



SOLAR GENERATION

# RESIDENTIAL BUYERS GUIDE

Powering the North West.



# SOLAR GENERATION



# Welcome to your Solar Buyers Guide!

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The Solar Buyers Guide is designed to provide you with insights into the functionality of solar energy and the primary advantages of using solar power to fuel your home. It aims to assist you in making a well-informed choice regarding the most suitable solar solution for your needs, emphasizing the significance of selecting the right partner for your solar journey. It's important to choose the right partner on your solar journey - someone who understands what you are wanting to achieve by installing a solar system at home.



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# 1

## Solar Generation: The North West's Solar Specialists



### About Solar Generation

At our core, we are driven by a community of individuals who are embracing affordable solar energy, generating their own electricity, and contributing to a healthier planet while supporting those in need.

Our mission is to pave the way for a brighter future for generations to come. We operate with a clear purpose: to make a meaningful impact in the fight against climate change by promoting widespread adoption of solar power throughout Ireland.

Our vision extends beyond simply installing panels and batteries. We aspire to inspire the North-west to adopt more energy-efficient and environmentally conscious practices, believing that positive energy can foster a thriving community.

### Our Origin: From Strandhill to Carraroe

Originally based at the Strandhill Campus for three years, Solar Generation quickly outgrew its space due to high demand. This led us to expand to larger premises to accommodate our growth, enabling us to recruit more talent and better serve our customers.

#### New Warehouse Premises in Carraroe

Our office and warehouse premises in Carraroe serve as the hub for all our operations enabling us to offer expert solar panel installation services across the North-West of Ireland, including counties Sligo, Mayo, Leitrim, Donegal, and Roscommon.

Our new facility allows us to store all our equipment, ensuring that materials are allocated specifically for each project at the point of deposit. This streamlined process enhances efficiency and guarantees timely delivery for all our installations.

#### Local Expertise, Local Commitment

As a local company, Solar Generation understands the unique energy needs and challenges faced by the community. We are deeply rooted in the North-West and are committed to providing sustainable energy solutions that benefit both our customers and the environment.

#### Milestone: Over 2,000 installations across the North-West

Solar Generation continues to lead the way in promoting solar energy adoption in the region. Our installations not only reduce carbon footprint but also contribute to a more sustainable future for generations to come.

# 1

## Solar Generation: The North West's Solar Specialists

### Supporting a Brighter Future

#### A Brighter Future:

Solar energy has emerged as the most economically viable form of renewable energy. Despite the increase in Ireland's renewable electricity production, a significant amount of gas is still burned to maintain the national grid.

Furthermore, much renewable energy is not sustainable, particularly when it is consumed far from where it is generated. While expanding renewable energy sources like wind is beneficial for reducing carbon emissions, it also adds pressure to the already strained national grid. On the other hand, when homes, businesses, and farms generate, utilise, and store their energy on-site, it presents a highly effective solution for our flawed power model—essentially, creating small power plants on the roofs of Irish properties. Opting for solar power means you are actively contributing to a more environmentally friendly energy future.

#### It's Time to Kickstart your Green Energy Journey

It's an incredible feeling to have your home running on sunlight. With solar, a typical family can be proud to see the equivalent environmental impact of CO2 Reduction of 900kgs in carbon every year, driving 4,000 km less every year, planting 40 trees every year.

