

## ANNEX E - INVENTORY COMPARISONS

**Note:** Comparisons could be performed only for Parties which submitted inventories under more than one reporting obligation. 0% indicates that there was no difference between emissions; an empty cell indicates that one (or both) of the inventories were not submitted; NH<sub>3</sub> is not reported under the EU-MM. The difference NECD to CLRTAP was calculated as follows:  $100 * [(CLRTAP - NECD) / CLRTAP]$ . For the difference UNFCCC to CLRTAP the formula  $100 * [(CLRTAP - UNFCCC) / CLRTAP]$  was used.

**Table 1: Comparison of NECD, CLRTAP and UNFCCC inventories for NO<sub>x</sub>**

NO <sub>x</sub>	1990					2009				
	CLRTAP	NECD		UNFCCC		CLRTAP	NECD		UNFCCC	
	emissions [Gg]	emissions [Gg]	difference between CLRTAP and NECD	emissions [Gg]	difference between CLRTAP and UNFCCC	emissions [Gg]	emissions [Gg]	difference between CLRTAP and NECD	emissions [Gg]	difference between CLRTAP and UNFCCC
Austria	195	181	6.9%	194	0.5%	187	145	22.4%	186	0.7%
Belarus	285			336	-17.9%	168			169	-0.3%
Belgium	400	400	-0.1%	396	1.0%	213	213	0.0%	207	2.9%
Bulgaria	361			289	19.9%	165	164	0.3%	195	-18.3%
Canada	2 477					1 964				
Croatia	92			89	2.6%	77			70	9.4%
Cyprus	17	15	7.9%	18	-8.0%	19	19	0.0%	18	7.6%
Czech Republic	544			742	-36.4%	251	253	-0.7%	253	-0.7%
Denmark	278	278	0.0%	278	-0.2%	132	132	0.0%	131	0.6%
Estonia	72	72	0.0%	78	-8.9%	29	29	0.0%	31	-6.9%
European Union	16 889			16 892	0.0%	9 394			9 541	-1.6%
Finland	300	300	0.0%	295	1.7%	153	153	0.0%	154	-0.9%
France	1 834	1 834	0.0%	1 892	-3.2%	1 117	1 117	0.0%	1 190	-6.6%
Germany	2 940	2 940	0.0%	2 942	-0.1%	1 370	1 370	0.0%	1 367	0.2%
Greece	299	296	1.1%	331	-10.6%	375	375	0.0%	376	-0.2%
Hungary	238	238	0.0%	8.0	96.6%	167	166	0.2%	154	7.7%
Iceland	27			27	0.0%				24	
Ireland	126	126	0.0%	123	2.1%	90	90	0.0%	87	3.6%
Italy	2 015	2 035	-1.0%	2 021	-0.3%	981	988	-0.7%	1 003	-2.2%
Latvia	65	65	0.0%	65	0.1%	29	29	0.0%	28	2.0%
Liechtenstein	0.71					0.63				
Lithuania	158	136	13.7%	164	-3.8%	65	65	0.0%	62	4.4%
Luxembourg	23	23	0.0%				19			
Malta		11		8.0					8.0	
Monaco	0.45			0.5	0.5%	0.32			0.3	-0.3%
Netherlands	563	563	0.0%	548	2.7%	276	276	0.0%	261	5.4%
Norway	190			191	-0.6%	178			181	-1.2%
Poland	1 280			1 280	0.0%	820	820	0.0%	819	0.1%
Portugal	235	234	0.2%	259	-10.2%	239	238	0.3%	254	-6.5%
Romania	546			459	15.9%	247	247	0.0%	324	-31.0%
Russian Federation	3 600			9 488	-163.5%	3 426			5 086	-48.4%
Slovakia	222			222	0.0%	86	86	0.0%	85	0.7%
Slovenia	60			6.0	90.0%	45	45	0.0%	48	-6.3%
Spain	1 283	1 217	5.1%	1 289	-0.5%	1 056	966	8.4%	1 066	-1.0%
Sweden	301	301	0.0%	303	-0.5%	149	149	0.0%	150	-0.4%
Switzerland	142			148	-3.9%	78			83	-6.1%
Turkey	644			644	0.0%				1 426	
Ukraine	1 097			2 191	-99.7%	528			824	-56.1%
United Kingdom	2 683			2 681	0.1%	1 086	1 078	0.8%	1 082	0.4%
USA	23 161			21 804	5.9%	12 439			11 706	5.9%

SNAP National total

CLRTAP and EU-MM emissions from the Russian Federation are not comparable because of different area covering.

