

## Q&As from “Solar (photovoltaic) PV panels for Surrey Schools” briefing session

28 Jan 2014 at Ashley School, Walton on Thames

The event was attended by Bursars/ finance managers, premises managers and a small number of governors and teachers.

**Supporting information and presentations** are available from [Surrey Sustainable Schools](#). In particular the ‘Solar PV for Surrey schools – Information pack’ and ‘Frequently Asked Questions’ on the scheme offered by Ethical Power’.

Our thanks go to Richard Dunne from Ashley School in Walton-on-Thames for hosting the event.

### Questions from the event

#### **What do FIT and PPA stand for?**

FIT (Feed in Tariff) is a payment available to support installation of solar PV and other renewable electricity generating technologies. A PPA (Power Purchase Agreement) is a contract to buy electricity from a provider. It is used in some types of solar PV schemes for schools, where the school contributes towards the cost of the panels by purchasing power rather than paying for the panels and their maintenance. To benefit the school, the price should be less than what the school would otherwise pay for grid electricity.

#### **In Ethical Power’s scheme, which party assumes responsibility for signing the lease and PPA?**

The school signs the PPA, which commits the schools to buying power from the panels. Who signs the lease (leasing airspace above roof to the panel owners) depends on the status of the school. The county council will sign leases for Community status schools. See [Q12 in FAQs doc](#) for details for Voluntary Aided, Academy, Foundation schools etc.

#### **Is an Energy Performance Certificate (EPC) the same as a Display Energy Certificate (DEC)?**

Sort of - They are both assessments of energy efficiency of a building using standard methods, but an EPC must be obtained for Feed in Tariff (FIT) and a DEC is not a substitute.

#### **If the efficiency of solar PV panels is improving all the time, should we wait for better panels?**

The efficiency of panels has improved over time and like all technologies further efficiencies are likely in the future, but not to the extent that it is financially or environmentally beneficial to hold back from installation for this reason. The FIT is generally reducing over time (to incentivise early adopters) so it’s unlikely you will benefit by waiting.

#### **How are panels fixed to the roof?**

Depends on the roof, but generally for pitched roof, rails are screwed to the roof timbers (by removing and replacing tiles). There are brackets on the rails to which the panels are fixed to. Flat roofs require additional mounting structures.

### **Invertors - how big are they and where are they located?**

Invertors convert DC current coming from the solar panels into usable AC current. Size varies depending on number of panels, very approximately think in terms of very large suitcases. Location depends on the building, but ideally invertors are located close to the panels for shorter cable run of DC power e.g. in loft space, or possibly at ground floor level. Wherever panels located need to ensure secure access.

### **What is a solar PV membrane?**

It's a flexible thin film, instead of a rigid solar panel. Advantages are potential integration into roof structure e.g. with new build, but disadvantages are higher cost and lower performance compared to panels.

### **Does Ethical Power offer solar tiles?**

No – again, these look nice and can be intergraded into roof, but are more expensive and do not meet the minimum return on investment.

### **Does each panel have invertors?**

No, many panels are linked in a string to one invertor.

### **How does insurance work?**

In Ethical Power's scheme, Ethical Power will insure the panels and associated equipment. If (unlikely) the school experiences any increase in insurance Ethical Power would also cover that. It is advisable to check this situation with all providers.

### **What happens if we need to replace or repair our roof?**

There are provisions for this in the Lease that the county council uses with Ethical Power and other providers wishing to lease our roof (air) space. These include the panels being removed from the entire roof – for reroofing and also an allowance of up to £5,000 to be provided by Ethical Power to remove panels to allow periodic minor repairs. It is advised that such provision is made for all schools and if owning and maintaining panels yourself, you would need to make your own arrangements.

### **Our roof has a warranty – what are the implications?**

The roof manufacturer needs to be contacted to agree to honour the warranty with the panels in place. Ethical Power will provide details of the proposed fixing to inform this discussion. (Such details should be expected from any company installing panels on the school's roof.)

