

The Kingdom of Denmark's

Report to facilitate the calculation of the assigned amount

- pursuant to Article 3, paragraphs 7bis, 8 and 8bis
of the Kyoto Protocol for the second commitment period

15 June 2016



Danish Energy Agency - part of the Danish Ministry of Energy, Utilities and Climate

CONTENTS

Introduction	3
1 Elements for calculation of the assigned amount and the CPR	4
1.1 Greenhouse gas inventories – cf. paragraph 1(a) in Annex I to Decision 2/CMP.8	4
1.2 Base year information – cf. paragraph 1(b) in Annex I to Decision 2/CMP.8	6
1.3 Agreement under Article 4 of the Kyoto Protocol – cf. paragraph 1(c) in Annex I to Decision 2/CMP.8	7
1.4 Calculation of the assigned amount – cf. paragraph 1(d) in Annex I to Decision 2/CMP.8	7
1.5 Calculation of the commitment period reserve (CPR) – cf. paragraph 1(e) in Annex I to Decision 2/CMP.8	8
2 KP-LULUCF	9
2.1 Forest definition – cf. paragraph 1(f) in Annex I to Decision 2/CMP.8	9
2.2 Activities elected under Article 3, paragraph 4, of the Kyoto Protocol – cf. paragraph 1(g) in Annex I to Decision 2/CMP.8	9
2.3 KP-LULUCF – The intention regarding accounting – cf. paragraph 1(h) in Annex I to Decision 2/CMP.8	10
2.4 Forest management reference level – cf. paragraph 1(i) in Annex I to Decision 2/CMP.8	10
2.5 Emissions from harvested wood products originating from forests prior to the start of the second commitment period – cf. paragraph 1(j) in Annex I to Decision 2/CMP.8	11
2.6 Natural disturbances – cf. paragraph 1(k) in Annex I to Decision 2/CMP.8	11
3 The national system and the national registry	12
3.1 Description of the national system for GHG inventories – cf. paragraph 1(l) in Annex I to Decision 2/CMP.8	12
3.2 Description of the national registry – cf. paragraph 1(m) in Annex I to Decision 2/CMP.8	12
Annex 1: Agreement under Article 4	13

Introduction

This report is the Kingdom of Denmark's Initial Report to be submitted to the secretariat of the United Nations Framework Convention on Climate Change (UNFCCC) in accordance with Decision 2/CMP.8¹ to facilitate the calculation of the assigned amount for Denmark pursuant to Article 3, paragraphs 7bis, 8 and 8bis (cf. Decision 1/CMP.8¹) and Article 4, of the Kyoto Protocol for the second commitment period and to demonstrate Denmark's capacity to account for Denmark's greenhouse gas emissions and assigned amount relevant to Denmark's contribution to the quantified emission limitation and reduction commitment (QELRC) for the European Union, its member States and Iceland for the second commitment period under the Kyoto Protocol (hereinafter referred to as the "initial report"²). As the agreement under Article 4 of the Kyoto Protocol to jointly fulfil the commitments of the European Union, its Member States and Iceland under Article 3 of the Kyoto Protocol is key to the establishment of the assigned amount for Denmark, this agreement is contained in Annex 1 to this report.

This report is submitted to the UNFCCC secretariat within the due date calculated from 15 April 2015 with the delay from June 2014 in the CRF Reporter availability cf. Decision 24/CP.19 on "Revision of the UNFCCC reporting guidelines on annual inventories for Parties included in Annex I to the Convention".

As the QELRC for the European Union, its member States and Iceland will be fulfilled jointly in accordance with Article 4 of the Kyoto Protocol, the European Commission will submit to the UNFCCC secretariat a similar report to facilitate the calculation of the assigned amount for the European Union pursuant to Article 3, paragraphs 7bis, 8 and 8bis and Article 4, of the Kyoto Protocol for the second commitment period. The base year information for Denmark contained in the present report will also be relevant for the report to facilitate the calculation of the assigned amount for the European Union.

This report collates the required information in accordance with Annex I to Decision 2/CMP.8. However, this report only presents the summary information on the most recent emissions inventory for the period 1990-2014. For more detailed information on the emissions inventory for 1990-2014, including information on methods and emissions factors, please see Denmark's National Inventory Report 2015 and 2016.

It should be noted that the Kyoto Protocol in 2002 was ratified with a territorial exclusion to the Faroe Islands in accordance with a request from the Faroese Parliament. Furthermore it should be noted that the target for the second commitment period under the Kyoto Protocol will be ratified with territorial exclusion to Greenland in accordance with an agreement with the government of Greenland. Neither Greenland nor the Faroe Islands are parts of the EU territory. Information in relation to Greenland and the Faroe Islands is therefore not included in this report.

