Technical Paper
Kyoto Ambition Mechanism Report

30 April 2014

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1. SUMMARY

Emission reductions in EU-28 and Iceland

- Total emissions (without LULUCF) in **2012 are 21.7% below base year levels and are projected to be around 24,5% below base year levels in 2020**.

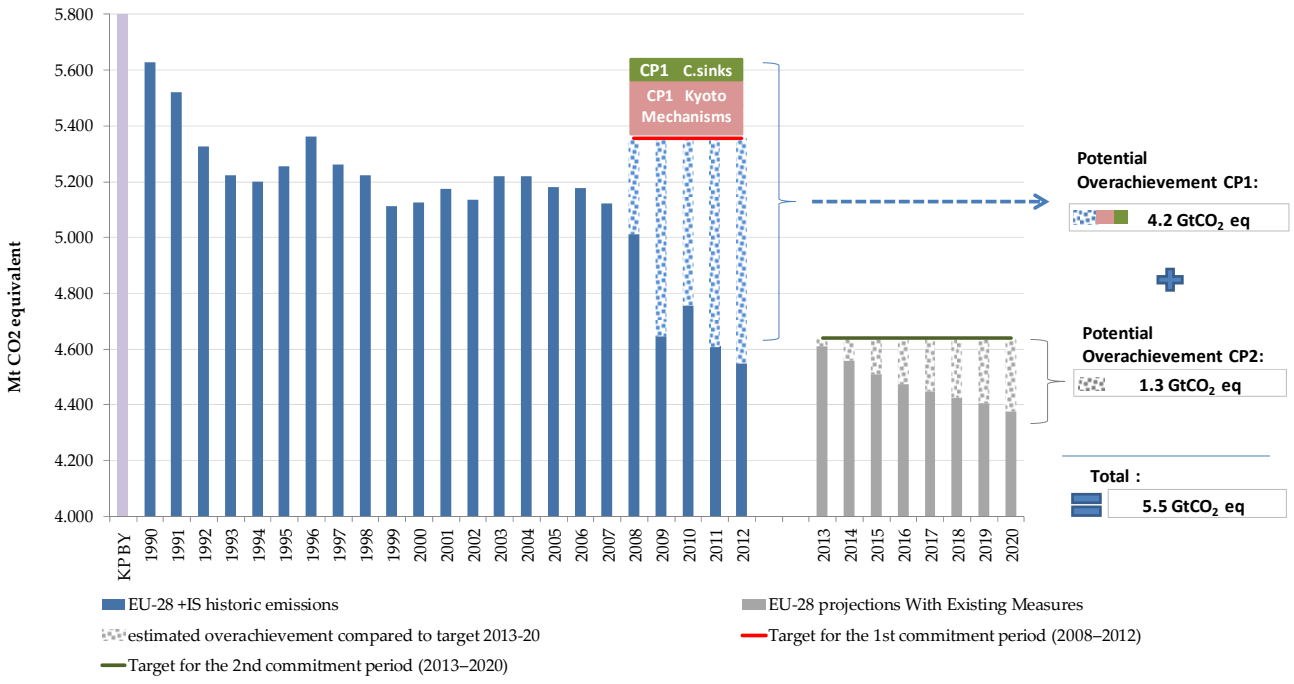
- Over the period 2008-2012, the average annual emissions are 18.8% below base year levels and over the period 2013-2020, the average annual emissions are projected to be 22,8% below base year levels (based on Member States' projections and taking into account existing measures).

Potential overachievement

- Over the first and second commitment periods (2008-2020), the total potential overachievement in the EU-28 and Iceland compared to the targets set under the Kyoto Protocol is estimated to around **5.5 Gt CO_2 eq** (around 4.2 Gt CO_2 eq between 2008-2012 taking into account carbon sinks and Kyoto mechanisms and 1.3 Gt CO_2 eq between 2013-2020 without the use of carbon sinks and Kyoto mechanisms). Such quantity represents more than the total emissions in 2012 in the EU and Iceland.

- Over the first commitment period (2008-2012), the estimated total potential overachievement (4.2 Gt CO_2 eq.) is the sum of: the emission reduction of 3.2 Gt CO_2 eq. below the targets; 0.4 Gt CO_2 eq. from carbon sinks; and 0.6 Gt CO_2 eq. for the use of Kyoto mechanisms.

Figure 1: Estimated total potential overachievement during the first commitment period (2008-2012) and the second commitment period (2013-2020) (EU-28 and Iceland)



Source: EEA, European Commission

Successful decoupling of economic growth and GHG emissions

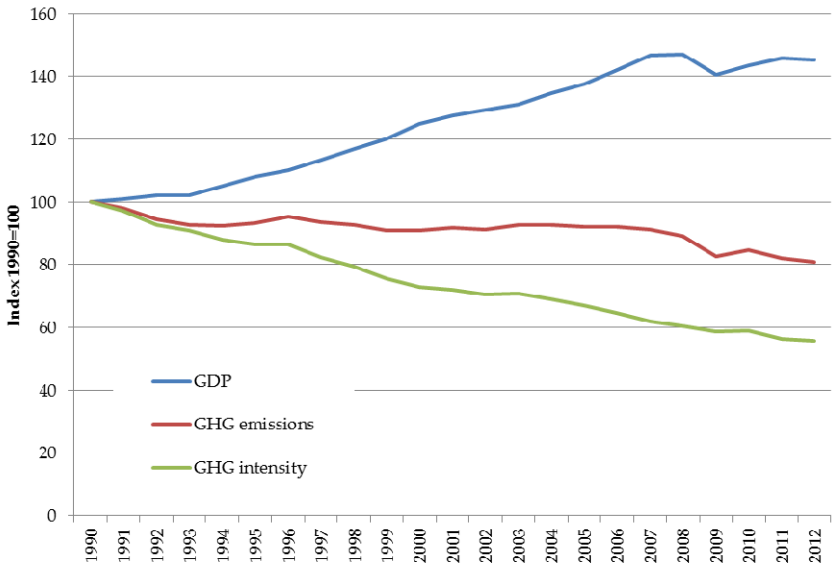
- Over the period 1990-2012, the combined GDP of the EU and Iceland grew by more than 44%, while GHG emissions decreased by 19%. As a result, **the combined greenhouse gas emission emission intensity of the EU and Icelandic economies, was reduced by almost half between 1990 and 2012.**

- Decoupling between emission and growth occurred in all Member States and in Iceland. Decoupling has progressed steadily since 1990. The annual reduction rate per Member State varied between 0.9% and 5.1% per year. As a result, the EU GHG emission intensity is one of the lowest among major economies in the world.

- Recent analysis[1] shows that structural policies implemented in the field of climate and energy (in particular policies resulting in improvements in energy intensity of the economy and a higher share of renewables) have contributed more than half of the EU emission reduction between 2008 and 2012. The economic crisis has contributed less than half of the reduction during this period.

- In 2012, in the EU-28 and Iceland, **total greenhouse gas emissions per capita** were at the level of 9 tonnes CO_2-eq, and decreased by 24% compared to 1990, down from 12 tonnes CO_2-eq. 24 Member States and Iceland experienced a reduction in per capita emissions between 1990 and 2012.

