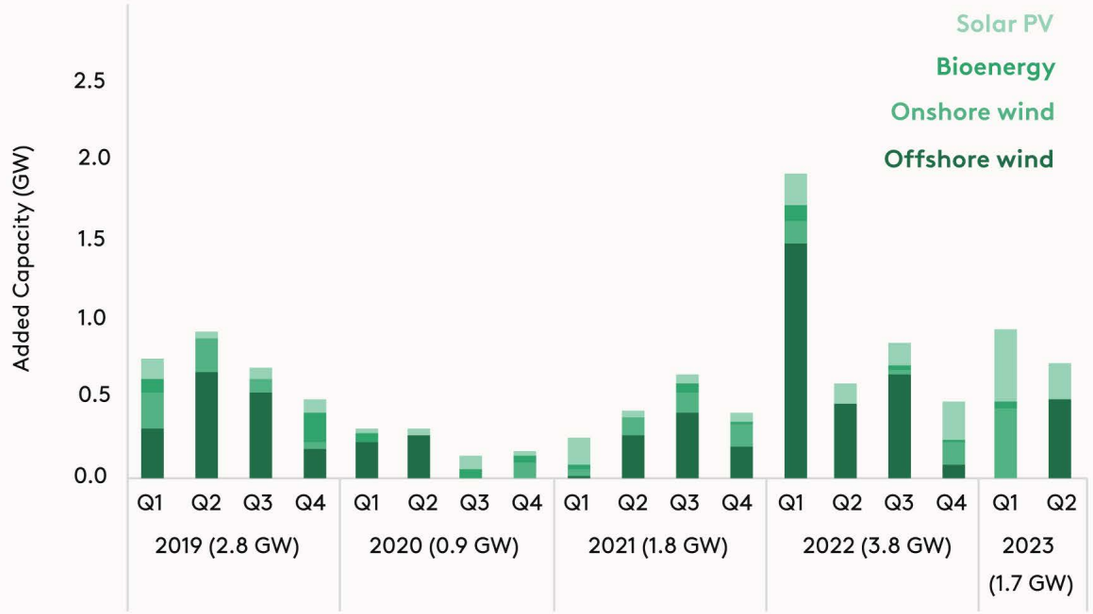
Solar Energy Facts

- In 2023, solar PV systems supplied more than 8.3% of the UK's entire electricity demand.
- On cloudy days, solar panels still generate 30-50% of their full potential and when it's raining, 10-20%! So even on those rainy British days, your solar panels are still working hard for you.
- The amount of sunlight that hits the earth’s surface in just 90 minutes is enough to power energy consumption around the world for an entire year!

No wonder we’re such big solar fans here at Egg.

Chart 1.1

Added capacity since 2019 for the leading technologies (Energy Trends Table)

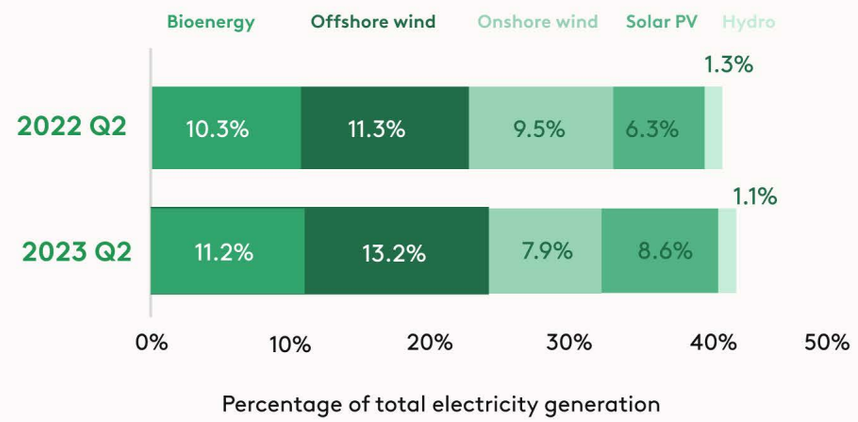


How to use our solar guide

Our guide is designed to walk you through the process of solar installation, from the basics of solar technologies to the installation process, troubleshooting, and our expert tips. We've also included a dedicated section for choosing the right supplier for you and a list of additional trusted resources towards the end of this guide.

