

# Germany sets shining example in providing a harvest for the world

*Ashley Seager ~ The Guardian, Monday 23 July 2007 09.10 BST*

Hanno Renn, a Freiburg taxi driver, invested in a communal solar electricity system on a building in the German town in 1993. "Everyone laughed and said I was wasting my money," he says.

But now he has paid off his investment and earns a regular income from the electrical company for the power he generates. "I have had the last laugh," he grins.

Mr Renn is part of a revolution in renewable energy that is sweeping Germany and bringing citizens of every kind into the fight against global warming.

While a new report from the Centre for Alternative Technology says Britain could, with sufficient will and effort, go zero carbon in only 20 years, Germany's figures put the British government's claims to be leading the world on climate change into perspective.

Germany has 200 times as much solar energy as Britain. It generates 12% of its electricity from various renewables, compared with 4.6% in Britain. It has created a quarter of a million jobs in renewables - a number that is growing fast. Britain has only 25,000, a number that represents the amount of jobs created in the industry in Germany in the past year alone.

Freiburg, a town of 200,000 people in the Black Forest, has almost as much solar photovoltaic (PV) power as the whole of Britain. Dr Dieter Wörner, director of Freiburg's environmental protection agency, admits that such is the competition among German towns that Ulm has just overtaken Freiburg as solar capital of the world.

"But we are still expanding rapidly. It's a sporting contest," he says. Indeed, by the time Britain starts its first eco-town in 2016, Germany will have 50 or 60 eco-cities. Small wonder that the Labour government has quietly dropped the pledge it made six years ago to catch up with Germany by 2010. In Germany, too, the higher production has pushed prices down sharply. A typical 3kw PV system costs about £17,000 in Britain but less than £10,000 in Germany. Dr Wörner says prices have halved in the past seven years and will do so again in the next seven.

The secret of German success is the "feed-in tariff" (FIT). Anyone generating electricity from solar PV, wind or hydro gets a guaranteed payment of four times the market rate - currently about 35p pence a unit - for 20 years.

This reduces the payback time on such technologies to less than 10 years and offers a return on investment of 8-9%. The cost is spread by generating companies among all

users and has added about one cent/kwh to the average bill, or an extra €1.50 (£1) a month.

The Germans introduced the FIT in 1999 and tweaked it in 2004, since which time things have gone mad. FITs have now been adopted in 19 EU countries, and 47 worldwide, but not in Britain. German renewables firms are now world beaters and the German economy has been strengthened, not weakened, by a rush into renewables.

Britain, by contrast, has a few installation companies mainly importing German equipment. At the recent Intersolar trade fair in Freiburg, the air was heady with talk of expansion, cutting-edge technologies and intense competition. And everyone says the reason is the FIT.

Take Q-Cells. The company started making silicon PV cells in east Germany in 2000 with 19 staff. It now has 1,200 and expects by 2010 to have 5,000. It is one of the fastest-growing companies on the planet and is the world's second-largest maker of PV cells, after Sharp of Japan. It exports over half its product.

"The feed-in tariff changed everything - it is that simple," says Stefan Dietrich, Q-Cells spokesman. Demand is such that Bavarian farmers, with large barn roofs and fields, are the biggest customer group for PV in the world, he adds. Jürgen Kaiser-Gerwens, finance director at Schott AG, a maker of PV cells and of "concentrated solar power" - solar collectors that concentrate the sun's rays to heat a fluid and drive turbines - agrees.

"The FIT gives companies a good basis for planning but also makes them become more efficient and competitive. It is a win-win-win - for the industry, the government and individuals."

### **FIT and proper**

Professor Eicke Weber, head of the Fraunhofer Solar Research Institute in Freiburg, which has successfully spun off 13 companies to exploit the new technologies it has developed, says the potential for renewables backed by an FIT is enormous. He expects the 2.5 gigawatts of solar PV installed in Germany (half of the world total) to skyrocket. "Within five to 10 years I expect this to rise to 100-150 gigawatts. This market is growing 40% a year."

He says renewables are sufficiently technically advanced to meet the world's demands for clean energy in the coming decades. "The technology is there. We don't need any great breakthroughs."

A massive shift to renewables in the coming decades could, he estimates, be achieved for say £250bn, roughly equivalent to what the US has spent on the Iraq war. "And their economy has easily swallowed that," he says.

In Britain, by contrast, going green is neither easy nor cheap. The government's stop-go attempts to stimulate renewables have made it difficult for anyone to make long-term decisions.

Britain's renewables industry has struggled as grants for new technologies have been plagued by problems and were recently even slashed by the DTI, now renamed DBERR (Department for Business, Enterprise and Regulatory Reform).

The DBERR has also restricted the list of companies it permits to carry out renewable installations, keeping prices of new technologies higher than they need be.

The government's main form of support is the "renewable obligations" system, which forces electrical generators to source a growing share of their power from renewables. Though it has had some success promoting offshore wind power, it has had little impact on micro generation, solar power in particular. In an acknowledgement of this, the government is considering introducing banding for different technologies, but not until 2009.

Experts say it is not delivering fast enough and a campaign for a feed-in tariff is growing, although the government dismisses FITs as too "interventionist".

"The renewables industry in this country exists in spite of the government, not because of it," says Alan Simpson, Labour MP for Nottingham South.

He recently introduced a private member's bill that would bring in a feed-in tariff and is trying to get a ground-breaking zero-carbon project called "O-zone" off the ground in an area of central Nottingham, which would include renewable energy and the upgrading of houses to reduce their energy use and loss. But it will only fly if it wins lottery funding.

### **Out of Merton**

Other towns, also frustrated at the lack of action by central government, have taken matters into their own hands. The London Borough of Merton introduced the now legendary "Merton rule" requiring any new developments to contain technology that generates at least 10% of their energy from renewables. Many councils have adopted it and some have raised the bar to 20%.

One of the UK's greenest towns is Woking, Surrey. It began moving into renewables a decade ago and now has combined heat and power and fuel cell systems providing heat and electricity to many buildings in the town centre and 600kw of installed solar PV - about 5% of Britain's total.

"People give us a lot of credit but we need a reality check. In the grand scheme of things it is a bit pathetic," says Ray Morgan, Woking's chief executive.

"To develop a proper renewables infrastructure requires a lot of long-term investment but the economic models we have in this country are very short-term," he says,

arguing for either an FIT or that the government let people write off renewable installations against tax.

Dr Jeremy Leggett, head of Solarcentury, a leading supplier of PV systems, says: "In terms of the delivery of a wide portfolio of different renewable energy technologies, feed-in tariffs are widely recognised as a more effective support mechanism than the UK's renewables obligation."

Kurt Krannich, head of Krannich Solar, one of Germany's biggest solar energy distributors, says, though, that the future could be bright for Britain if only we introduce a FIT and let the Germans supply our solar energy.

"Then I think Britain could catch Germany up in just three years," he says.

### **At a glance**

Pressure is growing on the government to adopt the **feed-in tariff** support system used in Germany and **nearly 50 other countries**, and now favoured by the Conservatives and Liberal Democrats. Under the German system anyone generating electricity from solar PV, wind or hydro is guaranteed a payment of **four times the market rate for 20 years**. The system boosts take-up by consumers by reducing the payback times on such investments to less than 10 years - compared with 25 or 30 years in Britain - and gives industry the **certainty of long-term demand** to make it worthwhile investing in new factories.