SPIRIT

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Mr R Atkins
TClarke Contracting Ltd
Low Hall Road
Horsforth
Leeds
LS18 4EF

09 July 2021

Dear Mr Atkins,

Quotation Ref: 30043/PV3

Re: Solar PV System for Turing House School

Thank you for the opportunity to participate in the tender for the above project. Please find below our proposal and pricing for the supply and installation of a solar PV system.

We have quoted for the maximum size system that will fit on a 50kW inverter (no external G99 relay required).

We have quoted for the following system:

- **Option 1: 59.28 kWp system, made up of 156 x 380W panels.**

Option 1 is for a 59.28 kWp installation, consisting of 156 x 380W Monocrystalline solar panels. The panels will be mounted on a flat roof, using non-penetrative, ballasted A-frames inclined at 10 degrees. The panels will be wired to 1 x Solis-50K inverter located in a top floor riser cupboard. The active PV cell area (not including any spaces between panels) will be approx. 291 m2, and the system is anticipated to produce 52996 kWh/annum. It is assumed that 80% of power generated by the PV will be used on site, and the 20% exported generation will be paid at a rate of 5.5p/kWh (see end of quote for more details on export payments). The system will require permission to connect from the network operator.

Executive Summary

A detailed description of each system is included in the Quotation section following this cover letter. A summary is given in the table below:

Option	System Size	Annual Output (kWh)	Estimated Annual Benefits*	Annual CO2 Savings (tonnes)
1	59.28 kWp	52,996	£5,671	27.51

**Assuming grid electricity displaced at 12p/kWh with 80% on-site usage, and 20% metered export paid at an assumed rate of 5.5p/kWh (please see end of quote for more details on export payments).*

About Us

We have included some testimonials at the end of our proposal. Recent notable projects that we have installed include a 365 kWp roof-mounted system at a Berkeley Homes factory in Kent on behalf of E.ON (May 2019), a 150kWp flat roof system at Fujitsu's Bracknell office (June 2018), 633kWp for Sparsholt & Andover College completed in February 2016 (largest educational solar PV installation in the UK), 125kWp for Oxford County Council at Cowley Marsh Depot (August 2017), and a bespoke crescent shaped roof integrated system for Millgate (Winchester) Ltd (September 2016).

Spirit Energy is a solar PV specialist offering a complete service encompassing design, supply and installation. We use quality components, from the panels and inverters right down to the connectors and fuses. Our experienced installers are all employed directly by us and undergo substantial training to make sure all systems operate at optimal performance. We want to ensure our systems will last well beyond the 25 year performance guarantee of the solar panels.

Health & Safety

Spirit Solar Ltd is CHAS accredited and fully committed to maintaining high standards of health & safety in all aspects of its operations. Spirit is audited every year to ensure that it is compliant with industry standards as set out by MCS. This includes ensuring that all sub-contracted works are carried out to required standards in accordance with the Renewable Energy Consumer Code.

Project Considerations

Please note that there are three possible hurdles to be overcome before proceeding with the installation of a solar PV system:

1. **Permission to Connect from the Network Operator:** **Included***

   No prior approval is required for the connection of 3.68kWp (4kWp in practical terms) to a single phase electricity supply, or 11kWp to a 3 phase supply. Above these limits, an application needs to be made to the network operator in advance of connection. We can make this application for you as part of our service; it usually takes between 6-11 weeks for the application to be processed. For systems greater than 50kWp, an application fee is required to be paid to the network operator.

   **Application cost only. Additional connection charges (e.g. second comer) not included.*

2 **Planning Permission:** **Excluded**

   An outline of planning legislation is included towards the end of the quote. We have not included a planning application as we assume this will be provided as part of the main building works.

