

Feed-in tariffs

Solar energy bubble is FiT to burst

Jon Entine says make solar energy where the sun shines, but not everywhere

Selling umbrellas in sunny Los Angeles? Sounds like a dumb way to make your first million. What about peddling solar panels in cloudy London? Take it to the bank.

Just ask aspiring photovoltaic manufacturers in Britain, who are in full production now – after the UK, in April, signed up to the green fad du jour, feed-in tariffs, or FiTs. It's a subsidy scheme in which homeowners or small businesses that install solar panels or wind turbines are guaranteed fixed long-term prices to sell the power they generate back to the electric company.

FiTs are offered in 20 countries and 40-odd jurisdictions, from Ontario to Australia, China, and even Iran. With Barack Obama's green jobs push, it's red hot in the US. It has all the dressings of a no-lose proposition – creating new technology markets and green jobs by incentivising the public to generate carbon-less energy.

Now let's look at the murkier reality. Here's the argument for solar power: Germany. With a ban on nuclear energy, and dirty coal supplies dwindling, Germany became the first country to embrace FiTs, in the early 1990s. Renewables generated 14% of the country's electricity last year and make up 4% of Germany's GDP. As a result of the subsidies, Germany's installed solar power generation capacity increased by more than 60% in 2009 alone. "We are making a huge investment in the markets of the future," says environment state secretary Matthias Machnig.

Here's the argument against it: Germany. The subsidy is a whopper. Until this year, it's been about €0.50 per kilowatt-hour, or almost 10 times higher than the market price for conventionally produced elec-

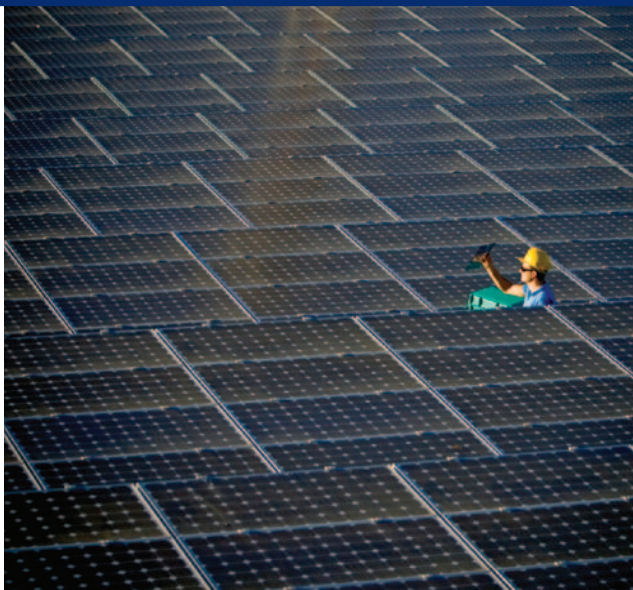
tricity. The solar industry has sucked up €48bn since 2000.

Using the European climate exchange price as a benchmark, the cost of a tonne of carbon is about \$20. RWI Essen, the independent German research institute, found solar energy FiTs reduce carbon emissions at a cost of more than \$1,000 a tonne, and may not be competitive for decades. (Intriguingly, the wind power subsidy was calculated at \$80 a tonne; it's expected to drop and become cost competitive in a few years – no bubble there.) RWI estimated total subsidies per job created in the photovoltaic industry at a mind-boggling €205,000.

Add it up

The economic inefficiencies are causing consternation among those on the left who dare to use cost-benefit analysis. Guardian columnist George Monbiot agrees with many environmental economists who claim that solar makes little economic sense for cloudy countries such as Germany and Britain. Solar power is intermittent and can't be relied upon for so called "baseload" capacity. "These investments make wonderful sense for the lucky householders who could afford to install the panels, as lucrative returns are guaranteed by taxing the rest of Germany's electricity users," he writes. And to what end? Solar power produces about 0.6% of German's electricity.

The air is already coming out of the German solar bubble. While FiT campaigners around the world are busy citing the "German solar miracle", the government is retreating. In November, the newspaper *Berliner Zeitung* wrote: "The construction of a solar power plant is currently an almost riskless



Field of dreams

Renewable energy is not a virtue unto itself



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investment." In January, Germany announced a sharp and unexpected cut in subsidies, and the solar market crashed.

There remains a lot to like about solar power. Solar already makes sense in places that are "off grid," such as parts of Africa and in consistently sunny climes such as California or southern Europe.

But as Spain has demonstrated, caution is in order. It introduced rich subsidies in 2007. The following year, half of global photovoltaic installations were in Spain and its homegrown solar industry was booming. By 2009, faced with economic realities, the government dramatically scaled back the FiTs and capped new subsidised solar installations. The market collapsed, factories shut down, investments cratered and tens of thousands of workers were left jobless.

If you want to build a nuclear or coal plant, you have to produce a detailed environmental and economic impact study. But if you would like to dabble in solar energy, put your hand out and a government agency will drop in some lucre.

In the right place and situation, FiTs and solar energy make sense. But renewable energy is not a virtue unto itself. It needs to yield tangible benefits based on carbon reduction and market efficiency or it will be an exercise in green vanity. ■

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