

Germany enjoys its day in the sun

**H**ANNO 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.

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 Energy 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 Wornier, 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, higher production has pushed prices down sharply. A typical 3kw PV system costs about \$NZ\$3,500 (£17,000) in Britain but less than \$25,600 in Germany. Wornier 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 90c 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 \$2.60 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 1200 and expects by 2010 to have 5000. It is one of the fastest-growing companies on the planet and is the world's second-largest maker of PV

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cells, after Sharp of Japan. It exports more than half its product.

"The feed-in tariff changed everything – it is that simple," says Stefan Dietrich, Q-Cells spokesman.

"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."

Professor Eicke Weber, head of the Fraunhofer Solar Research Institute in Freiburg, says the potential for renewables backed by an FIT is enormous. He expects the 2.5 gigawatts

Countries are beginning to warm to the possibilities of solar electricity generation, with Germany proving to be a star performer.



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 \$840.7 billion, 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 technology are cut.

logies 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, thus keeping prices of new technologies higher than they need be.

"The renewables industry in [England] 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.

Other towns, also frustrated at central government's lack of action, have taken matters into their own hands.

The London Borough of 1 introduced the now legendary "7 rule", requiring any new development to contain technology that generates at least 10% of their energy from renewables. Many councils have adopted and some have raised the bar to

Dr Jeremy Leggett, head of Solarcentury, a leading supplier of a wide portfolio of different energy technologies, feed-in are widely recognised as an effective support mechanism for UK's renewables obligation."

Kurt Krannich, head of Kr Solar, one of Germany's biggest energy distributors, says, "though the future could be bright for Britain it introduces an FIT and the Germans supply its solar energy."

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