3 **Structural Survey:** **Excluded**

   Roof-mounted systems require a structural report to ensure that the roof can take the loads imposed by the solar panels (and ballast for free-standing flat-roof systems). Note that as well as considering the download imposed by the weight of the system, the structural report should also assess the possible upload from the wind getting behind the panels and imposing an upward force on the roof. We have not included structural calculations.

Next Steps

We will require at least 6 weeks' notice before work commences on site, this will allow sufficient time for Spirit Energy to obtain permission from the grid to connect a new system and procurement of products.

Validity

Our quotation is valid for 14 days and is subject to a review at the point of order.

We have endeavoured to make the document as clear as possible but we appreciate that there is a lot of information. As such we would be more than happy to talk you through the quotation in more detail and answer any questions that you may have. Please do not hesitate to contact us if you would like further assistance.

Yours Sincerely,

Henry Day
Commercial Projects
0118 951 4491

Quotation

Project Name: Turing House School **Quotation Ref:** 30043/PV3

Option 1

System Performance	
Total System Capacity	59.28 kWp
Array	**1**
PV Orientation from South	15º
Inclination of PV Panels	10º
Shading %	0%
System Capacity (kW)	59.28
Annual Generation (kWh)	52996
Total Annual Generation (kWh)†	**52,996**
Total Annual Benefits*	**£5,671**
Total Annual CO2 Savings (tonnes)	**27.51**

Equipment to be Supplied	
Panels	156 x JA Solar JAM60S-20-380-MR-MC4
Inverter(s)	1 x Solis-50K
Mounting	ValkPro+ (membrane roof)
Monitoring	None
Metering	SDM630-Modbus-MID

**Assuming grid electricity displaced at 12p/kWh with 80% on-site usage, and 20% metered export paid at an assumed rate of 5.5p/kWh (please see end of quote for more details on export payments).*

† ***Statutory disclaimers****: The performance of solar PV systems 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 guidance only. It should not be considered as a guarantee of performance.*

Estimates produced prior to a site visit: If no site visit has taken place, system performance calculations are undertaken using estimated values for array orientation, inclination, or shading. Actual performance may be significantly lower or higher if the characteristics of the installed system vary from the estimated values. We will confirm estimates at a free 'no obligation' site visit before any contract is signed.

Standard Services and Equipment Included

	Services	Comments
✔	System design	
✔	Liaison with DNO	Our quote does not cover second comer charges (if required by the DNO).
✔	Installation, testing, commissioning	
✔	Building regulations sign off (under part P, not under part A)	
✔	MCS sign-off	
✘	Structural calculations	Spirit Energy will provide loading details for project engineers to confirm.
✘	Any strengthening work required by structural survey	
✘	Planning application (if required)	
✘	Scaffolding/access tower and edge protection at roof level	Assumed to be present on site.
✘	Offloading	Offloading provided by others. We can arrange for offloading at additional cost.
✔	Delivery of materials to site	
✘	Acceptance of delivery on site	Provided by others - we are happy for acceptance of delivery by others and simply request pictures of any transit damage upon arrival. Otherwise, cost for Spirit operative to attend site £650+VAT.
✘	Lift equipment to roof	Lifting to be provided by others. Cost for Spirit operative to attend site to oversee lifting £650+VAT. If lifting equipment is required we will charge £950+VAT for a telehander and £2500+VAT minimum for a crane.
✘	Secure site storage facilities	
✘	Site waste disposal	Site waste is in the form of cardboard packaging and pallets.
✘	Bonding upgrade if required	
✔	2 year Workmanship Warranty	
✘	Builders work	Builders work in the form of cable penetrations must be provided prior to commencement of installation of PV.
✘	Weathered roof penetrations	Weathered roof penetrations to be fitted prior to installation of PV panels.
✘	Welfare	Assumed that we can use on-site facilities.

