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Assessment of climate change policies in the context of the European Semester

Country Report: Denmark



Ecologic Institute

Authors team: Eike Dreblow, Matthias Duwe, Tim Wawer, Lena Donat, Elizabeth Zelljadt, Andrew Ayres

eclareon

Author: Anna Poblocka

Client: DG Climate Action Service Contract: 071201/2012/635684/SER/CLIMA.A.3

Ecologic Institute

Ecologic Institute, Berlin:

Pfalzburger Strasse 43/44 10717 Berlin Germany www.ecologic.eu

eclareon

eclareon GmbH

Giesebrechtstraße 20 10629 Berlin Germany www.eclareon.eu

Contact:

Eike Dreblow, Fellow Climate and Energy

Tel. +49 (30) 86880-165 Fax +49 (30) 86880-100 eike.dreblow(at)ecologic.eu

Contact:

Anna Poblocka Project Manager, Policy Department

Tel. +49 (30) 88 66 74 000 Fax +49 (30) 88 66 74 010 ap(at)eclareon.com

This country report has been produced as a joint output by Ecologic Institute and eclareon to support the Directorate General for Climate Action (DG CLIMA) at the European Commission in its work on the European Semester (Service Contract: 071201/2012/635684/SER/CLIMA.A.3).

The report provides an overview of current emission trends and progress towards targets as well as policy developments that took place over the period May 2012 to January 2013.

The content of the report represents the state of knowledge in February 2013, specific updates were made adding the latest official greenhouse gas emission data by the European Environment Agency (EEA).

Please feel free to provide any comments or suggestions to the authors through the contacts listed above.

Short summary

- **Background:** Denmark has many existing climate and energy policies and actively seeks to promote green growth.
- **GHG target:** Non-ETS emissions in 2011 were below of the 2013 target and according to the latest national projections Denmark is expected to meet its 2020 target.
- **Policy development:** The government is currently working on a Climate Plan, expected to be published later in 2013. The "Energy Agreement 2012–2020," passed in early 2012, sets long term goals for Danish energy policy together with specific measures to meet them, including foreseen funding

I Background on climate and energy policies

Climate change plays a big role in Danish policy. In March 2012, the Danish parliament passed a broad climate and energy strategic paper in the form of an *Energy Agreement 2012–2020*, a comprehensive follow-up on the country's previous such agreement for the period 2008–2011 and complementing its long-term energy strategy through 2050 published in February 2011. The new agreement sets policies and goals intended to reach Denmark's long-term domestic target of 100% renewable energy in both the energy and transport sectors by 2050, and several other benchmarks by 2020. The latter includes obtaining 35% of final energy consumption from renewables, 50% wind power in electricity consumption, and a 7.6% reduction in gross energy consumption compared to 2010. The measures in the agreement are expected to reduce GHG emissions 34% by 2020 compared to 1990 and are the main climate and energy initiatives Denmark cites in its National Reform Programme 2012 (see section 3).

Another long-term plan concerning non-energy climate change measures was intended to be finalised at the end of 2012—it targets policies to achieve the additional 6% emissions reduction needed to reach the country's overall 40% target (compared to 1990) by 2020 (Danish Ministry of Climate, Energy and Building 2012a). This document is still in preparation, during which time existing measures from Denmark's Climate Change Strategy of 2008 (The Danish Government 2008) and its National Strategy for Sustainable Development of 2009 (The Danish Government 2009) still constitute the relevant policies in the climate arena.

According to the Danish Energy Agency, the Government will present a climate plan in the next couple of months. The plan will point towards the 40% target, and also set a goal for reducing greenhouse gases from non-ETS sector. The Climate Plan will not be a legal but rather a strategy document. Moreover, according to the Agency, the government plans to write a climate law on climate change objectives.

"Green Growth" is a priority in Denmark and one of the Energy Agreement's main objectives. In 2009 the government published a strategy paper on Green Growth (Grøn Vækst) and a government analysis (Danish Ministry of Environment 2012a) of "green" products and services in the economy, concluding that in 2010, "green production" (ranging from photovoltaic installations to wastewater management to environmental consulting services) accounted for more than DKK 250 billion in revenue, equivalent to 9.2% of the total turnover in Danish companies with at least one employee. So-called "green exports" such as wind turbine technologies amounted to DKK 80 billion, equivalent to 10.4% of total Danish exports. The Danish government expects that investment foreseen in the Energy Agreement 2012–2020 (DKK 90–150 billion until 2020) will create 4,000 additional jobs in 2013 and 2014, and 6,000 to 8,000 jobs between 2015 and 2018.

