

*Philip Wolfe was one of the leaders of the feed-in tariffs campaign and the author of the first blueprint on their design. In this blog, he looks back at the history of the scheme and assesses the extent to which it has been a success.*



## **Embarrassingly successful: an obituary for the UK's Feed-in Tariffs**

The introduction in 2010 of feed-in tariffs for green electricity revolutionised the renewable energy sector in the UK. There is now more than 200 times as much solar capacity as there was then – up from about 30 to over 7,000 MW. Small wind, hydro and anaerobic digestion systems have also seen dramatic growth.

This must be one of the most successful government interventions ever! So let's have a look at the achievements, and see who's celebrating.

### **Why now?**

In name, at least, the FiTs scheme is still in place; but it seems to me that the changes introduced in early 2016 mean that it is no longer really a tariff at all. Surely the fundamental requirement for such an incentive is that the price at which renewable power will be fed into the grid is fixed and known in advance. Because of the new deployment caps, the steep degression percentages and the removal of pre-accreditation, project developers can no longer be sure what price they will get by the time their project is connected.

It is already clear from recently published statistics that some sectors have stalled and even the limited available capacity is not being taken up. Other bands were oversubscribed within hours of registrations opening. These will therefore degress rapidly to the stage where they are unviable.

All in all, the feed in tariff, as we once understood it, is now dead. The hangover mechanism will of course facilitate some ongoing deployment, but this will be tiny compared to the heyday of the FiTs, even if the caps are reached.

### **What is a feed in tariff?**

Governments introduce incentive mechanisms to stimulate strategic changes, which the free-market fails to deliver. A classic example of such market failure is the continuing reliance on unsustainable fossil fuels and lack of progress toward renewables. Support schemes encourage these transformational technologies by de-risking new investment. Fundamentally they need to give certainty to developers about the income they will receive; so they can deliver projects at a cost, which makes a return for their investors.

In principle, there are two ways of designing such incentives; you can have either a volume-based or a price-based mechanism. Our Renewables Obligation – and the Renewable Portfolio Standards implemented in many US states – are examples of the volume-based approach. They mandate electricity suppliers to generate a specified amount of renewable energy and the consumer (or sometimes the taxpayer) then has to pay whatever price this level of generation costs.

A feed-in tariff is a price-based mechanism. It sets the tariff at which renewable energy is to be delivered, and developers can come forward with whatever volume of generation they are able to deliver at that price.

Both approaches place some risks on the consumer. The volume-based obligation might not encourage innovation, so can lead to high unit costs. The fixed-price approach encourages innovation but may lead to high volumes being delivered and thus a high subsidy draw-down. In some cases, if tariffs are not set with care, they may be excessively generous; giving unnecessary profit margins to producers.

## **A brief history of the feed in tariffs**

The German politicians Hans-Josef Fell and Hermann Scheer are often credited with being the fathers of feed-in tariffs; as the main architects of the 2000 overhaul of Germany's feed-in regulations (which had first been introduced in 1990). Deployment accelerated particularly after further updates in 2004 and 2006. Spain followed in 2007/8, and similar measures were introduced in the Czech Republic, Italy and elsewhere in Europe.