	Equipment	Comments
✔	PV modules	
✔	Mounting frame	
✔	Protection mats (flat roofs only)	Mounting manufacturer protection mats are included in our proposal. If the roofer requires additional protection to satisfy their own warranty then they must free issue the correct roofing material, cut to size for Spirit to install at no extra cost.
✔	Ballast (if required)	
✔	DC isolator switch(es)	
✔	DC cables and on-roof containment	
✘	Internal DC containment and cable run to inverter position	Supply & installation of internal DC containment and running of DC cables by electrical contractor.
✔	Inverter(s)	
✘	Supply of suitably rated MCB/RCBO	Provided by electrical contractor. Note that PV cannot be installed on a shared RCD and exact circuit protection must be agreed with the electrical contractor directly.
✔	AC Isolator(s)	
✘	AC cables and containment	Provided by others.
✔	AC G99 protection if >16A per phase, else G98	
✔	MID/OFGEM approved electricity generation meter	
✔	Warning labels and electical schematic	
✘	Public display	
✘	Data logger / Online monitoring system	
✘	Earthing, lightning protection or bonding	
✘	External G99 relay and witness testing for G99 compliance (>50kWp only)	
✘	Firefighter's safety switch	
✘	Surge Protection	We assume the LPS specialist will review our design and incorporate surge protection where necessary.
✔	Demonstration during Commissioning	We will demonstrate the system during commissioning to any party that wishes to be present. Where a Spirit representative is required to attend after commissioning an additional charge of £200 will apply.

Special Terms

VAT

Our quotation excludes VAT. VAT is payable at a rate of 5% on renewable installations in domestic properties, unless the property is a new build qualifying for zero-rating, in which case the rate is 0%. We will not charge VAT with adequate proof that the build qualifies for zero-rating (copy of planning permission and copy of invoice from the main contractor).
VAT is usually applied at 20% on installations in non-domestic properties, although there are certain exceptions to this; please ask if you require additional information.

Additional Works

Should any additional work be required beyond the scope of this Quotation, please note that our standard labour rates are as follows:

Electrician: £80 + VAT per hour for the first hour on site or part thereof; £30 + VAT per subsequent half hour or part thereof.

Roofer, assistant to Electrician: £50 + VAT per hour for the first hour on site or part thereof; £17.50 + VAT per subsequent half hour or part thereof.

Our quotation is valid for 14 days and is subject to a review at the point of order.

Terms of Business

For your reference, we enclose a copy of Spirit Energy's Terms and Conditions (Version 23) with this quote.

Our Mission:

- To offer expert advice on all aspects of renewable energy
- To install high quality systems efficiently, cost effectively and in accordance with best practice
- To play our part in working towards a low-carbon future

Company Accreditations:

- Microgeneration Certification Scheme (MCS) MIS 3002 for Solar PV. Registration number NIC1220
- NICEIC Approved Contractors Scheme. Enrolment number 502812000
- Renewable Energy Consumer Code (RECC). Membership number 00035312
- Contractors Health and Safety Assessment Scheme (CHAS) accredited
- Constructionline Certified. Registration number 147337

Insurance

- Public & Products Liability - £10 million
- Employers Liability - £10 million
- Professional Indemnity - £5 million

Levels of Supervision

- Installation would be managed by Justin Parsons, Head of Solar PV Installations, qualified Solar electrician and qualified Site Manager.
- Project support managed by Vishal Giga, Head of Project Management. Recent projects include 123.5kWp system at Middlesex University Hospital for Ashworth Electrical, and 249.75kWp system at the Tandem Group headquarters in Birmingham.

Competence of Labour

- Site Safety Plus (The Site Management Safety Training Scheme for the Construction and Civil Engineering Industries), Working at Heights Operator Training (including harness training), CSCS, Asbestos Awareness, First Aid, ECS Health and Safety Assessment, NICEIC Health and Safety (Working at Heights Regulations 2005, Manual Handling Operations 1992, COSHH Regulations 2002), City & Guilds Level 3 Certificate in Inspection, Testing and Certification of Electrical Installations, City & Guilds Certificate in Installing and Testing Domestic Photovoltaic Systems, City & Guilds Level 3 in the Requirements for Electrical Installations (16th to 17th edition update to BS 7671 2008), City & Guilds Level 3 Certificate in Electrotechnical Technology Installation (Buildings and Structures).
- Product specific training, 4 years plus experience, Working at Heights, Asbestos Awareness, First Aid certificates, CSCS.

