CARRY-OVER OF AAUS FROM CP1 TO CP2 – FUTURE IMPLICATIONS FOR THE CLIMATE REGIME

A BRIEFING BY POINT CARBON

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EXECUTIVE SUMMARY

Assigned Amount Units (AAUs) are emission rights that were introduced under the Kyoto Protocol. One AAU allows a country to emit one metric tonne of CO_2e. For the first Kyoto commitment period (2008-2012), each country with an emissions reduction commitment (Annex B) received AAUs that were equivalent to the number of tonnes it was allowed to emit during the Kyoto Protocol's first 5-year commitment period.

The Kyoto Protocol (Art. 17) allows Parties to trade AAUs. Countries whose emissions are above their Kyoto target can purchase AAUs from countries which have a surplus to help them meet their reduction obligations.

This report estimates the size of the AAU surpluses both from the first Kyoto commitment period (2008-2012) and the second commitment period. It provides an explanation and qualitative analysis of banking AAUs, including how they interact with the EU emissions trading scheme (EU ETS). The report also models the likely scale of the surplus based on projections of actual emissions at country level, and reports on its impact on the second commitment period under the Kyoto Protocol.

What is the scale of surplus from the first Kyoto commitment period?

We estimated the AAU gap or surplus of each Party in the first Kyoto commitment period (CP1) using the publicly-available reduction commitments as well as historical and forecasted input data. They include emissions, AAU transactions between parties, and purchases of CDM and JI offset credits. As the public knowledge on AAU and offset credit purchases is often opaque due to the confidential nature of these transactions, there is a certain degree of uncertainty associated with the data.

The balance of AAUs from CP1 stands at 12,637 Mt in surplus (see exhibit A). Excluding Canada, which has withdrawn from the Kyoto Protocol, the net surplus rises to 13,127 Mt.[1] This figure is over three magnitudes higher than the estimated demand of 11.5 Mt.

Under current Kyoto rules, only those countries that are participating in the relevant Kyoto Protocol commitment period with an emissions reduction target are eligible to trade AAUs. Countries that do not agree to a target under a possible second commitment period (CP2) under Kyoto Protocol, therefore, would not be able to trade AAUs. Since Russia has stated that it does not plan to join CP2, it will, under current rules, not be able to trade its CP1 surplus in CP2. This would remove 5.8 Gt CO_2e from the amount of CP1 AAU surplus that could be carried forward to CP2, leaving a CP1 total of 7.3 Gt CO_2e.

[1] Canada ratified the Kyoto Protocol in 2002, yet formally withdrew from the first commitment period in late 2011. This leaves it without any AAU allocation. If Canada had remained in CP1, it would have had an estimated shortfall of 502.5 million AAUs.

Exhibit A: Total AAU Surplus and Shortfall in CP1 by Country (Mt CO_2e)

COUNTRY	TOTAL AAU SURPLUS[2]
Russian Federation	5873.1
Ukraine	2593.5
Poland	751.5
Romania	669.0
United Kingdom	513.7
Germany	489.0
Japan	429.8
Bulgaria	317.8
France	263.1
Hungary	204.5
Czech Republic	132.1
Slovakia	105.6
Lithuania	102.1
Greece	85.4
Sweden	85.2
Spain	74.2
Australia	66.4
Portugal	61.8
Latvia	48.5
Belgium	48.0
Netherlands	40.2
Estonia	39.9
New Zealand	28.1
Ireland	22.6
Finland	20.5
Norway	20.1
Italy	16.6
Denmark	12.1
Luxembourg	10.5
Austria	5.5
Croatia	5.2
Slovenia	3.6
Liechtenstein	0.1
Total Surplus	**13139.1**
Net Surplus (total surplus minus total shortfall ex-Canada)	**13127.4**

COUNTRY	TOTAL AAU SHORTFALL
Monaco	0.0
Iceland	3.0
Switzerland	8.5
Canada	502.5
Total Shortfall	**514.0**
Total Shortfall without Canada	**11.5**

What is the status of the market for AAUs?

The first AAU transactions took place in 2008, since which time a total of 314 million AAUs have been contracted through 56 deals. All known AAU transactions were conducted through Green Investment Schemes, where the seller government agrees to tie the revenue to an investment plan to cut emissions or to support other environmental benefits.

Over the 2008-2011 period, AAUs have been traded in the range of €4-15/t, though the trend has been downward. In late 2011, most AAU contracts were heard to be concluded at around €6 per AAU. Point Carbon market interviews show the prices for AAUs were at the level of €2-3 earlier in the year, falling to less than €2 in mid-2012.

We expect transactions in AAUs to reach a figure of around 70 Mt CO_2e in the rest of this commitment period, of which 40 million may be transacted within 2012.

[2] In the case of EU Member States, the surplus from the ETS sector is estimated and included in the country total.

What does the EUA-AAU interaction mean for the EU?

An important element of the EU's strategy for meeting its Kyoto commitment is the EU Emissions Trading System (EU ETS). The EU ETS places a cap on emissions from the power sector and heavy industries, covering about 50% of total EU emissions.

EU governments issue EU Allowances (EUAs) and distribute (or auction) them to covered entities, and these EUAs can then be traded among companies.[3] To ensure consistency with the Kyoto Protocol, each EUA is equivalent to, and is shadowed by, a corresponding AAU in EU government national registries. The shadowing of EUAs is implemented for the 2008-2012 period in the central EU registry (Central Clearing Account of the Union Registry) where at regular intervals the AAUs are brought into balance with the cross-border flows of EUAs.

The EU ETS is expected to have a significant surplus of EUAs at the end of 2012, which we estimate to be 1.5 Gt. Companies can, according to EU regulations, carry over or 'bank' their surplus EAUs into the next phase of the EU ETS, which starts in 2013. In the event that the Kyoto rules on carrying over AAUs are changed so as to significantly restrict the use of AAU carry-over, the EU Member States may have to provide CP2 AAUs to shadow the EUA surplus from CP1. In theory a situation could arise in which firms in the EU ETS bank up to 1.5 billion EUAs from 2012 into the 2013-2020 period, but the EU Member States are not able to bank the corresponding number of AAUs from CP1 and may have to go to market to procure the extra AAUs.

Exhibit B: AAU Surplus in EU Member States in CP1 (Mt CO_2e)

EU MEMBER STATES	NON-TRADING SECTORS	EU ETS (ASSUMPTION)	TOTAL AAU SURPLUS
Austria	-13.9	19.5	5.5
Belgium	-12.7	60.7	48.0
Bulgaria	282.6	35.2	317.8
Czech Republic	51.9	80.2	132.1
Germany	308.1	180.9	489.0
Denmark	2	10	12.1
Spain	-100.1	174.2	74.2
Estonia	39.8	0.1	39.9
Finland	2.8	17.7	20.5
France	97.3	165.8	263.1
United Kingdom	421.4	92.3	513.7
Greece	33	52.4	85.4
Hungary	179.9	24.6	204.5
Ireland	-2.2	24.7	22.6
Italy	-91.4	108	16.6
Lithuania	82	20.1	102.1
Luxembourg	8	2.5	10.5
Latvia	35.9	12.6	48.5
Netherlands	-1.6	41.8	40.2
Norway	31.9	-11.8	20.1
Poland	626.5	125	751.5
Portugal	20.7	41.1	61.8
Romania	530.6	138.4	669.0
Slovakia	42.4	63.2	105.6
Slovenia	-1.3	4.9	3.6
Sweden	67.3	17.9	85.2
Total EU	**2640.8**	**1502.1**	**4142.9**

[3] Over the period 2008 to 2020 about 50% of the emissions reduction obligations can be met through offset credits from the Clean Development Mechanism (CDM) or Joint Implementation (JI), representing an amount between 1.6 to 1.9 billion tonnes of CO2e (Gt CO2e).

What is the scale of the CP2 surplus?

To calculate the surplus for a second Kyoto commitment (CP2), we assumed a commitment period of 2013 to 2020 and used declared targets for 2020 as well as emissions forecasts and expected carbon credit purchases. **We estimate the surplus of AAUs in the second commitment period to reach 3.6 Gt CO_2e (Exhibit C). In other words, the targets currently declared by countries likely to participate in CP2 are higher than expected business-as-usual emissions between 2013 and 2020.**

With the current rules allowing for full carry-over of AAUs, the surplus in the 2013-2020 period would therefore include the spare AAUs inherited from CP1, increasing the total surplus to 16.2 Gt. If Australia and New Zealand do not join CP2, the CP2 surplus could be as high as 4.1 Gt CO_2e, or 17.2 Gt CO_2e including the carry-over from CP1.

