



Your Free guide to Solar PV



Everything you need to know
about installing Solar Panels

June 2016

Clean.

Reliable.

Sustainable.

Solar panels generate zero pollution and offer immense benefits...

- Easy to install
- Virtually no maintenance
- Low running costs
- Lower electricity bills
- Significant financial savings
- Index-linked and tax free income guaranteed for 20 years
- Carbon footprint reduction
- 20 year panel performance guarantee
- 5-10 year inverter warranty

Low installation costs and the latest incentives mean there's never been a better time to invest in Solar Power.



Brighter ideas for your property

GETTING STARTED

Is my property suitable for Solar Panels?

If you're considering installing Solar PV panels, you're on your way towards protecting yourself against rising fuel costs, generating your own electricity free of charge – and even getting paid to do it.

First, Norcroft visit the site where you are considering installation. This is a free, no-obligation site survey carried out by our expert team to assess the best locations and materials for the job. Some of the important things we look for are:

- The condition of your roof – it must be able to sustain the installed panels
- The amount of space available on your roof – it must be adequate to fit the system

- How much shade is cast over the roof during the day – too much shade can affect performance

- Which direction your roof faces – for example, south-facing is ideal (but not essential)

All of this helps us determine whether your property is a good candidate for Solar PV installation and how much power it may be possible to generate.

How is the estimated amount of power calculated?

The exact amount of electricity from your solar PV panels is impossible to say with certainty, simply because the amount of sunlight we get varies from year to year. However, we do use a calculation to arrive at an estimate that will give you a good idea of what to expect.

There are three factors we look at. First, we consider the size of the solar panel array being installed. Then we look at the average amount of sunlight your postcode gets in a year.

Finally, we do an assessment of “the shading factor”: the amount of shade at the property; any obstacles that may be in the way of sun reaching the panels; and how the path of the sun during the day affects the amount of sun you get.

When calculated together, this gives us our best estimate of how many kilowatts you should be able to generate. It shouldn't be considered a guarantee of performance, but it is based on the standards and procedures set out in the Microgeneration Certification Scheme (MCS) “New PV Guide”, the industry's quality assurance rulebook.



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How is my quote calculated?

If your home is suitable for Solar PV installation, there are three major things to consider when deciding on the panels:

1. Direction your panels will face
2. Location of your home
3. The size and quality of installation

There are three key components to the Solar PV installation: the mounting system, the panels, and the inverter. Norcroft's initial site survey will assess the best position for the solar panels to be installed, as well as the most suitable solar panels, inverter and mounting kit to be used for the site-specific job. A written quote should include a standard performance estimate specific to your property and a full breakdown of what is included in the quote.

Norcroft advise you to contact your building insurance to check that they will cover you under the terms of your current policy if you have solar PV panels installed. Always contact your current insurance provider for advice before having solar PV panels installed.

In addition, you must be sure all the necessary local planning regulations and permissions have been obtained. We can help you through this process, but our quote will not include any of the fees that might be required for such permissions.

Choosing your installers

A solar PV system is a big, one-time only decision. It's important, therefore, to choose your solar company carefully – one that comes highly recommended and is going to be around for some time.

Only use a Microgeneration Certificate Scheme (MCS) accredited installer who abides by the Renewable Energy Consumer Code of practice (RECC). These accreditations and support networks are there to protect you and ensure your Solar PV installation is carried out correctly. Don't be afraid to ask for references. A reputable installer should be proud of their work and be willing to put you in contact with their

customers so you can see their work and get a first-hand recommendation.

Norcroft is MCS-accredited and RECC-compliant. Please feel free to contact us for references, or check our website for case studies.

What if I change my mind and want to cancel?

Under the Renewable Energy Consumer Code (RECC), you have the right to cancel the contract within 14 days with no penalty if you're not happy or change your mind.