Denmark brands itself as a "green lab" where international companies can test green technologies at a large scale. For example, the Energy Agreement dedicates DKK 9.5 million between 2012 and 2014 for efforts to make the island of Samso independent of fossil fuels (Danish Ministry of Climate, Energy and Building 2012b). Danish environmental technology companies currently employ 40,000 employees (Danish Ministry of Environment 2012b).

2 GHG projections

Background information

In 2011, Denmark emitted 56.2 Mt CO₂eq (UNFCCC inventory 2011), an 18% reduction of emission compared to 1990 level. About 36% of the emissions in 2011 come from energy supply. However, emissions from this sector decreased by 24% between 1990 and 2011, reflecting a switch from coal to natural gas and the increased share of renewable energy. Emissions from energy use decreased by more than 30% due to the growing use of district heating. Almost 50% of heating demand is met by district heating. In contrast, emissions from transport increased from 1990 to 2010 by over 20% despite high taxes on cars and fuel. However, transport emissions could be reduced from 2010 to 2011. Emissions from industrial processes have remained at a relatively constant level while agricultural emissions decreased slightly due to reduced use of synthetic fertilizer, nitrogen leaching, and enteric fermentation (UNFCCC inventory 2011, EEA 2012c, UNFCCC 2012).

Progress on GHG target

There are two sets of targets to evaluate: 1) the Kyoto Protocol targets for the period 2008-12 (which has just ended) and 2) the 2020 targets for emissions not covered by the EU ETS.

Under the Kyoto-Protocol the emission reduction target for Denmark for the period 2008-2012 is minus 21% based on 1990 for CO_2 , CH_4 and N_2O and on 1995 for F-gases. The latest available greenhouse gas data (for the year 2011) shows that Denmark's emissions have decreased on average by 18.9% compared to the Kyoto base year (EEA 2013a). It is therefore not sure if Denmark can meet its commitment through domestic reductions only.

By 2020, Denmark needs to reduce its emissions not covered by the EU ETS by 20% compared to 2005, according to the Effort Sharing Decision (ESD) (¹). The latest data suggest that Denmark is currently on track to meet this target. According to the 2011 inventory data, emissions in 2011 were below the Annual Emissions Allocation (COM 2013) for the year 2013. National projections show Denmark reducing its non-ETS emissions by 22% compared to 2005 in scenarios with existing measures and with additional measures (²) (EEA 2013b), 2% below of the 2020 target.

Figure 1 shows Denmark's non-ETS emissions until 2011, its targets under the ESD for the period 2013-2020 and its projections with existing measures for 2020.

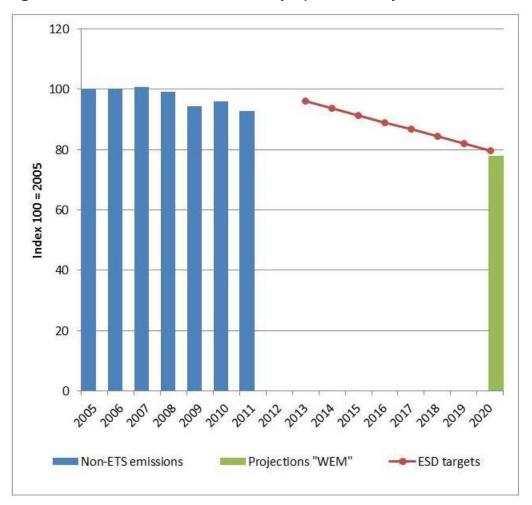


Figure 1: Non-ETS emission trends and projections compared to the ESD targets

Source: EEA - Based on 15/04/2013 draft GHG inventory submissions under the UNFCCC and MS projections submitted until 17/04/2013

¹ Decision No 406/2009/EC of the European Parliament and of the Council of 23 April 2009 on the effort of Member States to reduce their greenhouse gas emissions to meet the Community's greenhouse gas emission reduction commitments up to 2020.

² Calculations are based on domestic emissions only, without accounting for possible use of flexibility options. The 2020 targets and 2005 non-ETS emissions are all consistent with 2013-2020 ETS scope, i.e. they take into account the extension of the ETS scope in 2013 and the unilateral inclusion of installation in 2008-2012.

					ESD t	arget*	2020 Proj	jections**
	1990	2005	2010	2011	2013	2020	WEM	WAM
Total	68.7	63.9	61.2	56.2				
Non-ETS emissions		37.3	35.8	34.6	35.9	29.7	29.1	29.1
(% from 2005)				-7%	-4%	-20%	-22%	-22%
Energy supply	26.2	23.1	23.9	20.0				
(% share of total)	38%	36%	39%	36%				
Energy use (w/o								
transport)	14.6	13.0	11.0	10.1				
(% share of total)	21%	20%	18%	18%				
Transport	10.8	13.3	13.2	12.9				
(% share of total)	16%	21%	22%	23%				
Industrial processes	2.2	2.4	1.7	1.9				
(% share of total)	3%	4%	3%	3%				
Agriculture	12.5	9.9	9.6	9.7				
(% share of total)	18%	15%	16%	17%				

Table 1: GHG emission developments, ESD-targets and projections (in Mt CO₂eq)

Source: UNFCCC inventories 2011; EEA (2013b); COM (2013), Calculations provided by the EEA and own calculations.