Figure 2: Evolution of GDP (in real terms), GHG emissions and emission intensity (i.e. ratio of greenhouse gas emissions to GDP): Index (1990 = 100)



Source**:** EEA, DG ECFIN (Ameco database), Eurostat

[1] See analysis carried out by the European Environment Agency (http://www.eea.europa.eu/) [to be published before mid May]

2. PROGRESS TOWARDS MEETING THE KYOTO TARGETS IN THE FIRST COMMITMENT PERIOD (2008-2012)

2.1. Overall progress towards targets

2.1.1. EU-28 and Iceland.

Over the first commitment period, total actual greenhouse gas (GHG) emissions in the EU-28 and Iceland were significantly lower than their respective targets:

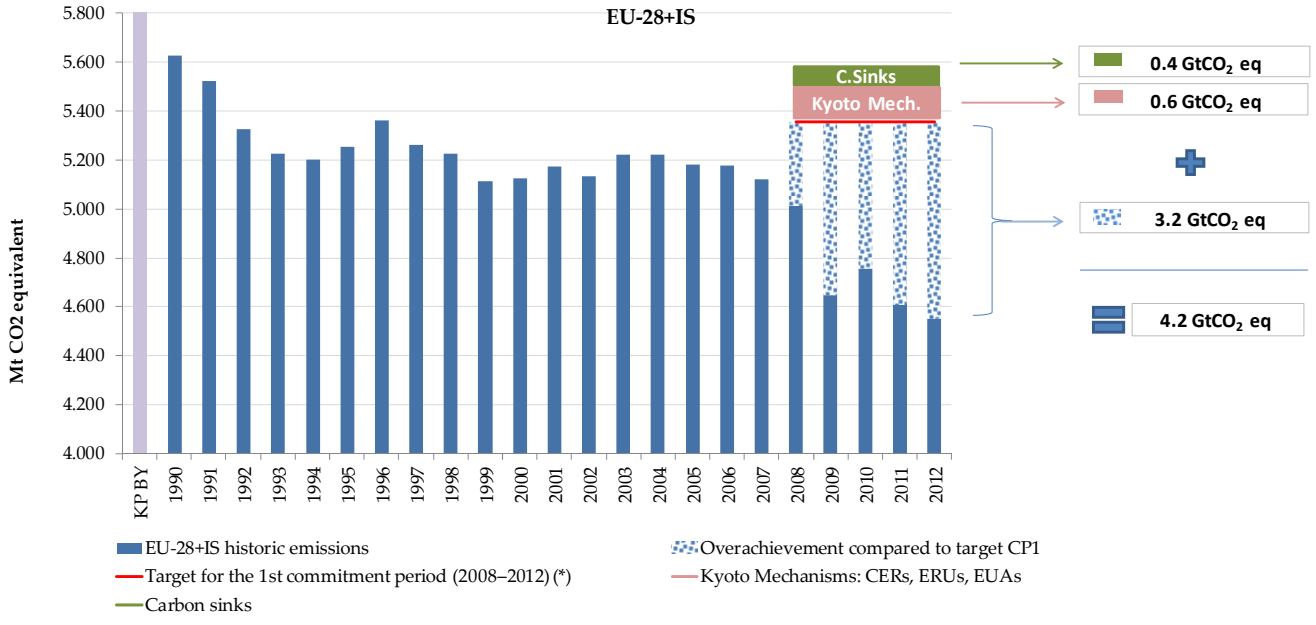
- On average for the period 2008-2012, annual emissions (without LULUCF) were 18.8 % below base year levels. The potential overachievement compared to the targets amounts to around 3.2 Gt CO_2 eq (0.7 Gt CO_2 eq for the ETS and 2.5 Gt CO_2 eq for the non-ETS sectors).

- When carbon sinks from LULUCF (0.4 Gt CO_2 eq) are taken into account, the potential overachievement reaches 3.6 Gt CO_2 eq over the first commitment period.

- In addition, Member States and companies located in these Member States offset part of their emissions with Kyoto mechanisms, resulting in 0.6 Gt CO_2 eq (representing 1.05 Gt CO_2 eq for the use of international credits by operators and a total of -0.5 Gt CO_2 eq for the intended use of Kyoto mechanisms by governments). More information on the use of Kyoto mechanisms can be found in Annex 6.

This brings the estimated total potential overachievement to a total of **4.2 Gt CO_2 eq**.

Figure 3: Estimated total potential overachievement during the first commitment period 2008-2012 (EU-28 plus Iceland)



Note: Iceland is included in historical emissions. The KP base year is calculated as the sum of emissions in MS and Iceland for their respective KP base year in CP1 and, for CY and MT, their 2008-2012 average emissions.

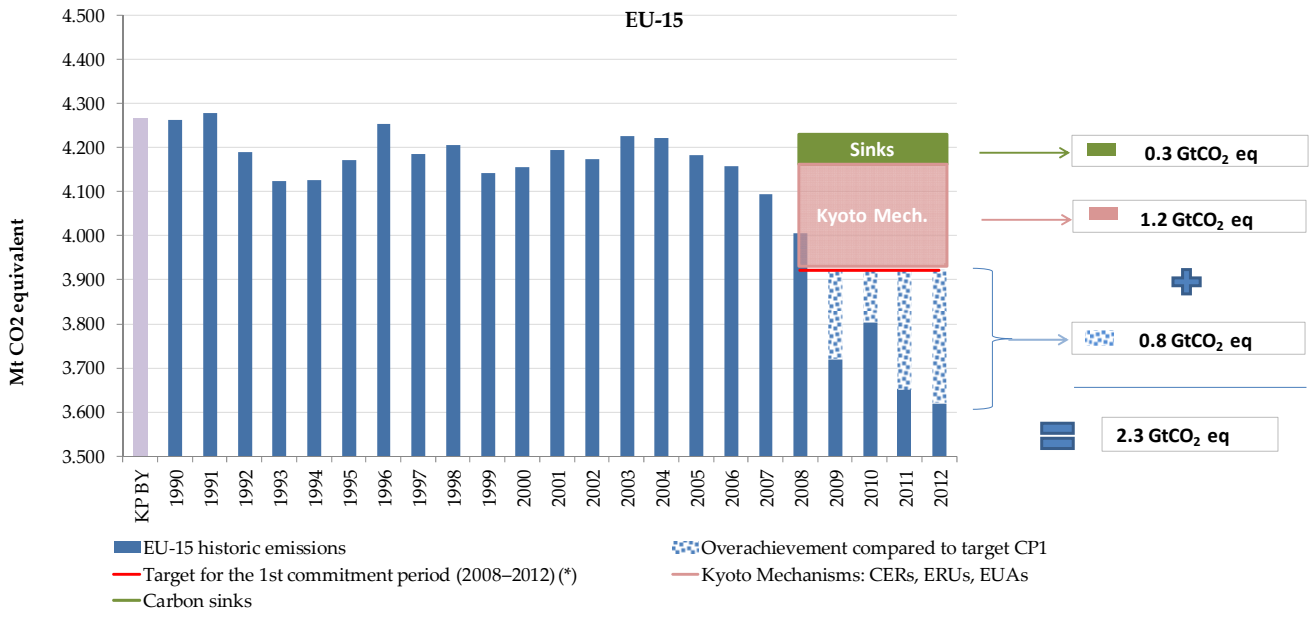
Source: EEA, European Comission

2.1.2. EU-15

In total, the EU-15 participating in the first "EU bubble" for the first commitment period have reduced their emissions by **18.6%** over the first commitment period compared to base year levels (their estimated total potential overachievement reaches 2.3 Gt CO_2 eq., see Figure 4). The EU-15 emission reduction will therefore be more than twice their target for the first commitment period and can be broken down as follows:

- According to the latest inventory data[2], total actual GHG emissions are 11.8 % below base-year level compared to the first commitment period (0.8 Gt CO_2 eq);
- Taking into account activities referred to in Art. 3.3 and 3.4 of the Kyoto Protocol in the EU-15 leads to an additional emission reduction of 1.4% (0.3 Gt CO_2 eq) due to carbon sinks;
- The intended use of the Kyoto mechanisms by governments is expected to deliver an additional 1.5 % emission reduction. However, in light of the economic downturn, Member States may adjust their intentions with regard to the use of the Kyoto mechanisms compared to their latest reported information. The use of international credits (CERs and ERUs) by ETS operators represents an additional 3.9% of base year emissions. In total, the estimated use of Kyoto mechanisms amounts to 1.2 Gt CO_2 eq.

