

# FIT for purpose: 21st century policy

RENEWABLE ENERGY, AS A VIABLE LONG-TERM ENERGY STRATEGY, MUST BE PROMOTED ACCORDING TO EXAMPLES OF BEST POLICY. SOME COUNTRIES, HOWEVER, ARE STILL PAINFULLY RESISTANT – FOR NO EXPLICIT REASON – TO GETTING IT RIGHT.

Miguel Mendonça

For those who have not come across feed-in tariffs (FITs) before, they can be summarised briefly. FITs place a legal obligation on utilities to purchase electricity from producers of renewable energy at a set rate. The tariff rates are set for each viable technology, to take account of their differing generation costs. The payments are guaranteed for long periods – usually 20 years in Germany.

As we go to press, Germany's Ministry for the Environment and FIT pioneer has issued revised rules for the country's groundbreaking Renewable Energy Sources Act, which effectively governs the FIT. The new rules significantly increase the tariffs for offshore wind energy, hydroelectricity, and geothermal energy beginning in 2009. And amongst the new recruits in the FIT's growing ranks is Italy, which has now launched its own new FIT for Solar PV (though this program still hasn't completely broken from the influence of the country's quota model for developing renewable energy, as only solar PV has been shifted out of the country's RPS program). (See box – FIT update on page 62).

## Why FIT?

The simple guarantees that come from the FIT mean that a producer can obtain finance with much lower investment risk, and hence more cheaply.

This brings down costs and increases market confidence for manufacturers, suppliers, generators and investors.

The costs of the system are often shared nationally, adding a small amount to monthly household bills. In Germany, their system has made them world leaders in renewables, has created towards a quarter of a million jobs, saves close to 100m tonnes of CO<sub>2</sub> annually, and has massively increased their share of RE in the energy mix, and hence their energy security. They are rightfully proud of their achievements, and the website of the Federal Environment Ministry is a ready source of data and general information on their policy and industry. And the cost of all this? An extra £1, per household, per month. If one were to hold a referendum on the matter, effectively offering, say, the beleaguered UK manufacturing sector the opportunity to grow annually with this kind of employment and export potential, at the cost of just £12 per household, per year, it is likely that the public response would be overwhelming.

Solar PV now requires no more subsidies in Germany. Again, the UK, by contrast, provides microgeneration grants which usually run out of their monthly allocation in the first two hours of availability. This is provided from taxpayers' money. Again, a seemingly pointless expense in view of the fact that there are more cost-effective options available.

## Case study: An alternative to the FIT

So why do governments doubt the effectiveness of the FIT? One example is the UK, whose latest government white paper on energy has thrown into greater relief the central mistake it made in choosing and designing a poor renewable energy support scheme.

The expense, complexity, and investment risk of the UK's Renewables Obligation (RO) remains, despite the latest tinkering. The RO requires power suppliers to derive from renewables a specified proportion of the electricity they supply to their customers. Eligible renewable generators receive Renewables Obligation Certificates (ROCs) for each Mwh of electricity generated. These certificates can then be sold to suppliers, in order to fulfil their obligation. Suppliers can either present enough certificates to cover the required percentage of their output, or they can pay a 'buyout' price for any shortfall. All proceeds from buyout payments are recycled to suppliers in proportion to the number of ROCs they present.

The main change to the system suggested, is the 'banding' of technologies, to address the differing generation costs of each. It is unclear, however, whether or not this is in fact likely to improve conditions for decentralisation, and a broadening of the energy portfolio. On balance, it seems unlikely to do so, as there has been no real attempt to get at a root cause of the expense – investment risk.

This risk is introduced through the uncertainty attached to the future value of Renewable Obligation Certificates (ROCs). In order to finance renewable energy (RE) installations, the case must be made, as in any other such financial transaction, for what will be returned in repayments, and when. As the ROCs are tied to shifting market prices, they cannot have a definite future value. Uncertainty in investment is met with higher risk premiums, and so, for example, financing for a wind farm is therefore going to be more costly.

The white paper refers to a bewildering array of complementary subsidy schemes, strategies, initiatives, levies and so on. This complexity does not improve accessibility for investors, leaving renewables in an overall position of muted appeal.

For all of this market intervention, the simplest, most cost-effective alternative, empirically proven to drive the fastest, lowest-cost, most technologically-diverse deployment of renewable energy – the FIT – is considered too interventionist.

