

Looking to install **solar panels** but don't know where to start?

The ultimate guide to installing
solar panels

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The ultimate guide to installing solar panels

Solar panels are one of the best-known forms of renewable energy, and offer lots of advantages for home owners and businesses alike. But while switching to solar energy is straightforward, there are important things to consider before settling on the best option for your home or business.

As experts in renewable energy and solar PV systems, we've compiled the following information to help you **take control of your energy**. This guide walks you through the process of choosing your installer and getting your system designed and installed. It outlines what to expect along the way and what you need to take into consideration.

The benefits of solar panels

Whether you're looking to install solar panels as a **homeowner** or you want to switch to renewable **power for your business**, there are three distinct benefits.

- Reducing your **energy bills**
- Increasing your **energy security**
- Reducing your impact on the **environment**

WE PLANT A TREE FOR EVERY
QUOTE WE PRODUCE!

 treeapp



How do solar panels reduce your energy bill?

Once installed, solar PV systems generate energy during daylight hours enabling you to use this energy directly in your property instead of purchasing electricity from your provider. If you are generating more energy than you need you can often sell this energy back to the grid reducing your bills further.

How long until I see a payback on my solar investment?



Properties with high daytime usage are likely to benefit the most from a solar PV system, but there are options to install battery storage that enable you to store energy produced in the day for use during the evening and overnight. We recommend working with a reputable installer who will design your system with your energy requirements in mind and specify a system accordingly.

Solar panels are an effective way to lower or even eliminate the cost of powering your property, resulting in considerable financial savings. Taking into account today's energy prices and the costs involved in installing a solar panel system you should be looking to break even on your investment within 5-7 years.

How does a solar PV system increase energy security?

Solar panels enable you to generate your own energy. Once installed a solar PV system will generate electricity for up to 30 years, enabling you to supply a significant portion of your building's energy needs for the foreseeable future at the cost of your initial installation.

Energy prices are expected to remain high due to the current market situation and demand will only increase as we transition further to electric vehicles and heating systems. Reducing your reliance on the National Grid by generating your own supply of energy cushions you from price increases.



How do solar panels reduce your impact on the environment?

Although there is an increasing proportion of renewable energy going into the National Grid, a significant proportion of the energy provided to homes and businesses is generated using fossil fuels such as natural gas and at times coal. Electricity generated using fossil fuel releases harmful greenhouse gases including CO2 into the atmosphere which contribute to climate change.

Electricity generated using solar panels and the sun has zero harmful emissions, and switching your consumption to solar energy dramatically reduces the impact you have on the environment.





Are there any other benefits?

As well as the main benefits listed above, solar PV systems are very cheap to run as they have no moving parts and require little service and maintenance. Depending on the manufacturer you choose, your panels, and your system's inverter should have good warranty periods of around 20 years. It's possible to mount solar inverters on the outside of properties so they don't take up space indoors and the systems themselves are very quiet when operational. It's also very easy to expand your solar investment and add on solar battery storage, EV charging or even additional panels should your needs change in the future.

Is a solar PV system right for your property?

Some properties are unable to accommodate a solar PV system. Solar panels need daylight, and direct sunlight whenever possible, in order to generate electricity. If your property does not have a suitable roof space available or an area outside where a ground mounted system could be erected solar PV will not be an option.

Most properties however do have capacity for a solar PV system either on an unshaded roof area or under-utilised land.

Take control



What to consider before choosing your installer

- ✔ Your solar PV installer will be responsible for specifying, designing and installing your system so it's important that you choose the right company for your project. Here are some things to consider.
- ✔ There are very few compulsory accreditations for the renewable energy sector, so identifying a company that has voluntarily participated in accreditation schemes demonstrates that they are committed to delivering quality and providing assurances for their customers.
- ✔ You will need to ensure that the electrical element of your installation is installed by fully qualified electricians and your installer should be registered with NICEIC.
- ✔ If your installation is less than 50kW you will need an MCS certificate and an installer that is certified to do this for you. If your system is over 50kW you should look for an installer who has construction industry accreditations such as CHAS and ISO 9001.

GGP Accreditations



70+ strong team providing depth and experience

Geo Green Power has over 14 years' experience in renewable power and green energy solutions, and are one of the UK's leading renewable energy installers.

ESTABLISHED
IN 2010



“Professional outfit who couldn’t do enough for us as a client. Look forward to working with them again.”



David Tyler

Director of Estates and Facilities



Customer testimonials and recommendations

It’s always useful to use a company who has a positive track record. Ask your potential installers to see customer testimonials or even arrange to visit an existing customer site.