* The ESD target for 2013 and for 2020 refer to different scopes of the ETS: The 2013 target is compared with 2011 data and is therefore consistent with the scope of the ETS from 2008-2012; the 2020 target is compared to 2020 projections and is therefore consistent with the scope of the ETS from 2013-2020. Non-ETS emissions in 2005 for the scope of the ETS from 2013-2020 amounted to 37.2 Mt CO₂eq. ** 2011 projections with existing measures (WEM) and with additional measures (WAM).

Legend for colour coding: green = target is being (over)achieved); orange = not on track to meet the target

Total greenhouse gas emissions (GHG) and shares of GHG do not include emissions and removals from LULUCF (carbon sinks) and emissions from international aviation and international maritime transport.

National projections of GHG emissions up to 2020, summarised by the EEA need to be prepared by the Member States in accordance with the EU Monitoring Mechanism (³) every two years, and the latest submission was in 2013. The projections reflect emissions reductions in line with policies and measures that have already been implemented (with existing measures, WEM), and an additional scenario that reflects developments with measures and policies that are in the planning phase (with additional measures, WAM).

In the following two tables, these measures - as outlined by Denmark as basis for projections as of April 2011 (⁴) - have been summarised with a focus on national measures and those EU instruments expected to reduce emissions the most (⁵). An update on the status of the policies and measures as of early 2013 is included in order to assess the validity of the scenarios.

³ Decision No 280/2004/EC of the European Parliament and of the Council of 11 February 2004 concerning a mechanism for monitoring Community greenhouse gas emissions and for implementing the Kyoto Protocol.

⁴ The respective policies and measures were not available at the time of the preparation of this country report. Thus, policies and measures as outlined in April 2011 are given here

⁵ The implementation of the EU-ETS has not been included. Other EU Directives have only been considered if they have been outlined in the projections as one of the main instruments to reduce GHG emissions.

Existing Mea legislation)	asures (only important national measures; w/o EU	Status of policy in January 2013
	Energy research: EUDP (Energy Technological Development and Demonstration Programme (DKK 226 mill. budget for 2009), PSO-scheme on environmentally friendly electricity production technologies (ForskEL) (DKK 130 mill. annually), PSO- scheme for efficient use of electricity (ELforsk) (DKK 25 mill.) and Strategical Research Council's budget for energy and environment (DKK 170 mill.).	EUDP: DKK 375 m for 2013; ForskEL: continued ELforsk: continued The Danish Council for Strategic Research (DSF): continued
	Price supplement and subsidies for environmentally friendly electricity: all renewable energy production plants receive subsidies incl. biomass-based electricity production, wind turbines, bio gas plants and small RE technologies (i.e., solar cells and wave power).	Implemented
	Support for heat pumps to replace individual oil burners; a pool of DKK 30 million over two years is given for information campaigns, labelling of efficient pumps, limited subsidy schemes.	The programme was active between 2008 and 2010. No longer ongoing.
Energy	Tenders for offshore wind turbines: 2 offshore wind turbine facilities, each with a size of 200 MW to be located at Horns Rev ("Horns Rev II") and at Rødsand ("Rødsand II").	Both Horns Rev II and Rødsand II were commissioned in 2010.
	Scrapping scheme for old wind turbines.	Implemented
	Gas Tax Act: Tax on consumption of natural gas and town gas in Denmark.	The tax on natural gas is determined by the Act on the Carbon Dioxide Tax on Certain Energy Products.
	Coal Tax Act: Tax rated after the calorific value of coal, coke, furnace coke, coke gravel, crude coke, lignite briquettes and lignite, tall oil, wood tar, vegetable pitch, etc.	Implemented
	Electricity Tax: Tax on consumption of electricity.	Implemented
	Carbon dioxide tax on energy products: Tax on energy products depending on their contribution to CO_2 emissions	Implemented
Energy Efficiency	Energy labelling of small and large buildings (incl. public sector and business).	Implemented
Linciency	Energy labelling of electric appliances.	Implemented
Transport	Increase energy efficiency in transport: Information campaign on fuel consumption of new cars, energy- correct driving technique, initiative on enforcing speed limits, promotion of environmentally friendly goods transport, reduced travel times for public transport.	No new information available at this point
	Green owner tax on motor vehicles: Car owners have to pay biannual taxes which are differentiated in accordance with the fuel efficiency of the cars, expressed in kilometers per litre.	Implemented
	Registration Tax Act: Tax is differentiated according to energy efficiency of the vehicle (km per litre).	Implemented

