Germany's Pricing Law

When the 1990s began, Germany had virtually no renewable energy industry and, in the view of most Germans, the country was unlikely ever to be in the forefront of these alternative energy sources. Yet, by the end of the decade, Germany had transformed into a renewable energy leader, with a new, multibillion-dollar industry and tens of thousands of new jobs.

Driven by growing public concerns about the safety of nuclear power, the security of energy supply, and environmental impacts including global climate change, the German government passed a new energy law in 1990 that required utilities to purchase the electricity generated from all renewable technologies in their supply area, and to pay a minimum price for it. The "Electricity Feed-in Law" was inspired in part by similar policies that had proved effective in neighboring Denmark.

The law has been adjusted numerous times since it entered into force in 1991. Most significantly, in 2000, the German Bundestag required that renewable electricity be distributed among all suppliers based on their total electricity sales, ensuring that no one region would be overly burdened. Additional technologies, such as geothermal power, were included under the new law. Also, with help from scientific input and the various renewable industries, the Bundestag established specific per kilowatt-hour payments for each renewable technology based on the real costs of generation. Electric utilities also qualify for these tariffs; a change that the government correctly expected would reduce utility opposition while further stimulating the renewable energy market.

The German Renewable Energy Act of 2000 set specific feed-in tariffs for various renewable energy technologies for a period of 20 years (high investment security), based on their generation cost and generation capacity. The aim is to secure pioneering markets for renewables, and to support technological learning through large-scale market introduction.

The law covers electricity from wind (on- and offshore), biomass plants of up to 20MW, photovoltaic, hydro and geothermal. Generally, the tariffs decrease for newly installed plants. The electricity from renewable energies is distributed proportionately amongst grid operators, according to the amount of electricity supplied to customers (flexible shares at the transmission system level). All electricity suppliers are obliged to purchase from their regional grid operator an equal share of electricity from renewable energy (flexible shares on the electricity supplier level).

Pricing is based on fixed norms unique to each technology, which in turn were based upon estimates of power production costs and expectations of declines in those costs over time. For example, wind power prices remained at the previous level of DM 0.17/kWh for plants commissioned in 2001, but only for the first five years of operation, after which prices paid declined. Solar PV prices were set initially at DM 0.99/kWh. All prices had build-in declines over time (i.e., 1.5% annual decreases in starting tariffs paid for wind power plants commissioned in subsequent years). This provision addressed one of the historical criticisms of feed-in approaches, which was that they did not encourage technology cost reductions or innovation. The new law's provisions for regular adjustments to prices addressed technological and market developments. The law also

distributed the costs of the policy (i.e., the additional costs of wind power over conventional power) among all utility customers in the country. This issue of burden sharing had become a significant political issue in Germany by 2000 because the old law placed a disproportionate burden on utility customers in specific regions where wind power development was heaviest.

So far, the Feed-in Tariffs have been a prominent success in massively increasing wind energy generation, and accelerating biomass and solar technologies. In 2004, the Law is being revised, covering also larger-scale hydro, and differentiating tariffs between biomass types, and size of plants. EU countries like Austria, Belgium, Denmark, France and Spain have adopted similar legislation, and Brazil (among other developing countries) is in the process of establishing a comparable scheme.

Germany also addressed the challenge of high initial capital costs of renewable energy through low-interest loans offered by major banks and refinanced by the federal government. The “100,000 Roofs” program, which expired in 2003 (and has since been replaced with higher PV tariffs), provided 10-year low-interest loans for PV installation. Income tax credits granted only to projects and equipment that meet specified standards have enabled people to take tax deductions against their investments in renewable energy projects. In addition, the federal and state governments have funded renewable resource studies on- and off-shore, have established institutes to collect and publish data, and have advanced awareness about renewable technologies through publications of subsidies and through architectural, engineering and other relevant vocational training programs.