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Executive Body for the Convention on Long-range Transboundary Air Pollution

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Revision of the annexes to the 1999 Gothenburg Protocol to Abate Acidification, Eutrophication and Ground-level Ozone: draft revised annex II

Draft revised annex II

Note by the secretariat

Summary

This document contains a proposed draft revised annex II (on emission ceilings and emission reduction obligations for 2020 and beyond) to the Gothenburg Protocol to Abate Acidification, Eutrophication and Ground-level Ozone to the Convention on Long-range Transboundary Air Pollution. The document was prepared by the secretariat for the consideration of the Executive Body for the Convention at its thirtieth session. It is based on the draft revised document prepared by the Task Force on Integrated Assessment Modelling and proposals made by the European Union and Norway, as well as on discussions at the twenty-ninth session of the Executive Body in December 2011. Proposed new text is indicated in bold.

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Emission ceilings for 2010 and emission reduction obligations for 2020 and beyond

1. The emission ceilings and emission reduction obligations listed in the tables below relate to the provisions of article 3, paragraphs 1 and 10, of the revised Gothenburg Protocol.

2. Table 1 includes the emission ceilings for 2010 and beyond expressed in thousands of **metric** tons for those Parties that ratified the Gothenburg Protocol.

3. Tables 2–6 include emission reduction obligations for sulphur dioxide (SO_2), nitrogen oxides (NO_x), ammonia (NH_3), volatile organic compounds (VOCs) and particulate matter with an aerodynamic diameter equal to or less than 2.5 µm ($PM_{2.5}$) for 2020 and beyond. These obligations are expressed in the percentage reduction from the 2005 level (the 2005 level minus the 2020 level divided by the 2005 level).

4. The 2005 emission levels listed in tables 2–6 are given for information purposes only. Emission levels for 2005 are **in metric tons and are** based **on the emissions officially reported [by Parties] to EMEP in 2012. The 2005 emission data is provisional** and will be updated by the Parties when better information becomes available in later years.

[Data for 2005 have been preliminary taken from the CIAM report 4/2011. Data in *italics* are taken from the EMEP Status report 1/2011. Emission data from CIAM are based on fuels sold and on harmonised "real world" emission factors for vehicles in the geographical scope of EMEP. NOx-emissions from agricultural soils and VOC-emissions from crops were excluded – delete].

5. If a Party finds that the 2005 data were exceptional, due to a particularly cold winter, a particularly dry summer or unforeseen variations in economic activities, such as a loss of capacity in the power supply system domestically or in a neighbouring country, it may present an alternative level by averaging its national annual emissions for 2004, 2005 and 2006 and report the reasons and the method used to achieve the three-year average to the Implementation Committee.

6. If in a given year **[before 2025 – delete]** a Party finds that, due to a particularly cold winter, a particularly dry summer or unforeseen variations in economic activities, such as a loss of capacity in the power supply system domestically or in a neighbouring country, it cannot comply with its obligations for 2020 and beyond, it may fulfil those obligations by averaging its national annual emissions for the year in question, the year preceding that year and the year following it, provided that the emission level in any single year is not more than 20 per cent above the emission ceiling. The reason for exceedance in any given year and the method by which the three-year average figure will be achieved shall be reported to the Implementation Committee.

[Table 1
Emission ceilings for 2010 and beyond for Parties that ratified the Gothenburg Protocol

	Party	*Ratification*	*SO_2*	*NO_x*	*NH_3*	*VOCs*
1	Belgium	2007	106	181	74	144
2	Bulgaria	2005	856	266	108	185
3	Croatia	2008	70	87	30	90
4	Cyprus	2007	39	23	9	14
5	Czech Republic	2004	283	286	101	220
6	Denmark	2002	55	127	69	85
7	Finland	2003	116	170	31	130
8	France	2007	400	860	780	1 100
9	Germany	2004	550	1 081	550	995
10	Hungary	2006	550	198	90	137
11	Latvia	2004	107	84	44	136
12	Lithuania	2004	145	110	84	92
13	Luxembourg	2001	4	11	7	9
14	Netherlands	2004	50	266	128	191
15	Norway	2002	22	156	23	195
16	Portugal	2005	170	260	108	202
17	Romania	2003	918	437	210	523
18	Slovakia	2005	110	130	39	140
19	Slovenia	2004	27	45	20	40
20	Spain [a]	2005	774	847	353	669
21	Sweden	2002	67	148	57	241
22	Switzerland	2005	26	79	63	144
23	The former Yugoslav Republic of Macedonia	2010	81	29	16	19
24	United Kingdom of Great Britain and Northern Ireland	2005	625	1 181	297	1200
25	United States of America	2044	14 527 [b]	6 348 [c]		4 511 [d]
26	European Union [e]	2003	4 059	6 671	3129	6 600

[a] Figures apply to the European part of the country.

