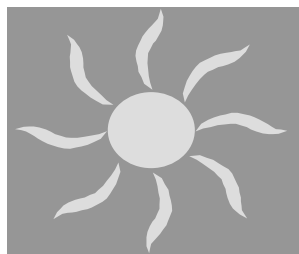


# MINISTRY OF ENVIRONMENT AND ENERGY

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## CLIMATE CHANGE

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## EMISSIONS INVENTORY

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**REPORT OF GREECE 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 IN  
ACCORDANCE WITH ANNEX I TO DECISION  
2/CMP.8**

**ATHENS**

**JUNE 2016**

## **Introduction**

The present report was prepared by the Ministry of Environment and Energy, with the external consultancy assistance of the National Technical University of Athens (School of Chemical Engineering) and an independent LULUCF expert. It contains the information in order 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 in accordance with Annex I to Decision 2/CMP.8.

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## **1. Reporting under Paragraph (1)a of Decision 2/CMP.8**

*(a): 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, or another approved base year or period under Article 3, paragraph 5, of the Kyoto Protocol, to the most recent year available, and prepared in accordance with Article 5, paragraph 2, of the Kyoto Protocol, and any 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). If the report is submitted at the same time as the submission of the Party's annual GHG inventories, only one inventory submission should be provided and both reports should be submitted in conjunction;*

Please refer to the 2016 Inventory submission of Greece (NIR and CRF Tables).<sup>1</sup>

## **2. Reporting under Paragraph (1)b of Decision 2/CMP.8**

*(b) The identification of its selected base year for hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride in accordance with Article 3, paragraph 8, of the Kyoto Protocol, if the Party included in Annex I did not have a quantified emission limitation and reduction target in the first commitment period, and the identification of its selected base year for nitrogen trifluoride in accordance with Article 3, paragraph 8bis, of the Kyoto Protocol, for all Parties included in Annex I with a quantified emission limitation and reduction target for the second commitment period;*

Greece has selected 1995 as the base year in the first commitment period for hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride in the first commitment period. The same base year applies for the second commitment period.

In accordance with Article 3, Paragraph 8bis of the Kyoto Protocol, Greece identifies 2000 as its base year for nitrogen trifluoride, for the purposes of the calculation of the Assigned Amount for the second commitment period.

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<sup>1</sup>

[http://unfccc.int/national\\_reports/annex\\_i\\_ghg\\_inventories/national\\_inventories\\_submissions/items/9492.php](http://unfccc.int/national_reports/annex_i_ghg_inventories/national_inventories_submissions/items/9492.php)

### **3. Reporting under Paragraph (1)c of Decision 2/CMP.8**

*(c) The agreement under Article 4 of the Kyoto Protocol for the second commitment period, where the Party has reached such an agreement to fulfil its commitments under Article 3 of the Kyoto Protocol jointly with other Parties*

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 already made use of this option during the first commitment period (2008-2012), fulfilling their respective commitments under Article 3 (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 and its 28 Member States again intend to fulfil their reduction targets under the second commitment period jointly<sup>2</sup>. Greece ratified the Doha amendment to the Kyoto Protocol by the Law 4345 / 17-11-2015.

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 integral part of the Agreement between the European Union and its Member States, of the one part, and Iceland, of the other part, 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 in accordance with Council Decision (EU) 2015/1340. These terms are enclosed as Annex A.

#### **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 this agreement (referred to as ‘the members’). The following States 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,

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<sup>2</sup> Declaration made in footnotes 4, 6 and 8 to Annex B of the Doha Amendment and Council Decisions (EU) 2015/1339 and 2015/1340

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.

#### **Provisions of the joint fulfilment relevant to the calculation of the assigned amounts**

The joint assigned amount is calculated pursuant to the quantified emission limitation and reduction commitment listed in the third column of the table contained in Annex B to the Kyoto Protocol and in accordance with the provisions of Article 3 thereof. The assigned amounts of the members are determined in accordance with the terms of the joint fulfilment.

The combined base year emissions of the members to the joint fulfilment equal the sum of emissions in the respective base years applicable to each Member State and Iceland.

If land-use change and forestry constituted a net source of greenhouse gas emissions in 1990 for any Member State or Iceland, that 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 change (deforestation) 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 determined in accordance with Article 3 (7bis), (8) and (8bis) of the 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

## **4. Reporting under Paragraph (1)d of Decision 2/CMP.8**

*(d) The calculation of its assigned amount pursuant to Article 3, paragraphs 7bis, 8 and 8bis, of the Kyoto Protocol, on the basis of its inventory referred to in paragraph 1(a) above, which is due by 15 April 2015;*

The quantified emission limitation and reduction commitments for the European Union, its Member States and Iceland listed in the third column of Annex B of the Kyoto Protocol are

80%. The joint assigned amount of them 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 calculation of the joint assigned amount of EU is presented in Annex B.

