

Germany Fact-Sheet (*Deploying Renewables: Principles for Effective Policies*)

Progress towards national renewable energy targets

Germany has made impressive progress towards its national targets and has surpassed them several years in advance, which is an unrivalled achievement worldwide:

2010 targets:

- Renewable electricity (RES-E): 12.5%; surpassed in 2007: at the end of 2007, 14.2%
- Share of RE in primary energy supply: 4.2%; surpassed in 2005
- Renewable transport fuels (RES-T): 5.75%; in 2006: 6.6% of road transport consumption

2020 targets (within overall CO₂ reduction targets established in 2007: 40% reduction by 2020 relative to 1990 levels):

- Renewable electricity (RES-E): minimum of 30%
- Renewable heat (RES-H) consumption: target first introduced in 2007: 14%
- Renewable transport fuels (RES-T): in April 2008, target reduced from about 17% by energy content to 12-15%

Effectiveness of Germany's renewable energy policies

Germany's substantial renewable energy market growth is supported by the IEA analysis of **renewable energy policy effectiveness**, which is elaborated in its newly launched publication *Deploying Renewables: Principles for Effective Policies*.

In terms of effectiveness, Germany was among the leaders from 2000 to 2005 in **wind onshore, biogas and solar PV** and performed moderately well in **solar hot water** production.

The IEA findings indicate that Germany is adhering to **four of the key policy design principles** in the design of its renewable energy policies - especially with the recent revisions to the Renewable Energy Law (EEG) – namely:

- The removal of non-economic barriers, such as administrative hurdles, obstacles to grid access, poor electricity market design, lack of information and training, and the tackling of social acceptance issues - with a view to overcoming them - in order to improve market and policy functioning;
- The need for a predictable and transparent support framework to attract investments;
- The introduction of transitional incentives, decreasing over time, to foster and monitor technological innovation and move technologies quickly towards market competitiveness; and
- The development and implementation of appropriate incentives guaranteeing a specific level of support to different technologies based on their degree of technology maturity, in order to exploit the significant potential of the large basket of renewable energy technologies over time.

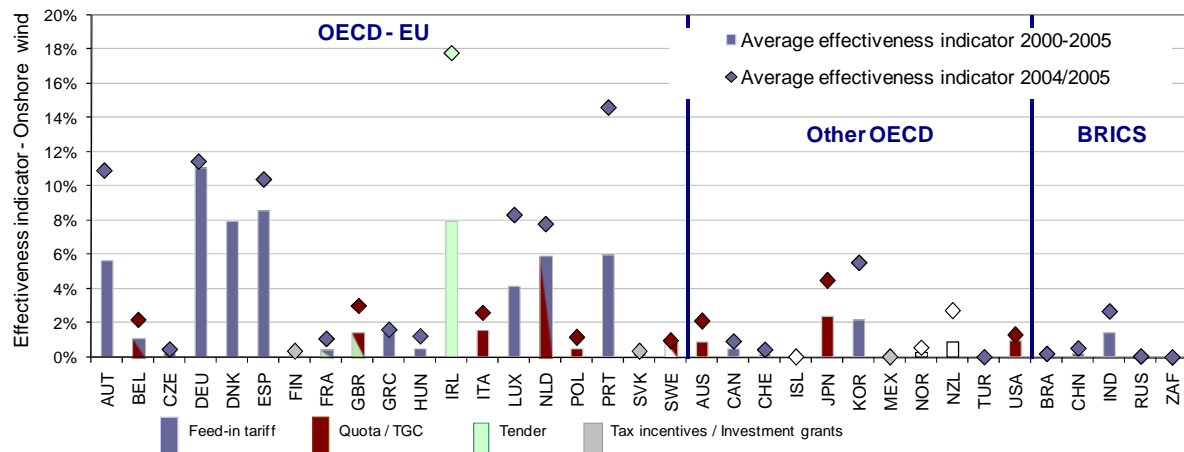
The challenge for Germany going forward in achieving its ambitious targets for 2020 is threefold:

