December 2013

Danish report under Directive 2009/28/EC concerning progress in the use and promotion of energy from renewable sources

Introduction

Article 22 of Directive 2009/28/EC requires Member States to submit a report to the Commission on progress in the promotion and use of energy from renewable sources by 31 December 2011, and every two years thereafter.

This report is the second Danish submission and follows the template prepared by the Commission for this purpose. The template comprises a series of questions from 1-12, with accompanying tables and guideline text in italics.

The Danish Renewable Energy Action Plan was submitted to the Commission in June 2010. This action plan was most recently updated through the Energy Policy Agreement of 22 March 2012, which sets out specific energy policy initiatives through to 2020. This agreement is enclosed as Annex 1. This progress report contains a description of the situation in 2011 and 2012. The figures have thus been calculated for the 2011 and 2012 calendar years, and the information contained in the report focuses on the period up to and including 2013. This report updates the Renewable Energy Action Plan and the implementation of this plan, partly through the Energy Policy Agreement of 2012.

All figures have been calculated in the same way as in the Danish Renewable Energy Action Plan, i.e. in Ktoe, MW, GWh, etc., as required by the Commission. In addition, the figures are also presented in TJ.

1. Sectoral and overall shares and actual consumption of energy from renewable sources <u>in the preceding 2 years</u> (n-1; n-2 e.g. 2010 and 2009) *(Article 22(1)(a) of Directive 2009/28/EC)*.

*Please fill in the actual shares and actual consumption of renewable energy **<u>for the preceding 2 years</u>** in the suggested tables.*

Table 1: The sectoral (electricity, heating and cooling and transport) and overall shares of energy from renewable sources[1]

	2011	2012
Renewable energy sources for heating and cooling[1] %	31.77	33.32
Renewable energy sources for electricity[2] %	35.88	38.69
Renewable energy sources for transport[3] %	3.76	5.80
Total renewable energy sources[4] %	23.99	25.97
Of which from cooperation mechanism[5] %		
Surplus for cooperation mechanism[6] %		

<u>Notes to figures in tables 1, 1a, 1d and 4</u>

The use of biofuels in the transport sector and of liquid biofuels in the electricity and heating sector must be sustainable within the meaning of the RE Directive in order to be included. It has not been verified whether the use of liquid biofuels (bio-oils) in the electricity and heating sector is sustainable. Liquid biofuel is therefore not included in tables 1, 1a, 1d and 4.

As regards undertakings that are covered by quotas, if the CO_2 emission factor for liquid biofuels is to be set to zero, sustainability would have to be documented from 2013 onwards. However, it is believed that the total quantities will be very small.

With regard to biofuels for transport, the sustainability criteria in the RE Directive have been implemented in Danish legislation since 1 January 2010. The companies bound by the legislation introduced a minimum of 0.55 % sustainable biofuels into the transport sector in 2010. In 2011, the mixing requirement was increased to 3 % and in 2012 to 5.75 % (based on energy content).

If liquid biofuels had been included in table 1, the total RE share would have been around 0.1 percentage points higher.

Renewable energy sources for heating and cooling include an estimate for RE from heat pumps in tables 1, 1a, 1c and 1d.

[1] Facilitates comparison with Tables 3 and 4a of the NREAPs.

Table 1a: **Calculation table for the renewable energy contribution of each sector to final energy consumption (Ktoe)[2]**

Ktoe/year	**2011**	**2012**
A) The gross final energy consumption of renewable energy sources for heating and cooling	**2 470.0**	**2 571.6**
B) Gross final consumption of electricity from RES	**1 117.9**	**1 184.8**
C) Gross final consumption of energy from RES in transport	**143.2**	**213.0**
D) Gross total RES consumption[2]	**3 731.1**	**3 969.4**
E) Transfer of RES to other Member States		
F) Transfer of RES from other Member States and 3rd countries		
G) RES consumption adjusted for target (D)-(E)+(F)		

PJ/year	**2011**	**2012**
A) The gross final energy consumption of renewable energy sources for heating and cooling	**103.4**	**107.7**
B) Gross final consumption of electricity from RES	**46.8**	**49.6**
C) Gross final consumption of energy from RES in transport	**6.0**	**8.9**
D) Gross total RES consumption	**156.2**	**166.2**
E) Transfer of RES to other Member States		
F) Transfer of RES from other Member States and 3rd countries		
G) RES consumption adjusted for target (D)-(E)+(F)		

[2] In accordance with Article 5(1) of Directive 2009/28/EC, gas, electricity and hydrogen from renewable energy sources are only taken into consideration once. Double counting is thus not allowed.

***Table 1.b*: Total actual contribution (installed capacity, gross electricity generation) from each renewable energy technology in Denmark to meet the binding 2020 targets and the indicative interim trajectory for the shares of energy from renewable resources in electricity[4]**

	2011		**2012**	
	MW	**GWh**	**MW**	**GWh**
Hydro[1]:	**9**	**22.1**	**9**	**22.1**
- Non-pumped	9	22.7	9	21.5
- < 1MW	5	9.9	6	11.7
- 1MW-10MW	4	12.8	3	9.8
- > 10MW	-	-	-	-
- pumped	-	-	-	-
- mixed[2]	-	-	-	-
Geothermal	-	-	-	-
Solar:	**17**	**15**	**399**	**103.9**
- photovoltaic	17	15	399	103.9
- concentrated solar power	-	-	-	-
Tide, wave, ocean	-	-	-	-
Wind	**3 952**	**8 699.5**	**4 163**	**9 333.2**
- onshore	3 081	6 747	3 241	7 270
- offshore	871	1 952	922	2 062
Biomass[3]	**988**	**3 426.0**	**1 236**	**3 554.0**
- solid biomass	921	3 077.7	1 156	3 175.8
- biogas	77	348.3	80	378.2
- bioliquids	-	0	-	0
TOTAL	**4 976**	**12 162.6**	**5 807**	**13 013.3**
- Of which in CHP	988	3 424.2	1 236	3 551.5

***Table 1c*: Total actual contribution (final energy consumption[5]) from each renewable energy technology in Denmark to meet the binding 2020 targets and the indicative interim trajectory for the shares of energy from renewable resources in heating and cooling (Ktoe)[6]**

Ktoe/year	**2011**	**2012**
Geothermal (excluding low temperature geothermal heat in heat pump applications)	2	3.4
Solar	18.8	29.9
Biomass:	1 987.2	2 079.7
- Solid biomass	1 941.4	2 029.7
- biogas	45.8	50.0
- Liquid biogas	**0.0**	**0.0**
Renewable energy from heat pumps:	**115.4**	**116.6**
- of which aerothermal - of which geothermal - of which hydrothermal	**59.6** **55.8** **0.0**	**60.7** **55.9** **0.0**
TOTAL	**2 123.5**	**2 229.7**
- Of which DH	1 185	1 301
- Of which biomass in households	856.7	848.4

PJ/year	**2011**	**2012**
Geothermal (excluding low temperature geothermal heat in heat pump applications)	0.1	0.1
Solar	0.8	1.3
Biomass:	83.2	87.1
- Solid biomass	81.3	85.0
- biogas	1.9	2.1
- Liquid biogas	**0.0**	**0.0**
Renewable energy from heat pumps: - of which aerothermal - of which geothermal - of which hydrothermal	**4.8** **2.5** **2.3** **0.0**	**4.9** **2.5** **2.3** **0.0**
TOTAL	**88.9**	**93.4**
- Of which DH	49.6	54.5
- Of which biomass in households	35.9	35.5

Table 1.d: **Total actual contribution from each renewable energy technology in Denmark to meet the binding 2020 targets and the indicative interim trajectory for the shares of energy from renewable resources <u>in the transport sector</u> (Ktoe)[3] [4]**

Ktoe/year	**2011**	**2012**
Biofuels[5]	134.1	203.7
Hydrogen from renewable sources		
Electricity from renewable sources	**13.2**	**18.1**
- of which road transport	-	-
- of which other forms of transport	13.2	18.1
Others (biogas, vegetable oils, etc.) – further specified	-	-
- of which biofuels [5] cf. Article 21(2)	-	-
Total	**147.3**	**221.8**

PJ/year	**2011**	**2012**
Biofuels*	5.6	8.5
Hydrogen from renewable sources		
Electricity from renewable sources	**0.6**	**0.8**
- of which road transport		-
- of which other forms of transport	0.6	0.8
Others (biogas, vegetable oils, etc.) – further specified	-	-
- of which biofuels [5] cf. Article 21(2)	-	-
Total	**6.2**	**9.3**

* Details cannot be given for confidentiality reasons.

[3] With regard to biofuels and liquid biofuels, only those that comply with the criteria for sustainability, cf. the last subparagraph of Article 5(1) of Directive 2009/28/EC, have been taken into consideration.
[4] Facilitates comparison with Table 12 of the NREAPs.
[5] The connection via wind turbines on Kriegers Flak has been politically approved and applied for with a view to commissioning before 2020; Article 4.1 of the Energy Policy Agreement (Annex 1).

2. Measures taken and/or planned <u>in the preceding 2 years</u> at national level to promote the growth of energy from renewable sources taking into account the indicative trajectory for achieving the national RES targets as outlined in your National Renewable Energy Action Plan. *(Article 22(1)(a) of Directive 2009/28/EC)*

See table 2 at the end of this report

2.a Please describe the progress made in evaluating and improving administrative procedures to remove regulatory and non-regulatory barriers to the development of renewable energy. (Article 22(1)(e) of Directive 2009/28/EC).

In connection with the legislative implementation of the Energy Policy Agreement dating from 2012 (Annex 1), another review was carried out of existing rules which could represent an obstacle to the development of energy from renewable energy sources.

A particular focus was placed on the four schemes which were introduced through the Act on the promotion of renewable energy in 2008, which were aimed at promoting acceptance of wind turbine erection in local areas. This concerns the value loss scheme involving payments for the loss in value of real property as a result of the erection of wind turbines in the local area, the purchasing rights scheme involving an obligation to offer at least 20 % of shares in a wind turbine project to local residents (see section 3.0.4), the guarantee scheme supporting the financing of preliminary investigations by local wind turbine committees, and the green scheme supporting projects that benefit the local landscape and recreational opportunities.

The schemes were evaluated in 2011. This evaluation showed that a number of changes were needed as regards the value loss scheme and the purchasing rights scheme with the aim of ensuring that the schemes are able to fulfil their purpose. These changes have now been incorporated in the Act on the promotion of renewable energy through a legislative amendment in spring 2013. The scope of the purchasing rights scheme was expanded at the same time to cover coastal offshore wind turbines.

2.b Please describe the measures in ensuring the transmission and distribution of electricity produced from renewable energy sources and in improving the framework or rules for bearing and sharing of costs related to grid connections and grid reinforcements. *(Article 22(1)(f) of Directive 2009/28/EC)*.

Denmark has a tradition of safeguarding the transparent and non-discriminatory connection of renewable energy installations to the electricity transmission grid. This area has been regulated since 1986 and is updated on an ongoing basis. Danish legislation implements Article 16 of the RE Directive concerning access to and operation of the grids.

<u>Plans for increased connections with neighbouring countries</u>

- The connection between Jutland and Germany is being upgraded.
- The Cobra connection to Holland is being studied.
- The 700 MW Skagerrak 4 connection to Norway is under construction and is expected to be operational in 2014.

<u>Intelligent and flexibly priced electricity consumption</u>
The Minister for Climate, Energy and Building has published a smart grid strategy (see Annex 1, article 4.2). Flexible consumption is expected to become increasingly important in

the future. The volume is currently very small. This is primarily because of the industry structure in Denmark, with its lack of energy-intensive industry, with the result that measures on the consumption side will not necessarily be any cheaper than measures on the generation side.

Criteria for downward adjustment

Energinet.dk is responsible for operation of the contiguous electricity supply system and for maintaining a balance and supply reliability in the grid. Energinet.dk maintains a balance in the grid by making adjustments (upwards or downwards) to electricity generation at power stations that are connected to the grid.