Exhibit C: CP2 Kyoto Protocol net shortfall, Gt CO_2e

	KYOTO TARGET[4]	EMISSIONS[5]	SHORTFALL	CREDIT USAGE[6]	NET SHORTFALL
EU Members	37.2	37.3	0.1	2.5	**-2.3**
Australia	3.8	4.8	1.1	0.6	**0.5**
New Zealand	0.4	0.6	0.1	0.1	**0.1**
Other	6.5	4.6	-1.8	0.0	**-1.8**
Total	**47.8**	**47.3**	**-0.5**	**3.1**	**-3.6**

What effect on existing 2020 targets?

Unless the level of ambition in CP2 is raised, CP2 will remain oversupplied even if no AAUs from CP1 are carried over to CP2. To estimate the potential impacts increased ambition levels could have on the CP2 market balance, two possible scenarios are assessed: the highest range of the Copenhagen pledges and a mid-point between the highest range and currently expected pledges.

Including the mid-point of the EU target range at -25% on 1990 by 2020, as well as -15% on 2000 by 2020 for Australia and -25% on 1990 by 2020 for New Zealand, the market would still be in surplus in CP2 by 800 Mt. This is before the CP1 surplus of 12.6 Gt is added.

Taking the high end of the range of targets proposed by the EU (-30% on 1990), Australia (-25% on 2000) and New Zealand (-20%), the CP2 balance is put into a net shortfall of 2 Gt. Again, this excludes the 12.6 Gt surplus from CP1.

[4] Point Carbon, February 2010, "Carbon Market Monitor: Submissions to the Copenhagen Accord", pg 5

[5] Various sources including Point Carbon, UNFCCC, national agencies, European Environment Agency, European Bank for Reconstruction and Development.

[6] Point Carbon, "Demand by 2020" (http://www.pointcarbon.com/trading/cpm/demanddetails/by2020/report/), accessed 1 August 2012

Conclusions

The projected emissions and the current level of pledges in CP2 demonstrate that it will be oversupplied even without CP1 carry-over. The effect differs from the short term to the long term.

In the short term, the effect on the wider carbon market is minimal. Because CP2 is oversupplied already, the presence of additional AAUs from CP1 would not make much practical difference - the market cannot absorb the additional surplus beyond the limits of the actual demand. Thus, a market oversupplied by 3.6 Gt (CP2 surplus only) would not behave much differently from a market oversupplied by 16.2 Gt (CP1 and CP2 surplus combined). With the current pledges and full carry over, CP1 surplus AAUs would therefore have little or no value to the majority of their holders. Australia and New Zealand appear to be the only notable exceptions, as they would be the only countries with a projected shortfall in CP2.

Most importantly, preservation of the AAU surplus might have considerable implications in the longer term. The presence of such large volumes of surplus AAUs in the Kyoto system raises legitimate questions about the current system design. The political and market implications cannot be ignored as the future of the Kyoto Protocol is negotiated. Current targets to 2020 are not expected to absorb the oversupply. Should the surplus of the first two commitment periods pass into the post-2020 system, then the prospect of an oversupplied market never recedes. The long-term targets should reflect that surplus or risk having their environmental integrity undermined.

ABOUT THIS BRIEFING

This briefing report was authored by the Advisory Services department of Thomson Reuters Point Carbon. The report interprets the effect of banking surplus AAUs from the first commitment period under the Kyoto Protocol into a possible second commitment period.

The report was commissioned by CDM Watch and intends to answer some of the questions posed by this issue and raised by CDM Watch. The answers to those questions, however, are the work of Thomson Reuters Point Carbon and the results and views expressed are those of Thomson Reuters Point Carbon. The report is authored by members of the Advisory Services department of Thomson Reuters Point Carbon.

The two purposes this report serves are: firstly, an explanation and qualitative analysis of banking AAUs, including how they interact with the EU emissions trading scheme (EU ETS); secondly, to model the likely scale of the surplus based on projections of actual emissions at country level, and report on its impact on the next round of commitments under the Kyoto Protocol.

The AAUs created by the Kyoto Protocol are tradable instruments and a market has emerged, alongside markets for the other instruments under the Kyoto Protocol and the market created by the EU ETS. As the tradable instruments are fungible to some extent, an oversupply in one market may imply a downward pressure on market prices across the climate market system and may undermine efforts to reduce emissions further. This report considers the implications of the market supply-demand balance and price.

One aspect of considering the interaction with the EU ETS is the surplus that is already therein. There are several changes proposed to the use of AAUs from the first commitment period, one of which envisages the eradication in future of all those AAUs that were not used for compliance in the first commitment period of the Kyoto Protocol. If that proposal were taken forward, then there would be created an asymmetry with the EU ETS where companies are allowed to bank allowances. We explore the implications of this aspect.

Finally, this report discusses to what extent an increase in ambition level in a possible second commitment period under the Kyoto Protocol would serve to absorb the banked oversupply of AAUs.

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CHAPTER 1 KYOTO PROTOCOL ACCOUNTING IN COMMITMENT PERIOD I

I. THE KYOTO ACCOUNTING SYSTEM

Assigned Amount Units (AAUs) are emission rights that were introduced under the Kyoto Protocol.[7] One AAU allows a country to emit one metric tonne of CO_2e. For the first Kyoto commitment period (2008-2012), each country with an emissions reduction commitment (Annex B) received AAUs that were equivalent to the number of tonnes it was allowed to emit during the Kyoto Protocol's first 5-year commitment period.

The amount of AAUs a country received is calculated by taking the base year emissions of the country (usually 1990) minus their reduction target, and multiplying this number by 5 for each year of the commitment period.[8]

The Kyoto Protocol (Art. 17) allows Parties to trade AAUs. Countries whose emissions are above their Kyoto target can purchase AAUs from countries which have a surplus to help them meet their reduction obligations.

Under the international emissions trading scheme of the Kyoto Protocol, other units can be traded as well as AAUs. Offset credits created under the Clean Development Mechanism (CDM) and Joint Implementation (JI) can also be traded and used for compliance as well as removal units (RMUs) resulting from land use, land use change and forestry related activities.[9]

The accounting system of the Kyoto Protocol is based on the pre-defined quota of emission rights (assigned amount) which limits the amount of emissions for the given country for the 1st commitment period of 2008-2012. This system takes into consideration the emission inventory of the given country of a given year, which is available two years after the emissions were realized. The flexible mechanisms of the Protocol are built on this system and detailed rules are laid down in the Marrakech Accords.[10] All Kyoto emissions trades have to conform by these rules.

The eligibility of countries can sell or buy AAUs under the following conditions:

- A country must be party to the Kyoto Protocol and must have its emissions reduction pledge translated into the amount of actual emissions it is allowed to emit during the commitment period. In other words, a country has to take a quantified emission limitation and reduction objective (QELRO) for the given commitment period – which is inscribed in Annex B of the Protocol.
- A country must have in place a national system for emission monitoring and a national registry for assigned amount units and offset credits. It must submit its national inventory annually including supplementary information regarding its assigned amount. The inventory must pass a quality assessment and is then published on the UNFCCC web-site.
- In order to sell Kyoto units, a country must have a surplus of non-cancelled Kyoto units in its national registry. This surplus needs to be above the country's commitment period reserve (CPR), which should not

[7] The term Assigned Amount was first introduced through article 3 paragraph 1 of the Kyoto Protocol: "The Parties included in Annex I shall, individually or jointly, ensure that their aggregate anthropogenic carbon dioxide equivalent emissions of the greenhouse gases listed in Annex A do not exceed their assigned amounts, calculated pursuant to their quantified emission limitation and reduction commitments inscribed in Annex B and in accordance with the provisions of this Article, with a view to reducing their overall emissions of such gases by at least 5 per cent below 1990 levels in the commitment period 2008 to 2012."