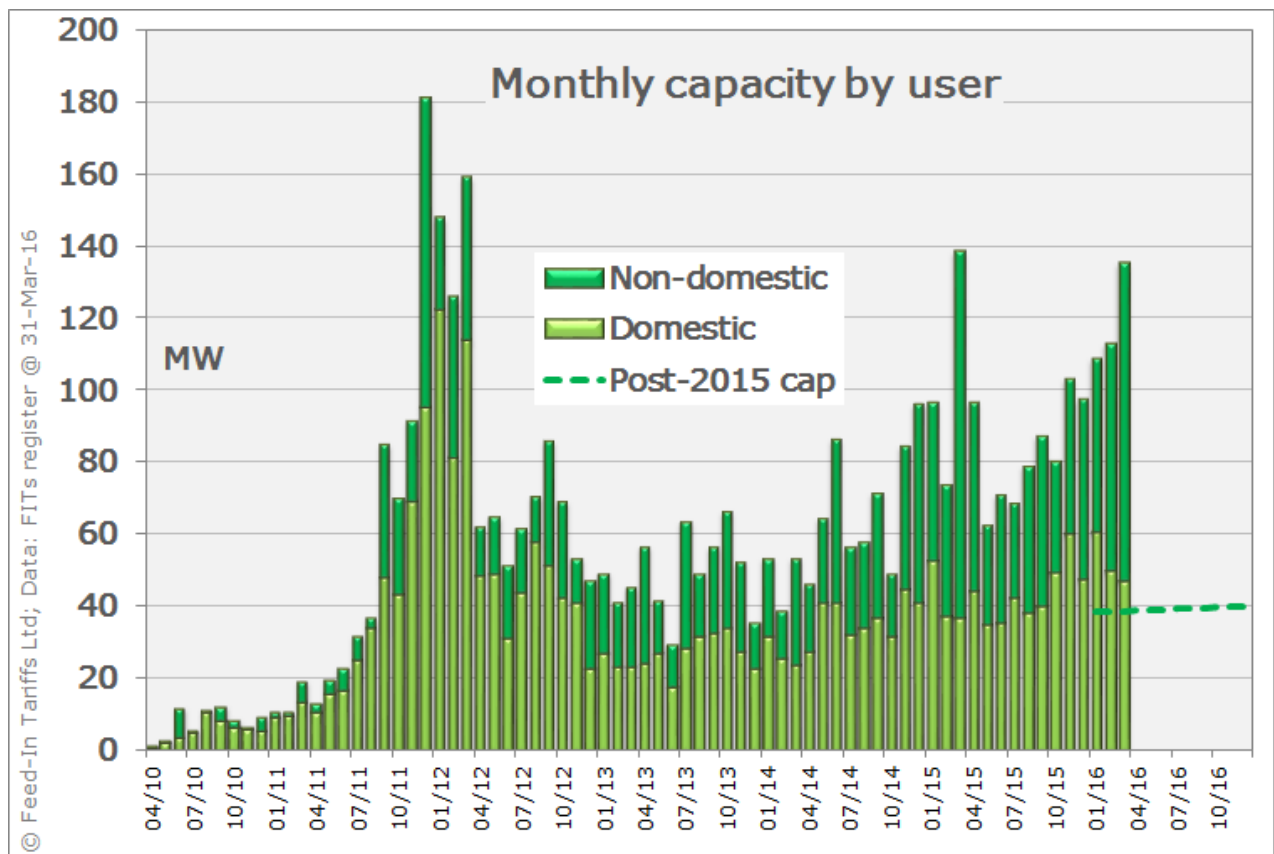
About this time, the UK industry campaigned for the introduction of feed in tariffs to complement the Renewables Obligation (RO) which, at the time, was proving effective only for landfill gas and large scale onshore wind. The campaign was led by friends of the Earth and the Renewable Energy Association (REA, of which I was at the time Director General).

Initially, the campaign met solid resistance from the main political parties. When the Energy Bill was being debated in Parliament, amendments were tabled in both Houses to create enabling powers for the introduction of a feed-in tariff. These amendments were initially voted down by the ruling Labour Party.

The position eventually changed following the election of a new Conservative party leader and the creation of the Department of Energy and Climate Change (DECC). In a speech at Greenpeace, new Conservative party leader David Cameron proposed the introduction of feed-in tariffs in the UK. Subsequently, a few weeks after his appointment as the first Secretary of State for Energy and Climate Change, Ed Miliband reversed the government's opposition, amending the 2008 Energy Bill to include enabling powers for the creation of feed-in tariffs.

It took a further 18 months for the mechanism to be designed in detail and implemented through secondary legislation. The REA was prominent in making suggestions for the design of the scheme and published the first [blueprint](#) in March 2009.

After their introduction in April 2010, the FiTs proved an immediate success for solar electricity, which dominated early take-up of the scheme. This was partly because the tariffs were relatively generous in the light of rapidly declining solar system prices on the world market. Following the 2010 election, DECC, now led by the Conservative / Lib Dem coalition's Chris Huhne, moved to slash the tariffs for large-scale solar systems; and to introduce degeneration, so that tariffs would decline as costs fell. Subsequent reviews in 2011/12 brought a lot of further tinkering with the scheme. Deployment continued to advance, with wind, hydro and anaerobic digestion growing alongside solar.



