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COVER NOTE

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COMMISSION STAFF WORKING DOCUMENT

Preparing the EU's Quantified Emission Limitation or Reduction Objective (QELRO) based on the EU Climate and Energy Package

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COMMISSION STAFF WORKING DOCUMENT

Preparing the EU's Quantified Emission Limitation or Reduction Objective (QELRO) based on the EU Climate and Energy Package

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1. SUMMARY

In the context of a second commitment period under the Kyoto Protocol, as agreed to in Durban, the EU has to submit information to the UN by 1 May 2012 on its Quantified Emission Limitation or Reduction Objective (QELRO). This paper provides technical input into preparing this EU submission.

Under the EU Climate and Energy Package, legally binding linear target trajectories for the period 2013–2020 are enshrined in both the EU ETS Directive and the Effort Sharing Decision.

On this basis, this paper derives the EU's emissions budget in 2013 to 2020 reflecting the Package and calculates an EU QELRO under a second commitment period of the Kyoto Protocol (CP2).

The Package has divergences in terms of scope, coverage of sectors and base year in comparison with the Kyoto Protocol. Translating the emissions budget under the Package to the Kyoto rules results in an EU QELRO of 80% (i.e. a 20 % reduction in 2013 to 2020 as compared to the Kyoto Protocol's base year).

2. INTRODUCTION

The Durban climate change conference made considerable progress in the negotiations on a 2nd commitment period (CP2) under the Kyoto Protocol (KP). Issues that remain to be resolved in the negotiations during 2012 are:

– The translation of 2020 target pledges into Quantified Emission Limitation or Reduction Objectives (QELROs) that take into account not only the target in 2020 but the emission pathway towards 2020, starting in 2013.

– How to address the impact of the carry-over of surplus assigned amount units (AAUs) from CP1 to CP2.

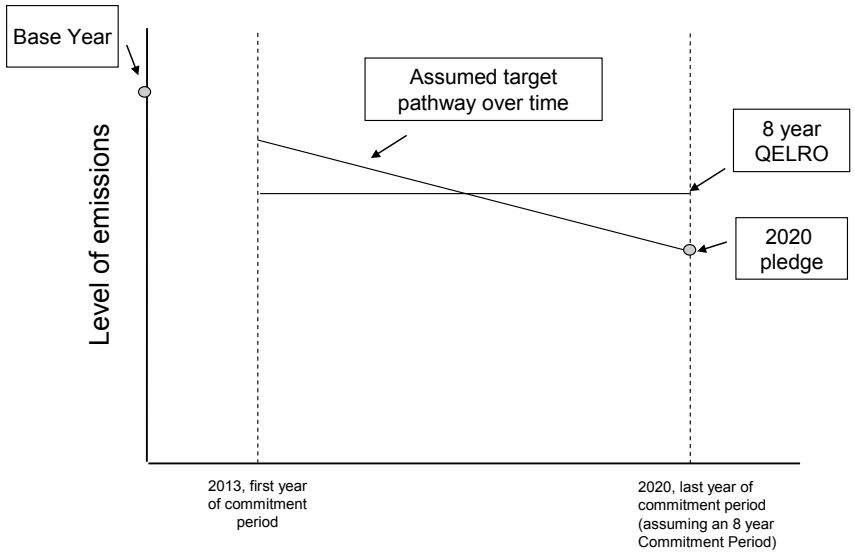
Thus far, developed countries that are prepared to take on a commitment in CP2 have put forward pledges for the year 2020. It is however not yet clear what the total emission reduction of these Parties will be between the start of a CP2 on 1 January 2013 and its end (in 2017 or 2020) or, inversely, what each Party's emissions budget or maximum allowed emissions during that period will be.

Under the KP the QELRO is used to determine a Party's maximum allowed emissions over the duration of a commitment period (emissions budget [1]) using the following formula:

Total emission budget for the whole commitment period =

QELRO x base year emissions x length of the commitment period.

Figure 1: Example of an 8 year QELRO based on a decreasing emission target trajectory



At the Durban meeting, Parties were invited to "submit information on their QELROs" by 1 May 2012. To determine this QELRO, it is necessary to know the assumed target pathway over time to achieve the 2020 target, as well as the length of a CP2 (5 or 8 years) and the base

[1] Under the Kyoto Protocol this is referred to as the Assigned Amount.

year to which the QELRO will be applied when calculating the total amount of allowed emissions over a commitment period.