**Table 2: Comparison of NECD, CLRTAP and UNFCCC inventories for NMVOC**

NMVOC	1990					2009				
	CLRTAP	NECD		UNFCCC		CLRTAP	NECD		UNFCCC	
	emissions [Gg]	emissions [Gg]	difference between CLRTAP and NECD	emissions [Gg]	difference between CLRTAP and UNFCCC	emissions [Gg]	emissions [Gg]	difference between CLRTAP and NECD	emissions [Gg]	difference between CLRTAP and UNFCCC
Austria	276	273	1.0%	276	0.0%	123	122	1.0%	123	0.1%
Belarus	533			301	43.4%	171			197	-15.0%
Belgium	316	316	-0.2%	365	-15.5%	108	108	0.0%	156	-43.9%
Bulgaria	217			541	-149.3%	146	135	7.7%	108	26.3%
Canada	2 785					2 008				
Croatia	121			111	8.2%	80			70	11.6%
Cyprus	17	14	15.5%	17	-1.1%	11	11	0.0%	11	1.0%
Czech Republic	441			311	29.5%	151	162	-7.1%	151	0.1%
Denmark	189	187	0.9%	189	0.1%	95	94	1.3%	95	0.4%
Estonia	70	70	0.0%	52	26.1%	36	36	0.0%	24	33.9%
European Union	17 133			18 443	-7.6%	7 723			9 263	-19.9%
Finland	226	226	0.0%	229	-1.5%	111	111	0.0%	110	1.2%
France	2 551	2 551	0.0%	3 831	-50.2%	878	878	0.0%	2 072	-135.9%
Germany	3 751	3 751	0.0%	3 750	0.0%	1 285	1 285	0.0%	1 284	0.1%
Greece	280	255	9.1%	279	0.5%	212	212	0.0%	212	-0.2%
Hungary	205	205	0.0%	63.0	69.3%	128	115	10.2%	134	-4.6%
Iceland	13			13	0.0%				5	
Ireland	88	88	0.0%	83	5.7%	52	52	0.0%	48	8.1%
Italy	2 021	2 004	0.8%	2 030	-0.4%	1 107	1 100	0.6%	1 111	-0.4%
Latvia	102	102	0.0%	102	-0.4%	61	61	0.0%	61	-0.6%
Liechtenstein	0.88			0.630	28.0%	0.41			0	48.6%
Lithuania	108	118	-9.3%	116	-7.4%	70	70	0.0%	72	-3.0%
Luxembourg	14	14	0.0%	6.0	57.4%		8		5	
Malta		4		6.0					2.0	
Monaco	0.69			0.5	21.7%	0.32			0.3	10.5%
Netherlands	464	464	0.0%	460	1.0%	154	154	0.0%	152	1.3%
Norway	289			293	-1.1%	140			141	-0.7%
Poland	831			831	0.0%	615	615	0.0%	611	0.7%
Portugal	306	301	1.6%	332	-8.7%	179	183	-1.8%	201	-12.1%
Romania	616			335	45.6%	432	432	0.0%	724	-67.5%
Russian Federation	3 668			6 973	-90.1%	2 258			4 827	-113.8%
Slovakia	142			141	0.7%	65	65	0.0%	65	0.6%
Slovenia	55					31	33	-5.0%	33	-6.3%
Spain	1 043	1 007	3.4%	1 043	0.0%	696	673	3.3%	696	-0.1%
Sweden	353	353	0.0%	353	-0.1%	180	180	0.0%	180	-0.2%
Switzerland	290			394	-36.1%	91			189	-106.8%
Turkey	463			518	-11.9%				1 292	
Ukraine	1 369			1 569	-14.6%	275			603	-118.9%
United Kingdom	2 706			2 702	0.2%	826	823	0.4%	824	0.2%
USA	21 871			20 930	4.3%	11 909			9 313	21.8%

SNAP National total

CLRTAP and EU-MM emissions from the Russian Federation are not comparable because of different area covering.

