



Proposal for a Solar Photovoltaic System  
Including options to assist with maximising self-consumption

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## Introduction

Solar photovoltaic (PV) panels generate electricity by converting solar energy in electrical energy. Grid connected solar systems generate electricity which can be used on site or exported to the National Grid. Any electricity used on site will reduce your electricity bill and any electricity exported to the grid could be eligible for payments through the Government's Smart Export Guarantee (SEG) scheme.

### Key Benefits of Solar PV

- Electricity bill savings —because you import less electricity from your supplier
- Helps mitigate from the volatile electricity price
- The Smart Export Guarantee (SEG) is a government scheme designed to support anyone who would like to invest in solar panels. It ensures that you get paid for exporting electricity to the grid.
- Significant reduction of carbon footprint
- Very low maintenance systems
- Highly reliable energy production
- Long system design life (25+ years)
- Long product warranties from leading global manufacturers



To get the most benefit from the solar system will require a few behaviour changes

- Monitor and reduce your energy usage—a monitoring solution is a great way to do this.
- Although solar panels are self-cleaning, if the panels have a low pitch (under 20°) or are in an area of high pollution, near trees or popular with birds, it makes sense to clean them if they are dirty. If they are not visibly dirty, then it is not required. Once a year is usually sufficient and you can ask your window cleaner to do it, but you **must not use detergent** as this will compromise the anti-reflective coating.
- Monitor the solar generation and use appliances such your washing machine or dishwasher when there is sufficient solar generation.
- Have a battery storage solution installed to save the solar electricity generated until you need it.
- Buy an electric car and charge it when it is sunny or overnight if you are on a cheap off-peak tariff.

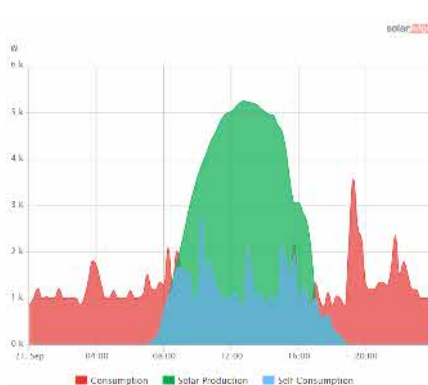
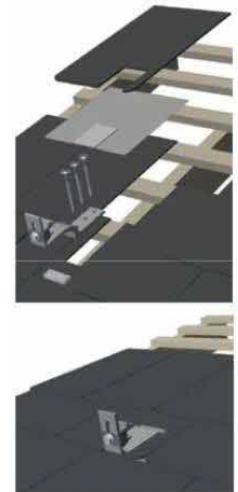
## Solar Panel System Components

**Solar Panels** –this is what converts the solar energy into electrical energy. These are the most important part of the system, so it is worth making sure they are manufactured to the highest standards and have robust warranties.



**Solar Inverter** –the inverter converts the DC (direct current) power from the panels into AC (alternating current) power that can be used in the property and fed into the national grid. This is the heart of the system and should be selected for its reliability, robust warranties and have excellent technical support in the UK.

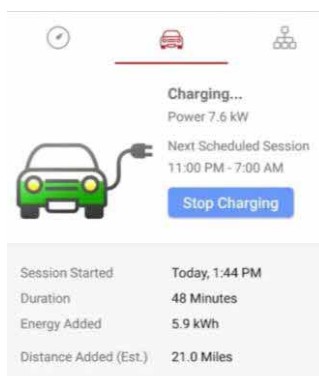
**Mounting Frame** –this is what is used to fix the panels onto the roof. These change slightly for different roof types. It is important to make sure the right mounting kit is used on your roof and that it is MCS approved if the solar is being installed on a pitched roof.



**Monitoring System** –These offer a more in-depth insight into how much energy you are generating now and generated over the previous hours, days, weeks, months, and years. Many of them can upload data to web-portals meaning that you can see how the system is doing online.

**Battery storage system** –These enable solar electricity that is generated and not being used during the day to be available to be used later.

**Complementary products** –Complimentary technologies such as smart electric vehicle charging points can help you to optimise the consumption of your solar PV system by further reducing your energy bills and reliance on fossil fuels.



## Customer Requirements & Site Information

This proposal is for a solar photovoltaic PV system for Crooks Hall, Sudbury.

Cambridge Solar are proposing using Hyundai solar panels with a SolarEdge inverter and a Schletter mounting frame.

Options have been added for other complimentary technologies including an advanced consumption monitoring system, battery storage system and a smart, solar compatible electric vehicle (EV) charging point.

All components have been carefully selected for their exceptional quality, reliability, track record and outstanding performance. Cambridge Solar takes great pride in its attention to detail when it comes to choosing only the best components for their customer's systems.

### Customer Requirements

Cambridge Solar have been approached to provide a solar photovoltaic (PV) proposal for Crooks Hall, Sudbury . The system has been designed to achieve the requirements and aspirations of the client. Cambridge Solar have produced a bespoke design, carefully choosing each part to deliver a high-quality system.

- Generate renewable electricity, reduce energy costs and carbon emissions whilst improving the energy performance of the property
- Be designed and installed to the highest standards using top quality, carefully selected components
- Designed to be as aesthetically pleasing as possible



## Site Information

### Site address

Crooks Hall  
Boyton End  
Stoke By Clare  
PE28 4US



# Estimated Yield

## MCS Methodology\*

	Array 1	Array 2	Array 3
Array description	West		
Array pitch (deg. From horizontal)	40		
Azimuth (deg. From south)	85		
# of shading segments	0		
Shading Factor used	1.00		
Installation Postcode	CU10 81D		
Postcode area	CU		
Postcode Zone	12		
KK value (kWh/kWp) [K]	111	805	805

