generating growth

by Matthias Machnig

When senior German executives were asked by a major economics newspaper to name the business with the greatest future potential, three quarters cited renewable energy. In the past two years, for example, 15 new solar module factories have gone into operation or been under construction in Germany — representing an investment of around 1 billion Euros. Meanwhile, at the new Alpha Ventus test site in the North Sea, German manufacturers are developing technologies to advance offshore wind energy use and are demonstrating the suitability of large-scale 5 megawatt wind turbines, which can also make important future contributions onshore.

All these are signs of the flourishing, innovation-friendly and dynamically growing renewable energy technology sector. It owes its current standing to a far-sighted energy policy which, in view of globally rising demand, is the best insurance against limited resources, climate threats and supply shortages.

Good renewable energy policy is characterised by reliability, consistency, flexibility, credibility and transparency — criteria the German Government is committed to meeting. As early as 1991 — 17 years ago — the Electricity Feed Act was established as one of the first systematic support instruments for renewable electricity. In 2000, the Renewable Energy Sources Act (EEG) followed; it distinguishes between the different sources and was recently evaluated and improved.

The EEG started a rapid development of renewable electricity generation, particularly from wind, solar and biomass energy sources. Within just 10 years its share of gross electricity consumption has almost tripled from around 5 to over 14 per cent. We have thus already far exceeded the 12.5 per cent target set by the European Commission for Germany for 2010.

Renewable energies have long ceased to be a niche product and are now a mainstay of the electricity industry. They also play a substantial role in other sectors, satisfying 6.6 per cent of our demand for heat and 7.6 per cent of our demand for fuel. We must continue on this successful course, for our goal is extremely ambitious. We aim to generate at least 30 per cent of our electricity from renewable sources in 2020, and to continue this growth: after 2030, they should account for more than half Germany's electricity supply.

This growth has a positive effect in combating climate change. In 2007, renewables in Germany saved over 115 million tonnes of CO_2 emissions from electricity generation, heat supply and transport. The EEG itself contributed savings of 57 million tonnes. This equals more than 7 per cent of Germany's emissions and amounts to 13 million tonnes more than in the previous year. We will increase this figure. In 2020 the EEG alone will save over 100 million tonnes of CO_2 emissions. The feed-in system for electricity from renewable energies is the only German policy instrument that can bring about such huge reductions in climate-damaging emissions. It is irreplaceable if we are to achieve a 40 per cent reduction in our total greenhouse gas emissions by 2020 over 1990 levels.

The EEG's recipe for success has four ingredients: guaranteed connection of all renewable energy installations to the electricity grid; priority purchase and distribution of the electricity they generate; fixed feed-in tariffs for the different types of renewables, generally laid down for 20 years; and, not least, the long-term, clear and reliable target for renewable energies' share of electricity consumption — which we have just raised from at least 20 to at least 30 per cent by 2020. Installers and manufacturers of renewable energy technologies confirm that the planning and investment security created by the EEG plays a major part in its success. Fixed feed-in tariffs carry a low risk, giving them an advantage over quota provisions combined with tradable certificates. This creates the conditions which enable investors to build new factories and power plants, for installation manufacturers to conduct intensive research and development and for banks to offer low-interest credits.

The European Commission confirmed this again in January 2008 when, comparing support instruments for renewable energies, it concluded that well-adapted feed-in regimes — like the EEG — are generally the most efficient and effective of them. So it is no wonder that Germany exports the EEG as well as wind turbines and solar modules: around 50 countries worldwide now have a similar system of feed-in tariffs.

Importantly, the Act was not intended to be a static set of provisions, but was aimed at encouraging innovations through sophisticated mechanisms to drive renewables rapidly up the economic learning curve. Degression rates, bonuses for especially innovative technologies and a regular review of the Act ensure its present and future effectiveness.

Innovation also means thinking about how we can best integrate renewable sources' rapidly growing share into the electricity system. We have fine tuned the feed-in management system that comes into play when there are bottlenecks in the grid. We are also developing different incentives to ensure that renewable energies not only provide electrical energy but can also take on other functions, such as voltage and frequency control and reactive power compensation or involvement in the balancing energy market. Storage, load management and the precise optimisation of the electricity grid infrastructure are also important. Progress in information and communication technologies now allows us to interconnect many decentralised generators and loads in a 'virtual combination power plant' whose technical properties are equal to a conventional large-scale power plant. We will intensify our support for this development to ensure that, in the long-term, modern renewable energy sources become the majority share of electricity supply.

Currently, the higher costs for renewable energies are paid by electricity consumers. In 2007 the additional purchase costs amounted to 4.3 billion euro — which, for an average German household, means additional costs of around 3 Euros per month. Even though these costs are set to rise moderately over the next couple of years during the continued expansion, renewable energies will be more cost-effective than conventional energy sources in around 10 years time. Then Germany will reap the rewards of its groundwork and benefit from annually increasing savings.

Our domestic economy is already profiting. The Euros invested reduce import dependency; renewable electricity gives us protection from fossil fuel prices which will continue to rise; and eco-power plants curb electricity prices on the stock exchange. We are, moreover, creating a favourable climate for a sector which had a total turnover of nearly 25 billion Euros in 2007, securing around 250,000 jobs — particularly in regions of eastern Germany most affected by structural change.

In a nutshell: climate protection is the most intelligent form of economic policy. It initially costs money, but ultimately leads to a genuine 'vorsprung durch technik' (head start through technology). The export market is gaining in importance, as many countries adopt ambitious expansion targets for renewable energies; the German wind sector's export quota now stands at 70 per cent. Although investments in new wind turbines in Germany have fallen, the companies which operate internationally have seen an increase in turnover thanks to the "first mover advantage".

The EEG can only be one component of our policy for the future. The Integrated Energy and Climate Programme, which we have developed in recent months and which, to a large extent, has already been legally implemented, comprises 29 measures: the new EEG; support programmes for heat from renewable energies; underground cabling to accelerate grid expansion and more stringent insulation stringent standards in buildings being just a few. We will strengthen electricity generation from climate-friendly combined heat and power plants and double our energy productivity by 2020, clearly showing that we are focusing on energy efficiency alongside renewables. With these two closely interlinked strategic elements we will continue along our chosen path to protect the climate. UNEP