

*Report to facilitate the estimation of
Finland's assigned amount for
the second commitment period of the
Kyoto Protocol*

15 June 2016

Foreword

Statistics Finland has prepared this report to facilitate the estimation of Finland's assigned amount pursuant to Article 3, paragraphs 7bis, 8 and 8bis of the Kyoto Protocol for the second commitment period in accordance with Annex I to Decision 2/CMP.8 and paragraph 2 of Decision 2/CMP.11 Clarification of the text in section G (Article 3, paragraph 7 ter) of the Doha Amendment to the Kyoto Protocol and paragraph 11 of Decision 3/CMP.11 Implications of the implementation of decisions 2/CMP.7 to 4/CMP.7 and 1/CMP.8 on the previous decisions on methodological issues related to the Kyoto Protocol, including those relating to Articles 5, 7 and 8 of the Kyoto Protocol, part I: implications related to accounting and reporting and other related issues.

The report includes information on Finland's choices for the base year for nitrogen trifluoride and related to reporting and accounting of land use, land use change and forestry (LULUCF) activities under the Kyoto Protocol. Finland is implementing its commitments for the second commitment period of the Kyoto Protocol jointly with the European Union (EU), its Member States and Iceland.

This report has been reviewed by the inter-ministerial contact network on climate policy issues on 2 June 2016. The choices presented in the report were approved by the ministerial group on climate and energy on 30 January 2015.

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1 Introduction

Finland is fulfilling its commitments for the second commitment period of the Kyoto Protocol jointly with the European Union, its Member States and Iceland. The quantified emission limitation commitments (QELRCs) for the Union, its Member States and Iceland are listed in the Doha Amendment with footnotes stating that the commitments are based on the understanding that they will be fulfilled jointly by the European Union and its Member States and Iceland, in accordance with Article 4 of the Kyoto Protocol. The Union, its Member States at the time, Croatia and Iceland also issued a joint declaration upon the adoption of the Doha Amendment, expressing their intention to fulfil their commitments in the second commitment period jointly.

Article 4 of the Kyoto Protocol requires Parties that agree to fulfil their commitments under Article 3 of the Kyoto Protocol jointly to set out in a relevant joint fulfilment agreement the respective emission level allocated to each of the Parties. Council Decision (EU) 2015/1339¹ on the conclusion, on behalf of the European Union, of the Doha Amendment to the Kyoto Protocol to the UNFCCC and the joint fulfilment of commitments thereunder (from here onwards also referred to as "the ratification decision") sets out the terms of the joint fulfilment and the respective emission levels for the Union, the Member States and Iceland (Annex I to that Decision).

The Agreement between the European Union and its Member States, of the one part, and Iceland, on the other part, concerning Iceland's participation in the joint fulfilment of commitments of the European Union, its Member States and Iceland for the second commitment period was signed on 1 April 2015 and approved on behalf of the Union on 13 July 2015 by the Council Decision (EU) 2015/1340² (from here onwards also referred to as the "agreement with Iceland"). The agreement contains the same terms of the joint fulfilment as set out in Council Decision 2015/1339.

This report to facilitate the estimation of Finland's assigned amount includes summary information on Finland's greenhouse gas emissions for the period 1990 to 2014 based on the 2016 inventory submission under the UNFCCC and the Kyoto Protocol, information on the calculation of the joint assigned amount of the EU and its member States and the emission level allocated to Finland, clarifications related to the Article 4 agreement consistent with paragraph 11 of Decision 3/CMP.11 as well as information on choices related to reporting and accounting during the second commitment period of the Kyoto Protocol in accordance with Decision 2/CMP.8. The information is presented following the order in which corresponding information requirements are given in Decision 2/CMP.8.

The Kyoto Protocol requires the Parties to a joint fulfilment agreement to notify the Convention Secretariat of the terms of that agreement on the date of deposit of their instruments of ratification or approval. This will be done accordingly, the terms of the agreement are also explained in Chapter 4 of this report.

¹ <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32015D1339&from=EN>

² <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32015D1340&from=EN>

2 Finland's greenhouse gas emissions and removals 1990 to 2014

Finland has submitted a complete inventory of its anthropogenic emissions by sources and removals by sinks (this submission equals in contents with the inventory submission 2016 covering emissions and removals from the period 1990 – 2014 with the exception that the CRF tables including the xml are produced by the CRF Reporter version 5.14) in conjunction with this report. The inventory is prepared in accordance with Article 5, paragraph 2 and any relevant decisions of the CMP and COP.

In 2014, Finland's greenhouse gas emissions without land use, land-use change and forestry (LULUCF) totalled 59.1 million tonnes of carbon dioxide equivalent (Mt CO₂ eq.). These total emissions in 2014 were approximately 17% (12.2 Mt) below the 1990 emissions level. Compared to 2013, the emissions decreased by approximately 7% (4.2 Mt).