For large commercial installations a reliable installer should be able to put you in touch with a number of customers who would be happy to discuss the process with you. For smaller domestic systems it’s always worth looking at customer satisfaction sites and reviews.

Operation & maintenance Offer

Although solar PV systems require very little ongoing maintenance, we do advise that systems are serviced regularly to ensure that they are always running at their optimum. Although it’s not essential, you might find it easier to choose an installer that also provides service & maintenance so that you can continue to work with the same company going forwards.

How many solar panels do you need?

Size

The size of your solar PV system should be driven by your energy usage now and how this may change in the future. For businesses you may want to anticipate and accommodate future growth, or you may choose to build your solar energy generation in line with your growth and have subsequent systems rather than one big investment. When considering a domestic installation, you might want to factor in additional loads such as a heat pump or an Electric Vehicle charge point.

Panels

The number of panels will be determined by the amount of energy your system needs to generate and the amount of suitable space you have available to install them. Your installer should request copies of your energy bills so they can see your kWh usage throughout the year and the energy tariff that you are on. A survey of the property should also be carried out to identify where panels and inverters can be located and how easy it will be to access your roof and install cables.



Orientation

The orientation and pitch of your roof will impact the efficiency of your system, but this should be taken into account as part of the design and your proposal should be tailored to your property.



Output

The output is different for individual makes and models of panel, but once your installer has determined what you need to generate and where panels can be installed they will be able to say how many, and which panels they recommend. There are several **types of solar PV panels** to choose from, and your installer should recommend the best option for you taking into account your budget, output requirement and space available.

What should your proposal include?

In addition to the number and type of panel being used, your proposal should provide details of the inverter required for your installation, any other materials and components, scaffold and access and a detailed breakdown of when you can expect to see a return on your investment. It's also best practice to include an overview of how much energy your system will generate over the course of 12 months, the CO2 saving and details of how you will be able to monitor your generation.

Unless you are working with an installer who you have worked with before or has been highly recommended, we advise that you seek comparable quotes to understand whether you are being recommended the best solution. A good installer should also look at whether or not battery storage could be incorporated into your system to deliver additional savings.

Going ahead with your installation

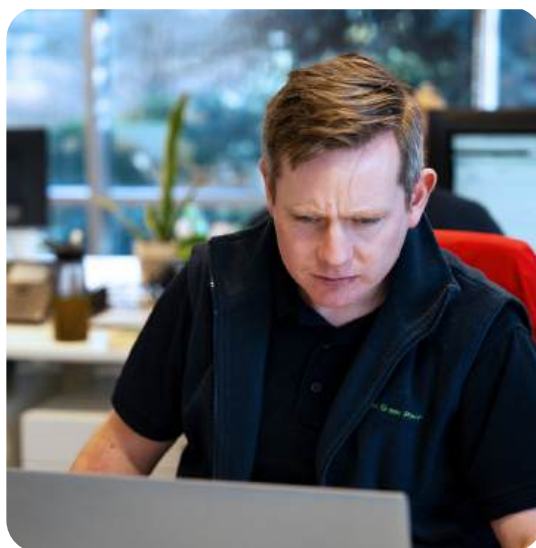
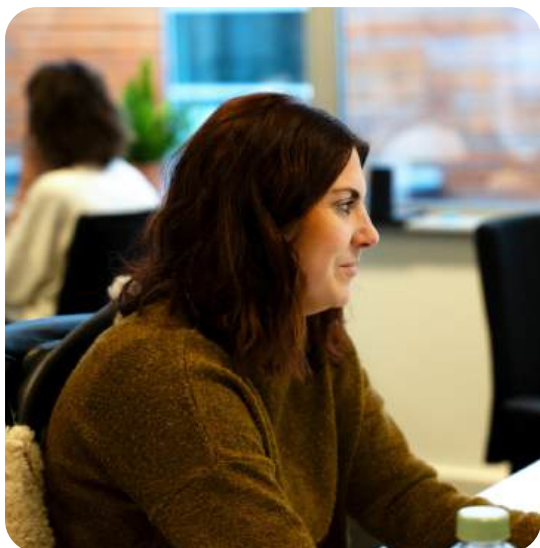
Once you have chosen your installer and agreed on your proposal, work can begin on your installation. Depending on the process that your installer follows, and whether they offer an inhouse planning and permissions service, you can expect all or some of the following steps to take place.

Changing for the better, together

Planning & permissions

As soon as you decide to go ahead, your installer should contact your DNO (District Network Operator) to confirm their agreement for you to connect your system to the Grid. Depending on your local DNO this could take a few weeks, so it's important that this is done quickly to start the process. If you are connecting a large installation your installer will advise you of any steps that you need to take with regards to your installation to ensure that you receive DNO permission.