This Staff Working Document determines the EU's QELRO, based on existing EU legislation under the Climate and Energy Package ("the Package"). Section 3 does this, taking into account the differences between the KP and the Package in scope of sectors and gases covered as well as the choice of base year. Section 4 looks at the length of the second commitment period (5 or 8 years), which is the main outstanding issues that still need to be decided and that impacts the level of the QELRO. Section 5 looks at the impact on the environmental integrity of the EU QELRO of the possible carry-over of AAUs, the agreed Land Use, Land-Use Change and Forestry (LULUCF) accounting rules and the possible inclusion of Croatia and Iceland in the EU QELRO.

This Staff Working Document limits itself to a technical translation of the EU emissions budget under EU legislation into a QELRO under a CP2. It does not address whether or how this EU QELRO should be shared among EU Parties to the KP ("Burden sharing"). If the EU were to decide to do a burden sharing agreement for CP2 under Article 4 of the KP, as it did for CP1, this agreement will only need to be communicated upon ratification of CP2.

The decision in Durban clearly sets out that the listing of QELROs of the EU and its Member States in Annex B of the KP continues the same approach chosen for CP1 (2008-2012). Annex B of the KP for CP1 includes identical QELROs for the EU and each Member State[2]; 92%, signifying a reduction of 8% over the period 2008-2012 compared to its base year. The Decision taken in Durban provides for a continuation of this approach through a footnote indicating that "*the QELROs for the European Union and its Member States for a second commitment period under the Kyoto Protocol are based on the understanding that these will be fulfilled jointly with the European Union and its Member States, in accordance with Article 4 of the Kyoto Protocol*".

In addition, Croatia and Iceland have signalled that they will jointly implement their emission reductions commitments with the European Union and that their QELROs should be seen in that context.

3. THE EU'S QUANTIFIED EMISSION LIMITATION REDUCTION OBJECTIVE

The EU's 2020 pledge put forward in the context of the international negotiations is based on the agreement reached in the European Council in March 2007. Under this agreement, the EU took a unilateral commitment to reduce its greenhouse gas emissions (GHG) by 20% in 2020, compared to 1990.[3] This commitment was later implemented through the Package. The two legal instruments of this Package relevant for this paper, the Emission Trading System (ETS) and the Effort Sharing Decision (ESD)[4], contain legally binding linear target trajectories for the period 2013–2020 for the entire ETS at the EU level and for the Non ETS per Member State. They not only result in a 20% GHG reduction in 2020 compared to 1990 but also define

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2 The EU included 15 Member States when the QELRO under CP1 was defined.

3 Para. 32 of the Conclusions of the Brussels European Council (8/9 March 2007) reads: "until a global and comprehensive post-2012 agreement is concluded, and without prejudice to its position in international negotiations, the EU makes a firm independent commitment to achieve at least a 20 % reduction of greenhouse gas emissions by 2020 compared to 1990".

4 Directive 2009/29/EC, amending Directive 2003/87/EC, and Decision No 406/2009/EC

the EU's target pathway to achieve this 2020 pledge over time from 2013 to 2020. Table 1 below summarises these trajectories.

Table 1: summary of target pathways defined by the Package

	Sector	Trajectory
ETS	ETS excluding aviation	Starts in 2013 based on yearly reduction equal to 1.74% of the average allocation in the period 2008-2012, extrapolated starting in 2010 and leading to a -21% GHG reduction compared to 2005 in 2020.
	Aviation	Target of - 5% compared to the average 2004-2006 emissions. Target stays constant over the period 2013-2020
ESD	Non ETS, target for each Member State	Member State targets start in 2013 based on average emissions 2008 to 2010 and leads to a collective reduction of around -10% compared to 2005 in 2020

To calculate the maximum allowed emissions in the EU under the Package over the period 2013 to 2020, the allowed emissions budgets under the three target trajectories need to be determined and added up. The method to determine these budgets is defined in the Package. An exact calculation can however only be made when the final allocation in the ETS is known for the period 2008-2012[5] and the 2010 emissions from sectors not included in the ETS are known. The calculations in this Staff Working Document are therefore based on a best estimate.