Figure 4: Estimated total potential overachievement during the first commitment period 2008-2012 in the EU-15



Source: EEA, European Comission

[2] See Annex I.

2.1.3. Progress of other Member States and Iceland

The other **11 Member States** with individual targets under the Kyoto Protocol's first commitment period collectively reduced their emissions by on average **38.6 %** vis-à-vis their Kyoto base years. Each of these Member States will overachieve on its Kyoto target for the first commitment period. Cyprus and Malta did not have a target for the first commitment period.

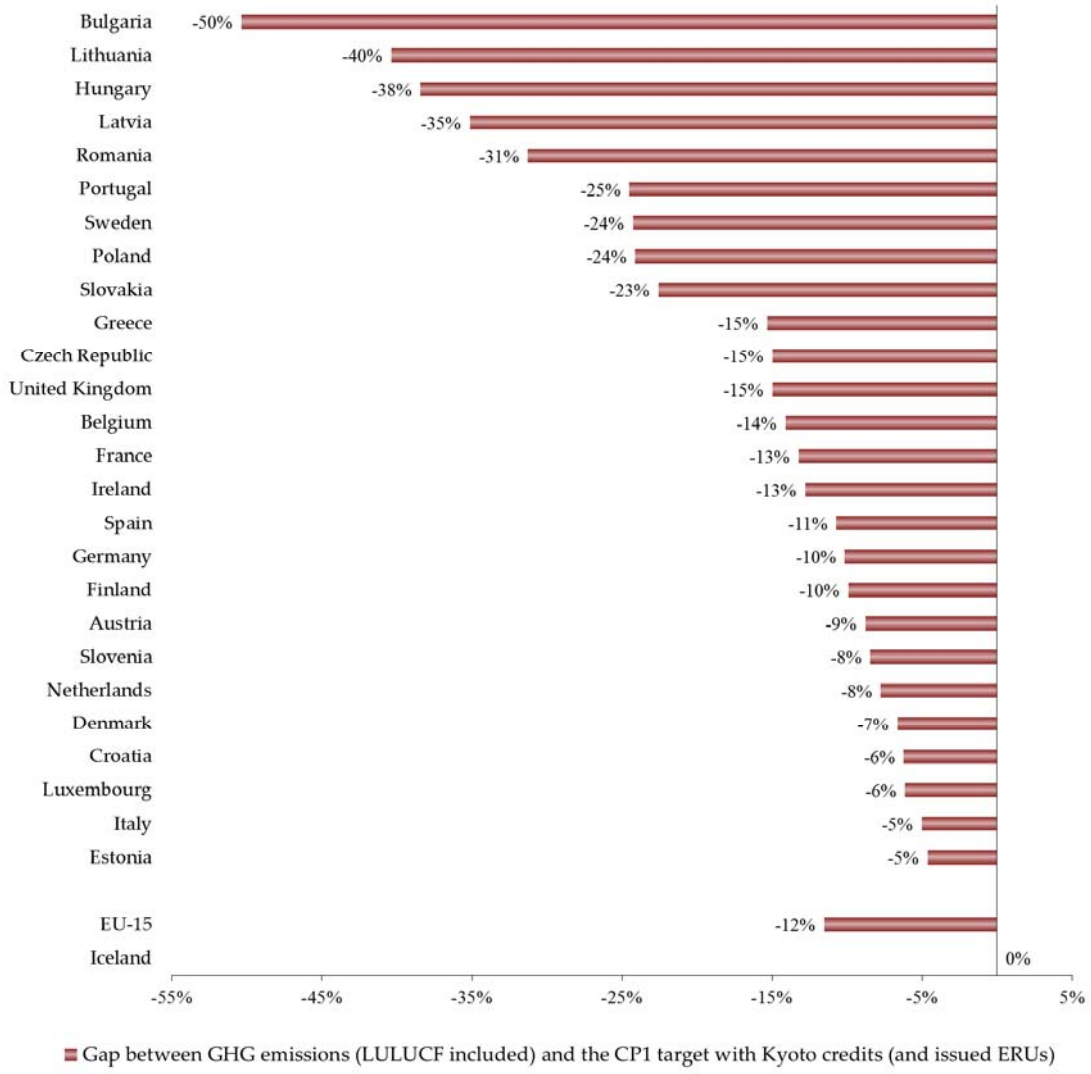
Iceland ratified the Kyoto Protocol in May 2002, committing itself to keep the increase of GHG emissions within 10 % compared to its base year (1990) during the first commitment period (2008 - 2012). According to the latest inventory data, Iceland increased its emissions over the period 2008-2012 on average by 38.7% compared to its base year level. However, taking into account Decision 14/CP.7[3] regarding the impact of single projects on emissions, Iceland will achieve its target under the first commitment period.

2.2. Performance at Member State level

Figure 5 below displays the performance per Member State with regard to the difference between their total GHG emissions over the period (including LULUCF and taking into account the intended use of Kyoto mechanisms) and their respective targets under the first commitment period. All Member States will accomplish an overachievement.

[3] Decision 14/CP.7 sets rules regarding the impact of single projects. Single project which adds in any one year of the commitment period more than 5 per cent to the total CO2 emissions in 1990 of a Party shall be reported separately. The Decision also sets conditions under which emissions from single projects shall not be included in national totals to the extent that they would cause the party to exceed its assigned amount.