The largest share, approximately 75 per cent of the total emissions in 2014, originated from the Energy sector. Energy related CO₂ emissions vary much in Finland, mainly according to the economic trend, the energy supply structure and weather conditions. Total consumption of energy in Finland amounted to 1.35 million terajoules (TJ) in 2014, which was two per cent less than in the previous year. The share of renewable energy of total energy consumption increased by four per cent in 2014 and stood at 33 per cent. The share of wood fuels in Finland's total energy consumption continued to grow and was 25 per cent. Wood fuels were the largest source of energy in 2014. The use of fossil fuels went down by nine per cent from the year before. Of fossil fuels, the use of natural gas fell by 11 per cent. The consumption of coal (including hard coal, coke, and blast furnace and coke oven gas) decreased by 17 per cent. The use of peat increased by five per cent from 2013. The availability of hydro power improved in the Nordic countries in 2014. The production of hydro power increased by 4.5 per cent in Finland (Energy supply and consumption, Statistics Finland).

The consumption of electricity totalled 83.4 terawatt hours (TWh), which was one per cent less than in the previous year. Imports of electricity increased by 23 per cent. The largest amount of electricity was imported from Sweden. Finland was a net buyer on the Nordic electricity market. Imports from Russia decreased by 28 per cent from 2013. Net imports of electricity covered 22 per cent of total electricity consumption (Energy supply and consumption, Statistics Finland).

Emissions in the industrial processes and product use (IPPU) sector produced about 10 per cent of the total emissions in 2014. The IPPU emissions have increased between 1993 and 2008 to a level over 40% higher than the base year emissions, but decreased over 20% compared to 2008 due to the economic downturn and technical abatement measures implemented to reduce N₂O emissions in nitric production in 2009. The growth in the HFC emissions since 1995 has been almost equal to the mentioned decrease in the N₂O emissions. The emissions took an upward trend again in 2010 but during 2010-2014 emissions have been 14-22% lower than the peak value in 2008.

Emissions in the Agriculture (about 11 per cent of the total emissions in 2014) and Waste (about 4 per cent of the total emissions in 2014) sectors have decreased since 1990. The decrease can largely be attributed to changes in waste legislation and changes in agricultural policy and farming subsidies.

The LULUCF sector in Finland has been a net sink during the whole reporting period 1990-2014. The net sink has varied from approximately 20% to 60% of the annual total emissions from the other sectors during 1990-2014. The net removals in the sector were 20.8 Mt CO₂ eq in 2014 and increased by 2% since the previous year and by 30% since 1990. Most of the removals in the LULUCF sector came from tree biomass growth; that is to say the tree volume increment has exceeded the annual total drain. The increment of the growing stock has increased in Finland since 1990. Annual variations in the total drain (roundwood removals, logging residues and natural losses) have been considerable. In addition, the aggregated dead organic matter and soil organic matter pool in mineral soils has been a significant sink during the reporting period. The largest emissions in the LULUCF sector came from changes in soil organic carbon in organic forest and agricultural soils.

Indirect CO₂ emissions (0.1 per cent of the total emissions) have decreased 71% since 1990, main reason is that industry has reduced the use of solvent chemicals.

A summary of the Finnish national emissions and removals for 1990-2014 is presented in Table 2-1 and Figure 2-1.

Table 2-1. Finnish greenhouse gas emissions and removals (Mt CO₂ equivalent). The base year refers to 1990 which is Finland's base year under the UNFCCC

Sector	Base year	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Energy	53.6	53.6	55.4	53.8	53.7	64.8	62.7	54.4	52.5	60.1	52.8	47.5	48.4	44.4
Industrial processes and product use ¹	5.3	5.3	4.9	5.2	5.6	5.6	6.1	6.3	4.6	4.8	4.7	4.5	4.4	4.2
F gases	0.1	0.1	0.1	0.6	0.9	1.0	1.2	1.4	1.5	1.8	1.6	1.5	1.6	1.8
Agriculture	7.5	7.5	6.8	6.4	6.4	6.4	6.3	6.4	6.4	6.5	6.4	6.3	6.5	6.5
Waste	4.7	4.7	4.6	3.9	2.8	2.9	2.8	2.7	2.6	2.6	2.5	2.5	2.3	2.2
Indirect CO ₂ -emissions ²	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
TOTAL (exl. LULUCF³)	71.4	71.3	71.8	70.0	69.5	80.7	79.2	71.3	67.7	75.9	68.0	62.4	63.3	59.1
TOTAL (exl. LULUCF and Indirect CO₂ emissions)	71.1	71.1	71.6	69.9	69.4	80.6	79.1	71.2	67.6	75.8	67.9	62.3	63.2	59.0
LULUCF ³	NA	-16.0	-15.3	-24.3	-29.4	-35.7	-28.0	-26.8	-39.5	-27.2	-26.7	-28.3	-20.3	-20.8