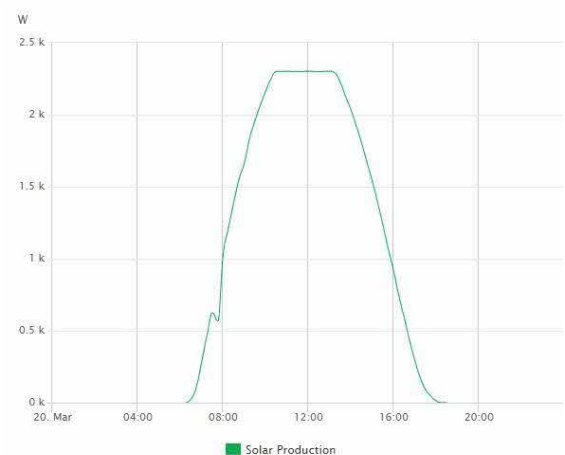
### Option A—10 x Hyundai 435 Wp

Opt. 1 System Size —kWp [A]	4.35		
Opt. 1 Estimated Annual Output —kWh [A x K]	3,354		
Opt. 1 Estimated Total Annual Output		3,354	

\* The performance of a solar PV system is impossible to predict with certainty due to the variability in the amount of solar radiation (sunlight) from location to location and from year to year. This estimate is based upon the standard MCS procedure and is given as a guidance only. It should **not** be considered as a guarantee of performance. You can verify the above estimates using the independent calculator on the Energy Saving Trust website.

**Estimated clipping factor** - It is generally considered best practice to oversize the array of panels in relation to the inverter output size as this will result in a higher level of energy generation across the whole year even though at the sunniest of times the peak of the energy generation will be 'clipped'. Inverters have a minimum voltage requirement and with an oversized panel array the inverter(s) can start earlier in the day and work until later. Solar panels also naturally degrade over time and having a larger array helps negate this loss.

**Shading** - Shading can have a significant detrimental effect on the performance of a solar system. If just one part of a single panel is shaded it can affect the output from the whole system. Shading should be avoided or minimised through careful positioning of the solar panels or by trimming trees, moving aërials etc. Ideally a system should be free from shading between 10am and 2pm from March to October as these are the peak generation periods.

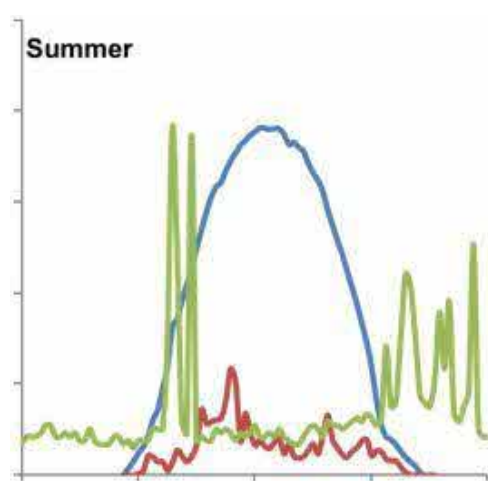
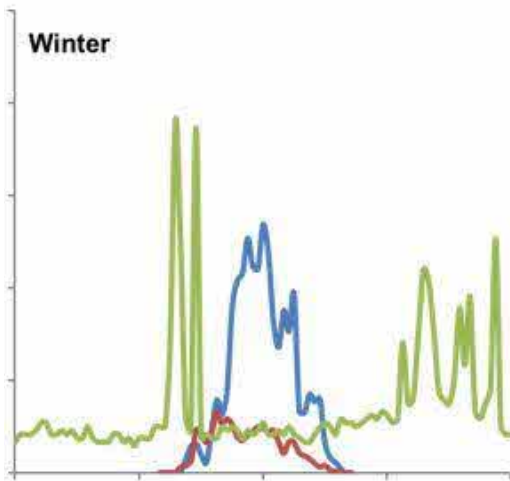
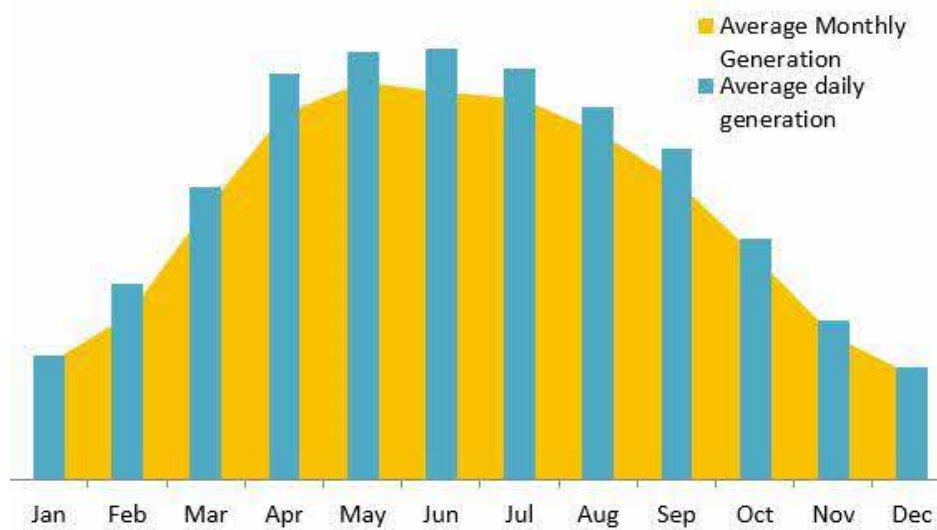


SolarEdge systems and micro inverters have small electronic devices on the back of each solar panel to maximise the generation from each panel, reducing losses. For systems that will have shading or with panels with different orientations SolarEdge is our recommendation to ensure the electrical generation is maximised.

# Seasonal & Daily Variations in Production

The below graphs are indicative to illustrate the approximate seasonal and daily variation in production from a solar system. The actual system output will depend on a number of factors. These factors will change from site to site with system orientation, pitch and shading issues but the graphs below should help give a good idea of production patterns over the year and day-to-day.