[b] Applies to the United States PEMA for sulphur: the total territory of the United States with the exception of Alaska and Hawaii.

[c] Applies to the United States PEMA for NO_x — the District of Columbia plus 18 states: Connecticut, Delaware, Illinois, Indiana, Kentucky, Maine, Maryland, Massachusetts, Michigan, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Vermont, West Virginia and Wisconsin.

[d] Applies to the United States PEMA for VOCs — the District of Columbia plus 18 states: Connecticut, Delaware, Illinois, Indiana, Kentucky, Maine, Maryland, Massachusetts, Michigan, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Vermont, West Virginia and Wisconsin.

[e] Figures apply to the 15 member countries of the EU on 1 May 2004, awaiting formal adjustment of the figures to the totals for all of the 27 EU member States, following article 13, paragraph 1, of the Gothenburg Protocol.

Pending a decision by Parties whether table 1 will reflect continuing legally binding obligations from the current Gothenburg Protocol; until then, all United States entries and footnotes should be placed in brackets.]

Table 2
Emission reduction obligation for sulphur dioxide for 2020 and beyond

	Parties	*Emission levels 2005 in thousands of tons of SO_2*	*Reduction from 2005 level (%)*
1	Albania	19	
2	Armenia	*26*	
3	Austria	27	
4	Azerbaijan	*129*	
5	Belarus	85	
6	Belgium	145	
7	Bosnia and Herzegovina	225	
8	Bulgaria	777	
9	Canada [a]		
10	Croatia	63	
11	Cyprus	38	
12	Czech Republic	219	
13	Denmark	23	
14	Estonia	76	
15	Finland	69	
16	France	462	
17	Georgia	*13*	
18	Germany	517	
19	Greece	542	
20	Hungary	129	
21	Iceland	*7*	
22	Ireland	71	
23	Italy	402	
24	Kazakhstan	*3 309*	
25	Kyrgyzstan	*26*	
26	Latvia	7	
27	Liechtenstein		
28	Lithuania	44	
29	Luxembourg	3	
30	Malta	17	
31	Monaco		
32	Montenegro	*15*	
33	Netherlands [b]	65	
34	Norway	24	

	Parties	*Emission levels 2005 in thousands of tons of SO_2*	*Reduction from 2005 level (%)*
35	Poland	1 222	
36	Portugal	179	
37	Republic of Moldova	7	
38	Romania	643	
39	Russian Federation [b]	1 973	
40	Serbia	440	
41	Slovakia	89	
42	Slovenia	40	
43	Spain [b]	1 235	
44	Sweden	36	
45	Switzerland	16	20
46	The former Yugoslav Republic of Macedonia	100	
47	Turkey	*1 417*	
48	Ukraine	1 063	
49	United Kingdom	697	
50	United States [c]	[12 965]	
51	European Union [d]	7 773	55

[a] Upon ratification, acceptance or approval of, or accession to, the present Protocol, Canada shall provide: (a) a value for total estimated sulphur emission levels for 2005, either national or for its PEMA; and (b) an indicative value for a reduction of total sulphur emission levels for 2020 from 2005 levels, either at the national level or for its PEMA. Item (a) will be included in the table, and item (b) will be included in a footnote to the table. The PEMA, including any changes when Canada becomes a Party to the Protocol, will be included in annex III to the Protocol.

[b] Figures apply to the European part of the country.

[[c] Upon ratification, acceptance or approval of, or accession to the amendment adding this table to the Protocol, the United States shall provide: (a) an indicative value for a reduction of total sulphur emission levels for 2020 from 2005 levels for the appropriate PEMA; and (b) any changes to the PEMA identified when the United States became a Party to the Protocol. Item (a) will be included in a footnote to the table and item (b) will be included in annex III to the Protocol.]

[d] **Preliminary position of the** EU.