Chart 1.2

Renewables’ share of electricity generation - Q2 2022 and Q2 2023 (Energy Trends Table)



Ok Egg, but what do these graphs even mean?

In Quarter 2 2023, renewables' share of generation was 42.1%, 3.5 percentage points higher than Quarter 2, 2022 and 10.1 percentage points higher than in 2018. The share of renewables in the current quarter was also higher than for fossil fuels (38.8 per cent). Although overall, renewable generation was down, total electricity generation (Including fossil fuels) fell to a greater extent, inflating renewables' share. With lower renewable and fossil fuel generation, the shortfall in demand was met through higher imports. Only solar PV and offshore wind saw their share of total generation increase this quarter, 2.3 and 2.0 percentage points respectively.

Requirements for Solar Installation

Home Requirements

Sunshine seekers, take note: The best place to install solar panels is on your roof. Most roofs already have the ideal specifications for maximum sunlight exposure, so no need for renovations!

But if you can't or don't want to mount your panels on the roof, you can also put them on the ground. Just make sure nothing is blocking the sun's rays.

Top tip: *If you're located in a conservation area, or live in a listed building you will need to check with your local authority before installing.*

Want to learn more about roof-mounted Vs. ground-mounted system?

Check out our comparison here

Here's what you need for a roof-mounted solar system:

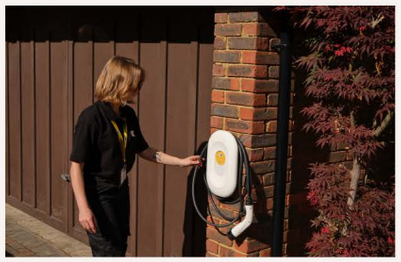
- ☑ A good roof condition, free of obstacles such as Velux windows and chimneys.
- ☑ Limited shading from trees or other objects.
- ☑ A decent-sized sloped roof with enough space for 6 panels, each measuring around 1.1m x 1.7m. This is roughly the size of 2 car parking spaces!
- ☑ You'll also need to consider the location of all equipment (such as an inverter & battery), depending on what you've chosen. This could be by your meter or in your loft or garage if you want it to be out of the way.

Note: The solar panels will be connected to an inverter, which will need to be placed somewhere accessible. If you have a battery system, it will also need to be wired into your household electrical supply or inverter. Make sure you have space you can dedicate to your solar equipment.

Quick size guide

Size of a Tesla Powerwall is H 1150mm x W 753mm x D 147 mm.

Size of a Solaredge inverter is H 280 x W 370 x D 142 mm



A power inverter changes DC power from a battery into conventional AC power that you can use to operate all kinds of devices!

Hey you! Looking for directions?

You've heard it before on every episode of Location, Location, Location, 'Is the garden south-facing?". Well, the reason is that a south-facing roof is best for solar homes in the UK, as we're in the Northern Hemisphere. This is because the sun tracks across the southern sky in the northern hemisphere and the northern sky in the southern hemisphere. By facing your solar panels south, you can ensure that they receive the most direct sunlight throughout the day.

If your roof is not south-facing, you're not excluded from the joys of solar panels! Solar panels on north-facing roofs will still produce electricity - but at a lower performance level. Generally speaking, you're looking at about 30% less power than if your roof were south-facing.

Did you know? If you make more energy than you use, you can always store your surplus power in a battery or sell it back to the grid through the Smart Export Guarantee program. Don't worry...we'll cover that in a little more detail later in this guide.

If you are unsure which direction is best for your solar panels, you can consult with a solar installer (like our team at Egg). Our Eggsperts are always happy to help you with any questions you might have. Book a no-obligation consultation with us to get an assessment of your property and recommendations on the best placement for your panels.

Walking on extra sunshine? Store for later or share the light!