¹ <http://unfccc.int/resource/docs/2012/cmp8/eng/13a01.pdf>

² A similar report was submitted in December 2006 for the establishment of Denmark's assigned amount for the first commitment period under the Kyoto Protocol (http://unfccc.int/files/national_reports/initial_reports_under_the_kyoto_protocol/application/pdf/aareporttounfccc-20dec2006.pdf).

1 Elements for calculation of the assigned amount and the CPR

1.1 Greenhouse gas inventories – cf. paragraph 1(a) in Annex I to Decision 2/CMP.8

Complete inventories of anthropogenic emissions by sources and removals by sinks of greenhouse gases (GHGs) not controlled by the Montreal Protocol, recalculated in accordance with Decision 4/CMP.7 for all years from 1990 to the most recent year available, which is 2014, and prepared in accordance with Article 5, paragraph 2, of the Kyoto Protocol and relevant decisions of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol (CMP) and the Conference of the Parties (COP), are provided in Denmark's National Inventory Report 2015 and 2016 and the related Common Reporting Format (CRF).

In table 1 below a summary table with Denmark's total GHG emissions 1990-2014 is shown.

For further information on emissions data in the CRF and the required information on the methods etc. please see Denmark's National Inventory Report 2015 and 2016 from DCE – Danish Center for Environment and Energy.

Note: Without Greenland and Faroe Islands.

TABLE 10 EMISSION TRENDS

SUMMARY

(Sheet 6 of 6)

Inventory 2016 v1

Submission 2016 v1

DENMARK

23 May 2016 under the EU MMR and 15 June 2016 under the UNFCCC and KP

GREENHOUSE GAS EMISSIONS	Base year ⁽¹⁾	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Change from base to latest reported year
		CO ₂ equivalent (kt)																									(%)
CO ₂ emissions without net CO ₂ from LULUCF	53560.51	53560.51	64175.50	58366.66	60611.26	64669.70	61587.97	74835.77	65433.07	61195.05	58617.46	54278.92	55853.60	55523.70	60608.87	55084.53	51508.72	59413.16	54635.69	51201.31	48812.53	49166.58	44167.29	39647.11	41630.61	37505.17	-29.98
CO ₂ emissions with net CO ₂ from LULUCF	59765.31	59765.31	69799.28	66025.83	64916.26	70423.16	66664.91	78501.37	70582.05	65380.23	64582.43	58954.32	61684.49	62883.09	66551.72	60846.23	57468.64	66358.03	58096.01	50099.24	51653.99	50493.77	43202.36	41065.97	43867.91	38813.22	-35.06
CH ₄ emissions without CH ₄ from LULUCF	8044.56	8044.56	8242.39	8327.95	8534.98	8399.99	8459.07	8569.65	8467.50	8533.76	8428.01	8317.68	8375.08	8498.41	8511.06	8356.48	8112.50	8002.74	7997.34	7853.09	7701.76	7751.73	7606.97	7449.45	7345.45	7328.25	-8.90
CH ₄ emissions with CH ₄ from LULUCF	8059.69	8059.69	8259.07	8346.82	8556.05	8423.24	8484.51	8597.28	8497.31	8573.25	8477.13	8376.46	8643.51	8576.49	8598.79	8454.52	8220.38	8121.14	8126.21	7992.46	7851.61	7910.86	7775.39	7635.50	7541.81	7570.50	-6.07
N ₂ O emissions without N ₂ O from LULUCF	7799.03	7799.03	7666.29	7597.69	7105.33	7195.84	7073.75	6655.81	6786.80	6782.71	6986.55	6832.45	6637.24	6719.20	6481.13	6040.31	5400.55	5376.73	5467.97	5434.60	5134.77	5123.94	5120.41	4961.05	5101.88	5071.65	-34.97
N ₂ O emissions with N ₂ O from LULUCF	7825.75	7825.75	7692.64	7624.09	7131.76	7222.29	7100.21	6682.25	6813.23	6809.11	7012.89	6858.70	6663.45	6745.32	6307.14	6066.65	5426.94	5403.13	5494.37	5460.99	5161.15	5123.87	5147.91	4989.27	5130.52	5101.48	-34.81
HFCs	NA/NO	NA/NO	NA/NO	3.69	102.29	146.34	241.46	379.86	376.35	475.46	581.99	703.54	735.66	780.03	812.05	875.28	932.64	957.80	989.36	992.93	944.05	950.42	886.47	801.04	780.95	701.67	
PFCs	NA/NO	NA/NO	NA/NO	NA/NO	NA/NO	0.07	0.63	2.09	5.20	11.47	14.74	22.57	27.91	28.01	24.59	20.53	18.77	21.15	21.19	18.44	19.98	18.67	15.76	12.25	10.90	8.66	
Unspecified mix of HFCs and PFCs	NA/NO	NA/NO	NA/NO	NA/NO	NA/NO	NA/NO	NA/NO	NA/NO	NA/NO	NA/NO	NA/NO	NA/NO	NA/NO	NA/NO	NA/NO	NA/NO	NA/NO	NA/NO	NA/NO	NA/NO	NA/NO	NA/NO	NA/NO	NA/NO	NA/NO	NA/NO	
SF ₆	42.41	42.41	60.58	85.05	96.51	116.44	102.40	58.15	69.70	56.69	61.92	56.07	28.12	23.44	29.52	30.76	19.90	33.49	28.11	29.31	34.17	35.76	69.39	112.00	130.58	132.37	212.13
NF ₃	NA/NO	NA/NO	NA/NO	NA/NO	NA/NO	NA/NO	NA/NO	NA/NO	NA/NO	NA/NO	NA/NO	NA/NO	NA/NO	NA/NO	NA/NO	NA/NO	NA/NO	NA/NO	NA/NO	NA/NO	NA/NO	NA/NO	NA/NO	NA/NO	NA/NO	NA/NO	
Total (without LULUCF)	69446.50	69446.50	80144.75	74381.04	76450.38	80528.38	77465.28	90501.33	81138.61	77055.13	74691.66	70211.21	71857.62	71572.79	76467.21	70407.90	65993.07	73805.06	69139.66	65529.68	62647.26	63047.10	57866.29	52982.89	55000.38	50747.77	-26.93
Total (with LULUCF)	75693.16	75693.16	85811.56	82085.47	80802.87	86331.54	82594.12	94221.01	86343.83	81506.22	80732.09	74971.65	77783.15	79036.39	82523.80	76293.98	72087.26	80894.73	72755.24	64593.38	65664.95	64560.35	57097.27	54616.02	57462.68	52327.91	-30.87
Total (without LULUCF, with indirect)	70671.15	70671.15	81412.93	75617.33	77662.50	81695.97	78608.33	91631.14	82191.53	78063.33	75632.47	71088.25	72709.43	72386.08	77264.65	71173.73	66729.48	74503.76	69796.79	66157.46	63217.63	63602.94	58370.40	53457.32	55451.09	51169.15	-27.60
Total (with LULUCF, with indirect)	76917.82	76917.82	87079.74	83321.77	82014.99	87499.12	83737.17	95350.81	87396.75	82514.42	81672.90	75848.69	78634.96	79849.68	83321.25	77059.81	72823.67	81593.44	73412.38	65221.15	66235.33	65116.19	57601.39	55090.46	57913.68	52749.29	-31.42