Solar PV



Battery Storage



Ev Chargers

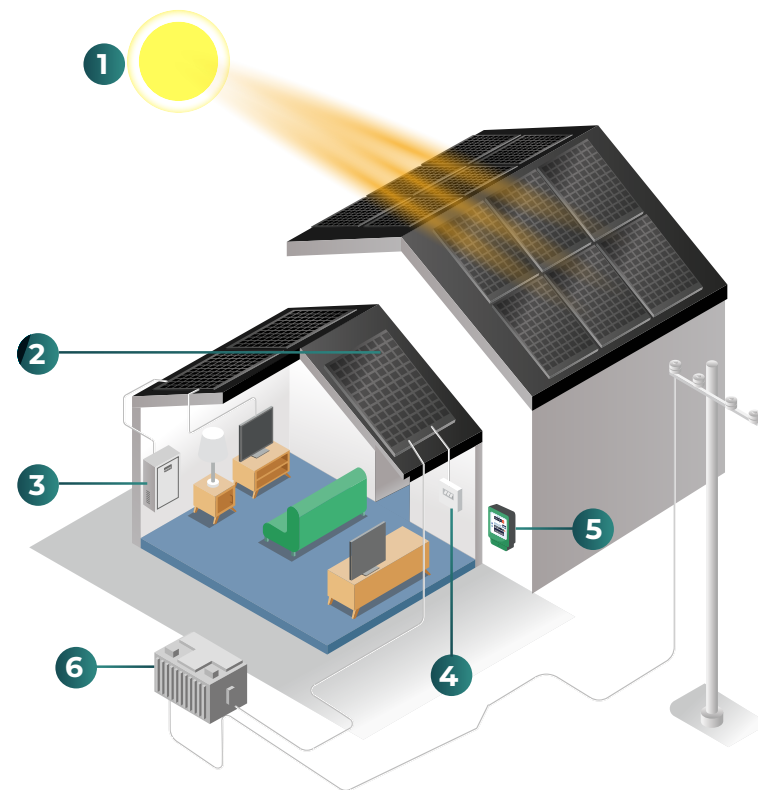


# 2

## How Solar Works

### 1 How Solar Works

When the sun shines, solar panels' PV (photovoltaic) cells transform sunlight into DC (direct current) electricity. An inverter then converts this energy into AC (alternating current) power, which is utilised by your home. Household appliances such as refrigerators, lights, and TVs draw on this solar power first, before resorting to electricity from the grid if additional power is required. Any surplus energy generated can be stored in a battery for later use when sunlight is unavailable, or it can be fed back into the grid.



### Solar System Basics

- 1. Sun**  
During daylight hours, there's a surplus of energy available to power your home!
- 2. Solar panel**  
Solar panels capture this sunlight, converting it into DC electricity.
- 3. Inverter**  
An inverter then converts this DC electricity into usable 240V AC electricity, which powers your home appliances.
- 4. Switchboard**  
This electricity is directed to various circuits in your home through your switchboard.
- 5. Meter**  
With a new solar import/export meter, you can measure the excess solar energy being fed back to the grid (export) and the additional power you import from the grid.
- 6. Battery <-> back to the grid**  
Adding a battery enables you to store excess solar energy for use when sunlight is unavailable, such as during the night.

# 3 Energy Trends



The cost of power in Ireland has nearly tripled over the past 12 years. Although energy prices are expected to decrease in 2024, they are likely to remain higher than pre-crisis levels for the foreseeable future. According to a recent report by Eirgrid, Ireland's electricity demand is projected to increase by 37% by 2031.

The cost of solar panels and batteries has significantly decreased, making them a more feasible option for many households and businesses. When homes, businesses, and farms generate, store, and utilise their own energy, it alleviates pressure on the already strained national grid. There has never been a better time to switch to solar and begin enjoying the benefits of solar power!



# 4

## Is Solar a Good Investment?



Without solar, you're consistently billed monthly by your power company for the electricity you consume from the grid. Instead of this ongoing expense, you could redirect those funds towards owning a solar system. This investment not only generates free power for your home but also creates a valuable asset on your roof, enhancing your property's overall value. Once the system is paid off, you continue to benefit from free power, resulting in significant long-term savings.

The economics of installing your own solar system make sense, with a typical payback period ranging from 5 to 7 years. Investing in a solar system has the potential to provide a return on investment that is significantly higher than if you were to deposit the same amount of money into a bank account.

# 5

## How the Grid Works

Almost half (46%) of Ireland's electricity is generated by natural gas-fueled power stations, while approximately a third comes from local sources such as wind (30%), hydro-electricity (2.3%), and utility-scale solar (1%). ESB's extensive network of power pylons distributes this electricity across the country, after which it is transmitted through local power lines to individual homes. Power companies or retailers then sell this electricity to you for use in your home.



# 6 The Relationship Between Solar and the Grid



## Without Solar

The majority of Irish homes are connected to the national grid in a one-way system. Electricity used in these homes is generated by power stations and supplied through electricity retailers, with consumers paying for the energy they use.



## With Solar (Grid Tied)

There is a common misconception that having solar panels on your roof means you are "off-grid." In reality, most solar-powered homes are still connected to the main grid, known as being grid-tied, and have a two-way connection. The difference with solar power is that you have your own 'power station' on your roof generating free power for your home. If you require more power than your panels produce, you will automatically draw power from the grid, which you purchase from your electricity retailer. Conversely, if your panels generate more power than you need, that excess energy can be sold back to the grid (or stored if you have a battery).