Solar batteries are magical. No, really! Hear us out: An average of 50% of your solar power goes unused and is usually sold to the grid. With a battery, that ‘lost’ energy is stored for later use.

No sun? No problem!

With the addition of a home battery to the system, we would expect solar self-consumption to increase from 50% to up to 90%, saving you as much as 90% on your energy bills.

What you should know when selecting a solar battery for your home

A battery can range from 2kWh to 15kWh sizes. But it all depends on how large your solar system is and how much power you are generating.

Psst...there’s a scheme for that!

Generating more than you can store? You can get paid for your extra solar with the Smart Export Guarantee (SEG). It is a government-backed initiative that launched on January 1, 2020 requiring some electricity suppliers to pay small-scale generators for the low-carbon electricity they export back to the National Grid.

Looking to make an extra buck? Simply sell your surplus solar power to your energy supplier

Here are the eligibility criteria:

- You must be a small-scale generator of renewable electricity, such as solar, wind, or hydropower. That could be you with Egg Solar!
- Your generation capacity must be less than 5000kWh. Don’t worry though! The average UK home uses up only around 2900 kWh per year.
- You must have a smart meter or a half-hourly export meter.
- You must be connected to the National Grid.
- You must have a SEG tariff with your energy supplier.

For more information on SEG, click here.

Roof-mounted Vs. Ground-mounted solar panels

TYPE OF SOLAR SYSTEM	PROS	CONS
Roof-mounted System	• Lower installation cost • Easier to install and maintain • Takes up less space	• May not be suitable for all roofs, such as those in conservation areas or listed buildings
Ground-mounted System	• Can be installed on any type of ground • Can be easier to access for maintenance	• Higher installation cost • Takes up more space • May require additional equipment, such as racking and wiring • May require planning permission

We always recommend a roof-mounted system for those who meet the requirements. This is due to:

1. **Lower installation cost:** Roof-mounted solar systems are generally less expensive to install than ground-mounted solar systems because they need less equipment and work to get them up and running.

2. **Easier to install and maintain:** Roof-mounted solar systems are also easier to install and maintain than ground-mounted solar systems. This is because they are mounted on a solid structure, and they are less likely to be damaged by weather or wildlife.

3. **Takes up less space:** Roof-mounted solar systems do not take up any additional space on your property. This can be a major advantage if you have limited space, or if you want to use your garden for other purposes...like catching those rays on your sun lounger (cocktails optional).

Of course, there are also some potential drawbacks to roof-mounted solar systems. For example, they may not be suitable for all roofs, and they may require planning permission.

However, for many homeowners, the benefits of roof-mounted solar systems far outweigh the risks.

So...how many solar panels are we talking about here?

There is no hard and fast rule for how many solar panels your home might need. This is because various factors are at play when it comes to energy consumption.

Here's a breakdown of all the factors that determine how many panels you really need:

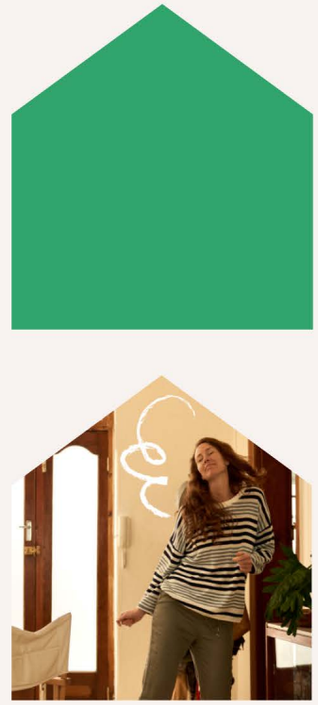
1. **Your energy consumption:** The more energy you consume, the more solar panels you will need.

2. **The efficiency of your solar panels:** More efficient solar panels will generate more electricity per panel, so you may need fewer panels.

3. **The amount of sunlight your roof receives:** If your roof receives a lot of sunlight, you may need fewer panels than if your roof receives less sunlight.