The scope of the package is different than that agreed for CP2 in Durban. Most notably, the EU decided to include international aviation in its coverage which remains excluded from the commitments under the KP. Other differences are that the scope of CP2 has been extended to include a new gas, Nitrogen Trifluoride (NF_3), which is not included in the Package and that the Global Warming Potentials (GWP) used to aggregate GHG emissions are updated using those included in the 4th Assessment Report of the Intergovernmental Panel on Climate Change (IPCC AR4) rather than those of the 2nd Assessment report (IPCC AR2). Importantly, the Package uses 1990 as the base year, while Durban agreed to continue the flexibilities to set a different base year agreed in CP1.[6]

To define a QELRO following KP coverage, the allowed emission budget for international aviation as defined under the package needs to be removed, and the base year needs to be adjusted in accordance with the decision from Durban. EU projected emissions of NF_3 are too small to make a noticeable effect on the EU's QELRO. The impact of the change in GWP under CP2 is estimated to be up to 0.5% additional reductions in EU emissions compared to Package implementation using IPCC AR2 GWP. Rather than including the additional reduction resulting from the change in GWP in the QELRO calculation, it can be used to compensate for the impact of potential upward uncertainties resulting from the fact that the emissions budget under the Package used to determine the QELRO is based on a best estimate rather than final data.

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5 The final 2008-2012 allocation is dependent *inter alia* on decisions on what is done with unused allowances from the national new entrant reserves.

6 EU base years for CP1: 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.

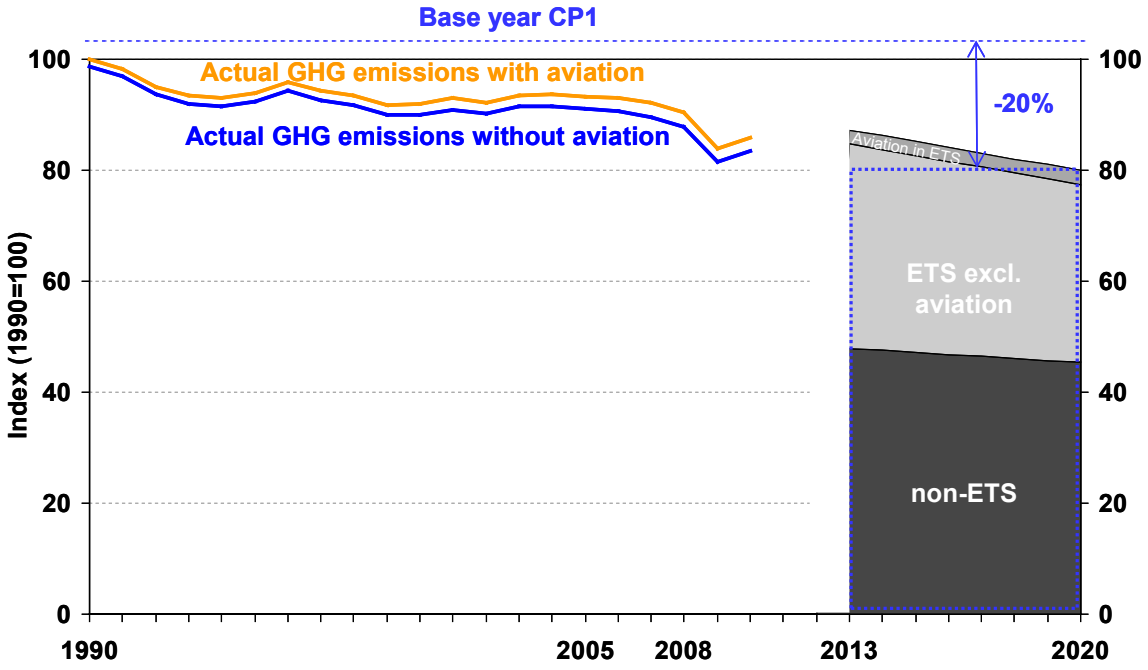
Table 2 below gives a best estimate of the allowed emission totals per year under the Package, translated to the scope of a CP2 (i.e. excluding international aviation). The steps underlying these numbers are further described in the annex to this Staff Working Document.