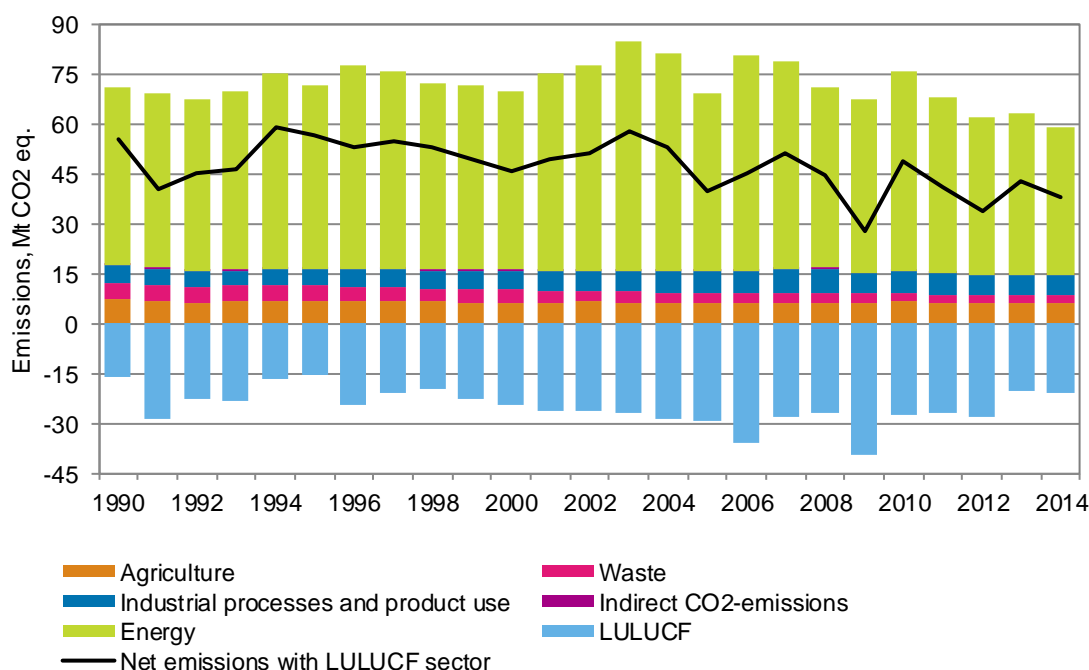
¹excluding F gases

²indirect CO₂ emissions from NMVOC and CH₄ from energy, industrial processes and product use

³Land use, land-use change and forestry

(Note: Due to rounding, the sum of subtotals does not necessarily equal to total figures.)

Figure 2-1. Greenhouse gas emissions and removals in Finland by reporting sector (Mt CO₂ eq.) and net CO₂ equivalent emissions (emissions plus removals). Emissions are positive and removals negative quantities



Detailed information on how the emissions and removals have been estimated as well as the supplementary information under Article 7, paragraph 1, as well as how Finland is making progress in meeting its share of the EU's, its Member States' and Iceland's joint emission reduction commitment in the second commitment period of the Kyoto Protocol can be found in the inventory submitted in conjunction with this report.

3 Identification of the base year for NF_3

Nitrogen trifluoride (NF_3) emissions are included in accountable greenhouse gases under the Kyoto Protocol during the second commitment period. *Finland selects the year 1995 as the base year for NF_3 for the second commitment period.*

The base year chosen for NF_3 is the same as Finland has chosen for hydrofluorocarbons (HFC), perfluorocarbons (PFC) and sulphur hexafluoride (SF_6) for the first commitment period. This choice of base year for hydrofluorocarbons (HFC), perfluorocarbons (PFC) and sulphur hexafluoride (SF_6) will continue to apply during the second commitment period. NF_3 is not produced in Finland, and has been used only in the year 2003 in insignificant amounts. The choice of the base year for NF_3 has therefore no impact on the calculation of the assigned amount for the second commitment period of the Kyoto Protocol.

4 Terms of the joint fulfilment agreement under Article 4 of the Kyoto Protocol for the second commitment period

4.1 Introduction

The Kyoto Protocol, under Article 4, provides the option for Parties to fulfil their commitments under Article 3 jointly. The European Union and its Member States made use of this option already during the first commitment period (2008-2012) by fulfilling their respective commitments under Article 3, paragraph 1 of the Kyoto Protocol jointly as a bloc of 15 countries, which were Member States of the Union at the time the Kyoto Protocol was ratified.

For the second commitment period, upon adoption of the Doha amendment to the Kyoto Protocol, the European Union, its Member States and Iceland stated that the European Union, its 28 Member States and Iceland intend to fulfil their reduction targets under the second commitment period jointly.

The ratification decision (Council Decision (EU) 2015/1339) sets out the terms of the joint fulfilment between the Union and its Member States and Iceland. The same terms are set out in the agreement with Iceland (Council Decision (EU) 2015/1340). Finland deposited its instrument of ratification of the agreement with Iceland on 28 July 2015.