*Monthly deployment under the Feed-in Tariffs Scheme (by type of user)*

Following the 2015 election, the government implemented another emergency review of the scheme. It realised that the sums of money put aside for the so-called Levy Control Framework were insufficient to cover the investments needed to migrate to a sustainable energy future. Political expediency seems to have dictated that the feed-in tariff was the easiest target. Changes were made to cap the

deployment in each capacity band; and swingeing tariff reductions were introduced.

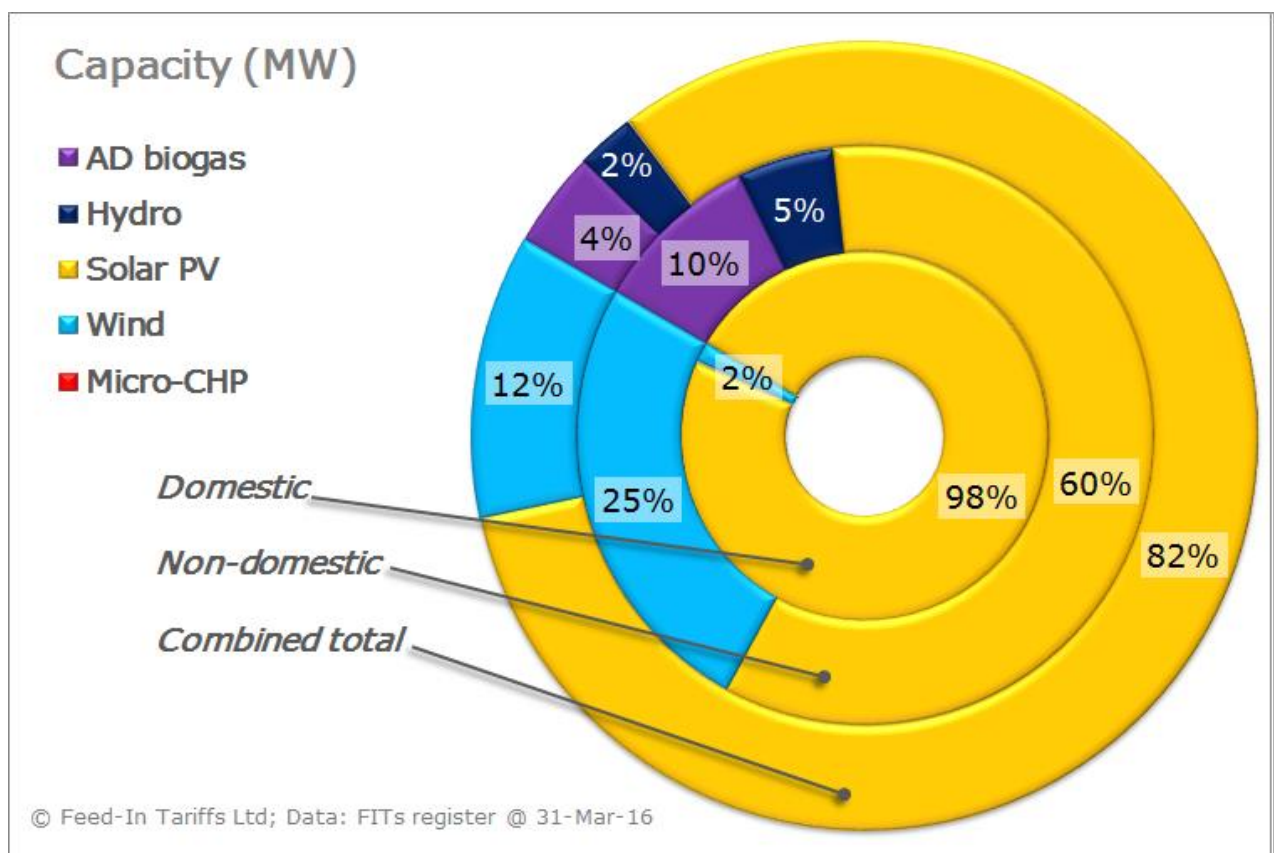
This is the point where, I argue, the scheme cease to be a genuine feed-in tariff. It is now trying to be *both* price- and volume-dependent; and so the complex interactions make it virtually impossible to calculate what tariff will be applicable in the future. This therefore fails the first requirement for an incentive mechanism – to provide a degree of certainty to investors – so I expect take-up to wane.