Table 2: Estimate of the possible total allowed emissions under the Package, based on CP2 scope

Year	2013	2014	2015	2016	2017	2018	2019	2020
Mio ton CO_2-eq	4811	4752	4693	4634	4575	4516	4457	4398
Reduction vs 1990	-14%	-15%	-16%	-17%	-18%	-19%	-20%	-21%
Reductions vs base year	-17%	-18%	-19%	-20%	-21%	-22%	-23%	-24%

Assuming an 8 year commitment period and the base years as agreed under CP1, the EU target pathway excluding international aviation as presented in Table 2 corresponds to an average reduction over the period 2013-2020 of 20% compared to base year and thus a QELRO of 80%. In its Climate and Energy Package, the EU decided to include international aviation emissions in its own target trajectory from 2013 to 2020, which is why an adjustment is warranted when comparing targets under the Kyoto Protocol's accounting rules which do not include international aviation emissions. Furthermore, the Package uses 1990 as the base year, while Durban agreed to continue the flexibilities to set a different base year agreed in CP1, resulting overall in a base year under KP that has higher emissions levels than 1990. The total allowed emissions under the Package thus result in a higher reduction compared to base year under the KP than compared to the 1990 emission levels. See also Figure 2 below for a graphical representation.

Figure 2: EU QELRO based on the coverage of the Package



4. LENGTH OF A 2ND COMMITMENT PERIOD

In Durban it was decided that CP2 "shall begin on 1 January 2013 and end on either 31 December 2017 or 31 December 2020", thus leaving both the options of a 5 and an 8 year

CP2 on the table. The length of CP2 is to be decided during the course of 2012. The Durban conference also decided that the new agreement for all Parties ("protocol, another legal instrument or an agreed outcome with legal force under the Convention applicable to all Parties") is to come into effect and be implemented from 2020.

During the negotiations in Durban, the EU insisted that it is particularly important to ensure that the duration of a CP2 is "compatible with the timeline for the development and entry into force" of the new agreement for all Parties, enabling the "convergence with the Kyoto Protocol track after a second commitment period"[7]. In case of a shorter commitment period, there would be a gap between the end of a CP2 and the start of the new agreement, which could lead to a demand to start negotiating a 3rd commitment period, making convergence more difficult. A number of Parties raised the concern that an 8-year CP2 could "lock in" low ambition. To address this concern, the EU put forward a proposal for a mid-term review of such targets and a possibility for Parties to unilaterally strengthen their target.

Thus far EU climate policy was based on full consistency between the length of the commitment period under the KP and the length of the trading period in the ETS (2008-2012). The 2020 timetable of an 8 year CP2 would continue to be fully compatible with that under the Climate and Energy Package, which applies to the period 2013-2020.[8] Should the EU however decide to agree to a 5 year CP2, the QELRO, the resulting average reductions in the period up to 2017 will be less versus the base year than those achieved over an 8 year QELRO period. This means that a 5 year QELRO would be 81.5%, rather than 80% for an 8 year QELRO.

It is important to keep in mind that a 5 year CP2 may lead to a more demanding constraint on emissions in 2013 to 2017 than required by EU legislation. EU legislation created temporal flexibilities within the period 2013-2020, to accommodate sudden changes due to climatic or economic events. These flexibilities are compatible with those created during the KP's commitment periods, although they are more restrictive in time to better ensure annual progress in emission reductions. Under the ETS the timing of surrendering allowances for compliance and the yearly allocation of allowances was set in a way that allowances allocated for a following year can be used for compliance with emissions for the previous year (e.g. allocation of allowances for 2018 can be surrendered for emissions in the year 2017). Under the ESD, Member States may carry forward up to 5 % of the annual emission allocation from the following year (e.g. to a Member State can use 5% of its allocation for 2018 to comply with its obligations for 2017). If the EU decides to agree to a 5 year CP2 and an EU QELRO is defined without taking into account the use of flexibilities provided for in the Package, this could lead to a situation where Member States could be in full compliance with EU legislation, but the EU and its Member States would not be in compliance with their obligations under the Kyoto Protocol (KP).