Figure 5: Estimated difference at Member States level between total GHG emissions (including LULUCF and with the intended use of Kyoto mechanisms) and their respective targets under the first commitment period



Note: Gaps are expressed in percentage of MS Kyoto targets for 2008-2012. Negative and positive values respectively indicate over delivery or shortfall[4].
Source: Commission, EEA

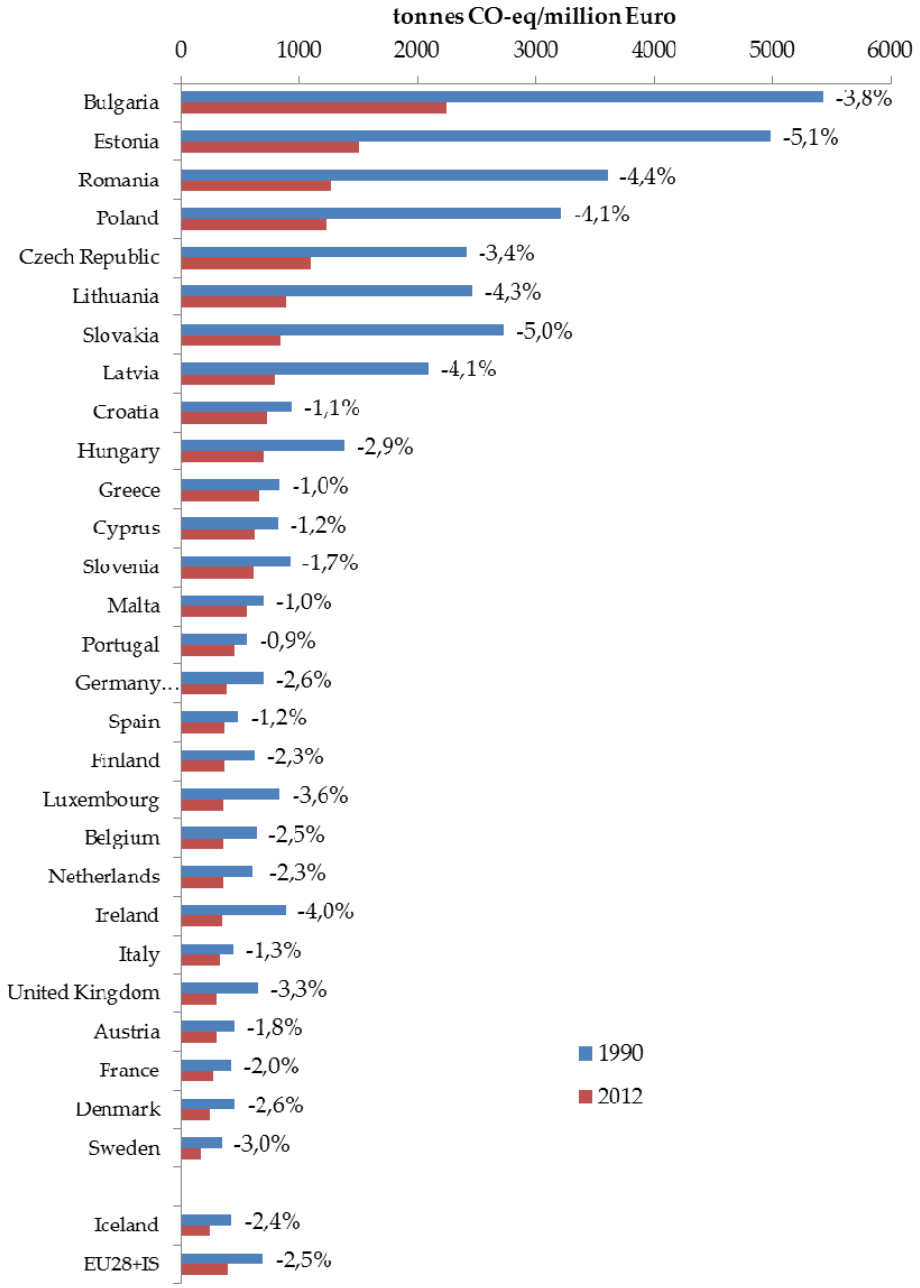
All Member States **decoupled GHG emissions from economic growth,** which progressed steadily between 1990 and 2012. Figure 6 displays the **reduction in GHG emissions intensity** for each Member States and Iceland, with an average annual reduction rate ranging from 0.9% to 5.1%.

In 2012, in the EU-28 and Iceland, **emissions per capita** were at the level of 9 tonnes CO_2-eq and decreased by 24% compared to 1990 (from 12 tonnes). Almost all Member States experienced reduction in per capita emissions (see Figure 7).

[4] For Austria, the calculation is based the upper limit of the amount of Kyoto Protocol's flexible mechanisms that can be required under the Autrian legislation. For Italy, this takes into account the need to acquire additional units in the non-ETS under the Kyoto Protocol's Flexible Mechanisms to meet its target.

Figure 6: GHG emissions intensity in the EU-28 and Iceland, 2012/1990

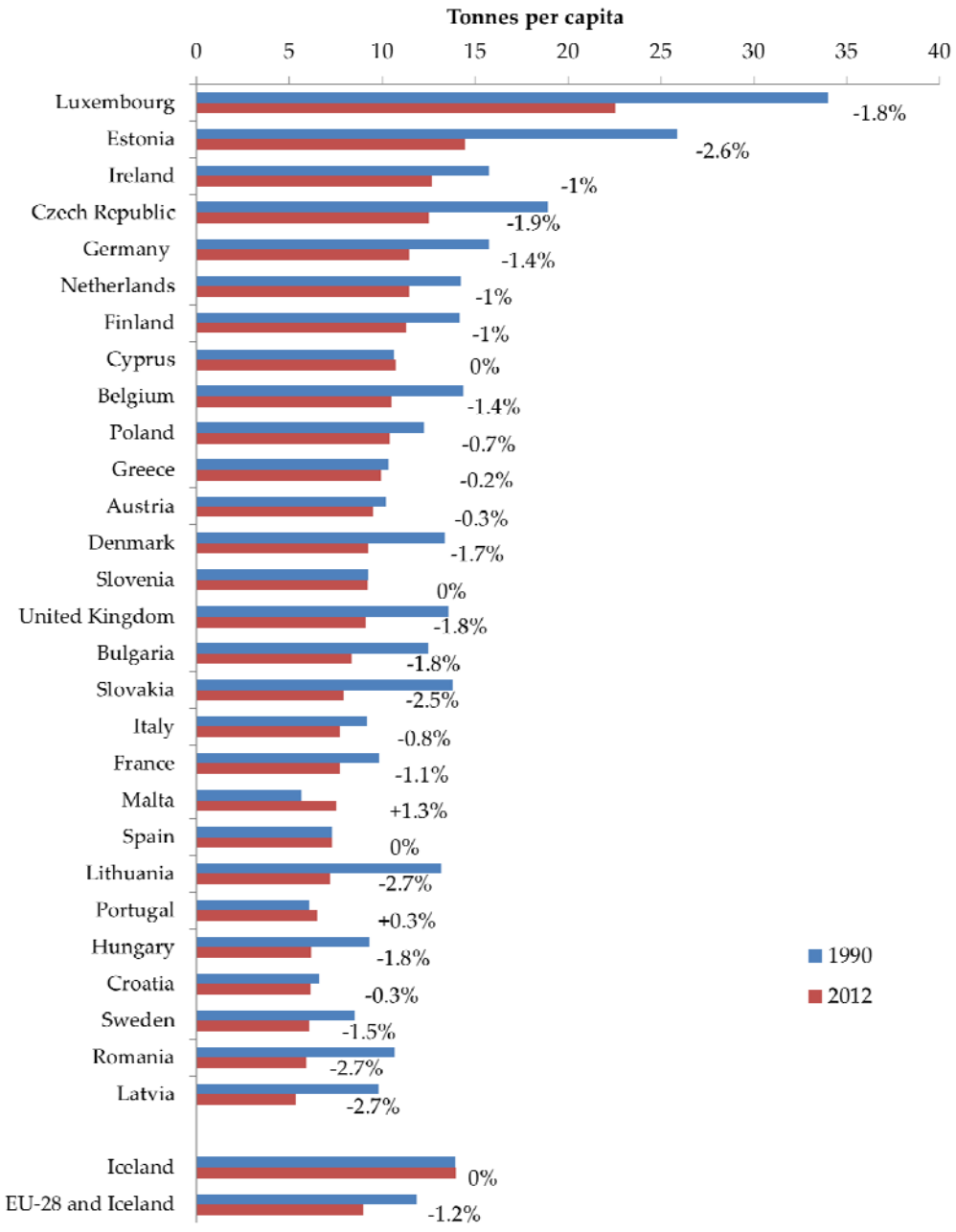
[Percentages reflect annual average reduction]



Source: Commission, EEA

Figure 7: GHG emissions per capita the EU-28 and Iceland, 2012/1990

[Percentages reflect annual average reduction rate]



Source: Commission, EEA

3. PROGRESS TOWARD THE 2020 TARGET IN THE SECOND COMMITMENT PERIOD

3.1. Main parameters for defining the joint commitment under the second commitment period

The Climate and Energy Package sets a 20% GHG emission reduction target for EU-28 by 2020 compared to 1990.