## Annual Variation / Typical Daily & Seasonal Variation



Green line –  
Property consumption

Blue line –  
Solar generation on a good day

Red line –  
Solar generation on a bad day



# Financial Calculations

The financial benefits from installing a solar photovoltaic system come from four primary areas:

- 1) Savings that you make on daytime electricity usage that you would have been importing (buying) from the grid that is now provided by your solar photovoltaic system . The price of electricity used is £ 0.40
- 2) Income you receive through the SEG for any electricity you export back to the grid. This is typically £ 0.05 per kWh but it is different for each supplier
- 3) Self-consumption efficiencies caused by changes in behaviours and patterns caused by installing generation and consumption monitoring package. Examples of this might be putting a washing machine on a timer to come on at 11am instead of coming on at night.
- 4) Complimentary 'smart' technology which utilises spare solar electricity. Examples of this include smart immersion controllers for hot water tanks, smart electric vehicle chargers and battery storage solutions which can store energy from the daytime to be used in the evening.

There is an awful lot of potential scope for variation here so we can make some crude scenarios that will help us understand how the system might perform from a financial perspective.

## Standard self-consumption

The standard scenario is for a typical domestic house and only a limited effort to maximise the self-consume any of your solar energy. In this case you would use 30% of the solar electric generation and sell the rest to the grid.

## High self-consumption

The high self-consumption scenario is if you manage to self-consumer 50% of the solar energy you generate. It requires a significant behaviour change and adding options to maximise self-consumption, such a smart electric car charging. It would also be likely if the solar system is well matched to the load profile of the property such as commercial properties.

## System with a battery

If a battery is included with the solar system then very high levels of self-consumption can be possible. This scenario would also require careful use of electricity and energy saving efforts.

In the below example we have used the Estimated Yield for Option 1 in order to make some calculation.

Level of self-consumption		Standard	High	With battery
Estimate Type		SAP 2012		
Annual Energy Generated Estimate	A	3,354 kWh (Option 1)		
Export tariff rate	B	£ 0.05		
Cost of electricity	C	£ 0.40		
Self-consumption %	D	30%	50%	85%
Percentage Exported %	E	70%	50%	15%
Saved by self-consumption		£402	£671	£1,140
Earned from Export		£117	£84	£25
Total Annual Benefit		£520	£755	£1,165

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## DNO – Distribution Network Operator

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The DNO is the company that is responsible for and manages the local electricity network. When installing a new solar, battery or EV charger we need to ensure it complies with national standards. There are two relevant standards. G98 is for systems that have a solar inverter rated at 3.68 kW or less and G99 is for systems over 3.68 kW and/or has a battery.

**G98.** If a solar system has an inverter that is rated at 3.68 kW or less, then we just have to send them a notification after we have completed the job.

**G99.** If the solar system has an inverter over 3.68kW then we have to apply for permission and receive approval before we can install the system. It can take up to 12 weeks to get a decision.

**G99 Fast track** is for a system that has a solar inverter of over 3.68 kW but the system is configured so that the maximum export from the property is limited to a maximum of 3.68 kW. We still need to apply for permission and receive approval but the process only takes 10 days as to the system export is limited.

The DNO does not have to approve an application. The DNO has to ensure that the proposed solar system will not make changes to the local electrical network that will have a negative effect to the electrical supply. The DNO may approve the system, or they can place conditions on the approval that can include; limit the size of the solar system, limit the amount of electricity that can be exported from the property or in rare occasions block the system being installed.

Why would you want to export from the solar system?

**SEG** –The Smart export guarantee. Electricity suppliers with more than 150,000 customers must offer a SEG where they pay for electricity that is exported to the grid. There is no set rate, different suppliers offer different rates. The rate can vary from 0.01p per kWh to around 6p per kWh. You need to have a smart electricity meter to be eligible.

Some electricity suppliers are innovating with their tariffs and are offering deals that are much different to the traditional deals. For example, Octopus Energy's 'Tesla Energy Plan' has the same rate for importing and exporting electricity. The eligibility criteria include having a certain size solar system and a Tesla Powerwall 2 battery and that you give control of the battery over to Tesla. Other similar schemes are likely to be available in the future as Vehicle to Grid (EV2G) charging also becomes involved.

If you decide to apply for permission using the G99 fast track and agreeing to limit the export from your solar-battery system, you might be ineligible for tariffs that may be available in the future. It will be possible to apply to change to a full G99 approval, but this may incur additional costs.

The amount of money that can be earned from exporting your solar/battery electricity to the grid is currently much less than you can buy it for from your supplier and the main financial benefit is to use as much of what the system generates in the property.

## Proposed Solution –Solar Panels

Cambridge Solar are proposing using Hyundai solar panels with a SolarEdge inverter and a Schletter mounting frame.

Further information for each of these products can be found on the product datasheets, available on request.

### Solar Panel Option A—Hyundai

#### HYUNDAI SOLAR MODULE



G12 PERC Shingled  
 HiE-S430HG(FB) HiE-S435HG(FB)  
 HiE-S440HG(FB) HiE-S445HG(FB)



Shingled Technology



For Both Residential & Commercial Applications



More Power Generation In Low Light



G12 PERC Shingled

G12 PERC Shingled Technology provides ultra-high efficiency with better performance in low irradiation. Maximizes installation capacity in limited space.



Anti-LID / PID

Both LID(Light Induced Degradation) and PID(Potential Induced Degradation) are strictly eliminated to ensure higher actual yield during lifetime.



Mechanical Strength

Tempered glass and reinforced frame design withstand rigorous weather conditions such as heavy snow and strong wind.



Reliable Warranty

Global Brand with powerful financial strength provide reliable 25-year warranty. (Australia and Europe Only)



Corrosion Resistant

Various tests under harsh environmental conditions such as ammonia and salt-mist passed



UL / VDE Test Labs

Hyundai's R&D center is an accredited test laboratory of both UL and VDE.

#### Panel Details

**Great performing, great looking, all-black, cost-effective panel option.**

Make	Hyundai
Model	Hyundai 435W Mono PERC Shingled All Black
Aesthetic	All-Black
Quantity	10
Solar array rating	4.35 kWp
Product warranty	25 years
Performance warranty	25 years for 84.8% of rated output (linear)

## Proposed Solution - Inverter

Cambridge Solar are proposing a SolarEdge inverter. We tend to recommend using SolarEdge inverter because of their more advanced monitoring systems and longer warranties.