QA Documentation to be Used

- Installation will be in accordance with the company quality standards, which comply with MIS 3002 Solar PV and associated "New PV Guide", Wiring Regulations BS7671.
- Panels are MCS Approved. Inverters are G98 or G99 compliant.

Product Warranties

- Please ask for details

Workmanship Warranties

- We give a 2 year workmanship warranty. In the first 2 years after installation we will correct, free of charge, any fault arising in the systems as a result of defective workmanship by Spirit Solar Ltd. Where there is a need to claim on manufacturer's warranty within the first 2 years we will make the claim from the manufacturer on your behalf and we will replace the faulty equipment free of charge. Manufacturer warranties for individual system components (panels and inverters) are provided at the point of system handover.

References

Spirit has successfully installed over 2000 systems for contractors, corporates, schools, community buildings and private individuals. We can provide testimonial after testimonial from satisfied customers saying how impressed they are with our installation team. We are totally committed to customer service. Not only will we ensure that you understand what we are doing at each point of the process, we will also take responsibility for all paperwork and for all necessary approvals.

You are welcome to speak to our previous customers. Many of our customers are happy to talk about their systems on the telephone, some are also happy to invite potential customers on site to look at their installation. Some of our most notable recent projects include:

- Sparsholt & Andover College - over 2500 solar panels over 20 roofs, 633kWp
- Tandem Group (MV Sports & Leisure) - commercial warehouse roof, 250kWp
- Claude Fenton Holdings- ground mounted installation, 250kWp
- Middlesex University Hospital (Ashworth Electrical Services Ltd)- 123.5kWp
- Minerva House (Calleva Community Energy) - 100kWp
- Denton Court (Lakehouse)- 27 new build plots, up to 1kWp per property
- Leybourne Grange (Taylor Wimpey)- 34 new build houses & 5 apartment blocks, totalling 45.75kWp
- Boundaries Road (Taylor Wimpey)- 2 systems to feed 91 flats, 45 kWp
- Shipton Road (Pye Homes)- 35 new build plots, totalling 50.5kWp
- Cardiff University (BAM Construction/Lorne Stewart plc) - 40kWp
- Warwick University (Kier Construction/Portakabin/AES) - 17kWp
- Southampton University (Skanska/Wates Construction/Lakesmere/Caice) - mounted on a vertical façade, 11.2kWp
- Burnley College Campus (B&E Boys, Ashworth Electrical) - 27.5kWp
- Goldsmiths University, London - 50kWp
- St Marys University (Entric) - 7kWp
- Over 25 other schools

System Performance & Financial Analysis

Option 1: 59.28kWp system

Layout Diagram

As per Solar PV Layout - Turing House School - 30043-1 Rev C - Spirit Energy

System Performance	
Array	**1**
PV orientation from south	15º
Inclination of PV panels	10º
Shade %	0%
System capacity (kW)	59.28
Annual generation (kWh)†	52996
Total annual generation (kWh)	**52996**
Total annual saving in CO2 (tonnes)	**27.51**
Financial Benefits	
Annual benefits*	£5,671