As noted in Article 4.2.7(b) of the RE Action Plan, downward adjustment in the case of power stations that use renewable energy sources can only take place subject to certain special conditions. The criteria for downward adjustment are also handled by the authorities. Formerly, competence was shared between the Danish Energy Regulatory Authority and the Danish Energy Agency. As referred in Article 4.2.7(d) of the RE Action Plan, this was expected to be altered so that the Danish Energy Regulatory Authority alone was responsible for the task. This took place through Act No 466 of 18 May 2011 amending the Electricity Supply Act, the Natural Gas Supply Act, the Heating Supply Act, the Energinet.dk Act and the Act on the promotion of renewable energy.

Provisions concerning reporting in the event of important measures to limit renewable energy sources and the specification of rectification measures are set out in Order No 891 of 17 August 2011 on transmission system operation and the use of the electricity transmission grid, etc.

Responsibility for and distribution of costs in connection with grid connection and grid reinforcement/expansion

The circumstances are regulated in Order No 1063 of 7 September 2010 on the connection of wind turbines to the grid and premiums for wind turbine-generated electricity, etc. Owners of wind turbines must pay connection costs through to a certain specified connection point. All costs for grid reinforcement/expansion are covered by the grid and transmission undertakings.

The Order also contains provisions which require grid and transmission undertakings to give wind turbine owners that request a grid connection all the necessary information, including a detailed estimate of all expenses that would be entailed in the connection process, a reasonable and accurate schedule for receipt and processing of the application for grid connection and a reasonable schedule for the grid connection itself.

In the case of power stations that use renewable energy sources other than wind turbines, such an information provision is laid down in Order No 1335 of 2 December 2010 amending the Order on conditions and procedures for the granting of permission to establish new electricity generation stations and important modifications to existing stations.

In connection with future tendering rounds for coastal turbines, the Danish Energy Agency is currently considering the provisions relating to payments for any increase in voltages through transformation. There is not considered to be any reason to consider the distribution of other costs associated with grid connection, grid reinforcement and grid development.

3. Please describe the support schemes and other measures currently in place that are applied to promote energy from renewable sources and report on any developments in the measures used with respect to those set out in your National Renewable Energy Action Plan. *(Article 22(1)(b) of Directive 2009/28/EC)*.

The Commission reminds Member States that all national support schemes must respect the state aid rules as foreseen in Articles 107 and 108 of the Treaty on the Functioning of the EU. The notification of the report in accordance with Article 22 of Directive 2009/28/EC does not replace a state aid notification in accordance with Articles 107 and 108 of the Treaty on the Functioning of the EU.
*It is suggested that **Table 3** is used to provide more detailed information on the support schemes in place and the support levels applied to various renewable energy technologies. Member States are encouraged to provide information on the methodology used to determine the level and design of support schemes for renewable energy.*

***Table 3*: Support schemes for renewable energy**

RES support schemes year n (e.g. 2011)			**Per unit support**	**Total (MEUR)***
[(sub) category of specific technology or fuel]				
Instrument (provide data as relevant)	Obligation/quota (%)			
	Penalty/Buy out option/ Buy out price (EUR/unit)			
	Average certificate price			
	Tax exemption/refund			
	Investment subsidies (capital grants or loans) (EUR/unit)			
	Production incentives			
		Feed-in tariff		
		Feed-in premiums		
		Tendering		
Total annual estimated support in the electricity sector				
Total annual estimated support in the heating sector				
Total annual estimated support in the transport sector				

***** The quantity of energy supported by the per unit support gives an indication of the effectiveness of the support for each type of technology

The requested description of support schemes and other measures can been found in the following, under Section 3.0 (3.01.-3.08.).

3.0.1 Financial support

The financial support for electricity generation based on renewable energy is laid down in the Act on the promotion of renewable energy (the RE Act); see Consolidation Act No 1330 of 25 November 2013. Support is given in the form of feed-in premiums for:

A. wind turbines (Articles 35a-43)
B. biogas, etc. (Article 43a and 44)
C. biomass (Articles 45 and 46)
D. other RE plants (Articles 47 and 48).

A number of changes to the feed-in premiums for wind turbines, biogas, etc. and solar cells were made during the period 2012 to 2013. Some of these changes have not entered into force, as they are awaiting the European Commission's approval under the State aid provisions. These measures are designated as 'not in force'.

A. Feed-in premiums for wind turbines

Wind turbines with the exception of offshore turbines following tendering and domestic turbines:
A feed-in premium is paid for wind turbines connected to the grid during the period 21 February 2008 to 31 December 2013 inclusive of DKK 0.25 per kWh for electricity generation corresponding to the first 22 000 hours of generation at the wind turbine's installed power rating (full-load hours) following grid connection. Further compensation of DKK 0.023 per kWh is also paid for balancing costs for electricity from wind turbines.

In the case of wind turbines connected to the grid on or after 1 January 2014, a feed-in premium of DKK 0.25 per kWh is paid for electricity generation equivalent to the sum of 6 600 hours of electricity generation at the wind turbine's installed power rating (full-load hours) and electricity generation based on 5.6 MWh per square metre of rotor area. The feed-in premium is paid from the time of connection to the grid. The feed-in premium of DKK 0.25 and the market price combined must not exceed DKK 0.58 per kWh. The feed-in premium will thus be reduced as the market price rises above DKK 0.33 per kWh. Remuneration at the rate of DKK 0.023 per kWh for balancing costs for electricity from wind turbines is also paid.

Offshore turbines according to tender:
Areas are being offered for the erection of offshore wind turbines under a political agreement. The most recent tender was in 2009 and concerned a 400 MW wind turbine farm at Anholt. A feed-in premium is being paid, which combined with the market price ensures an offered payment for a given generation. A total of 450 MW has been reserved for tendering rounds for coastal generation turbines, and offered areas are also planned for two major offshore wind turbine farms (Horns Rev 3 and Kriegers Flak) totalling 1 000 MW.

Domestic turbines:
A feed-in premium is paid for electricity that is supplied to the electricity distribution grid from a wind turbine with an installed power rating of 25 kW or less which is connected to its own consumer installation. The feed-in premium is paid irrespective of the date of connection and is thus determined such that the premium and the market price combined amount to DKK 0.6 per kWh.

New feed-in premiums for wind turbines:
Increased feed-in premium for offshore pilot projects (not in force):
Provisions have been adopted concerning a fund of 50 MW for pilot projects involving one or more offshore turbines which can help to reduce the cost of generating electricity from offshore wind turbines. These pilot projects can receive a higher feed-in premium which is determined so that the premium and the market price combined amount to DKK 0.7 per kWh. The basis for the calculation is determined from the turbine's power rating and rotor area, so that as regards ordinary turbine types, it corresponds to the electricity generation over 50 000 full-load hours.

Provision for additional feed-in premium for coastal offshore wind turbines established according to tender (not in force):
With the aim of promoting local involvement in coastal offshore wind turbine projects, provisions have been adopted which will give wind turbine constructors a financial incentive to allow local residents and undertakings to become co-owners. Under the scheme, a constructor that can demonstrate that at least 30 % of a project is owned by local residents will be entitled to an additional feed-in premium of DKK 0.01 per kWh during the grant period.

Domestic wind turbines (not in force):
Provisions have been introduced regarding increased support for domestic wind turbines that are connected to the grid on or after 20 November 2012. For domestic wind turbines with an installed power rating of 10 kW or less, the feed-in premium is determined so that the premium and market price combined amount to DKK 0.25 per kWh. In the case of domestic wind turbines with an installed rating from 10 kW up to and including 25 kW, the feed-in premium is determined so that the premium and the market price combined amount to DKK 0.15 per kWh. The feed-in premium is paid for 20 years from the connection date.

B. Premium for biogas, etc.
Electricity generation by means of biogas and gasification gas produced using biomass
For electricity generated by plants exclusively run on biogas and gasification gas produced using biomass, a feed-in premium which when combined with the market price amounts to DKK 0.793 per kWh is paid. The sum of the premium and the market price is adjusted annually on the basis of 60 % of the net price index.

In addition to the abovementioned grant, premiums of DKK 0.26/kWh and DKK 0.1/kWh are also paid. The premium of DKK 0.26/kWh is being reduced annually from 1 January 2013 by DKK 0.01/kWh for each DKK/GJ of the amount by which the price of natural gas during the previous year exceeds a basic price of DKK 53.2/GJ. If the price of natural gas falls below the basic price, the support is increased correspondingly. The premium of DKK 0.1/kWh will be reduced in stages by DKK 0.02/kWh annually from 2016 through to 2020, when it will be abolished completely.

Electricity generation using biogas and gasification gas produced using biomass and other fuels
For electricity generated using biogas, gasification gas produced using biomass and other fuels, a feed-in premium of DKK 0.431/kWh is paid for the part of the electricity that is generated using biogas and/or gasification gas. The premium is adjusted annually based on 60 % of the net price index.

Owners of biogas plants may choose to receive the premium, which when combined with the market price amounts to DKK 0.79/kWh (see above), or a premium of DKK 0.431/kWh for the part of the electricity that is generated using biogas and/or gasification gas. The choice must be made from the year-end and is binding for one year at a time.

In addition to the abovementioned grant, premiums of DKK 0.26/kWh and DKK 0.1/kWh are also paid for the part of the electricity that is generated using biogas and/or gasification gas. The premium of DKK 0.26/kWh is being reduced annually from 1 January 2013 by DKK 0.01/kWh for each DKK/GJ of the amount by which the price of natural gas during the previous year exceeds a basic price of DKK 53.2/GJ. If the price of natural gas falls below the basic price, the support is increased correspondingly. The premium of DKK 0.1/kWh will be reduced in stages by DKK 0.02/kWh annually from 2016 through to 2020, when it will be abolished completely.

Support for transport (not in force)
A basic grant of DKK 0.39 per GJ biogas sold for transport use is paid. In addition, grants of DKK 0.26/GJ and DKK 0.1/GJ are also paid. The grant of DKK 0.26/kWh is being reduced

annually in stages from 1 January 2013 by the amount in DKK per GJ by which the price of natural gas during the previous year exceeds a basic price of DKK 53.2/GJ. If the price of natural gas falls below the basic price, the support will be increased correspondingly. The premium of DKK 0.1/kWh will be reduced by DKK 2/GJ annually from 2016 through until 2020, when it will be abolished completely.

Support for process purposes (not in force)
A basic grant of DKK 0.39 per GJ biogas sold for process purposes is paid. In addition, grants of DKK 0.26/GJ and DKK 0.1/GJ are also paid. The grant of DKK 0.26/kWh is being reduced annually in stages from 1 January 2013 by the amount in DKK per GJ by which the price of natural gas during the previous year exceeds a basic price of DKK 53.2/GJ. If the price of natural gas falls below the basic price, the support will be increased correspondingly. The premium of DKK 0.1/kWh will be reduced by DKK 2/GJ annually from 2016 through until 2020, when it will be abolished completely.

Support for other purposes (not in force)
Other uses of biogas are eligible for grants of DKK 0.26/GJ and DKK 0.1/GJ. The grant of DKK 0.26/kWh is being reduced annually in stages from 1 January 2013 by the amount in DKK per GJ by which the price of natural gas during the previous year exceeds a basic price of DKK 53.2/GJ. If the price of natural gas falls below the basic price, the support will be increased correspondingly. The premium of DKK 0.1/kWh will be reduced by DKK 2/GJ annually from 2016 through until 2020, when it will be abolished completely.

C. Premium for biomass
For electricity generated from the burning of biomass, the premium is DKK 0.15 per kWh, irrespective of whether the electricity is generated by plants using biomass exclusively or by plants using biomass in combination with other fuels.

D. Premiums for other renewable energy plants
A premium is paid for electricity generated from plants that exclusively use solar power, wave power or hydro-electricity, or any renewable energy sources other than biogas or biomass. The premium is determined so that it and the market price together amount to DKK 0.60 per kWh for a period of 10 years following grid connection and DKK 0.40 per kWh for the subsequent 10 years.