[8] For example, if a hypothetical country had 1990 emissions of 100,000 tonnes and an emission reduction target of -10% (or 90%) of its 1990 emissions (i.e. 90,000 tonnes), it would have received 450,000 AAUs (i.e. 5 times 90,000) over 2008 to 2012.

[9] JI projects are implemented in developed countries (Annex B), while CDM projects are located in developing countries (non-Annex 1).

[10] Art. 17 of the Protocol. Emissions trading is regulated by two decisions 11/CMP.1 and 13/CMP.1

drop below 90 per cent of the country's assigned amount or five times 100 per cent of its most recent reviewed inventory, whichever is lowest. For the calculation of commitment reserve only units which are not cancelled are valid.[11]

Countries may authorize legal entities to transfer or acquire Kyoto units under emission trading, under the responsibility of the given country. Such entities are allowed to trade with Kyoto units only when the given country has the right to do so. All of the units are considered standing for the offsetting of the emissions of the given country, regardless of whether they are privately-owned or state-owned, and all of the units count towards the Commitment Period Reserve.

Current Kyoto Protocol rules allow countries to carry-over any unused (ie. surplus) AAUs into the next commitment period. Yet such carry-over is only possible if countries meet the above listed requirements. In other words, only those countries which are taking commitments (QELRO) in the given commitment period are entitled to use the possibility of international trade under current rules for the first commitment period. If these rules are maintained in the second commitment period those countries that were originally part of the first commitment period but decided not to take on commitments in the second commitment period, will not be able engage in international emissions trading under Art. 17 of the Kyoto Protocol. This may affect Russia, Japan and Canada (see section 2.1).

II. THE INTERACTION OF EU CLIMATE LEGISLATION WITH THE CURRENT KYOTO SYSTEM

Under the first commitment period of the Kyoto Protocol, the European Union (EU 15) committed to an overall 8% emission reduction below 1990 emissions, with each member state taking on its own emissions reduction target, adding up to a total of -8%.[12]

An important element of the EU's strategy for meeting its Kyoto commitment is the EU Emissions Trading System (EU ETS). The EU ETS places a cap on emissions from the power sector and heavy industries, covering about 50% of total EU emissions.

EU governments issue EU Allowances (EUAs) and distribute (or auction) them to covered entities, and these EUAs can then be traded among companies. To comply with the EU ETS, each year, covered entities (power and industrial companies) must surrender sufficient EU allowances (EUAs), or offset credits from the Clean Development Mechanism (CDM) or Joint Implementation (JI), to match their annual reported greenhouse gas emissions. Over the period 2008 to 2020 about 50% of the emissions reduction obligations can be met through CDM and JI credits, representing an amount between 1.6 to 1.9 Billion tonnes.

To ensure consistency with the Kyoto Protocol, each EUA is equivalent to, and is shadowed by, a corresponding AAU in EU government national registries. In other words, from 2008 onwards, entities covered under the EU ETS can use EUAs but not AAUs for compliance, but each EUA is shadowed by an AAU.

The EU ETS is expected to have a significant surplus of EUAs at the end of 2012. Companies can, according to EU regulations, carry over or 'bank' their surplus EAUs into the next phase of the EU ETS, which starts in 2013.

In the 2008-2012 period, the two systems are closely linked because, according to EU legislation, each EUA surrendered in the EU ETS must be shadowed by an AAU. The shadowing of EUAs is implemented for the 2008-

[11] Decision 5/CP.6, VI.4 paragraph 1.

[12] In 1997, the then 15 Member States of the EU signed up to an -8% emission reduction in the period 2008-2012 compared to a 1990 reference level. Most of the EU Member States that joined later have the same -8% reduction target with the exception of Poland and Hungary (-6%) and Malta and Cyprus which were non-Annex I parties at that time.

2012 period in the central EU registry (Central Clearing Account of the Union Registry) where at regular intervals the AAUs are brought into balance with the cross-border flows of EUAs, and not for each individual transaction of EUAs between companies in different Member States.

If a policy were taken to not bank the AAUs or other credits that correspond to the banked EUAs, in theory a situation could arise in which companies are in compliance with the EU ETS, while the EU and its member states would not be in compliance with its Kyoto targets for the second commitment period. Specifically, this situation could arise if companies were to use the carried-over EUAs on top of newly allocated EUAs for compliance in the third phase of the EU ETS. For emission reductions in sectors not covered through the EU ETS (e.g. transportation and agriculture), EU Member States can meet their obligations by reducing emission in those sectors, or by purchasing AAUs or CDM or JI offset credits. This will change after the end of CP2, when AAUs can no longer be used for compliance in non-traded sectors (see section 2.2)

III. PRICING AND SUPPLY-DEMAND EFFECTS IN THE KYOTO AND EU CARBON MARKETS

The fundamental market principles, that the price is set where supply matches demand, apply also to the carbon markets. The demand and supply in the carbon markets are, however, created by policy. Where a Party is listed in Annex B to the Kyoto Protocol with a reduction effort compared to a baseline year, it has created demand for credits in that its emissions of greenhouse gases must be matched by an equivalent number of credits. The supply is also imposed, in that the number of tradable instruments to be created is fixed. Because that supply is fixed, when an emissions market is definitively oversupplied, the price will drop eventually to close to zero.

This is evidenced by the first phase of the EU ETS. It ran from 2005-2007 inclusive and was discrete in that any oversupply could not be banked into, or borrowed from, the next phase. When, after the first true-up cycle in 2006 it was apparent that the market was oversupplied, the price fell until finally it reached close to zero from a high of approximately €30 per EUA.

The AAU market shows different characteristics, in that the transactions are large in volume and occur only sporadically. There is no typical contract between buyer and seller and therefore the transactions are idiosyncratic, as opposed to the commoditised EU ETS where contracts are standardised. AAU transactions typically take months to negotiate. Buyer preferences determine the price and the buyers to date are European governments, the Japanese government and Japanese corporations.

Buyers so far have shown an overwhelming preference for a 'greening' of the AAUs through a Green Investment Scheme (GIS), where the revenue paid to the seller is earmarked for investment in environmental projects. The GIS has no formal rules but is rather defined in the terms and conditions in each transaction. Buyer preferences and restrictions on the use of the AAUs in EU ETS mean that only a fraction of the surplus AAUs reach the traded markets of carbon commodities. However, the supply of AAUs that does come to market contributes to the total *available* supply accordingly.

The oversupply of one carbon instrument can indirectly affect another. One such example is the recent increase in issuance of Joint Implementation offset credits (Emission Reduction Units –ERUs). By the end of 2011, 128 million ERUs had been issued.[13] By August 2012, the total issuance figure had reached 203 million ERUs, an increase of 60% in the first seven months of this year, mostly from Ukraine and Russia. Historically, most of these ERUs have been used for compliance in the EU ETS, where they compete with CERs as eligible compliance instruments. The

[13] Point Carbon, Carbon Project Manager, accessed 8 August 2012

upsurge in ERU supply is considered by some market participants as one of the main factors for the collapse in CER prices during 2012.[14]

Since the EU ETS is currently oversupplied with EUAs already, when a company in the EU ETS uses ERUs and CERs for compliance, effectively they free up an EUA. Those EUAs freed up in this way increase the number of surplus EUAs to be banked from phase 2 of the EU ETS (ending 2012) into phase 3 (2013-2020).

The interaction of AAUs with the EU ETS is indirect but is a significant part of the EU's carbon market complex. Another example of this is the extent to which governments buy AAUs for compliance with the first commitment period of the Kyoto Protocol, which could be read as competing with other types of credits, such as CERs or ERUs. The use of AAUs instead of CERs or ERUs by governments or Japanese corporates increase the available supply of CERs which could be used by companies for compliance in the EU ETS, which, in situation of oversupply, as is the case currently, gives a further bearish market signal for the ETS. Yet because of the existing surplus of EUAs in the first place, and because of the restrictions on the use of offset credits such as CERs in the EU ETS, the impact of AAU purchases on prices in the EU ETS is expected to be limited.

How and to what extent the oversupply of AAUs affects prices for other carbon instruments depends on the level of fungibility, buyer preferences, other competing sources of supply for eligible credits and the level of ambition in the scheme, i.e. how tight the cap is. In the following sections we go on to consider the positions of the EU Member States as well as other Kyoto Parties in relation to their surplus or shortfall of AAUs by the end of the first commitment period. As part of that calculation we also project how each EU Member State's position is affected by the bankability of EUAs.

