

## MEMORANDUM

11 June 2015

### Denmark's annual reporting under Article 24(1) of the Energy Efficiency Directive

Denmark's indicative target under Article 3 is an absolute primary energy consumption (gross energy consumption excluding consumption for non-energy purposes) of **741.08 PJ (17.70 Mtoe)** in 2020. This equates to a 13 % reduction in primary energy consumption compared with 2006.

The corresponding target for final energy consumption (excluding consumption for non-energy purposes) is **610.4 PJ (14.58 Mtoe)** in 2020.

Denmark's indicative target for absolute primary energy consumption has been reduced by 3.32 PJ compared with the target previously notified in accordance with Article 3(1). The new figures are based on an updated projection for energy and climate, which was published by the Danish Energy Agency in 2014. The changes to the energy consumption projection are largely due to the significant expansion of wind power at sea in Denmark, which has led to a reduction in energy consumption for electricity generation and district heating purposes.

The indicative target is derived from the Danish Energy Agency's 2014 baseline projection for energy consumption. The baseline projection takes account of the effects of adopted measures, which in this context are the 2012 Energy Agreement, the Finance Acts up to and including the 2014 Finance Act, the Danish Growth Plan and the 2014 Growth Package, including the Agreement on the abolition of the security of supply charge, etc. and on PSO (Public Service Obligation) reductions.

Furthermore, the Danish Energy Agency's baseline projections are consistently based on a number of general economic assumptions. The assumptions concerning economic growth are based on Denmark's Convergence Program published in April 2014, while those concerning new energy plants are derived from the Danish Energy Agency and Energinet.dk's technology catalogues named 'Technology Data for Energy Plants'. As regards fuel prices, the projection is based on the International Energy Agency's latest trajectory for fossil fuel prices, which appears in the World Energy Outlook 2013 (New Policies Scenario).

The baseline projection, including the models used, assumptions and results, is described in more detail in:

- *Danmarks energi- og klimafremskrivning 2014* [Denmark's Energy and Climate Baseline Projection 2014]  
[http://www.ens.dk/sites/ens.dk/files/dokumenter/publikationer/downloads/danmarks\\_energi\\_og\\_klimafremskrivning\\_2014.pdf](http://www.ens.dk/sites/ens.dk/files/dokumenter/publikationer/downloads/danmarks_energi_og_klimafremskrivning_2014.pdf)

The data to be reported pursuant to Annex XIV is shown in the table below. It is in line with the figures reported to Eurostat.

<b>a) an estimate of the following indicators in the year before last (year X-2):</b>		<b>2011</b>	<b>2012</b>	<b>2013</b>
i. primary energy consumption (gross energy consumption)	Adjusted, PJ	805	782	763
ii. total final energy consumption (including for non-energy purposes)	Adjusted, PJ	638	613	607
iii. final energy consumption by sector:				
industry (manufacturing)	Adjusted, PJ	96	92	89
transport (broken down into passenger and freight transport, if available)	Adjusted, PJ	210	205	202
households	Adjusted, PJ	194	184	183
services (trade and service industries)	Adjusted, PJ	83	82	82
iv. gross value added by sector:				
industry (manufacturing, excluding refineries)	Fixed 2010 prices DKK billion	207	218	225
services (trade and service industries)	DKK billion	1204	1190	1195
v. disposable income of households (gross income)	DKK billion, 2005 prices	781	777	779
vi. gross domestic product	DKK billion, 2010 prices	1919	1807	1799
vii. electricity generation from thermal power generation	PJ	92	74	85
viii. electricity generation from combined heat and power	PJ	58	55	52
ix. heat generation from thermal power generation	PJ	132	136	135
x. heat generation from combined heat and power plants, including industrial waste heat	PJ	101	99	98
xi. fuel input for thermal power generation	PJ	265	225	248
xii. passenger kilometres (pkm), if available	million passenger-kilometres	78 567	77 729	78 076
xiii. tonne kilometres (tkm), if available	million kilometres <sup>1</sup>	48 955	49 097	49 430
xiv. combined transport kilometres (pkm + tkm), in case (xii) and (xiii) are not available				
xv. population (Jan 2011) (in thousands)		5561	5581	5603

Source: *Energistatistik 2013* [Energy Statistics 2013], Statistics Denmark, Danish Road Directorate

<sup>1</sup> It has only been possible to obtain figures in millions of kilometres. The calculation has changed from the figures reported in 2014. Source: Danish Road Directorate

## **Analysis of energy consumption trends**

Adjusted gross energy consumption was 763 PJ in 2013 (including consumption for non-energy purposes), which is 2.4 % lower than in 2012. Compared with 1990, consumption fell by 6.9 %. Energy consumption in Denmark is now at the same level as at the beginning of the 1980s. At the same time, there has been a drop in the level of economic activity measured in terms of gross domestic product (GDP), meaning that energy efficiency improved 2 % in 2013. As a result of improvements made in energy efficiency in recent decades, each unit of GDP required 33.2 % less energy in 2013 than in 1990.

The greatest changes from 2012 to 2013 as shown in the table above relate to electricity generation from thermal power generation and fuel input for thermal power generation. The changes from 2012 to 2013 are due primarily to changes in electricity imports: given that the level of electricity imports was lower in 2013 than in 2012, the level of electricity production in Denmark increased accordingly.

In general, there is increased use of special wind power in the Danish energy system, the consequences of which include reduced energy consumption for electricity generation and district heating purposes.