For electricity generated by energy sources other than those referred to above, a premium of DKK 0.10 per kWh is paid for 20 years from the connection date.

For electricity generated by plants using the abovementioned renewable energy sources in combination with other energy sources, there is a premium of DKK 0.26 per kWh for 10 years and DKK 0.06 per kWh for the following 10 years.

New premiums for solar cell plants:
Provisions have been adopted concerning a higher premium for solar cell plants for a certain period of time (transitional schemes) within an annual fund of 20 MW during the period 2013 – 2017.

The transitional schemes (not in force)
For electricity generated by certain solar cell plants that are connected to the grid during the period 19 November 2012 to 10 June 2013 inclusive, a higher premium is paid in accordance

with the transitional schemes of between DKK 0.90 and DKK 1.45 per kWh for 10 years from the connection date. The same applies to electricity generated by certain plants which are connected to the grid after 10 June 2013 where the owner has entered into a binding and unconditional agreement concerning the purchase of the solar cell plant within certain specified dates and otherwise fulfils certain specified conditions. The premium is reduced if the plant is connected to the grid after 2013.

Five-year fund of 20 MW (not in force)
From 2013 until 2017 inclusive, a higher premium of between DKK 0.90 and DKK 1.45 per kWh (2013 rates) may be paid in relation to a combined fund of 20 MW annually. The fund concerns plants that are connected to domestic households. All higher premiums (DKK 0.90-1.45 per kWh) are paid for a period of 10 years from the connection date. The higher premiums are reduced for each year during which the fund is distributed, so that the premium gradually approaches the transfer price of DKK 0.60 per kWh.
In the case of solar cell plants that are not covered by the fund, the premium is determined so that the premium and the market price combined amount to DKK 0.60 per kWh for 10 years after the connection date and DKK 0.4 per kWh for the following 10 years.

3.0.2 Funding for small RE technologies
Support is given to promote the spread of smaller capacity electricity generating plants comprising solar cells, wave power and biogas installations that use technologies that are of significance for the future propagation of the use of electricity from renewable sources. The funding requires the plant to be connected to the grid.

The fund has been extended through the Energy Policy Agreement of 2012; see Article 2.6 of Annex 1. The funding amounts to DKK 25 million annually during the period 2008 – 2015. The fund is administered by Energinet.dk, which issues annual calls for applications.

3.0.3 Support for the production and sale of biogas
The agreement concerning Green Growth dating from 2009 included an implementation fund under the Rural District Programme, to which a total of DKK 300 million had been allocated for the establishment and expansion of biogas plants and supplementary investments in companies which supply biomass to the plants.

The fund was to be implemented via three application rounds in 2010, 2011 and 2012. However, this was amended, as the application round in 2010 showed, among other things, that it was very difficult to finance the plants under the operating conditions that applied to biogas production at that time.

A final round was therefore conducted in 2012, during which the new, improved operating conditions in the Energy Policy Agreement resulted in a marked increase in interest in establishing and expanding the plants. During this round, over 50 projects applied for a total of approximately DKK 850 million in support. Approximately DKK 285 million was awarded to eight new joint biogas plants, four new organic agricultural plants, one new conventional agricultural plant and five expansions to existing plants. The awards were made subject to the fulfilment of set deadlines.

No new grants for biogas are planned.
3.0.4 Four schemes for the promotion of onshore wind power
Four new schemes have been introduced in the RE Act for promoting expansion with wind turbines. The schemes are administered by Energinet.dk.

As noted in section 2(a), the four schemes in the RE Act were evaluated in 2011. As a result of this evaluation, the value loss scheme and the purchasing rights scheme were amended. These amendments were incorporated into the RE Act in the spring of 2013. The evaluation of the green scheme and the guarantee fund did not give rise to any significant changes.

The value loss scheme
The constructor of a wind turbine must pay compensation for the loss in value of a property caused by the erection of the turbine. The loss in value is determined by a valuation authority.

The purchasing rights scheme
The constructor of a wind turbine is obliged to offer at least 20 % of shares in the turbine to a group of persons with purchasing rights. All residents over the age of 18 living up to 4.5 km from new wind turbines may buy into local wind turbine projects. Shares not purchased by residents living within the 4.5 km limit may be offered to residents elsewhere in the municipality. As regards offshore wind turbines, the group of residents with purchasing rights is expanded, so that residents in the municipality or municipalities that have a coastline within 16 km of the new offshore wind turbines are entitled to buy shares.

The green scheme
With the green scheme, local authorities can apply for support from Energinet.dk for projects that benefit the landscape and recreational opportunities in the local area and for cultural and information activities. The funding that can be made available to the municipal authority amounts to DKK 88 000 per MW of new wind turbines actually erected.

The guarantee fund
The guarantee fund was established to support the financing of preliminary investigations, etc. by local wind turbine committees prior to the erection of wind turbines. Decisions concerning the issuing of guarantees are made by Energinet.dk. Guarantees are given for up to DKK 500 000 per project.

3.0.5 Tax relief
The use of fossil fuels for heating and cooling attracts a substantial energy tax.

The energy tax on fossil fuels for space heating amounts to approximately DKK 70 per GJ in 2013. The tax is indexed by 1.8 % annually up to 2015, after which it is indexed to the net price index. Heat generated through the combustion of waste is also subject to a corresponding tax of around DKK 60 per GJ. This tax is also indexed. At the present time, there is no energy tax on RE fuels. This means that there is a tax-related advantage of approximately DKK 70 per GJ linked to using RE fuels in preference to fossil fuels.

3.0.6. Phasing-out of oil and natural gas oil boilers for heating buildings
From 2013, a ban is being introduced on the installation of oil-fired boilers which use fossil oil in new buildings and on the installation of gas-fired boilers which are connected to the natural gas network in new buildings that are being constructed in areas which prior to 1 January 2013 were not approved for supply by natural gas (see Annex 1, sections 3.1 and 3.2). It is still possible to install oil-fired boilers which use non-fossil fuels such as bio-oil and gas burners that are supplied by non-fossil fuels such as biogas.
To support the phasing out of oil- and natural gas-fired boilers in existing buildings, a free and impartial advice service has been introduced which advises building owners on how they

can convert their heating system from oil or natural gas to an RE-based alternative. Similarly, demonstration projects have been set up with the aim of contributing to the introduction and cost reduction of RE-based alternatives to oil- and natural gas-fired boilers (see Annex 1, section 3.3).

3.0.7 Support schemes in the transport sector

Support is available via research schemes for electric vehicles. This support amounted to DKK 10 million per year during the period 2008-2009, and DKK 5 million per year from 2010-2015. The scheme was recently extended to the end of 2015 through the energy agreement of 22 March 2012, Article 6.4.

In addition, electric and hydrogen-powered vehicles are exempt from registration tax and green ownership tax up to the end of 2015.

A total of DKK 70 million has been allocated in the Energy Policy Agreement of 22 March 2012 (Article 6.1) for infrastructure for electricity, hydrogen and gas for heavy goods transport during the period 2012-2015 (DKK 1 million in 2012 and DKK 23 million per year from 2013 to 2015).

In addition, support has been given for many trials using alternative fuels for transport under the 'Energy-efficient transport solutions' fund. The fund was launched in 2009 as part of a 'Green transport policy'. A total of DKK 200 million was allocated to trial projects. Only some of these include alternative fuels.

3.0.8 Renewable energy for processing undertakings

Energy consumption by undertakings for processing purposes is largely based on the use of fossil fuels, yet there are insufficient tax incentives for the undertakings concerned to convert to RE, primarily because these undertakings only pay a low energy tax on fossil fuels for process energy. Through the Energy Policy Agreement of 22 March 2012, an investment grant scheme was established for undertakings using process energy which amounts to DKK 250 million in 2013 (beginning in mid-2013) and DKK 500 million per year during the period 2014-2020 (see Annex 1, section 3.5). It has been estimated that the fund could lead to conversions to renewable energy totalling 16 PJ/year, with the expectation that the emphasis of the scheme would lie within conversion to biomass, but other RE sources are also expected to contribute to the fulfilment of the objective. The scheme has been notified as State support given in accordance with Commission Regulation (EC) No 800/2008 declaring certain categories of aid compatible with the common market in application of Articles 87 and 88 of the Treaty (General block exemption Regulation).

In addition to the support-related framework in the block exemption scheme, the grant may be limited by a requirement for high energy efficiency, so that the grant cannot exceed DKK 23 GJ fossil fuel that is converted viewed over a 10-year operating period. If the project exceeds this limit of DKK 23 GJ over 10 years, the grant will be restricted to this limit. Similarly, it is a requirement that the simple repayment period, including the grant, must be at least two years. If the repayment period including the grant is less than two years, the grant will be reduced so that the project has a repayment period of exactly two years.

3.1. Please provide the information on how supported electricity is allocated to final customers for purposes of Article 3(6) of Directive 2003/54/EC. ***(Article 22(1)(b) of Directive 2009/28/EC)*****.**

The Disclosure of Electricity to Consumers (final customers) is regulated by Order No 1322 of 16 November 2010 on the disclosure of electricity to consumers (the Electricity Labelling Order), as amended by Order No 403 of 28 April 2011 amending the Order on the disclosure of electricity to consumers.

The Order states that trade in electricity requires either general or individual disclosure. General disclosure is calculated by Energinet.dk on the basis of average fuel consumption and environmental impact. Individual disclosure must be supported by Certificates of Origin for renewable energy-generated electricity, or high-efficiency cogenerated heat which the electricity trading activity cancels out. The issuing and cancellation of Certificates of Origin is undertaken by Energinet.dk.

4. Please provide information on how, where applicable, the support schemes have been structured to take into account RES applications that give additional benefits, but may also have higher costs, including biofuels made from wastes, residues, non-food cellulosic material, and lignocellulosic material*? (Article 22(1)(c) of Directive 2009/28/EC)*.

There is no support for biofuels (other than research and development support from the ETDDP). However, biofuels are exempt from CO_2 tax. Biofuels based on waste, waste products, non-food cellulosic material and lignocellulosic material count double with respect to the Danish mixing requirement; section 6.

Support for the use of biogas can partly be justified through its environmental advantages in terms of improved aquatic environment, reduced greenhouse gas emissions from agriculture, reduced nuisance caused by unpleasant smells, increased fertiliser value from de-gasified slurry from livestock manure, etc.

5. Please provide information on the functioning of the system of Certificates of Origin for electricity and heating and cooling from RES, and the measures taken to ensure reliability and protection against fraud of the system. *(Article 22(1)(d) of Directive 2009/28/EC)*.

Denmark only operates with Certificates of Origin for electricity (not heating or cooling) from renewable energy sources; see Order No 1323 of 30 November 2010 on certificates of origin for electricity from renewable energy sources and Order No 1322 of 30 November 2010 on the disclosure of electricity to consumers.

In Denmark, Certificates of Origin can only be issued by Energinet.dk. It is therefore Energinet.dk that registers and monitors issued Certificates of Origin and their transfer or cancellation.

To eliminate the risk of VAT fraud, Energinet.dk sends a request to the Danish Tax and Customs Administration (SKAT) when accounts are to be created by new market players. SKAT then investigates whether the player is known in the European tax collaboration concerning 'the VAT carousel', for example.

Energinet.dk must ensure that the records are correct, reliable and safeguarded against fraud. Certificates of Origin are issued electronically in Denmark, in accordance with the EECS (European Energy Certification System), the voluntary common European standard. The standard describes how Certificates of Origin are issued, traded and used. Furthermore, all users of the EECS are contractually obliged to refrain from repeated use of Certificates of Origin. Energinet.dk is a member of the AIB (the Association of Issuing Bodies), which wrote

the standard. Energinet.dk was audited in 2011 to ensure that the processes comply with the requirements of the standard.

In addition, Energinet.dk uses the cmo.grexel system, also used by a number of other countries, to administer Certificates of Origin. The cmo.grexel system makes it possible to check information. Energinet.dk also uses a national database for this.

Energinet.dk states that the number of Certificates of Origin for renewable energy-generated electricity issued and transferred in Denmark and sold to other Member States has risen considerably over the years. The table below shows the trend during the period 2009-2013.