Table 2: Existing and additional measures as stated in the 2011 GHG projections

	Mineral-oil Tax Act: Tax on mineral oil products such as gas oil, diesel oil, fuel oil, heating tar, petroleum.	Implemented
Other non- ETS sectors (agriculture)	Regulation of use and tax on HFCs, PFCs and SF6: Import, sale and use of the substances or new products containing the substances is forbidden from 1 January 2006 with some exceptions. Tax is differentiated in accordance with the global warming potential.	Implemented
	Reduction of N run-off from agriculture: Action Plan for the Aquatic Environment I-III and Action Plan for Sustainable Agriculture	A 2008 evaluation of the Action Plan for the Aquatic Environment I-III reported unsatisfactory results for this measure. A new plan, "Green Growth Agreement", was developed and is expected to ensure better conditions for the environment.
	Ammonia action plan and statutory order on manure	Implemented
LULUCF	Subsidies scheme for private afforestation on agricultural land.	Implemented

Source: Reporting of MS in accordance with Decision No 280/2004/EC about their GHG emission projections up to 2020, April 2011

Additional Measures: Still to be implemented (only important national measures; w/o EU legislation)		Status of policy in January 2013
Energy	Support the substitution of individual oil based furnaces for modern, low-emission heating solutions, including systems based on renewable energy such as heat pumps and solar heating.	Implemented: oil and natural gas-fired boilers are not allowed in new buildings as of 1 January 2013.

Source: Reporting of MS in accordance with Decision No 280/2004/EC about their GHG emission projections up to 2020, April 2011

3 Evaluation of National Reform Programme 2012 (NRP)

In April of each year, Member States are required to prepare their National Reform Programmes (NRPs), which outline the country's progress regarding the targets of the EU 2020 Strategy. The NRPs describe the country's national targets under the Strategy and contain a description of how the country intends to meet these targets. For climate change and energy, three headline targets exist: 1) the reduction of GHG emissions, 2) the increase of renewable energy generation, and 3) an increase in energy efficiency (⁶).

⁶ There are specific targets for all MS by 2020 for non-ETS GHG emission reductions (see section 2) as well as for the renewable energy share in the energy mix by 2020 (see section 4, renewable energies). Specific energy efficiency targets will be defined (or revised) by the MS until the end of April 2013 in line with the methodology laid out in Article 3 (3) of the Energy Efficiency Directive (Directive 2012/27/EU).

In the following table, the main policies and measures as outlined in the NRP of April 2012 (⁷) have been summarised, and their current status (implemented, amended, abolished, or expired) is given, with specifics on latest developments.

Table 3: Main policies and measures as outlin	ned in the NRP, April 2012
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An overall strategy will be prepared for energy renovation of the existing building stock		
Status as stated in the NRP	No timeline given	
Status as per Jan 2013	Under implementation—no evidence of progress on this measure	
Description of policy or measure	The strategy will promote and improve renovation of existing buildings and ensure that in the context of the ongoing renovation and maintenance of existing buildings energy efficient solutions are employed.	

Additional wind capacity (on- and offshore) by 2020, with various MW targets for each type		
Status as stated in the NRP	Ongoing through 2020, including replacement of capacity expected to be decommissioned before 2020	
Status as per Jan 2013	Ongoing: between April 2012 and January 2013, 50 MW of offshore wind and 149MW of onshore wind capacity has been connected to the grid	
Description of policy or measure	The Energy Agreement's targets are as follows: An additional 1,000MW from offshore wind turbines by 2020. An additional 500MW from inshore wind turbines up to 2020. Up to 2020, it is anticipated that new onshore wind turbines will be erected with a total capacity of 1,800MW. It is anticipated that during the same period turbines totalling a capacity of 1,300MW will be decommissioned.	

Make conversion from coal to biomass at large-scale power plants more attractive		
Status as stated in the NRP	No specific timeline given	
Status as per Jan 2013	Amendments have not been made yet	
Description of policy or measure	This is to be done through amendment of the Heating Supply Act.	

New funding schemes for alternatives uses of biogas		
Status as stated in the NRP No timeline specified		
Status as per Jan 2013	The RES Law has been amended in July and December 2012, changing premium tariff for electricity from biogas and introducing premium tariff for biogas used for transport and processing purposes in industries.	
Description of policy or measure	The goal is to make use of biogas more financially attractive (e.g., in the natural-gas grid, industrial processes, and the transport sector).	