## With Solar (Off Grid)

Certain systems, primarily in remote areas, can operate completely off-grid. These systems are independent of the main grid and thus lack the security of grid supply if you cannot generate and store sufficient power from your off-grid setup. Consequently, these systems are typically designed on a larger scale than grid-tied systems, with extensive battery storage and often a backup generator. Due to these requirements, off-grid systems can be quite costly. Most individuals who opt for off-grid solutions do so because they reside in remote locations where a grid connection is unavailable.



## Energy Security

Reducing your dependence on the national grid is a smart way to protect your family from future power price hikes. Ireland's electricity grid is facing significant strain, unable to meet current energy demands, let alone future ones. The network of transmission lines and substations across the country is becoming increasingly overloaded.

With increased pressure on our energy grid and reduced generation capacity during extreme weather events, regional blackouts are more likely in upcoming winter seasons. The rapid shift toward electrifying our lifestyles, including the adoption of electric vehicles, will further strain the already struggling grid. Having solar panels on your roof not only provides energy security for your home but also helps alleviate pressure on the grid and reduces our collective carbon footprint.



# 7

## Delivering the Right Solar System



### Solar Panels Only

A basic solar system consists solely of panels and an inverter, which, depending on various factors, can potentially fulfill a significant portion of your energy requirements. These panels generate electricity when the sun is shining, and without a battery to store excess energy, you must use the electricity as it is produced. If you're away from home during the day, any surplus energy will be exported to the grid. At night, when solar generation is not possible, you will rely entirely on the grid for your power needs.



### With Solar and Battery

Having a battery integrated into your solar system allows you to store surplus energy generated by your panels for use during periods without sunlight. While the majority of solar installations in the last decade have been panel-only setups, recent advancements in battery storage technology and pricing have made solar panel + battery systems more prevalent. A battery enhances the efficiency of your solar panels by enabling you to use the electricity they generate according to your energy requirements, rather than solely when it is produced.



### Solar Solutions Tailored to You

Selecting the right solar system involves understanding your energy usage patterns, home details, and desired outcomes from going solar. Here's what you need to consider:



### Your Home

Designing an effective solar system starts with understanding your home's physical characteristics.

# 7

## Delivering the Right Solar System



### Assessing Your Roof

We'll evaluate your roof's potential for solar energy generation, considering its construction, material, size, and condition. We will also calculate wind loads for your exact location and design a system accordingly.



### Sunlight Exposure

Different roof orientations require customised solutions. Using advanced software, we analyse the sun's intensity on your roof year-round to maximise its solar potential.



### Optimising the Angle

Choosing between flat mounting or raised tilts is crucial, ensuring a minimum angle of 10 degrees for proper water run-off and capturing daily and seasonal sunlight variations.



### Minimising Shade, Maximising Solar Energy

Shading from nearby trees, buildings, and obstructions must be addressed in the system design to maximise solar energy production.



### Your Energy Usage Profile

Understanding your household's energy usage habits is key to designing the most suitable solar system for your needs.



### Past Energy Consumption

Analysing your previous energy bills provides insights into your historical energy usage patterns.



### Future Energy Needs

Anticipating changes in your energy requirements, such as purchasing an electric vehicle, helps ensure your system is future-proof.



### Smart Energy Use Practices

Small changes in energy consumption behaviour, like running appliances during peak solar output, can significantly reduce electricity usage. A well-designed solar system should be tailored to your lifestyle, not a one-size-fits-all package pushed by solar companies.



# 8

## Solar Install and SEAI Grant Process



### Step 1

Request a site survey with one of our Solar Experts



### Step 3

Solar Generation will issue an order confirmation confirming the install cost and discount the SEAI grant in advance



### Step 2

Apply for the Solar PV Grant via SEAI



### Step 4

Solar Generation will request permission to connect your system to the ESB network



### Step 5

Our team will then install the system



### Step 7

Solar Generation will then submit evidence of works to SEAI



### Step 6

Solar Generation will carry out a post works BER assessment



### Step 8

Complete. Now you can enjoy the savings!