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	Base year ⁽¹⁾	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Change from base to latest reported year
		CO ₂ equivalent (kt)																									(%)
1. Energy	52375.03	52375.03	63064.89	57243.13	59579.17	63629.14	60564.57	73979.89	64496.27	60411.01	57993.54	53524.99	55214.83	54789.99	60019.65	54459.93	50771.97	58665.67	53831.53	50595.06	48580.27	49107.59	43785.01	39114.95	41002.64	36784.56	-29.77
2. Industrial processes and product use	2341.98	2341.98	2469.28	2522.58	2592.53	2706.14	2878.82	3022.17	3105.55	3204.39	3442.07	3631.65	3515.56	3468.51	3482.12	3313.02	2788.97	2848.09	2876.57	2574.60	2055.33	2034.19	2175.38	2120.86	2132.59	2071.20	-11.56
3. Agriculture	12728.00	12728.00	12601.70	12626.46	12293.30	12280.05	12198.26	11715.46	11830.69	11775.90	11523.17	11337.16	11368.46	11530.93	11174.89	11152.33	10965.76	10775.80	10931.61	10886.25	10844.78	10594.65	10557.35	10463.91	10352.53	10569.88	-16.96
4. Land use, land-use change and forestry ⁽²⁾	6246.66	6246.66	5666.81	7704.44	4352.49	5803.16	5128.84	3719.68	5205.22	4451.09	6040.43	4760.44	5925.53	7463.60	6056.59	5886.08	6094.19	7089.68	3615.58	-936.31	3017.69	1513.25	-769.01	1633.13	2462.30	1580.14	-74.70
5. Waste	2001.49	2001.49	2008.89	1988.87	1985.38	1913.04	1823.62	1783.83	1706.11	1663.84	1732.88	1717.40	1758.78	1783.36	1790.53	1482.62	1466.36	1515.49	1499.95	1473.77	1426.87	1310.67	1348.53	1283.17	1329.63	1322.14	-33.94
6. Other	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	
Total (including LULUCF) ⁽³⁾	75693.16	75693.16	85811.56	82085.47	80802.87	86331.54	82594.12	94221.01	86343.83	81506.22	80732.09	74971.65	77783.15	79036.39	82523.80	76293.98	72087.26	80894.73	72755.24	64593.38	65664.95	64560.35	57097.27	54616.02	57462.68	52327.91	-30.87

(1) The column "Base year" should be filled in only by those Parties with economies in transition that use a base year different from 1990 in accordance with the relevant decisions of the COP. For these Parties, this different base year is used to calculate the percentage change in the final column of this table.