This effort is divided between EU ETS and non-ETS sectors as follows:

(a) 21% reduction in EU ETS sector emissions by 2020 compared to 2005; and

(b) Under the Effort Sharing Decision (406/2009/EC, 'ESD'), a reduction of around 10% by 2020 compared to 2005 for the sectors that are not covered by the EU ETS. The ESD mainly covers emissions from transportation, buildings, small businesses and services, agriculture and waste.

While the ETS provides an EU-wide cap, the ESD sets annual emission allocations (AEAs) from 2013 to 2020 for each Member State. The ESD therefore relies mostly on Member States defining and implementing additional national policies and measures to limit their emissions in the ESD sectors.

The Climate and Energy Package forms the basis for the EU's international obligation in the second commitment period under the Kyoto Protocol from 2013-2020.

The Effort Sharing Decision does not cover LULUCF emissions or emissions of NF3, and neither do other EU legislative instruments set a target for these emissions. Surplus AAUs from the first commitment period can be used to cover any net LULUCF emissions or emissions of NF_3, subject to the rules on the use of units held in their Previous Period Surplus Reserve.

For the second commitment period, the now 28 EU Member States will fulfil their commitments jointly with Iceland. The terms of joint fulfilment are currently under discussion and will be notified together with the simultaneous deposit of their ratification instruments by the EU, its Member States and Iceland for the Doha Amendment to the Kyoto Protocol, which establishes the second commitment period.

3.2. EU-28 projected performance until 2020

Total EU-28 emissions are projected (based on Member States' projections[5]) to be 22.2% lower in 2020 compared to 1990 and 24.5% compared to base year (when excluding LULUCF and international aviation). Over the 8-year period (2013-2020), this is equivalent to an average annual emission reduction of 22.8% compared to base year levels. This represents a potential overachievement of **1.3 Gt CO_2 eq.** (without carbon sinks and the use of Kyoto mechanisms) during the second commitment period (2013-2020) and **5.5 Gt CO_2 eq.** during the period 2008-2020.

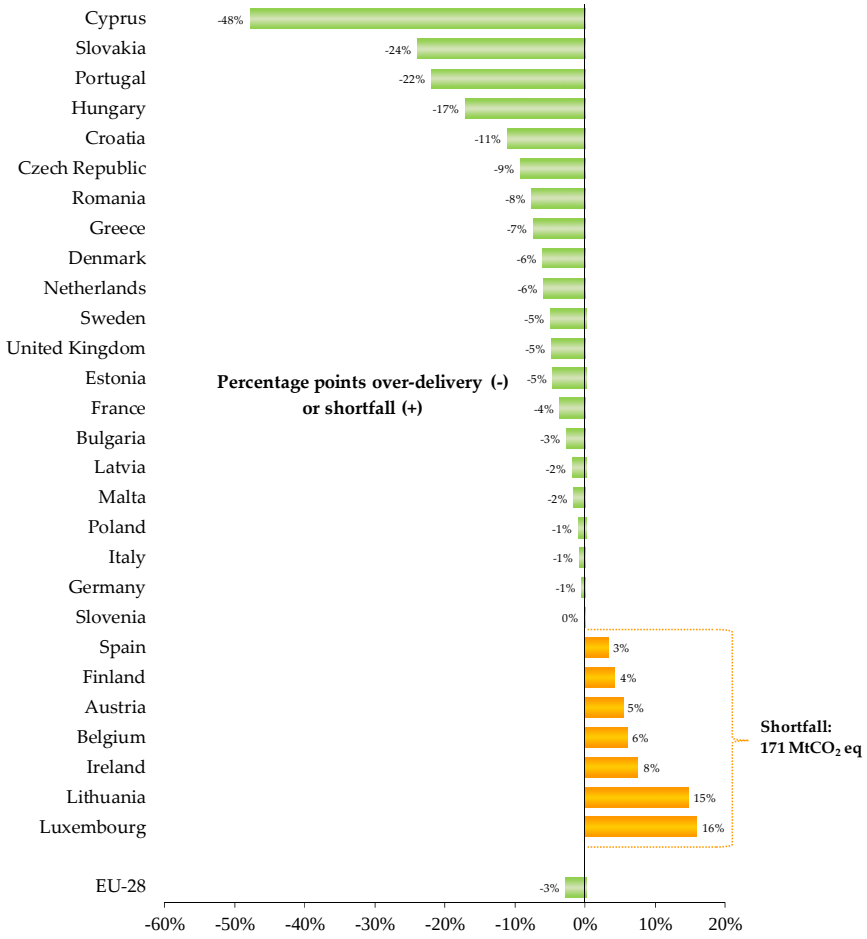
[5] Projections submitted in March 2013 by Member States to the Commission under the Monitoring Mechanism Decision based on existing measures implemented in 2012 or earlier (see EEA database on policies and measures (http://www.eea.europa.eu/data-and-maps/pam). For Poland, updated projections were reported in its 6th National Communication and 1st Biennial Report. No projections are available for Iceland.

3.3. Individual Member States' projected performance until 2020

Figure 8 below illustrates the distance between Member States' projections[6] (without LULUCF) taking into account the existing measures and the sum of each Member State's Annual Emissions Allocation set under the Effort Sharing Decision (ESD) for the period 2013-2020 in the non-ETS sectors.

It shows that seven Member States may need to make additional efforts (equivalent to around 171 Mt CO_2 eq[7].) to meet their ESD targets, either in the form of the implementation of additional measures or the use of flexibilities provided for in the ESD, such as transfers of annual emissions allocations between Member States or the use of international credits[8].

Figure 8: Distance between cumulative emission projections[9] and the sum of the Annual Emissions Allocations over the period 2013-2020



Source: EEA, European Commission based on projections submitted by the Member States.

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[6] Member States submissions were quality-checked, gap-filled and adjusted where necessary. An estimation of the share of non-ETS emissions had to be made for several Member States. For the gap filling and ETS/non-ETS split estimation, data from the 2012-13 EU baseline with adopted measures projection based on the PRIMES and GAINS models have been used. The latter projections also indicate the sensitivity of projection results to different methodologies, assumptions and specific parameters behind the trends.

7 The estimate does not take into account the international credits (CERs, ERUs) already held by Member States nor the planned additional measures, including those mentioned in the 6th National Communications.