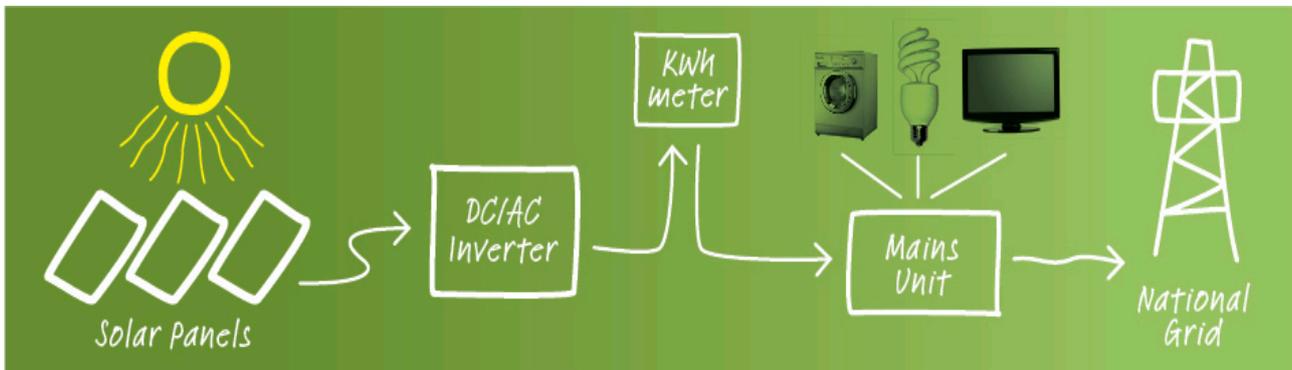


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THE INSTALLATION

How do the panels work?

Daylight (energy) hits the solar panel, which then creates an electrical charge. The charges created by all the solar panels are then run through an inverter. This inverter converts the solar panels' power into usable AC power to run appliances and equipment.



The stronger the sunshine, the more electricity is produced. However, solar panels don't need direct sunlight to work – you can still generate some electricity on a cloudy day.

Solar panels can be installed in several ways: as a retrofit on a roof, integrated in a roof, ground mounted or installed on a flat roof. Ideally, a Solar PV system should face between south east and south west and be free of shade. Nearby trees, chimneys,

and TV aerials are all common causes of shading and should be accounted for before any installation. For the best performance the solar panels should be angled at 30 to 45 degrees, although with high performance solar panels you can still catch a reasonable level of sunlight within angles of 10 – 60 degrees.

Your Norcroft engineer will help you determine the best location for the panels to be installed.

What to expect from the installation

Installing solar PV systems is fairly disruption-free and most systems are installed in two or three days. Unless your building is single storey, you'll need to have scaffolding put up. We work alongside a reputable local scaffolding team.

Depending on the expected length of the job we will arrange for the erection of scaffolding usually the day before the installation of the panels.

Our experienced team of engineers aim to carry out all installations as efficiently as possible, with minimum disruption to you.

The fixing system used to hold solar PV panels on your roof must be strong enough to support the weight of the panels in all weather conditions, including strong wind and snow. They also must be able to withstand a wide range of temperatures

and to be installed so that they don't let water get in through your roof. The type of fixing system used will depend on the specific installation situation.



Retrofitted

Retrofitted onto an existing roof - The location of the rafters under the existing roof tiles are identified. One roof tile is removed to allow the anchor to be screwed to the rafter and then replaced to ensure the roof remains watertight.

It is important that the correct type of anchor (also called roof-hooks or brackets) is used. This will be determined during the site survey depending upon the type of existing roof tiles. The rail will then be locked into the anchors and screwed into place. Once the mounting kit is in place the panels are clamped to the frame.



Roof integrated

Used instead of tiles or other roofing materials ideal for new builds.



Installed on a flat roof

Solar PV panels on a flat roof will produce more electricity if they can be angled toward the sun. Norcroft use an A-frame mounting system erected at an angle of around 15° to improve the performance of the system while limiting their visual impact and wind loading. This lower angle also reduces the risk of one row of panels shading another on the roof. As these panels sit above the roof they do not fall within permitted development rights, meaning that you will need to apply for planning permission. We use a fixing system to weigh down the panels, such as paving slabs, meaning the panels are held in position without penetrating the roof.