**First year values only. See detailed cash flow for subsequent years.*

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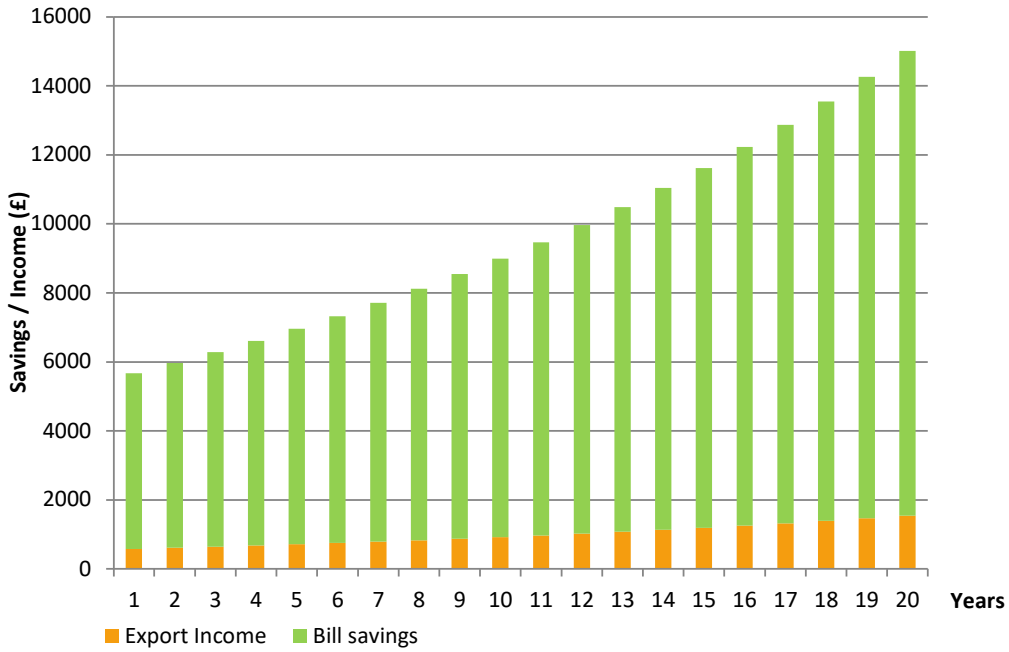
Estimates produced prior to a site visit: If no site visit has taken place, system performance calculations are undertaken using estimated values for array orientation, inclination, or shading. Actual performance may be significantly lower or higher if the characteristics of the installed system vary from the estimated values. We will confirm estimates at a free 'no obligation' site visit before any contract is signed.

Performance Charts

The following charts have been created using the DTI guide version 3 in compliance with the MCS.



Cash flow

The table below gives a detailed analysis of the cash flows expected to arise from the investment.

Year	Output (kWh)	Value of Electricity Savings	Export Income	Total Benefits	Running Cost	Savings less maintenance
0						
1	52,996	£5,088	£583	£5,671	-£590	£5,081
2	52,625	£5,355	£614	£5,969	-£608	£5,361
3	52,257	£5,637	£646	£6,283	-£626	£5,657
4	51,891	£5,933	£680	£6,613	-£645	£5,968
5	51,528	£6,245	£716	£6,961	-£664	£6,297
6	51,167	£6,573	£753	£7,327	-£684	£6,643
7	50,809	£6,919	£793	£7,712	-£704	£7,007
8	50,453	£7,283	£834	£8,117	-£726	£7,392
9	50,100	£7,666	£878	£8,544	-£747	£7,797
10	49,750	£8,069	£925	£8,993	-£770	£8,224
11	49,401	£8,493	£973	£9,466	-£793	£8,673
12	49,055	£8,940	£1,024	£9,964	-£817	£9,147
13	48,712	£9,410	£1,078	£10,488	-£841	£9,647
14	48,371	£9,905	£1,135	£11,039	-£866	£10,173
15	48,033	£10,425	£1,195	£11,620	-£892	£10,727
16	47,696	£10,973	£1,257	£12,231	-£919	£11,312
17	47,362	£11,550	£1,323	£12,874	-£947	£11,927
18	47,031	£12,158	£1,393	£13,551	-£975	£12,576
19	46,702	£12,797	£1,466	£14,263	-£1,004	£13,259
20	46,375	£13,470	£1,543	£15,013	-£1,035	£13,979

