

Feeding the appetite for Europe's renewable energy

There is evidence in Europe, notably Germany and Spain, that feed-in tariffs do stimulate renewables and make them economically viable. Paul Garrett talks to their many fans and few critics

Two of the key planks of Europe's low-carbon energy policy are renewable and local on the one hand, and distributed and microgeneration on the other. But most new ways of doing things need a helping hand to get them up and running; this is where feed-in tariffs come in, perceived by many as the enabler of choice for renewables and microgen.

So what is a feed-in tariff, and is it really the silver bullet for green energy? In essence a feed-in tariff is the amount a renewable energy generator is paid for importing into the electricity grid the electricity it generates over and above what it needs itself.

Feed-in tariffs oblige energy suppliers to buy electricity from renewable sources at a fixed price, usually over a fixed period, even from households. These legal guarantees ensure investment security and the support of all viable renewable energy technologies.

WHY FEED-IN TARIFFS ARE NEEDED

According to Miguel Mendonça of the World Future Council, and author of *Feed-in tariffs: accelerating the deployment of renewable energy*, "no other policy mechanism has produced more renewable energy more quickly than feed-in tariffs".

It is a view supported by others, notably Hermann Scheer, a member of the German parliament and president of Eurosolar. Dr Scheer supports feed-in tariffs but acknowledges they need the right legislative support. "We must argue for the right legislative steps," he says, "[to lead us] to an environmentally friendly and socially just energy system."

Environmental groups are championing feed-in tariffs as a way of bringing a low-carbon energy revolution to Europe's domestic sector. Friends of the Earth (FoE) believes that while much renewable energy expansion in Europe will come from large-scale projects such as on and offshore wind farms and wave and tidal power, a substantial contribution could be made by smaller-scale renewable technologies.

These could be solar panels on domestic roofs or community combined heat and power derived from household waste. FoE says many large and small businesses could generate much of their own electricity through on-site renewable technologies.

Brenda Boardman of Oxford University's Environmental Change Institute has looked, for FoE and the Co-operative Bank, into how to cut carbon emissions from the domestic sector in Britain by 80%. Her study found that, in addition

to energy efficiency, every home will need renewable technologies installed to generate clean heat or electricity. In the UK alone, that is about 25 million installations required in the next 40 years at a rate of more than 600,000 a year.

To get there, FoE believes there is an urgent need for governments in Britain and Europe to introduce feed-in tariff schemes to support an expansion of smaller-scale and decentralised renewable energy schemes. These would include domestic and commercial microgeneration, and community schemes.

WHO HAS BEEN DOING WHAT

Seventeen European countries have adopted a feed-in tariff of one sort or another, most with considerable success. Figures from the German government earlier this year showed that, driven by feed-in tariff legislation, Germany generated 14.2% of its electricity from renewable sources in 2007.

Beyond the 'green' argument lies the economic one. Turnover in the German renewables industry rose by 10% that year to €24.6bn and employment in the sector rose to 250,000. A slightly smaller country such as the UK, by way of comparison, employed just 7,000 people in the sector that year, although the figure is now, despite the recession, rising.

Moreover, the German government calculates that in 2007 savings of 57 million tonnes of CO₂ were directly attributable to the country's feed-in tariff legislation.

The German experience has been endorsed by the groundbreaking Stern Report on climate change. The review said that the feed-in tariff has many advantages over a quota system such as the UK's Renewables Obligation (RO). It says it gives certainty and guarantees for investors, is transparent, easy to administer, promotes diversity of supply and is flexible.

Sir Stern goes on: "Both sets of instruments have proved effective but existing experience favours price-based support

FIGURE 1 EMBRACING RENEWABLES

Electricity supply from renewables in Germany, 1999-2008
Per cent

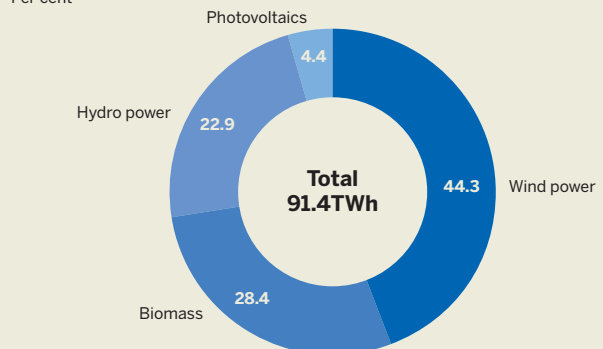
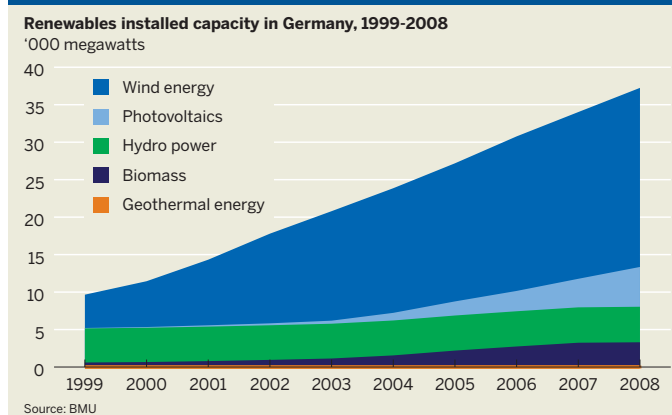