4.2 Members of the joint fulfilment agreement for the second commitment period

The European Union, its Member States and the Republic of Iceland are members of the agreement (referred to as ‘the members’). The Member States of the European Union are: 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, the United Kingdom of Great Britain and Northern Ireland.

Iceland participates in this agreement pursuant to the agreement with Iceland concerning Iceland’s participation in the joint fulfilment of the commitments of the European Union, its Member States and Iceland in the second commitment period of the Kyoto Protocol to the United Nations Framework Convention on Climate Change.

4.3 Provisions of the joint fulfilment relevant to the calculation of base years emissions and the joint assigned amount

4.3.1 Calculation of the base year emissions

The base year emissions for the EU Member States and the Iceland are calculated in accordance with Article 3, paragraphs 7 bis, 8 and 8 bis and the elections by these parties with respect to base years for fluorinated gases consistent with paragraph 1(b) in the Annex to Decision 1/CMP.8.

The base year for carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O) emissions is 1990 for the EU Members States and Iceland, with the following exceptions:

- The base year for Slovenia is 1986.
- The base year for Bulgaria and Poland is 1988.
- The base year for Romania is 1989.
- The base year for Hungary is the average of the years 1985 to 1987.

The choice of these different base years for these Member States is based on Article 4, paragraph 6 of the United Nation Framework Convention on Climate Change and Article 3, paragraph 5 of the Kyoto Protocol. The base years for these gases are the same as in the first commitment period, apart from Cyprus and Malta who did not have a QELRC in the first commitment period and hence have identified their base year for the first time under the second commitment period.

The choices of base years for hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF₆) by the Member States and Iceland remain as in the first commitment period. Cyprus and Malta did not have to identify a base year in the first commitment period. They selected 1990 as base year for these gases.

According to Article 3, paragraph 8 bis of the Doha Amendment to the Kyoto Protocol, any Party included in Annex I may use 1995 or 2000 as its base year for nitrogen trifluoride (NF₃) for the purposes of the calculation referred to in paragraph 7 bis. The base year choices of the 28 Member States and Iceland related to NF₃ are documented in EU's report to facilitate the calculation of the assigned amount for the second commitment period of the Kyoto Protocol. Finland chose the base year 1995 for NF₃ (see Chapter 3), as did most EU Member States.

The base year emissions of the EU is the sum of the base year emissions or average annual base period emissions of its Member States.

The joint assigned amount for the EU, its Member States and Iceland is the sum of the emissions in the respective base year of each Member State and Iceland times 8 (length of the commitment period in years) and times the quantified emission limitation and reduction commitment (0.8) listed in the third column of the table contained in Annex B to the Doha Amendment of the Kyoto Protocol and in accordance with the provisions of Article 3, paragraphs 7 bis, 8 and 8 bis.

For those Member States (Denmark, Ireland, the Netherlands, Portugal and the United Kingdom) for which land-use change and forestry constituted a net source of greenhouse gas emissions in 1990, the base year emissions include aggregate CO₂ eq emissions in that year from land-use change (all emissions by sources minus removals by sinks reported in relation to conversion of forests (deforestation)). Hence, these emissions are included also in the joint assigned amount.

When Member States and Iceland have included indirect CO₂ emissions in their national inventory, these are taken into account in the total national emissions.

The Finnish total national emissions (base year emissions including indirect CO₂ without LULUCF times 8) included the calculation of the EU joint assigned amount are 570,801,175 tonnes CO₂ eq. The base year emissions, 71,350,147 tonnes CO₂ eq, are calculated as the sum of the total emissions without fluorinated gases and LULUCF including indirect CO₂ emissions as reported in the CRF Summary 2 table for 1990 plus the sum of the emissions of fluorinated gases (HFCs, PFCs, SF₆ and NF₃) as reported in CRF Summary Table 2 for 1995. The land-use change and forestry sector in Finland was a sink in 1990 and does therefore not affect the assigned amount calculation.

The detailed calculation of the joint assigned amount, its value including all relevant data by Member State and Iceland, is included in the Report to facilitate the calculation of the assigned amount of the European Union, its Member States and Iceland for the second commitment period under the Kyoto Protocol.

4.4 Respective emission levels allocated to the members to the joint fulfilment

In line with the terms of the joint fulfilment, the respective emission levels of the members to the joint fulfilment are as follows:

The respective emission level allocation of the parties to the agreement are determined as follows:

- The joint assigned amount of the parties to the agreement (EU, its Member States and Iceland) is calculated as the sum of the base year emissions or annual average of base period emissions multiplied by eight and by the quantified emission limitation and reduction commitment for the EU Member States and Iceland in accordance with Article 3, paragraphs 7bis, 8 and 8bis (see previous section).