Further information for each of these products can be found on the product datasheets, available on request.

### Inverter – Standard Option – SolarEdge



**solar**edge

SE2200H, SE3000H, SE3500H, SE3680H,  
SE4000H, SE5000H, SE6000H

SolarEdge is the leading global manufacturer of optimised solar inverter systems

Panel-by-panel optimisation can provide significant yield increase vs traditional inverters leading to higher savings

Panel-by-panel, real-time monitoring allows accurate recording of system performance and return on investment

Inverter has 25-year warranty

Power Optimisers have a 25-year warranty

Over 3 million units shipped –the majority being monitored continuously

### Inverter Details

Make	SolarEdge
Model	SolarEdge 3000W Home Wave Inverter
Inverter type	Quality power optimising inverter
Power rating	3,000 W
Warranty Period	25-year warranty

## Proposed Solution - Frame

FRAME – Standard Option – On roof



Schletter are a leading global manufacturer in photovoltaic mounting systems

10-year durability guarantee on its products

Cambridge Solar have been using Schletter mounting systems since 2010

Cambridge Solar have never experienced any faults or failures with any Schletter components – we have installed tens of thousands of their components over the last decade

Schletter has 50 years of experience in high quality metal processing

Over 700 employees with production facilities in Germany, the USA and China and a global network of distribution and service companies

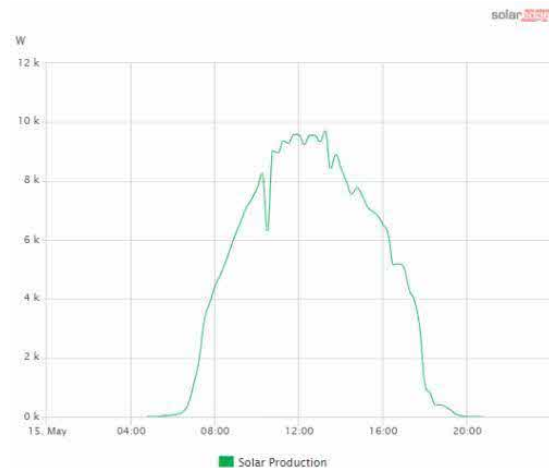
60 design engineers working all over the world

# Monitoring Options

## Production Monitoring

Most inverters include basic system monitoring via a smart phone app or online portal. This requires a strong WiFi signal at the inverter location to operate reliably.

If the WiFi reception is not suitable then the system can be hard-wired. This requires a cable from the inverter location to the router —The installation of this LAN cable is an extra cost.



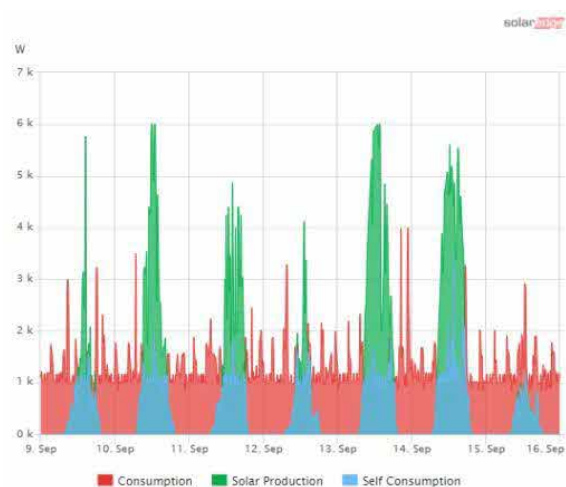
## Consumption Monitoring —RECOMMENDED

This option needs to be hard wired. Data cables from the inverter location to the router and from the inverter to the incoming meter location

### Benefits

- Helps improve your return on investment
- Learn about your energy use and improve your usage patterns
- Monitoring of both consumption and generation
- Smart phone app or online portal for viewing historical data

*The Consumption Monitoring system is already included as part of the package with a battery system*



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## Battery Storage Options

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Solar photovoltaic (PV) panels generate electricity by converting solar energy into electrical energy. Grid connected solar systems generate electricity which can either be used on site or exported to the National Grid and in order to get the most benefit from a solar system it is advisable to use as much of the solar generated electricity as possible on site. This may need some behavioural changes and products such as a battery storage system can help to do this by maximising self-consumption.

Solar systems generate electricity during daylight hours, the majority between 10am and 2pm when the sun is at its highest and strongest. A typical house however has peak electrical usage during the morning and evening time. Typically, people get up and make breakfast, therefore using the kettle, toaster and microwave etc before going to work. When returning from work in the evening power is then used to cook dinner and watch TV etc. This load profile can be different for retired households or for commercial properties. A typical domestic load profile does not therefore match the times of solar generation and limits the amount of self-consumption, generally around 30% is used within the household and therefore a large proportion is exported to the grid.

A battery storage system will store the solar generated electricity during the day, allowing it to be utilised when required. Some battery systems can also be charged by mains electricity, which is useful during periods of low solar generation such as during the winter months. If the property has a dual tariff (cheap off-peak electricity rate) it can make financial sense to charge the battery during this time and use that power during more expensive rate periods. However, the battery lifetime is largely dependent on the number of cycles endured (the number of times the battery is charged and discharged) and so the more the battery is used, the shorter its life will be, so it may make more sense to actually turn the battery off during the winter months.

The size of the battery needs to be matched to the size of the solar system and the electrical usage of the property. The solar system needs to be large enough to fully charge the battery using the solar generation. Once a battery is charged any additional electricity generated by the solar system will then feed into the grid. The stored electricity is used to supply loads when the solar system isn't generating enough to supply the property demand.

For example; a property's solar output is 2kW but the load is 5kW so the battery can supply the additional 3kW (if available within the battery) meaning that no electricity is imported from the grid.

If the battery capacity is too big for the solar system, then there won't be enough solar energy generated to fully charge it. Also, if there isn't enough of a demand within the property to use the stored electricity, the solar panels cannot feed a full battery, so that solar electricity is fed to the grid - this is not good utilisation of the battery system.

