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The case for solar thermal

Solar thermal technology still has a bright future in the UK, whether installed on individual properties or as part of larger projects. Kathy McVeigh, MD of Belfast based CoolSky, explains more.

Solar thermal energy remains one of the key elements of the global renewable energy technology mix. Although the UK market has been slow in recent years, 2017 saw a 4% global rise in solar thermal capacity, bringing the total installed capacity to 472GWth.

In the UK, the solar thermal industry has seen a slowdown over the past few years, in spite of the Renewable Heat Incentive. The hiatus, caused by the uncertainty and long lead time to introduce the incentive, did a lot of damage to the industry, as customers delayed purchasing decisions and the heating industry lost interest in the technology. At the same time, attractive solar PV Feed In Tariffs made the choice of solar PV a reliable alternative investment.

The good news for the solar thermal industry is that the RHI scheme remains in place until 2021, both for domestic and non-domestic installations. The current RHI tariff is 20.66 pence per kWh for the domestic scheme (to be paid over seven years), which should definitely make solar thermal interesting to householders. If we take the example of a typical vacuum tube or flat plate solar collector, using London

weather data and sized for a household of five people, the estimated RHI payment would be approximately £390 - £450 per annum for seven years.

In the Non-Domestic Sector, the tariff is currently 10.75 pence per kWh (over 20 years), which again makes for an investment worth considering for industry sectors requiring hot water for process heat and temperatures of up to 150°C. An Enhanced Capital Allowance is also available in the UK and enables companies to claim on the investment against taxable profits.

Record year

Globally, 2017 was a record year for solar thermal in industrial process heat applications. Fossil fuel costs remain unpredictable worldwide and 2018 has seen a steady increase in prices of oil and gas. Solar thermal protects users from the instability of such price increases.

Local examples include a project constructed in Forres, Moray in the North of Scotland, which heats a municipal swimming pool with 79 m² of locally manufactured AES Solar Endurance collectors, providing an annual solar gain in the region of 20,000 kWh

and saving the local Moray council significant amounts of money and CO₂ emissions over the expected life of the system (30 years).

District heating

Solar district heating is often cited as the most cost-effective way to decarbonise the building sector, with many exciting projects completed already in Denmark, Germany and Austria. GreenOneTec, the renowned Austrian Solar Flat plate manufacturer, recently completed a district heating project in Vienna. It consists of 650m² solar collector area, providing a hot water output of 510MW/annum for building residents. This type of project is a perfect fit for the UK Government's Heat Networks strategy and is one of several proven examples of effective district heating with solar thermal contribution, many of which are located in Northern Europe and could easily be adapted for the UK market.

Flexible solution

There are some barriers to be addressed in the UK to enable solar thermal to grow, not least being the complexity of the RHI scheme, but solar thermal is a very flexible solar solution, requiring as little as one-third



of the area that solar PV needs to provide the same kWh output. This fact alone makes it a very sensible consideration in urban areas, where a lack of suitable roof areas can mean installation is not practical for PV solutions.

Also, we are still seeing innovation in the solar thermal domestic sector. Products such as the Solar 3C cylinder, recently introduced to the UK market, promotes the use of solar thermal energy for hot water as well as heating. The product incorporates an output for heating support, giving the householder the option for hot water only and future proofing for a heating support application.

A further potential growth area is the new build sector. If all hot water cylinders had a solar coil installed during construction, it would mean an automatic cost reduction for the solar thermal system, compared to a retrofit installation, where often new, costly hot water cylinders are required.

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