**Green Ixworth**

**Battery Storage**

**What is solar panel battery storage?**

An energy-storage system, also called a home or solar battery, lets you capture electricity so you can use it at another time especially if you do not use it all during the day, e.g. at night. If you use all your generated power during the day a battery may not be worthwhile unless you recharge it from the grid at low tariffs.

**Is solar battery storage right for my home?**

If you have solar PV panels, or are planning to install them, then using home batteries to store electricity you’ve generated will help you to maximise the amount of renewable energy you use.

Home-energy storage will reduce the electricity you use from the grid, and cut your energy bills. If your home is off-grid, it can help to reduce your use of fossil fuel back-up generators.

Even without solar panels, you may be looking to make use of time-of-use tariffs with a battery. These let you store electricity while it’s cheap (overnight, for example) so you can use it during peak times. Not all energy companies operate these schemes

Home-energy storage will cost you upwards of £2,000, so you’ll need to make sure it's a worthwhile investment and you'll get your money back on your energy bills. With grid electricity currently very expensive, the pay back times might now be quicker than you think.

**What size solar storage battery do I need?**

The average home uses around 8kWh of electricity per day. The capacity of new lithium-ion batteries ranges from around 2kWh up to as much as 15kWh, many are modular, so size is flexible.

Ideally, you want a battery that will cover your evening and night-time electricity usage, ready to be charged up again when the sun comes up. You'll also need to bear in mind how much your solar panels can generate, as there's no point buying a battery that's bigger than they can fill.

You'll need to speak to a battery installer to discuss what will be the right size for your home.

**Can I save money with a solar battery?**

Installing a home-energy storage system is a long-term investment to make the most of your solar-generated energy and help cut your energy bills. Whether it saves you money depends on:

• the cost of installation

• the type of system installed (DC or AC, chemistry of the battery, connections)

• how it’s used (including the effectiveness of the control algorithm)

• the price of electricity (and how it changes during the lifetime of your system)

• the battery’s lifetime.

Most battery systems come with a 10-year warranty. They require little maintenance, so the main cost is the initial installation. However, solar PV panels can last 25 years or more, so you should factor in the cost of replacing the battery at least once into your total costs.

Batteries are expensive to buy, but prices are dropping all the time, as are solar panel prices. With electricity prices at record highs, the payback times are improving.

Some battery storage companies offer financial benefits – for example, payments or reduced tariffs for providing services to the grid (eg. letting spare electricity from the grid be stored in your battery). If you have an electric vehicle, being able to store cheap electricity to charge it could help to cut your costs. You should take into account whether you are on a tariff which has different electricity costs depending on the time of day (time-of-use, or TOU tariff) and, if you generate your own electricity, how much of this you use already.

If you have a smart meter, your export payments will be based on actual export data. However, if you also have a home battery installed, your export payments will be estimated at 50% of what you generate.

If you are looking to install solar panels and a solar battery, new Smart Export Guarantee (SEG) tariffs mean that energy firms will pay you for any excess renewable electricity you have generated and export to the grid. All suppliers with more than 150,000 customers have to offer them, but only a few suppliers pay generously. Compare rates to find the best for you – but check that you’re eligible if you have storage installed.

**Financing energy storage**

While battery prices are coming down, it’s still a significant investment.

The best option is to pay for your battery upfront using your own savings. Interest on a loan could significantly extend the payback time.

A number of electricity suppliers sell solar batteries and/or solar panels so that customers can store excess electricity generated, or charge their electric vehicle. They also pay customers for excess electricity they export to the grid. With Smart Meters they may also charge more or less for power at different times of the day.

**Battery storage products and prices**

The batteries range from the size of a small computer to the size of a washing machine. Greater capacity means a bigger and heavier battery. Small systems can be wall-mounted, while larger ones sit on the floor. Some companies offer 'stackable' batteries that can be used together.

2 - 3.3kWh batteries range from about £3,000 - £4,500 installed

Some are stackable in units of about 2kWh. Each.

Many Solar/battery systems can monitor generation and storage by an app.

Bear in mind that usable capacity is usually less than stated capacity. Batteries tend to lose some energy in charging and discharging, and most aren’t designed to be regularly fully discharged.

Batteries come as DC or AC systems. If using with Solar Panels then DC are more efficient. DC systems aren't usually recommended if you’re retrofitting a battery to an existing PV system, or if wanting to use grid charging. AC systems are more expensive.

**Solar panel battery storage: pros and cons**

**Pros**

• Helps you use more of the electricity you generate.

• Some firms pay you for allowing your battery to be used to store excess grid electricity.

• Could enable you to take advantage of cheap-rate electricity.

• Require little maintenance: ‘Fit and forget’, said one owner.

**Cons**

• Currently pricey, so payback time may be long.

• A DC system could reduce your FIT payments.

• Likely to need replacing during the lifetime of a solar PV system.

• If retro-fitted to existing solar PV, you may need a new inverter.

• Batteries added to existing solar PV systems are subject to 20% VAT. Batteries installed at the same time as solar panels are subject to 0% VAT until 2027.

• If you’re looking to protect yourself against power cuts with a home battery, not all systems are suitable.

Batteries should be protected from the sun and rain and a location capable of taking the weight of the batteries and close to the Inverter, possibly in a garage.

Check that your installer is signed up to the Renewable Energy Consumer Code (RECC), which now covers storage. This means they’re signed up to a high standard of conduct, including providing good information about your installation. You also have access to RECC’s complaints process if something goes wrong.

Meanwhile the Microgeneration Certification Scheme (MCS) is developing certification for battery storage systems. It says this will ensure consumer protection.

If you’re installing a storage system, you should notify your local Distribution Network Operator – check with the Energy Networks Association if you’re not sure who it is. You may also need to inform your local Council. Your installer should help with all this.