Calculation Data	
kWh/ kWp from MCS Guide (Kk):	894
% Output used on site:	80%
Value of displaced electricity (p/kWh):	12.00
Estimated value of export rate (p/kWh)*:	5.5
Assumed % annual increase in value of displaced electricity and export rate:	6.00%
Assumed panel degradation per annum:	0.70%
Discount factor applied to future cash flows to calculate Net Present Value of investment:	2.00%

**Please see end of quote for more details on export payments.*

A Note of Performance Estimates

Statutory Disclaimer:

The performance of solar PV systems 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 guidance only. It should not be considered as a guarantee of performance.

Calculation Methodology Applied:

Under the terms of our accreditation with the Microgeneration Certification Scheme, we have based our output forecast on the MCS Guide. This uses output estimates derived from the Photovoltaic Geographical Information System (PVGIS). The data for PVGIS is collected by the Joint Research Centre of the European Commission. PVGIS is regional, having been compiled using localised sun fall and temperature data at certain key weather stations throughout the UK. Please ask if you would like more details on the forecast values provided for your proposed installation.

If a more accurate calculation of forecast generation is required, we can carry out a PVSOL analysis and provide a formal system performance report.

Further Assumptions Used:

The following assumptions have been applied to all performance estimates unless stated:

- 6% annual increase applied to value of displaced electricity.
- 0.7% annual panel degredation applied to system out #
- 2% discount factor applied to future cashflows to calculate Net Present Value of investment.

Performance Monitoring

We have not included a performance monitoring system in our proposal. If installed these systems provide remote monitoring of the PV array via Ethernet/Internet connection. Plant performance information such as energy harvesting, power, voltage and current data is available in real-time. Flexible monitoring systems can be linked to a wide range of devices, including mobile phone, any online or Bluetooth device.

Timetable for Works

We will agree installation dates with you in writing after the order has been confirmed and we have agreed the payment terms. We will conduct a technical survey at a suitable point in your building programme, with a view to confirming any outstanding work details. We will discuss any necessary alterations with you before installation commences. If you are not happy with any alterations made to the contract following the survey we will cancel the contract subject to any abort fees set out. (See our Terms and Conditions).

Implementation and Approval

Planning Permission and Approvals

The following sets out our understanding of the current planning guidelines, as set out on the Government's Planning Portal. However we advise all customers to take their own advice on planning as every local authority has their own way of interpreting the guidelines.

Domestic Installations (Installations on Private Dwellings)

The installation of solar panels on a roof or wall of a private house is considered to be "permitted development" (i.e. doesn't require planning permission) subject to the following:

- Panels should not be installed above the ridgeline and should project no more than 200mm from the roof or wall surface.

  Note: *These conditions will be satisfied if panels are mounted parallel to the roof on a sloping roof. They are unlikely to be satisfied if the panels are mounted on a flat roof, since in this case the panels will be mounted at a minimum 10 degree slope to the horizontal and will project more than 200mm above the roof.*

- If your property is a listed building, the installation is likely to require an application for listed building consent, even where planning permission is not needed. We recommend you check all installations with the local planning office.
- Wall mounted only.
- If your property is in a conservation area, or in a World Heritage Site, planning consent is required when panels are to be fitted on the principal or side elevation walls and they are visible from the highway. If panels are to be fitted to a building in your garden or grounds they should not be visible from the highway. To be safe we recommend you check all installations with the local planning office.
- Ground mounted installations will generally need planning permission unless the array is less than nine square meters (about 6 panels), but even then you should check.

