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Smart Export Guarantee

Toolkit

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www.riseretrofit.org.uk

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Introduction

Smart Export Guarantee (SEG) provides an opportunity to sell unused solar energy back to the grid. This income can help offset energy bills, however the rates that energy companies buy electricity back for is much lower than the costs of buying electricity from that same provider. It is therefore always cheaper to use the electricity created by the solar power, rather than using energy from the grid when your solar PV isn't producing energy.

To benefit from SEG, you can use the same energy company that you purchase your electricity from. Alternatively, you can enter a contract with a different supplier.

You must have a good understanding of how much energy you use, and at what times of the day, to ensure you choose the right tariff. If you're using a lot of energy in the evenings or overnight, and less energy during the day, you will want a tariff where your purchase price for electricity is as low as possible. This is because your use of energy is outside the main sunlight hours, when solar is productive, which means you will have to continue purchasing energy from the grid. However, you will also be exporting more energy to the grid in the day, so finding a high tariff for your export will be beneficial.

Balancing energy import and exports

This section aims to provide examples of two households who are engaged in SEG, documenting how their energy usage has impacts on their importing and exporting of energy. Both examples refer to the autumn, where there is daylight between 7.00 and 18.00.

The tables below are broken down into sections based on intervals within the day. These intervals are the basis for examining:

- The amount of energy used by the household
- The amount of energy exported to an energy supplier
- The amount of energy the household needs to purchase (import) from a supplier

Energy is represented in kilowatt hours (kWh), the standardised unit for measuring energy usage in UK homes. Energy is exported and imported on the basis of a price per kWh, which is estimated in the tables at 0.40p for imports (the purchase price to households) and 0.20p for exports (the price energy suppliers buy it for). This allows for an assessment of how beneficial exporting will be to the household.

Examples

The table below contains information about a home where the family is out during the day (possibly at work or school). This means that:

- The light energy usage between 9am and 12pm day is provided by the solar PV. 2 kWh of excess energy is exported to the grid at 20p/kWh
- No energy usage between 12pm and 5pm means that all 3 kWh generated are exported to the grid at 20p each
- Energy usage spikes between 5pm and 7pm, which uses all the energy generated. 1 kWh is exported between 5pm and 6pm, when there's more sunlight, but 3kWh have to be imported at a more expensive rate later
- In total, this household had to import 7 kWh of energy and were able to export 6 kWh. This resulted in a daily electricity cost of £1.60.

Time interval	**Total energy use**	**Solar energy generated**	**Energy imported @ £0.40p/kWh**		**Energy exported @ £0.20p/kWh**		**Balance**
			kWh	**£**	**kWh**	**£**	
7am – 9am	2 kWh	0 kWh	2	-0.80	0	0	-£0.80
9am – 12pm	1 kWh	3 kWh	0	0	2	0.40	£0.40
12pm – 5pm	0 kWh	3 kWh	0	0	3	0.60	£0.60
5pm – 7pm	5 kWh	3 kWh	3	-1.20	1	0.20	-£1.00
7pm – 10pm	2 kWh	0 kWh	2	-0.80	0	0	-£0.80
Total	**10 kWh**	**9 kWh**	**7**	**-2.80**	**6**	**+1.20**	**-£1.60**

The next table contains information about a home where the family are at home during the day. Their heavy daytime energy usage is largely supplied by their solar PV, which means that:

- Their light energy usage between 7am and 9am is partly provided by solar, but they have to import 1 kWh
- Heavy energy usage between 9am and 12pm is fully provided by solar. They are able to export 1 kWh
- Heavy energy usage between 12pm and 5pm is fully met by solar. They do not export or import any energy during this period
- Of the household's total use of 12kWh, 9kWh were provided by the solar. 3kWh were imported and 2kWh exported, resulting in a net cost of £0.80 for the household's electricity that day

Time interval	Total energy use	Solar energy generated	Energy imported @ £0.40p/kWh		Energy exported @ £0.20p/kWh		Balance
			kWh	£	kWh	£	
7am – 9am	2 kWh	1 kWh	1	0.40	0	0	-£0.40
9am – 12pm	3 kWh	4 kWh	0	0	1	0.20	£0.20
12pm – 5pm	4 kWh	4 kWh	0	0	0	0	0
5pm – 7pm	2 kWh	2 kWh	1	0.40	1	0.20	-£0.20
7pm – 10pm	1 kWh	0 kWh	1	0.40	0	0	-£0.40
Total	**12 kWh**	**11 kWh**	**3**	**-1.20**	**2**	**0.40**	**-£0.80**

These examples demonstrate the importance of understanding your tariff. It means you can make informed decisions as to which is best for you and your expected energy use, across the year.