The respective emission levels of the European Union, its Member States and Iceland are as follows:

- ✓ The emission level and assigned amount 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.
- ✓ The assigned amount of the European Union is counted against the emissions of greenhouse gases listed in Annex A to the Kyoto Protocol that are also covered by the EU Emissions Trading System (EU ETS) pursuant to Directive 2009/29/EC of the European Parliament and of the Council amending Directive 2003/87/EC<sup>3</sup> so as to improve and extend the greenhouse gas emission allowance trading scheme of the Community. The sectors covered by the EU Emissions Trading System are those specified in Annex I of the EU ETS Directive and taking into 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 so as to improve and extend the greenhouse gas emission allowance trading scheme of the Community. This includes all emissions from sources and removals by sinks covered by Article 3(3) and (4) of the Protocol as well as all emissions of nitrogen trifluoride (NF<sub>3</sub>) under the Kyoto Protocol. These emission levels are 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 Decision No 406/2009/EC 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 (Effort Sharing Decision) for the years 2013 to 2020 before the application of Article 3(7bis).<sup>4</sup> 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) are listed in Table 1 of Annex A.

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<sup>3</sup> OJ L140, 5.6.2009, p. 63

<sup>4</sup> OJ L140, 5.6.2009, p. 136

The terms of the joint fulfilment determine that the assigned amounts of the members shall be equal to their respective emission levels, adjusted for Article 3(7bis) of the Kyoto Protocol.

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 shall 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 shall 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

Given the facts that:

- LULUCF sector of Greece was a sink for greenhouse gas emissions in 1990, greenhouse gas removals by this sector are not taken into account when calculating the Assigned Amount during the second period of commitment under the Kyoto Protocol (2013-2020), according to Article 3, paragraph 7 bis of the Kyoto Protocol; and that
- there were no emissions of nitrogen trifluoride in 2000 in Greece.

**As a result, the assigned amount of Greece for the second commitment period under the Kyoto Protocol will be equal to the emission level specified in Table 1 of Annex A, which is 480,791,166 tonnes of carbon dioxide equivalent.**

## **5. Reporting under Paragraph (1)e of Decision 2/CMP.8**

*(e) The calculation of its commitment period reserve in accordance with decision 11/CMP.1 or any subsequent revision thereof related to the calculation of the commitment period reserve;*

The commitment period reserve (CPR) of each Party should not drop below 90 per cent of the Party's assigned amount, or 100 per cent of eight times its most recently reviewed inventory, whichever is lowest.



The following Table provides a calculation using both methods to calculate the commitment period reserve. The last column presents the commitment period reserve applicable for the second commitment period based on the lower value resulting from the two methods.

**Commitment period reserve calculation**

	Assigned amount for second commitment period	90 % of assigned amount	100% of most recently reviewed inventory multiplied by 8	Commitment period reserve
	tonnes CO <sub>2</sub> eq.	tonnes CO <sub>2</sub> eq.	tonnes CO <sub>2</sub> eq.	tonnes CO <sub>2</sub> eq.
Greece	480,791,166	432,712,049	887,952,480	432,712,049

Therefore, the **CPR is calculated to be 432,712,049 tonnes of carbon dioxide equivalent.**

## **6. Reporting under Paragraph (1)f of Decision 2/CMP.8**

*(f) The identification of its selection of single minimum values for tree crown cover, land area and tree height for use in accounting for its activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol, if the Party included in Annex I did not select a definition of forest for the first commitment period, together with a justification of the consistency of those values with the information that has been historically reported to the Food and Agriculture Organization of the United Nations or other international bodies, and in the case of difference, an explanation of why and how such values were chosen, in accordance with decisions 16/CMP.1 and 2/CMP.7. If the Party included in Annex I selected its forest definition for the first commitment period, the definition for the second commitment period shall be the same;*

Greece will apply the same forest definition in the second commitment period as in the first commitment period.

The threshold values for tree crown cover, land area and tree height are:

- i. 25% minimum tree crown.
- ii. 0.3 hectares minimum land area.
- iii. 2 metres tree height, or the potential to achieve it.

## **7. Reporting under Paragraph (1)g of Decision 2/CMP.8**

*(g) The identification of its election of activities under Article 3, paragraph 4, of the Kyoto Protocol for inclusion in its accounting for the second commitment period, in addition to those activities under Article 3, paragraph 4, of the Kyoto Protocol that were elected in the first commitment period, together with information on how its national system under Article 5, paragraph 1, of the Kyoto Protocol will identify land areas associated with all additional elected activities and how the Party ensures 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 subsequent commitment periods, in accordance with decisions 16/CMP.1 and 2/CMP.7;*

Greece elected to account for emissions and removals from lands subject to Forest Management activity under Article 3, paragraph 4 for the 1st commitment period.

### *Cropland Management*

Greece will not elect Cropland Management activity under Article 3.4 for the 2nd commitment period.

### *Grazing Land Management*

Greece will not elect Grazing Land Management activity under Article 3.4 for the 2nd commitment period.

### *Revegetation*

Greece will not elect Revegetation activity under Article 3.4 for the 2nd commitment period.

### *Wetland drainage and rewetting*

Greece will not elect Wetland drainage and rewetting activity under Article 3.4 for the 2nd commitment period.

The national system under Article 5, paragraph 1, of the Kyoto Protocol will identify land areas subject to Article 3, paragraphs 3 and 4 activities, and will ensure that lands accounted for under activities under Article 3, paragraphs 3 and 4 in the 1st commitment period continue to be accounted for in subsequent commitment periods, in accordance with decisions 16/CMP.1 and 2/CMP.7. The same data sources along with the same activity classification system used in the 1st commitment period for land areas subject to Article 3, paragraphs 3 and 4 will be used in the 2nd commitment period. More specifically, with regard to Afforestation / Reforestation activities data are obtained from the afforestation registry of the Ministry of Environment and

Energy (MEEN). This registry contains afforestation activities on croplands under the EEC Regulations 2080/92 and 1257/99 since the beginning of the programmes, in 1994. Data for Deforestation activities are obtained from the Land Use Change Database developed by the MEEN. This dataset includes among others, the land use changes from forest land to grassland, wetlands, settlements and other land. Information for the units of land subject to Forest Management is provided by the Forest Management Plans Database maintained by the MEEN. All the necessary information about lands subject to activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol is contained in the above mentioned databases in a spatially disaggregated manner, and likewise in the 1st commitment period is annually updated during the 2nd commitment period.

## **8. Reporting under Paragraph (1)h of Decision 2/CMP.8**

*(h) The identification of whether, for each activity under Article 3, paragraphs 3 and 4, of the Kyoto Protocol, it intends to account annually or for the entire commitment period;*

Greece intends to account for each activity under Article 3, paragraphs 3 and 4 of the Kyoto Protocol for the entire commitment period.

## **9. Reporting under Paragraph (1)i of Decision 2/CMP.8**

*(i) The forest management reference level as inscribed in the appendix to the annex to decision 2/CMP.7, any technical corrections as contained in the inventory report for the first year of the second commitment period and references to those sections in the national inventory report where such information is reported consistent with the requirements of decision 2/CMP.7, annex, paragraph 14;*

The forest management reference level (FMRL) inscribed in the appendix to the annex to decision 2/CMP.7 is equal to -1.830 Mt CO<sub>2</sub> eq/year assuming instantaneous oxidation of HWP. The forest management reference level applying first-order decay function for HWP was not included in this appendix because as indicated in the same appendix “In a communication to the secretariat dated 7 February 2012, Greece noted that there is no estimate for their forest management reference level value applying the first-order decay function for harvested wood products and therefore it requested the removal of the estimate reflected in the table contained in document FCCC/KP/AWG/2011/L.3/Add.2.”.

In its FMRL submission, Greece calculated a FMRL based on the projections of net emissions provided by the model G4M. During the review (technical analysis) of the FMRL, the ERT had concluded that owing to the lack of or unavailability of basic data could not accept the submitted FMRL by Greece. In response to the ERT, Greece proposed a revised FMRL of -1.830 Mt CO<sub>2</sub> eq/year (which is the average removals for the period 1990–2009 including emissions from forest fires) since the G4M model could not produce credible projections for a FMRL. The ERT assessed the revised FMRL using historical data on net removals for forest land remaining forest land contained in the 2011 NIR and found that the average removals for the period 1990 – 2009 were –1.81 Mt CO<sub>2</sub> eq/year. The ERT advised Greece to consider this slight discrepancy, and resubmit a FMRL that is consistent with the 2011 NIR.

Following the recommendations of the ERT that performed the technical assessment of the forest management reference level submission of Greece and pursuant to the footnote of paragraph 1(i) of Annex I of Decision 2/CMP.8, Greece reports information on a technical correction of FMRL in its last national inventory submission.

In accordance with Decision 2/CMP.7, Parties shall demonstrate methodological consistency between the reference level and reporting for forest management during the second commitment period when accounting for forest management. To that end, Parties shall make technical correction, if necessary, to ensure consistency, and shall report on how these corrections were made.

Greece, following the provisions of Decision 2/CMP.7 and the guidance provided by the KP Supplement, provides a technical correction, in order to ensure consistency between the FMRL and reporting on forest management.

In Table 1 below the relevant information on the FMRL technical correction is presented.

**Table 1. Summary information of the Forest Management Reference Level Technical Correction**

Summary Table Forest Management Reference Level Technical Correction		
	Instantaneous oxidation	FOD
	kt CO <sub>2</sub> eq/yr	
FMRL	-1,830	0
FMRL <sub>corr</sub>	-1,662	-1,733
Difference in per cent	-9%	-
Technical Correction	168	-1,733
Projected HWP contribution	-	-71

Detailed information about the FMRL and the technical correction applied is reported in sections 9.5.2.2 and 9.5.2.3 of the NIR/2016, in accordance with decision 2/CMP.7, Annex, paragraph 14.

## 10. Reporting under Paragraph (1)j of Decision 2/CMP.8

*(j) Information 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;*

The production approach has been followed for the estimation of emissions/removals associated with carbon stock changes from HWP originating from the country's forest, using the tier 2 (First Order Decay) approach.

Three harvested wood products categories have been addressed, namely sawnwood, wood-based panels, and paper and paperboard. The necessary activity data for all three categories have been obtained from FAO statistics database. In particular data for production, import and export from 1961 onwards.

Carbon stocks and annual carbon stock changes have been estimated using the equation 2.8.5 of the KP Supplement:

$$C(i+1) = e^{-k} \cdot C(i) + \left[ \frac{(1 - e^{-k})}{k} \right] \cdot \text{Inflow}(i)$$

$$\Delta C(i) = C(i+1) - C(i)$$

where,  $i$  is the year,  $C(i)$  is the carbon stock in the particular HWP category at the beginning of year  $i$ ,  $Gg\ C$ ,  $k$  is a decay constant of FOD for each HWP category (HWPj) given in units  $yr^{-1}$  ( $k = \ln(2)/HL$ , where  $HL$  is half-life of the HWP pool in years),  $\text{Inflow}(i)$  is the inflow to the particular HWP category (HWPj) during year  $i$ ,  $Gg\ C\ yr^{-1}$ , and  $\Delta C(i)$  is the carbon stock change of the HWP category during year  $i$ ,  $Gg\ C\ yr^{-1}$ .

The change in carbon stocks was estimated separately for each product category. For the estimation of the annual fraction of the feedstock coming from domestic harvest for categories sawnwood and wood-based panels equation 2.8.1 of the KP Supplement has been used, and equation 2.8.2 for the estimation of annual fraction of domestically produced wood pulp as feedstock for paper and paperboard production:

$$F_{IRW(i)} = (IRW_{P(i)} - IRW_{EX(i)}) / (IRW_{P(i)} + IRW_{IM(i)} - IRW_{EX(i)})$$

$$F_{PULP(i)} = (PULP_{P(i)} - PULP_{EX(i)}) / (PULP_{P(i)} + PULP_{IM(i)} - PULP_{EX(i)})$$

Where,  $f_{IRW(i)}$  is the share of industrial roundwood for the domestic production of HWP originating from domestic forests in year  $i$ ,  $IRW_{P(i)}$  is the production of industrial roundwood in year  $i$ ,  $Gg\ C\ yr^{-1}$ ,  $IRW_{IM(i)}$  is the import of industrial roundwood in year  $i$ ,  $Gg\ C\ yr^{-1}$  and  $IRW_{EX(i)}$  is the export of industrial roundwood in year  $i$ ,  $Gg\ C\ yr^{-1}$ ,  $f_{PULP(i)}$  is the share of domestically produced pulp for the domestic production of paper and paperboard in year  $i$ ,  $PULP_{P(i)}$  is the production of wood pulp in year  $i$ ,  $Gg\ C\ yr^{-1}$ ,  $PULP_{IM(i)}$  is the import of wood pulp in year  $i$ ,  $Gg\ C\ yr^{-1}$  and  $PULP_{EX(i)}$  is the export of wood pulp in year  $i$ ,  $Gg\ C\ yr^{-1}$ .

It is assumed that the HWP pool is in steady state at the initial time  $t_0$ , when the activity data start. For each HWP category the carbon stock in this steady state has been estimated using the following equation:

$$C(t_0) = Inflow_{average} / k$$

with,

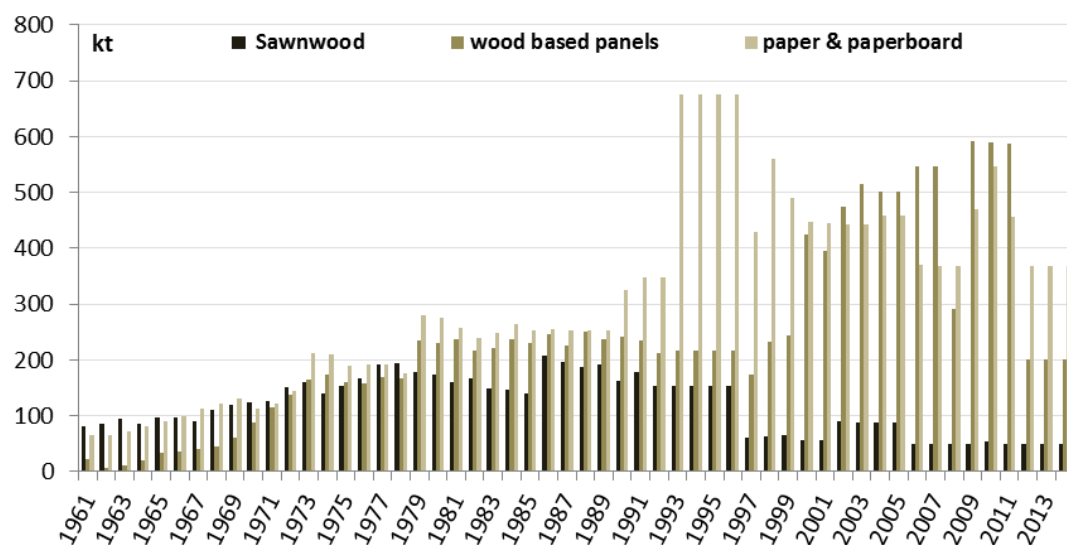
$$Inflow_{average} = (\sum_{i=t_0}^{t_4} Inflow(i)) / 5$$

For the estimation of annual HWP amounts produced from domestic harvest the equation 2.8.4 was used:

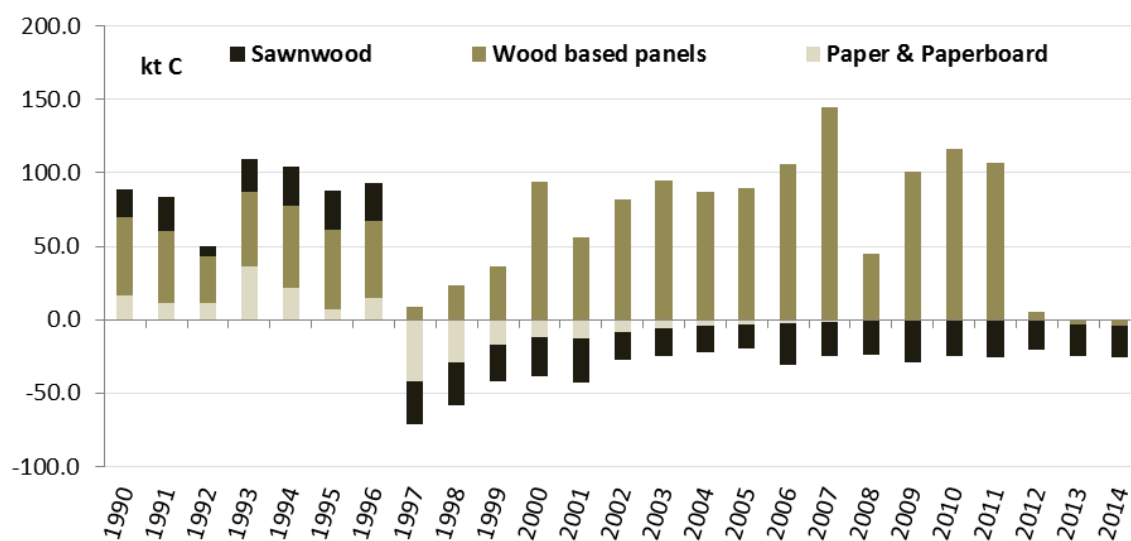
$$HWP_{j(i)} = HWP_{P(i)} \bullet f_{DP(i)}$$

where,  $f_{DP(i)} = f_{IRW(i)}$  for HWP categories sawnwood and wood-based panels, and  $(f_{IRW(i)} \bullet f_{PULP(i)})$  for HWP category paper and paperboard, with  $f_{IRW(i)} = 0$  if  $f_{IRW(i)} < 0$  and  $f_{PULP(i)} = 0$  if  $f_{PULP(i)} < 0$ ,  $f_{DP(i)}$  is the share of domestic feedstock for the production of the particular HWP category originating from domestic forests in year  $i$ ,  $HWP_{j(i)}$  are the amounts produced from domestic harvest associated with activity  $j$  in year  $i$ , in  $m^3\ yr^{-1}$  or  $Mt\ yr^{-1}$  and  $HWP_{P(i)}$  is the production of the particular HWP commodities in year  $i$ , in  $m^3\ yr^{-1}$  or  $Mt\ yr^{-1}$ .

For the estimation of emission factors for each HWP category the default half-lives values from table 2.8.2 of the KP Supplement, namely 2 years for paper, 25 years for wood panels, and 35 years for sawnwood have been applied, while default values presented in table 2.8.1 (KP Supplement) have been used as conversion factors for the default HWP categories.



**Figure 1. Harvested wood products in use**



**Figure 2. Annual change in carbon stocks (kt)**

More information on emissions/removals from harvested wood products can be found in sections 6.10 and 9.5.2.4 of the NIR/2016.

## 11. Reporting under Paragraph (1)k of Decision 2/CMP.8

*(k) An indication of whether it intends 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 in accordance with decision 2/CMP.7, annex, paragraph 33, and any relevant supplementary methodological guidance developed by the Intergovernmental Panel on Climate Change and adopted by the CMP and the COP, including:*

*(i) Country-specific information on the background level of emissions associated with annual natural disturbances that have been included in its forest management reference level;*

*(ii) Information on how the background level(s) 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 have been estimated, and information on how it avoids the expectation of net credits or net debits during the commitment period, including information on how a margin is established, if a margin is needed;*

Greece intends to apply the provisions to exclude emissions from natural disturbances for the accounting for afforestation and reforestation (AR) under Article 3, paragraph 3 and forest management (FM) under Article 3, paragraph 4, of the Kyoto Protocol during the second commitment period in accordance with decision 2/CMP.7, Annex, paragraph 33.

The background levels of emissions associated with annual natural disturbances for FM and AR have been developed, on the basis of country-specific information, in accordance with paragraphs 33(a) and (b) of the Annex to Decision 2/CMP.7 and related guidance provided by the IPCC 2013 Revised Supplementary Methods and Good Practice Guidance Arising from the Kyoto Protocol (KP Supplement).

For AR, as a first step a consistent and complete time series containing emissions from wildfires for the calibration period 1994 to 2014 was set. Secondly, the estimation of the (i) arithmetic mean of the area-specific annual emissions from wildfires in AR lands followed, using all the years of the calibration period, as well as the (ii) standard deviation of the same time series. In the third step any emission(s) that were greater (outlier) than the arithmetic mean plus twice the standard deviation was/were removed from the time series. The same process from step 2 above – having excluded emissions that are greater than the arithmetic mean plus twice the standard deviation – was iterated. When no further outliers were identified, the arithmetic mean and the



twice the standard deviation estimated in the last step of this process, defined the area-specific background level and the associated margin, respectively. Finally, both the area-specific background level and the margin were multiplied by the average annual area of AR estimated for the commitment period. For the projection of the area under AR for the commitment period it was assumed that the area would be stable, equal to 2014 levels.

**Table 2. Emissions (total & area specific) from disturbances for AR**

Total and area specific emissions from disturbances for the calibration period for AR																										
Disturbance type*	Inventory year during the calibration period																									
	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	
	Total annual emission [Gg CO <sub>2</sub> eq.]																									
Wildfires					0	0	0	1	2	0	4	0	0	0	0	0	1	8	1	1	1	0	1	0	0	
Insect attacks and disease infestations																										
extreme weather events																										
geological disturbances																										
other																										
SUM					0	0	0	1	2	0	4	0	0	0	0	0	1	8	1	1	1	0	1	0	0	
For all land under AR	Total area [kha]																									
					2	6	9	15	16	20	23	24	26	28	30	32	33	33	33	33	33	33	33	33	33	
	Area-specific emissions (Emissions per unit of land area under AR, Mg CO <sub>2</sub> eq. ha <sup>-1</sup> )**																									
						0.06	0.04	0.02	0.05	0.15	0.01	0.18	0.02	0.00	0.00	0.01	0.01	0.02	0.24	0.04	0.04	0.02	0.01	0.03	0.00	0.00
* Sub-division of types can be added as needed																										
** In any year, emissions per unit of land area are calculated as the Sum divided by the total area under AR																										

\* Sub-division of types can be added as needed

\*\* In any year, emissions per unit of land area are calculated as the Sum divided by the total area under AR

In the way just described for the development of the background level and the associated margin the expectation of net credits or net debits is avoided.

For FM, as a first step a consistent and complete time series containing emissions from wildfires for the calibration period 1990 to 2014 was set. Secondly, the estimation of the (i) arithmetic mean of the annual emissions from wildfires in land areas under forest management followed, using all the years of the calibration period, as well as the (ii) standard deviation of the same time series. In the third step any emission(s) that were greater (outlier) than the arithmetic mean plus twice the standard deviation was/were removed from the time series. The same process from step 2 above – having excluded emissions that are greater than the arithmetic mean plus twice the standard deviation – was iterated. When no further outliers were identified, the arithmetic mean and the twice the standard deviation estimated in the last step of this process, defined the background level and the associated margin, respectively.

**Table 3. Emissions (total & area specific) from disturbances for FM**

Total and area specific emissions from disturbances for the calibration period for FM																									
Disturbance type*	Inventory year during the calibration period																								
	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
	Total annual emission [Gg CO <sub>2</sub> eq.]																								
Wildfires	195	74	215	224	196	129	53	155	486	31	599	63	6	9	24	20	60	789	123	134	57	24	90	7	4
Insect attacks and disease infestations																									
extreme weather events																									
geological disturbances																									
other																									
SUM	195	74	215	224	196	129	53	155	486	31	599	63	6	9	24	20	60	789	123	134	57	24	90	7	4
For all land under FM	Total area [kha]																								
	1234	1234	1234	1234	1234	1234	1234	1234	1234	1234	1234	1234	1234	1234	1234	1234	1234	1234	1234	1234	1234	1234	1234	1234	1234
	Area-specific emissions (Emissions per unit of land area under AR, Mg CO <sub>2</sub> eq. ha <sup>-1</sup> )**																								
	0.16	0.06	0.17	0.18	0.16	0.10	0.04	0.13	0.39	0.03	0.49	0.05	0.00	0.01	0.02	0.02	0.05	0.64	0.10	0.11	0.05	0.02	0.07	0.01	0.00
* Sub-division of types can be added as needed																									
** In any year, emissions per unit of land area are calculated as the Sum divided by the total area under FM																									

\* Sub-division of types can be added as needed

\*\* In any year, emissions per unit of land area are calculated as the Sum divided by the total area under FM

In the way just described for the development of the background level and the associated margin the expectation of net credits or net debits is avoided.

The background level and margin for AR equal to: 0.58 Gg CO<sub>2</sub> eq. and 1.00 Gg CO<sub>2</sub> eq., respectively.

The background level and margin for FM equal to: 86 Gg CO<sub>2</sub> eq. and 147 Gg CO<sub>2</sub> eq., respectively.

More information on the background level for afforestation and reforestation under Article 3, paragraph 3, of the Kyoto Protocol and forest management under Article 3, paragraph 4, of the Kyoto Protocol can be found in sections 9.4.4, and 9.5.2 of the NIR/2016.

## 12. Reporting under Paragraph (1)I of Decision 2/CMP.8

*(I) A description of its national system in accordance with Article 5, paragraph 1, of the Kyoto Protocol, reported in accordance with the “Guidelines for the preparation of the information required under Article 7 of the Kyoto Protocol”, if the Party included in Annex I did not have a quantified emission limitation and reduction target in the first commitment period;*

Greece had a quantified emission limitation and reduction target in the first commitment period. The national system is described in the 2016 NIR.

### 13. Reporting under Paragraph (1)m of Decision 2/CMP.8

*(m) A description of its national registry, reported in accordance with the “Guidelines for the preparation of the information required under Article 7 of the Kyoto Protocol”, if the Party included in Annex I did not have a quantified emission limitation and reduction target in the first commitment period.*

Greece had a quantified emission limitation and reduction target in the first commitment period. Information on changes of national registry is provided in the 2016 NIR.

### 14. Difference between the assigned amount for the second commitment period and the average emissions for the first three years of the preceding commitment period

According to Article 3(7ter) of the Doha Amendment of 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 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 joint assigned amount for the second commitment period is lower than average annual emissions for the period 2008 – 2010 multiplied by eight (as indicated in the next Table). Thus, no positive difference occurs and no cancellation needs to be performed.

**Joint Assigned amount for the EU, Member States and Iceland for the second commitment period and average emissions for the first three years of the preceding commitment period**

Joint assigned amount for the second commitment period	37,616,498,648 tonnes CO <sub>2</sub> eq.
Average annual emissions for 2008 to 2010 for the EU, Member States and Iceland multiplied by eight	38,711,452,917 tonnes CO <sub>2</sub> eq.

## **15. Application of paragraphs 23 – 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 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 this provision, the European Union, each Member State and Iceland will carry over the remaining ERUs, CERs or AAUs that have not been retired or cancelled for the first commitment period in their respective registries to their respective accounts. The 2.5 per cent limit in paragraph 24 (a) of decision 1/CMP.8 will be 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.

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 due to the fact that the previous

period surplus reserve accounts will be established in the Kyoto registries of the European Union, its Member States and Iceland. 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. This provision will be applied to the European Union, its Member States and Iceland individually due to the fact that the previous period surplus reserve accounts will be established in the Kyoto registries of the European Union, its Member States and Iceland.

## **16. ANNEX A**

### **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 (NF<sub>3</sub>) 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

## **17. ANNEX B**

### **Calculation of the joint assigned amount of EU pursuant to Article 3(7bis), (8) and (8bis)**

The combined base year emissions of the EU, its Member States and Iceland are equal to the sum of the respective base year emissions of the 28 Member States and Iceland. The combined base year emissions represent the aggregate sum, taking account of the choice of base years for CO<sub>2</sub>, N<sub>2</sub>O, CH<sub>4</sub>, HFCs, PFCs, SF<sub>6</sub> and NF<sub>3</sub> for each Member State, as presented in Table B-1.

Table B-2 presents the base year emissions as well as the net emissions in the base year/period reported in relation to the conversion of forests (deforestation) that are be included in the base year emissions for those countries for whom land-use change and forestry constituted a net source of greenhouse gas emissions in the base year/period in accordance with Article 3(7bis) of the Kyoto Protocol and , paragraph 5(b) of the Annex to decision 13/CMP.1 as replaced by paragraph 2 of Annex I to decision 3/CMP.11. The latter are also included in the calculation of the joint base year emissions.

**Table B-1**      **Choice of base years for different greenhouse gases for the EU Member States and Iceland for the second commitment period under the Kyoto Protocol**

<b>Member State</b>	<b>Base year for CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O</b>	<b>Base year for HFCs, PFCs and SF<sub>6</sub></b>	<b>Base year for NF<sub>3</sub></b>
Austria	1990	1990	2000
Belgium	1990	1995	1995
Bulgaria	1988	1995	1995
Croatia	1990	1995	2000
Cyprus	1990	1995	1995
Czech Republic	1990	1995	1995
Denmark	1990	1995	1995
Estonia	1990	1995	1995
Finland	1990	1995	1995
France	1990	1990	1995
Germany	1990	1995	1995
Greece	1990	1995	2000
Hungary	1985-1987	1995	1995
Ireland	1990	1995	1995
Italy	1990	1990	1995
Latvia	1990	1995	1995
Lithuania	1990	1995	1995
Luxembourg	1990	1995	1995
Malta	1990	1990	1995
Netherlands	1990	1995	1995
Poland	1988	1995	2000
Portugal	1990	1995	2000
Romania	1989	1989	2000
Slovakia	1990	1990	2000
Slovenia	1986	1995	1995
Spain	1990	1995	1995
Sweden	1990	1995	1995
United Kingdom	1990	1995	1995
Iceland	1990	1990	1995

**Table B-2** Base year emissions of the EU Member States and Iceland, calculated pursuant to Article 3(7bis)

Member State	Base year emissions	Net emissions in 1990 due to deforestation where LULUCF sector is a net source of emissions	Final base year emissions, after application of Art. 3(7bis)
<b>tonnes CO<sub>2</sub> equivalent</b>			
<b>Combined base year emissions</b>	<b>5,872,288,107</b>	<b>5,289,805</b>	<b>5,877,577,914</b>
Austria	78,855,136	0	78,855,136
Belgium	147,811,094	0	147,811,095
Bulgaria	114,582,372	0	114,582,372
Croatia	33,652,661	0	33,652,661
Cyprus	5,699,056	0	5,699,056
Czech Republic	199,266,852	0	199,266,852
Denmark	70,973,233	6,583	70,979,816
Estonia	39,996,697	0	39,996,698
Finland	71,350,147	0	71,350,147
France	548,086,318	0	548,086,318
Germany	1,249,872,158	0	1,249,872,158
Greece	107,674,753	0	107,674,752
Hungary	109,574,784	0	109,574,784
Ireland	56,417,601	8,145	56,425,746
Italy	521,920,601	0	521,920,601
Latvia	26,188,822	0	26,188,822
Lithuania	47,093,804	0	47,093,805
Luxembourg	12,889,364	0	12,889,365
Malta	2,000,252	0	2,000,252
Netherlands	223,818,012	752,270	224,570,282
Poland	579,863,712	0	579,863,712
Portugal	60,701,388	4,276,759	64,978,147
Romania	301,085,440	0	301,085,440
Slovakia	74,727,289	0	74,727,289
Slovenia	20,327,584	0	20,327,584
Spain	288,694,596	0	288,694,596
Sweden	72,057,123	0	72,057,124
United Kingdom	803,473,698	246,048	803,719,746
Iceland	3,633,558	0	3,633,558

Note: All figures were rounded to tons in the calculation of base year emissions.

Base year emissions and net emissions in 1990 due to deforestation are derived from GHG inventory submissions in 2016.

Pursuant to Article 3(7bis), (8) and (8bis) of the Kyoto Protocol and paragraph 2 of Annex I to decision 3/CMP.11 under the Kyoto Protocol, the assigned amount for the second commitment period shall be equal to the percentage inscribed in the third column of Annex B to the Kyoto

Protocol of the aggregate anthropogenic carbon dioxide equivalent emissions of greenhouse gases from the sources listed in Annex A to the Kyoto Protocol in the base year or period multiplied by eight, taking into account Article 3(7bis) of the Kyoto Protocol as explained above. This method of calculation is applied to the calculation of the joint assigned amount only. It does not apply to the calculation of the individual assigned amounts for the Union, the Member States individually, or Iceland. Thus, the calculations of the base year emissions do not play a role in the calculation of their individual assigned amounts, which are instead determined pursuant to the joint fulfilment agreement.

This calculation results in a joint assigned amount of 37,616,498,648 tonnes CO<sub>2</sub>eq. for the European Union, its Member States and Iceland (see Table B-3). As was the case for the first commitment period, the joint assigned amount units will not be issued separately but instead the assigned amounts of each member of the joint fulfilment agreement and the assigned amount of the European Union are recorded in the compilation and accounting database and the EU and each of the Member States and Iceland can issue their respective assigned amount units in their respective registries.

**Table B-3 Calculation of the joint assigned amount**

	Combined base year emissions	Of which are emissions in 1990 due to deforestation (Article 3(7bis) Kyoto Protocol)	Emission reduction commitment as laid down in the third column of Annex 1 of the Doha amendment to the Kyoto Protocol	Calculated joint assigned amount for the period 2013- 2020
	tonnes CO <sub>2</sub> eq.	tonnes CO <sub>2</sub> eq.	%	tonnes CO <sub>2</sub> eq.
<b>European Union, Member States plus Iceland</b>	<b>5,872,288,109</b>	<b>5,289,805</b>	<b>80%</b>	<b>37,616,498,648</b>

The respective assigned amounts of each Member State and Iceland are equal to the emission levels agreed under the terms of the joint fulfilment, listed in Annex 2 of the ratification decision and the results of the application of the second sentence of Article 3(7bis) of the Kyoto protocol for that Member State or Iceland. This is in accordance with paragraph 5(c) of the annex to decision 13/CMP.1 of the Kyoto Protocol as replaced by paragraph 2 of decision 3/CMP.11 of the Kyoto Protocol which requires that “*those Parties that have reached an agreement in accordance with Article 4 to fulfil their commitments under Article 3 jointly shall use the respective emission level*

*allocated to each of the Parties in that agreement instead of the percentage inscribed for it in the third column of Annex B".* The final assigned amounts for each Member State and Iceland are shown in Table B-4. The individual assigned amounts of each Member State and Iceland shall be issued in the Kyoto registry of the respective Member States and Iceland.

**Table B-4 Assigned amounts for individual Member States and Iceland**

<b>Member States and Iceland</b>	<b>Assigned amount in tonnes CO<sub>2</sub> eq. taking into account Article 3 (7bis)</b>
Austria	405,712,317
Belgium	584,228,513
Bulgaria	222,945,983
Croatia	162,271,086
Cyprus	47,450,128
Czech Republic	520,515,203
Denmark*	269,363,657
Estonia	51,056,976
Finland	240,544,599
France	3,014,714,832
Germany	3,592,699,888
Greece	480,791,166
Hungary	434,486,280
Ireland*	343,519,349
Italy	2,410,291,421
Latvia	76,633,439
Lithuania	113,600,821
Luxembourg	70,736,832
Malta	9,299,769
Netherlands*	924,777,902
Poland	1,583,938,824
Portugal*	429,581,969
Romania	656,059,490
Slovakia	202,268,939
Slovenia	99,425,782
Spain	1,766,877,232
Sweden	315,554,578
United Kingdom*	2,744,937,332
Iceland	15,327,217

Note: \* Member States for which net emissions from deforestation in the base year were added to the base year emissions in the assigned amount calculation  
For the calculation all figures were rounded to tons.

The assigned amount of the European Union is the difference between the joint assigned amount calculated in Table B-3 and the sum of the assigned amounts of the Member States and Iceland in Table B-4 and amounts to 15,826,887,124 tonnes CO<sub>2</sub>eq (see calculation in Table B-5). The assigned amount of the European Union shall be issued in the Kyoto registry of the European Union.

**Table B-5 Assigned amount of the European Union**

Assigned amounts	tonnes CO <sub>2</sub> eq
A. Joint assigned amount	37,616,498,648
B. Sum of assigned amounts of Member States and Iceland	21,789,611,524
C. Assigned amount of the European Union (A-B)	15,826,887,124

Note: For the calculation all figures were rounded to tons.

For the assessment of compliance with the joint fulfilment agreement at the end of the second commitment period, the total GHG emissions of the European Union, its Member States and Iceland from sources listed in Annex A to the Kyoto Protocol for the period 2013 to 2020 shall be compared to the total amount of Kyoto units retired in the Kyoto registries of the European Union, its Member States and Iceland.