# 8

## Solar Install and SEAI Grant Process

# 9 Solar Installer Checklist

- ✓ **Specialisation:** Does the company specialise specifically in solar?
- ✓ **Monitoring:** Do they offer monitoring for your solar system?
- ✓ **System Ownership:** Do you own the system after it's installed?
- ✓ **In-House Team:** Is their service delivered by a fully in-house team or do they use subcontractors?
- ✓ **Product Quality:** Do they only use top quality products with full warranties?
- ✓ **BER Included:** Does the solar installations company cover the BER assessment?
- ✓ **Battery Composition:** Are their batteries cobalt-free?
- ✓ **Engineering Support:** Do they have in-house engineers?
- ✓ **Initial Information:** Have they asked for your power bill or new build plans?
- ✓ **Local:** Are they a local installation company with quick response times?
- ✓ **Customer Reviews:** Do they have good reviews and customer testimonials?
- ✓ **Customer Support:** Do they have ongoing in-house customer support well beyond your install?



# 10 FAQ's

**1. Are there government subsidies?**

**2. What happens when it's not sunny?  
(Cloudy, winter, night-time)**

**3. What happens in a blackout?**

**4. How does selling back to the grid work?**

**5. How long does my solar system last?**

## Top 5 Questions Answered

Yes, there is currently a government grant of €2,100 available to all homeowners who have a property built and occupied before December 31st 2020. This grant is being reduced by approximately 15% per annum.

In bad weather, or during winter, your solar energy output can decrease by 30-50%. At night, solar panels do not produce electricity. However, with a battery, any excess energy generated during the day can be stored and used at night, allowing you to access solar power 24 hours a day.

Batteries can store surplus energy generated during the day and provide this stored energy during a blackout. It's important to discuss your options with your solar consultant and have them clarify the distinction between Storage and Backup (or Emergency Power Supplies - EPS).

As long as you're grid-connected, and have a smart meter installed, you will be able to sell back to the grid.\*\*. The rate at which you get credited for exported power depends on the retailer you are signed up with and is always lower than it costs for you to purchase from the grid. To maximise ROI on your system you should aim to use 60% or more of the power generated.

Solar systems are engineered to last for more than 25 years, as evidenced by the warranties issued by panel manufacturers. Our Inverter and battery solutions also come with an impressive 10 to 15 year warranty. High-quality battery solutions, like the SolaX Triple Power solar battery, experience minimal efficiency loss over this extended lifespan.

# Client **11** testimonials

## Micheal Geohegan



Aghacashel,  
Co. Leitrim



4.34 kWp  
Hybrid System



**“We’re producing 90% of the energy we’re using, the only time we’re really taking off the grid is when there’s a heavy load, the battery is feeding us most of the evening into the night”**

View more testimonials here:



# Client **11** testimonials



**“Since we’ve put them in it’s been brilliant, we have had hot water pretty much all of the time, even on a cloudy day!”**

## Jessie Smith

 Strandhill, Co.Sligo

 2.6 kWp  
Grid-tied System



**View more testimonials here:**



# Client **11** testimonials

## Mark Cunning



Carricknagat,  
Co.Sligo



5.76 kWp  
Hybrid System



**“Because of the solar I’ve been running my car for free.”**



View more testimonials here:



# Client **11** testimonials



**"We've barely had an electricity bill since installing our solar system which has been incredible!"**

## Carol Roach

 ballina, Co. Mayo

 6.4 kWp  
Hybrid System



**View more testimonials here:**



Would you like to explore any other aspects of solar energy or have any specific questions?



## Tip

Ensure you have your electricity bill ready when contacting a solar provider. This is crucial as it helps the solar consultant understand your power usage, allowing them to design the right system for your needs.



## Next Steps

- 1. Talk through your options:** A consultant will discuss your house and energy needs with you, addressing any questions you may have.
- 2. Review your roof eligibility:** Utilising our industry leading software software, we can assess your roof's pitch, sun direction, intensity, and shading impact. Our experienced team has installed numerous systems on various roofs, ensuring the best approach.
- 3. Design your system:** Our goal is to provide you with a system that meets your current and future needs. We offer ongoing support for the life of your system, ensuring it delivers as expected. Following this free consultation, we will present you with a custom-designed solar system tailored to your requirements.



SOLAR GENERATION

Join us in our mission to forge a brighter, greener tomorrow. Contact Solar Generation today to learn more about our services and how we can help you make the switch to solar.



# SOLAR GENERATION



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SCAN ME