Table: The trend in issuing, transfer and cancellation
(One Certificate of Origin corresponds to one MWh).

1.1. Year	2009	2010	2011	2012	2013 (as of 1 Nov)
Issued	2 804 642	3 081 176	6 126 553	9 198 116	10 084 604
Cancelled*	656 721	260 893	1 810 761	2 760 388	3 282 246
Exported	896 209	2 013 528	5 264 978	6 713 625	7 693 700
Imported	1 303 168	728 734	1 312 082	2 383 487	1 406 662

Source: www.grexel.com
* Data does not cover Certificates of Origin that are cancelled by Energinet.dk because they were more than 12 months old; see Article 15(3) of the Directive.

See Annex 1 to the situation report for 2011 for a more detailed description of the system for Certificates of Origin in Denmark.

6. Please describe the developments in the preceding 2 years in the availability and use of biomass resources for energy purposes. *(Article 22(1)(g) of Directive 2009/28/EC)*.

In accordance with the RE Directive, the use of biofuels in the transport sector and the use of liquid biofuels in the electricity and heating sector must be sustainable. It has not yet been verified whether the use of liquid biofuels (fish oil, rapeseed oil, etc.) in the electricity and heating sector is sustainable. Liquid biofuels are therefore not included in tables 1, 1a, 1d and 4.

The sustainability criteria in the RE Directive for biofuels in the transport sector have been implemented in Danish legislation since 1 January 2010. The legally obliged companies introduced a minimum of 0.55 % of sustainable biofuels into the transport sector in 2010. The mixing requirement was increased to 3 % in 2011 and 5.75 % in 2012. The companies concerned have submitted information to fulfil the requirement concerning sustainability criteria to the Danish Energy Agency. The Danish Energy Agency has no information on the amount of biomass of Danish origin that is used for the production of biofuels for transport purposes. This information is therefore not included in the table.

Tables 4 and 4a *provide more detailed information on the biomass supply.*

***Table 4*: Biomass supply for energy use**

Ktoe/year, etc. See notes for Table 4	Amount of domestic raw material* (tonnes)		Primary energy in domestic raw material (Ktoe)		Amount of imported raw material from EU[7] (tonnes)		Primary energy in amount of imported raw material from EU (Ktoe)		Amount of imported raw material from non-EU* (tonnes)		Primary energy in amount of imported raw material from non-EU (Ktoe)	
	2011	**2012**	**2011**	**2012**	**2011**	**2012**	**2011**	**2012**	**2011**	**2012**	**2011**	**2012**
Biomass supply for heating and electricity:												
Direct supply of wood biomass from forests and other wooded land energy generation (fellings, etc.)**	2 272	2 340	759	774	719	738	197	201	80	96	22	26
Indirect supply of wood biomass (residues and co-products from wood industry, etc.)[8]	650	760	238	274	1 292	1 360	540	568	303	453	127	189
Energy crops (grasses, etc.) and short rotation trees *(*please specify*)*			-	-								
Agricultural by-products / processed residues and fishery by-products **	1 340	29	464	418								
Biomass from waste (municipal, industrial, etc.) **	2 019	47	506	493								
Others (please specify)												
Biomass supply for transport:												
Common arable crops for biofuels *(*please specify main types*)*												
Energy crops (grasses, etc.) and short rotation trees for biofuels *(*please specify main types)												
Others (please specify)												

The definition of this biomass category should be understood in line with table 7 of part 4.6.1 of Commission Decision C (2009) 5174 final establishing a template for National Renewable Energy Action Plans under Directive 2009/28/EC.

[7] Amount of raw material if possible in m3 for biomass from forestry and in tonnes for biomass from agriculture and fishery and biomass from waste.

[8] The definition of this biomass category should be understood in line with table 7 of part 4.6.1 of Commission Decision C (2009) 5174 final establishing a template for National Renewable Energy Action Plans under Directive 2009/28/EC.
The thermal value of coniferous wood is used as the thermal value for firewood.
The distribution of quantities imported from EU countries and non-EU countries is based on the following method: In the case of chips and firewood, the distribution for imports of firewood (see Statistics Denmark) was used. The distribution of imports between EU and non-EU countries for wood pellets is based on surveys every two years.

The thermal value of coniferous wood is used as the thermal value for firewood.
The distribution of quantities imported from EU countries and non-EU countries is based on the following method: In the case of chips and firewood, the distribution for imports of firewood (see Statistics Denmark) was used. The distribution of imports between EU and non-EU countries for wood pellets is based on surveys every two years.

***Table 4*: Biomass supply for energy use**

TJ/year, etc. See notes for Table 4	Amount of domestic raw material[9] (tonnes)		Primary energy in domestic raw material (TJ)		Amount of imported raw material from EU* (tonnes)		Primary energy in amount of imported raw material from EU (TJ)		Amount of imported raw material from non-EU*(tonnes)		Primary energy in amount of imported raw material from non-EU (TJ)	
	2011	**2012**	**2011**	**2012**	**2011**	**2012**	**2011**	**2012**	**2011**	**2012**	**2011**	**2012**
Biomass supply for heating and electricity:												
Direct supply of wood biomass from forests and other wooded land energy generation (fellings, etc.)**	2 272	2 340	31 785	32 423	719	738	8 245	8 399	80	96	916	1 091
Indirect supply of wood biomass (residues and co-products from wood industry, etc.)**	650	760	9 950	11 455	1 292	1 360	22 611	23 795	303	453	5 304	7 932
Energy crops (grasses, etc.) and short rotation trees *(*please specify*)*												
Agricultural by-products / processed residues and fishery by-products[11]	1 340	1 208	19 436	17 509								
Biomass from waste (municipal, industrial, etc.) **	2 019	1 964	21 201	20 622								
Others (please specify)												
Biomass supply for transport:												
Common arable crops for biofuels *(*please specify main types*)*												
Energy crops (grasses, etc.) and short rotation trees for biofuels *(*please specify main types)												
Others (please specify)												

[9] Amount of raw material if possible in m3 for biomass from forestry and in tonnes for biomass from agriculture and fishery and biomass from waste.

[11] The definition of this biomass category should be understood in line with table 7 of part 4.6.1 of Commission Decision C (2009) 5174 final establishing a template for National Renewable Energy Action Plans under Directive 2009/28/EC.
The thermal value of coniferous wood is used as the thermal value for firewood.
The distribution of quantities imported from EU countries and non-EU countries is based on the following method: In the case of chips and firewood, the distribution for imports of firewood (see Statistics Denmark) was used. The distribution of imports between EU and non-EU countries for wood pellets is based on surveys every two years.

Table 4a. **Current domestic agricultural land used for production of crops dedicated to energy production (ha)**

Land use	Surface (ha)	
	2011	**2012**
1. Land used for common arable crops (wheat, sugar beet, etc.) and oilseeds (rapeseed, sunflower, etc.) (Please specify main types)	**Around 70 000**	**Around 70 000**
2. Land used for short rotation trees (willows, poplars). (Please specify main types)	**Around 4 000**	**Around 4 000**
3. Land used for other energy crops such as grasses (reed canary grass, switch grass, Miscanthus), sorghum. (Please specify main types)	**Maximum 50**	**Maximum 50**

7. Please provide information on any changes in commodity prices and land use <u>within Denmark in the preceding 2 years</u> associated with increased use of biomass and other forms of energy from renewable sources. Please provide where available references to relevant documentation on these impacts in Denmark. ***(Article 22(1)(h) of Directive 2009/28/EC)*****.**

When assessing commodity price impacts, it is suggested to consider at least the following commodities: common food and feed crops, energy wood, wood pellets.

Most biomass use in Denmark is based on waste and subsidiary products from other production. As noted in Section 6 (Table 4), the greatest increase in biomass use has occurred as a result of the use of imported wood-based biomass (especially shavings and wood pellets); hence this increase has not had any effect on land use. The price of wood pellets has remained constant throughout the period.

Another significant increase in the use of biomass relates to the use of waste and subsidiary products from agriculture. There has been an improvement in the use of existing waste and subsidiary products from agricultural production which has not resulted in any changes in land use either. The price of hay has been relatively constant.

Generally, there has been no significant change in land use in Denmark over the preceding two years.

8. Please describe the development and share of biofuels made from wastes, residues, non-food cellulosic material, and lignocellulosic material. ***(Article 22(1)(i) of Directive 2009/28/EC)*****.**

In recent years, the annual production of biodiesel and bioethanol by Danish manufacturers has been as follows:

- Emmelev produces around 100 million litres of biodiesel (1.g.) based on rapeseed oil
- DAKA produces around 55 million litres of biodiesel (2.g.) based on abattoir waste, etc.
- Inbicon produces around 5 million litres of bioethanol (2.g.) based on hay. Production is currently not carried out continuously (production takes place in connection with research and development).

To date, most Danish-produced biofuels have been exported. In the future, an increasing proportion of production will take place for the domestic market. This particularly applies to DAKA's production.

The sustainability criteria in the RE Directive for biofuels in the transport sector have been implemented in Danish legislation since 1 January 2010. The legally obliged companies

mixed a minimum of 5.75 % sustainable biofuels in the transport sector during 2012. The total consumption of biofuels (ethanol and biodiesel) amounted to 8.5 PJ (equivalent to approximately 203 Ktoe), of which Article 21(2) biofuels amounted to a very small proportion. The precise figure is not known.

Table 5: **Production and consumption of biofuels, cf. Article 21(2) (Ktoe)**

Article 21(2) biofuels[12]	**Year n-2**	**Year n-1**
Production – Fuel type X (Please specify)	0	0
Consumption – Fuel type X (Please specify)	0	0
Total production Art.21.2. biofuels	0	0
Total consumption Art.21.2. biofuels	0	0
% share of Art. 21.2. fuels from total RES-T	0	0

9. Please provide information on the estimated impacts of the production of biofuels and bioliquids on biodiversity, water resources, water quality and soil quality within your country <u>in the preceding 2 years</u>.

Please provide information on how these impacts were assessed, with references to relevant documentation on these impacts within your country. **(*Article 22(1)(j) of Directive 2009/28/EC)*.**

Production has been so limited that it is the opinion of the Danish Energy Agency that it has had limited impact.

10. Please estimate the net greenhouse gas emission savings due to the use of energy from renewable sources (*Article 22(1)(k) of Directive 2009/28/EC)*.

For the calculation of net greenhouse gas emission savings from the use of renewable energy, the following methodology is suggested:

- *For biofuels: In accordance with Article 22(2) of Directive 2009/28/EC.*
- *For electricity and heat it is suggested to use the EU wide fossil fuel comparators for electricity and heat as set out in the report on sustainability requirements for the use of solid and gaseous biomass sources in electricity, heating and cooling[13], if no later estimates are available.*

If a Member State chooses not to use the suggested methodology for estimating the net greenhouse gas emission savings, please describe what other methodology has been used to estimate these savings.

It is assumed that:

- In the case of renewable energy used for heating, the calculated net saving is 0.065 Mt CO_2 per PJ renewable energy used, corresponding to the renewable energy replacing a mixture of natural gas and oil.
- In the case of renewable energy used for electricity, it is assumed that electricity generation by wind, water and solar panels displaces 2.4 units of fossil fuel, while 1 unit of biomass/biogas displaces 1 unit of fossil fuel. It is estimated that the quantity of fuel displaced would have given rise to CO_2 emissions of 0.08 Mt per PJ, suggesting that coal is the dominant fuel type.

[12] Biofuels made from wastes, residues, non-food cellulosic material, and lignocellulosic material.

[13] Report available at: http://ec.europa.eu/energy/renewables/transparency_platform/doc/2010_report/com_2010_0011_3_report.pdf.

- In the case of transport, it is assumed that 1 unit of biofuel displaces 1 unit of fossil fuel. The displaced quantity of fuel is estimated to give rise to CO_2 emissions of 0.0733 million tonnes per PJ.