Table 3
Emission reduction obligation for nitrogen oxides for 2020 and beyond

	Parties	*Emission levels 2005 in thousands of tons of NO_2*	*Reduction from 2005 level (%)*
1	Albania	21	
2	Armenia	*6*	
3	Austria	237	
4	Azerbaijan	*76*	
5	Belarus	167	
6	Belgium	302	
7	Bosnia and Herzegovina	35	
8	Bulgaria	154	
9	Canada [a]		
10	Croatia	69	
11	Cyprus	21	
12	Czech Republic	286	
13	Denmark	182	
14	Estonia	36	
15	Finland	177	
16	France	1 424	
17	Georgia	*16*	
18	Germany	1 576	
19	Greece	419	
20	Hungary	203	
21	Iceland	*4*	
22	Ireland	127	
23	Italy	1 215	
24	Kazakhstan	*757*	
25	Kyrgyzstan	*63*	
26	Latvia	37	
27	Liechtenstein		
28	Lithuania	58	
29	Luxembourg	19	
30	Malta	12	
31	Monaco	*0.4*	
32	Montenegro	*8*	
33	Netherlands [b]	368	
34	Norway	180	
35	Poland	811	
36	Portugal	292	
37	Republic of Moldova	25	
38	Romania	309	

	Parties	*Emission levels 2005 in thousands of tons of NO_2*	*Reduction from 2005 level (%)*
39	Russian Federation [b]	3 106	
40	Serbia	157	
41	Slovakia	104	
42	Slovenia	47	
43	Spain [b]	1 300	
44	Sweden	174	
45	Switzerland	84	43
46	The former Yugoslav Republic of Macedonia	32	
47	Turkey	*1 080*	
48	Ukraine	903	
49	United Kingdom	1 570	
50	United States [c]	[18 443]	
51	European Union [d]	11 458	40

[a] Upon ratification, acceptance or approval of, or accession to, the present Protocol, Canada shall provide: (a) a value for total estimated nitrogen oxide emission levels for 2005, either national or for its PEMA, if it has submitted one; and (b) an indicative value for a reduction of total nitrogen oxide emission levels for 2020 from 2005 levels, either at the national level or for its PEMA. Item (a) will be included in the table, and item (b) will be included in a footnote to the table. The PEMA, if submitted, will be included in annex III to the Protocol.

[b] Figures apply to the European part of the country.

[c] Upon ratification, acceptance or approval of, or accession to the amendment adding this table to the Protocol, the United States shall provide: (a) an indicative value for a reduction of total nitrogen oxide emission levels for 2020 from 2005 levels for the appropriate PEMA; and (b) any changes to the PEMA identified when the United States became a Party to the Protocol. Item (a) will be included in a footnote to the table and item (b) will be included in annex III to the Protocol.

[d] **Preliminary position of the** EU.

Table 4
Emission reduction obligation for ammonia for 2020 and beyond

	Parties	*Emission levels 2005 in thousands of tons of NH_3*	*Reduction from 2005 level (%)*
1	Albania	17	
2	Armenia	*17*	
3	Austria	63	
4	Azerbaijan	*48*	
5	Belarus	117	
6	Belgium	72	
7	Bosnia and Herzegovina	18	
8	Bulgaria	60	
9	Canada		
10	Croatia	29	
11	Cyprus	6	
12	Czech Republic	82	
13	Denmark	84	
14	Estonia	10	
15	Finland	39	
16	France	751	
17	Georgia	*35*	
18	Germany	573	
19	Greece	68	
20	Hungary	80	
21	Iceland	*4*	
22	Ireland	113	
23	Italy	416	
24	Kazakhstan	*852*	
25	Kyrgyzstan	*27*	
26	Latvia	16	
27	Liechtenstein		
28	Lithuania	39	
29	Luxembourg	5	
30	Malta	2	
31	Monaco	0	
32	Montenegro	*4*	
33	Netherlands [a]	141	
34	Norway	23	
35	Poland	327	
36	Portugal	52	
37	Republic of Moldova	17	
38	Romania	199	

	Parties	*Emission levels 2005 in thousands of tons of NH_3*	*Reduction from 2005 level (%)*
39	Russian Federation [a]	523	
40	Serbia	60	
41	Slovakia	29	
42	Slovenia	18	
43	Spain [a]	364	
44	Sweden	53	
45	Switzerland	62	13
46	The former Yugoslav Republic of Macedonia	8	
47	Turkey	*407*	
48	Ukraine	252	
49	United Kingdom	311	
50	United States		
51	European Union [b]	3 967	5

[a] Figures apply to the European part of the country.

[b] **Preliminary position of the** EU.

Table 5
Emission reduction obligation for Volatile Organic Compounds for 2020 and beyond

	Parties	*Emission levels 2005 in thousands of tons of VOC*	*Reduction from 2005 level (%)*
1	Albania	32	
2	Armenia	*49*	
3	Austria	165	
4	Azerbaijan	*234*	
5	Belarus	203	
6	Belgium	154	
7	Bosnia and Herzegovina	43	
8	Bulgaria	158	
9	Canada [a]		
10	Croatia	103	
11	Cyprus	14	
12	Czech Republic	182	
13	Denmark	117	
14	Estonia	41	
15	Finland	132	
16	France	1 226	
17	Georgia	*214*	
18	Germany	1 143	
19	Greece	222	
20	Hungary	178	
21	Iceland	*8*	
22	Ireland	60	
23	Italy	1 273	
24	Kazakhstan	*236*	
25	Kyrgyzstan	*25*	
26	Latvia	73	
27	Liechtenstein		
28	Lithuania	84	
29	Luxembourg	10	
30	Malta	3	
31	Monaco	0.5	
32	Montenegro	*10*	
33	Netherlands [b]	180	
34	Norway	224	
35	Poland	885	
36	Portugal	205	
37	Republic of Moldova	31	
38	Romania	426	