5. IMPACT ON EU QELRO OF AAU CARRY-OVER IN THE EU, LULUCF ACCOUNTING RULES OR INCLUSION OF CROATIA AND ICELAND

Carry-over of AAUs in the EU

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7 Conclusions of the Environment Council preparing for the Durban Conference, 10 October 2011, paragraphs 6 and 7.

8 Note however that the package targets end on 31 December 2020, which means that if the new agreement starts before that date, there is an overlap.

The Package foresees the possibility to bank allowances under the ETS from the period 2008-2012 into later periods. The amount of AAUs carried over by Member States from CP1 to CP2 can however not lead to any increase in the total allowed emissions in the ETS over the period 2013-2020 given that these are determined by the total amount allocated within that period (whether allocated through auctioning or for free), the additional emissions allowed through the limited access to international credits and the banking of allowances by companies in the ETS from the previous period.

The Package does not allow for any such "banking" for sectors outside the ETS, covered by Member State targets under the ESD in the period 2013 - 2020. This means that even if Member States carry over more AAUs from CP1 into CP2 than their ETS sectors are expected to bank allowances under the ETS, this will not affect the necessary effort under the ESD in the period 2013-2020.

This means that even if no restrictions on carry-over of AAUs are applied, there will be no impact on the environmental integrity of EU action under the Package. Nevertheless, unrestricted banking of AAUs would seriously undermine the environmental integrity of the targets proposed by third Parties that choose to make ample use of carried over AAUs in order to comply with their CP2 targets.

In case restrictions are applied to the carry-over of AAUs, it will be important to ensure that this does not lead to a situation that companies use banked allowances for compliance under the ETS in the period 2013 to 2020, whereas Member States do not have sufficient AAUs to comply with the CP2 QELRO. Such a situation would not impair the efficient operation of the European carbon market, but it could possibly create a situation where the EU and its Member States are in compliance with EU law, but in non-compliance with their KP obligations.

The exact amount of allowances to be banked in the ETS from the period 2008-2012 into the period 2013-2020 cannot be determined at this stage. It will only be known in 2013 and depends on two factors:

– The difference between emissions in the EU ETS over the period 2008-2012 and the total amount of allowances issued or to be issued. This is estimated at 5 to 8% of the allowances for the period 2008–2012[9], or around 550 to 900 million allowances. Considerable uncertainty however remains as the emissions figures for 2011 and 2012 are not known.

– The amount of Emission Reduction Units (ERUs) and Certified Emission Reductions (CERs) that are used for compliance in the ETS for the period 2008 – 2012. Any such ERU or CER surrendered for compliance replaces an allowance that would have otherwise been surrendered and therefore increases the amount of banked allowances. So far, a total of approximately 300 million ERU and CERs have been used for compliance in the ETS. There will be further surrendering of ERUs and CERs for compliance with 2011 and 2012 ETS emissions which will add to this amount.

The amount of surplus AAUs needed by Member States for compliance under a Kyoto CP2 to cover for banked allowances does not automatically correspond to the amount of banked allowances but could be significantly lower, depending on the extent to which banked allowances are really used for compliance over the period 2013 to 2020. In case total

[9] Communication 'Analysis of options to move beyond 20% greenhouse gas emission reductions and assessing the risk of carbon leakage', COM(2010) 265 final

emissions in the EU ETS in 2013 to 2020 would remain at or below the phase 3 cap, no carry-over of AAUs would be needed at all to comply with the CP2 QELRO.

LULUCF accounting rules

The Durban climate conference decided on the rules to account for LULUCF activities under CP2. As a general rule, LULUCF accounting rules as such do not have an impact on the QELRO calculation itself. Rather, the credits resulting from LULUCF activities make it easier or, alternatively, debits make it harder to achieve a QELRO.

The Commission estimates that the accounting rules as agreed in Durban will, at the level of the EU as a whole, lead to the realisation of net LULUCF credits, for an amount around 1% of base year emissions.

During the negotiations on the Package, it was decided not to include LULUCF. Instead, the Commission was requested to take a specific initiative. This is currently in preparation, in the form of a legislative proposal, which provides for accounting rules for LULUCF for the period between 2013 and 2020.

In this context, in order not to prejudge the outcome of this EU legislative process the QELRO is determined excluding any impact of LULUCF on the effort to meet the CP2 emissions budget.