Although the majority of solar PV installations don't require planning permission, there are cases where this is needed such as with listed properties, some ground mounted systems or very large commercial installations. If your installer offers planning applications as part of their service they will take care of this process for you, but you may need to action this yourselves if they don't.



Site visit or pre-installation survey

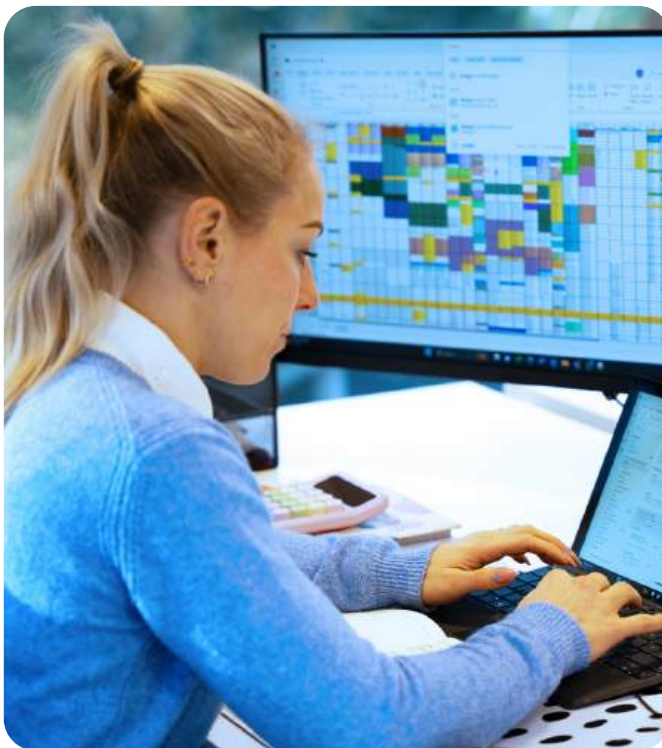
As part of the sales and quoting process your installer may or may not have visited your site. We would expect that a site visit would have been carried out for large installations, but your project may have been quoted for through a tender process or your building may not have been finished when you agreed your solar proposal.

A site visit prior to installation is essential to ensure that your project is properly planned. Engineers and/or surveyors will look at your existing electrical installation, roof type and start to make detailed plans on how they will access your property and undertake the installation. This on-site meeting can be used to discuss ways of working to ensure your day to day operations aren't affected, where cable runs will go, whether there are existing trenches and ducting that you would like to be used and any other fine detail of the installation. This visit would also be when issues such as the presence of asbestos would be identified or if there was the requirement for further structural assessments or electrical upgrades.

At this early stage there may be a requirement to adjust your proposal and your installer should highlight any concerns they have or additional costs for you to approve before proceeding any further. Following this meeting we recommend that you get assurance that the project will now proceed as quoted to avoid any unexpected costs at a later date.



Pre-installation plans



Whilst you wait to receive your DNO permission and any outstanding planning decision your installer will be planning your install using the information gathered at the site meeting. Materials will be ordered, scaffold plans will be produced and agreed with you and a detailed schedule of work will be issued providing details of installation dates, deliveries, waste collection and all of the other elements involved. Risk assessments and method statements will be produced and shared with you and any other documentation that you require for your site will be produced and approved.

If you're having a roof mounted system it's usual for scaffolding to be erected the week before your installation and you may be asked to receive deliveries of materials or plant hire. You should now feel fully prepared for your installation to start and have a clear idea of how long the team will be on site and when you can expect to be producing your own clean, green electricity!

Installation

Smaller, domestic and residential solar installations are often completed in a day, with larger installations obviously taking longer. Due to most large, commercial systems being installed on roof tops or unused areas of land, companies can operate business as usual and your install team can work without you even noticing they are there.



Factors which can affect the time taken to complete your installation include weather conditions such as heavy rain and strong winds. If these occur your installation team will have to pause any work taking place on your roof for obvious reasons, but work can continue inside your plant room.



The type of roof you have, and whether your system is ground mounted, will determine the exact installation method; but each install will start with the team carefully laying out your roof or ground mount system. Mounting will then be erected and secured and then your panels will be fitted to the frames or console tubs depending on the chosen method.

Your electrical installation will be completed alongside the panels. An inverter or inverters will be installed in the agreed location, any required metering and isolation will be completed, and all cabling will be run with a watertight entry point leading to any roofs.