(2) Fill in net emissions/removals as reported in table Summary I.A. For the purposes of reporting, the signs for removals are always negative (-) and for emissions positive (+).

(3) In accordance with the UNFCCC reporting guidelines, for Parties that decide to report indirect CO₂ the national totals shall be provided with and without indirect CO₂.

(4) In accordance with the UNFCCC reporting guidelines, HFC and PFC emissions should be reported for each relevant chemical. However, if it is not possible to report values for each chemical (i.e. mixtures, confidential data, lack of disaggregation), this row could be used for reporting aggregate figures for HFCs and PFCs, respectively. Note that the unit used for includes net CO₂, CH₄ and N₂O from LULUCF.

1.2 Base year information – cf. paragraph 1(b) in Annex I to Decision 2/CMP.8

In accordance with Article 3, paragraph 7bis and Annex A of the Kyoto Protocol the base year for carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O) is also 1990 for the second commitment period.

The base year for hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF₆) continues in the second commitment period to be 1995 as selected by Denmark in the first commitment period in accordance with Article 3, paragraph 8 of the Kyoto Protocol.

In accordance with Article 3, paragraph 8bis, of the Kyoto Protocol Denmark has also selected 1995 as the base year for nitrogen trifluoride (NF₃) in the second commitment period.

According to Article 3, paragraph 7bis of the Kyoto Protocol, Denmark's total base year emissions must therefore be calculated on the basis of emissions of carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O) in 1990 and emissions of hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF₆) and nitrogen trifluoride (NF₃) in 1995 from the sources listed in Annex A of the Protocol (energy, industry, agriculture, waste).

On the basis of the following information:

- Denmark's inventories of emissions of the greenhouse gases listed in annex A of the Kyoto Protocol in the period 1990-2014,
- Denmark's choice of 1995 as the base year for industrial greenhouse gases (HFCs, PFCs, SF₆ and NF₃) cf. Article 3, paragraphs 8 and 8bis of the Kyoto Protocol, and
- that greenhouse gas emissions from deforestation in Denmark in 1990 amounted to 6,583 tonnes CO₂ equivalents and therefore lead to a supplement, cf. Article 3, paragraph 7bis of the Kyoto Protocol,

the total emissions in the base year for Denmark under the Kyoto Protocol, i.e. without LULUCF and with indirect CO₂ emissions, amount to 70,979,816 tonnes CO₂ equivalents as shown in table 2.

Table 2 *Denmark's base year information in relation to the second commitment period under the Kyoto Protocol*

Tonnes CO₂ equivalents	Denmark in the EU
	Total (without LULUCF, with indirect)
Indirect CO ₂ (1990)*	1,224,652
CO ₂ (1990)*	53,560,506
CH ₄ (1990)*	8,044,556
N ₂ O (1990)*	7,799,032
HFCs (1995)	241,456
PFCs (1995)	634
SF ₆ (1995)	102,398
NF ₃ (1995)	0
Base year, without Article 3, paragraph 7bis	70,973,233
Deforestation cf. Article 3, paragraph 7bis	6,583
Base year, with Article 3, paragraph 7bis	70,979,816

1.3 Agreement under Article 4 of the Kyoto Protocol – cf. paragraph 1(c) in Annex I to Decision 2/CMP.8

In accordance with paragraph 1(c) in Annex I to Decision 2/CMP.8 the agreement under Article 4 of the Kyoto Protocol for the second commitment period, reached within the EU and its 28 Member States and with Iceland to fulfil the individual commitments under Article 3 of the Kyoto Protocol jointly, is included in Annex 1 to this report.

1.4 Calculation of the assigned amount – cf. paragraph 1(d) in Annex I to Decision 2/CMP.8

In accordance with Article 3, paragraph 7bis of the Kyoto Protocol and the agreement under Article 4 of the Kyoto Protocol referred to in chapter 1.3 above, the total assigned amount for the EU, its 28 Member States and Iceland (EU28+ISL) is equal to the sum of the Parties' contribution calculated from the percentage inscribed for these Parties in the third column of the table contained in Annex B of the protocol of its aggregate anthropogenic carbon dioxide equivalent emissions of the greenhouse gases listed in Annex A of the protocol in 1990, or the base year or period determined in accordance with Article 3, paragraph 5 of the protocol (i.e. also in accordance with Article 3, paragraphs 8 and 8bis of the Kyoto Protocol on EU Member States' choice of base year for the F-gases and in accordance with Article 3, paragraph 7bis of the Kyoto Protocol on additions of greenhouse gas emissions from deforestation in EU Member States with net emissions from LULUCF in 1990), multiplied by eight.

