

Memo

Report on follow-up to the Directive on the promotion of electricity produced from renewable energy sources in the internal electricity market

In pursuance of Article 3 of Directive 2001/77/EC of the European Parliament and of the Council of 27 September 2001 on the promotion of electricity produced from renewable energy sources in the internal electricity market, Member States must publish a report on national indicative targets for future consumption of electricity produced from renewable energy sources not later than 27 October 2002. The report must also outline measures taken or planned at national level to achieve these national indicative targets. In setting these targets until the year 2010, Denmark must take account of the reference values in the Annex of the Directive and ensure that the targets are compatible with Denmark's commitments under the Kyoto Protocol and the EU Burden Sharing Agreement.

Consumption of electricity produced from renewable energy sources in 2001

Table 1 shows that in the period 1994-2001 the percentage of electricity produced from renewable energy sources increased from almost 6% to just over 17% of gross consumption.

Wind power contributes the largest share in relation to other renewable energy sources. 2001 was a relatively bad year for wind, table 1 shows the actual production. During a year with normal wind conditions, production would be about 1000 GWh higher and the percentage of electricity produced from renewable energy sources would be about 20%.

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Table 1. Electricity produced from renewable energy sources in Denmark 1994-2001

Units: GWh	1994	1995	1996	1997	1998	1999	2000	2001
Wind power	1 137	1 177	1 227	1 934	2 820	3 029	4 242	4 299
Hydropower	33	30	19	19	27	31	29	29
Straw + wood	198	205	295	314	387	505	387	550
Biogas	89	112	113	158	190	197	208	214
Waste ¹	408	473	602	647	666	825	947	1007
Total from RE	1 865	1 998	2 256	3 072	4 090	4 586	5 813	6 099
Gross consumption	33 010	33 766	35 526	34 633	34 895	34 710	35 111	35 570
Percentage from RE	5.7%	5.9%	6.3%	8.9%	11.7%	13.2%	16.6%	17.1%

Source: *Energy Statistics 2001*, Danish Energy Authority

Measures to encourage production of electricity from renewable energy sources in Denmark.

The most important measures to encourage production of electricity from renewable energy sources in Denmark are mentioned below.

a: Wind power.

The main incentive for the establishment of wind power is the settlement price of electricity supplied to the national grid. Until 1999, the main rule was that wind turbines received settlement prices at 85% of the electricity price for household consumers, excluding charges and with a deduction for administrative costs. Furthermore, there was a public subsidy for electricity production of DKK 0.27 per kWh. On the introduction of the Danish Electricity Reform of 1999, this was changed to fixed settlement prices that reflect the date of erection of the wind turbine. The fixed settlement prices are now paid by all electricity consumers proportionally through the price of electricity.

Wind turbines erected after 1 January 2003 receive the market price plus DKK 0.10 per kWh as compensation for a RE certificate.

The first two large offshore wind parks, each of about 150 MW, are under construction. Further development of offshore wind parks will proceed through a tendering procedure. The conditions for this have not yet been decided.

¹Only the biodegradable fraction of products for waste is included, cf. Article 2(b) of the RE Directive. The biodegradable fraction is estimated to be 80% of total amount of waste, measured by energy content.

On completion of expected on-shore wind turbine developments and the two aforementioned offshore wind parks, electricity production from wind energy is expected to increase to 7.4 TWh in 2004 in a year of normal wind conditions. This is the equivalent of about 20% of gross consumption; an increase of 8 percentage points in relation to 2001. About 3 percentage points of the increase are due to the fact that 2001 was a poor year in terms of wind.

b. Hydropower.

Hydropower accounts for a minimal amount of electricity production. No changes are expected here.

c. Straw and wood.

In 1993 a political agreement was made to increase electricity production from straw and wood. From 2000, 1.4mill. tonnes of straw and wood are to be used annually for electricity production. Realisation of the agreement has been delayed by about four years. In the period up to 2004, an increase of 3-4 percentage points in electricity production from straw and wood is expected compared to 2001.

As a rule electricity produced from straw and wood receives a fixed settlement price of DKK 0.30 per kWh for 10 years. In addition there is DKK 0.10 per kWh in compensation for an RE certificate.

d. Biogas.

From 2001 to 2004, an increase is expected in electricity production from biomass of 0.2 percentage points as a result of projects already initiated.

Biogas-based electricity receives an electricity settlement price based on avoided cost as well as an electricity production subsidy of DKK 0.27 per kWh. In addition to this there is the possibility of a construction subsidy for biogas plants.

e. Waste.

A number of waste incineration plants have been converted from being solely heat producing to combined heat and power plants. This development has been primarily carried out in connection with municipal planning for heat production under the Heat Supply Act. Four combined heat and power waste incineration plants are under construction. Up to 2005, these are expected to increase the share of renewable energy by about 330 GWh or approximately 1 percentage point.

Waste incineration plants with electricity production receive a settlement price based on avoided cost plus a public electricity production subsidy, which at present is DKK 0.07 per kWh.

f. Other measures.

Work is currently being carried out on the introduction of guarantees of origin for electricity produced from renewable energy.

Indicative targets up to 2010.

On completion of the programmes already initiated it is expected that the share of electricity from renewable energy will increase from about 17% in 2001 to 29% in 2004/2005. This is the Danish indicative target stipulated in the Directive.

This estimate is based on unaltered terms of settlement for plants already decided upon, as well as unaltered consumption of electricity. If electricity consumption increases, production of electricity from renewable energy sources should rise correspondingly.

At present, the Danish government is drafting a basis for decisions to meet Danish climate-related obligations in a cost-effective manner. In relation to this, the framework for the future development of renewable energy sources is to be discussed. The basis for decisions is expected to be completed by around 1 December 2002. Among other things, consideration will be given to initiatives taken on national measures, further expansion of renewable energy, and the use of flexible mechanisms. It is therefore not possible at present to be more specific about the expected initiatives for renewable energy, apart from the measures which have already been taken.