

Case study: Farmer of the year goes solar

137kW solar PV system Andrew Dennis Woodlands Farm, Kirton, Lincolnshire



Organic and biodynamic farmer, Andrew Dennis, has had one of the largest roof-mounted solar power systems in the country fitted at his Lincolnshire farm. More than five hundred solar pv panels have been installed on the roof of Andrew's packing shed at Woodlands Farm at Kirton near Boston. Woodlands Farm has a mix of organic and biodynamic farming with arable, cattle, sheep and horticulture.

Andrew said; "It fits in perfectly with the philosophy of the farm. Organic and biodynamic farming puts a great emphasis on a farm being as self-sufficient as possible and the size of this installation technically makes us self-sufficient in energy.

"It is also giving us a financial return of around 12 per cent a year. When you consider what you would get if you put the money into a deposit account, that's an important factor."

The 137kW system cost £360,000 and will generate 118,000 kW/year. This is more than enough to meet the farm's annual electricity consumption, making it technically self-sufficient. However, there will be times when he has to use grid electricity, i.e. at night when generation from the panels falls. There will also be times when the farm isn't using all of the power that the panels are producing and so some will go back into the grid.

Andrew is paid for all of the electricity that his installation generates regardless of whether it is used by the farm or not. He estimates that the solar array will bring in an annual income of between £30,000 - £40,000.

Because there's a lot of activity on the farm during the day time, when the panels are generating, the farm will use a high proportion of the electricity generated with a small amount being sent back to the grid. But this isn't an issue in terms of income from electricity sold to the grid because of the way the Feed in Tariff works. The main bulk of the payment is for generating the electricity in the first place, whether the farmer owner uses it or it is exported to the grid. There is a smaller additional payment for exporting electricity but the majority of income generated from the solar pv system is from electricity generation full stop.

How long will the system last?

It's designed to last for at least 25 years, which is how long the feed in tariff scheme is available for. But in reality systems routinely can last forty to fifty years.

What kind of roof spec is required?

The ideal type of roof is a corrugated trapezoidal roof - not asbestos. The systems add 13kg of load

per metre squared, most farm buildings can cope with this, although it is recommended to get a structural survey before going ahead.



How long did this system take to install?

Andrew has a 137 kilowatt system, which is huge. It took three to four weeks to install – you could halve that for the more usual 50 kW systems.

How quickly does the installation generate an income?

It makes money from the moment the system is switched on. It doesn't need sunshine; any type of daylight will lead to it generating electricity – but the sunnier the better.

What's the return on the installation?

The return on Andrew's installation is 12 per cent a year, but since it was installed the tariff for systems of the size of the one at Elms Farm have been reduced. Andrew still qualifies for the higher payments – but a similar system now would have a return of 9 per cent. The most efficient systems to make the maximum use of the Feed in Tariff are under 50 kw, they return 12 – 15 per cent.

How much routine maintenance is needed - who does this?

Maintenance is extremely low. The panels are self cleaning and in other parts of Europe where they've routinely last 40 to 50 years. The inverter which converts the electricity so that it can be used on the farm has a manufacturer's guarantee of five years. The cost of maintenance is borne by the farm and maintenance contracts are available. If you have a free installation installed, the installer will usually take care of any maintenance.

For more information on renewable energy opportunities contact the Soil Association's Low Carbon Farming adviser Poppy Johnson on 0117 314 5127 or at pjohnson@soilassociation.org