The calculation of the total assigned amount for the EU, its 28 Member States and Iceland is included in the European Union's report to facilitate the calculation of the assigned amount.

Denmark's contribution to EU28+ISL is calculated from the greenhouse gas inventory base year estimates referred to in chapter 1.1 above and the base year information included in chapter 1.2 above. In addition, Denmark is a Party for whom land-use change and forestry constituted a net source of greenhouse gas emissions in 1990. In accordance with Article 3, paragraph 7bis of the Kyoto Protocol and paragraph 5(b) in the annex to Decision 13/CMP.1³ Denmark's aggregate anthropogenic carbon dioxide equivalent emissions by sources minus removals by sinks in 1990 from land-use change ("all emissions by sources minus removals by sinks reported in relation to the conversion of forests (deforestation)") shall therefore be included in the calculation of Denmark's contribution to the total EU28+ISL assigned amount.

In accordance with Article 4 of the Kyoto Protocol and the agreement between EU, its 28 Member States and Iceland referred to in chapter 1.3 above the respective emission level allocated to Denmark is set out in this agreement cf. Annex 1 to this report. The emission level allocated to Denmark is related to the EU's total reduction commitment through the EU Effort Sharing Decision (ESD)⁴ as part of the EU Climate and Energy Package adopted in 2008. With the ESD, Denmark has undertaken a legal commitment to reduce total emissions of greenhouse gases not covered by the EU Emission Trading Scheme by 20 per cent in 2020, compared to the level of these emissions in 2005. Furthermore, in the period 2013-2019 these emissions also have to stay below a fixed annual amount of so-called Annual Emission Allocation (AEA).

³ <http://unfccc.int/resource/docs/2005/cmp1/eng/08a02.pdf#page=23>

⁴ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:140:0136:0148:EN:PDF>

The sum of the respective annual emission levels 2013-2020 allocated to Denmark under the ESD (269,321,526 units) and the application of Article 3, paragraph 7bis of the Kyoto Protocol (42,131 units) is equal to Denmark's share of the total assigned amount for EU28+ISL. The number of assigned amount units to be issued by Denmark is therefore 269,363,657 AAUs (corresponding to 33,670,457 AAUs in average per year in 2013-2020).

The rest of Denmark's contribution to the total assigned amount for EU28+ISL will be issued as assigned amount units by the European Union (i.e. the European Commission) cf. the report to facilitate the calculation of the assigned amount for the European Union submitted by the European Commission.

The results are also shown in table 3.

Table 3 *Denmark's total assigned amount 2013-2020 in relation to the second commitment period under the Kyoto Protocol*

Number of Assigned Amount Units (AAUs)	Denmark in the EU
Total Assigned Amount 2013-2020 before application of Article 3, paragraph 7bis of the Kyoto Protocol	269,321,526
Application of Article 3, paragraph 7bis of the Kyoto Protocol (80% of emissions from deforestation in 1990 times 8)	42,131
Total Assigned Amount 2013-2020	269,363,657
Average Annual Assigned Amount	33,670,457

1.5 Calculation of the commitment period reserve (CPR) – cf. paragraph 1(e) in Annex I to Decision 2/CMP.8

On the basis of the assigned amount for Denmark as shown in chapter 1.4 above, Denmark's commitment period reserve for the commitment period 2013-2020 of 90 per cent of assigned amounts can be calculated at 242,427,291 tonnes CO₂ equivalents in accordance with Decision 11/CMP.1 and as shown in table 4.

Since 100% of both the most recently reviewed inventory (inventory year 2012) and the most recently submitted inventory (inventory year 2014) are higher than 90% of the assigned amount, the 90% rule for the calculation of the commitment period reserve applies. This is also the case even when only the ESD-share of emissions in 2012 and 2014 are considered, although these calculations, based on shares of emissions in the inventories for 2012 and 2014 which would be more relevant, could be seen as calculations which are not in accordance with Decision 11/CMP.1.

Table 4 *Calculation of Denmark's commitment period reserve*

Number of units	Denmark in the EU
Total Assigned Amount 2013-2020	269,363,663
a. 90% of AA	242,427,291
Most recently reviewed inventory ⁵ (2012)*	52,150,053 (ESD: 33,241,115)
b. Times 8 (100%)	417,200,423 (ESD: 274,276,559)
Most recently inventory ⁶ (2014)**	51,169,153 (ESD: 32,643,514)
c. Times 8 (100%)	409,353,224 (ESD: 261,148,114)
CPR (lowest of a and b or c)	242,427,291

* without LULUCF and without indirect CO₂

** without LULUCF and with indirect CO₂

⁵ <http://unfccc.int/resource/docs/2014/arr/dnk.pdf>

⁶ http://cdr.eionet.europa.eu/dk/Air_Emission_Inventories/Submission_EU/envvpjdqw/

2 KP-LULUCF

2.1 Forest definition – cf. paragraph 1(f) in Annex I to Decision 2/CMP.8

For the first commitment period under the Kyoto Protocol, Denmark selected the following forest definition:

“For the estimation of anthropogenic emissions by sources and removals by sinks associated with afforestation, reforestation and deforestation since 1990 under Article 3(3) and forest management under Article 3(4) of the Kyoto Protocol, the following forest definition will be applied:

- Minimum values for tree crown cover: 10 per cent tree crown cover for forests.
- Minimum values for land area: 0.5 ha.
- Minimum value for tree height: trees must be able to reach a minimum height of 5 m in the site.