IV. HISTORY AND STATUS OF THE AAU TRANSACTIONS

To date, a total of 314 million AAUs have been contracted through 56 deals. Although each deal is typically announced publically by the seller due to the fact that AAUs are mostly held as state property, the terms and conditions of AAU deals are most often confidential, and our volume and price indications must therefore be taken as estimates.

The first AAU transactions took place in 2008. After reaching a yearly volume of 140 million in 2009, AAU transacted volume more than halved in 2010. However, traded volumes seem to have picked up in the first half of 2011 with 57m, representing more volumes traded than in the whole of 2010. Only three confirmed AAU transactions took place in the second half of 2011, taking the total transacted volume in 2011 to an estimated 68 million AAUs.

Three AAU deals were announced in 2012. Estonia sold 1.5 million AAUs to a private Japanese buyer in January, Czech Republic sold 12.5 million AAUs to another private Japanese buyer in May, and Bulgaria sold 6 million AAUs to Austria. The three transactions bring the total volume of AAUs sold to date to 314 million.

All known AAU transactions were conducted through Green Investment Schemes, where the seller government agrees to tie the revenue to an investment plan to cut emissions or to support other environmental benefits.

Over the 2008-2011 period, AAUs have been traded in the range of €4-15/t, though the average price has declined. The first known AAU deals in the autumn of 2008, on the eve of the global economic downturn, were concluded at €14/t. In 2009 all deals but a couple concluded at an estimated €10/t, and in 2010, AAU prices ranged between €7/t

[14] Reuters news, CERs plunge to new low, eye test of 3 euros, 16 July 2012

and €10/t. The AAU prices began to slide together with prices for other asset classes in the carbon market after the onset of the global economic prices and slowing down of production and emission rates in Europe.

In late 2011, AAU prices were cited within €4-6 range, with most contracts believed to be concluded at around €6 per AAU. Most recently, however, the prices have been under significant downward pressure, with some of the seller countries commenting that the levels are starting to reach thresholds under which no credible greening can take place. No prices for the transactions were reported recently, although Point Carbon market interviews show the prices for AAUs were at the level of €2-3 earlier in the year, falling to less than €2 in mid-2012, see Exhibit 1. This has led to few transactions taking place. Some seller countries are refusing to enter transactions they consider questionable for the fear that it would jeopardize creditability of their greening schemes and put off European buyers, for whom the greening issue is vitally important.

The downward price pressure appears to reflect the overall dynamic for all of the carbon asset classes, including AAUs. There are several reasons for the price decline, including the economic crisis which has multiple impacts on the global carbon market, the correlated steep decrease in prices in other Kyoto credit markets, such as the CDM and JI market. Not only do we see industrial output and associated emissions down due to the European economic debt crisis, but furthermore we see governments recoiling from taking tougher climate action in the wake of domestic economic hardship.

Exhibit 2 below shows all market players involved in AAU sales and purchases. The largest source of demand for AAUs to date is Japanese private companies, having bought around 37 percent of the AAU volume sold so far, followed by the governments of Japan and Spain. Japanese private companies procure AAUs for compliance with their domestic mitigation obligations, yet their demand for AAUs has also decreased.

The top sellers remain the Czech Republic with 33% of the volume, followed by Estonia and Ukraine. The largest buyers by volume include the Japanese government, Japanese private sector and Spain, see Exhibit 1.

Exhibit 1: AAU transactions from 2008 to date (left), with main sellers and buyers (right)

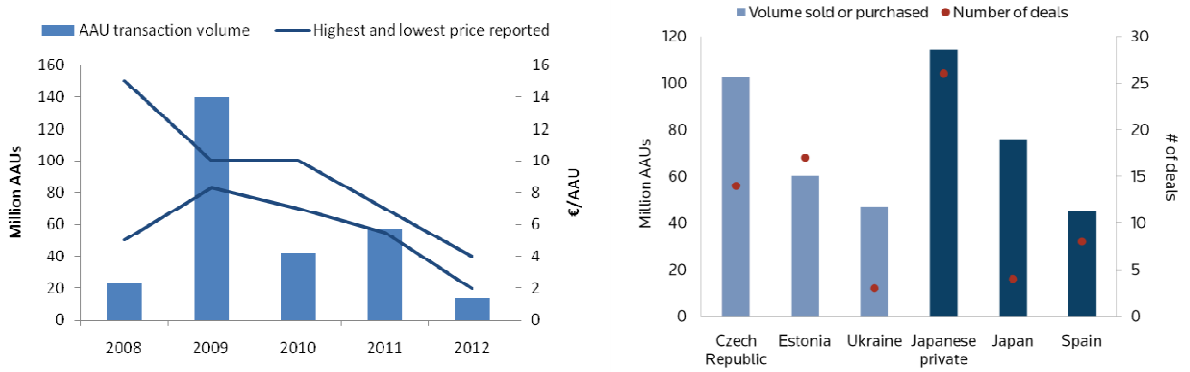
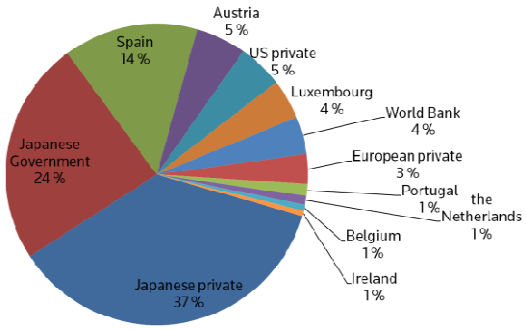
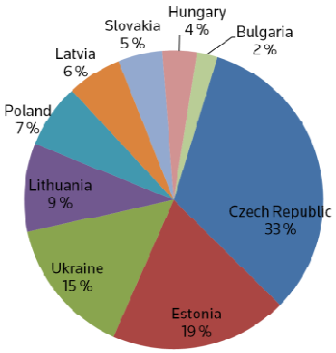


Exhibit 2: AAU transactions to date, all buyers (left) and sellers (right) by proportion of volume





V. PROSPECTS FOR AAU SALES IN CP1 AND THE TRUE-UP PHASE

As all other carbon asset classes, the sales of AAUs are driven by demand. However, unlike project credits and EUAs, the AAU market does not have a secondary market and is unlikely to be driven by market speculation. The likely AAU sales volumes in the first commitment period of the Kyoto Protocol can thus be estimated based on the outstanding compliance gaps of the Annex I countries and their likely procurement strategies to close such gaps before the end of the true-up period. The Kyoto shortfall, if not addressed through internal abatement, can be met either through AAUs or JI and CDM offset credits (ERUs and CERs). Due to the European economic crisis, European governments are delaying purchases to fulfil their emission reduction obligations and there remains interest among them to utilize AAUs to meet their Kyoto obligations.

The true-up period of the Kyoto Protocol, which extends into 2014, provides further time for trading of the Kyoto units. Parties have until 100 days after the review of a county's final annual report of the commitment period to surrender the correct number of eligible units. Within this period, all countries that have taken a commitment under the first comment period and are eligible to do so can transfer or acquire Kyoto units via international emissions trading. This true-up period of 2012-2014 therefore runs concurrently with a possible second commitment period from 2013 onwards.

We estimated the AAU gap or surplus of each Party in the Kyoto Protocol using the publicly-available reduction commitments as well as historical and forecasted input data. They include emissions, AAU transactions between parties, and purchases of CDM and JI offset credits.[15] As the public knowledge on AAU and offset credit purchases is often opaque due to the confidential nature of these transactions, there is a certain degree of uncertainty associated with the data.

[15] To calculate government demand we use publicly available documents such as the European countries' National Allocation Plans (NAPs), Kyoto Parties' National communications to the UNFCCC, official government web-pages, as well as news and press releases. In addition, we interview several authorities about their investments, current budget, and future purchasing plans.