**Table 3: Comparison of NECD, CLRTAP and UNFCCC inventories for SO<sub>x</sub>**

SO <sub>x</sub>	1990					2009				
	CLRTAP	NECD		UNFCCC		CLRTAP	NECD		UNFCCC	
	emissions [Gg]	emissions [Gg]	difference between CLRTAP and NECD	emissions [Gg]	difference between CLRTAP and UNFCCC	emissions [Gg]	emissions [Gg]	difference between CLRTAP and NECD	emissions [Gg]	difference between CLRTAP and UNFCCC
Austria	74	74	1.0%	74	0.5%	21	21	0.1%	21	-2.0%
Belarus	637			1 083	-70.1%	155			238	-53.7%
Belgium	362	362	0.0%	360	0.4%	76	76	0.0%	75	1.9%
Bulgaria	2 008			1 767	12.0%	658	658	0.0%	1 162	-76.6%
Canada	3 202					1 476				
Croatia	166			167	-0.1%	67			67	0.6%
Cyprus	30	30	-0.1%	36	-21.0%	17	17	0.0%	17	0.6%
Czech Republic	1 881			1 876	0.3%	173	174	-0.6%	173	0.3%
Denmark	179	179	0.0%	179	0.0%	15	15	-4.7%	15	-1.4%
Estonia	274	274	0.0%	170	37.9%	55	55	0.0%	61	-11.3%
European Union	25 431			25 170	1.0%	5 012			5 509	-9.9%
Finland	259	259	0.0%	249	3.8%	59	59	0.0%	59	0.4%
France	1 326	1 326	0.0%	1 352	-1.9%	303	303	0.0%	322	-6.3%
Germany	5 312	5 312	0.0%	5 312	0.0%	448	448	0.0%	448	0.1%
Greece	487	493	-1.2%	477	2.0%	427	427	0.0%	427	0.1%
Hungary	1 010	1 010	0.0%	10.0	99.0%	80	93	-16.7%	89	-11.6%
Iceland	20			20	0.0%				77	
Ireland	183	183	0.0%	182	0.3%	33	33	0.0%	32	2.1%
Italy	1 794	1 794	0.0%	1 795	0.0%	231	265	-14.8%	231	-0.2%
Latvia	105	105	0.0%	105	-0.2%	4	4	0.0%	4	1.9%
Liechtenstein	0.07					0.04				
Lithuania	222	214	3.6%	215	3.2%	36	36	0.0%	31	14.1%
Luxembourg	18	18	0.0%				3			
Malta		19		16.0					7.0	
Monaco	0.07			0.1	5.5%	0.03			0.0	-2.5%
Netherlands	192	192	0.0%	187	2.4%	38	38	0.0%	37	2.8%
Norway	52			52	-0.1%	16			16	-0.5%
Poland	3 210			3 210	0.0%	861	861	0.0%	860	0.2%
Portugal	295	292	1.1%	323	-9.6%	76	80	-4.3%	81	-6.3%
Romania	1 311			755	42.4%	460	460	0.0%	421	8.5%
Russian Federation	4 671			812	82.6%	1 340			589	56.0%
Slovakia	526			526	0.0%	64	64	0.0%	64	0.1%
Slovenia	198					12	12	0.0%	12	-4.1%
Spain	2 176	2 099	3.6%	2 177	0.0%	430	404	6.1%	431	-0.1%
Sweden	105	105	0.0%	105	0.0%	30	30	0.0%	30	-0.5%
Switzerland	43			43	0.0%	13			13	0.7%
Turkey	765			835	-9.2%				806	
Ukraine	2 783			5 301	-90.5%	1 290			1 383	-7.2%
United Kingdom	3 711			3 711	0.0%	397	397	0.0%	397	0.1%
USA	20 935			20 935	0.0%	8 600			8 599	0.0%

SNAP National total

CLRTAP and EU-MM emissions from the Russian Federation are not comparable because of different area covering.