Inclusion of Croatia and Iceland in EU QELRO

The amount of additionally allowed emissions in the EU under the Package from accession from Croatia or Iceland will depend on the respective Accession Treaties and their further implementation. Due to the limited size of the emissions of both countries compared to the EU total, expected impacts of accession on the QELRO estimate are very limited[10]. As such, and taking into account the other remaining uncertainties, this would not alter the estimate of the EU QELRO as included in section 3.

[10] The EU QELRO estimate increase with 0.15% assuming a hypothetical example that results in increases due to accession of EU allowed emissions in 2020 with a level equal to 11% above Croatian 2005 emission levels and 0% above Icelandic 2005 emission levels. In reality the QELRO is more likely not to be affected and might even decrease.

6. ANNEX: ESTIMATING THE TOTAL ALLOWED EMISSIONS AND THE RESULTING QELRO

To determine the total amount of allowed emission under the package the sum of the allowed emissions under the following three target pathways needs to be added, and this for all the years starting in 2013 and ending in 2020:

Target pathway for each Member State for sectors not covered by the ETS[11]

Target pathway for sectors covered by the ETS directive, other than aviation[12]

Target pathway for the aviation sector, as covered by the ETS[13]

Non ETS

The allowed emissions for the sectors not covered by the ETS are defined as Annual Emission Allocations (AEAs) for each individual Member States on a linear pathway between a 2013 starting point and a 2020 target. The 2020 Annual Emission Allocation is defined as a percentage change[14] compared to the 2005 emissions in the non-ETS sectors[15]. The method to calculate the starting point in 2013 depends on the 2020 Annual Emission Allocation. If the 2020 target requires emissions to be reduced compared to 2005, then the 2013 starting point is equal to the average of 2008, 2009 and 2010 emissions in the non-ETS sectors. If the 2020 target allows emissions to be increased compared to 2005, then the 2013 starting point is actually the 2013 value for an emission trajectory that starts in 2009 with the average of 2008, 2009 and 2010 emissions in the non-ETS sectors and ends in 2020 with the 2020 non-ETS target.

Furthermore, the calculation of Member State targets for 2020 for the non-ETS, based on 2005 emissions data, needs to take into account the net correction for installations that entered the ETS in the period 2008 to 2012 but that were not yet included in the ETS in 2005, and thus require an adjustment of the 2005 data. Furthermore the non-ETS target from 2013 onwards need to be further decreased for any such adjustments of the ETS scope in terms of installation, sectors or gases from 2013 onwards in the ETS[16].

The Commission informed Member States through the Climate Change Committee on 25/01/2012 on all known data per Member State. Data for 2010 for the non-ETS is however still not available[17] and thus it is not possible to determine with full certainty the total allowed

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11 Decision No 406/2009/EC.

12 Directive 2009/29/EC, amending Directive 2003/87/EC.

13 Directive 2008/101/EC, amending Directive 2003/87/EC.

14 See annex II of Decision No 406/2009/EC for the 2020 reduction targets expressed as a % compared to 2005 emission levels. For Bulgaria and Romania special provisions apply given that they had no ETS in place in 2005.

15 Non-ETS emissions for a given year are calculated using the most recent emissions reported under Article 5 of Decision 280/2004/EC to monitor Community greenhouse gas emissions to assess compliance with the Kyoto Protocol targets, minus the emissions reported for domestic civil aviation as covered under the Kyoto Protocol, minus the emissions as reported for entities covered by the ETS.

16 Decision No 406/2009/EC, Article 10

17 To calculate the non-ETS sector emissions one needs total GHG for all sectors. At present this is reported under Article 5 of Decision 280/2004/EC but with a 2-year time delay. So at present only the data for 2009 are available.

emissions over the period 2013-2020 for the non-ETS sectors. Consequently, any estimate at present needs to be based on a proxy estimate for 2010 data.