- The emission level allocated to Iceland is 15,327,217 tonnes CO₂ eq and is based on the agreement between the EU, its Member States and Iceland and equals Iceland's assigned amount for the second commitment period.
- The emission levels allocated to the Member States are based on their annual emission allocations under the EU Effort Sharing Decision (406/2009/EC³), hereafter referred to as ESD, as determined in the Commission decisions 2013/162/EU⁴ and 2013/634/EU⁵.
- The emission level allocated to the EU is equal to the joint assigned amount minus the sum of the emissions levels of the Member States and Iceland and equal to EU's assigned amount. The EU's responsibilities cover the emissions from the ETS sectors pursuant to directive 2009/29/EC⁶ of the European Parliament and of Council Amending Directive 2003/87/EC) including also CO₂ emissions of domestic aviation for all member states. The sectors covered by the EU ETS Directive and taking account the application of its Articles 24 and 27.
- The emission levels of the Member States and Iceland cover the emissions from sectors and gases listed in Annex A to the Kyoto Protocol not covered by Directive 2009/29/EC of the European Parliament and of the Council amending Directive 2003/87/EC. This includes emissions of nitrogen trifluoride (NF₃) under the Kyoto Protocol. These emission levels are therefore no longer derived as a reduction percentage compared to base year emissions as in the first commitment period, but as an absolute figure, expressed in tonnes of carbon dioxide equivalents listed for each Member State and Iceland. The figure for individual Member States is equal to the sum of each Member State's Annual Emissions Allocation under ESD for the years 2013 to 2020 before the application of Article 3(7bis). The respective emission levels of the 28 Member States and Iceland in accordance with Article 4(1) and (5) of the Protocol and before application of Article 3(7bis) will be presented in Report to facilitate the calculation of the assigned amount of the European Union, its Member States and Iceland for the second commitment period under the Kyoto Protocol.
- For Member States, for which land-use change and forestry constituted a net source in 1990, the aggregated anthropogenic CO₂ eq emissions by sources minus removals by sinks in 1990 from land-use change (deforestation), are added to the allocated emission levels. The allocated emission levels constitute the assigned amounts for the Member States for the second commitment period. This rule applies for Denmark, Ireland, the Netherlands, Portugal and the United Kingdom.
- Under the Article 4 agreement, the Member States and Iceland are also responsible for their accounted emissions/removals related to the Kyoto Protocol LULUCF activities in accordance with the rules set out in decision 2/CMP.7.

The assessment of compliance of the joint fulfilment at the end of the second commitment period does not require changes to the annual inventory reporting. The European Union, the 28 Member States and Iceland will continue to report individually on emissions by sources and removals by sinks, submitting full greenhouse gas inventories covering all anthropogenic emissions by sources and removals by sinks for gases listed on Annex A to the Kyoto Protocol and all source categories covered by the UNFCCC reporting guidelines occurring on their territories under the Kyoto Protocol. They will also report annually in the national inventory reports on their verified emissions falling under the scope of the Emissions Trading System and the share of those emissions in the total emissions, allowing for the transparent annual monitoring of the respective emission levels.

The European Union will report in its national inventory report on the combined emissions of the 28 Member States and Iceland as well as the emissions for sources and sinks falling under the scope of the Emissions Trading System.

³ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:140:0136:0148:EN:PDF>

⁴ <http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32013D0162&from=EN>

⁵ <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32013D0634&from=EN>

⁶ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:140:0063:0087:en:PDF>

4.4.1 Summary of emissions and removals related to Finland's quantified emission reduction commitment for the second commitment period of the Kyoto Protocol

For Finland, the allocated emission level for the period 2013 – 2020 is equal to 240,544,599 tonnes carbon dioxide equivalents (CO₂ eq). This amount will constitute Finland's assigned amount for the second commitment period.

Finland's assigned amount covers the emissions from the non-emission trading sector (non-ETS) calculated as the total national emissions without LULUCF including indirect CO₂ minus the national verified emissions of installations in EU Emission trading sector. The quantity of CO₂ emissions of the inventory category '1.A.3.A civil aviation' is considered equal to zero when determining the annual non-ETS emissions as these emissions are covered by the EU emissions trading system for aviation. In addition to non-ETS emissions, Finland is responsible for the emissions/removals related to the Kyoto Protocol LULUCF activities in accordance with the accounting rules set out in decision 2/CMP.7 and the related information and elections for the second commitment period of the Kyoto Protocol described in this report.

Under Article 3, paragraph 3, Finland reports and accounts for emissions and removals from afforestation (A), reforestation (R) and deforestation (D) activities, and under Article 3, paragraph 4, emissions and removals from forest management (FM). Finland has decided not to elect any voluntary Kyoto Protocol LULUCF activities for the second commitment period and has elected to account for all activities under Article 3, paragraphs 3 and 4 for the entire commitment period (see Chapter 5 of this report). The emissions/removals from ARD are added to or subtracted from the assigned amount in full whereas the net emissions/removals from the FM reference level (FMRL) are subtracted from the FM net emissions/removals before the addition/subtraction. Also, additions to the assigned amount resulting from FM shall not exceed 3.5 per cent of the base year emissions (FM cap) times eight.