The battery can be on the DC or AC side of the inverter. If it is on the DC side, then the battery is fitted between the solar panels and the solar inverter. This might make finding a suitable location to install a heavy battery difficult. The advantage of a DC side battery solution is that it can be slightly more efficient, and it utilises the solar inverter to provide useful energy to the house. This reduces costs and it doesn't interfere with any District Network Operator (DNO) connection agreements that might be in place for the solar system. If there is an existing Feed in Tariff (FiT) in place, then payments will be slightly lower.

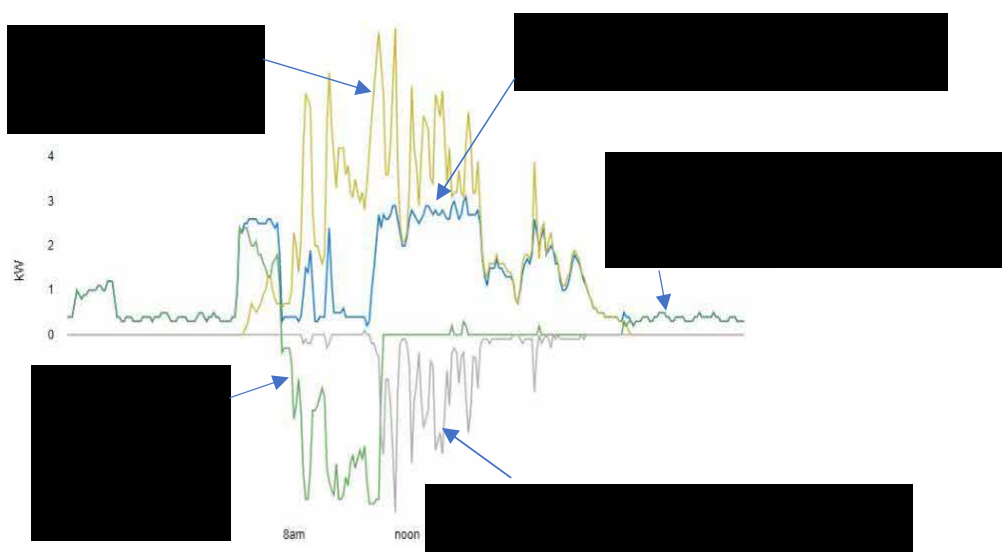
An AC coupled battery system is separate from the solar system, connects straight into the consumer unit/fuse board and has its own inverter to convert the battery electricity into AC. This system might require a connection agreement with the DNO as the theoretical output from the solar and battery system is added together. For

example, a 3kW solar system and a Tesla Powerwall (which could export 3.6kW) gives a total of 6.6kW. The DNO limit under G98 is 3.6kW for an assumed connection agreement. An application to the DNO is a straightforward process and we will undertake this work, but the DNO's statutory response time is 90 working days and we will need a written letter of authority to be able to liaise with the DNO on your behalf. Ideally this solution should be located next to the incoming supply and consumer unit, but theoretically it could be located anywhere so long as the battery has its own electrical circuit and that there is a CT clamp cable route to the incoming supply.

**N.B:** From April 2022 to April 2027 the VAT rate for solar systems is now 0%. If a battery is part of a new solar system installation it is also now charged at 0% VAT however if the battery is added later, then it will incur 20% VAT.

### Battery Storage Options – Primary offering

	Standard battery option	Optional battery upgrade
Product	SolarEdge Energy Bank 10 kWh	Tesla 13.5kWh Powerwall
Usable capacity	9.7 kWh	13.5 kWh
Maximum number of batteries	3	3
Can it be used in a power cut	No	Yes
Installation location	Indoor or Outdoor	Indoor or Outdoor
Maximum charge rate	5 kW	5 kW
Maximum discharge rate	5 kW	5 kW
Size (W x H x D) mm	790 x 1179 x 250	753 x 1150 x 147
Warranty	70% after 10 years	80% after 10 years

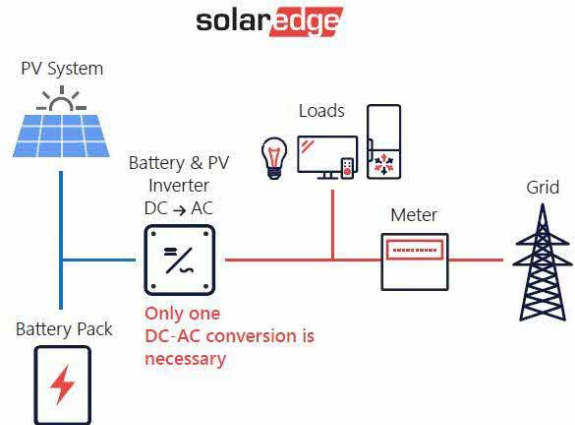




## Battery Storage System – SolarEdge

We recommend SolarEdge inverters as they offer an excellent user interface via the app or online portal along with superior performance, warranty and technical support. To complement the inverter, SolarEdge have their new Energy Bank solution. The 9.7 kWh battery size is suitable for most domestic systems

Battery storage systems are quite large and heavy and should ideally be indoors and as close to the consumer unit/fuse board as possible.



## Battery Storage System – Tesla Powerwall 2 – 12 month lead time

One of our most popular battery solutions is the Tesla Powerwall 2 with Gateway 2, an AC coupled 13.5 kWh battery that uses Panasonic cells that can be stacked to over 100 kWh on one Gateway 2! The Gateway 2 provides the energy management and monitoring for self-consumption, time-based control and backup operation.

When the Powerwall system is in Backup mode the Gateway 2 controls connection to the National Grid, automatically detecting outages and providing seamless transition to backup power.

Communicating directly with the Powerwall the Gateway 2 allows you to monitor energy usage and manage backup energy reserves from any mobile device with the Tesla app.



Some of our previous installations.

# Electric Vehicle Chargers

## Smart Electric Vehicle Charging Points

Electric vehicles (EVs) are becoming mainstream and having a home charger can complement a solar system. A Solar EV charger can be used to charge the car by solar electricity, increasing self-consumption of the solar generation and therefore improve the system returns.