⁷ All NRPs are available at: http://ec.europa.eu/europe2020/documents/related-document-type/index_en.htm

Ban installation of oil and natural gas boilers in new buildings		
Status as stated in the NRP	Ban to start as of 2013	
Status as per Jan 2013	Implemented	
Description of policy or measure	Building regulation has been amended—since 2013 the installation of oil and natural gas boilers in new buildings is not allowed. The Energy Agreement foresees a further ban on oil and gas boilers in <i>existing</i> buildings from 2016, and sets aside a funding pool of DKK 42 million annually from 2012–2015 to support existing building conversion from oil and natural gas installations to renewable energy.	

Earmark funding for renewable energy in trade and industry		
Status as stated in the NRP	From fiscal year 2013	
Status as per Jan 2013	No such earmark in the finance law (budget law) 2013	
Description of policy or measure	Funding is awarded for construction and installations to promote energy-efficient use of renewable energy in industrial production processes. The pool is to be increased from DKK 250 million in 2013 to DKK 500 million annually from 2014 to 2020. A grant of DKK 30 million is to be introduced annually from 2013 to 2020 to retain and promote CHP in industry and horticulture.	

Promotion of electricity and biomass in the transport sector		
Status as stated in the NRP	Ongoing through 2020	
Status as per Jan 2013	Ongoing, the Act on Sustainable Biofuels that is currently in force obliges importers and producers of gasoline and diesel to meet a defined biofuel content quota.	
	The finance law (budget law) 2013 foresees the support for hybrid plug-ins and electric cars.	
Description of policy or measure	The Energy Agreement foresees a funding pool of DKK 70 million in the years 2013 to 2015 for hydrogen, gas infrastructure in heavy transport, and for energy-efficient vehicles such as hybrid plug-ins or electric cars.	
	The biofuels target for Denmark's transport sector is 10 per cent by 2020.	
	The Energy Agreement sets aside DKK 15 million in 2013–2015 for the continuation of the pilot scheme for electric cars.	

Establish an independent commission on nature and agriculture		
Status as stated in the NRP	No specific timeline given	
Status as per Jan 2013	The government established the new commission in March 2012. The results of the Commission's work shall be presented to the government in the first half of 2013.	
Description of policy or measure	The commission shall present proposals for solutions to the structural, economic, and environmental challenges of Danish agriculture, including how the agriculture sector can contribute to the solution on climate change and the environmental challenges.	

Ensure incentives for green behavioural change through tax measures		
Status as stated in the NRP	Proposal for the redistribution and increase of taxation on pesticides presented in early 2012.	
Status as per Jan 2013	On 12 June 2012, the Danish Parliament approved a tax on agricultural use of pesticides. This tax must be approved by the EU and can then enter into force.	
Description of policy or measure	The government proposed the measures to diminish health and environmental consequences of pesticides.	

4 Policy development

This section covers significant developments made in key policy areas between May 2012 and January 2013. It does not attempt to describe every instrument in the given thematic area. The time-frame was chosen based upon the release of the National Reform Programmes (in the section above) in April 2012, which contain the status quo for policy on most topics.

Environmental Taxation

Denmark's implicit tax rate on energy was the highest in the EU in 2009 at €283.2 per tonne oil equivalent, which actually reflects a decline since it peaked at over €310 in 2002 (Eurostat, 2013). Despite having the second-lowest energy intensity in the EU, this tax rate ensures that receipts from energy taxes stay high. Energy tax revenues as a percentage of GDP were 2.3% in 2010, fourth-highest in the EU. Likewise, overall environmental tax receipts equalled 4.0% of GDP, the highest value in the EU (Eurostat, 2012).

The Act on the <u>Carbon Dioxide Tax</u> on Certain Energy Products (first version from 1991, current version from 2011) and the Act on the <u>Energy Tax</u> on Mineral Oil Products (first version from 1992, current version from 2011) oblige companies producing, processing, receiving, or dispatching energy products to pay pre-defined taxes on these goods. The amount of the tax due rises each year.

Energy Efficiency

As mentioned above, the energy intensity of the Danish economy was the second-lowest among EU MS in 2010, having declined by 1.7% since 2005. Total final energy consumption was also down by over 3% in 2011 compared to the 2001–2005 average, mainly due to decreases in industrial and transport energy consumption (Eurostat, 2013).