***Table 6*: Estimated GHG emission savings from the use of renewable energy (t CO2eq)**

Environmental aspects	**2011**	**2012**
Total estimated net GHG emission saving from using renewable energy[14]	***Million tonnes***	***Million tonnes***
- Estimated net saving from the use of renewable energy for electricity	6.9	7.3
- Estimated net saving from the use of renewable energy in heating and cooling	7.3	7.8
- Estimated net saving from the use of renewable energy in transport	0.4	0.6

11. Please report on (<u>for the preceding 2 years</u>) and estimate (<u>for the following years up to 2020</u>) the excess/deficit production of energy from renewable sources compared to the indicative trajectory which could be transferred to/imported from other Member States and/or third countries, as well as estimated potential for joint projects until 2020. (*Article 22(1)(l) and (m)) of Directive 2009/28/EC)*.

***Table 7:* Actual and estimated excess and/or deficit (-) production of renewable energy in Denmark compared to the indicative trajectory which could be transferred to/from other Member States and/or third countries (Ktoe)**

Ktoe/year	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Estimated excess as stated in the prognosis document	-	613	809	769	784	473	657	333	366	-	0
Estimated excess as stated in the National Renewable Energy Action Plan	-	694	834	1 123	1 106	833	928	552	619	-	63
Estimated deficit as stated in the prognosis document	0	0	0	0	0	0	0	0	0	-	337
Estimated deficit as stated in the National Renewable Energy Action Plan	-	0	0	0	0	0	0	0	0	-	0
Total gross consumption of energy (H)	-	16 179	15 862	-	-	-	-	-	-	-	-
Proportion of gross consumption of energy from renewable energy sources ([Table 1a D)]/[H]%)	-	23.4	25.5	-	-	-	-	-	-	-	-
Indicative trajectory for renewable energy sources relative to the 2020 target (%)12[15]	-	19.6	19.6	20.9	20.9	22.9	22.9	25.4	25.5	30.1	30
Actual excess production relative to indicative trajectory	-	619	939	-	-	-	-	-	-	-	-

[14] The contribution of gas, electricity and hydrogen from renewable energy sources should be reported depending on the final use (electricity, heating and cooling or transport) and only be counted once towards the total estimated net GHG savings.

[15] The guideline development for the proportion of renewable energy sources is presented in Table 3 of the RE Action Plan of June 2010 and was most recently updated in a memorandum sent to the Commission in April 2011.

Table 7: **Actual and estimated excess and/or deficit (-) production of renewable energy compared to the indicative trajectory which could be transferred to/from other Member States and/or third countries in Denmark (PJ)**

PJ/year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Estimated excess as stated in the prognosis document	-	26	34	32	33	20	28	14	15	-	0
Estimated excess as stated in the National Renewable Energy Action Plan	-	29	35	47	46	35	39	23	26	-	3
Estimated deficit as stated in the prognosis document	0	0	0	0	0	0	0	0	0	-	14
Estimated deficit as stated in the National Renewable Energy Action Plan	-	0	0	0	0	0	0	0	0	-	0
Total gross consumption of energy (H)	-	674	661	-	-	-	-	-	-	-	-
Proportion of gross consumption of energy from renewable energy sources ([Table 1a D)]/[H]%)	-	23.4	25.5	-	-	-	-	-	-	-	-
Indicative trajectory for renewable energy sources relative to the 2020 target (%)[16]	-	19.6	19.6	20.9	20.9	22.9	22.9	25.4	25.5	30.1	30
Actual excess production relative to indicative trajectory	-	27	40	-	-	-	-	-	-	-	-

11.1. Please provide details of statistical transfers, joint projects and joint support scheme decision rules.

As stated in the RE Action Plan of June 2010, the Danish government expects to be able to fulfil its commitments for expansion with renewable energy up to 2020 through national measures. On this basis, it will probably not be necessary to use the RE Directive's cooperation mechanisms for statistical transfers between countries in order to ensure Danish compliance with the objectives.

The Danish government is also prepared to make the expected excess of renewable energy available to other countries for the period up to 2020, during which the share of renewable energy is expected to be above the indicative trajectory.

As a result of the Energy Policy Agreement of 22 March 2012, it has been estimated that Denmark will exceed the binding RE 2020 target of 30 % by more than 5 percentage points, i.e. an RE proportion of over 35 % is expected to be achieved in 2020.

12. Please provide information on how the share for biodegradable waste in waste used for producing energy has been estimated, and what steps have been taken to improve and verify such estimates. (*Article 22(1)(n) of Directive 2009/28/EC)*.

In the energy and CO_2 emission statistics, waste is divided into two categories: biodegradable and non-biodegradable. In accordance with international conventions, including the RE Directive's definition in Article 2, the biodegradable component is counted

[16] The guideline development for the proportion of renewable energy sources is presented in Table 3 of the RE Action Plan of June 2010 and was most recently updated in a memorandum sent to the Commission in April 2011.

as renewable energy. Danish energy statistics assume that up to and including 2007, 77.7 % of waste consumption is biodegradable. Based on a study undertaken by the National Environmental Research Institute on behalf of the Ministry of the Environment, the energy statistics for 2008 assume a lower share of 58.8 %. This lower share has now been corrected historically in all calculations in Danish energy statistics. The 58.8 % share has also been taken into account in all calculations of shares of renewable energy up to 2020 in both the Action Plan and in the predictions in this progress report.

From 1 January 2014, Denmark has decided to include waste incineration plants in the CO_2 quota regulation. In future, CO_2 emissions and the resulting biodegradable proportion of the waste will be specifically determined.

Please note that in the first progress report (2011 report) Member States are invited to outline their intentions with regard to the questions addressed in Article 22(3)(a) to (c). In addition, Member States are also welcome to provide any other information considered relevant to the specific situation of developing renewable energy of each Member State.

With regard to Article 22(3)(a)
The Danish government has no plans to establish a single administrative body to take responsibility for applications for approval, etc. of RE plants as referred to in the provision. However, it remains the intention to attempt to minimise the administrative approval criteria. The approval criteria have already been revoked with regard to government approval with the central energy authorities. Electricity generation and CHP plants under 25 MW, including biogas and biomass plants, may now be established on the basis of municipality approval alone. The establishment of wind farms no longer requires specific government approval.

The Danish government has furthermore approved funding for the continuation of the Wind Turbine Secretariat, which supports local authorities and contractors during the planning phase in relation to the erection of wind turbines. This service body, which is referred to in 4.2.1 of the RE Action Plan and extended in the Energy Policy Agreement of 2012 (see Annex 1, 2.5), is a free service.

With regard to Article 22(3)(b)
The Danish government has no plans to introduce rules for the automatic approval of applications for planning and permission to build RE plants if the approving body does not reply within a given time frame; see the provision.

A protracted administration time is not thought to be a problem for the Danish administration with regard to approvals or rules for the promotion of renewable energy. Both the government and the local authorities are obliged to process applications in compliance with the Danish Public Administration Act, which may account for the fact that there are few complaints of slow administration times in the Danish administration.

With regard to Article 22(3)(c)
The Wind Turbine Secretariat previously referred to contributes to a great extent in servicing a process in which areas of land are prepared for the erection of onshore wind farms. This includes recommending geographical areas that are suitable for use for renewable energy.

Furthermore, the Danish government has recently carried out a tendering process for state-owned areas for the construction of a large wind farm near a prison. A winner of the tender has been selected and this project is now at the planning stage. A new tender near another prison is under preparation.

In June 2010, the Danish Parliament passed an Act approving the establishment of a test centre for large wind turbines near Østerild in Northern Jutland, which will secure the land necessary for the development and testing of large modern wind turbines. The test centre was opened on 6 October 2012.

Furthermore, a number of areas have been identified for the siting of 0 series and prototype models, in compliance with the general principles for local authority planning as stated in the Planning Act.

Under the RE Act, the Danish Minister for Climate, Energy and Building may reserve offshore areas for tender for offshore wind farms, both large offshore wind turbines, which are situated relatively far from land and coastal offshore wind turbines. These areas have been selected in cooperation with the Danish environmental authorities. Once an area has been reserved, it will no longer be possible to apply for approval for the area under the so-called 'open door' procedure. The areas will be reserved for major integrated projects which are most appropriate from a socio-economic and environmental perspective. Based on the energy policy objectives (see Annex 1, section 2.1) to promote the development of offshore wind power through to 2020 by 1000 MW large-scale offshore wind turbines and 500 MW coastal offshore wind turbines, work is currently under way on state tenders for both 400 MW at Horns Rev and 600 MW at Krigers Flak, as well as 450 MW coastal offshore wind turbines. A total of 50 MW have been reserved for a pilot project for offshore wind turbines.

***Table 2*: Overview of all policies and measures**
Where relevant, reference is made to the section in the RE Action Plan (abbreviated to REAP) and the Energy Policy Agreement of 2012 (abbreviated to EAP).

Measure name and reference	***Measure type****	***Expected result*****	**Target group and/or target activity*****	**Existing or planned**	***Measure start and end dates***	***Reference***
Premium for RE electricity generation plants (RE Act)	Economic	Increased RE electricity generation	Investors, RE electricity generation	Existing	Most recent amendment, June 2012	REAP: 4.3 EPA: 2.4
Tendering of offshore wind farms (RE Act and political agreements)	Economic	Increased wind power capacity	Investors, wind power	Existing	Most recent amendment, March 2012	REAP: 4.2.1 and 4.3 EPA: 2.1 and 2.2
Four schemes to promote expansion of onshore wind power: the value loss scheme, the purchasing rights scheme, the green scheme and the guarantee fund (RE Act)	Economic, regulation	Increased wind power capacity	Producers of and neighbours to onshore wind turbines	Existing	Jan 2009 ^	REAP: 4.2.1 EPA: 2.3
Fund for small RE technologies (RE Act	Economic	To promote electricity generation using solar power, wave power, etc.	Investors and producers	Existing	2008 ^ 2015	REAP: 4.3

Measure name and reference	***Measure type****	***Expected result*** **	**Target group and/or target activity*** **	**Existing or planned**	***Measure start and end dates***	***Reference***
Prioritised access for RE electricity to the grid (ESA and RE Act)	Regulation	To safeguard the transport of RE electricity	RE electricity producers	Existing	1999 ^	REAP: 4.2.6. and 4.2.7
National test centre for large wind turbines in Østerild and planning of areas for test turbines through to 2020 (see more in section 12)	Political agreement	Testing of new wind power facilities	Industry and research	Existing	2010 ^	REAP: 4.2.1
Support for wave power	Economic	Testing of wave power	Industry and research	Planned	2014 ^ 2015	EPA: 2.7
Biomass agreement and the RE Act	Regulation	To promote the use of and conversion to biomass in power stations	Power stations	Existing	1993 ^	REAP: 4.6.2 EPA: 2.8 and 2.9
Fund for strategic energy planning in the municipalities	Economic	Promote strategic energy planning between municipalities, undertakings and energy companies	Municipal authorities, undertakings and energy companies, as well as government and regional authorities	Existing	2012 ^ 2015	EPA: 2.10
New and higher premiums for use of biogas for electricity generation and upgrading	Economic, regulation, information	To promote biogas production	CHP plants and other plants that use biogas	Existing	2013 ^	REAP: 4.2.8, 4.3 and 4.6 EPA: 5.1-5.5
New premiums for transport, processing and other use of biogas	Economic, regulation	To promote biogas production	Undertakings that use biogas	Planned	-	EPA: 5.1-5.5
Various initiatives to promote the production of energy crops (Green Growth)	Economic, regulation	To promote the production of energy crops	Agriculture and producers of biogas	Planned	-	REAP: 4.6
Free choice of fuel for small power plants (Green Growth 2.0)	Regulation	To promote the use of biomass	CHP plants < 2 MW	Existing	Jul 2012 ^	REAP: 4.2.9 and 4.6 EPA: 2.9
Tax relief for RE used for heating and cooling purposes	Economic	To promote use of RE for heating and cooling	Producers of heating and cooling	Existing		REAP: 4.2.9 and 4.4
Fund for RE technology in district heating (geothermal energy and large heat pumps)	Economic	To promote new RE for heating purposes	District heating companies	Existing	2012 ^ 2015	EPA: 2.13
Act on municipal district cooling	Regulation	To promote energy-efficient cooling of buildings	Municipal authorities	Existing	July 2008 ^	REAP: 4.2.1, 4.2.9 and 4.4