To get the most benefit, the car needs to be home during the day when the solar is generating electricity. If the car is usually out during the day, weekends can also be a useful time.

There are a few options: a standard 3.6 or 7 kW charger; and a smart charger that diverts solar electricity that isn't being used in the house to charge the car battery. A smart charger can also be used as a normal charger and used to charge the car overnight ready for the next morning. An electricity tariff that has a cheap off-peak rate or an EV specific tariff would be worth investigating.

### Zappi charger

It doesn't matter what make or solar inverter is installed as it is a stand-alone unit. It comes with a few options, a choice of colours, black or white, tethered or untethered (has a charge cable included) and a choice of cable length.

As well as a cable from the consumer unit / fuse board The Zappi needs to be connected to the internet and a data cable from the incoming meter location.



## zappi

eco-smart charging station for electric vehicles

**zappi** has special eco charging modes which will benefit homeowners with grid-tied microgeneration systems, like wind or solar generation. Charging current is automatically and continually adjusted in response to on-site generation and household power consumption. In FAST charge mode, **zappi** operates like an ordinary EV charging station.

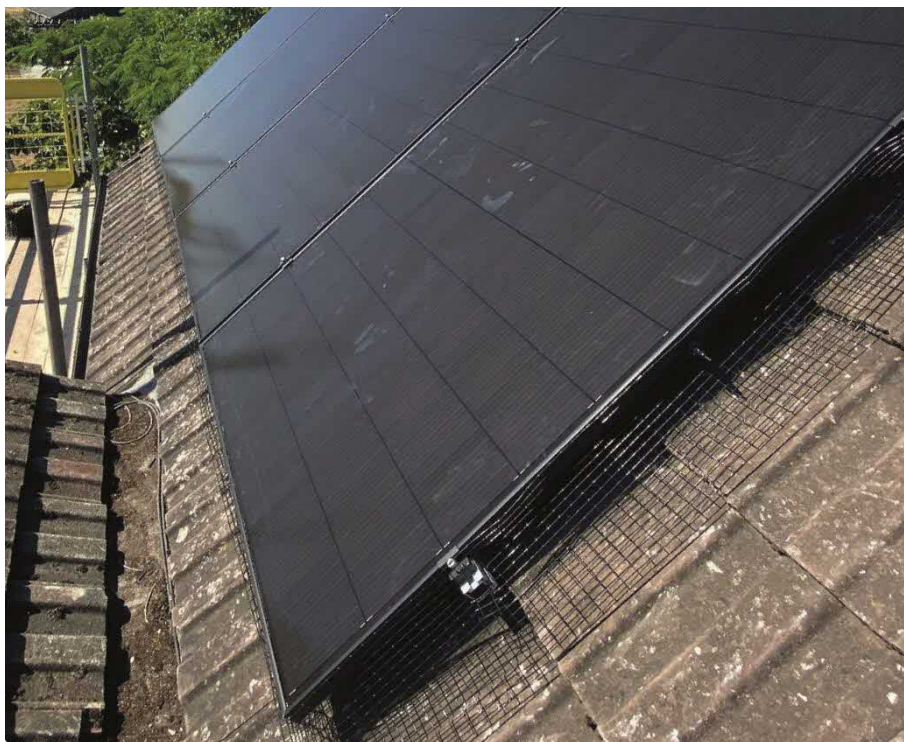


- 3 charging modes: ECO, ECO+ & FAST
- Optimises microgeneration self-consumption
- Works with solar PV or wind turbine systems
- Economy tariff sense input
- Programmable timer function
- Charge and event logging
- Pin-code lock function
- Tap operated display backlight
- Built-in RCD protection
- Integral cable holster
- Remote control and monitoring add-on option
- Supplied with clip-on grid current sensor

## Bird protection

Birds and other small animals (such as squirrels) can cause issues with above roof mounted solar systems, as birds like to nest under the panels (as panels heat up when generating power) and some squirrels like to chew the DC cables. To reduce the possible problems that inevitably arise, protective mesh can be fitted to stop them being able to go under the panels.

If you believe that there is a high pigeon or squirrel population in your area and so the potential for these issues then it is recommended to have bird protection installed as part of the solar panel installation, while the scaffolding is in place. Fitting bird protection at a later date can be expensive because scaffolding is required for its safe installation to ensure that the panels are not damaged and secure the safety of the installation team.



## Proposed Solution – Cost Breakdown

At Cambridge Solar we like to keep everything as transparent as possible. That is why we include a full itemised quote, so you know what you are spending your money on. The cost breakdown below is based on Option 1 with no upgrades or additional options. Itemised cost for all upgrades and additional options have been included in this proposal e.g. the Summaries and the Order Form. The cost breakdowns for any other options can also be supplied on request.

### Solar Photovoltaic System – Option A

	MATERIALS	Qty	Unit cost inc. VAT at 0%	Total cost inc. VAT at 0%
Panels	Hyundai 435w Mono PERC Shingled All Black	10		
Inverter(s)	SolarEdge 3000W Home Wave Inverter	1		
Battery	SolarEdge Energy Bank 10 kWh			
Frame	On-Roof system using Schletter frame with Red Tip hook roof anchors	1		
	Electrical & Balance of system components	1		
	<b>WORK REQUIRED</b>			
	Solar Panel Installation Labour	1		
	Electrical Installation & Commissioning	1		
	Design work, project management & admin	1		
	Scaffold & Edge Protection	1		
	Delivery costs	1		
	Certification (MCS, Part P, Electrical Certs.)	1		
	Insurance backed warranty	1		

# Why Cambridge Solar?

Cambridge Solar is a leading solar PV installation company. Winners of the prestigious REA Renewable Energy Installer of the Year 2018. We have a strong track record of delivering high quality solar photovoltaic installations with first-class customer service. Established in 2009 Cambridge Solar has carried out hundreds of solar installations across the whole of the UK.