According to UKPower & Ofgem, this is the dual fuel (gas and electricity) bill and energy usage for the average household in the UK.

House type	Monthly bill	Annual bill	kWH usage	Panels required
1/2 bedroom house	£66	£795	2900	6-8
3/4 bedroom	£97	£1,163	4300	12
5+ bedroom house	£137	£1,639	6100	16



Where does most of our energy go?

Wet appliances (washing machines, dishwashers etc.)	21%
Cold appliances (fridges, freezers)	16%
Cooking (ovens, microwaves, etc.)	14%
Lighting (lamps and lights)	15%
Consumer electronics	14%
ICT and unknown	7% and 14%

So you’re set on solar (great news!). Now it’s time to talk about the Egg installation process.

#1 Step 1: Firstly, Scaffolding will be put up around your home for safety - yours and our installation teams.

#2 Step 2: Then, we attach roof anchors to hold the frame for the solar panels. The type of anchor used will depend on the type of roof tile fitted.

#3 Step 3: The fun part! After anchoring, we install the heroes of the day - the solar panels!

#4 Step 4: Now for the technical bits... We connect the solar panels to the inverter, which basically converts the DC electricity produced by the panels into AC electricity that can be used in your home.

#5 Step 5: Time to make it pretty! The inverter is installed (either in the loft or garage or a space of your choosing), and then it’s connected to your home’s electrical supply.

#6 Step 6: This is where the magic happens folks. We switch it on and test the new system to confirm that it is producing electricity as expected.

#7 Step 7: If you have a battery system, it is installed and tested to confirm that it is charging and discharging correctly.

#8 Step 8: If you have chosen a battery with off-grid backup, the changeover device is tested to confirm that it is working correctly to provide power to your property in the event of a power outage.

#9 Step 9: Once the installation is complete, you are provided with a handover pack containing all certificates for the electrical installation, building control/DNO notifications, and product warranty documents.

#10 Step 10: Sit back and relax - your new system is up and running, and you’re getting the most out of the sun!

Phew! Seems like a lot of steps?

Don’t worry, our Egg team works their magic to make sure installation only takes a maximum of 3-5 days

However, there's a lot to be done before we actually come over and install your solar system! The entire process from your very first consultation, to a roof assessment, quote, and finally a working system may take up to 3 weeks.

With Egg on your side though, this 3-week period is a breeze and you only have to be physically present for the assessment and installation.

We can help take care of the rest, easy!

Leave it to the Eggsperts

Here are some of the benefits of expert solar panel installation with Egg:

Tailored Solutions:

We know your home is unique so we design our solar solutions to meet your needs. We recommend solutions that will help you meet your green energy goals.

Certified Solar Eggsperts:

Our expert Egg team are on-hand to make your transition to a more sustainable future run as smoothly as our products. We are MCS certified and an NICEIC approved contractor so you have complete peace of mind over your install.

Affordable Transition:

Clean energy shouldn't cost the earth. We make it affordable for you to make your clean energy transition. Good for your bank balance, great for the planet.

The Egg Promise

At Egg, we're outrageously serious about cracking clean energy. That means doing a lot more than just offering solar solutions. We're also considering the quality of our products, all of which come with **5-25 years of warranty** depending on the product.

Then, we make sure that you're cushioned with a certain level of dust and water protection. With an **IP65 rating,** your solar panels, battery and inverter are **protected from total dust ingress**, and **low-pressure water jets** from any direction (meaning your panels will be fine, come rain or shine!).

If for any reason your panels or other solar products need to be repaired or replaced, we'll be with you every step of the way, with our prompt customer success teams ensuring a smooth and quick resolution process.