	Parties	*Emission levels 2005 in thousands of tons of VOC*	*Reduction from 2005 level (%)*
39	Russian Federation [b]	3 041	
40	Serbia	153	
41	Slovakia	76	
42	Slovenia	37	
43	Spain [b]	827	
44	Sweden	184	
45	Switzerland	121	32
46	The former Yugoslav Republic of Macedonia	23	
47	Turkey	*1 105*	
48	Ukraine	685	
49	United Kingdom	1 374	
50	United States [c]	[15 841]	
51	European Union [d]	9 428	25

[a] Upon ratification, acceptance or approval of, or accession to, the present Protocol, Canada shall provide: (a) a value for total estimated VOC emission levels for 2005, either national or for its PEMA, if it has submitted one; and (b) an indicative value for a reduction of total VOC emission levels for 2020 from 2005 levels, either at the national level or for its PEMA. Item (a) will be included in the table, and item (b) will be included in a footnote to the table. The PEMA, if submitted, will be included in annex III to the Protocol.

[b] Figures apply to the European part of the country.

[c] Upon ratification, acceptance or approval of, or accession to the amendment adding this table to the Protocol, the United States shall provide: (a) an indicative value for a reduction of total VOC emission levels for 2020 from 2005 levels for the appropriate PEMA; and (b) any changes to the PEMA identified when the United States became a Party to the Protocol. Item (a) will be included in a footnote to the table and item (b) will be included in annex III to the Protocol.

[d] **Preliminary position of the** EU.

Table 6
Emission reduction obligation for particulate matter for 2020 and beyond

	Parties	*Emission levels 2005 in thousands of tons of $PM_{2.5}$*	*Reduction from 2005 level (%)*
1	Albania	9	
2	Armenia	*1*	
3	Austria	23	
4	Azerbaijan	*5*	
5	Belarus	53	
6	Belgium	26	
7	Bosnia and Herzegovina	20	
8	Bulgaria	44	
9	Canada [a]		
10	Croatia	19	
11	Cyprus	3	
12	Czech Republic	22	
13	Denmark	25	
14	Estonia	20	
15	Finland	37	
16	France	319	
17	Georgia	*2*	
18	Germany	122	
19	Greece	56	
20	Hungary	31	
21	Iceland	*1*	
22	Ireland	11	
23	Italy	150	
24	Kazakhstan	*150*	
25	Kyrgyzstan	*27*	
26	Latvia	27	
27	Liechtenstein		
28	Lithuania	9	
29	Luxembourg	3	
30	Malta	1	
31	Monaco		
32	Montenegro	*5*	
33	Netherlands [b]	21	
34	Norway	51	
35	Poland	138	
36	Portugal	81	
37	Republic of Moldova	10	
38	Romania	105	

	Parties	*Emission levels 2005 in thousands of tons of $PM_{2.5}$*	*Reduction from 2005 level (%)*
39	Russian Federation [b]	763	
40	Serbia	63	
41	Slovakia	39	
42	Slovenia	14	
43	Spain [b]	92	
44	Sweden	29	
45	Switzerland	10	26
46	The former Yugoslav Republic of Macedonia	13	
47	Turkey	*268*	
48	Ukraine	390	
49	United Kingdom	89	
50	United States [c]	[1 706]	
51	European Union [d]	1 537	20

[a] Upon ratification, acceptance or approval of, or accession to, the present Protocol, Canada shall provide: (a) a value for total estimated PM emission levels for 2005, either national or for its PEMA, if it has submitted one; and (b) an indicative value for a reduction of total emission levels of PM for 2020 from 2005 levels, either at the national level or for its PEMA. Item (a) will be included in the table, and item (b) will be included in a footnote to the table. The PEMA, if submitted, will be included in annex III to the Protocol.

[b] Figures apply to the European part of the country.

[c] Upon ratification, acceptance or approval of, or accession to the amendment adding this table to the Protocol, the United States shall provide for inclusion in a footnote to the table an indicative value for a reduction of $PM_{2.5}$ emission levels for 2020 from 2005 levels for the appropriate PEMA.

[d] **Preliminary position of the** EU.