Over 40 countries, states and provinces now use the FIT system, and interest is growing around the world, with several more systems set to be introduced this year. It seems, on the face of it, like wilful negligence, for the UK government to spurn this popular policy model. What could prevent them from taking a common, successful, proven path in this critical area of policy? There are several suggestions for this among analysts. One is that, because the UK scheme (a quota system) has such high investment risk, it can only find ready participants within large corporate interests, and it effectively shores up their market position. The Labour party, it is claimed, have both a paucity of party funds, and a close relationship with big business. Labour's movement towards the political centre, and often beyond, has been seen as a ploy to capture ground from the Tories. This picture suggests that the stabilisation of political power requires a keen observation of the needs and wants of big business. In the case of energy companies, this could mean keeping small investors out of the picture, and pushing back the day when energy production becomes a normal part of the functioning of a household, farm, factory or business premises.

Another common opinion given is that the UK government, of any stripe, has a tendency to reject European policies where it can. This is more contentious, but there may be some grounds for believing that the island mentality plays a part. Such conjecture arises largely through the apparent inability of the government to state exactly why they have picked such a poor policy, when a superior one is there for the taking.



The German FIT goes further, and incorporates a digressive element in the payments, wherein tariff rates drop annually. You will still receive the same amount each year, but if you wait until next year to install, you will receive less money than if you install this year. Through this simple device, take-up is accelerated, and manufacturers are compelled to develop higher efficiencies in their products. If you receive less money, you want to produce more electricity to make up for it. Thus, economies of scale are generated, bringing prices down and driving efficiencies up.

There are many more policy design options available, including options to receive payments linked to the spot market price for electricity – a method considered more ‘market-friendly’, and more compatible with the liberalised electricity market. As part of this, producers must provide predictions of the amount of electricity to be fed in, helping with grid balancing. This option is available in Spain, another country with world leader status in RE, and usually applies to the wind industry.

Denmark used FITs until the early part of this decade, when the incoming conservative government took the law apart. Renewables growth has since contracted sharply, and there are many calls to bring back the very successful FIT system.

Among the countries and states reported to be debating the law actively, or getting ready for implementation are South Africa, Croatia, Kenya, California, India (Central Government – several states already have them) and Victoria, Australia. There are calls for FITs to be brought in in many other places, but not all have the right conditions at present. Preconditions for such a system would include technological and administrative considerations, but also the presence of an advocacy coalition, support among parliamentarians who would be willing to argue against the conventional energy industry if necessary, and the right timing. For example, if a new energy law has just been passed, the chances of initiating a new debate under the same government are slim.

### The harmonisation debate

For Europe, a worrying debate is emerging with regard to harmonisation. The EU is apparently considering such things as a European grid and a single harmonised support scheme. As the energy markets of the member states are still far from uniform in their liberalisation process, harmonisation is effectively premature. This has not, however, stopped a pro-quota argument from developing (See box – *An alternative to the feed in tariff, page 60*). As the EU has recently established targets for RE production (20% by 2020), and because quota systems work on targets – they set the amount of RE generation to be reached, but not the price to be paid – they would appear to be a neat fit.

The problem is, as outlined above, they are generally more expensive, and less effective and technologically dynamic than FITs. Many countries will find it hard enough to reach the targets set, without having a system which

## Feed-in Tariffs (FITs) in brief

### - How does it work?

Feed-in Tariffs (FITs) are laws which establish legal guarantees to support the market development of renewable energy technologies, specifically for electricity generation. The guarantees cover: grid access, by obliging utilities to accept the electricity; price, by scientifically determining a tariff rate for each technology that pays enough to ensure profitable operation; duration, by setting a time limit on how long the payments are received – the best examples are long, around 20 years. These guarantees ensure low investment risk, and therefore access for all levels of producer, and allow all technologies to receive a fair price and therefore help them to compete fairly with conventional energy.

### - Which other countries have a feed in tariff?

Over 40 countries, states and provinces now have FIT systems. Germany, Italy, Spain and Denmark are clear world leaders in renewables largely due to this law. It is used in most European countries, as well as in various Indian states, in Ontario, Canada, in Latin America – even on the island of Mauritius to pay sugar companies to generate electricity from sugarcane waste material (bagasse). FIT laws are proposed for implementation in countries as diverse as Australia, Mongolia and South Africa.

### - Why is the German model so successful compared to others?

It has been in development longer than most, and enjoyed sustained support. Regular review and maintenance is part of the law, ensuring that tariff rates are adjusted as technologies improve – which the law helps to stimulate by reducing payments to technologies annually; costs are also shared equally, reducing the burden on end consumers, who pay only around £1 per household per month extra. They set no limit to the amount of RE that can be generated and incorporated. Their industrial capacity has been developed by the law – the sector employs close to a quarter of a million people, and now they see RE as an essential part of the economy, as well as part of the strategies tackling energy security and climate protection.