In addition, the forest area includes temporarily unstocked areas, smaller open areas in the forest needed for management purposes and fire breaks. Forests in national parks, reserves, or areas under special protection are included. Windbreaks and groves covering more than 0.5 ha and with a minimum width of 20 m are also considered as forests. Farmlands, orchards, gardens (houses and summer houses) are NOT included in the forest area.”

In accordance with paragraph 1(f) in Annex I to Decision 2/CMP.8 the forest definition for the second commitment period shall be the same as the above mentioned forest definition for the first commitment period.

2.2 Activities elected under Article 3, paragraph 4, of the Kyoto Protocol – cf. paragraph 1(g) in Annex I to Decision 2/CMP.8

In the first commitment period of the Kyoto Protocol, Denmark elected the following activities under Article 3, paragraph 4 of the Kyoto Protocol:

- forest management,
- cropland management, and
- grazing land management.

No additional activities under Article 3, paragraph 4, of the Kyoto Protocol is elected for inclusion in Denmark’s accounting for the second commitment period.

Through budgetary allocation of the necessary funds for continuing the research and monitoring work from the first commitment period Denmark, has ensured that land that was accounted for under activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol in the first commitment period continues to be accounted for in the second commitment period, in accordance with decisions 16/CMP.1 and 2/CMP.7.

The research and monitoring work in the second commitment period will build upon the research and monitoring work carried out in the first commitment period. This includes the use of the same methodologies, models and approaches, which

have been continuously improved and reviewed annually during the first commitment period due to Denmark's election of annual accounting. As no methodological changes are made from the first to the second commitment period in how land is identified, it is ensured that the land accounted for in the first commitment period continues to be accounted for in the second commitment period.

For Cropland and Grazing land Management emission factors from chapter 2 and 3 of the 2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories, will be used in combination with country specific emission factors.

For the second commitment period further work has been carried out in relation to the technical correction to the forest management reference level and harvested wood products. See section 2.4 below.

Inventories of emissions and removals under Article 3(3) and Article 3(4) will be prepared for each year in the period 2013-2020, and reported annually in 2015-2022 together with the other greenhouse gas inventory information.

2.3 KP-LULUCF – The intention regarding accounting – cf. paragraph 1(h) in Annex I to Decision 2/CMP.8

For each activity under Article 3, paragraphs 3 and 4, of the Kyoto Protocol, it is the intention to account annually for the second commitment period under the Kyoto Protocol.

2.4 Forest management reference level – cf. paragraph 1(i) in Annex I to Decision 2/CMP.8

Through a new project on HWP more accurate data for the production of wood products in Denmark have been provided. Together with a number of improvements in calculation routines as a result of the SINKS1 project this has lead to a need for a technical correction to the FMRL established in 2011.

The overall result shows that the forest in the FMRL will continue to be a source of emissions, while HWP with the new data from SINKS2 project will be a sink in the overall FMRL.

With this Denmark has a technical correction to the FMRL as shown in Table 5. This technical correction leads to the revised FMRL shown in Table 5. Further documentation is included in Denmark's 2015 and 2016 annual GHG inventory submission under the Kyoto Protocol.

Table 5 *FMRL in Decision 2/CMP.7 and technical corrections*

Forest Management Reference Level (Gg CO₂eq per year), Denmark in the EU		
	Assuming instantaneous oxidation of HWP	Applying first order decay function for HWP
FMRL in Decision 2/CMP.7	334	409
Technical correction*	+58	-83
Corrected FMRL*	392	326

* The numbers are rounded.

2.5 Emissions from harvested wood products originating from forests prior to the start of the second commitment period – cf. paragraph 1(j) in Annex I to Decision 2/CMP.8

As a part of the Forest Management Reference Level (FMRL), constructed in accordance with Decision 2/CMP.7, annex, paragraph 16, updated data for accounting of emissions from harvested wood products (HWP) were collected.

It is decided that due to major changes in the data material used for the HWP reporting and its contribution to the original FMRL in 2011, a correction of the FMRL is needed. According to this the FMRL has been corrected using new and corrected data and a reference period from 2008-2012 instead of the years 2005-2009 stated in the 2013 KP Supplement guidelines. The harvest in the second commitment period is expected to increase with a decreasing ratio over the period compared to the average harvest of the reference period.