FIGURE 2 CAPACITY BUILDING



mechanisms. Comparisons between deployment support through tradeable quotas and feed-in tariff price support suggest that feed-in mechanisms achieve larger deployment at lower costs."

The assurance of longer-term price guarantees has been central to the success of the feed-in tariff scheme in Germany, according to the report. "The German scheme provides legally guaranteed revenue streams for up to 20 years if the technology remains functional."

Planning rules also play a role, especially for solar photovoltaic and wind. But, Sir Stern adds, "the levels of deployment are much greater in the German scheme and the prices are lower than comparable tradeable support mechanisms – though greater deployment increases the total cost in terms of the premium paid by consumers".

HOW THE GERMAN SYSTEM HAS FARED

Feed-in-tariffs in Germany are a success story, according to a German lawyer specialising in renewable energy, Annika von La Chevallierie of Mannheimer Swartling. "The system works well and there aren't many alternatives to enabling the industry to develop better technological solutions," she says. "But the actual amount of the tariff has been under discussion," she adds, "especially during the latest amendment of the EEG [Renewable Energy Sources Act] earlier this year."

Another criticism levied at the German system is that feed-in-tariffs may be keeping the cost of technology artificially high. But others will argue that new technology will only develop if it is supported.

It is hard to compare Germany's system with those in place in other countries, says Ms von La Chevallierie. "The German system is clear and reliable." This has the big advantage of helping investors plan for the future, and helps explain Germany's success in attracting private investors too.

"For Germany it is important to improve decentralised generation," she says. "The government's strategy for boosting renewable energy generation is based on a combination of different sources, including wind, biomass and solar: perhaps you don't get as much electricity from solar power in Germany as you'd do in other countries, but it is an important part of the energy mix."

The Stern Report refutes suggestions that the German system may stifle competition: "Contrary to criticisms of

FIGURE 3 THE RISE OF FEED-IN TARIFFS



the feed-in tariff, analysis suggests competition is greater than in the UK RO certificate scheme. These benefits are logical as the technologies are already prone to considerable price uncertainties and the price uncertainty of tradeable development support mechanisms amplifies this uncertainty."

Feed-in tariffs have helped make Germany the largest solar heating producer in the world. Legislation has encouraged solar specifically, compared with neighbouring Denmark where feed-in tariff legislation encouraged wind power.

Travelling across (often cloudy) Germany today, solar panels on the roofs of commercial and domestic buildings are as familiar a sight as, for example, large wind turbines are across rural Spain.

A word of caution comes from green energy champion Dale Vince, the chief executive of UK-based wind power company Ecotricity. Mr Vince says: "Feed-in tariffs are the right answer to the wrong question. The UK RO does the same job; it provides support above that which the market alone would give."

Mr Vince is adamant the RO is not the problem and that scrapping it for feed-in tariffs wouldn't achieve anything. "There are things preventing the UK from having a massive contribution to energy needs from our wind resource, such as the planning system," he says. "Feed-in tariffs won't and can't fix that."

Friends of the Earth has advanced an interesting approach to encourage large and small renewable energy schemes that combines feed-in tariffs and the RO. In countries like the UK where the RO already exists, FoE says that the tariffs could be brought in alongside a reformed RO, with the RO supporting large-scale, dedicated off-site commercial generation schemes and the new feed-in tariffs supporting smaller schemes.

This is a viable short-to-medium-term strategy, the green group argues, but there needs to be an open debate about whether further RO reform is the right mechanism to get the UK and Europe to meet the 2020 targets, or whether a feed-in tariff should eventually apply to large scale as well as small scale and decentralised technologies.

FoE concludes: "A feed-in tariff would not eliminate the need for other policies to support the sector. It is especially crucial that renewable electricity generating installations are given priority access to electricity grids." ■