Finland has provided information on the emissions and removals consistent with Finland's quantified emission reduction commitment for the second commitment period of the Kyoto Protocol for the two years 2013 and 2014 in its National Inventory Report.

4.5 Calculation of the commitment period reserve

Parties are required by decision 11/CMP.1 of the Kyoto Protocol and paragraph 18 of Decision 1/CMP.8 to establish and maintain a commitment period reserve as part of their responsibility to manage and account for their assigned amount. The commitment period reserve equals the lower of either 90% of a Party's assigned amount pursuant to Article 3(7bis), (8) and (8bis) or 100% of its most recently reviewed inventory, multiplied by 8.

For the purposes of the joint fulfilment, the commitment period reserve applies to the EU, its Member States and Iceland individually. Finland's commitment period reserve has calculated as 90 per cent of the assigned amount as this way of calculation produces a lower value for the commitment period reserve.

Finland's commitment period reserve is 216,490,139 tonnes CO₂ eq (see also Finland's national inventory report, Section 12.1.5).

4.5 Application of Article 3, paragraph 7 ter

According to Article 3, paragraph 7 ter of the Doha Amendment to the Kyoto Protocol, any positive difference between the assigned amount of the second commitment period and the average annual emissions for the first three years of the preceding commitment period multiplied by eight shall be transferred to the cancellation account.

In accordance with paragraph 2 of decision 2/CMP.11 of the Kyoto Protocol Parties shall clarify in their reports to facilitate the calculation of the assigned amount whether they have used in the calculation of the average annual emissions for the first three years of the preceding commitment period:

- (a) The gases and sources listed in Annex A to the Kyoto Protocol; or
- (b) The same greenhouse gases, sectors and source categories as those used to calculate the assigned amount for the second commitment period.

In line with the terms of the joint fulfilment of the European Union, its Member States and Iceland under Article 3 of the Kyoto Protocol, Article 3(7ter) is applied to the joint assigned amount of the second commitment period.

The calculations and clarifications referred to in the previous paragraphs will be presented in the Report to facilitate the calculation of the assigned amount of the European Union. These calculations will show that the joint assigned amount for the second commitment period is lower than average annual emissions for the period 2008 – 2010 multiplied by eight as indicated. Thus, no positive difference occurs and no cancellation of assigned amount units of the second commitment period needs to be performed.

4.6 Application of paragraphs 23 to 26 of Decision 1/CMP.8

According to decision 1/CMP.8, paragraph 23, each Party included in Annex I with a commitment inscribed in the third column of Annex B as contained in annex I to this decision shall establish a previous period surplus reserve (PPSR) account in its national registry. Based on this provision, the European Union, each Member State including Finland and Iceland will establish previous period surplus reserve accounts in their respective registries.

According to decision 1/CMP.8, paragraph 24, where the emissions of a Party referred to in paragraph 23 above in a commitment period are less than its assigned amount under Article 3, the difference shall, on request of that Party, be carried over to the subsequent commitment period, as follows:

- (a) Any ERUs or CERs held in that Party's national registry that have not been retired for that commitment period or cancelled may be carried over to the subsequent commitment period, up to a maximum for each unit type of 2.5 per cent of the assigned amount calculated pursuant to Article 3(7) and (8);
- (b) Any AAUs held in that Party's national registry that have not been retired for that commitment period or cancelled shall be added to the assigned amount for that Party for the second commitment period. That part of a Party's assigned amount consisting of AAUs held in that Party's national registry that has not been retired for that commitment period or cancelled shall be transferred to its previous period surplus reserve account for the subsequent commitment period, to be established in its national registry;

Based on these provisions, Finland can carry over the remaining ERUs, CERs or AAUs that have not been retired or cancelled for the first commitment period. Finland had such units in its registry at the end of 2015 as follows: 14,018,572 AAUs, 2,917,220 ERUs⁷ and 6,798,242 CERs.

The AAU units will be carried over to Finland's previous period surplus reserve account. The 2.5 per cent limit in paragraph 24 (a) of decision 1/CMP.8 is calculated based on the assigned amounts of the Member States, Iceland and the European Union calculated pursuant to Article 3(7) and (8) for the first commitment period and applied individually to the members of the joint fulfilment agreement. For Finland, the limit is 8,875,439 (Finland assigned amount for the first commitment period is 355,017,545). The amounts of CERs and ERUs that have not been retired or cancelled for the first commitment period in Finland registry do not exceed this limit.

According to decision 1/CMP.8, paragraph 25, units in a Party'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 emissions during the second commitment period exceed the assigned amount for that commitment period, as defined in Article 3(7 bis), (8) and (8 bis), of the Kyoto Protocol. This provision will be applied to the European Union, its Member States and Iceland individually. 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.