Non-domestic Installations:

Systems exceeding 1 MW require planning permission. New regulations introduced in April 2015 have deemed most non-domestic roof-top solar installations below 1 MW as permitted development, provided:

- equipment is sited, so far as is practicable, to minimise the effect on the external appearance of the building and the amenity of the area;
- when no longer needed the equipment is removed as soon as reasonably practicable;
- panels are kept below 200mm perpendicular protrusion from the plane of the roof or wall (pitched and wall installations);
- panels are at least 1m from the external edge of the building (pitched and flat roof);
- panels protrude less than 1m from the roof surface (flat roof installations);
- the panels are not installed on a listed building or on a building that is within the grounds of a listed building, or on a site designated as a scheduled monument;
- the equipment is not installed on a wall or a roof slope which fronts a highway if the building is on Article 2(3) designated land;

  Note: *a ground mounted array falls under permitted development provided it is no more than 9m2, no more than 3m in any one direction and no higher than 4m. However the 9m2 limit is prohibitively restrictive and useless for practical purposes!*

Systems greater than 50 kW: the Prior Approval of the Local Planning Authority is required, which is a much less prescriptive process than a planning application. This will assess the design and external appearance of the development, particularly in respect of the impact of glare on occupiers of neighbouring land.

Maintenance

It is important to maintain solar PV systems on a regular basis to ensure their safety and performance. On a sloping roof panels will be cleaned somewhat by the rain, however, we recommend the panels be manually cleaned every 1 - 2 years to get rid of stubborn soiling. This can usually be carried out from the ground using a low pressure washer and a long lance (with no detergent or abrasives) or on the roof using a suitable fall arrest system. Depending on the size of the system, the inverters and other electrical components should be checked and tested every 6 months-2 years.

We can structure a maintenance package to suit you, please ask us for a quote.

Export Payments for Solar PV

Following the closure of the Feed-in Tariff scheme in 2019, small scale solar PV system owners (<30 kWp) are no longer entitled to a deemed export tariff on 50% of the generated electricity from their system. Instead, to receive payments for any exported generation, export will have to be metered - requiring the installation of an export meter or smart meter*.

The replacement scheme is the Smart Export Guarantee (SEG), whereby larger electricity suppliers (those with more than 150,000 customers) have to remunerate small scale, low-carbon generators for the electricity they export to the grid. Suppliers determine the tariff rate per kWh and the length of the contract, with the condition that the price offered for export must be greater than zero. Tariffs can be a flat or variable rate, or even tied to the live wholesale price of electricity. Our financial modelling assumes a flat export tariff of 5.5p, which is a higher rate currently available from a few suppliers (for list of SEG rates go to https://www.solar-trade.org.uk/seg/). The financial modelling in this quote is only intended to provide a reasonable approximation of potential savings and income, and actual benefits may vary considerably depending on circumstances.

**This would need to be arranged through an energy supplier.*

Case Studies

Sparsholt & Andover College, 633kWp

Panel Model	2500 x BenQ 250/260W
Inverter Model	29 x Zeversolars
Monitoring System	Zeversolar Commercial PMU, shown on public display screen
System Size	633 kWp
Annual Output	570,000 kWh
Annual Benefit	£150,000

From September 2015 to February 2016 Spirit installed and commissioned Solar PV systems for 20 buildings spread out over Andover College, and Sparsholt College near Winchester. The arrays ranged from 32 to 400 panels on each roof. These all contributed to a total of over 2,500 BenQ 250W and BenQ 260W panels.
It was the largest educational solar PV installation in the UK at the time of writing.

MV Sports and Leisure, 250kWp

Panel Model	999 x ET Solar 250W
Inverter Model	8 x PowerOne TRIO-27.6-TL, 1 x PowerOne PVI-10.0-TL
Monitoring System	Power One AEC EVO
System Size	250 kWp
Annual Output	202,174 kWh/year
Annual Benefit	£36,618/year

"It is early days but we are delighted with the system performance so far. We expect the project to deliver long term financial savings for the Group. In addition, the implementation of a solar solution forms part of our environmental and social responsibility strategy and we are therefore pleased to have the system installed and generating electricity. The installation process itself was pain free and efficiently carried out by Spirit Solar. All issues were promptly resolved and we would have no hesitation in recommending them"