### Our Team

We have a team of passionate individuals who share the company ethos and enthusiasm for customer service excellence and installing high quality solar PV systems. Many of our senior team have been involved in the solar PV industry for over 15 years.

### Our Experience

We have installed 100's of solar PV systems of all types from domestic, commercial, industrial to community projects and Grade I listed buildings such as Great St Marys Church in Cambridge. There are few situations we will not have come across before.

### Our Approach

We always aim to design the best system for the client's needs at a fair price. We have always had a policy of trying to be open, honest, and transparent in our approach.

### Our Reputation



### Our Partners



### Our Accreditations



### Our Awards

We have been recognised by the industry for the high quality of our installation work as well as our excellent customer service. Some of the awards we have received in recent years include:



East of England Solar PV Installer of the Year 2019 –Energy Efficiency Awards



East of England Solar PV Installer of the Year 2018 –Energy Efficiency Awards



British Renewable Energy Installer of the Year 2018 –REA Awards

National Solar PV Project of the Year 2018 –2<sup>nd</sup> Place –Energy Efficiency Awards



UK's Leading Solar Panel Installers 2018 –SME Business Elite Awards



## Our Previous Work

### Solar PV Installations

Since 2009 we have successfully delivered hundreds of high quality solar photovoltaic projects all over the UK. From large commercial projects to bespoke, grade I listed churches to new build developments and ground mount systems.



Award winning solar PV installation for Cletwr Café community project, Mid-Wales, 2017



Grade I listed church, Cambridge, 2018



Manufacturing site, North Wales, 2018



Agricultural site, Oxfordshire, 2017



Commercial site, Cambridge, 2019



Manufacturing site, Cambridge, 2014

## Our Previous Work

### Multi-technology installations

Over the years we have also designed and installed many complex systems combining solar panels, battery storage, immersion controllers, smart EV charging points and advanced monitoring systems.



Solar PV System 7.35 kW  
Solar Panels LG35U



Battery System  
EV Charging Point



SolarEdge LG chem  
Zappi 2



Mounting system GSE  
Solar Panels LG 34U



Battery System  
Solar Inverter



Iesla Powerwall 2  
SolarEdge



Mounting system GSE  
Solar Panels LG 34U



Battery System



Iesla Powerwall 2



Mounting system Solfit  
Solar Panels Solfit 30U



Inverter  
Solar panels



SolarEdge  
Irina 2/5



## Customer Testimonials



Below is a small sample of our customer testimonials that we have received spanning the last 10 years. Many more can be found at: <http://www.cambridge-solar.co.uk/customer-testimonials/> and <https://trustedtraders.which.co.uk/businesses/cambridge-solar-td/>

[Redacted testimonial text]



[Redacted testimonial text]



[Redacted testimonial text]



[Redacted testimonial text]



[Redacted testimonial text]



[Redacted testimonial text]





















[Redacted testimonial text]



## Quote Checklist

The below checklist will help you to assess this and any other quote that you receive. Remember not all panels and inverters are of equal quality - when comparing quotes always make sure that you are comparing like for like. If you are not sure about anything, please feel free to contact us.

Company	Cambridge Solar
Has the installation company got a proven track record over delivering high quality projects since 2009?	
Is the installation company MCS approved and RECC registered?	
Does the installer encourage openness, honesty and industry good practice by promoting independent information from Which?, the Energy Saving Trust, the MCS and RECC?	
Does the company have technical staff trained to master's degree level in Renewable Energy?	
Does the company have several senior staff members who have been involved in the industry for 15+ years?	
Does the installation company use its own local, highly experienced installation teams?	
Has the installation company installed over 600 solar panel systems?	
Has the installation company got lots of testimonials from local, happy customers?	
Quote	
Has the quote been prepared bespoke for your property based on your specific needs?	
Was the quote accompanied by a comprehensive and transparent proposal document?	
Does the quote have an itemised costing sheet and show workings in all calculations made?	
Has SAP 2012 been used to estimate the annual energy yield?	
Does the system come with an insurance backed 10-year workmanship warranty?	
Have shading issues been considered properly?	
System & Products	
Have all components been chosen carefully by for their reliability and high performance?	
Have all recommended products got market leading warranties from leading manufacturers giving you piece of mind for the life of the system?	
Accredited by Tesla, LG, SolarEdge and other leading brands	
Do the panel and inverter manufacturers used provide UK based technical support?	
Has the system been designed and installed with an operational system life of 25+ years in mind?	

## What Next?

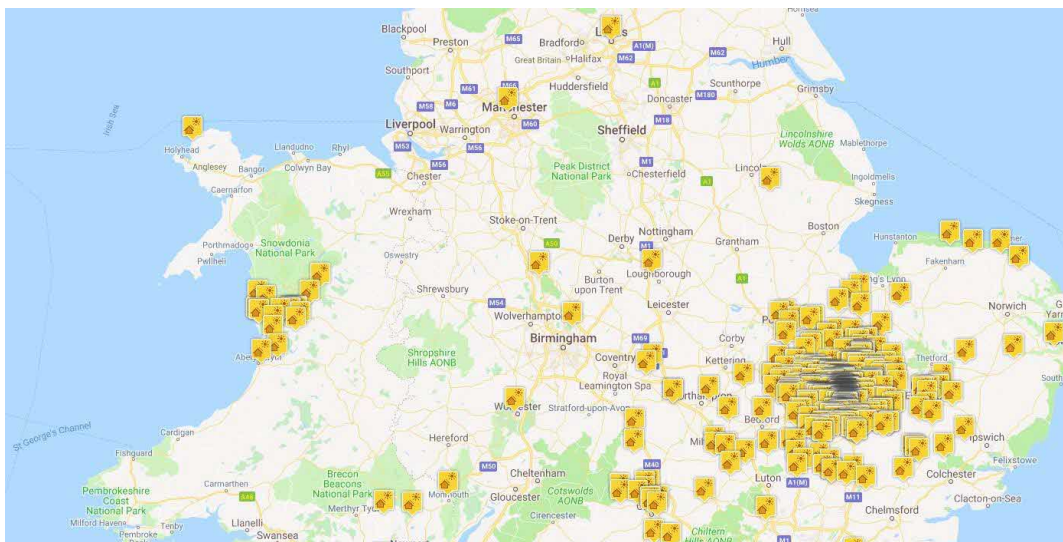
We hope you have found our proposal of interest. If you have any additional questions, please feel free to contact your technical sales representative or call the Cambridge Solar office on 01223 863 885.