According to decision 1/CMP.8, paragraph 26, units may be transferred and acquired between previous period surplus reserve accounts, with a limit of 2 per of the Party's assigned amount for the first commitment period for acquirement of units. This provision will be applied to the European Union, its Member States and Iceland individually.

⁷ The value does not include 27,788 ERUs converted from RMUs which are not allowed to be carried over in accordance with decision 13/CMP.1, annex, paragraph 15(a).

4.7 Application and calculation of pursuant to paragraph 13 in the Annex of Decision 2/CMP.7

According to paragraph 13 in the annex of decision 2/CMP.7 for the second commitment period, additions to the assigned amount of a Party resulting from forest management under Article 3(4), and from forest management project activities undertaken under Article 6, shall not exceed 3.5 per cent of the base year greenhouse gas emissions excluding land use, land-use change and forestry pursuant to Article 3(7) and (8), or any amendments thereto, times the duration of the commitment period in years.

Similar to the general accounting of emissions and removals under Article 3, paragraphs 3 and 4, Member States and Iceland will apply this provision individually. The values are calculated as 8 times the base year emissions without LULUCF as reported in the inventory submission.

Finland's forest management cap value is 19,978,041 tonnes of CO₂ eq for the whole commitment period.

5 Information related to LULUCF activities under Article 3, paragraphs 3 and 4 of the Kyoto Protocol

The following sections include information related the LULUCF activities under Article 3, paragraphs 3 and 4 relevant to Finland for the second commitment period of the Kyoto Protocol. The EU Member States and Island will continue apply the Article 3, paragraphs 3 and 4 individually during the second commitment period.

5.1 Election of activities under Article 3, paragraph 4

Finland elected forest management as a voluntary activity under Article 3, paragraph 4 for the first commitment period. The accounting of forest management during the second commitment period will continue as a mandatory activity (paragraph 7 in the annex of decision 2/CMP.7).

Finland has decided not to elect any voluntary activities under Article 3, paragraph 4, for the second commitment period.

Finland's national system will continue to identify the land areas for activities under Article 3, paragraphs 3 and 4 in a same manner as the lands identified and accounted for in the first commitment period. The system is based on land monitoring and information collected in the National Forest Inventory and other geo-referenced land-use data.

5.2 Accounting of all activities for the entire commitment period

Finland intends to account for all activities under Article 3, paragraph 3 (afforestation, reforestation and deforestation) and the mandatory activity under Article 3, paragraph 4 (forest management) for the entire commitment period.

5.3 Forest management (FM) reference level

Finland's forest management reference levels as inscribed in the appendix in the annex to decision 2/CMP.7 are:

- – 19.300 Mt CO₂ eq/year applying instantaneous oxidation for HWP, and
- – 20.466 Mt CO₂ eq/year applying the first-order decay function for HWP.

As Finland's forest management reference level is based on a projection, the reference level applying the first-order decay function for HWP – 20.466 Mt CO₂ eq/year is the reference level Finland will use in the accounting for the second commitment period.

Finland has made technical corrections to its forest management reference level based on methodological changes to ensure consistency with the forest management reference level and reported net emissions/removals from forest management in accordance with paragraph 14 in the annex of decision 2/CMP.7. These amount to -10,975 kt CO₂, hence the corrected forest management reference level would be – 31,441 kt CO₂. The aggregated technical correction have been reported in the KP LULUCF CRF tables and are described in detail in the national inventory report, Chapter 11.

The submission on Information on forest management reference level by Finland pursuant to decision 2/CMP.6, paragraph 4 and the corresponding technical assessment report pursuant to decision 2/CMP.6, paragraph 5 can found on the internet:

http://unfccc.int/files/meetings/ad_hoc_working_groups/kp/application/pdf/awgkp_finland_2011.pdf
<http://unfccc.int/resource/docs/2011/tar/fin01.pdf>

5.4 Harvested wood products in the forest management reference level

According to decision 2/CMP.8, annex I, paragraph 1(j), Parties need to include information in the report to facilitate the calculation of the assigned amount on how emissions from harvested wood products originating from forests prior to the start of the second commitment period have been calculated in the reference level in accordance with decision 2/CMP.7, annex, paragraph 16.

Finland's reference level (– 20.466 Mt CO₂ eq/year) inscribed in the appendix in the annex to decision 2/CMP.7 applying the first-order decay function for harvested wood products was based on Guidelines for the submission and review of information on forest management reference levels/baselines included in appendix II to decision 2/CMP.6.

The emissions from harvested wood products were calculated using the IPCC method and country-specific and IPCC default parameters. The activity data, the production and export of sawn wood, wood based panels, paper and paperboard, was based on an approximation (1900-1960), FAOSTAT and national statistical data (1961-2009) and on a forecast (2010-2020). Harvested wood products originating from afforestation/reforestation areas were included in the estimates. The estimates took into account domestically harvested and consumed harvested wood products. These estimates did not exclude emissions from harvested wood products accounted for during the first commitment period.