Signing up for a SEG tariff

To sign up for an SEG, you will need to contact the energy company that you have decided is offering the best rates for you. As each company does this slightly differently, you will need to contact them directly to find out their exact process but generally they require:

- Micro generation certification (see below for more information on this)
- District Network Operator (DNO) applications (see below)
- Homeowner permission – this can be withdrawn so contract terms must be considered

You should receive all this information from the contractor fitting the solar panel systems. If you are moving into a rented home, your landlord should be able to provide this information for you.

Microgeneration Certificate Scheme (MCS)

"…MCS sets, defines and maintains the standards for low carbon energy technology products, contractors and their installations." Mcscertified.com

MCS certification helps ensure that the solar PV panels have been fitted correctly, to the best standards. This gives you confidence that the panels will work in the most effective way and are safe. An MCS installer will provide you with a certificate at the end of the install to show that the system has been fitted and meets the standards required. They should also ensure that the resident knows how to use the system and handover all relevant information.

If you want to export any unused electricity to the grid, you will be asked for your MCS certificate by the Distribution Network Organisation (DNO). The energy provider will ask to see this MCS certificate, alongside the consent from DNO and if relevant permission from the landlord.

DNO applications

The DNO is the organisation responsible for all the infrastructure that gets the electricity to your home. This is different to your energy supplier. The DNO is responsible for all of the overhead lines, cables, sub stations etc. They need to be aware of any solar PV systems on homes, to understand how energy is moving along their cables and other infrastructure.

For small solar PV arrays, usually below 3.8Kw, you only need to inform them of your plan to fit solar. Anything over 3.8kw and you need permission to be granted.

As you apply for SEG the energy company may ask to see your DNO approval, even if it's a small array. This means that it is advised to keep evidence that the DNO has received your request to install solar, despite it not necessarily requiring approval.

Homeowners' permission

If the home is owned by anyone other than the resident, usually a landlord, the energy provider will need permission for the resident to export the electricity. This is due to the solar panels being owned by the landlord, so the landlord needs to give permission for the energy created to be sold by the resident. It is worth noting that a landlord can sell energy through a SEG, with a resident in their property, but there are some important considerations. For example, they must own the solar panels and inform the resident about the arrangement. It is unusual for a resident that does not own the home to install solar PV and can be prevented by tenancy agreements.

Residents are permitted to install their own solar panels, and enter an SEG, but there are important considerations that must be made. The resident must have the landlord's permission to install the solar panels and must agree to maintain them, as well as addressing the installation costs. Once this has been completed, the resident can enter an SEG, with the landlord's permission, and appropriate insurance and liability allowances.

Some energy suppliers have asked for other information when residents are applying for SEG.

New residents

There are several considerations when new residents move into a home fitted with solar PV. The following steps will help ensure the new residents are making the most of the solar PV:

- Ensure all energy supply/export contracts are closed with the previous residents
- Support new residents to understand how to best use solar PV to save them money and reduce their energy bills
- Support new residents to understand how to set up their own SEG

Conclusion

Solar PV can make a huge difference to residents' living costs, while also reducing the carbon footprint of the homes and supporting the UK with its net zero ambitions.

SEG offers the opportunity to sell unused solar energy to the grid. If the resident is producing an excess amount of solar energy, then the SEG can allow for resident to make a small amount of income by selling this energy.

Key aspects to consider:

- Understanding your tariff rates is important so you can make informed decisions as to which is best for you and your expected energy use, across the year
- How much energy you are using and at what times of the day
- How much energy you are producing and at what times of the day