[8] Member states may use international GHG emission reduction credits to implement their obligations in the period 2013-2020, limited to an annual quantity equal to 3% of the GHG emissions in sectors covered by the ESD of that Member State in 2005, plus any transferred entitlement to use credits. Twelve Member States fulfilling criteria of Article 5.5 of the ESD may use additional credits from projects in Least Developed Countries and Small Island Developing States amounting to 1% of their 2005 emissions.

[9] Cumulative emission projections represent the sum of the annual projected emissions under the ESD over the period 2013-2020, based on Member States submissions

4. POTENTIAL SCOPE FOR ADDITIONAL EMISSION SAVINGS

Projections with additional measures

According to projections with additional measures submitted by Member States, further emission reduction beyond the target could be reached (up to 1Gt CO2 eq. during the period 2013-2020 compared to the scenario with existing measures). These projections do not take into account the effect of the implementation of the Energy Efficiency Directive which could further reduce emissions before 2020. The Commission will undertake a review of the Energy Efficiency Directive.

LULUCF for the period 2013-2020

Preliminary projections show that the EU as a whole could be slightly in credit with respect to LULUCF. However, this will vary from Member State to Member State. In addition, as the technical review process goes forward with regard to the Forest Management Reference Levels, changes between debits and credits could occur.

Flexible mechanisms for the period 2013-2020

Under the EU ETS, a limited entitlement to use international credits was given to operators. Approximately 1.05 billion CERs and ERUs were used in phase 2 of the EU ETS (these units were directly surrendered), covering the period 2008-2012. A further 0.55 billion can still be used by operators in phase 3 (2013-2020) of the EU ETS (through exchange for an EU allowance).

Additionally, under the ESD, Member States may use international GHG emission reduction credits to implement their obligations in the period 2013-2020 (see section 3.3 above).

ANNEX 1: DISCLAIMER ON SOURCE OF DATA AND INFORMATION ON KYOTO PROTOCOL TARGETS

Source of data

All data provided in this paper are using the latest 2012 greenhouse gas (GHG) inventory data submitted by Member States to the European Commission on 15 March 2014 in application of the Monitoring Mechanism Decision. On the same basis, data on projections were submitted by Member States in 2013[10]. Iceland has been included in the calculations where relevant information was available.

Data in this paper are estimated based on the Revised 1996 IPCC Guidelines, on the scope and for the gases covered under the first commitment period of the Kyoto Protocol. The data do not reflect the use of the 2006 IPCC Guidelines, the new global warming potentials from the IPCC Fourth Assessment Report (AR4) and the addition of NF3 for the Kyoto Protocol's second commitment period.

Final emissions data for the EU and its Member States for the first commitment period will be submitted to the UNFCCC in April 2014 as part of the national greenhouse gas inventory submissions for 2014. Under UN rules, these data can still be resubmitted until the end of May 2014. The assessment of compliance of the EU and its Member States for the first commitment period will follow the review of these reports and the retirement of relevant Kyoto units by the EU and its Member States during the additional period for the fulfilment of commitments ("true-up period") following the completion of that review.

The base years for the first commitment period are the following. For CO_2, CH_4 and N_2O all Member State have 1990 as base year except for Bulgaria that uses 1988, Hungary that uses average of 1985 to 1987, Slovenia that uses 1986, Poland that uses 1988 and Romania that uses 1989. For the fluorinated gases all Member States have 1995 as base year except for Austria, France, Italy and Slovakia that use 1990 and Romania that uses 1989. For Iceland, the base year is 1990 for all gases.

Targets under the Kyoto Protocol

Article 4 of the Kyoto Protocol allows countries to fulfil their commitments jointly. The 15 EU Member States that were members of the European Union when the Kyoto Protocol was agreed in 1997 decided to fulfil their commitments for the first commitment period jointly, and notified the terms of their joint fulfilment as they deposited the ratification instruments with regard to the Kyoto Protocol in 2002. Based on their joint quantified emission reduction commitment of 92% (reducing average annual emissions by 8% compared to base year emission levels during the years 2008 – 2012) inscribed in Annex B to the Kyoto Protocol for the first commitment period, these terms of joint fulfilment set out individual (economy-wide) emission levels for each of the 15 Member States for 2008 - 2012.

Since 1997, thirteen more countries have joined the Union. Two of these countries, Cyprus and Malta, do not have any target for the years 2008 - 2012. The remaining eleven countries have individually agreed to quantified emission reduction targets of 8% in the first commitment period, with the exception of Hungary and Poland (which each have a 6% emission reduction target) and Croatia (which each has a 5% emission reduction target).

[10] For Poland, updated projections were reported in its 6th National Communication and 1st Biennial Report.

For the second commitment period, the European Union, its Member States and Iceland have inscribed a joint emission reduction commitment of 80 (reducing average annual emissions by 20% compared to base year emission levels during the years 2013 – 2020) in an amended Annex B to the Kyoto Protocol, based on the understanding that these commitments will be fulfilled jointly. As a consequence, the joint fulfilment will now comprise the European Union, the now 28 EU Member States and Iceland (30 Parties in total). The terms of joint fulfilment are currently under discussion and will be notified together with the simultaneous deposit of ratification instruments by the EU, its Member States and Iceland for the Doha Amendment to the Kyoto Protocol, which established the second commitment period.

ANNEX 2 : PERFORMANCE AT MEMBER STATES LEVEL OVER THE 1ST COMMITMENT PERIOD

Table 1: Estimated Non-ETS overachievement over the first commitment period (CP1) for Member States and EU-28+IS (excl. CY, MT)

Member State (Table units: MtCO2eq)	**A:** Total allowed Non-ETS emissions for CP1(2)	**B:** Non ETS emissions	**C: [A-B]** Difference between non-ETS emissions and target for CP1	**D:** Removal (-) & emissions (+) from sink activities	**F:** Use of Kyoto mechanisms at government level	**H: [C-D-F]** Estimated Overachievement in the non-ETS
Austria	189	265	-76	-7	-80 (5)	11
Belgium	381	385	-4	1	-29	24
Bulgaria	411	133	278	-4	18	264
Croatia	149	144	4	-5	0	9
Cyprus (1)	not app	25	not app	0	0	not app
Czech Republic	461	307	154	-7	125	35
Denmark	157	178	-21	-9	-13	0
Estonia	130	29	102	2	92	8
Finland	167	162	5	-3	1	7
France	2160	1978	181	-16	1	196
Germany	2646	2448	199	-40	14	225
Greece	327	284	43	-3	0	47
Hungary	410	219	191	-11	20	182
Ireland	209	219	-10	-16	-8	15
Italy	1407	1511	-104	-75	-10	-18(3)
Latvia	96	42	54	-6	29	31
Lithuania	184	80	104	-6	38	72
Luxembourg	35	50	-15	0	-14	0
Malta (1)	not app	5	not app	0	0	not app
Netherlands	564	591	-27	2	-46	17
Poland	1619	1017	602	-26	120	509
Portugal	222	229	-7	-50	-8	51
Romania	908	356	553	-18	318	253
Slovakia	169	115	54	-1	42	13
Slovenia	53	58	-5	-7	0	1
Spain	905	1104	-199	-54	-145	0
Sweden	264	207	57	-11	0	68
United Kingdom	2170	1796	374	-14	0	388
Iceland (4)	not app	not app	not app	not app	not app	not app
Total MS (excl. MT, CY)	**16394**	**13905**	**2489**	**-383**	**464**	**2408**

Source: EEA, European Commission.