This Staff Working Document uses the proxy supplied by the EEA on provisional 2010 emissions.[18] This results for the EU as a whole in the following preliminary estimate of total allowed emissions for the non-ETS sectors over the period 2013-2020:

Table 3: Estimate of the total allowed emissions for the non-ETS sectors over the period 2013-2020

Year	2013	2014	2015	2016	2017	2018	2019	2020
Mio ton CO_2-eq	2711	2691	2670	2649	2628	2607	2586	2565

ETS directive, other than aviation

The allowed emissions for sectors covered by the ETS directive, other than aviation, from 2013 are defined as an annual target on a gradually decreasing linear trajectory. To calculate the level of this line in any year, one needs to start at a level that is equal to the annual average quantity of allowances issued in accordance with the National Allocation Plans for the period 2008-2012 (NAP2) as approved by the Commission Decisions to which a quantity of allowances has to be added that takes into account the new sectors and gases to be included in the EU ETS as from 2013. Starting from the mid-point of the period 2008 – 2012, i.e. 2010, the resulting amount would decrease annually by the quantity of allowances that corresponds to 1.74% of the annual average quantity, as determined above for the period 2008 – 2012, including new sectors and gases. The adjustment due to the new sectors and gases leads to corresponding adjustments for the non-ETS targets.

Under the National Allocation Plans for the period 2008-2012 the known amount to be issued at present over the period 2008-2012 is equal to 2033 million allowances. Furthermore taking into account the adjustments for new installations, sectors or gases from 2013 onwards in the ETS the total amount of allowed emissions (covering all stationary installations but no aviation) for the period 2013-2020 is the following (for more background information see Commission Decision of 9 July 2010[19]):

Table 4 Estimate of the total allowed emissions for the ETS emissions (other than aviation) over the period 2013-2020, as known at present

Year	2013	2014	2015	2016	2017	2018	2019	2020
Mio ton CO_2-eq	2039	2002	1964	1927	1889	1852	1815	1777

The above quantity is the minimum allowed amount of allowances to be issued over the period 2013 to 2020 to cover emissions in the ETS other than aviation.

Adjustments are still possible and are likely to increase the total amount of allowances for the period 2013-2020. Any further issuance of allowances over the period 2008-2012, higher than the 2033 million allowances known at present, will increase also the number of allowances for

[18] http://www.eea.europa.eu/publications/ghg-trends-and-projections-2011/at_download/file

[19] 2010/634/EU: Commission Decision of 22 October 2010 adjusting the Union-wide quantity of allowances to be issued under the Union Scheme for 2013 and repealing Decision 2010/384/EU

the period 2013-2020. There are various reasons why this may occur including the treatment of unused allowances in the national new entrant reserves for the period 2008-2012.

It is not possible to estimate the total amount of potential upward adjustments that may still be required and thus the final impact they may have on the total target for the EU under the Package for the period 2013-2020. Estimates for the further annual adjustment of the emission budget over period 2008-2012 are within a range of 35 to 45 million ton CO_2-eq. The table below gives the implications for additional allowed emissions over the period 2013-2020 for the higher end of this range:

Table 5 Estimate of the high end range of possible additions to the total allowed emissions for the ETS emissions (other than aviation) over the period 2013-2020, due to the uncertainties affecting the total amount of allowances issued in 2008-2012

Year	2013	2014	2015	2016	2017	2018	2019	2020
Mio ton CO_2-eq	*43*	*42*	*41*	*40*	*40*	*39*	*38*	*37*

Aviation in the ETS directive

From 2013 onwards the target for aviation in the ETS is defined as the equivalent of 95 % of the average historical aviation emissions in the years 2004, 2005 and 2006. This target stays constant over the period 2013-2020. It covers both departing and incoming flights and has been determined at 209 million allowances a year.[20]

The package also foresees the possibility for third countries to take equivalent measures to reduce the climate change impact of aviation, as a result of which flights arriving from outside the EU can be excluded from the coverage of the ETS. Table 6 estimates the total allowed emissions to cover the inclusion of only departing flights into the ETS (thus assuming third countries take appropriate actions that allow all incoming flights from outside the EU to be excluded from the coverage of the ETS) equal to 143 million ton CO_2-eq per year. This estimate is based on the assumption that emissions from departing flights, as covered under the Package for the years 2004 to 2006, were roughly equal to the emissions reported under the KP for domestic flights and international flights.[21]

Table 6 Estimate of the total allowed emissions for inclusion of aviation in the ETS over the period 2013-2020 excluding arriving flights from outside the EU

