Renewable Energy Use and Policy Targets in the EU

Increasing the use of renewable energy sources is one of the key goals of European environmental policy. Renewable energy includes various sources such as hydroelectricity, biomass, wind, solar and geothermal energy. Political efforts to promote a switch from fossil fuels to renewables have increased in recent years as a measure to reduce CO_2 emissions and slow down climate change. Adding renewables increases energy security by broadening the energy mix and reducing dependency on imported fuels. Also it is hoped that supporting demand for renewable energy will spur the creation of jobs, new technologies and increase competition in the long run.

In 1997 The European Commission set out a goal to increase the average share of renewable energy to 12 percent by the year 2010. Now, as a part of EU climate and energy policy (Directive 2009/28/EC), the aim is to drive renewable energy up to 20 percent by the year 2020. The new target is divided among the member countries as shown in the Table.

The share of renewable energy in gross final energy consumption in EU countries was 10.3 percent in 2008.[1] Final energy consumption comprises three sectors: heat production, electricity generation and transportation. Currently renewable energy is used more extensively in heat and electricity production. Renewable energy used in the transport sector amounts to only 3.5 percent (Eurostat 2010b).

Biomass and hydroelectricity are the most important sources of renewable energy. Currently other sources such as wind, solar, geothermal and marine energy make up only a marginal portion of supply; however, their use is growing fast (IEA 2010).

Hydro energy makes up of 60 percent of electricity generation from renewables. Wind energy and biomass generate 21 and 17 percent of renewable electricity, respectively. Of renewable heat energy 81 percent is generated from biomass, wood, waste and biogas. In the transport sector renewables comprise biogasoline and biodiesel that are blended with fossil fuels (Eurostat 2010b).

EU member countries use renewable energy at very different levels (Table). Differences between countries are due primarily to differences in the national endowment of resources. For example, in heat production Sweden, Finland and Latvia biomass is used extensively due to a large forest paper industry which generates wood, wood waste and other combustible

Table

Share of renewable energy in gross final energy consumption, in percent, 2006–2020

	2006	2007	2008	2020 target
Sweden	42.7	44.2	44.4	49.0
Finland	29.2	28.9	30.5	38.0
Latvia	31.3	29.7	29.9	40.0
Austria	24.8	26.6	28.5	34.0
Portugal	20.5	22.2	23.2	31.0
Estonia	16.1	17.1	19.1	25.0
Denmark	16.8	18.1	18.8	30.0
Lithuania	14.7	14.2	15.3	23.0
Slovenia	15.5	15.6	15.1	25.0
France	9.6	10.2	11.0	23.0
Spain	9.1	9.6	10.7	20.0
Bulgaria	9.3	9.1	9.4	16.0
Germany	6.9	9.0	8.9	18.0
Slovak Republic	6.2	7.4	8.4	14.0
Greece	7.2	8.1	8.0	18.0
Poland	7.4	7.4	7.9	15.0
Czech Republic	6.4	7.3	7.2	13.0
Italy	5.3	5.2	6.8	17.0
Hungary	5.1	6.0	6.6	13.0
Cyprus	2.5	3.1	4.1	13.0
Ireland	3.0	3.4	3.8	16.0
Belgium	2.7	3.0	3.3	13.0
Netherlands	2.5	3.0	3.2	14.0
United Kingdom	1.5	1.7	2.2	15.0
Luxembourg	0.9	2.0	2.1	11.0
Malta	0.1	0.2	0.2	10.0

The indicator is calculated on the basis of energy statistics covered by the Energy Statistics Regulation. It is an estimate of the relevant indicator described in Directive 2009/28/EC, as the statistical system for some renewable energy technologies has not yet been fully developed to meet the requirements of this Directive. However, the contribution of these technologies is at the moment rather marginal.

The indicator presented is calculated with "SHARES", an informatics application developed by Eurostat and the national energy statistics authorities for the calculation of renewable energy shares on the basis of detailed national energy statistics covered by the Energy Statistics Regulation. This application was also used to transmit to Eurostat additional information (where available) required for the calculation of renewable energy indicators not covered by the Statistical Regulation.

Source: CESifo DICE Database, data from Eurostat, Data in Focus 30/2010, Luxembourg.

[1] Gross final energy consumption is defined in Directive 2009/28/EC as the sum of final energy consumption, i.e., energy delivered to industry for manufacturing processes, to the transport sector, including international aviation, and to other sectors (households, services, agriculture, etc.); consumption of electricity and heat by the energy branch for electricity and heat generation (own use by plant); and losses of electricity and heat in transmission and distribution (Eurostat 2010b).

fuels. In electricity generation Sweden and Austria benefit from hydro energy. Typically biomass and hydro energy are very cost effective so they are used where available.

Some countries have advanced towards their targets by adapting new technologies early, but nevertheless their share of renewables remains modest. For example Denmark, France, and Germany have invested heavily in wind power, but as it comprises only a small part of total energy consumption, these countries show only an average ranking among member countries (Table).

Renewable energy use varies considerably from year to year. From the Table we can see that despite policies to increase the use of renewables, some countries have experienced drops in their share of renewables. Some of this variation can be explained simply by changes in weather. For example precipitation affects river flows and therefore the availability of hydroelectricity.

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References

Eurostat (2010a), *Data in Focus 30/2010*, Luxembourg.

Eurostat (2010b), *Data in Focus 58/2010*, Luxembourg.

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