Warranty Information

Product	Brand	IP Rating-Indoor/outdoor	Warranty
Panel	Trina	Located outdoors	15 year product workmanship warranty / 25 Year power warranty
Panel	Longi	Located outdoors	Limited Product Warranty-Repair or Replacement within 12 years / Supplier provides power output* loss assurance within 25 years as of Warranty Effective Date. *Power output loss is calculated by comparing with the minimum "module nominal power under standard testing conditions" (short as nominal power) marked on the nameplate with the actual power output under standard testing conditions.
Battery	Tesla	IP65 Protection Level	10 years
Inverter	Solaredge	IP65 Protection Level	12 years, extendable up to 25 years
Battery	Solaredge	IP55 Protection Level	10 years
Optimiser	Solaredge	Located outdoors	25 years
Battery	BYD	IP55 Protection Level	10 years
Inverter	Fronius	IP65 Protection Level	7 years
Inverter	Solis	IP65 Protection Level	5 years
Optimiser	Tigo	Outdoor Rating IP68	25 years
Inverter	Solax	IP65 Protection Level	Solax inverters come with a warranty of years, but it can be extended to 10
Battery	Solax	IP65 Protection Level	10 years
Inverter	Alpha	IP65 Protection Level	5 years (it is required that all systems have internet connection for monitoring. Systems that are not connected to the internet will have their warranty reduced to 3 years.
Battery	Alpha	IP65 Protection Level	5 year product warranty and a 10 year battery warranty.

Making the sun keep on shining: Aftercare & Maintenance

Whoop! You've harnessed the power of the sun. But after basking in your new solar panels, enjoying continuous savings on your energy bills, and doing good for the planet, what next?

Given the lifespan (a whopping 25-30 years) of your solar panels, you want to make sure they are **regularly inspected** and tested to ensure that everything is working exactly as it should be.

We also recommend a periodic inspection of your solar system **every couple of years** to ensure safe operation, identify any issues, and maximize your power production.

Although most qualified electricians may be able to perform this work, we highly recommend using a solar specialist. Solar specialists know exactly what to look for and will typically go beyond routine testing to ensure that your installation is operating optimally.

Pssst...not to make the other suppliers look bad but our solar panels come with a product warranty of 15 years and a performance warranty of 25 years! We're also working on a maintenance package to ensure that Egg customers can rest, assured. See what we did there?

Choosing the right solar solutions provider

When purchasing and installing solar panels, it is important to choose a reputable company with experience and expertise in the field. A recommendation from friends and family is also a great way to go!

Always remember to **compare quotes** from a variety of suppliers and evaluate equipment quality as different suppliers will be using different qualities of equipment. For example, we're a bit picky (read: we will not budge) about the quality of our products.

Check **installer certifications** and licensing closely too, as this is a big investment that can last you over 25 years!

It would also be wise to check if your solutions provider has a **financing option** if you need one. At Egg, we want to make sure that clean energy is as affordable as possibly can be.

In the same spirit, we created The Complete Guide to Solar Financing, which gives you extensive information about the various methods you can use to finance your solar system.

Egg Financing, which is our own in-house option to finance solar panels will also be live on the website very, very soon. Keep an eye out for it!

Finally, make sure to read reviews to double-check if you've made the right choice.

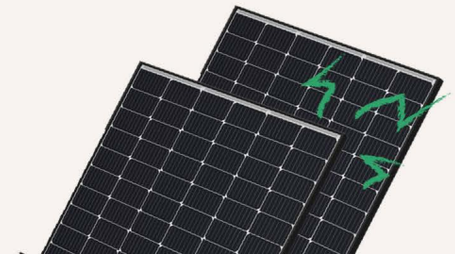
Trust your gut. If it feels too good to be true, it probably is! If it feels comfortable, easy and transparent, it likely is - just as we keep hearing from our customers <wink emoji>

Getting quotes from a solar solutions provider

We recommend against choosing the cheapest quote, as this often leads to using cheap components and installation methodologies that will not last.

A solar installation is an investment, and the equipment installed needs to last long enough to generate returns on your investment.

This is why Egg only works with reputable, high-quality, brands and recommends a solution bespoke to your needs. We may not be the cheapest in price, but we are very confident that our reputation, knowledge, and specifically selected products are worth the investment - it's why our customers recommend us to their friends and neighbours.