Year	2013	2014	2015	2016	2017	2018	2019	2020
Mio ton CO_2-eq	143	143	143	143	143	143	143	143

[20] 2011/389/EU: Commission Decision of 30 June 2011 on the Union-wide quantity of allowances referred to in Article 3e(3)(a) to (d) of Directive 2003/87/EC of the European Parliament and of the Council establishing a scheme for greenhouse gas emission allowances trading within the Community

[21] Average international bunker fuel emissions and domestic emissions from aviation for the years 2004, 2005 and 2006 as reported under Article 5 of Decision 280/2004/EC are equal to 131.5 and 19 million ton CO_2 respectively. Applying a 95% target on the sum of this, results in a maximum amount of annual emissions for the period 2013-2020 equal to 143 million ton CO_2.

Estimate for the total allowed emissions for the EU under the Package for the period 2013-2020

As pointed out above, at present it is not possible to define with full certainty the total allowed emissions under the Package. For instance, Non-ETS emissions levels for 2010 are not yet known. Allowed emissions can increase, if allowances from new entrant reserves sold in the carbon market are larger than expected. Allowed emissions can still decrease in case incoming flights from some or all third countries were to be excluded from the ETS.

Table 7 below gives therefore only a rough estimate of the possible total allowed emissions under the Package target over the period 2013 to 2020 and is based on the addition of tables 3 to 6:

Table 7: Estimate of the possible total allowed emissions for the period 2013-2020, including departing flights

Year	2013	2014	2015	2016	2017	2018	2019	2020
Mio ton CO_2-eq	4936	4877	4818	4759	4700	4641	4582	4523
Reduction vs 1990	-13%	-14%	-15%	-16%	-17%	-18%	-19%	-20%

To exclude international aviation one cannot simply exclude the total allowed emissions for inclusion of aviation in the ETS as estimated in Table 6 given that the estimates in Table 6 also includes domestic aviation. There is no readily available data to determine which part of the total amount of allowances for aviation under the Package can be contributed to purely domestic flights as included in the KP[22]. In order to make such an estimate a short cut was applied. It was assumed that domestic civil aviation emissions, as covered under the Package for the years 2004 to 2006, were equal to the emissions reported under the KP for purely domestic flights. Applying the target of 95% on this data results in an annual allowed amount of emissions corresponding to purely domestic flights of 18 million ton CO_2-eq. Using this 'purely domestic' aviation target instead of the larger one of the Package including international aviation, would result in the total amount of allowed emissions in the EU as presented in Table 8.

Table 8: Estimate of the possible total allowed emissions under the Package for the period 2013-2020, adapted to coverage of sectors as foreseen at present under the Kyoto Protocol

Year	2013	2014	2015	2016	2017	2018	2019	2020
Mio ton CO_2-eq	4811	4752	4693	4634	4575	4516	4457	4398
Reduction vs 1990	-14%	-15%	-16%	-17%	-18%	-19%	-20%	-21%
Reduction vs CP1 base year	-17%	-18%	-19%	-20%	-21%	-22%	-23%	-24%

[22] Note that the method to calculate historic aviation emissions under the package is different from the method applied to calculate domestic and international emissions from aviation in the reporting under the KP and UNFCCC.

Based on the results in Table 8 the total budget of allowed emissions under the package for the sectors that correspond to the coverage of the KP over the period 2013 to 2020 is equal to 36835 million ton CO_2-eq. or on average 4605 million ton CO_2-eq annually.

The sum of the base year emissions[23] for EU Member States in CP1 was equal to 5767 million ton CO_2-eq. GHG emissions need to be reduced under CP2 on average to 4605 million ton CO_2-eq annually, or a reduction with 20% compared to base year CP1. Therefore the QELRO corresponding to this amount for CP2 equals 80%.

[23] Base year data used are those listed in tables 6, 6a and 7b, Commission Staff Working Document accompanying the Report on Progress towards achieving the Kyoto Objectives (SEC(2011) 1151 final). This includes the impact of application of Article 3(7) under the Kyoto Protocol by the Netherlands, Portugal and the United Kingdom when establishing the base year. For Cyprus and Malta 1990 emissions were used as base year data. Applying more recent inventory data can result in changes in the total estimate for the base year.