**Table 4: Comparison of NECD, CLRTAP and UNFCCC inventories for NH<sub>3</sub>**

NH <sub>3</sub>	1990			2009		
	CLRTAP	NECD		CLRTAP	NECD	
	emissions [Gg]	emissions [Gg]	difference between CLRTAP and NECD	emissions [Gg]	emissions [Gg]	difference between CLRTAP and NECD
Austria	65	65	0.0%	64	63	0.5%
Belarus	215			150		
Belgium	120	120	0.0%	67	67	0.0%
Bulgaria	144			51	62	-20.5%
Canada	423			463		
Croatia	52			36		
Cyprus	5	5	-0.8%	5	5	0.0%
Czech Republic	156			73	73	-0.4%
Denmark	117	101	13.8%	77	71	7.0%
Estonia	25	25	0.0%	10	9.8	0.0%
European Union	5 128			3 782		
Finland	42	40	6.0%	37	37	0.0%
France	791	791	0.0%	744	744	0.0%
Germany	700	700	0.0%	597	597	0.0%
Greece	79	79	0.0%	63	63	0.0%
Hungary	124	124	0.0%	68	68	0.0%
Iceland	NR					
Ireland	106	106	0.0%	108	108	0.0%
Italy	468	466	0.4%	391	398	-1.8%
Latvia	48	48	0.0%	16	16	0.0%
Liechtenstein	0.33			0.30		
Lithuania	84	84	-0.4%	28	28	0.0%
Luxembourg	5	5.5	0.0%		4.5	
Malta						
Monaco	0.00			0.00		
Netherlands	356	356	0.0%	125	125	0.0%
Norway	21			23		
Poland	508			273	273	0.0%
Portugal	63	62	1.1%	48	49	-1.2%
Romania	300			188	187	0.4%
Russian Federation	1 191			771		
Slovakia	65			25	25	0.0%
Slovenia	20			18	18	-0.2%
Spain	318	316	0.7%	357	354	0.7%
Sweden	54	54	0.0%	48	48	0.0%
Switzerland	73			64		
Turkey						
Ukraine	729			187		
United Kingdom	368			288	288	0.0%
USA	3 918			3 699		

SNAP National total

CLRTAP and EU-MM emissions from the Russian Federation are not comparable because of different area covering.

**Table 5: Comparison of NECD, CLRTAP and UNFCCC inventories for CO**

CO	1990			2009		
	CLRTAP	UNFCCC		CLRTAP	UNFCCC	
	emissions [Gg]	emissions [Gg]	difference between CLRTAP and UNFCCC	emissions [Gg]	emissions [Gg]	difference between CLRTAP and UNFCCC
Austria	1 433	1 433	0.0%	649	647	0.3%
Belarus	1 722	1 527	11.3%	500	581	-16.2%
Belgium	1 330	1 327	0.2%	367	364	0.8%
Bulgaria	891	718	19.4%	459	501	-9.2%
Canada	15 329			8 790		
Croatia	577	586.1	-1.6%	289	286.9	0.7%
Cyprus	53	53	0.7%	20	19	7.2%
Czech Republic	1 257	1 072	14.7%	404	454	-12.5%
Denmark	717	716	0.1%	392	392	0.1%
Estonia	227	169	25.4%	168	99.0	41.2%
European Union	63 795	64 465	-1.1%	24 254	24 968	-2.9%
Finland	561	709	-26.4%	465	455	2.2%
France	10 891	11 513	-5.7%	3 951	4 338	-9.8%
Germany	12 263	12 266	0.0%	3 095	3 089	0.2%
Greece	1 281	1 251	2.3%	590	599	-1.5%
Hungary	997	166	83.4%	313	554	-77.1%
Iceland	45	45	0.0%		18	
Ireland	420	416	0.9%	158	155	2.1%
Italy	7 131	7 191	-0.8%	2 617	2 641	-0.9%
Latvia	455	455	0.0%	266	267	-0.4%
Liechtenstein	1.28	0	98.4%	0.69	0	98.5%
Lithuania	519	519	0.0%	206	202	1.9%
Luxembourg		17.0				
Malta		24			31.0	
Monaco	2.83	3	0.1%	1.04	1	-0.7%
Netherlands	1 119	1 142	-2.0%	599	593	1.1%
Norway	744	747	-0.5%	316	319	-0.8%
Poland	7 406	7 406	0.0%	2 695	2 690	0.2%
Portugal	803	883	-10.0%	461	493	-6.8%
Romania	3 186	824	74.1%	1 304	1 497	-14.8%
Russian Federation	13 329	35 516	-166.5%	10 474	26 965	-157.5%
Slovakia	505	512	-1.4%	207	217	-4.8%
Slovenia	319			125	124	0.5%
Spain	3 686	3 756	-1.9%	1 718	1 742	-1.4%
Sweden	937	939	-0.2%	536	536	-0.1%
Switzerland	780	842	-7.9%	260	304	-16.7%
Turkey	3 585	3 644	-1.7%		3 470	
Ukraine	8 141	6 160	24.3%	2 425	2 344	3.3%
United Kingdom	9 000	8 988	0.1%	2 277	2 270	0.3%
USA	139 878	133 507	4.6%	63 568	59 932	5.7%

SNAP National total

CLRTAP and EU-MM emissions from the Russian Federation are not comparable because of different area covering.