Commissioning & handover

The final stage of your installation is commissioning. This is when your system is fully integrated into your electricity supply, switched on, all software is updated and any monitoring equipment is put in place. Depending on your existing electrical set up your install team may need to switch off the power; an appropriate time should be agreed with you well in advance and often can be done out of hours for commercial operations.

Before the team leave ensure that your installer has scheduled a full walk round and handover of your system. A member of the install team needs to show you how to isolate your system should you need to, how to carry out visual checks and where to find meter readings etc. Your system should also be clearly labelled.



Export

Some solar PV installers will offer to support you in setting up an export agreement with your energy provider. If you have a domestic system you will be eligible for the SEG (Smart Export Guarantee). If you have a larger, commercial system a Power Purchase Agreement (PPA) may be your best route.

If you will be using the majority of the power that you are generating, your export contract will be less important, but if you have a large surplus you will want to secure the best option available to improve your return on investment. You should check that export calculations form part of your initial proposal, and you should discuss with your installer whether they will support you in securing your agreement.

Energy storage

Solar batteries make it possible to store any excess energy that you produce for use at night or at times when your electricity consumption is higher than the energy being generated by your panels. Battery storage may enable you to avoid purchasing any electricity from the grid during times when you are paying peak tariffs, and in some circumstances households and businesses use night-time rates to charge their batteries to make their battery and solar installation run in the most cost-effective way.

You should be aware that not all solar batteries provide a back-up during power cuts. If this is functionality that you require you should make sure that your chosen product will do this; and get your installer to confirm how much power it can provide and how many of your circuits will be supported.

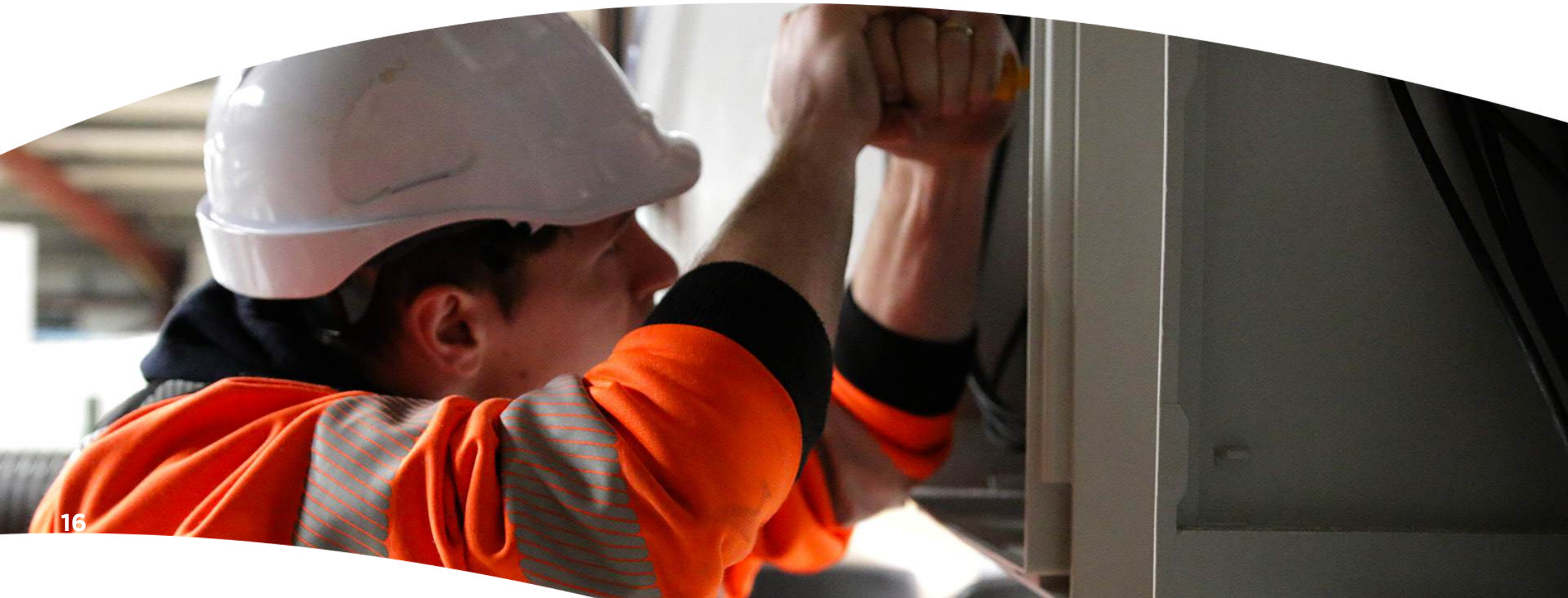
Adding a battery to your installation will significantly increase the cost of your system, and you should ensure that your energy rates and usage make it a sensible addition. Some combined systems use a hybrid inverter for both the solar and the battery. Some systems have a separate solar inverter and an additional inverter within the battery itself. If you're not sure about investing in them both straight away, discuss with your installer the options for installing solar first and then adding a battery at a later stage and how that would impact the overall cost.