### - What policies do other countries use instead of feed in tariffs?

The quota system is perhaps the most common alternative, used in countries such as the UK (known as the RO or Renewable Obligation), US (there known as RPS, or Renewables Portfolio Standards) and Japan (also known as RPS). These laws set the amount of RE capacity to be generated, but not the price.

The Tendering system is a mechanism in which RE developers bid for power purchase agreements and/or access to a government-administered fund through a competitive bidding process. Regulators specify an amount of capacity or share of total electricity to be achieved, and the maximum price per Kwh. Project developers then submit price bids for contracts. Governments set the desired level of generation from each resource, and the growth rates required over time.

### - Why apparently aren't these as successful in promoting the take up of renewables?

Quota systems generally offer one price, which inevitably means that companies look to use the cheapest technology. This leads to neglect of other technologies, stifling the market, and also to much higher investment risk, which only large utility companies can bear. This secures their market, keeps smaller investors out, including householders – and costs more money, paid by taxpayers.

Tendering systems perform poorly as the nature of competitive bidding often leads to unrealistically low bids, and inability to complete the project.

### - If the feed in law is so good, why hasn't it seen more widespread adoption?

This is most likely due to a combination of factors. Ideological reasons are commonly detected by analysts – they wish to take the most market-friendly route. Governments are said to believe that quota systems offer more compatibility with the electricity market, and that FITs interfere with the market more.

Also, relationships between governments and large energy companies are almost certainly a factor. FITs have been commonly opposed by these companies for the above reasons, although they argue various other points. A response paper by the Federal Environment Ministry in Germany showed that all the arguments from the conventional energy industry had no standing, and that FITs are best for society as well as RE producers. FITs have been empirically proven, in a great many studies, to deliver the fastest, lowest-cost, most technologically-diverse deployment of renewable energy.

has a common defect of encouraging only the cheapest technologies first – usually onshore wind.

If a country has masses of sunlight and little wind, what then for PV? More subsidies from the exchequer? This would clearly be a ridiculous policy failure. It is more than apparent that all countries, states and provinces would benefit from utilising the full sweep of their free energy resources in a cost-effective manner. So far, only FITs achieve this. To remove successful FITs and replace them with quota systems would be a serious mistake, and is unlikely to hold water in any serious cost/ benefit analysis.

This is not to say that FITs cannot be improved. In Germany, again, they have a two-year reappraisal rule built into the law. Tariff rates are revisited, in light of technological advance, price drops and so on. Any major adjustments are made as necessary, in order to ensure that the policy does the greatest good for the greatest number. The ministries of economics and environment still battle over this area, however, and the German utilities have opposed the law since day one, taking it through a series of unsuccessful court cases, fighting it on various grounds. This is attributed partly to the conditions of the country when the law was introduced, i.e. just after the fall of the Berlin wall. Renewables were not a priority so much as integration of East and West Germany. Spain had no such issues, and their utilities are top investors in renewables, and enthusiastic participants in the FIT system.

Other governments take different approaches. The UK and French governments (amongst others) for example appear desperately eager to force through new nuclear build. With the greatest wind, wave and tidal resources in Europe, and many energy efficiency policies to choose from