### So were Feed-in Tariffs a success?

The answer has to be a big fat Yes.

Under the FiTs, nearly 4½ gigawatts of new renewable capacity has been installed in just six years. That’s one-and-a-half times the new nuclear capacity expected to be realised in the next decade; and when combined with the RO over that period, more renewables capacity has been deployed than new traditional generation.

Furthermore this has for the first time enabled individual citizens to participate with their own energy generation. The tariffs have so far stimulated nearly ¾ million systems for consumers. In addition to the clean generation this provides, it also raises awareness of related energy issues, such as the need for conservation.



Capacity deployed under the Feed-in Tariffs - by technology

Solar power has been the most successful sector. This is mainly because it faces so few barriers: the resource is ubiquitous, many applications do not need planning consent, and systems can be installed in so many places on buildings or otherwise. The generous tariffs in the early days may also have helped, but those these were soon rectified – and other constraints applied, such as the need for energy performance certificates and more frequent degression.



*Westmill Solar Park in Oxfordshire: this 5 MW FiTs-supported project was for several years the world's largest community-owned solar power station*

Large-scale solar, in particular, turned out to be an unexpected success. With rapidly declining equipment prices, several dozen solar power plants up to 5 MW were built under the FiTs, paving the way for larger projects under the Renewables Obligation. By the end of 2015 the UK, with over 4,500 MW of utility-scale (projects of 4MW<sub>AC</sub> and over) solar installed, had become the world's third largest market behind only China and the USA.

### ***The politicians must be happy***

You'd think so wouldn't you? I have been amazed that successive governments haven't crowed about this success and wrestled to take the credit. On the contrary, they all seem to have been embarrassed.

When the FiTs succeeded in stimulating the new and unexpected market for utility-scale solar power stations, DECC put out a press release in February 2011 under the

title "*Huhne takes action on solar farm threat*". They certainly can't be accused of triumphalism.

### ***What could have been done differently?***

Having proclaimed the FiTs such a success, it seems churlish to now find fault. However there are lessons to learn, and the government's determination not to build on this success is particularly disappointing to me personally.

Of course the Treasury must control costs to the taxpayer and the consumer – but the Levy Control Framework has proven to be too limited and inflexible to also deliver the quantum change which our energy system needs. In particular it seems to have locked in an outdated blueprint for Britain's energy future, where low carbon energy would come mainly from offshore wind and nuclear. Let's leave aside that these two sources are inherently incompatible (intermittent renewables should be backed up by fast response sources, not inflexible 'baseload' nuclear).

DECC grudgingly accepted solar as a strategically important source at last in 2013. Experience has shown that it is highly deployable, and it is getting cheaper rapidly; indeed the strike prices government has set under its Contracts for Difference show it will be significantly cheaper than new nuclear. Yet by squeezing the FiTs to near extinction, ministers are missing a golden opportunity to provide a bridge for solar and other near-competitive renewables across the relatively short period to grid parity.

Secondly, successive governments have drifted away from one of the core principles of the original FiTs concept – simplicity. You only need to look at the plethora of technology tables on the Ofgem website to see a bewildering array of different tariff bands, degression profiles and eligibility requirements. Feed-in Tariffs were meant to be so straightforward that anyone should be able to benefit – without needing a PhD in tariffology.

Complexity increases risk and therefore puts up the returns investors need and thus the price to consumers. So does uncertainty; which brings me to my next point – panic. Too many of the changes to the FiTs have been rushed; on one occasion even leading to DECC being told by a judicial review to 'go back and do it again'.

Finally, to return to an earlier point, why don't we celebrate our successes? Not many UK energy policies have brought results anyone can be proud of – look at CRC or the Green Deal, for example. The Feed-in Tariff Scheme has changed the UK's energy mix dramatically for the better. Let's celebrate that ... even if it won't now be carrying on the good work.