## **Update on measures implemented in the previous year**

### **Strategy on the energy renovation of buildings**

The Danish government launched a strategy on the energy renovation of buildings in spring 2014. The strategy follows up on the 2012 Energy Agreement and Article 4 of the Energy Efficiency Directive. The aim of the strategy is to promote savings in energy used for heating and hot water in the existing building stock, which currently accounts for 35 % of total final energy consumption in Denmark. The strategy includes 21 initiatives geared towards energy efficiency in all parts of the building stock. The government expects the initiatives to result in a 35 % reduction in net energy consumption in the existing building stock between now and 2050.

### **Abolition of the security of supply charge**

In July 2014, a partial agreement was concluded on the abolition of the security of supply charge and on PSO reductions for businesses. The partial agreement modifies some elements of the Energy Agreement of March 2012, in which the security of supply charge was agreed. The security of supply charge was to be phased in gradually by 2020 as an energy charge on all fuels used for heating purposes. As part of the CO<sub>2</sub> compensation for this partial agreement, it was agreed in the 2014 Finance Act to set up the Secretariat for energy savings in private undertakings. The aim of the Secretariat is to focus on energy savings, particularly in SMEs. In addition to the Energy-Saving Secretariat, DKK 185 million was to be set aside each year from 2015 to 2020 for a support scheme intended to subsidise undertakings' PSO payments. The scheme is targeted at electricity-intensive undertakings. The subsidy scheme is combined with an agreement-based scheme under which eligible businesses undertake to implement energy efficiency measures by means of agreements with the Danish Energy Agency.

## **Central government buildings**

### **Total floor area**

As there is uncertainty surrounding the floor area of government buildings, we have launched a quality assurance exercise on data concerning the central government's buildings portfolio, focusing on the base data for the circular on energy efficiency through which Article 5 of the Energy Efficiency Directive is partly implemented. It has not been possible to calculate the floor space not meeting the energy performance requirements set out in Article 5(1) of the Energy Efficiency Directive with greater accuracy than in the 2014 report. We expect to be able to submit an updated overview at the end of 2015.

### **Development of the central government's energy consumption**

Denmark has notified the Commission that Article 5 of the Energy Efficiency Directive will be implemented using the alternative approach. Point (d) provides for a calculation of the amount of energy savings in eligible buildings owned and occupied by the central government – cf. Article 5(6). The central government's energy consumption is notified to the central 'Energy savings in state institutions' database, which forms the basis for a yearly calculation of the total energy consumption in central government buildings. The database includes the central government's entire buildings portfolio, including buildings covered by Article 5(2) (e.g. listed buildings and buildings serving national defence purposes) which, pursuant to the Directive, may be exempted from the requirements set under Article 1. From 2012 to 2013, the central government's energy consumption increased by 29 196 MWh or 1.43 %. There is uncertainty surrounding the underlying data used in that calculation. The central government's 2014 energy consumption will be calculated in October 2015.

## **National energy efficiency obligation schemes**

Denmark has chosen to meet its Article 7 obligations exclusively through the use of energy efficiency obligations. The obligations are part of the Energy Policy Agreement of March 2012 and have been laid down up to 2020 through the Agreement of 14 November 2012 between the Minister for Climate, Energy and Building and grid and distribution companies.

In 2013 and 2014, the annual target for the Danish energy efficiency obligations was 10.7 PJ, which corresponds to 2.6 % of energy end use. The annual target for the 2015-2020 period has been set at 12.2 PJ, which corresponds to 3.0 % of energy end use.

The proportion of energy savings achieved through the national energy efficiency obligation schemes is indicated in the reports for 2013 and summarised in Table 1. Table 1 shows that grid and distribution companies achieved overall savings corresponding to 78 % of their average annual savings target for 2013. The breakdown by sector shows that, in 2013, oil and district heating companies achieved 59 % and 73 % respectively of their annual savings target. Natural gas companies achieved 96 %, while electricity companies, which account for approximately 42 % of the total savings target, achieved 76 % of their average annual savings target.

**Table 1: Energy companies' total reported savings for 2013**

(TJ)	Annual savings target 2013-2014	Reported savings for 2013	Target achievement for 2013
Electricity companies	4 500	3 446.3	76 %
Natural gas companies	2 000	1 933.5	96 %
District heating companies	3 700	2 702.4	73 %
Oil companies	500	295.0	59 %
<b>Total</b>	<b>10 700</b>	<b>8 377</b>	<b>78 %</b>

Grid and distribution companies have been subject to an energy efficiency obligation since 2006 by virtue of the Agreement of 22 August 2006 and the Agreement of 20 November 2009. In the two previous agreement periods, the companies more than met their targets. They did this to such a great extent that – despite falling in total 22 % short of their targets in 2013 – the total target for 2014 was still exceeded by 38 % (see Table 2 below). As every sector more than met its targets, there are none that failed to fulfil their energy efficiency obligations.

**Table 2, Accumulation of savings achieved during the period 2006-2013**

(TJ)	2006-2009		2010-2012		2013		Total		Status as at 1.1.2014	Status as at 1.1.2014
	Savings target	Reported savings	Savings target	Reported savings	Savings target	Reported savings	Total savings target	Total reported savings	Overachievement in TJ	% of savings target
Electricity companies	5 600	6 077	8 700	10 506	4 500	3 446	18 800	20 030	1 231	27 %
Natural gas companies	2 000	2 235	3 300	3 984	2 000	1 933	7 300	8 153	852	43 %
District heating companies	3 600	4 477	5 700	7 791	3 700	2 702	13 000	14 970	1 971	53 %
Oil companies	450	465	600	820	500	295	1 550	1 580	29	6 %
<b>Total</b>	<b>11 650</b>	<b>13 254</b>	<b>18 300</b>	<b>23 101</b>	<b>10 700</b>	<b>8 377</b>	<b>40 650</b>	<b>44 732</b>	<b>4 083</b>	<b>38 %</b>