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Solar PV: interview with Martin Cotterell

Nicole Whitton speaks to Martin Cotterell, managing director of Sundog Energy (acting in his role as a consultant to the BRE National Solar Centre), about the solar PV market and what you need to know about installing solar PV panels. Martin is the lead technical author of the IET's Code of Practice for Grid Connected Solar Photovoltaic Systems and currently represents the UK on the IEC (International Electrotechnical Commission) PV standards group — the leading international body for PV. He is the UK principal expert and co-chair of Working Group 3 (PV systems).

Aside from cost savings and using renewable energy, are there any other benefits of solar PV that consumers should be aware of?

Well, the environmental benefits and healthy financial returns are, of course, the primary reasons that tens of thousands of people up and down the UK have chosen to install solar PV. However, installing PV means you have the satisfaction of generating and using your own energy; it also locks the price of a proportion of your electricity bill (insulates you to an extent from rising electricity bills). Systems with battery storage can give more independence – and provide power even during a power cut.

How is the solar PV market performing in the UK?

The UK market has been very healthy for the last few years, even appearing in the world list of top five countries in 2014 (for added capacity during the year).

I started installing PV more than 20 years ago; the rate of installation growth was very slow for a long time, but that has all changed in the last five years. Now it seems that there is barely a street in some towns that doesn't sport at least one PV roof.
Do you expect the UK market to grow over the next five to ten years? If so, what are the reasons behind that growth?

I expect the market to consolidate – I don't particularly expect rapid growth, but I also don't expect stagnation. PV is here to stay!

What is the domestic market for solar PV like in the UK (i.e. fitting domestic dwellings) – are more people fitting solar panels?

As I said earlier and as anyone can see, PV arrays are now a very common sight on UK household rooftops. Fitting a PV array makes great environmental and economic sense – so yes, more and more people are choosing to go solar.

What is happening with the technology, how is it changing and how is integration improving?

PV technology has been pretty stable for the last few years – the modules used now are not that different to those fitted five years ago. Neither are the mounting systems. What is changing are other parts of the system – new inverters etc. The biggest talking point at the moment is the appearance of battery storage systems – but this is a very new development and is not yet making a significant impact on the market (as it is not yet cost effective).

For those Wirings Matters readers who would like to get involved in fitting solar PV – what skills and training would you recommend?

Fitting a solar PV system requires a number of skills, particularly electrical installation and roofing skills. The design of systems requires good product knowledge, electrical design knowledge and an understanding of building structures, solar resources/shading etc.

Looking at the Microgeneration Certification Scheme (MCS) website is a good start. This provides the installation and product standards that an installer needs to comply with in order for their systems to be eligible for FIT payments. Once you have looked at the MCS site, select a certification body and talk to them about what's involved in getting MCS certified. In tandem with this, identify and talk to a local distributor.

Another good option would be to get a copy of the new IET Code of Practice for Grid Connected Solar Photovoltaic Systems. We have tried to write this in a way that not only describes the design and installation requirements but also explains the reasons behind them (explaining how a solar PV system and its various component parts function).

Are there any problems that an installer should look out for when working on older solar PV installations in domestic dwellings?

While the vast majority of systems are fine, there are of course issues with some installations. Some problems can be pretty obvious and are no different to the potential issues you would expect to see in any electrical installation. Other issues are more PV specific and it is hard to do justice to this in a short article. However, if pushed, I guess I would highlight: poor fixings on roofs (particularly systems on slate roofs, where many brackets have been simply bolted through the slates); poor d.c. wiring design and installation (loose cables and poorly assembled connectors); and shading (arrays located in sites subject to significant shade – from chimneys trees etc). The best bet is to get the Code of Practice for Grid Connected Solar Photovoltaic Systems, which describes what a good solar PV system should look like!

About Martin …

Martin founded Sundog Energy in 1995. As well as directing the technical and installation standards for Sundog, Martin has been a key driver of the PV industry in the UK. He chairs the British Standards PV committee (GEL82), has written many of the standard texts for the industry and is an active participant on several other key industry committees. He also speaks regularly on PV installation and standards issues.

Martin has a background in Engineering, BEng (Hons) Electrical & Electronic Engineering, and was elected as an IET Fellow (FIET) in 2014. Martin was awarded the Outstanding Achievement Award, for his personal contribution to the PV industry at the Solar Power Portal

awards in 2013 (Sundog was also awarded the BIPV installer of the year at the same awards ceremony).

If you're involved in the solar industry, or wish to get involved, the IET is due to publish the Code of Practice for Grid Connected Solar Photovoltaic Systems in October this year.

The Code of Practice provides the information required to ensure that a solar PV system is designed, installed and operated in compliance with relevant UK and international standards and good practice recommendations. It covers:

(a) all parts of a grid-connected solar PV system up to and including the connection to the a.c. mains.
(b) LV and HV connections and components.
(c) all scales of installations , from small domestic systems to large-scale PV farms.
(d) building-mounted, building-integrated and ground-mounted systems.
(e) grid-connected systems with battery storage.

For more information and to pre-order the book, see our website.