Ground-mounted

Ground-mounted are fixed to an A-frame in much the same way as flat roof-mounted solar PV panels. The main difference is how the frame is fixed to the ground. During the site survey the existing ground conditions will be assessed and the best method for your installation will be discussed and decided.



Wiring the Panels

The rooftop connection is fairly straightforward for a qualified electrician as the panels come pre-wired. Some systems above 4kW may require more than one inverter depending on the way the system is designed. The design of the wiring is also dependent on factors such as shading and panel positioning.



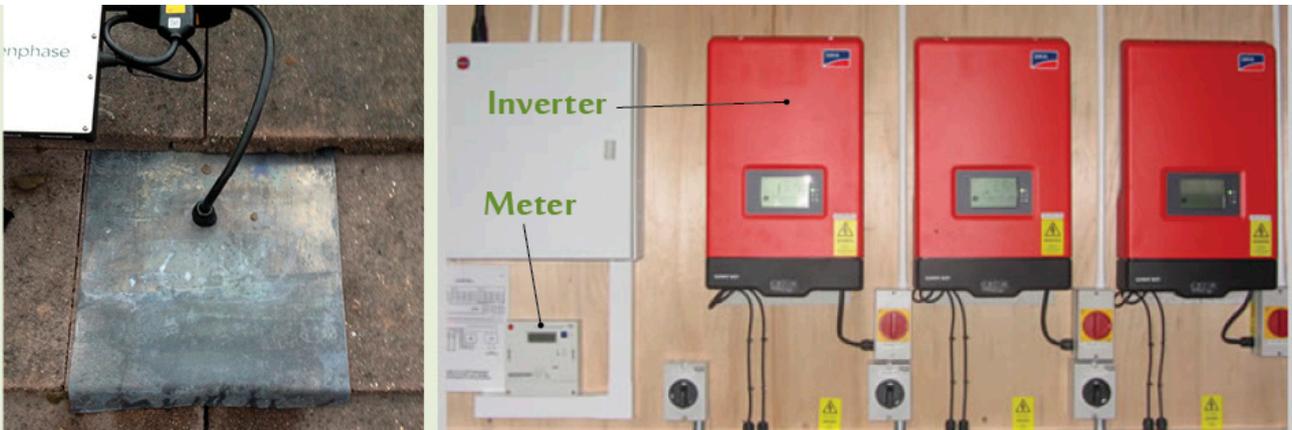
Final Wiring

Once all the panels have been installed the final wiring of the system can begin. The image, below left, shows an example of the wires entering into the loft space which are then sealed to ensure it is watertight.

The DC wiring from the panels on the roof enters the property

connecting to the inverter and then to the electrics in the property. The amount of electricity generated is monitored by a meter, which enables the building occupier to claim the lucrative Feed-in-Tariff.

The image, below right, shows the meter connected to a series of 3 inverters – an example of a larger system.



After care

Solar panels require little maintenance but it's recommended that we come and check the system regularly, as part of our ongoing after-sales support, to ensure your Solar PV system is meeting its generation target. The other parts of the system such as the inverter may require more regular checks to ensure maximum efficiency.

You will get a 20-year performance warranty with the panels, though they should last longer. You should expect the inverter will need replacing at some time during the life of the system.

THE FEED-IN-TARIFF INCENTIVE SCHEME

What is the incentive scheme?

The Feed-In-Tariff scheme (FIT) pays you for all the electricity you generate with your Solar PV panels. The unused power generated by your panels gets exported into the national grid.

The export payment that you receive is a deemed payment of 50% of the total power that your system generates. The government introduced the FIT scheme in 2010 to provide an attractive guaranteed long-term financial income for property owners generating their own electricity.

The lucrative Feed-in-Tariff incentive scheme makes payments for every kilowatt generated – whether it is used or not.