### **What is the minimum size of roof that is eligible?**

For the investment from Ethical Power scheme, the minimum threshold is to satisfy investment criteria is 10Kw, which is around 70sqm of roof area. Smaller roofs with suitable orientation may be suitable for other sources of funding.

**If 100% of energy generated is not used by the school e.g. in holidays, can it be stored in a battery?**

No – battery technology is not economic (unless essential e.g. off-grid). Schools should aim to improve energy demand management to cut unessential power use (the baseline) in holidays. With good management there should be some times when only a small amount of the solar power is used. However, if current energy practices are continued, as Ethical Power have observed, many schools are consuming (and paying for) 100% of power generated even in the holidays. As an alternative to battery, there is a technology available that diverts surplus electricity into other demands that do not normally use electricity e.g. water heating if there is demand for this at time of surplus electricity. This technology could be integrated into Ethical Power's system, if the school were to arrange and funds.

**Is there a limit on the amount of electricity that can be exported to the grid when the school is not using it?**

The installation must be agreed with the DNO (District Network operator) and generally no limit on power export is imposed. Ethical Power has only been involved in one case, amongst hundreds, where there was an exception and limit was imposed.

**If our school has an EPC of less than level D, can it get solar?**

A building with EPC of less than Level D (where A best, G worst) probably not would not be viable for the Ethical Power scheme. However, bear in mind that the EPC assessment can be performed after solar panels installed which can help cases which are on the threshold. Furthermore, funding for solar for community projects e.g. schools, which are funded by 'community' funding sources are exempt from this rule.

**Are you aware of future changes to the FIT?**

Yes, but only small and steady reductions. The FIT level is reviewed by Ofgem every quarter in order to control value for money (to society) of the subsidy. If the level of installation in the previous quarter was low it will stay at the same level (for up to 9 months) to continue the incentive to install, but if installation level was high it can reduced by up to 3%. There are currently no known proposals to make further changes to the FIT at the scale of the 2011 cut.

**If the FIT reduces, will the installation offer be withdrawn?**

No not withdrawn entirely but the PPA price may be altered, in order to keep the return on investment above the minimum threshold acceptable to investors (i.e. Internal rate of return > 10%).

**What happens if the investor e.g. Ethical Power, goes bust?**

This situation is covered in the Lease. Ethical Power have set up a separate entity (a Special Purchase Vehicle , SPV) which holds the solar PV equipment assets and the income streams from FIT and PPA payments from schools. This entity has no staff or excessively variable costs/ risks, so it is unforeseeable that it would go bust. Even if Ethical Power goes bust, the SPV will not, and it would be transferred to another organisation, in agreement with the county council.

**How is the 'power generated figure' calculated (within the Ethical Power proposal document sent to our school)?**

This uses industry standard assumptions about the performance of the panels in ideal test conditions, combined with real-life situation factors such as the roof orientation, angle and level of shading from adjacent structures / trees. A figure of around 900 to 950kwh per kwp installed is standard in ideal e.g. directly south with no shading conditions etc. After applying the schools situation, this figure is then multiplied by the size of the system proposed, to get projected generation, in kwh per year.

**Who decides the optimum array size?**

Ethical Power will decide the optimum size considering factors of available roof space and various trade-offs arising from the FIT requirement. The school's energy demand is not a factor in the consideration, as it is unlikely a system would be too big for the site excess energy would be exported to the grid so is not wasted and the school is under no obligation to use a minimum amount of the power generated.

**How much is the export tariff?**

Currently it is 4.6p per kwh.

**Will SCCs appraisal consider all the various factors that will influence whether proposals (from different providers) are value for money to the school and how they compare with each other?**

The Sustainability team at the county council have conducted financial appraisals and will use standard assumptions to try and create a 'level playing field' in order to help compare the overall value of each offer. The team will always request information from companies in support of any proposal which will illustrate all the elements and common variables involved. Please refer to information on our [Surrey Sustainable Schools](#) website

It should also be noted that as part of the appraisal we will consider the terms and conditions of any lease and whether Surrey/Provider are able to agree a mutually acceptable agreement. This is particularly for Community Schools, although such information does enable us to advise other schools on any risk and liabilities that they should be aware of.