Measure name and reference	***Measure type****	***Expected result*** **	**Target group and/or target activity*** **	**Existing or planned**	***Measure start and end dates***	***Reference***
Fund for RE for processing	Economic	To promote the energy-efficient use of renewable energy	Undertakings	Existing	2013 ^ 2020	EPA: 3.5
Roll-out plan for smart electricity consumption (various initiatives)	Regulation, analyses	To promote intelligent electricity consumption	Electricity producers and consumers	Existing/planned	2008 ^	REAP: 4.2.6 EPA: 4.3, 4.3 and 4.6
International electricity exchange capacity	Regulation, analyses	To promote the interconnection of electricity markets	Energinet DK (TCO)	Existing/planned	-	EPA: 4.1 and 4.5
Supervision of regulation of the Danish electricity supply sector	Regulation, analysis	To secure incentives for green conversion, cost-effectiveness, competition and consumer protection	The government, electricity sector and others	Existing/planned	2012 ^ 2014	EPA: 4.7
Building regulations	Regulation	To promote energy savings	The building industry and consumers	Existing	Latest amendment, August 2013	REAP: 4.2.3 EPA: 1.3
Act to promote energy savings in buildings	Regulation	To promote energy savings	The building industry and consumers	Existing	2005 ^	REAP: 4.2.3 EPA: 1.1-1.2 and 1.8
Information initiative for energy efficiency improvements	Information	To promote energy savings	End customers	Existing	March 2010 Most recently amended 2012 ^ 2015	REAP: 4.2.4 EPA: 1.7
Centre for Energy Savings in Buildings	Information	To promote energy savings	The building industry	Existing	2008 ^ 2015	REAP: 4.2.4 EPA: 1.5
Agreements concerning public buildings	Regulation	Reduction of energy consumption in public buildings	Government authorities	Existing	2009 ^	REAP: 4.2.3
Tax relief for electric vehicles	Economic	To promote the use of electric vehicles	Manufacturers and consumers	Existing	^ 2015	REAP: 4.5
Research scheme for electric vehicles (Order on state support for a research scheme for electric vehicles)	Economic, information	Acquire experience and knowledge on the use of electric vehicles and their interaction with the electricity system	Undertakings, authorities, institutions and organisations	Existing	2008-2015	REAP: 4.5 EPA: 6.4
Fund for infrastructure for electricity, hydrogen and gas for heavy goods vehicles	Economic	To promote the establishment of infrastructure that can promote the use of alternative fuels for transport	Undertakings, authorities, institutions and organisations	Existing	2012 - 2015	REAP: 4.5 EPA: 6.1
Sustainable fuels (Act on sustainable fuels)	Regulation	Mixing of sustainable biofuels with petrol and diesel	Importers, producers and retailers of petrol or diesel	Existing	Jan 2010 ^	REAP: 4.2.10 and 4.5 EPA: 6.2

Measure name and reference	***Measure type****	***Expected result*****	**Target group and/or target activity*****	**Existing or planned**	***Measure start and end dates***	***Reference***
Fund for energy-efficient transport solutions	Economic, information	Gain experience and knowledge of various energy-saving transport solutions, including experience of alternative fuels	Undertakings, authorities, institutions and organisations	Existing	2009 - 2013	REAP: 4.5
Tax exemption for CO_2 emissions from biofuels	Economic	Increased production and use of biofuels	Producers and consumers of petrol or diesel	Existing	May 2006 ^	REAP: 4.5
Energy Technology Development and Demonstration Programme (Act on the ETDDP)	Economic, information	Research into biofuels and smart electricity consumption		Existing	Jan 2008 ^	REAP: 4.5
Reform of road tax that promotes energy-efficient cars and encourages more people to use public transport	Economic	Reduction of greenhouse gas emissions and increased use of renewable energy in the transport sector	Consumers and manufacturers	Planned		REAP: 4.5
Phasing out of oil and natural gas boilers for building heating	Regulation	Restriction on the number of oil and gas boilers installed in new buildings and supplied by fossil fuels	Consumers	Existing	January 2013 ^	EPA: 3.1
Establishment of consultancy service concerning alternatives to oil and natural gas boilers	Information	Information for building owners concerning the possibility of converting from oil and natural gas to RE-based alternatives	Consumers	Existing	August 2013 ^	EPA: 3.3
Establishment of demonstration projects concerning alternatives to oil and natural gas boilers	Economic, information	Testing of new technologies and cost reduction concerning existing technologies and business forms.	Undertakings	Existing	July 2013 ^	EPA: 3.3

* State (as far as possible) whether this is a legislative measure, an economic measure or a 'soft' measure (information campaign).
** Is the expected result changed behaviour, installed capacity (MW or t/year) or produced energy (Ktoe)?
*** What is the target group: investors, end-users, public authorities, planners, architects, installers, etc? Which activity/sector is the measure aimed at: production of biofuels, use of manure for energy production, etc?

22 March 2012

Agreement

between the government (the Danish Social Democrats, Danish Social-Liberal Party and the Socialist People's Party) and the Liberal Party, Danish People's Party, Danish Red-Green Alliance and Conservative People's Party

concerning the Danish Energy Policy 2012 – 2020

The Parties are in agreement that the conversion of Denmark to an energy supply met by renewable energy is dependent on a reliable, stable and long-term framework concerning the Danish Energy Policy. This Agreement establishes specific energy policy initiatives for the period 2012-2020. The Agreement will support joint EU targets.

Duration of the Agreement

- The Agreement covers the period 2012-2020.
- The Parties will prepare an annual status of agreed new initiatives and analyses and any continuation of initiatives that expire.
- The government will prepare an annual status of savings that are realised (see agreed cost reduction measures). If the anticipated savings resulting from the regulatory supervision are not realised, the Parties will be obliged to provide alternative financing. The energy efficiency initiative will be adjusted correspondingly in the event that this is not possible.
- The Parties will meet in 2015 to discuss the continuation of initiatives and financing for the agreement, including the disbursement of DKK 60 million annually from the energy efficiency package during the period after 2015.
- The Parties will be obliged to enter into discussions before the end of 2018 regarding specific supplementary initiatives for the period after 2020.

The Parties have agreed to implement the following initiatives with a view to fulfilling the purpose of the Agreement:

1. ***An energy-efficient society with less energy wastage***

The realisation of the goal of an energy supply met by renewable energy requires an increase in energy efficiency that minimises energy wastage and energy consumption in all sectors. The Parties note that it has been decided through the Danish Finance Act to introduce a subsidy fund for energy refurbishments in residential properties in 2013 and 2014. The Parties are furthermore in agreement regarding the following:

1.1 The savings obligations incumbent on energy companies are to be increased in relation to the initiative for the period 2010-2012 by 75 %, corresponding to 10.7 PJ per year for the period 2013-2014, and by 100 %, corresponding to 12.2 PJ per year for the period 2015-2020.

1.2 In connection with the increased savings obligations, the energy companies' initiatives are to be targeted at existing buildings and industries. It will be an aim to enter into a cost-effective agreement with the energy companies to strengthen the exposure to

competition of the initiative. A total of DKK 12 million will be allocated to support energy saving initiatives during the period 2012-2015.

1.3 An overarching strategy will be drawn up for the energy renovation of existing buildings. As part of this, the potential to tighten up the requirements concerning building components will be examined and an overall analysis of the area, including initiatives to ensure better compliance with the requirements of the building regulations and the use of ESCO models, will be carried out. The minimum requirements for building components in the building regulations will be future-proofed to reflect future challenges and anticipated energy prices. The strategy will be discussed by the signatory parties to the agreement before the end of 2013. The strategy will be based on an overall analysis of existing buildings, including the possible potential with the aim of ensuring that the strategy is targeted at the most cost-effective initiatives.

1.4 A total of DKK 30 million during the period 2012-2015 will be allocated to support the energy renovation of existing buildings.

1.5 A total of DKK 20 million during the period 2012-2015 will be allocated for the continuation of the initiative in the Knowledge Centre for Energy Savings in Buildings.

1.6 The municipal CO_2 calculator for the municipalities' annual CO_2 statements will be further developed and updated. A total of DKK 2 million will be allocated for this for the period 2012-2015.

1.7 Given the significant reinforcement of the energy companies' energy savings obligations, the current campaign and information activities in Go' Energi will be wound up. The remaining activities will be transferred to the Danish Energy Agency, which will then assess which of these activities are to be continued. This will release funds amounting to DKK 60 million annually. From 2012-2015, these funds will be disbursed for other energy efficiency measures, which are described in Annex 3. The parties will meet in 2015 to discuss the disbursement of the remaining funds available for the energy efficiency package.

1.8 As a follow-up to the energy agreement in 2008 and the strategy to reduce energy consumption in buildings, the parties have agreed to implement an energy-saving package, which will promote energy savings in private rental accommodation. The energy saving package will, among other things, include the following initiatives under the remit of the Ministry of Housing, Urban and Rural Affairs:

- Opportunity to claim a larger increase in rent than is the case under the applicable rules following energy renovation, provided the requirement concerning total financial profitability has been fulfilled.
- New model for agreed green urban renewal.
- Increase in the amount that can be claimed by lessees for improvements, provision for the prior approval of rent increases in connection with improvements to premises, energy requirements as a condition for the lessee being able to apply Article 5(2) of the Danish Housing Regulation Act, and the right to require the installation of water meters.
- The package will involve indirect tax losses, which in 2020 will amount to DKK 11 million. These losses will be financed by the security of supply tax.

2. ***A green and sustainable energy supply based on renewable energy***

The parties are in agreement regarding the following:

Development of wind power and renewable energy technologies

2.1 The development of offshore wind power will be increased through until 2020 using 1 000 MW offshore wind turbines and 500 MW coastal offshore wind turbines.

- 600 MW at Kriegers Flak and 400 MW at Horns Rev will be developed during the period 2013-2015, with commissioning anticipated during the period 2017-2020. The development at Horns Rev will be initiated first.
- The screening of areas will take place during the first half of 2012 with a view to establishing 500 MW coastal offshore wind turbines through until 2020. The future reimbursement model will be determined by the parties in an extension of the screening.

2.2 It is critical that thorough preparations are carried out for putting offshore wind farms out to tender and that the wind farms are marketed to potential tenderers and implemented with flexibility in order to ensure the greatest possible level of competition and lowest prices. A total of DKK 12 million has been allocated for the period 2012-2015 to strengthen the initiative with regard to the putting of offshore wind turbines out to tender.

2.3 The construction of new onshore wind turbines with a total capacity of 1 800 MW is anticipated during the period through to 2020. The dismantling of 1 300 MW of capacity is also anticipated during the same period. Support for this will be sought via new planning tools, strategic environmental assessments, the adaptation of the framework conditions as a result of technological developments and other measures. A proposal for this will be drawn up and submitted during the first half of 2013, and the parties to this agreement will reach agreement on any new initiatives. The proposal will partly be based on the evaluation of the four schemes in the Danish Promotion of Renewable Energy Act (the green scheme, the purchasing right scheme, the value loss scheme and the guarantee fund) and will include an assessment of the scope to further cut premiums for investments where the full premium is not necessary.

2.4 A change will be made to the settlement for the connection of new wind turbines to the grid from 1 January 2014, such that the fixed premium, which is nominally DKK 0.25/kWh for the first 22 000 full-load hours will in future be reduced øre by øre if the market price of electricity exceeds DKK 0.33/kWh nominally, and thereby lapse completely if the electricity price reaches or exceeds DKK 0.58/kWh at current prices. At the same time, the calculation basis will be changed for the supported production, so that it is weighted by 30 % of the turbine output and 70 % of the rotor area.