The Energy Agreement 2012–2020 sets the ambitious goal of reducing gross energy consumption by 7.6% by 2020 compared to 2010. Existing schemes continue to promote energy savings in buildings and industry, as well as energy-efficient appliances. These include <u>mandatory energy labelling</u> for large and small buildings as well as for appliances and lighting. The Danish government <u>launched an information website</u> (www.goenergi.dk) on energy efficiency potential in the residential, industry, and public sectors to help consumers make intelligent energy decisions.

Renewable Energy

Denmark's share of renewable sources in total energy consumption increased from 16.2 to 22.2% between 2005 and 2010, putting the country in a good position to meet its 2020 goal of 30%. Meanwhile, the electricity sector is a leader within the country in terms of renewable energy integration, providing 33.11% of electricity consumption from renewable generation, which reflects a 26% increase since 2005 (Eurostat, 2013).

Denmark is strongly encouraging the production of renewable energy. In 2011, the share of renewable energy in total electricity supply exceeded 40% for the first time. Denmark has long been the world leader in wind power and wind farms, accounting for 28% of total electricity supply in 2011 (REUTERS 2012).

Since 2008, Denmark supports generation of electricity from renewable sources through a <u>premium tariff system</u> based on bonus payments as well as <u>net metering</u>. The operators of renewable energy plants receive a variable bonus which is paid on top of the market price. The sum of the market price and the bonus shall not exceed a statutory maximum per kWh, which depends on the source of energy used and the date of connection of a given plant. The RES Law is normally amended a few times a year, when the amount of premium tariff is newly adapted to the current state of the given technology. In 2012, the RES Law was amended 3 times, e.g., changing the tariff for biogas.

In an attempt to alter this tariff structure, Denmark's Climate Minister introduced new <u>legislation</u> in November 2012 to reduce photovoltaic subsidies. The measure, which has not passed in Parliament yet, is a response to the rapid pace of solar panel installation and the costs associated with this. From 2011 to 2012, the number of households with solar panels increased tenfold from 3,000 to 30,000 due to falling panel prices and the lucrative support scheme that allowed homeowners to effectively store excess energy in the grid and to overproduce in summer while receiving energy in winter at prices below market rates. The new legislation would alter the calculation of energy surpluses and the price paid by homeowners for energy they purchase back from the grid (The Copenhagen Post 2012).

The government supports the expansion of renewable energies through <u>subsidy funds</u> for small renewable energy technologies and through <u>tendering processes</u>. "Energinet.dk" provides funding to promote the deployment of small electricity generation installations using renewable energy sources or technologies deemed to be of strategic importance by the competent ministry—these include PV-installations, wave power plants, and special installations using biogas and biomass as an electricity source. In November 2012, the Energy Ministry announced a call for tenders for 450 MW offshore wind farms at six different sites to be connected by 2020 (Seenews 2012).

Denmark's building regulation was amended as of 1 January 2013 and now bans the installation of oil- or gas-fired boilers in new buildings. The ban will be extended to existing buildings in 2016. This provides a strong <u>incentive to use renewable heating</u> technology in buildings, and the Energy Agreement 2012–2020 sets aside a funding pool of DKK 42 million annually from 2012–2015 to support conversion from oil and natural gas installations to renewable energy.

Energy Networks

Denmark nationalised its power grids in 2005. The two interconnected power grids are respectively synchronized with the Nordic system and with continental Europe. The networks are quickly expanding, relying on underground cables for all 119 kV lines. Denmark is also testing the implementation of smart grids: supported by the EU Eco-Grid project, the installation of an intelligent power system on the island of Bornholm started in 2011 to test the viability of a smart grid concept. By the end of 2012 more than 1,000 households had registered for the project (EcoGrid). Further implementation of smart grid solutions is foreseen, with the Energy Strategy 2012–2020 prioritizing preparation of an overall strategy for smart electricity grids in Denmark.

Transport

Greenhouse gas emissions from Denmark's transport sector could slightly be reduced form 2005 to 2011 (see Table 1). Although transport taxation revenues as a percentage of GDP in Denmark were the highest in the EU at 1.5% in 2010, they are down from a peak of 2.3% in 2006 (Eurostat 2012). Meanwhile, newly registered cars in Denmark were among the most efficient in the EU in 2011. Having improved since 2005, they emitted on average 125.0 gCO₂/km driven - almost 10% better than the EU average making Denmark rank third among Member States (EEA 2012e).

To cut transport sector emissions further, Denmark's Act on Sustainable Biofuels obliges importers and producers of petrol and diesel to meet a defined <u>biofuel quota</u>. Providers of petrol or diesel fuels have to ensure that biofuels make up at least 5.75% of the company's total annual fuel sales. The obligation must be fulfilled by the end of each calendar year. Petrol and diesel fuel sold for transportation to end users must contain at least 1% of biofuels. This obligation does not apply to petrol with 98 octane or higher.

