



Proposal for Free Solar
PhotoVoltaic Installation
(Solar PV)

For

Perins School



4.2 Size of system

Using 235W modules and the available roof space the following size of system is proposed:

Energy Generated by 1kW peak installation in UK	800	kWh
Total Number of Panels	352	
Output of Individual Panel	235	W
Total Area of Panels	589	M ²
Total Peak Output	82.7	kW
Slope & Orientation Factor	933	Horizontal
Shading Factor	1	
Energy Generated per Annum (MW hrs)	61.7	MWh/yr
Annual Saving in CO2 emissions (Tonnes)	26.55	Tonnes CO2/yr

5 Financial & Climate Change Benefits

The performance of solar PV systems is difficult to predict with total certainty due to the variability in solar radiation (sunlight) from location to location and from year to year. In April 2010 the Government introduced the feed in tariff (FIT). This is a scheme whereby the energy companies will buy all the energy (total generation) produced by a solar PV system. The term of the tariff is 25 years. Your system will qualify for the Feed in Tariff as it is to be installed by an accredited MCS (Microgeneration Certification Scheme) company.

The estimated financial benefits using the Government accredited SAP (Standard Assessment Procedure) calculations and the PV GIS (Photovoltaic Geographical Information System) from the Joint Research Centre European Commission. The SAP calculations are based on a fixed figure of 800kWh/yr per kW peak of PV system in Britain. However, this figure varies with location therefore the PV GIS estimate takes this into account. These figures are shown below:

5.1 Estimated Avoided (fossil fuel resourced) Electrical Energy

Method Used	SAP	PV GIS
Size of System (kWp)	82.72	82.72
Estimated energy generated (kWh) per annum	61742	76047
Avoided Electricity (£/yr) - Assume 75% used in the property @13p per kWh	£4,013	£4,943

Both estimates based on:

- Orientation: Horizontal
- Roof Pitch: 10 degrees

PV GIS estimate based on:

- Location: Southern

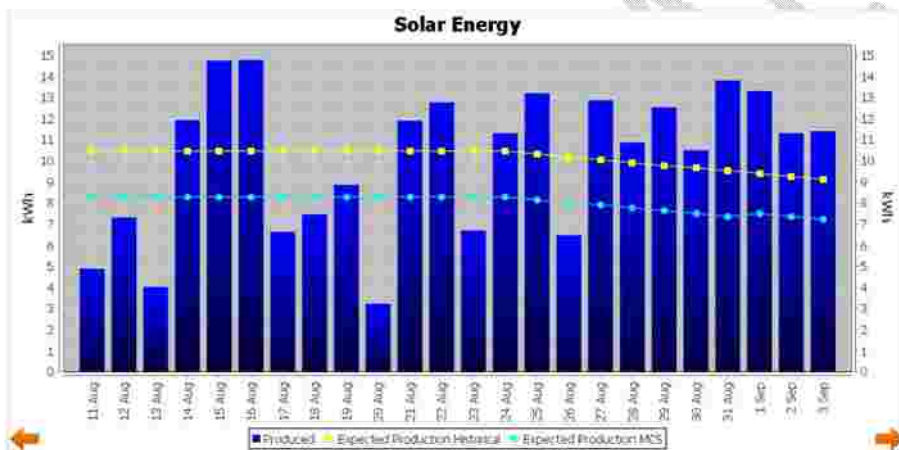
5.2 Carbon Dioxide Emission Savings

A total of 26.55 Tonnes of CO2 savings per year are estimated, assisting in the worldwide battle against climate change.

6 System Monitoring

The Energy Monitoring system proactively monitors the performance of solar PV to ensure that systems are achieving their expected level of performance. Alerts are automatically raised if a system's performance is lower than it should be. The system operates by attaching a GPRS or Broadband logger to the total generation meter of a PV system. The logger reports readings which perform a detailed analysis of the systems performance. The output is also analysed against a calculation which is specific to the actual installation - this calculation includes all the relevant factors above the equipment installed, the geographic location and the actual installation, i.e. roof slope, orientation, shading etc.

This calculation provides an accurate profile for the expected output of a PV system and when based on historical meteorological data will provide the expected output of the system over its life time. The Monitoring system also provides a range of reports and analysis which will provide useful information - power generated, carbon saved etc. All information and reports are available via a web browser as per the example of this is shown below; alternatively an optional public display simply showing current output can be purchased at an additional cost.



6 Investment by Freeritcity

Assumption - this Investment Quotation is subject to a detailed site survey by an independent engineer.

6.1 Quote - PV System Cost

The initial evaluation of the proposed site qualifies the applicant for an installation of a size as per the specification detailed in this proposal. The Capital Investment to be realised by Freeritcity to install and maintain this system is clarified thus:

- Total System Value (exc VAT) £236,789

In clarification this figure represents the level of investment by Freeritcity and covers all disbursements undertaken by Freeritcity in the installation of the Solar PV system.

Our approved installer's quotation is valid for 30-days.