(1). Cyprus and Malta do not have a CP1 commitment; the figures presented represent their emissions over 2008-2012
(2) Column A is calculated as the difference between the respective Member States targets under the first commitment period and the ETS allowances issued (freely allocated allowances plus auctions) during 2008-2012
(3) Italy: the negative figure for Italy indicates the need for this MS to acquire additional units under the Kyoto Protocol's Flexible Mechanisms.
(4) Iceland: no installations participated in the EU ETS during the first commitment period. Decision 14/CP.7 applies toIceland as a result of which Iceland is not expected to have a surplus during the first commitment period.
(5) Austria: this figure represents the upper limit of the amount of Kyoto Protocol's flexible mechanisms that can be required under the Autrian legislation

ANNEX 3: PROJECTED MEMBER STATES PERFORMANCE DURING THE SECOND COMMITMENT PERIOD

This table does not constitute an assessment of compliance with the ESD which is subject to specific rules. It does not take into account the use of flexibilities provided in the ESD, such as the use of international credits or transfers of AEA between Member States.

Table 2: Cumulative emissions projections[11] in the ESD sectors with existing measures during the second commitment period without use of Kyoto mechanisms and carbon sinks

Member State (Table units: MtCO2eq)	**A: Sum of Annual Emission Allocations (AEA) under ESD[12]**	**B: Projected emissions (With Existing Measures)**	**C: [A-B] Gap between ESD AEA and projected emissions**
Austria	398	419	-21
Belgium	575	609	-34
Bulgaria	211	205	6
Croatia	157	140	18
Cyprus	44	23	21
Czech Republic	505	458	47
Denmark	262	246	16
Estonia	50	47	2
Finland	235	244	-10
France	2.934	2.828	106
Germany	3.525	3.507	18
Greece	463	428	35
Hungary	422	350	72
Ireland	328	353	-25
Italy	2.354	2.332	21
Latvia	74	73	1
Lithuania	109	125	-16
Luxembourg	70	81	-11
Malta	9	9	0
Netherlands	897	843	53
Poland	1.528	1512	16
Portugal	384	300	85
Romania	621	573	48
Slovakia	193	147	46
Slovenia	96	96	0
Spain	1.718	1.772	-55
Sweden	309	294	15
United Kingdom	2.679	2.549	130
Iceland	na.	na.	na.
EU-28+IS total	**21.150**	**20.565**	**585**

Source: EEA, European Commission.

[11] Cumulative emission projections represent the sum of the annual projected emissions under the ESD over the period 2013-2020. Projections were submitted in March 2013 by Member States to the Commission under the Monitoring Mechanism Decision based on existing measures implemented in 2012 or earlier. Member States submissions were quality-checked, gap-filled and adjusted by the EEA, where necessary, in consultation with Member States. For Poland, updated projections were reported in its 6th National Communication and 1st Biannual Report. No projections are available for Iceland.

[12] As determined in Commission Decision 2013/162/EU, Annex I and adjusted in Commission Implementing Decision 2013/634/EU, Annex I.

ANNEX 4: SUMMARY TABLES OF OVERCHIEVEMENTS

Table 3. estimated overachievement compared to target: CP1 and CP2

	over CP1						over CP2			
	Initial surplus compared to target		*with LULUCF*		*With LULUCF +kyoto Mechanisms*		*Projected overachievement with existing measures*		*additional reduction with additional measures*	
EU 28 + IS	3,2	Gt CO2 eq	3,6	Gt CO2 eq	4,2	Gt CO2 eq	1,30	Gt CO2 eq	2,4	Gt CO2 eq
EU-15	0,8	Gt CO2 eq	1,1	Gt CO2 eq	2,3	Gt CO2 eq	-		-	

Table 4. Progress over the 1st commitment period

	over CP1		
	2008-2012 average annual emissions compared to BY (without LULUCF)	*with LULUCF*	*With LULUCF +kyoto Mechanisms*
EU 28 + IS	-18,8%	-20,2%	-22,2%
EU-15	-11,8%	-13,2%	-18,6%

Table 5. Total projections (ETS + non-ETS) without LULUCF and Kyoto Mechanisms

	over CP2
	Projected average annual emission over 2013-2020 compared to BY
EU 28 + IS	-22,8%

ANNEX 5: MORE SPECIFIC INFORMATION ON GHG INTENSITY, GHG EMISSIONS PER CAPITA AND EMISSION TRENDS

GHG intensities (1990/2012)

Regarding GHG emission intensity (GHG emissions per unit of GDP) in 2012 compared to 1990, the largest decreases of 60-70% reduction were observed in seven Member States: Estonia, Slovakia, Romania, Lithuania, Latvia, Poland and Ireland. Four Member States have decreased their GHG emissions intensity by 50-60%: Bulgaria, Luxembourg, Czech Republic and the UK, while another seven Member States, as well as Iceland, had reductions of 40-50%: Sweden, Hungary, Germany, Denmark, Belgium, the Netherlands and Finland. The smallest reductions in intensity were observed in Croatia (22%), Greece (21.1%), Malta (20.7%) and Portugal (18.6%).

Emissions per capita (1990/2012)

In 2012, in the EU-28 plus Iceland emissions per capita were at the level of 9 tonnes CO_2-eq. Per capita emissions decreased by 24% compared to 1990. However, 2012 GHG emissions per capita continue to show significant differences across Member States ranging from 5.4 (Latvia) to 22.5 (Luxembourg) tonnes CO_2-eq.

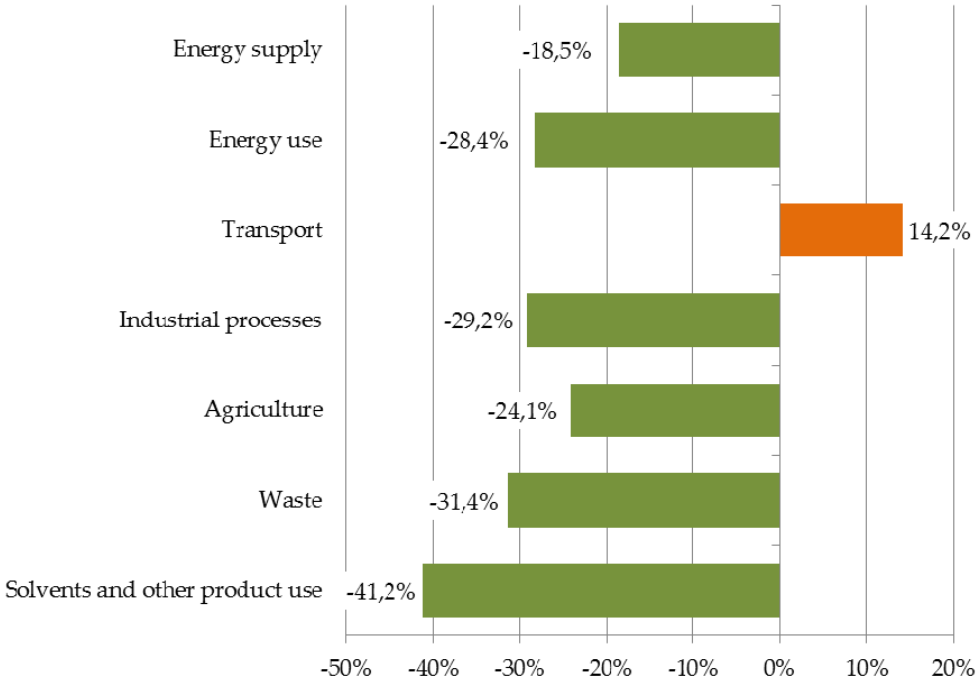
Almost all Member States experienced reduction in per capita emissions, with the exception of Cyprus (+1%) Portugal (+6.9%) and Malta (+32.9%). In Iceland, emissions per capita also slightly increased (+0.3%). Altogether 11 Member States had achieved a reduction of over one third. The greatest reductions were observed in Lithuania and Latvia (over 45%), Estonia, Romania and Slovakia (over 40%) and the Czech Republic, Hungary, Luxembourg, Bulgaria, the United Kingdom and Denmark reduced their per capita emissions by over 30%. Amongst the biggest economies Germany (-27.3%), France (-21.5%) and Italy (-15.4%) also reduced their per capita emissions. On the lower range of the spectrum were Greece (-3.7%) and Spain (0%). For Spain, however, it should be noted that it was already amongst the countries with the lowest per capita emissions in 1990 (with 7 tonnes CO2-eq).