Denmark is also <u>promoting vehicle electrification through a pilot programme</u> aimed at gaining practical experience with electric cars. The programme, state aid for which was sanctioned by the EU through 2012, subsidises the purchase of electric vehicles and chargers. The Energy Agreement 2012–2020 foresees continuation of the programme at its current annual funding levels of DKK 15 million (€2 million) per year through 2015.

Agriculture

In March 2012, the government established an independent <u>Commission on Nature and</u> <u>Agriculture</u> which inter alia is asked to investigate how the agriculture sector can contribute to climate change mitigation. The results of the Commission's work are to be presented to the government in the first half of 2013.

5 Policy progress on past CSRs

As part of the European Semester, Country Specific Recommendations (CSRs) for each MS are provided by the EU Commission in June of each year for consideration and endorsement by the European Council). The recommendations are designed to address the major challenges facing each country in relation to the targets outlined in the EU 2020 Strategy. In the following table, those CSRs that are relevant for climate change and energy that were adopted in 2012 are listed, and their progress towards their implementation is assessed.

No CSRs related to climate change and energy were issued for Denmark in 2012.

6 References

- COM (2013): Commission decision of 26 March 2013on determining Member States' annual emission allocations for the period from 2013 to 2020 pursuant to Decision No 406/2009/EC of the European Parliament and of the Council. Online available at: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:090:0106:0110:EN:PDF
- Danish Energy Agency (2012) Danish Climate and Energy Policy. Online Available: http://www.ens.dk/en-US/policy/danish-climate-and-energy-policy/Sider/danish-climate-andenergy-policy.aspx
- Danish Ministry of Climate, Energy and Building (2012a): Nu formes Danmarks klimapolitik. Online available: http://www.kemin.dk/dadk/nyhederogpresse/pressemeddelelser/2012/sider/nuformesdanmarksklimapolitik.aspx
- Danish Ministry of Climate, Energy and Building (2012b): Energy policy report 2012, 9 May 2012. Online available at http://www.ens.dk/en-US/policy/danish-climate-and-energypolicy/Documents/Energy%20Policy%20Report%202012.pdf
- Danish Ministry of Climate, Energy and Building (2012c): Energy policy report 2012, 9 May 2012. Online available at http://www.ens.dk/en-US/policy/danish-climate-and-energypolicy/Documents/Energy%20Policy%20Report%202012.pdf
- Danish Ministry of the Environment (2012a): Analysis produced by the Climate, Energy and Building Ministry of Commerce and Growth Ministry and Environment Ministry, press release available online: http://www.mim.dk/Nyheder/2012/20121128_gronstatistik.htm
- Danish Ministry of the Environment (2012b): Regeringen investerer milliarder i grønne job. Online available: http://www.mim.dk/Nyheder/2012/20121111_finanslovfortsat.htm
- Danish Ministry of the Environment (2012c): Grøn Vækst 2009. Online available: http://www.mim.dk/Nyheder/Temaer/Groen_vaekst/
- Danish Ministry of the Environment (2012d): Hver femte virksomhed producerer grønt. Online available: http://www.mim.dk/Nyheder/2012/20121128_gronstatistik.htm
- Danish Ministry of the Environment (2012e): Pesticidafgift. Online available: http://www.mst.dk/Virksomhed_og_myndighed/Bekaempelsesmidler/Pesticider/miljoepolitiskem aal/initiativer/Pesticidafgift/
- Danish Ministry of the Environment (2012f): Regeringen investerer milliarder i grønne job. Online available: http://www.mim.dk/Nyheder/2012/20121111_finanslovfortsat.htm
- Danish Ministry of the Environment (2012g): Regeringen klar med ny afgift på sprøjtemidler. Online available: http://www.mim.dk/Nyheder/2012/20121206_pesticidafgift.htm
- EcoGrid. Online available: http://www.eu-ecogrid.net
- EEA (2012a): "Approximated EU GHG inventory: Early estimates for 2011" Technical report No 13/2012, available online at http://www.eea.europa.eu/pressroom/publications/approximated-eu-ghg-inventory-2011/
- EEA (2012b): Gap between average non ETS 2008–2011 emissions and Kyoto targets without the use of carbon sinks and flexible mechanisms. Online available: http://www.eea.europa.eu/data-and-maps/figures/gap-between-average-nonets-200820132011
- EEA (2012c): Greenhouse gas emission trends and projections in Europe 2012 Tracking progress towards Kyoto and 2020 targets. EEA Report No 6/2012. Online available: http://www.eea.europa.eu/publications/ghg-trends-and-projections-2012

