



Photo Voltaics (PV)

Background

Solar PV forms part of the portfolio of projects contributing towards the University of Oxford's Carbon **Reduction Programme**.

Solar PV offers the University an exciting opportunity to deliver renewable energy directly to its facilities, significantly reducing carbon emissions whilst also reducing electricity bills and increasing security of supply.

Distribution Network Operator (DNO) limitations for Oxford mean that installing large-scale renewables is not viable until 2019, when Scottish and Southern Energy (SSE), the DNO, upgrades the system. PV Systems are therefore limited to 50kW and below.

In addition to this, the government incentive scheme Feed in Tariffs (FIT) is graded, with different rates being applied to different sizes of installations. Currently the highest FIT rate is given for 10-50kW installations. The Estates Services strategy in the short term is, therefore, to review opportunities for 10-50kW installations. Reviewing applicable sites can be a complex process of structural surveys, shade analysis and much more.

Project Delivered

Roof spaces offer the University a great opportunity to utilise previously unused space. However, not all roof spaces are appropriate for roof-mounted solar PV, so extensive surveys have to be carried out to analyse a range of factors:

- Orientation of roof
- Shading
- Roof age and capacity to take a load
- Visibility

It is also necessary to check that the system does not affect scientific equipment in the building. Trials are carried out where necessary, in conjunction with senior academics.

On occasion, where space allows, ground-mounted systems may be applicable; this was the case for the Swindon Bodleian Book Storage Facility. As well as retrofitting projects, Estates Services also endeavours to install renewable technologies including PVs into new and

refurbished buildings. All three of these opportunities offer a greatly reduced installation cost.

Outcomes

Systems have been installed at the following buildings:

- Southwell Engineering
- Saïd Business School
- Osney One
- The Malthouse
- Rothermere American Institute
- Richard Doll
- Swindon Bodleian Book Storage Facility
- ROQ Outpatients
- Blavatnik School of Government
- New Statistics

A total of £489k has been spent on solar PV from the Carbon Management Fund. These projects have a payback of between 6-10 years, including the FIT income, and it is estimated that the projects will have a cost avoidance of £31k - a saving from which departments will directly benefit.

An estimated 150 tonnes of carbon will be removed from the University's emissions each year.

Conclusions

The combined FIT income from the above installations will be in the region of £50k. This income will be reinvested into more carbon saving projects, and work continues to identify additional opportunities on the estate.



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