TRIPLE INCENTIVE			
1. Feed-in-tariff: Receive a guaranteed index-linked & tax free* payment for 20 years. The electricity provided will pay you 4.32p for every unit of electricity generated.		2. Export Payments: Receive 4.91p for half** of the units of electricity generated, whether you use them or not! Any excess is automatically fed back to the national grid.	3. Electrical Savings: Generate your own electricity free of charge and significantly reduce your electricity bill and cut carbon emissions.
*Tax free is subject to the size of a commercial system.			
** Where solar PV systems are above 30kW in size, the amount of electricity exported has to be metered and the payment is calculated on the actual meter reading (not 50% of the electricity generated as is done for systems <30kW).			

Solar PV FIT Rates

This table shows FIT rates for Solar PV Systems Registered from 1st April – 31st December 2016.

Size of System (kW)		2016		
		1 Apr to 30 Jun	1 Jul to 30 Sep	1 Oct to 31 Dec
Solar photovoltaic (other than stand-alone) with total installed capacity of 10kW or less	Higher	4.32	4.25	4.18
	Middle	3.89	3.83	3.76
	Lower	0.74	0.68	0.63
Solar photovoltaic (other than stand-alone) with total installed capacity greater than 10kW but not exceeding 50kW	Higher	4.53	4.46	4.39
	Middle	4.08	4.01	3.95
	Lower	0.74	0.68	0.63
Solar photovoltaic (other than stand-alone) with total installed capacity greater than 50kW but not exceeding 250kW	Higher	2.38	2.32	2.26
	Middle	2.14	2.09	2.03
	Lower	0.74	0.68	0.63
Solar photovoltaic (other than stand-alone) with total installed capacity greater than 250kW but not exceeding 1MW		1.99	1.94	1.88
Solar photovoltaic (other than stand-alone) with total installed capacity greater than 1MW		0.74	0.68	0.63
Stand-alone solar photovoltaic		0.74	0.68	0.63

Who is eligible for the Feed-in-Tariff payment?

An Energy Performance Certificate (EPC) is required for the property where the panels are to be installed. Since 8th February 2016, the required EPC level D has to be met before the installation can take place and the solar PV panels will not be able to contribute to this rating. Most modern properties will meet this EPC band D requirement.

Fortunately, the benefit to be added by the Solar PV technology can also be included in the EPC assessment, which can help boost your property into a higher band. If, even with the PV, you would still be below Band D, we can also advise on low cost works you can undertake, such as cavity wall insulation or energy efficient lighting, which will increase your rating.

The EPC assessment will be organised once it has been decided that you wish to install solar PV panels. Norcroft will take care of this process for you.

Only systems supplied with approved products and fitted by accredited installers, such as Norcroft, qualify for Feed In Tariff (FIT) payments.

How do I claim payment?

FIT payments are claimed from your energy provider. You will be asked to fill out an application, and you will need to provide proof of your EPC qualification and MCS Certificate to make a claim. The payment can be claimed by homeowners, landlords, businesses and charities.

**We are more than
happy to assist you with the
claims process...just ask!**

ABOUT US

Norcroft Electrical Ltd – trading as Norcroft Energy – are long-established electrical specialists. We are ideally placed to introduce both residential and commercial customers into the exciting and profitable field of solar photovoltaic power generation.

We have been established since 2000, incorporating in 2006. Founded over 10 years ago near Penistone as Norcroft Electrical, we pride ourselves on offering a blend of expert technical knowledge with a common sense approach and good value. We can make complex topics such as renewables, electrical technologies and government incentives easy to understand and relevant for your property.

Our company is a family business with traditional values offering the latest technologies. As MCS (Microgeneration Certification Scheme) accredited installers, Norcroft can design and install a solar photovoltaic power system on your property.

The MCS certifies products and installers, evaluating them against robust criteria to provide protection for consumers. Only systems supplied with approved products and fitted by accredited installers qualify for Feed In Tariff (FIT) payments.

We take pride in our commitment to provide the highest standard of work and service. We are committed to installing technologies with proven track records. Our team are approachable and friendly, offering a free question and answer service and helping customers with any planning applications that may be required.



"We have and would recommend Norcroft to anyone without hesitation."

HELEN & JOHN PORTEOUS,
CAWTHORNE

If you have any questions, or would like to arrange a site visit, please call one of our team on 01226 763127 or visit our website www.norcroftenergy.co.uk.



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