Ongoing Operation & Maintenance

Solar PV systems are low maintenance, and once installed their running costs are minimal and long warranty periods make them a very safe investment. However, we do recommend that you have your system checked once a year, and that this includes a panel inspection from the air to identify if any build up of dirt or debris is reducing the overall generation and efficiency of your system. If your panels are dirty they should be cleaned by a professional window and panel cleaning company. It's unlikely that a panel clean will be needed every year as the angle of installation and local rainfall is usually enough to keep them free of dust and dirt, but it may be required from time to time.

Not all installers will recommend or provide service and maintenance as part of their offer. That doesn't mean that you shouldn't choose them, but be aware that after their initial installation warranty runs out that you might need to find someone else to look after you and your system going forwards.



About Geo Green Power

Geo Green Power operates throughout the UK delivering industry leading solar PV and battery storage projects creating energy independence, reducing utility costs and powering a greener future for us all.

Who we work with



Power for a Green future



"We have used Geo Green Power for solar panel installations at our company sites and have had excellent service and attention from all contacts within the business."

BMW Arden



"They have done a great job for us and the system they installed is still working faultlessly after several years. All the people we have met from Geo Green Power were very nice, helpful and competent. Highly recommended."

University of Nottingham



"Helpful, professional and always willing to answer any question regardless of whether it was relatively trivial or required more research."

"The team made the process of installing solar panels seamless."

Smeg UK



"Geo Green Power supplied exactly what they sold to me. Very professional outfit. I'm a very satisfied customer. Well done."

Hayloft Plants



Geo Green Power in action



Sector: Car dealership
System size: 76kW



Sector: Educational
System size: 200kW



Sector: Farms
System size: 1MW



Sector: Manufacturing
System size: 70kW



Sector: Public
System size: 20kW



Sector: Retail
System size: 69kW



Sector: Horticulture
System size: 150kW



Sector: Warehouse
System size: 350kW

Environmental

Green procurement

We are passionate about our reputation and the products that we provide and install for our customers. Our supply chain consists only of tier one panels that are insurance backed, with some of the longest warranties available in the industry. When selecting panel manufacturers we are driven by high quality, affordability and environmental considerations.

In 2024 we became signatories of the Solar Energy UK Supply Chain Statement to underline our support and commitment to developing an industry that promotes the highest possible levels of transparency, including in areas of environmental sustainability, social responsibility, and good governance.

Our fleet

Our installation team operates nationwide, and we have a fleet of vans to facilitate their travel to site and the transport of some materials. The operation of this fleet is our largest emitter of harmful emissions and CO2 and as such we are focused on reducing its impact.

We have stopped purchasing new diesel vehicles for our fleet and will stop purchasing petrol vehicles from 1 January 2025, a commitment we made on Clean Air Day 2023.

Business travel

Our fleet of company cars is wholly made up of fully electric vehicles or plug-in hybrid vehicles.

We will not purchase a petrol or diesel car.

Where possible our team car share.

Environmental

End of product life

In the United Kingdom, PV CYCLE – the collective take-back and recycling scheme for PV panels – operates a PV-focused Producer Compliance Scheme and the only PV Distributor Take-back scheme, providing full compliance services under WEEE Regulations for UK-based PV businesses.

Our suppliers are members of the PV Cycle Scheme. Our panels are marked with the WEEE symbol promoting responsible end-of-life recycling.

Electronic devices, such as laptops, are given as long a life in the business as possible before being disposed of through a BATRR and WEEE approved provider.

Waste management

We are committed to diverting as much of our waste away from landfill as possible.

Site waste is collected by registered contractors who are committed to recycling and repurposing the waste they collect.

Waste generated at our stores and offices is sorted into general waste and recycling.

Office consumables

We are actively looking to reduce single use plastic and limit waste at our offices.

- We have switched to refillable cleaning products and bathroom supplies
- We have moved to electronic customer files
- We are investigating alternatives to move all of our processes to paper-free

Tree planting

In June 2023 we committed to planting a tree for every customer quote we produce and wanted to plant over 1,000 a year.

We are currently planting well over 100 trees a month through the treeapp scheme.



**SOME PEOPLE THINK
GREEN ENERGY IS
THE FUTURE...**

WE BELIEVE IT'S NOW

Phoenix
Our Bid Manager's
Daughter

**Take control of
your energy**

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