Here are some other factors to consider when purchasing and installing solar panels:

Product warranty: Make sure to check exactly what product warranty you are getting, who this warranty sits with (manufacturer or installer), and what it covers. Many warranties on the market are parts-only warranties and may not cover call-out fees.

For many things in your home, this can be an unexpected cost, but not too costly. When the component that needs replacing is on your roof, providing scaffolding and call-out costs for Electricians can become very expensive.

Remote monitoring: Some solar panel installers offer remote monitoring services. This allows them to see what is happening with your solar panel system without having to come to your property. Remote fixes can be quick and easy, especially if your installer has access to a suitable platform.

The best installers can even proactively resolve issues and notify you of any work that needs to be carried out, often before you're even aware of them!

Solar panel insurance: It is also worth considering solar panel insurance to protect yourself against unexpected costs, such as damage to your installation from bird strikes or other events.

Top tip: *When in doubt, use the Experience-Price-Review method to evaluate a solar supplier. New brands might not have the experience and expertise required to give you smooth installation and aftercare support.*

Some companies might offer cheaper prices which might tempt you into getting more panels installed. In the long haul, this could mean more future expenses if the quality of products is subpar. Reviews (beyond the company's website) are another great way to gauge if a supplier is truly reliable.

Check if a supplier meets all three criteria to ensure you're selecting the best suppliers according to your needs.

Troubleshooting

While you might not need this section at all if Egg is your solar supplier (wink wink), sometimes customers can face problems with their solar system due to technical issues.

This is not common but it's nice to have some answers handy just in case.

Here is a guide to the most common problems with roof-mounted solar systems and their solutions:

Problem: **Solar panels are not producing electricity.**

Possible causes:

- The inverter isn't turned on and functioning properly.
- The wiring isn't secure and there are breaks or damage.
- The solar panels are shaded by trees, buildings, or other objects.
- Dirt or debris is blocking the sunlight.

Solution: Contact your solar installer to have your system inspected. With Egg, you can also monitor your solar panels with remote monitoring to check for flagged issues!

Problem: **Solar panels are making noise.**

Solution: If there is noise coming from your inverter or solar panels, it may be a sign the equipment is not functioning properly or is damaged.

Problem: **Your roof is leaking.**

Possible causes:

If your roof is leaking after a solar panel installation, it is probably due to shoddy workmanship or poor installation. Old roofs are also more prone to leaks.

Solution: Immediately contact your solar installer as this may cause further damage to your home.

Problem: **Solar panels are damaged.**

Possible causes:

Solar panels can be damaged due to factors such as debris, hailstorms and loose wiring. Damaged solar panels may not produce as much electricity as they should, and they may also be a safety hazard.

Solution: Call your solar supplier as soon as you can and they will evaluate if the solar panels need to be replaced or not.

Here are a few tips to be prepared in case something goes wrong with your solar panels:

- Keep a record of your solar panel system's performance. This will help you to track any changes in performance and identify any potential problems early on.

- Have your solar panel system inspected regularly by a qualified solar installer. This will help to ensure that your system is functioning properly and that there are no problems.

Resources for you:
Find the latest and most credible information on Solar

Egg Cracking Energy

Our website offers various helpful resources on all things solar and electric vehicle charging. This includes a free carbon footprint calculator which you can use to reduce your emissions.

Website: crackingenergy.com

The Energy Saving Trust (EST)

A leading and trusted organization that provides comprehensive advice on energy savings, including solar PV.

Website: Energy Saving Trust

Solar Trade Association (STA)

Represents the UK's solar industry. The website offers resources on solar energy, battery storage, and associated technologies.

Website: Solar Trade Association

Which?

Offers independent consumer advice on a wide range of topics, including solar panel installations.