Exhibit 3: Total AAU Surplus and Shortfall by Country

COUNTRY	TOTAL AAU SURPLUS[16]
Russian Federation	5873.1
Ukraine	2593.5
Poland	751.5
Romania	669.0
United Kingdom	513.7
Germany	489.0
Japan	429.8
Bulgaria	317.8
France	263.1
Hungary	204.5
Czech Republic	132.1
Slovakia	105.6
Lithuania	102.1
Greece	85.4
Sweden	85.2
Spain	74.2
Australia	66.4
Portugal	61.8
Latvia	48.5
Belgium	48.0
Netherlands	40.2
Estonia	39.9
New Zealand	28.1
Ireland	22.6
Finland	20.5
Norway	20.1
Italy	16.6
Denmark	12.1
Luxembourg	10.5
Austria	5.5
Croatia	5.2
Slovenia	3.6
Liechtenstein	0.1
Total Surplus	**13139.1**
Net Surplus (total surplus minus total shortfall ex-Canada)	**13127.4**

COUNTRY	TOTAL AAU SHORTFALL
Monaco	0.0
Iceland	3.0
Switzerland	8.5
Canada	502.5
Total Shortfall	**514.0**
Total Shortfall without Canada	**11.5**

Sell side

The surplus of AAUs, standing at 13,139 Mt is significantly higher than the estimated demand of 11 Mt . Consequently, the prospects of the surplus holders to make economic wins from the AAUs vary. The largest surplus holder, Russia, is unlikely to engage in AAU trading during CP1, due to domestic political reasons.[17] The rest of the Eastern European countries with surpluses have either concluded AAU deals or indicated that they are negotiating with potential AAU buyers, giving the buyers a broad selection of AAU sales plans to choose from.

Ukraine, the largest AAU surplus holder after Russia, made two successful AAU deals in 2009. However, its prospects of further sales have been harmed by political scandals and a 5-month suspension from trading due to irregularities in its greenhouse gas reporting.

[16] In the case of EU Member States, the surplus from the ETS sector is estimated and included in the country total.

[17] Korppoo, Anna, and Olga Gassan-zade, Dangers of the Endgame: Engaging Russia and Ukraine during the Gap, FNI Climate Policy Perspectives 2. Lysaker, FNI, 2011

To date, the most active AAU sellers have been the new EU member states, holding around 85% of the market. Of them, at least one country seems to have reached its targets in terms of AAU sales. By completing the 12.5 million AAU transaction in May 2012, the Czech Republic lifted its self-imposed ceiling of 100 million AAUs that were made available by the government for its Green Investment Scheme, to 120 million AAUs. This ceiling is subject to further change. Among other EU member states facing reduced prospects of AAU sales are Romania and Lithuania, which were excluded from trading in the same reporting cycle as Ukraine. While Romania was reinstated in July 2012, Lithuania remains suspended since December 2011.

On the other hand, the government officials in Estonia said prior to the most recent sale that it still had some 25 million AAUs to sell. Estonia appears optimistic that it will be able to finish the sales by the end of 2012, eyeing new demand from Western European countries.

Buy side.

As the end of the first commitment period nears, buyer countries are reconsidering their purchasing plans based on new emission and economic growth projections. For example, Austria recently estimated its Kyoto shortfall at 32 Mt, which could be covered with AAU procurement within the Austrian governmental credits purchasing programme. Switzerland has announced a 50 per cent increase in its purchase plans, bringing the total procurement plan to 15 million units. Some countries reckon they might require fewer carbon credits than previously expected to cover their pledges under the Kyoto Protocol. Luxembourg, for example, estimates that it will need 13-14 million carbon credits instead of initial purchase target of 18-20 million tons of CO_2e.

Another factor affecting the position of the potential buyer countries is the expected surplus in EU ETS. As explained in more detail in the next section, some EU Member States facing a shortfall in the non-trading sectors may have a surplus in the EU ETS that changes the overall position for the EU Member States from shortfall into surplus. When estimating the overall shortfall of the countries for this report, we assessed the countries' overall positions, including the surplus in the EU ETS.

Regardless of whether the trading sector surplus is taken into account, the overall AAU surplus in CP1 remains at least three orders of magnitude larger than the expected demand. The prospects of further AAU sales within CP1 and the true-up period are therefore very limited and will depend on the willingness and the need of the countries with shortfalls to buy AAUs instead of CDM or JI credits for compliance. Overall, based on the countries' Kyoto gaps and procurement plans, we still expect new contracted AAU volumes to reach up to 70 million by the end of the true-up period to the Kyoto Protocol, of which about 40 million to be contracted by the end of 2012. We assume these volumes will be purchased for Kyoto compliance by EU governments – notably in Austria and Spain, and for Japanese private companies' compliance.

VI. EU MEMBER STATES AND THE EFFECT OF THE EU ETS ON THEIR AAU POSITIONS

a. Net AAU positions of the EU Member States

In this section we focus on the AAU positions of EU Members States. While some EU Member States face a shortfall in the non-trading sector, there may be a surplus in the trading sector that changes the overall position for the EU Member States.

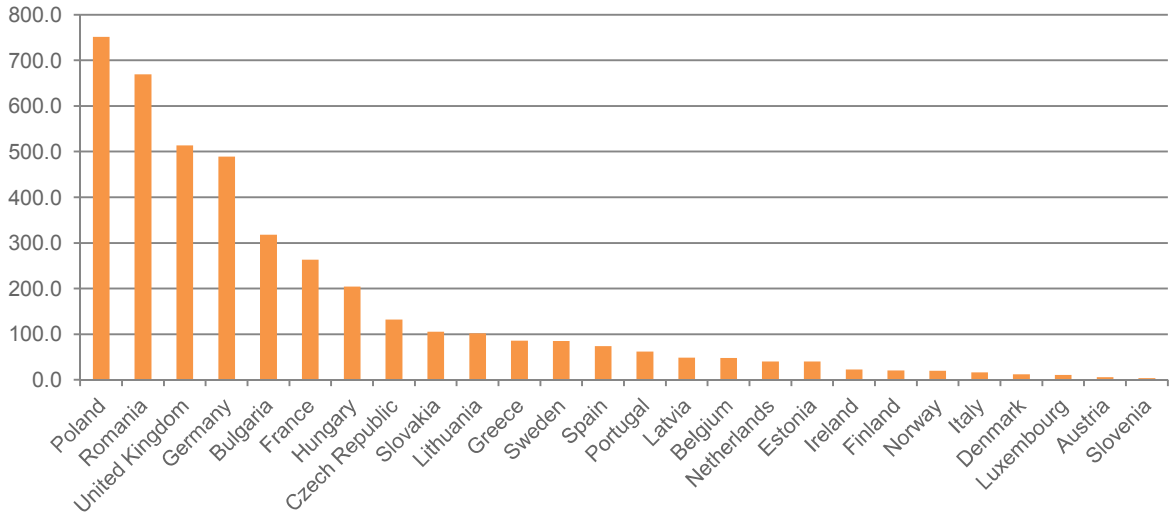
In Exhibit 4 we set out our projection of the net position of each EU Member State for its non-trading sectors, and separately we estimate the net position of the ETS sectors in each Member State. This gives us an estimate of the total surplus AAUs of the EU as at the end of CP1, which we put at close to 4.1 Gt CO_2.

However, while for accounting purposes the individual Member States may find they have a surplus in the ETS sector, those allowances (and therefore the corresponding AAUs) may not be usable for CP1. Taking Austria as an example, it faces a shortfall of 13.9 Mt CO_2e in the non-trading sectors (see Exhibit 4). Its ETS sectors may find they have a surplus of 19.5 Mt CO_2e, leaving a surplus or "technical reserve" of 5.5 Mt CO_2e. For every tonne of CO_2e they emit, the companies covered by the ETS will surrender to Austria one EUA, and therefore its corresponding AAU the government can now use for CP1 compliance. The surplus EUAs the ETS companies own and will seek to bank for use in the 2013-2020 phase – the corresponding AAUs are therefore not available for Austria to use for CP1. While for accounting purposes Austria may find at end-2012 it has an AAU surplus of 5.5Mt CO_2e, from a practical point of view it faces a shortfall of 13.9 Mt CO_2e.