As all input data up to 2012 are identical for the calculation of the HWP contribution and the calculation of the contribution to FMRL, the total stock of HWP carbon ultimo 2012 is identical in the reporting and in the FMRL calculation. Therefore the only source of difference between the reported and projected net emissions from HWP in 2013 is the difference between the reported inflow in 2013 and the projected inflow in 2013.

As forecasting gives the most accurate results with a baseline period employing the most recent data, it has been decided to use 2008-2012 as baseline period for the projections of the FMRL. Another important reason is that the inflow data of 2008-2012 are considered to be less uncertain than the inflow data of 2005-2009. Inflow data from 2011 and 2012 are based on a Questionnaire regarding the production of the Danish wood industry, and thus data for these two years are the most accurate estimates of the annual inflow in the considered period of time. Though in accordance with the 2013 KP Supplement guidelines, the years 2008-2010 is also included in the baseline period.

For the forest management part of the FMRL, the revision is based on technical improvements of calculations, ensuring consistency with the reporting techniques. The overall technical corrections are included in Table 5.

2.6 Natural disturbances – cf. paragraph 1(k) in Annex I to Decision 2/CMP.8

Denmark has no intention to apply the provisions to exclude emissions from natural disturbances for the accounting for afforestation and reforestation under Article 3, paragraph 3, of the Kyoto Protocol and/or forest management under Article 3, paragraph 4, of the Kyoto Protocol during the second commitment period.

3 The national system and the national registry

3.1 Description of the national system for GHG inventories – cf. paragraph 1(l) in Annex I to Decision 2/CMP.8

As Denmark did have a quantified reduction target in the first commitment period, and a description of Denmark's national system for GHG inventories in accordance with Article 5, paragraph 1, of the Kyoto Protocol, has been reported in accordance with the "Guidelines for the preparation of the information required under Article 7 of the Kyoto Protocol".

In accordance with paragraph 1(l) in Annex I to Decision 2/CMP.8 a description of the national system is not included in this report.

3.2 Description of the national registry – cf. paragraph 1(m) in Annex I to Decision 2/CMP.8

As Denmark did have a quantified reduction target in the first commitment period, and a description of Denmark's national registry has been reported in accordance with the "Guidelines for the preparation of the information required under Article 7 of the Kyoto Protocol".

In accordance with paragraph 1(m) in Annex I to Decision 2/CMP.8 a description of the national registry is not included in this report.

Annex 1: Agreement under Article 4

Notification of the terms of the agreement to fulfil jointly the commitments of the European Union, its Member States and Iceland under Article 3 of the Kyoto Protocol for the second commitment period of the Kyoto Protocol

1. Members of the agreement

The European Union, its Member States and the Republic of Iceland, each being Parties to the Kyoto Protocol, are the members of this agreement ("the members"). The following are at present Member States of the European Union:

the Kingdom of Belgium, the Republic of Bulgaria, the Czech Republic, the Kingdom of Denmark, the Federal Republic of Germany, the Republic of Estonia, Ireland, the Hellenic Republic, the Kingdom of Spain, the French Republic, the Republic of Croatia, the Italian Republic, the Republic of Cyprus, the Republic of Latvia, the Republic of Lithuania, the Grand Duchy of Luxembourg, Hungary, the Republic of Malta, the Kingdom of the Netherlands, the Republic of Austria, the Republic of Poland, the Portuguese Republic, Romania, the Republic of Slovenia, the Slovak Republic, the Republic of Finland, the Kingdom of Sweden, and the United Kingdom of Great Britain and Northern Ireland.

Iceland is a member of this agreement pursuant to the Agreement between the European Union and its Member States and Iceland concerning Iceland's participation in the joint fulfilment of the commitments of the European Union, its Member States and Iceland for the second commitment period of the Kyoto Protocol to the United Nations Framework Convention on Climate Change.

2. Joint fulfilment of the commitments under Article 3 of the Kyoto Protocol for the second commitment period of the Kyoto Protocol

In accordance with Article 4(1) of the Kyoto Protocol, the members will fulfil their commitments under Article 3 thereof as follows:

- the members will ensure that, in accordance with Article 4(5) and (6) of the Kyoto Protocol, in the Member States and Iceland the combined sum of the aggregate anthropogenic carbon dioxide equivalent emissions of the greenhouse gases listed in Annex A to the Kyoto Protocol does not exceed their joint assigned amount;
- the application of Article 3(1) of the Kyoto Protocol to greenhouse gas emissions from aviation and shipping for the Member States and Iceland is based on the Convention's approach of only including emissions from domestic flights and domestic shipping in Parties' targets. The European Union approach under the second commitment of the Kyoto Protocol will remain the same as that of the first commitment period, given the lack of progress since Decision 2/CP.3 in attributing those emissions to Parties' targets. This is without prejudice to the stringency of the European Union's commitments under the climate and energy package, which remain unchanged. It is also without prejudice to the need to take measures concerning emissions of such gases from aviation and marine bunker fuels;
- each member may increase its ambition level by transferring assigned amount units, emission reduction units or certified emission reduction units to a cancellation account established in its national registry. The members will jointly submit the information required by paragraph 9 of Decision 1/CMP.8, and will jointly make any proposals for the purpose of Article 3(1ter) and (1quater) of the Kyoto Protocol;