Emission trends in the main sectors

In 2012, the inventory sector that contributed most to the overall emissions of the EU-28 plus Iceland (excluding LULUCF) was energy (energy supply and use including transport), comprising combustion activities and fugitive emissions. This sector accounted for 3.6 billion tonnes CO2-eq or 79.2% of the total. The energy sector has achieved a reduction of 16.5% since 1990 levels, with emission decreases in all sub-sectors, except for transport.

Since 1990, the decreases in energy, agriculture, industrial processes and waste have been partially offset by significant increases in the transport sector. However, total transport emissions have also been decreasing since 2007.

Figure 10: Change in EU-28 and Iceland in GHG emissions by sector and share of sectors in total GHG emissions, 1990-2012



Source: EEA

ANNEX 6: ESTIMATED USE OF KYOTO MECHANISMS AND CARBON SINKS FOR THE FIRST COMMITMENT PERIOD

Projected use of Kyoto mechanisms by Operators and Governments of Member States

By Governments of Member States:

Regarding the use of Kyoto mechanisms by Member Sates' governments, the data are based on Member States submission to the Commission by 15 March 2014.

For the **EU-28** (without Cyprus and Malta), the net intended overall use of Kyoto mechanisms for the period 2008-2012 in the EU-28 (net transfer of AAUs plus acquisition of CERs and ERUs) is currently a selling balance of 0.5 Gt CO_2-eq. This represents the balance of the following (information at the level of each Member States can be found in Table 2 above):

- In the EU-15, 9 Member States have indicated their intention to purchase and use international credits from Kyoto mechanisms to reach their Kyoto targets. Together, these Member States estimated that they would acquire up 0.3 Gt CO_2-eq for the whole period. However, in light of the economic downturn, a number of these Member States might not need as many international credits as initially estimated.

- In the EU-13 (excluding Cyprus and Malta), several Member States have indicated their intention to sell units from Kyoto mechanisms for a net total of 0.8 Gt CO_2-eq.

By operators:

Under the EU Emissions Trading System, the second National Allocation Plans (NAPs 2008-2012) established a limit for each Member State for the maximum use of international project-based credits from Joint Implementation (JI) and the Clean Development Mechanism (CDM) by operators[13]. Operators in the EU ETS actually used 1.05 billion CERs and ERUs in phase 2 of the EU ETS (2008-2012).

Projected use of carbon sinks

In addition to domestic efforts to reduce emissions through policies and measures targeting various sources of GHG emissions, Member States can make use of carbon sinks. The information provided so far in Member states' latest GHG inventories indicates that total net carbon sinks under Articles 3.3 and 3.4 of the Kyoto Protocol for the EU-28 will be approximately **0.4 GtCO_2** for the whole period. As regards the EU-15, the use of carbon sinks activities is projected to contribute about **0.3 GtCO_2** for the period 2008-2012.

[13] Up to 278 million CERs or/and ERUs may be used per year by ETS installations from all Member States between 2008 and 2012, which corresponds to 13.4 % of the EU-wide cap for this period

Table 6. Summary of estimated use of Kyoto Mechanisms and carbon sinks for the period 2008-2012: EU-15 and EU-28 (without CY and MT)

	A	B	[A+B]	
	Billion units ($GtCO_2eq$)			
	CERs and ERUs by operators	Kyoto Mechanisms at Gov. level	**Net use of Kyoto Mechanisms**	**Net projected use of Carbon Sinks**
EU-15	-0.82	-0.33	***-1.2***	***-0.3***
EU-28 (without CY and MT)	-1.05	+0.5	***-0.6***	***-0.4***

Notes: **A**: Based on information available in the KP-Registry as of January, 2014.
B: The table displays the information publicly available by EEA and updated with submissions from MS in 2014.

ANNEX 7. IMPACT OF THE POTENTIAL OVERACHIEVEMENT OF THE FIRST COMMITMENT PERIOD ON THE SECOND COMMITMENT PERIOD

As a result of the estimated overachievement of the first commitment period targets of the EU and its Member States, a total of around 4.2 billion units may be carried over to the second commitment period. The Kyoto Protocol's carry-over rules stipulate that carry-over of CERs and ERUs is limited to 2.5% of a Party's assigned amount under the first commitment period. In addition, surplus AAUs will be transferred to the previous period surplus reserve (PPSR) accounts of the EU and its Member States. The use of this surplus is however restricted, both by international rules agreed under the Kyoto Protocol and by EU legislation as follows. Decision 1/CMP.8 limits the use of units in the PPSR account is limited to the extent by which a Party's reviewed emissions during the second commitment period exceed its assigned amount for that period. Moreover, transfers are allowed only between PPSR accounts and only up to 2% of the acquiring Party's first commitment period assigned amount.

EU legislation does not provide for any use of these units, neither in the ETS nor in the non-ETS sectors, for compliance with requirements under this legislation. Member States can in particular not use AAUs held in their PPSR to comply with their targets set under the Effort Sharing Decision (ESD) (406/2009/EC)[14].

The Effort Sharing Decision does not cover LULUCF emissions or emissions of NF3, and neither do any other EU legislative instruments set a target for these emissions. Surplus AAUs from the first commitment period can be used to cover any net LULUCF emissions or emissions of NF_3 for compliance with their international commitments under the Kyoto Protocol, to the extent that these emissions are covered by the Kyoto Protocol and subject to the above mentioned rules on the use of units in the PPSR.

The EU ETS allows for the full carry-over of EU allowances from the 2008-2013 period (EU ETS Phase 2) to the 2013-2020 period (EU ETS Phase 3). Any use of such carried over allowances during the period 2013-2020 in excess of the EU ETS cap for that period could require use of first commitment period AAUs for the EU's compliance under the second commitment period. However, recent projections show that emissions in the ETS are projected to be lower than the cap during the period 2013-2030, increasing further the potential overachievement.

[14] It should also be noted that, under the ESD, EU Member States may only transfer to other Member States up to 5% of their Annual Emissions Allocations (AEAs) plus any overachievement from the previous years.