Exhibit 4: AAU Surplus in EU Member States in CP1, Mt CO_2e

EU MEMBER STATES	NON-TRADING SECTORS	EU ETS (ASSUMPTION)	TOTAL AAU SURPLUS
Austria	-13.9	19.5	5.5
Belgium	-12.7	60.7	48.0
Bulgaria	282.6	35.2	317.8
Czech Republic	51.9	80.2	132.1
Germany	308.1	180.9	489.0
Denmark	2	10	12.1
Spain	-100.1	174.2	74.2
Estonia	39.8	0.1	39.9
Finland	2.8	17.7	20.5
France	97.3	165.8	263.1
United Kingdom	421.4	92.3	513.7
Greece	33	52.4	85.4
Hungary	179.9	24.6	204.5
Ireland	-2.2	24.7	22.6
Italy	-91.4	108	16.6
Lithuania	82	20.1	102.1
Luxembourg	8	2.5	10.5
Latvia	35.9	12.6	48.5
Netherlands	-1.6	41.8	40.2
Norway	31.9	-11.8	20.1
Poland	626.5	125	751.5
Portugal	20.7	41.1	61.8
Romania	530.6	138.4	669.0
Slovakia	42.4	63.2	105.6
Slovenia	-1.3	4.9	3.6
Sweden	67.3	17.9	85.2
Total EU	**2640.8**	**1502.1**	**4142.9**

Exhibit 5: AAU Surplus among EU Member States in CP1 (emissions less AAUs, CERs, and ERUs), Mt CO_2e



b. Estimate of the volume of EUA banking and its linkage to AAU carry over for EU member states

By the end of the true-up period of the first Kyoto commitment period, Annex B countries will have to fulfil their Kyoto commitments by matching their emission with international emissions rights (AAUs and CDM and JI offset credits). In addition, EU Member states will have to comply with the rules of the EU Emission Trading System (EU ETS). In the first commitment period, the two systems are closely linked because, according to EU legislation, each EUA surrendered in the EU ETS must be shadowed by an AAU. EU Member States are responsible for the total emissions being off-set by Kyoto units for the first commitment period. However, when EUAs were allocated to each member state, an equal amount of AAUs was locked in their national accounts.

The relationship between EUAs and AAUs post CP1 will depend on whether a CP2 comes into force, summarised in the following scenarios:

a. No second commitment period. In this case the AAUs held in clearing accounts will become obsolete after the true-up period following the first commitment period of the Kyoto Protocol. In this case, starting in 2013 EUAs will no longer be shadowed by AAUs.
b. Second commitment period comes into force with a start date of 1st of January 2013 – albeit likely in a retroactive manner. In case that there is no restriction on the AAU carry-over, AAU-backing would be possible for both the EUAs issued for the 2013-2020 period as well as of those carried forward from the 2008-2012 period. If full carry-over is allowed, EU countries will be able to transfer the “technical reserve” of AAUs that shadow EUAs to the second commitment period. This technical reserve of AAUs mirrors the oversupply of EU allowances to be transferred to the trading period of 2013-2020 (see below). Those countries which hold the surplus EUAs in their registry will also ‘own’ the surplus of AAUs, however that surplus will be held at the Central Clearing Account of the Union Registry. The current EU legislation has no provision of AAU backing of the EUAs issued for the 2013-2020 period. Such legislation would have to be put in place. Under such a scenario, the accounting for meeting Kyoto targets and for meeting EU climate target will be done separately. AAUs will not be traded in the EU internal system. If the assigned amount of the EU and its Member States will be established in line with the internal emission reduction commitments of the EU (which is more than likely), then the amount of the units of the two systems will be

equal and all accounting of emissions will be done in parallel. Equal amounts mean that none of the systems is tighter than the other, thus none poses a stricter restriction.

c. As scenario b, but AAU banking is halted or severely restricted. In this scenario, it is not fully clear if and to what extent EU countries would be able to transfer the "technical reserve" of AAUs that shadow EUAs to CP2. To avoid such uncertainty, the surplus EUAs could be addressed, e.g. by limiting issuance of new EUAs during the period of the second commitment period (see section 2.3.a), or by member states taking on additional responsibilities to cover an increase of ETS sector emissions beyond the amount of EUAs issued for the 2008-2012 period. Giving current emission forecasts for the EU ETS sector, it seems unlikely that the EU ETS sector will increase its emissions such that all banked surplus EUAs would be used by the end of the 2008-2012 period.

It is currently unclear if there will be a gap between the end of the first commitment period and the start of the second commitment period when new AAUs will be issued to each country with a binding reduction commitment. This uncertainty may have an impact on those AAUs which are not cancelled, but carried forward as EUA backing for the period post-2012.

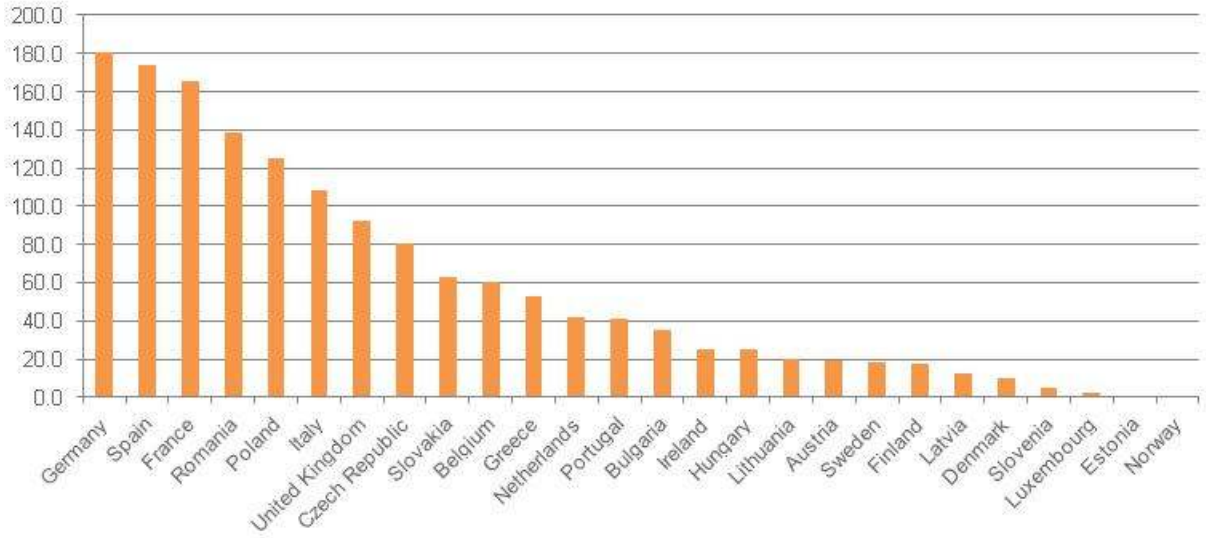
Total emissions in the EU ETS are anticipated to be 9.8 Gt CO_2e. The cap for the EU ETS for 2008-2012 is 10.4 Gt CO_2e. This includes the free allocation, New Entrant Reserve (NER), and auction. In addition, close to 900 million offset credits will be used for compliance. This brings the estimated surplus of the EU ETS in its second commitment period to about 1.5 Gt CO_2e, see Exhibit 4.

This implies that companies within the EU ETS will seek to bank 1.5 billion EUAs from the current phase of the EU ETS into the next, i.e. from 2012 into the 2013-2020 phase. As explained above, possible international decision to limit or halt banking of AAUs for compliance in CP2 of the Kyoto Protocol would impact how the EU handles the carry-over of surplus EUAs from 2008-2012.

While Exhibit 4 shows an assumption of the surplus in the EU ETS by country before trading begins (i.e. allocation minus projected emissions). This is the gross position before trading begins. Because EUAs are traded between companies located in different Member States, it is not possible to calculate the position of the individual EU ETS member states. Essentially the gross balance in the EU ETS by country is emissions minus allocation (cap), but that is before considering trading by the individual installations. It is difficult to know what the exact number is by country after trading. But considering the historical and forecasted surrenders (EUAs/ CERs/ ERUs) by country and assuming that the split of surplus EUAs is similarly proportioned, Exhibit 6 provides an indication of the scale of AAU carry-over needs of the EU ETS member states, in case EUAs are shadowed by AAUs in CP2 and the EUA surplus is not addressed through e.g. a set-aside.

In the next chapter we will discuss the period after CP2 and look at the potential impact of EU interventions that could potentially help to stabilize the EU ETS such as a set aside.