2.5 To safeguard future investment opportunities, etc. concerning wind turbines, the existing Danish Wind Turbine Secretariat will continue to perform this task within the Danish Ministry of the Environment. A fund of DKK 13.2 million will be allocated for the period 2012-2015 in order to finance the secretariat.

2.6 There will be an extension of the existing PSO-financed fund for new renewable energy technologies for electricity generation (solar, wave, etc.) amounting to a total of DKK 100 million over four years.

2.7 A total of DKK 25 million will be allocated in 2014-2015 to support the construction and demonstration of wave power projects.

Promotion of CHP, district heating and biomass, etc.

2.8 Changes will be made to the Danish Heat Supply Act with a view to promoting the conversion of central CHP plants to biomass. Electricity and heating generators and

heating customers will be given the opportunity to enter into voluntary agreements, according to which the tax benefits of switching from fossil fuels to biomass for heat generation may be split between the two parties.

2.9 To assist the smaller and troubled open-field plants struggling with high heating prices, changes will be made to the rules so that the 35 CHP plants with the highest heating prices in connection with the dispensation application may be given permission to install a maximum 1 MW biomass-powered boiler to be used solely for heat production.

2.10 A fund will be set up with a total of DKK 19 million during the period 2013-2015 to promote partnerships for strategic energy planning between municipalities, local businesses and energy companies, and to improve the interaction between government, regional and municipal initiatives and to support municipal planning and citizen-focused initiatives. Government involvement will be supported with a total of DKK 4.8 million.

2.11 An analysis will be prepared and submitted concerning the role of district heating in the energy supply of the future before the end of 2013. DKK 3 million will be allocated for the analysis.

2.12 An analysis of the use of bioenergy in Denmark will be carried out. This analysis will focus on whether the right conditions exist for the efficient and environmentally sustainable use of biomass resources in Danish energy supply. Furthermore, the analysis will illustrate CO_2 displacement. A total of DKK 7.5 million will be allocated for the period 2012-2015. The analysis will be submitted before the end of 2013.

2.13 A fund will be set up for the promotion of renewable energy in district heating (geothermal, large heat pumps, etc.) amounting to a total of DKK 35 million for the period 2012-2015.

3. *Conversion to renewable energy in buildings and industry*

The parties have agreed to support the phasing out of oil-fired boilers in existing buildings in cases where there are financially profitable alternatives. On the basis of this, the following initiatives will be implemented:

3.1 From 2013, a ban will be introduced on the installation of oil- and natural gas-fired boilers in new buildings. There will be provision for exemptions from this ban in cases where no suitable alternatives exist.

3.2 The parties are in agreement that from 2016 it will no longer be possible to install oil-fired boilers in existing buildings in areas where district heating or natural gas is an alternative, and that it will still be possible to install oil-fired boilers in existing buildings in areas without these alternatives.

3.3 In order to support the conversion from oil- and natural gas-fired boilers in existing buildings to forms of heating based on renewable energy, a fund totalling DKK 42 million will be allocated for the period 2012-2015 to promote initiatives for and the preparation of analyses of energy-efficient alternatives, including heat pumps, solar and solar heating. The scheme will subsequently be evaluated.

3.4 An analysis of the future use of the gas infrastructure will be carried out before the end of 2013 – both during a transition phase with the continued use of natural gas and in a future where biogas and other renewable energy gases take over. A total of DKK 2 million has been allocated for this analysis.

3.5 A fund of DKK 250 million has been set up for 2013, with DKK 500 million being available annually from 2014, which will be maintained until 2020. The fund will promote the energy-efficient use of renewable energy in company production

processes. The support will be given as a construction subsidy for projects that replace fossil fuels with renewable energy or district heating, and energy efficiency measures directly associated with these conversion projects. Companies that currently use district heating for processing may instead choose to receive a subsidy on an ongoing basis for their additional costs, up to a maximum of DKK 42 per GJ provided that the CHP production is converted to biomass and provided the scheme is approved by the EU under the state aid rules. An evaluation of the scheme will be carried out during the first half of 2015.

3.6 An annual grant of DKK 30 million is being introduced from 2013 until 2020 to maintain and promote industrial CHP in industries and nurseries, which will be financed by the security of supply tax.

3.7 A general basic allowance will be introduced for coal, coke and petroleum coke used for heavy processing. This relief will amount to around DKK 3 million in both 2013 and 2014, and will thereafter amount to around DKK 10 million per year during the period 2015-2020. The new allowance will be formulated on the basis of sulphur content per GJ of coal fuel.

3.8 An analysis will be carried out concerning the potential for better exploitation of surplus heat from industry. The problem will be discussed by the parties to this agreement before the middle of 2013. These discussions will include a discussion of the problem of unequal opportunities for re-invoicing tax changes.

4. *Intelligent electricity grids, etc.*

Realising the goal of phasing out fossil fuels presupposes the further expansion of the electricity system in an intelligent manner. Therefore, the parties are in agreement regarding the following:

4.1 New international electricity exchange capacity will be developed through the construction of Kriegers Flak. The interconnection of the Danish and German electricity market is being supported by the EU with around DKK 1.1 billion.

4.2 An overarching strategy will be drawn up in 2012 for the establishment of an intelligent electricity grid in Denmark. The parties will discuss possible new initiatives on the basis of the strategy.

4.3 Efforts will be made to establish an agreement with the network companies concerning the roll-out of remotely read hourly electricity meters.

4.4 An analysis will be carried out concerning the scope to maintain the high functionality of the electricity network in a situation with steadily rising wind strengths, with particular emphasis on the period after 2020. The analysis and subsequent work will be supported in the amount of DKK 2 million. The analysis will be completed in 2013.

4.5 An analysis will be carried out concerning the opportunities and effects of exchange connections, including connections to developments in neighbouring countries. The analysis will be presented before the end of 2014.

4.6 A ‘wholesale model’ will be established to promote competition in the electricity market, partly by ensuring that electricity consumers receive a single invoice from electricity trading companies. The wholesale model will not require any changes to consumer prices or payment terms which are parameters for competition. A compulsory insurance scheme will be set up to safeguard the maintenance of government tax revenue.

4.7 A detailed review will be carried out of the regulation of the Danish electricity supply sector with a view to securing incentives for green conversion, cost-effectiveness, competition and consumer protection. This review will be concluded in 2014. A total of DKK 13 million will be allocated for this purpose during the period 2012-2014.

5. *Better framework conditions for biogas developments*

An ambitious biogas development will be implemented. The financial conditions for biogas production will be improved with a view to facilitating progress in this field, and it will be possible to use biogas outside the CHP sector to a greater extent than at present. Therefore, the parties have agreed that overall support for biogas used for CHP or distributed via the natural gas network should be entitled to receive support amounting to DKK 115/GJ in 2012. This will be achieved through the following:

5.1 A new composite support model for biogas, where:

- The existing support of DKK 79/GJ for biogas used in CHP plants will continue as a basic subsidy.
- Subsidy equalisation will be implemented for biogas supplied to the natural gas network relative to biogas used for CHP generation, so that biogas supplied to the natural gas network will also receive the basic subsidy of DKK 79/GJ.
- A new basic subsidy of DKK 39/GJ for biogas will be introduced for processes in undertakings and transport.
- The start-up support from the construction fund will be increased from 20 % to 30 % in 2012.
- A subsidy of DKK 26/GJ will be introduced for all biogas users. The subsidy will be phased out in line with increases in natural gas prices. The subsidy will be reduced by DKK 0.01/GJ when the natural gas price rises by DKK 0.01/GJ.
- A further supplement of DKK 10/GJ will be introduced for all biogas users. The subsidy will be reduced by DKK 2/GJ from 2016 to DKK 0/GJ in 2020.

5.2 The regulations will be amended with a view to facilitating a voluntarily shift from fixed electricity bills to electricity premiums for clean biogas-based plants.

5.3 Municipal natural gas companies will be given the opportunity to become involved in biogas production as an associated activity to their commercial activities.

5.4 A taskforce will be appointed to investigate and support specific biogas projects with a view to ensuring the planned biogas development through until 2020. If the requisite developments in new projects do not occur in 2012-2013, the parties are in agreement that discussions will take place in 2014 concerning other options to promote biogas development, including specific proposals involving purchase obligations. A total of DKK 9.6 million will be allocated to the taskforce during the period 2012-2015 to support the development of biogas.

5.5 The biogas taskforce will be continued. A total of DKK 13.2 million has been allocated for this purpose during the period 2012-2015.

6. *Electricity and biomass in the transport sector*

In the longer term, the transport sector must undergo radical conversion from fossil fuels to new fuels such as electricity and biomass. The parties are in agreement regarding the following as the initial steps in this conversion:

6.1 A strategy will be drawn up to promote energy-efficient vehicles such as hybrid plug-ins and electricity-powered vehicles, etc., for which a fund of DKK 70 million will be disbursed during the period 2013-2015 to support the roll-out of chargers for electricity-powered vehicles, the infrastructure for hydrogen and the infrastructure for gas in heavy goods transport. The strategy will be discussed by the parties to the Agreement in 2013.

6.2 Amendments will be made to the Danish Biofuels Act with a view to ensuring the incorporation of 10 % biofuels by 2020. However, the implementation of this awaits an analysis of alternative initiatives to comply with the EU's obligations in relation renewable energy in transport. The analysis will be completed in 2015.

6.3 A fund amounting to DKK 9 million will be set up for the period 2013-2015 for a model to develop an analysis of the climate- and energy-related considerations in relation to the use of alternative fuels. The work will support the reduction of CO_2 emissions from the transport sector. An element of this work will be the interplay between the fuels and the energy system.

6.4 A total of DKK 15 million has been allocated for the period 2013-2015 for the continuation of the electric vehicle research scheme.

7. *Increased research, development and demonstration*

Investments in research, development and demonstrations are also prerequisites for Danish undertakings to develop and sell green solutions and create green jobs in Denmark in the longer term. The parties are in agreement regarding the following:

7.1 The parties will strive to continue the high level of research and development in energy technology to support continued efficiency in the use of energy and promote cost-effective renewable energy technologies that also have commercial and export potential.

7.2 A total of DKK 9.5 million has been allocated for the period 2012-2015 to support the ongoing work on Samsø to demonstrate solutions for the creation of an island that is independent of fossil fuels.

7.3 The parties have noted that the framework for receiving support from the PSO-financed ForskEL programme is broad, but subject to the restriction that individual research projects must have a significant link to the electricity system.

8. *Financing of the agreement's energy policy initiatives*

The agreement's new energy policy initiatives through until 2020 require financing. At the same time, there is a need to ensure long-term government financial sustainability, which includes ensuring that the taxation and subsidy system also helps to support the green conversion in future. The framework conditions must support green investments and make it attractive for consumers to make green choices. The parties are in agreement regarding the following:

8.1 The agreement will be implemented in a cost-effective manner and give consideration to customers and the competitiveness of companies.

8.2 The additional costs for energy companies as a result of the increased energy savings obligation will be financed through the companies' tariffs.

8.3 Support costs in connection with the development of renewable energy supplied to the electricity grid will be financed through the PSO schemes.

8.4 Support for renewable energy supplied to the gas network will be financed via a PSO scheme for gas consumption corresponding to the existing PSO scheme for electricity.

8.5 Other support will be financed via the Finance Act; see the initiatives in Annex 3.

8.6 Government subsidies for renewable energy for processing, biogas (for transport and processing), industrial CHP, energy savings packages for private rental properties and the government tax losses that will result from the displacement of fossil fuel will be financed by a security of supply tax.

8.7 The security of supply tax will be imposed on all space heating, i.e. space heating generated by both fossil fuels and biomass, and will enter into force in 2013. However, this will require a new tax basis with regard to biomass; hence this must be formulated with due consideration for the EU's discrimination and state aid rules and will enter into force no later than 2014.

8.8 To ease the burden of the security of supply tax on consumers of fossil fuels who already pay high taxes, the tax rise in respect of fossil fuels already subject to taxation will be reduced by DKK 7.5/GJ by no later than 2020 (2010 level).