Claude Fenton HQ, 250kWp ground mounted array

Panel Model	998 x Renesola 250W
Inverter Model	8 x PowerOne TRIO-27.6-TL, 1 x PowerOne PVI-10.0-TL
System Size	250 kWp
Annual Output	235,449 kWh/year
CO2 Reduction	134.3 tonnes/year
Annual Benefit	£46,029/year

In September 2014 Spirit commissioned a 250kWp ground-mounted system for Claude Fenton Holdings in Reading. This particular system comprised of 998 x Renesola panels. The system is expected to generate 235,449 kWh per year saving 134.3 tonnes of CO2 annually with payback period of 6 years.

AWARD WINNING North Middlesex University Hospital, 123.5kWp

Panel Model	494 x ET Solar 250W
Inverter Model	Aurora PowerOne
Monitoring System	Power One AEC EVO
System Mounting	K2 Systems
System Size	123.5 kWp
Annual Benefit	£9,761/year

In November 2013, Spirit Solar Ltd installed a 123kWp system on a new wing of the Middlesex University Hospital, comprised of 494 x ET solar panels mounted on K2 racking. Based on the high demand of the hospital it is predicted it will use 100% of electricity generated at the time. The system cost roughly £140,000 and will expect to pay for itself in 7 years, resulting in a total annual income and savings of approximately £20,000.

SOLAR POWER PORTAL AWARDS 2014 WINNER PUBLIC SPACE INSTALLATION

Minerva House, Calleva Community Energy, 100kWp

Panel Model	400 x Renesola 250W
Inverter Model	Aurora PowerOne
System Size	100kWp
Annual Output	82,600 kWh
CO2 Reduction	47.0 tonnes

In October 2014 Spirit commissioned a 100kWp pitched roof system for Minerva House in Aldermaston. This particular system comprised of 400 x Renesola panels and will generate free electricity for businesses, providing economic benefit to the local community. The system is expected to generate 82,600 kWh per year saving 47.0 tonnes of CO2 annually with payback period of 6 years.

Parmiters School, 49.75 kWp

Panel Model	199 x Renesola 250W
Inverter Model	1 x TRIO27.6, 2 x PVI-12.5
Annual Benefit	9733
System Size	49.75 kWp
Annual Output	43,014 kWh
CO2 Reduction	24.4 tonnes

In August 2014, Spirit commissioned a 49.75kWp roof system for Parmiter's School. This particular system comprised of 199 x Renesola panels mounted on Clenergy EZ-rack. The system is expected to generate 43,014kWh per year saving 24.4 tonnes of CO2 annually with payback period of 6 years.

Shipton Road, 50.5 kWp

Panel Model	202 x Shinetime 250W
Annual Benefit	5700
System Size	50.5 kWp
Annual Output	43,733 kWh
CO2 Reduction	24.5 tonnes

In 2015/2016 Spirit was contracted by Pye Homes to install and commission 35 Solar PV systems for plots at its Shipton Road residential development site in Woodstock. The arrays ranged from 2 to 8 panels on each house. These all contributed to a total of 202 Shinetime 250W panels.

Spirit was part of the team that won the Pride in The Job 2016 Award for its work at Shipton Road for Pye Homes!

Southampton University, 11.22 kWp

Panel Model	132 x GB-Sol 85W
Inverter Model	1 x PVI-10.0-TL
Annual Benefit	2400
System Size	11.22 kWp
Annual Output	11,200 kWh
CO2 Reduction	5.8 tonnes

In March 2015, Spirit Solar Ltd installed an 11.22 kWp system on a brand new building at Boldrewood Campus, part of Southampton University. A total of 132 GB-Sol 85 W panels were installed with an estimated production of 11,200 kWh of electricity every year, with annual savings and income of more than £2,000.