The harvested wood product calculation is revised to take into account all requirements outlined in decision 2/CMP.7. The revised harvested wood product calculations start from the year 2013. Hence emissions from harvested wood products accounted for during the first commitment period are excluded. The revised HWP calculation for forest management and the corresponding technical correction to the forest management reference level have been addressed in detail in the national inventory report (Chapter 11). The technical correction in the FMRL due the changes made to the HWP calculation is -13,492 kt CO₂ yr⁻¹. This value is included in the total technical correction (-10 975 kt CO₂ yr⁻¹) given above in Section 5.3. The technical corrections to the forest management reference level resulting from the changes in the revised calculation ensure consistency with the reported annual emissions and the forest management reference level.

5.5 Natural disturbances

According to decision 2/CMP.8, annex I, paragraph 1(k), Parties need to provide an indication whether they intend to apply the provisions to exclude emissions from natural disturbances for the accounting for afforestation/reforestation and/or forest management during the second commitment period in accordance with decision 2/CMP.7, annex, paragraph 33.

Finland indicates its intention to exclude emissions from natural disturbances caused by windstorms, insect attacks and wildfires for accounting of forest management during the second commitment period. The background level for these natural disturbances has been estimated to be 532 kt CO₂ eq and the margin to be 314 kt CO₂ eq. Finland will however scrutinise these estimates further and may propose a change to the numbers in future inventory submissions.

Natural disturbances in Finland are usually small-scale and the forests are in general in good condition. In the recent years, windstorms have caused the most damage. Fire control is effective and areas of forest fires have been small. The emissions from natural disturbances during the calibration period 1990-2012 were taken into account in the estimation of the background level and margin for natural disturbances (see Figure 5-1).

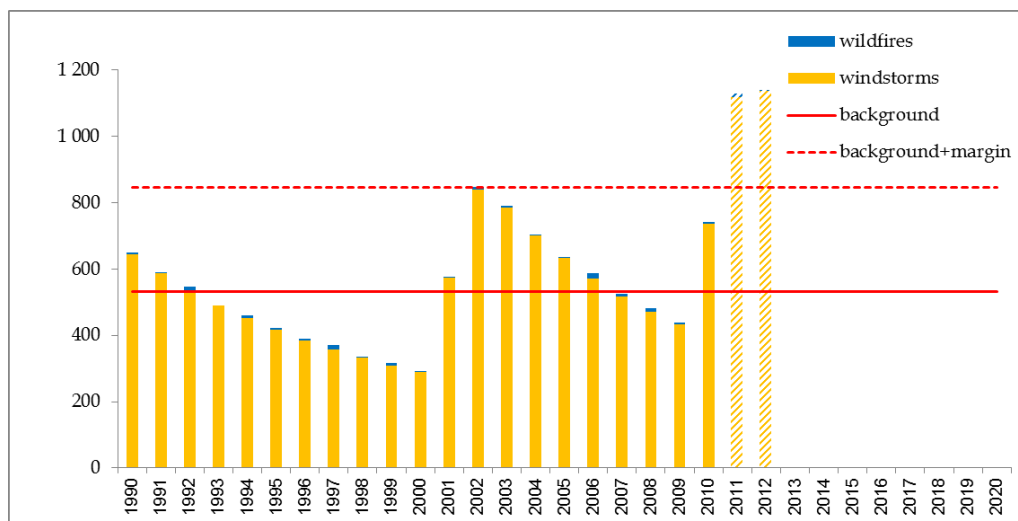


Figure 5-1. Emissions from natural disturbances in 1990-2012 (kt CO₂ eq.) and obtained background level and margin. Outliers are marked with diagonal-lined bars.

The IPCC default method (see Section 2.9.3 in the IPCC 2013 Revised Supplementary methods and Good Practice Guidance Arising from the Kyoto Protocol) was used when developing the background level and margin. Methodology to estimate emissions from windstorms, insect attacks and wildfires for the estimation of the background level and margin, is described in detail in the NIR, Chapter 11.

Greenhouse gas emissions from decay of wood felled during windstorms and transferred into dead organic matter pool in forest management areas were estimated using the Tier 2 method in Section 2.2.1, Chapter 2 of the 2006 IPCC Guidelines. Emissions from wildfires were estimated as described in Sections 6.10.5 and 11.3.1.1 of the NIR. The insect attacks were insignificant and the emissions were assumed zero during the calibration period. Finland avoids the expectations of net credits or net debits, as:

- No trend was observed in natural disturbance emissions during the calibration period or is expected during the commitment period (Figure 5-1).
- The background level of natural disturbance emissions for forest management included in the forest management reference level after technical correction is equal to the average of annual emissions from natural disturbances during the calibration period which are in the background group.
- A test application of the constructed background level and the margin to the annual emissions in the calibration period leads to the same background group as used during the construction of the background level.