## FIT update

### Germany

- **Germany has just revised its FIT provisions as follows:**

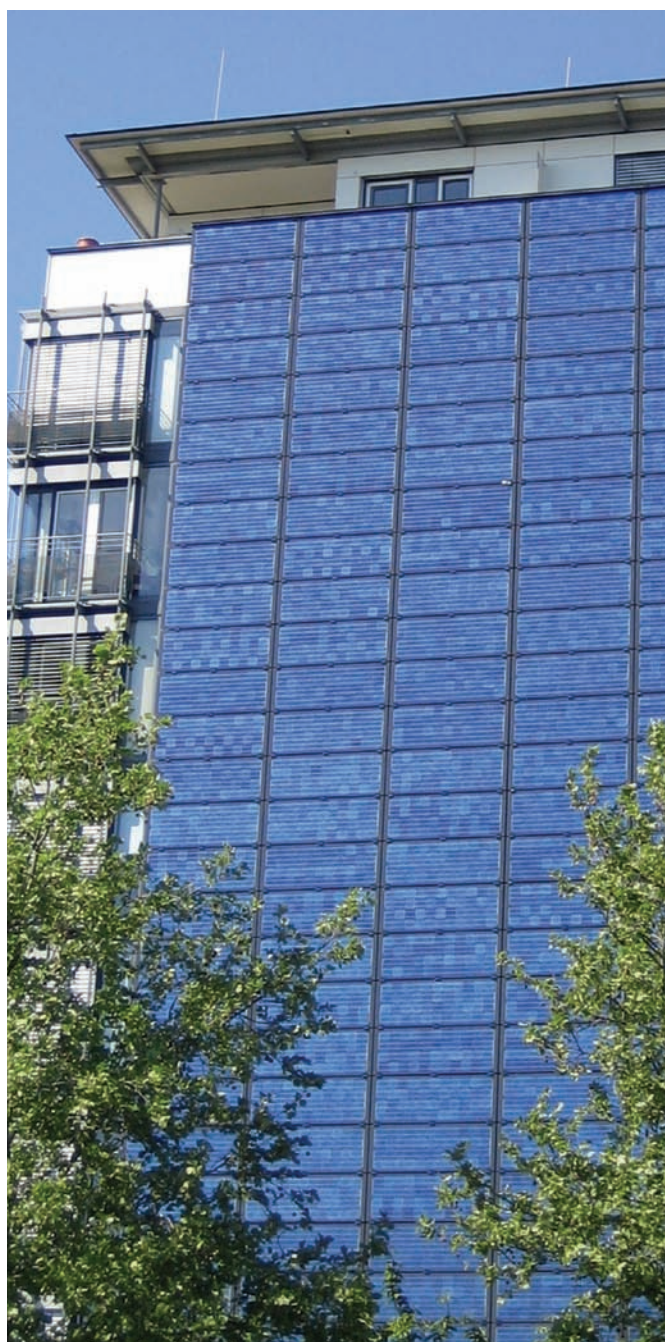
Tariffs for **hydroelectricity** will be raised to €0.1267/Kwh (US\$0.17/Kwh) for <500 Kw; to €0.0865/Kwh (US\$0.12/Kwh) for >500 Kw<2,000 Kw; to €0.0765/Kwh (US\$0.10/Kwh) for >2,000 Kw<5,000 Kw; for **geothermal**, the new rules reduce the number of size classes from four to two and increases the tariff from €0.15/Kwh (0.20/Kwh) to €0.17/Kwh (US\$0.23/Kwh). The new rules also add a bonus of €0.03/Kwh (US\$0.04/Kwh) for geothermal used in heating. For **onshore wind**, which has been hard hit by rising turbine prices, the new rules reduce the annual tariff degeneration from 2% to 1% per year. Germany will now also pay a bonus of € 0.007/Kwh (US\$0.01/Kwh) for wind turbines that are more compatible with the needs of the grid. For **offshore wind**, the program raises tariffs from €0.0874/Kwh (US\$0.12/Kwh) in 2009 to €0.11-0.14/Kwh (US\$0.15-0.19/Kwh). For **rooftop solar PV**, the Ministry of Environment said it would raise the annual degeneration from the current 5% to 7% per year beginning in (2009) and to 8% beginning in 2011. The revised program will add a new tariff class for systems >1,000 Kw of €0.3548/Kwh (US\$0.47/Kwh). The current tariff is €0.463 (US\$0.62/Kwh) for systems >100 Kw. For **solar PV** systems <30 Kw the current tariff is €0.49/Kwh (US\$0.66/Kwh). For **solar PV cladding** <30 Kw the current tariff is €0.54/Kwh (US\$0.72/Kwh). For **ground-mounted solar PV**, the annual degeneration will be raised from 6.5% to 8.5% beginning in 2009 and to 9.5% beginning in 2011.

### Italy

- **And Italy has also introduced a FIT:**

For **small rooftop systems**, the new program pays US\$0.74 USD/Kwh (US\$0.79 CAD/Kwh), among the highest payments for solar PV in Europe. **Building integrated solar PV** will receive a total value of US\$0.80 USD/Kwh (US\$0.86 CAD/Kwh). The new tariffs finally put Italy on a par with tariffs in Germany and France. The new program is itself complex with tariff differentiation by project size and application. In this regard, the new program is similar to that in Germany and France.

*[Note: Italy's solar PV program still includes net metering and payments for wholesale generation costs; the feed-in tariffs are on top of the net-metering rate. The new tariffs replace a complex and bureaucratic system of net metering and feed-in tariff incentives.]*



*Widespread PV: Feed in tariffs appear to be doing their job at least in Germany, where Solar PV now requires no more subsidies.*

– not to mention many willing partners in business – such nations could address their energy concerns in a 21st century manner, and opt for a transition to a modern, democratised energy system, instead of a 20th century, monolithic, centralised system.

Thus far for the UK at least, it seems that Westminster's policy direction makes clear their preference.

Among the countries and states reported to be debating the law actively, or getting ready for implementation are South Africa, Croatia, Kenya, California, India (central government – several states already have them) and Victoria, Australia.

#### About the author:

Miguel Mendonça is a researcher for the World Future Council, working principally in the area of sustainability policies, and a freelance writer on environmental issues. He is the author of 'Feed-in Tariffs – Accelerating the Deployment of Renewable Energy'.