8.9 In order to shield private companies from the tax financing of the agreement's energy policy initiatives, tax relief will be provided in respect of energy taxes on electricity and fuel for processing. This tax relief will be financed via the security of supply tax and will ensure that the burden borne by private companies collectively from the security of supply tax and processing energy tax relief will be reduced to DKK 75 million in 2020. The tax relief relating to energy taxes on electricity and fuel for processing will be phased in gradually through to 2020 alongside the other financing measures for the agreement.

8.10 The security of supply tax will generate DKK 0.6 billion in 2013 for financing the agreement's energy policy initiatives, rising to DKK 2.8 billion in 2020 in immediate revenue following the deduction for compensation of industry; see Table 1.

Table 1. The security of supply tax's financing contribution

2011 prices, DKK billion	2013	2014	2015	2016	2017	2018	2019	2020
Immediate revenue with the deduction of compensation for industry	0.6	1.4	1.7	1.9	2.2	2.4	2.5	2.8

8.11 The remaining proposed expenditure relating to the Finance Act will be financed within the allocated reserves for energy negotiations for the Finance Act for 2012 and in connection with the winding-up of the campaign and information activities in Go' Energi.

8.12 With a view to assessing the need for adjustments, the existing subsidy and taxation system will be reviewed. This review will include the scope to offer incentives for switching to a green, cost-effective and flexible energy system. The terms of reference for the analysis will be approved by the parties to the agreement. The analysis will be completed by 2014.

8.13 With a view to reducing the cost of the initiatives in the agreement for citizens and undertakings, a number of cost-reducing initiatives will be implemented, including increased competition and efficiency measures, etc. relating to the monopoly-regulated companies in the electricity sector, including grid companies and Energinet.dk's organisation, which in summary form can be broken down as

specified in Annex 2. The government is obliged to report on the status of any savings realised on an annual basis; therefore, follow-up will be carried out on an ongoing basis to ensure that the agreement is not based on an erroneous financial basis.

Overview of analyses and studies for the conversion of the overall energy supply to clean renewable energy

The conversion of the energy supply to clean renewable energy is a very comprehensive task. It is critical that the various subsystems of the energy sector operate optimally together in the conversion, yet at the same time the requisite infrastructure must be developed on an ongoing basis. To ensure an adequate knowledge basis that supports the most economic and effective solutions, the agreement's initiatives and decisions regarding new initiatives for the next phase in the conversion process, there will be a need to implement a number of analyses and studies during the period 2012-2015 for which funds will be allocated.

The parties will meet and discuss the analyses and studies when they have been completed. The parties are in agreement regarding the implementation of the following initiatives:

Topics in the Energy Policy Agreement	***Analyses, etc.***
An energy-efficient society with less energy wastage	• Analysis of the role of district heating in the future energy supply before the end of 2013. • The municipal CO_2 calculator for the municipalities' annual CO_2 statements will be further developed and updated. A total of DKK 2 million will be allocated for this during the period 2012-2015. • An overall strategy will be drawn up for the energy renovation of existing buildings. This will include a study of the scope to tighten up the requirements concerning building components and an overarching analysis of the area, including initiatives for better compliance with the requirements of the building regulations and the use of ESCO models. The minimum requirements for building components in the building regulations will be future-proofed to reflect future challenges and anticipated energy prices. The strategy will be discussed by the parties to the Agreement before the end of 2013. A total of DKK 30 million has been allocated for this purpose during the period 2012-2015.
A green and sustainable energy supply based on renewable energy	• Analysis of the future use of the gas infrastructure – both during a transition phase with the continued use of natural gas and in a future where biogas and other renewable energy gases take over – before the end of 2013. • An analysis of the use of bioenergy in Denmark will be prepared. The analysis will focus on whether the right framework conditions exist for the efficient and environmentally sustainable use of biomass resources in Danish

	energy supply, including CO_2 displacement. The analysis will be submitted before the end of 2013. • Analysis of the potential to maintain the high level of functionality of the electricity network in a situation with steadily rising wind strengths. • Analysis of the potential and effects of exchange connections. • Analysis of models for support for solar energy.
Intelligent electricity networks	• Strategy for the establishment of intelligent electricity networks in Denmark.
Transport	• Regular technology assessments for the transport sector. • Strategy for the promotion of energy-efficient vehicles such as hybrid plug-ins and electric vehicles, etc., which will be discussed in 2013.
Other	• A detailed review will be carried out of the regulation of the Danish electricity supply sector with a view to securing incentives for green conversion, cost-effectiveness, competition and consumer protection. The review will be concluded in 2014. A total of DKK 13 million will be allocated for this during the period 2012-2014. • Review of the subsidy and taxation system with the aim of assessing the need for adjustments to the existing system, so that socio-economic aspects can offer appropriate incentives for converting to a green and flexible energy system. The terms of reference for the analysis will be approved by the parties to the agreement. • The development of a general equilibrium model for modelling energy systems and socio-economics to identify effective political measures and future regulatory measures. A total of DKK 15.2 million has been allocated for this during the period 2012-2015. • An analysis of the overall energy initiative and possible new initiatives to identify the pivotal preconditions and strategic choices to ensure the conversion of the overall energy supply to clean renewable energy in 2050, and to identify how the sub-elements of the energy system (electricity, heating and transport) can interact together. The analysis will be prepared in advance of the parties' meeting in 2018 to discuss initiatives after 2020. • Analysis and underlying data concerning the energy-related conditions of industry, in particular the effect of competitiveness in relation to other countries in both the short and the long term for different industries. The analyses will incorporate new knowledge concerning the scope for energy efficiency, the scope for passing on costs and the identification of rural/urban problems, in addition to the development of energy efficiency under

	different assumptions regarding developments in energy prices, CO_2 prices, technological development, etc. A total of DKK 10 million has been allocated for this during the period 2013-2015.

Annex 1 concerning the financing and phase-in profile for FSA, PSO and tariffs

Table: Annual financing broken down by PSO, tariffs and FSA, rounded to the nearest DKK 100 million

DKK million	2012	2013	2014	2015	2016	2017	2018	2019	2020
Energy agreement[1)]	-300	700	1 400	1 800	1 800	2 500	2 900	3 400	3 500
PSO	100	100	200	200	300	800	1 100	1 500	1 400
Tariffs	-300	100	-200	-100	-300	-400	-500	-600	-600
FSA[2)]	0	600	1 400	1 700	1 900	2 200	2 400	2 500	2 800

1) Due to rounding, the total of the sub-contributions does not necessarily add up to the overall rounded total for the financing.

2) The FSA is not expected to generate revenue until 2013, and it is expected that the loss in revenue of approx. DKK 100 million in 2012 will be financed in 2013.

Annex 2

The initiatives in the agreement will result in a number of investments and costs of significance for citizens and industry. Therefore, a number of measures will be implemented in parallel during the agreement period, which will reduce energy costs for consumers compared with the developments that would take place without these measures. Measures will be implemented which, it is estimated, will result in savings totalling around DKK 1.8 billion in 2020.

Table: Measures for reducing the burden on consumers

Million DKK in 2020	**PSO (el. + gas)**	**Net tariff (el., gas, oil, district heating), etc.**	**Treasury (space heating)**	**Total**
Cost-reduction measures	-200			-200
Offshore wind turbine model		-755		-755
Efficiency improvement of Energinet.dk		-200		-200
Energinet.dk's acquisition of regional transmission network		-110		-110
Energy efficiency		-300		-300
Regulatory review – altered economic regulation of network companies		-130		-130
Deferment of aspects of the cable action plan		-75		-75
Wholesale model				
Total				**-1 770**

Reduced costs for the erection of offshore wind turbines: Reassessment of the need for support based on a reduced requirement for test turbines and the scope to distribute support over a longer period. The establishment of 400 MW at DKK 0.70/kWh will generate savings in relation to the amount assumed in *Vores Energi* of around DKK 200 million by 2020 (2011 prices)[21].

Cost reductions in the energy companies' savings initiatives: A ceiling has been established for the total cost of the energy companies' savings initiatives, which will generate savings in relation to the

[21] The parties to the agreement subsequently reached agreement to establish a further 100 MW via offshore wind turbines, giving a total of 500 MW.

amount assumed in *Vores Energi* of DKK 110 million by 2020 (2011 prices). The parties will discuss the handling of the situation if the assumed savings cannot be achieved within this ceiling.

Energinet.dk's acquisition of regional transmission networks: It is anticipated that Energinet.dk will acquire the regional transmission networks in 2012. The takeover of these regional networks is anticipated to generate benefits in the form of lower operating costs amounting to DKK 200 million by 2020.

Efficiency improvements to Energinet.dk, etc.: Energinet.dk will initiate savings and efficiency measures, amend the depreciation of electricity activities and pay any excess bottleneck income faster than previously assumed, such that in 2020 costs will be reduced by DKK 775 million in total, benefiting energy consumers through lower tariffs for the use of Energinet.dk's network.

Cable action plan: In 2009, the parties to the energy agreement reached an agreement concerning the cable action plan, which included total investments of DKK 15.2 billion at 2011 prices for the laying of cables and aesthetic projects. Parts of the projects have been postponed, which will save costs amounting to a total of DKK 130 million in 2020.

Benefits associated with the amended regulation of the electricity sector: *Vores Energi* includes a review of the regulation of the electricity sector. Benefits associated with changes to the economic regulation of the network companies are expected to produce savings of DKK 300 million.

Wholesale model: The introduction of the wholesale model to the electricity sector is itself expected to contribute a total reduction in consumer-related costs concerning network and electricity trading activities of DKK 100 million. The benefits mask the immediate savings by virtue of the fact that two invoices will not be sent out. In addition, the wholesale model will expose a number of tasks to competition, which on one hand is expected to lead to greater efficiency, but on the other hand will cause consumers to incur a loss as a result of a greater risk of tax losses, PSO and network tariffs.

Annex 3: Funds under the Energy Policy Agreement

Table 1: Initiatives related to the Finance Act

DKK million	2012	2013	2014	2015	Total, 2012-2015
Initiatives that have been or are being implemented:	**9.0**	**9.2**	**6.5**	**3.5**	**28.2**
Detailed review of electricity supply legislation	5.0	5.0	3.0	-	13.0
Equilibrium model (CGE model)	4.0	4.2	3.5	3.5	15.2
Prioritised initiatives not yet implemented:	**25.5**	**31.5**	**54.0**	**54.8**	**165.8**
Support for biogas development	5.7	5.7	5.7	5.7	22.8
Analysis of bioenergy usage	1.5	2.0	2.0	2.0	7.5
Support for wind developments	6.3	6.3	6.3	6.3	25.2
Energy planning and intelligent electricity networks	3.0	3.0	12.0	12.8	30.8
Promotion of new RE technology	5.0	10.0	22.5	22.5	60.0
Commercial analyses of energy usage	2.0	2.0	3.0	3.0	10.0
Support for fossil fuel-independent island (Samsø)	2.0	2.5	2.5	2.5	9.5

Table 2: Energy efficiency packages

DKK million	2012	2013	2014	2015	Total, 2012-2015
Prioritised energy efficiency initiatives	**20.0**	**60.0**	**60.0**	**60.0**	**200.0**
Promotion of alternatives to oil-fired boilers	3.0	13.0	13.0	13.0	42.0
Support for energy-saving initiatives	3.0	3.0	3.0	3.0	12.0
Energy renovation of existing buildings	7.5	7.5	7.5	7.5	30.0
Continuation of Centre for Energy Savings in Buildings	5.0	5.0	5.0	5.0	20.0
Transport infrastructure	1.0	23.0	23.0	23.0	70.0
Continuation of the electric vehicle research scheme	0.0	5.0	5.0	5.0	15.0
Climate- and energy-related conditions associated with alternative fuels	0.0	3.0	3.0	3.0	9.0
CO_2 calculator	0.5	0.5	0.5	0.5	2.0

[2] Facilitates comparison with Table 4a of the NREAPs.

[4] Facilitates comparison with Table 10a of the NREAPs.

[5] Direct use and district heating as defined in Article 5(4) of Directive2009/28/EC.

[6] Facilitates comparison with Table 11 of the NREAPs.