Exhibit 6: Bankable EUAs of Member States in the EU ETS before Trading, Mt CO_2e


200.0
180.0
160.0
140.0
120.0
100.0
80.0
60.0
40.0
20.0
0.0
Germany
Spain
France
Romania
Poland
Italy
United Kingdom
Czech Republic
Slovakia
Belgium
Greece
Netherlands
Portugal
Bulgaria
Ireland
Hungary
Lithuania
Austria
Sweden
Finland
Latvia
Denmark
Slovenia
Luxembourg
Estonia
Norway

CHAPTER 2 KYOTO PROTOCOL ACCOUNTING IN COMMITMENT PERIOD II

I. POTENTIAL SIZE OF CARRY-OVER OF KYOTO UNIT SURPLUSES FROM CP1 TO CP2

Current Kyoto Protocol rules allow countries to carry-over any unused (ie. surplus) AAUs into the next commitment period. Parties are also allowed to carry over emission reduction credits from the CDM and JI. The carry-over of CER and ERUs credits is limited to up to 2.5% each of the total amount of AAUs a country received for the first commitment period.[18] Effective 2020 targets could be weakened by up to 6.25% if CERs and ERUs were carried over up to the full extent allowed under the 2.5% limits.[19] Exhibit 7 summarizes the AAU surplus of CP1. The total size of the AAU surplus is estimated to be 12.6 Gt CO_2e.

Exhibit 7: AAU balance at end of CP1

Total Emissions of Annex B countries in CP1	49.4
Total Emissions allowed under CP1	60.4
CDM and JI Credits Purchased by Government (Non Trading Sector) for compliance in CP1	0.7
CDM and JI Credit Purchased in the EU ETS for compliance in CP1	0.9
AAU Purchases	0.3
AAU Sales	-0.3
AAU Surplus	12.6

I. CHANGES IN THE COUNTRIES PARTICIPATING IN CP2 IMPACTING THE USE OF CARRIED OVER AAUS

As mentioned earlier, only those countries which are taking commitments (QELRO) in the given commitment period are entitled to trade AAUs. If these rules are maintained in the second commitment period, then those countries that were originally part of CP1, but decide not to take on commitments in a second commitment period, will not be able engage in international emissions trading under Art. 17 of the Kyoto Protocol. This affects the size of the potential carry over as well as the demand in CP2.

Russia, which is reluctant to take on obligations different from those imposed on the rapidly developing economies (Brazil, India, China), has stated that it has no plans to join the second commitment period.

[18] Decision 13/CMP.1 Annex paragraph 15 “Carry Over” http://unfccc.int/resource/docs/2005/cmp1/eng/08a02.pdf#page=17
[...] the Party may carry over to the subsequent commitment period:
(a)Any ERUs held in its national registry, which have not been converted from RMUs and have not been retired for that commitment period or cancelled, to a maximum of 2.5 per cent of the assigned amount pursuant to Article 3, paragraphs 7 and 8, of that Party.
(b) Any CERs held in its national registry, which have not been retired for that commitment period or cancelled, to a maximum of 2.5 per cent of the assigned amount pursuant to Article 3, paragraphs 7 and 8, of that Party

[19] This is because the 2x2.5%=5% credits over a potential 8-year commitment period, and under a “wedge” assumption (i.e., that emissions change linearly from current levels to incorporate the change in allowances over the full 8-year period) would result in 6.25% = 5%*5/8*2 weaker effective 2020 targets.

Under current Kyoto rules, Russia would have to take on a target and meet other Kyoto Protocol criteria, or it would be barred from selling its surplus under CP2. Russia would also not be able to issue Joint Implementation offsets credits post CP1 both because existing rules prevent countries without targets from trading and because ERUs are shadowed by AAUs. This would remove 5.8 Gt CO_2e from the amount of AAU surplus that could be carried forward to CP2, leaving a total of 7.3 Gt CO_2e (excluding Canada).

In the international negotiations, Russia has indicated that it should be allowed to transfer its surplus into a new climate agreement currently negotiated under the Durban Platform (ADP).

Canada ratified the Kyoto Protocol in 2002, yet formally withdrew from the first commitment period in late 2011. This leaves it without any AAU allocation. If Canada had remained in CP1, it would have had an estimated shortfall of 502.5 million AAUs. The US signed but never ratified the Kyoto protocol. Neither Canada nor the US plan to sign up to a second commitment period.

Japan ratified CP1 but has formally stated that it does not have any plans to join CP2. Japan's previous administration set a reduction target of -25% in 2020. The triple impacts of the global economic crisis, the 2011 earthquake and tsunami, followed by a nuclear disaster have put both its economy and its energy systems into unprecedented disarray. The government has decided that Japan will not join CP2. Japan's 2020 target, if maintained, will be implemented under the UNFCCC framework. Japan has been one of the largest purchasers of AAUs in CP1 and its absence from CP2 will eliminate one of the last sources of demand for AAUs in the Kyoto system.

Neither Australia nor New Zealand have to date confirmed that they will take legally binding obligations under Kyoto CP2. Australia maintains that it will make a decision only after UN parties agree on CP2 and the volume of carry-over of surplus units from CP1. New Zealand had similar considerations, reinforced by concerns over the fate of any surplus AAUs of its own.

Ukraine submitted a QELRO for CP2 in August 2012, that of a 20% cut on 1990 levels by 2020. While the country has demonstrated it is still committed to the Kyoto process, the modalities of the carry-over will likely be an important part of Ukraine's approach to CP2.

II. EU CLIMATE POLICY AND THE USE OF AAUS OVER 2013-2020

The climate and energy package of the EU sets out its target for greenhouse gas emissions in 2020 and how it intends to meet that target. It can be divided into two parts, the one covered by the EU emission trading scheme (EU ETS) and the one covered by the Effort Sharing Decision (ESD).

In the 2008-2012 trading period, the EU legislation allowed operators to use JI and CDM offset credits up to a percentage determined in the National Allocation Plans. Between 2008 and 2020, the EU ETS legislation allows for use of CDM and JI offset credits up to 50% of the overall reductions below 2005 levels made under the EU ETS. The exact amount per operator is to be determined in line with the methodology outlined in the legislation (and with a 'comitology' procedure).

The Effort Sharing Decision (ESD) [20] will regulate the EU's greenhouse gas emission reduction efforts in the non-ETS sector from 2013-2020. The decision gives the Member States the responsibility to reach their targets under the Kyoto Protocol or as it was modified by the so called burden-sharing decision among the EU-15. Up until the end of 2012, member states can meet the targets in their non-traded sectors by reducing emissions or using AAUs or JI and CDM offset credits for compliance.

From 2013 onward EU legislation will set emission reduction targets for each Member State up to 2020. Notably, AAUs cannot be used for compliance with their 2020 targets under the ESD. Targets can be fulfilled through domestic emission reductions and through the limited use of CERs and ERUs. The use of these offset credits shall not exceed annually 3% of the greenhouse gas emissions of the given Member State in 2003. This limitation results in an overall cap for the EU on the use of offset credits. The amount allowed to be used is transferable among Member States. Member States are also able to retain the unused part of this quota for consequent years.

To summarize, the EU climate legislation for 2013-2020 does not allow the use of traded AAUs for compliance with EU reduction targets. AAUs can neither be used in the EU ETS nor under the ESD. Considering that the EU is the largest constituency among those countries which are likely to commit to binding emission reduction targets under a second commitment period of Kyoto Protocol, this has a profound impact on the international carbon market, i.e. very low demand for international credits.

As mentioned previously, due to economic recession, the EU ETS is severely over-supplied. The next section looks at the possible impact of EU intervention to stabilize the EU ETS on the carry-over of AAUs.

a. EU ETS: The effect of a set-aside on the EUA supply-demand balance

The price of EUAs has dropped dramatically over the last year and a half. This is due to the economic crisis which led to much lower economic output and therefore lower emissions in the EU. The demand for EUAs therefore has dropped dramatically and EUA prices have plunged 42% to €7 in August 2012, from €12 during August 2011.

Policy makers in the EU have been discussing how and if to intervene with measures to stabilise the market. The economic recession in Europe has resulted in the EU ETS being severely over-supplied in phase 2. According to the EU ETS carry-over rules, all EUAs that are not used for compliance in phase 2 can be carried over to the next trading phase. The European Commission expects up to 1.5 billion EUAs to be carried over from 2012 into 2013-2020. In practice this means that an additional 1.5 billion EUAs could enter the EU ETS after 2013 on top of the caps set for the period 2013-2020.