- the members will continue to apply Article 3(3) and (4) of the Kyoto Protocol and decisions agreed thereunder individually;
- the combined base year emissions of the members will equal the sum of emissions in the respective base years applicable to each Member State and Iceland;
- if land use, land-use change and forestry constituted a net source of greenhouse gas emissions in 1990 for any Member State or Iceland, the relevant member shall, pursuant to Article 3(7bis) of the Kyoto Protocol, include in its emissions base year or period the aggregate anthropogenic carbon dioxide equivalent emissions by sources minus removals by sinks in the base year or period from land use, land-use change and forestry for the purpose of calculating the joint assigned amount of the members determined in accordance with Article 3 (7bis), (8) and (8bis) of the Kyoto Protocol;
- the calculation pursuant to Article 3(7ter) of the Kyoto Protocol shall apply to the joint assigned amount of the second commitment period for the members determined in accordance with Article 3 (7bis), (8) and (8bis) of the Kyoto Protocol and the sum of the average annual emissions of the members for the first three years of the first commitment period multiplied by eight;
- in accordance with Decision 1/CMP.8, units in a member's Previous Period Surplus Reserve account may be used for retirement during the additional period for fulfilling commitments of the second commitment period, up to the extent by which that member's emissions during the second commitment period exceed its respective assigned amount for that commitment period, as defined in this notification.

3. Respective emission levels allocated to the members to the agreement

The quantified emission limitation and reduction commitments for the members listed in the third column of Annex B to the Kyoto Protocol are 80 %. The joint assigned amount of the members for the second commitment period will be determined pursuant to Article 3(7 bis), (8) and (8 bis) of the Kyoto Protocol, and its calculation will be facilitated by the report submitted by the European Union pursuant to paragraph 2 of Decision 2/CMP.8.

The respective emission levels of the members are as follows:

- The emission level for the European Union is the difference between the joint assigned amount of the members, and the sum of the emission levels of the Member States and Iceland. Its calculation will be facilitated by the report submitted pursuant to paragraph 2 of Decision 2/CMP.8.
- The respective emission levels of the Member States and Iceland in accordance with Article 4(1) and (5) of the Kyoto Protocol are the sum of their respective amounts listed in Table 1 below and any results of the application of the second sentence of Article 3(7bis) of the Kyoto Protocol for that Member State or Iceland.

The assigned amounts of the members shall be equal to their respective emission levels.

The assigned amount of the European Union will be counted against the emissions of greenhouse gases from sources under the European Union Emissions Trading Scheme, in which its Member States and Iceland participate, to the extent that those emissions are covered under the Kyoto Protocol. The respective assigned amounts of the Member States and Iceland cover the greenhouse gas emissions by sources and removals by sinks in each Member State or Iceland from sources and sinks not covered by Directive 2009/29/EC of the European Parliament and of the Council amending Directive 2003/87/EC so as to improve and extend the greenhouse gas emission allowance trading scheme of the Community. This includes all emissions by sources and removals by sinks covered by Article 3(3) and (4) of the Kyoto Protocol as well as all emissions of nitrogen

trifluoride (NF₃) under the Kyoto Protocol.

Members of this agreement shall report separately on the emissions by sources and removals by sinks covered by their respective assigned amounts.

Table 1:
Emission levels of the Member States and Iceland (before application of Article 3(7bis))
in terms of tonnes of carbon dioxide equivalent for the second commitment period
of the Kyoto Protocol

Belgium	584 228 513
Bulgaria	222 945 983
Czech Republic	520 515 203
Denmark	269 321 526
Germany	3 592 699 888
Estonia	51 056 976
Ireland	343 467 221
Greece	480 791 166
Spain	1 766 877 232
France	3 014 714 832
Croatia	162 271 086
Italy	2 410 291 421
Cyprus	47 450 128
Latvia	76 633 439
Lithuania	113 600 821
Luxembourg	70 736 832
Hungary	434 486 280
Malta	9 299 769
Netherlands	919 963 374
Austria	405 712 317
Poland	1 583 938 824
Portugal	402 210 711
Romania	656 059 490
Slovenia	99 425 782
Slovakia	202 268 939
Finland	240 544 599
Sweden	315 554 578
United Kingdom	2 743 362 625
Iceland	15 327 217