Website: Which? - Solar Panels

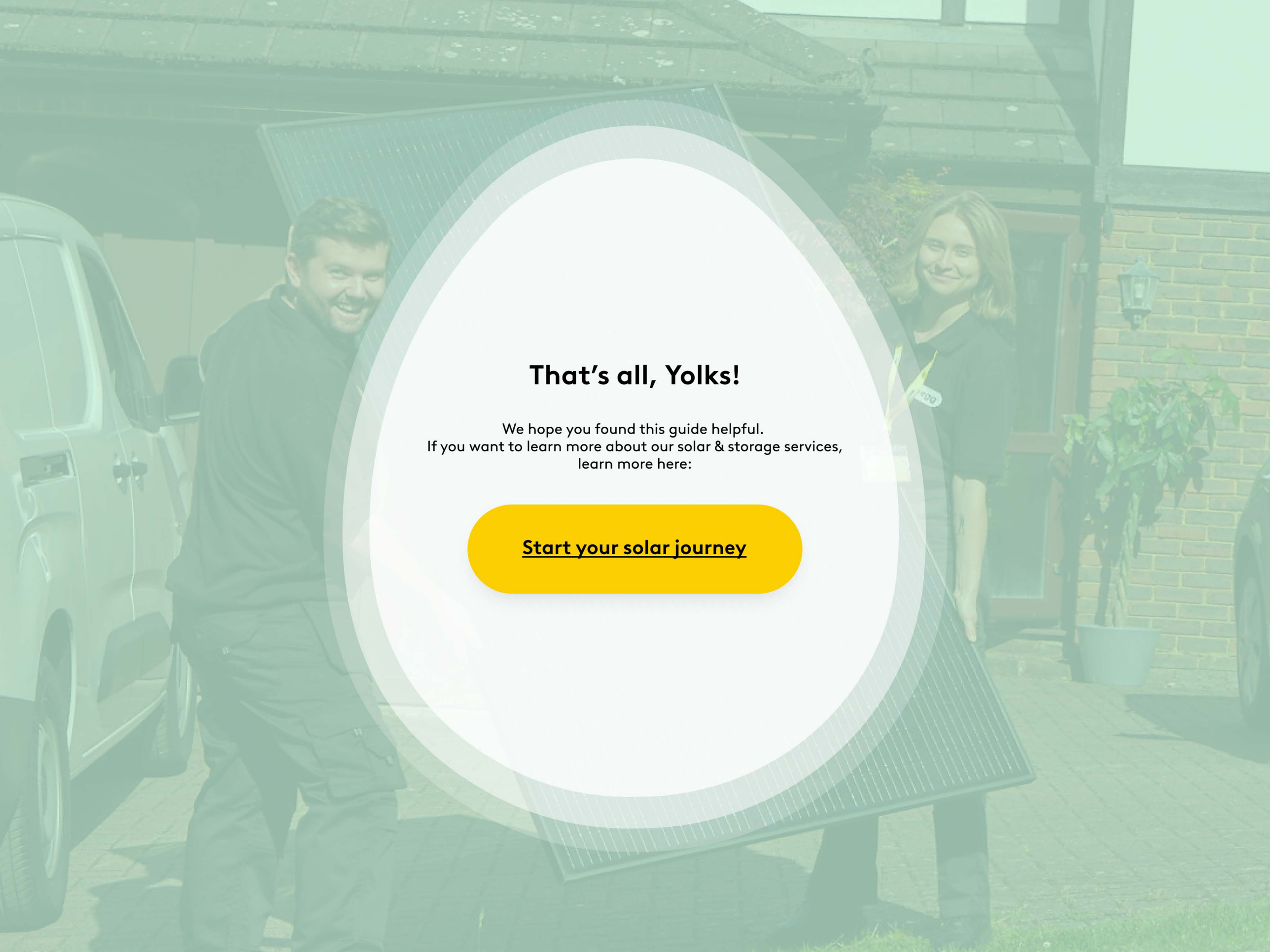
The Smart Export Guarantee (SEG)

Provides details on how homeowners with solar panels can be compensated for exporting electricity back to the grid.

Website: SEG Guide

The GOV.UK

The GOV.UK website is the best resource for up-to-date information on government schemes.



That’s all, Yolks!

We hope you found this guide helpful.
If you want to learn more about our solar & storage services, learn more here:

Start your solar journey