- how to accommodate large amounts of variable renewables in the power system. This is the focus of the ongoing *dena Grid Study II*;

- continue monitoring technology improvements and reduce support accordingly over time progressively exposing more mature renewable energy technologies to market risk. This could be done in the next EEG law revision(s)and
- take into account sustainability criteria for the further development and deployment of bioenergy, and especially biofuels, which was initially addressed by a national Sustainable Biofuels Ordinance in 2007. The Ordinance has not yet entered into effect due to ongoing European Commission notification procedures and will be surpassed by the entry into force of the EU's Renewable Energy Directive. This was out of the scope of the current IEA analysis but will be taken into account in a follow-on phase of the IEA renewable energy market and policy analysis.

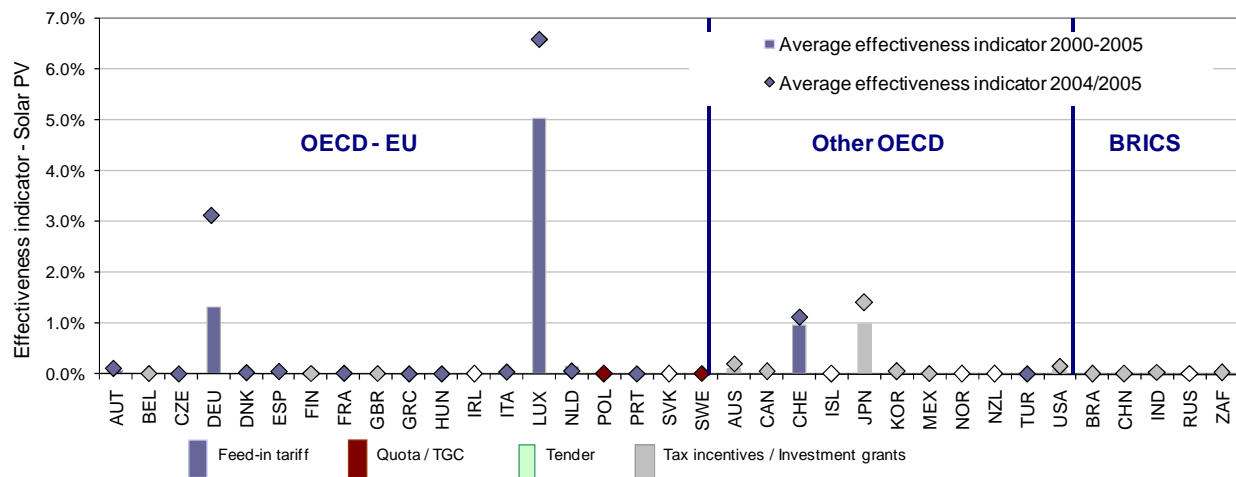
NOTE: The IEA analysis extends from 2000 to 2005. In the meantime, policy effectiveness in Germany, as in other countries, has improved further and new measures have been introduced for heating. These developments will be covered and refined in a follow-on Phase Two of the analysis.

Onshore wind: Average effectiveness 2000-2005 and average effectiveness 2004/2005 (by country)



Germany's success in deploying onshore wind stems from high investment stability guaranteed by the long term feed-in tariffs, an appropriate framework with low administrative and regulatory barriers, and relatively favourable grid access conditions. In 2005, the average remuneration levels in these countries were lower than those in countries applying quota obligation systems with tradable green certificates.

Solar photovoltaics (PV): Average effectiveness 2000-2005 and average effectiveness 2004/2005 (by country)



Feed-in tariffs - complemented by the easy availability of soft loans and fair grid access - have been very effective in Germany, albeit at a high cost. In recent years, the level of the German FIT for solar PV has decreased to some extent, and an element of degeneration¹ has been introduced. The German parliament has approved proposals for acceleration of degeneration rates for free-field sites from 5-6.5% per year in 2008 to between 9% and 11% from 2010 onwards depending on the size of annual market growth. This creates incentives to reduce costs, and hence foster innovation.

¹ Degeneration refers to a pre-determined (often annual) percentage decrease in the support level for a given renewable energy installation