We would be delighted if you would like to place an order with Cambridge Solar. To place an order, contact your technical sales representative surveyor or the Cambridge Solar office to let us know. We will need:

- ✓ The completed order form —on last page of this document
- ✓ A deposit - 25% of the total order value

When we receive these, we will then contact you to confirm the order and arrange the installation and other details.

Cambridge Solar grows its business through recommendations and referrals. If you have any friends or family members who are interested in a solar system, please pass our details on and let us know. Should we secure an installation following a recommendation, we offer you £100 as a thank you.



### Other sources of useful information

Energy Saving Trust

[www.energysavingtrust.org.uk/renewable-energy/electricity/solar-panels](http://www.energysavingtrust.org.uk/renewable-energy/electricity/solar-panels)

Solar Trade Association

[www.solar-trade.org.uk/resource-centre/advice-tips-for-households/going-solar-a-guide/](http://www.solar-trade.org.uk/resource-centre/advice-tips-for-households/going-solar-a-guide/)

Renewable Energy Association

[www.rea.net/renewable-technologies/solar](http://www.rea.net/renewable-technologies/solar)

UK solar

[www.uksolar.org.uk/solar/](http://www.uksolar.org.uk/solar/)

Which?

[www.which.co.uk/reviews/solar-panels/article/solar-panels/how-does-solar-pv-work](http://www.which.co.uk/reviews/solar-panels/article/solar-panels/how-does-solar-pv-work)

Student Energy

[www.studentenergy.org/topics/solar-pv](http://www.studentenergy.org/topics/solar-pv)

RECC

[www.bre.co.uk/filelibrary/nsc/Documents%20Library/NSC%20Publications/88166-BRE\\_Solar\\_Consumer\\_Guide-A4-12pp-JAN16.pdf](http://www.bre.co.uk/filelibrary/nsc/Documents%20Library/NSC%20Publications/88166-BRE_Solar_Consumer_Guide-A4-12pp-JAN16.pdf)

## Order Form

Lesley & David Metcalf  
Crooks Hall  
Boyton End  
Stoke By Clare  
PE28 4US

Quote Reference: CS14135 -002  
Quote Date: 12 April 2023  
Quote prepared by: Sue Cameron

### Order Form notes:

- ✓ Once we have received the signed Order Form and a deposit of 25% we will acknowledge receipt of the order and the deposit and get in touch in order to start scheduling the required work.

**Due to the significant increase in demand for our services over the last year, installation dates are currently being scheduled at -17-22 weeks from the order acknowledgement date**

I would like to order:	Price inc. VAT at 0%	Please tick box <input checked="" type="checkbox"/>
<b>1 <u>PV System Option A</u></b>		
1.1 4.35 kWp system with 10 x Hyundai 435 Wp panels and SolarEdge inverter:	£11,446.04	<input type="checkbox"/>
<b>3 <u>Battery storage systems</u></b>		
3.2 SolarEdge Energy Bank 10 kWh	£10,114.29	<input type="checkbox"/>
3.2 Tesla 13.5kWh Powerwall Tesla Gateway 2 battery storage system —6month lead time	£14,870.00	<input type="checkbox"/>
<b>4 <u>EV charger options</u></b>		
4.1 To benefit from a Smart Solar charger we recommended minimum solar system of 3 kW		<input type="checkbox"/>
4.2 Zappi /kW tethered - 6.5m cable	£2,055.71	<input type="checkbox"/>
4.3 Zappi /kW untethered —no charge cable	£2,028.57	<input type="checkbox"/>
4.4 Trench work for the Zappi data cable	£800.00	<input type="checkbox"/>
The Zappi is available in Black or White. Please indicate your preference		
<b>5 <u>Options</u></b>		
5.1 Solar Production monitoring via property Wi-Fi	Included	<input type="checkbox"/>
5.2 Advanced consumption monitoring (not required if a battery is selected)	£420.00	<input type="checkbox"/>
5.3 Bird Mesh (Only for pitched above roof systems)	£400.00	<input type="checkbox"/>
<b>6 <u>If it is possible to fit additional panels, the costs are</u></b>		
6.1 Hyundai 435w Mono PERC Shingled All Black	£405.71	<input type="checkbox"/>

**TOTAL ORDER VALUE**    £

**25% Deposit**

Continued on the next page

### Payment Details

Price validity:	30 days from 12 April 2023
Payment terms:	Stage payments
PV panel installation	
Commissioning of PV system and electrical works	
Battery (if selected)	25% deposit –Balance of on completion of task
Electric vehicle charger (if selected)	
Final payment is due on satisfactory completion of the job and/or within 14 days from the date of our invoice**	
Please make payments by bank transfer to our protected deposit account:	
<b>Account name:</b> Cambridge Solar Ltd; <b>Sort Code:</b> 40-16-08; <b>Account Number:</b> 83663795	

### Any special notes, amendments, variations, or specific inclusions or exclusions specified by the installer,

If the inverter solar system is over 3.6kW or the system includes a battery, we will need to apply to the DNO for permission to connect and they may charge for this. This *can* cost £300 to around £500 and can take 12 weeks to get a decision. Our price is subject to a site survey that will take place after your order and before the installation is scheduled. The scaffolding costs is a provisional sum. We will confirm costs after your order and before your installation.

**Due to the significant increase in demand for our services over the last year, installation dates are currently being scheduled at ~17-22 weeks from the order acknowledgement date**

### Any special notes, amendments, variations, or specific inclusions or exclusions specified by the client,

To proceed with the order please sign below to acknowledge that you have read and accept the information contained within and enclosed proposal and contract.

Customer name:

Customer signature:

Date signed: