



Latvia's Report to facilitate the calculation of the assigned amount for the second commitment period under the Kyoto Protocol

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Introduction

Decision 2/CMP.8 (Implications of the implementation of decisions 2/CMP.7 to 5/CMP.7 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) requires that each Party with a quantified emission limitation and reduction commitment inscribed in the third column of Annex B to the Kyoto Protocol, as contained in Annex I to decision 1/CMP.8, shall submit to the secretariat, by 15 April 2015, a report to facilitate the calculation of its assigned amount pursuant to Article 3, paragraphs 7bis, 8 and 8bis, of the Kyoto Protocol for the second commitment period and to demonstrate its capacity to account for its emissions and assigned amount. However, a functioning CRF reporter software was not available for the GHG inventory submissions and the calculation of the assigned amount in 2015. According to Decision 4/CMP.11 of the Conference of the Parties serving as the meeting of the Parties to under the Kyoto Protocol, the CRF Reporter version 5.0.0 was not functioning in order to enable Annex I Parties to prepare their inventory submissions. In the same Decision, the Conference of the Parties serving as the meeting of the Parties noted that a delay in the submission of the common reporting format tables by a Party also delays the submission of the report to facilitate the calculation of its assigned amount referred to in decision 2/CMP.8, paragraph 2.

Recalling the invitation of the Conference of Parties for Parties to submit as soon as practically possible, but no later than the corresponding delay in the CRF reporter availability, the present report is the official submission of the Latvia for the year 2016 under the Kyoto Protocol.

Latvia's Initial Report for the second commitment period provides the information as specified in Annex I to Decision 2/CMP.8.

This report has been elaborated with contributions by the Ministry of the Environmental Protection and Regional Development, Ministry of Agriculture, Latvian Environment, Geology and Meteorology Centre (LEGMC) and Latvian State Forest Research Institute "Silava".

1. Greenhouse gas inventory for 1990 – 2014

A complete inventory on greenhouse gas emissions and removals for the years 1990 - 2014 is provided in the Latvia's National Inventory Report 2016 and the common reporting tables for 1990 - 2014, which were submitted to the UNFCCC on 15 June 2016. The greenhouse gas inventory is reported based on the UNFCCC reporting guidelines on annual greenhouse gas inventories, the guidelines for the preparation of information required under Article 7 of the Kyoto Protocol (Decision 15/CMP.1 and Annex III of Decision 3/CMP.11) and the guidance for reporting information on activities under Article 3(3) and (4), of the Kyoto Protocol (Decision 6/CMP.9).

In 2014, Latvia's greenhouse gas emissions constituted 11353.38 kt CO₂ eq without LULUCF and 15573.52 kt CO₂ eq with LULUCF. Latvia's total GHG emissions without LULUCF showed a decrease of 56.76% comparing to the base year, but GHG emissions with LULUCF have decreased by 12.68% compared to base year. If compared to 2013 total GHG emissions excluding LULUCF have decreased by 0.5%, but including LULUCF GHG emissions have increased by 23.4% (Figure 1.1).

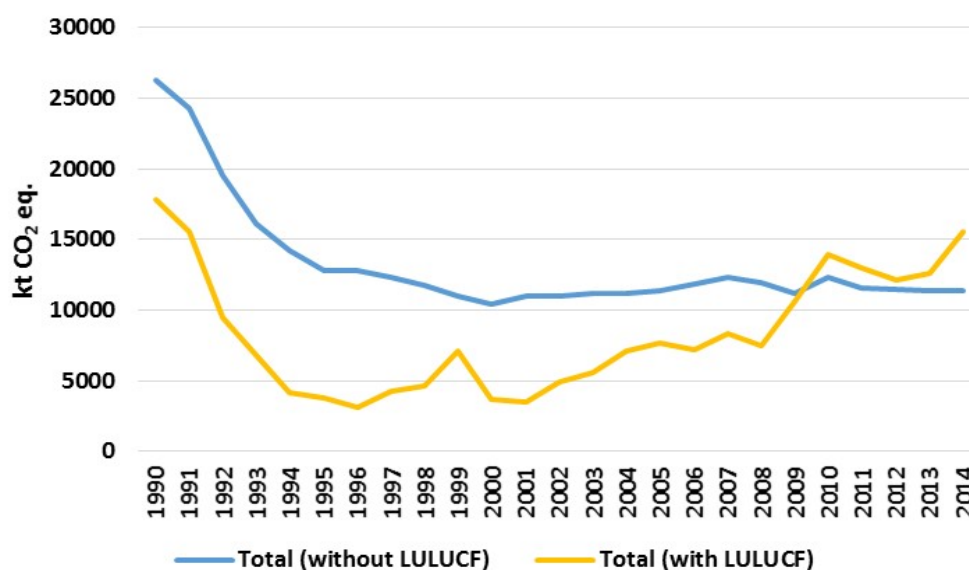


Figure 1.1 Latvia's total GHG emissions (with and without LULUCF) 1990–2014 (kt CO₂ eq.)

Aggregated GHG emissions 1990 - 2014, kt CO₂ eq by gases and sectors are presented in Table 1.1 till Table 1.4.

Table 1.1 Aggregated GHG emissions by gases (1990 - 2002), kt CO₂ eq.

GREENHOUSE GAS EMISSIONS	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
kt CO₂ equivalent													
CO ₂ emissions including net CO ₂ from LULUCF	19696.76	17917.75	14185.15	11924.39	10364.81	9115.53	9189.79	8660.94	8286.62	7702.50	7069.73	7484.81	7513.66
CO ₂ emissions excluding net CO ₂ from LULUCF	10391.42	8356.27	3195.54	1792.22	-586.35	-825.79	-1442.51	-309.28	186.74	2891.01	-570.20	-927.66	540.21
CH ₄ emissions including CH ₄ from LULUCF	3671.26	3618.13	3127.74	2399.59	2221.66	2195.31	2149.66	2114.38	2020.45	1886.83	1922.68	2011.13	1988.24
CH ₄ emissions excluding CH ₄ from LULUCF	3978.78	3920.49	3513.28	2707.83	2528.59	2512.92	2470.30	2439.73	2347.79	2246.75	2268.63	2318.27	2323.97
N ₂ O emissions including N ₂ O from LULUCF	2888.42	2733.79	2211.11	1784.12	1623.45	1476.64	1497.21	1507.69	1465.25	1396.00	1420.33	1517.21	1478.85
N ₂ O emissions excluding N ₂ O from LULUCF	3464.60	3311.17	2800.02	2365.67	2206.13	2062.45	2085.22	2098.48	2058.25	1993.90	2018.53	2112.76	2079.87
HFCs	NO,NA,NE	NO,NA,NE	NO,NA,NE	NO,NA,NE	NO,NA,NE	11.50	12.59	12.73	15.33	17.07	20.46	23.92	27.20
PFCs	NO,NA	NO,NA	NO,NA	NO,NA	NO,NA	NO,NA	NO,NA	NO,NA	NO,NA	NO,NA	NO,NA	NO,NA	NO,NA
Unspecified mix of HFCs and PFCs	NO,NA	NO,NA	NO,NA	NO,NA	NO,NA	NO,NA	NO,NA	NO,NA	NO,NA	NO,NA	NO,NA	NO,NA	NO,NA
SF ₆	NA,NO	NA,NO	NA,NO	NA,NO	NA,NO	0.17	0.18	0.37	0.52	0.71	0.88	1.39	2.62
NF ₃	NO,NA	NO,NA	NO,NA	NO,NA	NO,NA	NO,NA	NO,NA	NO,NA	NO,NA	NO,NA	NO,NA	NO,NA	NO,NA
Total (without LULUCF)	26256.43	24269.68	19524.00	16108.10	14209.92	12799.16	12849.42	12296.11	11788.17	11003.11	10434.07	11038.46	11010.57
Total (with LULUCF)	17834.80	15587.93	9508.84	6865.72	4148.37	3761.25	3125.77	4242.03	4608.63	7149.43	3738.30	3528.68	4973.87
Total (without LULUCF, with indirect)	26299.86	24310.73	19562.26	16144.28	14245.38	12833.33	12881.87	12326.59	11817.09	11031.09	10460.47	11064.39	11036.92
Total (with LULUCF, with indirect)	17878.23	15628.98	9547.09	6901.91	4183.83	3795.42	3158.22	4272.51	4637.55	7177.41	3764.70	3554.61	5000.22

Table 1.2 Aggregated GHG emissions by gases (2003 - 2014), kt CO₂ eq.

GREENHOUSE GAS EMISSIONS	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Change from 1990 to latest reported year (%)
kt CO₂ equivalent													
CO ₂ emissions including net CO ₂ from LULUCF	7710.50	7721.00	7796.46	8293.58	8616.09	8188.85	7443.50	8528.14	7785.47	7500.68	7331.99	7139.01	-63.76
CO ₂ emissions excluding net CO ₂ from LULUCF	1233.72	2733.73	3185.62	2643.19	3679.80	2874.11	5876.01	9149.89	8165.60	7139.68	7483.51	10272.49	-1.14
CH ₄ emissions including CH ₄ from LULUCF	1894.33	1871.49	1929.45	1906.51	1967.58	1962.60	1944.00	1949.62	1897.77	1971.19	2010.24	2082.21	-43.28
CH ₄ emissions excluding CH ₄ from LULUCF	2208.82	2179.76	2211.32	2231.04	2248.81	2242.75	2247.45	2263.16	2226.59	2318.06	2376.88	2471.09	-37.89
N ₂ O emissions including N ₂ O from LULUCF	1532.56	1523.55	1587.19	1597.04	1653.07	1641.94	1670.71	1711.99	1726.28	1823.61	1859.45	1911.52	-33.82
N ₂ O emissions excluding N ₂ O from LULUCF	2133.09	2125.38	2187.28	2206.16	2256.70	2247.21	2294.35	2351.49	2382.43	2496.89	2550.06	2609.30	-24.69
HFCs	31.18	47.54	63.48	98.09	123.59	142.02	152.14	164.42	184.97	190.21	204.35	212.06	
PFCs	NO,NA	NO,NA	NO,NA	NO,NA	NO,NA	NO,NA	NO,NA	NO,NA	NO,NA	NO,NA	NO,NA	NA,NO	
Unspecified mix of HFCs and PFCs	NO,NA	NO,NA	NO,NA	NO,NA	NO,NA	NO,NA	NO,NA	NO,NA	NO,NA	NO,NA	NO,NA	NA,NO	
SF ₆	2.76	3.25	3.78	4.07	4.55	5.23	7.33	7.35	7.47	7.78	8.50	8.58	
NF ₃	NO,NA	NO,NA	NO,NA	NO,NA	NO,NA	NO,NA	NO,NA	NO,NA	NO,NA	NO,NA	NO,NA	NA,NO	
Total (without LULUCF)	11171.32	11166.82	11380.36	11899.29	12364.87	11940.64	11217.68	12361.52	11601.95	11493.46	11414.54	11353.38	-56.76
Total (with LULUCF)	5609.57	7089.66	7651.48	7182.55	8313.44	7511.32	10577.28	13936.31	12967.06	12152.61	12623.30	15573.52	-12.68
Total (without LULUCF, with indirect)	11192.38	11187.13	11401.99	11915.74	12382.82	11957.86	11234.02	12377.17	11612.38	11505.76	11429.70	11373.59	-56.75
Total (with LULUCF, with indirect)	5630.63	7109.98	7673.11	7199.00	8331.39	7528.54	10593.62	13951.96	12977.48	12164.92	12638.46	15593.73	-12.78

Latvia's report to facilitate the calculation of assigned amount

Table 1.3 Aggregated GHG emissions by sectors (1990 - 2001), kt CO₂ eq.

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
kt CO₂ equivalent												
1. Energy	19283.59	17767.42	14434.58	12339.12	10710.49	9447.74	9513.29	8943.56	8528.63	7893.77	7278.72	7703.47
2. Industrial processes and Product Use	707.49	610.71	322.83	169.86	217.84	237.25	249.20	266.26	273.35	307.50	260.31	283.27
4. Agriculture	5454.03	5046.68	3960.74	2870.04	2569.14	2402.49	2373.38	2360.20	2255.46	2063.64	2098.00	2221.44
5. Land use, land use change and forestry	-8421.63	-8681.75	-10015.17	-9242.38	-10061.55	-9037.92	-9723.65	-8054.08	-7179.54	-3853.68	-6695.77	-7509.78
6. Waste	811.33	844.87	805.86	729.08	712.44	711.68	713.55	726.09	730.73	738.19	797.04	830.28
7. Other	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Total emissions (including LULUCF)	17834.80	15587.93	9508.84	6865.72	4148.37	3761.25	3125.77	4242.03	4608.63	7149.43	3738.30	3528.68

Table 1.4 Aggregated GHG emissions by sectors (2002 - 2014), kt CO₂ eq.

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Change from 1990 to latest reported year (%)
kt CO₂ equivalent														
1. Energy	7707.29	7863.85	7892.21	8003.77	8433.73	8758.30	8305.10	7584.11	8379.65	7511.33	7195.26	7117.63	6952.97	-63.94
2. Industrial processes and Product Use	298.08	315.17	350.66	347.38	404.92	432.84	447.99	441.11	711.12	823.16	892.51	828.38	837.00	18.31
4. Agriculture	2202.85	2255.76	2187.26	2270.81	2278.80	2374.42	2352.33	2385.02	2430.52	2456.41	2573.92	2639.74	2726.42	-50.01
5. Land use, land use change and forestry	-6036.70	-5561.76	-4077.16	-3728.88	-4716.73	-4051.43	-4429.32	-640.40	1574.79	1365.10	659.16	1208.75	4220.14	-150.11
6. Waste	802.34	736.55	736.68	758.40	781.84	799.31	835.22	807.43	840.22	811.05	831.77	828.80	836.99	3.16
7. Other	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	
Total emissions (including LULUCF)	4973.87	5609.57	7089.66	7651.48	7182.55	8313.44	7511.32	10577.28	13936.31	12967.06	12152.61	12623.30	15573.52	-12.68

2. Identification for base years for the second commitment period

2.1 Base year for CO₂, N₂O and CH₄

The base year for carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O) Latvia as Annex I Party uses 1990.

2.2 Base year for hydrofluorocarbons, perfluorocarbons, sulphur hexafluoride in accordance with Article 3(8) of Kyoto Protocol

In accordance with Article 3.8 of the Kyoto Protocol, Latvia has chosen the year 1995 as the base year for the emissions of the hydrofluorocarbons (HFC), perfluorocarbons (PFC) and sulphur hexafluoride (SF₆). The choice of base year for Latvia remains as in the first commitment period.

2.3 Base year for nitrogen trifluoride in accordance with Article 3(8bis) of Kyoto Protocol

In accordance with Article 3, paragraph 8bis of the Kyoto Protocol (Doha amendment) Latvia selected 1995 as a base year for nitrogen trifluoride (NF₃).

3. Agreement under Article 4 of Kyoto Protocol for the second commitment period

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 jointly¹.

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.

¹ Declaration made in footnotes 4, 6 and 8 to Annex B of the Doha Amendment and Council Decisions (EU) 2015/1339 and 2015/1340

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 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.

The joint quantified emission limitation and reduction commitment for the members listed in the third column of Annex B of the Kyoto Protocol for the European Union, its 28 Member States and Iceland is 80%. The joint assigned amount of the Members is determined pursuant to Article 3(7bis), (8) and (8bis) of the Kyoto Protocol on the basis of the combined base year (see section 2.4).

The respective emission levels of the members to the joint fulfilment 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/EC² 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 (NF₃) 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).³ 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 3.1.

² OJ L140, 5.6.2009, p. 63

³ OJ L140, 5.6.2009, p. 136

Table 3.1 Emission levels of the Member States and Iceland set out in the terms of the joint fulfilment before application of Article 3(7bis) for the second commitment period under the Kyoto Protocol

Country	Emission level [tonnes of CO ₂ eq.]
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

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 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.

The European Union will report in its national inventory report on the combined emissions of the 28 Member States and Iceland.

4. Calculation of Latvia's assigned amount pursuant to Article 3, paragraphs 7bis, 8 and 8bis of the Kyoto Protocol

Latvia's assigned amount covers the emissions from the non-emission trading sector (non-ETS) calculated as the total greenhouse gas emissions without LULUCF and without NF₃ emissions minus total verified emissions from stationary installations under Directive 2003/87/EC minus CO₂ emissions from 1.A.3.A civil aviation.

Latvia's assigned amount for the second commitment period is **76,633,439** tonnes carbon dioxide equivalents (CO₂ eq.) resulting from annual emission allocations for each year from 2013 till 2020 set out in Commission Decision of 26 March 2013 on determining Member States' annual emission allocations for the period from 2013 to 2020 pursuant to Decision No 406/2009/EC and Commission Implementing Decision of 31 October 2013 on the adjustments to Member States' annual emission allocations for the period from 2013 to 2020 pursuant to Decision No 406/2009/EC.

5. Calculation of Latvia's commitment period reserve

Parties are required by decision 11/CMP.1 under 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.

Both methods are used for calculation of commitment period reserve.

- 1) 100% of most recently reviewed inventory, multiplied by 8:

$$\text{CPR} = 10,979,650 \text{ tonnes CO}_2 \text{ eq} * 8 = 87,837,200 \text{ tonnes CO}_2 \text{ eq.}$$

- 2) 90% of a Latvia's assigned amount pursuant to Article 3(7bis), (8) and (8bis):

$$\text{CPR} = 76,633,439 \text{ tonnes CO}_2 \text{ eq} * 90\% = 68,970,095 \text{ tonnes CO}_2 \text{ eq}$$

The commitment period reserve equals the lower figure from both calculated, therefore Latvia's commitment period reserve is 68,970,095 tonnes CO₂ eq.

6. 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.

7. 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 any remaining ERUs, CERs or AAUs that have not been retired or cancelled for the first commitment period in their respective registries to their respective previous period surplus reserve 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.

8. Selection of threshold values for the forest definition to be used for reporting under Articles 3.3 and 3.4 of the Kyoto Protocol

Article 1 of the Forest Law of the Republic of Latvia provides the following forest definition: "Forest is an ecosystem in all stages of development, where the dominant producers of organic matter are trees, that can reach the **height of at least five meters** at this location and with a current or potential **crown cover of at least twenty per cent** of the area covered by the forest stand".

Article 3 of the Forest Law⁴ provides the following clarification of the subject of the law:

1. land, which is registered in the National Real Estate Cadaster as forest;
2. particles of land of at least 0.5 ha in size formally belonging to other land use categories, where trees already reached 5 m height and where basal area of the forest stand is equal or larger than the minimum basal area determined in the Regulations of Cabinet of Ministers No. 935⁵ from 18.12.2012 Regulations on felling of trees in forest land;
3. flooding plains and glades in forest, forest infrastructure and swamps.

Article 3 of the Forest Law provides the following explanation of lands, which are not considered being the subject of the law:

1. land under partition zone of roads, railways, above-ground power lines and communication lines, gas, oil and water pipelines, cemeteries, rows of trees of natural or artificial origin being narrower than 20 m, fruit gardens, parks and orchards;
2. separate particles of land, which fulfils thresholds of forest land determined in the Article 3 of the Forest Law, but being smaller than 0.5 ha.

Reporting under Articles 3.3 and 3.4 of the Kyoto Protocol in Latvia uses adopted definition of the forest land, which was introduced in the first commitment period of the Kyoto protocol:

Parameter	Selected minimum value
Actual or potential tree crown cover	at least 20 %
Land area	at least 0.1 ha
Actual or potential tree height	at least 5 meters

This definition is fully consistent with the definition for forest given in the Annex to Decision 16/CMP.1 (*Land use, land-use change and forestry*).

9. Election of activities under Article 3.4 of the Kyoto Protocol

9.1 Identification of land areas associated with all additional elected activities

For the commitment period 2013-2020 Latvia chooses to account Forest Management as activity under Article 3.4 of the Kyoto Protocol in accordance with the Annex to the Decision 16/CMP.1.,

⁴ <http://likumi.lv/doc.php?id=2825>

⁵ <http://likumi.lv/ta/id/253760-noteikumi-par-koku-cirsanu-meza>

but does not elect Cropland management, Grazing land management and Revegetation and Wetland drainage and Rewetting.

The inventory of the land use changes, GHG emissions and CO₂ removals due to activities listed in the Article 3.3 and 3.4 of the Kyoto Protocol is based on the National forest inventory, which provides information of afforestation, deforestation and forest management activities, as well as the stock changes of living and dead trees in lands reported under the activities listed in the Article 3.3 and 3.4 of the Kyoto Protocol. The methodology of the National forest inventory is approved in 2004 and updated in 2012 for the following accounting period. The National forest inventory is implemented in the network of hidden permanent plots covering the whole country regardless on land use or ownership of the land. Utilization of harmonized methodology and the permanent network of the monitoring plots will secure that land that was accounted for under activities under the Article 3.3 and 3.4, of the Kyoto Protocol in the first commitment period will continue to be accounted for in subsequent commitment periods, in accordance with decisions 16/CMP.1 and 2/CMP.7.

9.2 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.

Latvia will account for activities under Article 3 paragraphs 3 and 4 of the Kyoto Protocol for the entire commitment period 2013-2020.

10. The Forest Management Reference Level

Latvia's Forest Management Reference Level for the second commitment period is **-16,302 kt CO₂/equivalent** a year, including harvested wood products, and **-14,255 kt CO₂ equivalent** a year assuming instantaneous oxidation of harvested wood products according to the appendix to the Annex to decision 2/CMP.7⁶. Latvia will make technical corrections for the Forest Management Reference Level according to the requirements of decision 2/CMP.7 and 2/CMP.8.

Information on technical corrections and methodological consistency will be reported as part of the annual greenhouse gas inventory and inventory report, in accordance with relevant decisions under Articles 5 and 7 of the Kyoto Protocol, and reviewed as part of the review of the annual greenhouse gas inventory review in accordance with relevant decisions under Article 8 of the Kyoto Protocol.

Calculation pursuant to paragraph 13 in the Annex to the Decision 2/CMP.7

According to paragraph 13 in the Annex of decision 2/CMP.7, additions to the assigned amount of a Party for the second commitment period resulting from forest management under Article 3(4) of the KP, and from forest management project activities undertaken under Article 6 of the KP, 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 (8 years). Similar to the general accounting of emissions and removals under Article 3(3) and (4), Member States and Iceland will apply this provision individually.

⁶ <http://unfccc.int/resource/docs/2011/cmp7/eng/10a01.pdf>

Maximum accountable quantities resulting from forest management under Article 3, paragraph 4 of the KP in the second commitment period for Latvia can be 7351801.75276582 t CO₂ eq.

11. Information on how emissions from harvested wood products originating from forests have been calculated in the reference level

Net emissions due to production of the harvested wood products (HWP) are calculated on the base of the methodology elaborated in 2011 by S. Rüter for estimation of the forest management reference level for the 2013-2020 reporting period of the Kyoto protocol.⁷

Historical data on production, import and export of HWP as well as share of different types of the products are used in calculation. The coefficients and numeric values used in calculation are provided in Table 11.1 and Table 11.2. Input data in calculation are counted down to 1900. Net emissions due to decay of harvesting residues are accounted separately considering 20 years transition period for above and below ground biomass. Instant oxidation is considered for the firewood assortment as well as for harvested wood products produced from wood obtained in deforested areas. Proportion approach is used to separate HWP produced from biomass obtained in deforested areas.

Table 11.1 Assumptions for estimation of carbon stock in harvested wood products

ID	Assortment	Density, g cm ⁻³	Gg C 1000 m ⁻³
1.2.C	Industrial rdw - Coniferous	0.45	0.23
1.2.NC	Industrial rdw Non-Coniferous	0.67	0.34
5.C	Sawnwood -Coniferous	0.45	0.23
5.NC	Sawnwood - Non-Coniferous	0.67	0.34
6 1	Veneer sheets	0.59	0.30
6 2	Plywood	0.48	0.24
6 3	PARTICLE BOARD (including OSB)	0.63	0.29
6.4.1	HARDBOARD	0.85	0.42
6.4.2	MDF (MEDIUM DENSITY)	0.73	0.32
6.4.x	Fibreboard compressed	0.79	0.34
6.4.3	INSULATING BOARD	0.27	0.11
10	PAPER AND PAPERBOARD	0.90	0.45

Share of locally originated wood in harvested wood products is calculated using equation No. 1.

$$Ratio_{\text{INDRW consumption from dom harvest}} = \frac{Production_{\text{INDRW}} - Export_{\text{INDRW}}}{Production_{\text{INDRW}} + Import_{\text{INDRW}} - Export_{\text{INDRW}}} \quad (1)$$

Organic carbon in harvested wood products originated from local wood is calculated using equation No. 2.

$$Production_{\text{HWP from dom harvest}} = Production_{\text{HWP}} \times ratio_{\text{INDRW consumption from domestic harvest}} \quad (2)$$

The rate of the CO₂ emissions and removals in harvested wood products is calculated using equations No. 3 and 4.

⁷ Sebastian Rüter, Projection of Net-Emissions from Harvested Wood Products in European Countries (Hamburg, 2011), Hamburg.

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$$C_{(i+1)} = e^{-k} C_{(i)} + \left[\frac{(1 - e^{-k})}{k} \right] \text{Inflow}_{(i)} \quad \text{with } C_{(1900)} = 0.0 \quad (3)$$

$$\Delta C_{(i)} = C_{(i+1)} - C_{(i)}$$

$$k = \ln \frac{(2)}{HL} \quad (4)$$

Table 11.2 Common coefficients to estimate balance between CO₂ emissions and removals in harvested wood products

Coefficients	Numeric value		
Common coefficients			
e	2.718282		
ln(2)	0.6931		
Assortment specific coefficients:			
Assortment	Sawn wood	Plate wood	Pulpwood
HL	35.00	25.00	2.00
k	0.02	0.03	0.35
e^{-k}	0.98	0.97	0.71
$\frac{1-e^{-k}}{k}$	0.99	0.99	0.85

12. An indication about provisions to exclude emissions from natural disturbances

Latvia will not exclude emissions from natural disturbances for the accounting 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 during the second commitment period.

13. Description of the National System

Latvia already had a quantified emission limitation and reduction target in the first commitment period, a description of national system is not necessary in this report. Description is provided in Latvia's National Inventory Report 2016.

14. Description of National Registry

Latvia already had a quantified emission limitation and reduction target in the first commitment period, a description of national registry is not necessary in this report. Description is provided in Latvia's National Inventory Report 2016.