- EEA (2012d): Projected gaps between 2020 GHG emissions and national targets in sectors not covered by the EU ETS. Online available: http://www.eea.europa.eu/data-and-maps/figures/projected-gaps-between-2020-ghg-1
- EEA (2012e): Monitoring CO₂ emissions from new passenger cars in the EU: summary of data for 2011. Online available: www.eea.europa.eu/publications/monitoring-co2-emissions-from-new/at_download/file
- EEA (2013a): EEA greenhouse gas data viewer: Change in emissions by country (%), Kyoto base year 2011. Online available at: http://www.eea.europa.eu/data-and-maps/data/data-viewers/greenhouse-gases-viewer
- EEA (2013b): Summary of new Member State projections under the Reporting of Member States in accordance with Decision No 280/2004/EC about their GHG emission projections up to 2020, April 2013.
- ENS (2012a): Grønne virksomheder skaber viden og jobs. Online available: http://www.ens.dk/dadk/info/nyheder/nyhedsarkiv/2012/sider/20120629groennevirksomhederskabervidenogjobs.asp x
- ENS (2012b): POTENTIALEANALYSE. Online available: http://www.ens.dk/da-DK/byggeri/renoveringsstrategi/analyser/Documents/Potentialeanalyse.pdf
- ENS (2012c): Stamdataregister for vindmøller. Online available: http://www.ens.dk/da-DK/Info/TalOgKort/Statistik_og_noegletal/Oversigt_over_energisektoren/Stamdataregister_vind moeller/Sider/forside.aspx
- Eurostat (2012): Source of data is Eurostat "Taxation trends in the European Union 2012". Collection: Statistical books. 2012. Brussels.
- Eurostat (2013): Source of data is Eurostat using the following tables: Implicit tax rate on energy (tsdcc360). Energy intensity of the economy (tsdec360). Final energy consumption (ten00095). Share of renewable energy in gross final energy consumption (t2020_31). Electricity generated from renewable sources (tsdcc330). Average carbon dioxide emissions per km from new passenger cars (tsdtr450). Final energy consumption. by sector (tsdpc320). Greenhouse gas emissions by sector (tsdcc210)
- Jamet, S. (2012), "Towards Green Growth in Denmark: Improving Energy and Climate Change Policies", OECD Economics Department Working Papers, No. 974, OECD Publishing. Available online at http://dx.doi.org/10.1787/5k962hjpwwvj-en
- Ministry of Food, Agliculture and Fisheries of Denmark (2012): Økologisk Handlingsplan 2020. Online available: http://www.fvm.dk/%C3%B8kologisk_handlingsplan_2020.aspx?ID=20868
- Retsinformation (2012): Bekendtgørelse om ændring af bekendtgørelse om offentliggørelse af
bygningsreglement2010(BR10).Onlineavailable:https://www.retsinformation.dk/forms/R0710.aspx?id=144679
- Reporting of Member States in accordance with Decision No 280/2004/EC of the European Parliament and of the Council concerning a mechanism for monitoring Community GHG emissions and for implementing the Kyoto Protocol. Last submission: April 2011.
- REUTERS (2012): Renewables share of Denmark's power tops 40 pct. Online available: http://www.reuters.com/article/2012/09/24/denmark-renewables-idUSL5E8KO8CV20120924
- Seenews (2012): Denmark launches bidding round for 450 MW offshore wind power. Online available: http://renewables.seenews.com/news/denmark-launches-bidding-round-for-450-mw-offshore-wind-power-319135
- The Copenhagen Post (2012): New legislation could quell solar energy boom. Online available: http://cphpost.dk/news/national/new-legislation-could-quell-solar-energy-boom

The Danish Government (2008): Danish strategy for adaptation to a changing climate. Online available: http://www.kemin.dk/Documents/Klima-% 20og% 20Eperginelitik/klimatilpappingsstrategi LK web.pdf

 $\% 20 og \% 20 Energipolitik/klimatilpasningsstrategi_UK_web.pdf$

- The Danish Government (2009): Vækst med omtanke Regeringens strategi for bæredygtig udvikling. Online available: http://www.mst.dk/NR/rdonlyres/728ACCCF-E313-4BC5-8F76-32ECDF9986B6/0/strategiforbaeredygtigudvikling_vaekstmedomtanke.pdf
- UNFCCC inventory (1990-2011): National greenhouse gas inventories (IPCC Common Reporting Format sector classification). Online available for the EU: http://www.eea.europa.eu/data-and-maps/data/data-viewers/greenhouse-gases-viewer (Last modified : May 29, 2013 09:30 AM)
- UNFCCC (2012) Reports on in-depth reviews of the fifth national communications of Annex I Parties. Online available: http://unfccc.int/national_reports/annex_i_natcom/idr_reports/items/4056.php