Those additional EUAs are not reflected in Europe's post-2012 quantified emission reduction target, which stands at -20% by 2020 compared to 1990.

In the second commitment period of the Kyoto Protocol, Europe's quantified emission reduction will be turned into AAUs. However, the EU will not receive additional new AAUs for the carried over EUAs. If current regulations remain in place, the EU's EUA surplus carry-over would need to be shadowed by the carry-over of Europe's AAU surplus from the first commitment period. In other words, the carried over EUA surplus would need to be matched with an equivalent AAU surplus carry-over.

If AAU carry-over were to be restricted or eliminated under the UNFCCC, the EU may face the issue that, according to domestic legislation, EU ETS surplus allowances from 2008-2012 can be carried over, but these

[20] DECISION No 406/2009/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 23 April 2009 on the effort of Member States to reduce their greenhouse gas emissions to meet the Community's greenhouse gas emission reduction commitments up to 2020

would not be shadowed by an equivalent amount of AAUs carried over from the first commitment period. In the case where EU ETS sector emissions were to increase beyond the amount of newly allocated EUAs, EU governments could face a shortfall of AAUs to match all the EUAs in the 2013-2020 period. Unless appropriate provisions are taken, this could lead to a situation where it is not clear which party would be held liable to cover the additional required AAUs and how the cost of these will be passed through and to whom. Yet given the projections for substantial oversupply in the EU ETS until 2020, it is not very likely that such a situation would occur. The functioning of the EU ETS will not be affected in any case, even under full banking restrictions under CP2, as the EU ETS operates independently of international regulations. Without a CP2, however, EUAs will not need to be shadowed by AAUs. In this case AAUs will lose any value post CP1.

It is currently unclear if and what type of structural adjustment the EU will pass for the EU ETS. In late July 2012, the EC published its opinion on delaying the auctioning of EUAs. Such a measure would only temporarily create a shortfall of EUAs until the delay is lifted. At time of writing, the EC had not yet suggest structural measures for reform of the EU ETS, such as permanently removing allowances or increasing the EU's emission reduction target. The EC only stated that a carbon market report containing proposals for structural measures to strengthen the EU ETS will be presented later this year.[21]

The following calculations illustrate the likely impact of potential market intervention. The projections take into account Point Carbon's expectation for a set-aside of 800 million allowances. As the decision to set-aside allowances will be taken by qualified majority, it will not be possible for one or a few member states to block an agreement. We think this will lead to a compromise on the number of allowances to be set-aside close to the mid-point of the 400-1200 million range discussed in the Commission's staff working document.[22] This volume will be held back from the market between 2013 and 2015. We use the staff working document as a reference in developing our set-aside scenario, meaning that we assume a higher reduction of auctioned amounts in 2013 than in 2014 or 2015 to account for the fact that 2013 will be the year with the highest annual oversupply. This leads to a reduction of 375 million allowances in 2013, 275 million in 2014 and 150 million in 2015.

These numbers also anticipate a permanent cancellation. The Commission has announced that it will present options for "structural measures" to the EU ETS after the summer recess. One of such measures would be a proposal to permanently retire allowances. Although it is very difficult to assess the likelihood of a permanent cancellation at this stage, in our base case we have set this volume to 600 Mt. In line with the Commission's staff working document, we expect the 200m that is set aside but not cancelled to come back to the market from 2016.

According to our model, setting-aside a total of 800 Mt from the years 2013 -2015 followed by a permanent cancellation of 600 million allowances will leave trading periods 2008-2012 and 2013-2020 combined long in the order of 2.4 Gt. Whereas the year 2014 turns short, the annual balances shift back into an oversupplied situation towards the end of the trading period. Without such set-aside scenario, trading period 2013-2020 will remain oversupplied by a total length of 3.0 Gt.

[21] European Comission, July 2012, "Commission prepares for change of the timing for auctions of emission allowances" (http://ec.europa.eu/clima/news/articles/news_2012072501_en.htm)

[22] European Comission, July 2012, "Commission prepares for change of the timing for auctions of emission allowances" (http://ec.europa.eu/clima/news/articles/news_2012072501_en.htm)

Exhibit 8: EU ETS Balance with Set-aside (Excluding Aviation EU ETS), Mt CO_2e

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	PHASE 3 TOTAL	TOTAL
Total Emissions	2.12	1.88	1.94	1.90	1.95	1.93	1.92	1.90	1.88	1.87	1.85	1.84	1.82	15.01	24.80
Total Cap	2.00	2.05	2.09	2.11	2.19	2.37	1.94	1.95	1.93	1.90	1.88	1.86	1.83	15.65	26.08
Credit usage	0.09	0.08	0.14	0.26	0.30	0.21	0.16	0.13	0.11	0.09	0.08	0.06	0.05	0.89	1.75
BALANCE incl. credits	0.03	-0.25	-0.29	-0.46	-0.54	-0.65	-0.18	-0.17	-0.15	-0.13	-0.11	-0.07	-0.07	-1.53	-3.03
Surplus incl. credits and set-aside (positive number = surplus)	-0.03	0.25	0.29	0.46	0.54	0.27	-0.10	0.02	0.19	0.17	0.15	0.11	0.11	0.93	2.43

III. ASSESSEMENT OF SUPPLY-DEMAND BALANCE TO 2020

It should be noted that if a second commitment period is agreed, it may not correspond to the 2013-2020 timeframe we model here; to maintain the current Kyoto architecture the period would run from 2013-2017 inclusive. However the mismatch between that timing, and the 2020 targets declared under the Copenhagen Accord, means that to forecast the 2013-2017 surplus would require assumptions that increase the margin of error significantly and it is not included in this report.

The following figures take into account the publicly available information on CP2 pledges from Kyoto committing parties. They incorporate the historical and forecasted emissions data but do not include the impact of the LULUCF sector. They also include Point Carbon's view on purchases of offset credits created under the Clean Development Mechanism (CDM) and Joint Implementation (JI).

Exhibit 9: CP2 Kyoto Protocol net shortfall, Gt CO_2e

	KYOTO TARGET[23]	EMISSIONS[24]	SHORTFALL	CREDIT USAGE[25]	NET SHORTFALL
EU Members	37.2	37.3	0.1	2.5	**-2.3**
Australia	3.8	4.8	1.1	0.6	**0.5**
New Zealand	0.4	0.6	0.1	0.1	**0.1**
Other	6.5	4.6	-1.8	0.0	**-1.8**
Total	**47.8**	**47.3**	**-0.5**	**3.1**	**-3.6**

While the overall balance indicates a surplus of 3.6 Gt CO_2e, a demand of 0.6 Gt CO_2e of CP1 AAUs could come from Australia and New Zealand, should they chose to participate in CP2. If Australia and New Zealand do not join CP2, the surplus could be as high as 4.1 Mt. Adding up the surpluses from CP1 and CP2, the AAU surplus could

[23] Point Carbon, February 2010, "Carbon Market Monitor: Submissions to the Copenhagen Accord", pg 5

[24] Various sources including Point Carbon, UNFCCC, national agencies, European Environment Agency, European Bank for Reconstruction and Development.

[25] Point Carbon, "Demand by 2020" (http://www.pointcarbon.com/trading/cpm/demanddetails/by2020/report/), accessed 1 August 2012

be as high as 16 billion tonnes of CO_2. The surplus in CP2 could be even higher if the sinks under the LULUCF sector were taken into account.

A curious implication of the looming CP2 surplus is that the surplus from CP1 will not have any practical implications for the CP2 market. A market cannot absorb additional surplus beyond the limits of the actual demand, thus a market oversupplied by 3.6 Gt would not behave differently from a market oversupplied by 16.2 Gt as evidenced by the AAU market in CP1.

With the current pledges and full carry over, CP1 surplus AAUs would therefore have little or no value to the majority of their holders.

While there would be individual EU Member States with shortfalls in CP2, they would not be able to use CP1 surpluses for their compliance as it is prohibited in EU legislation.

Australia and New Zealand appear to be the only notable exceptions, as they would be the only countries with a projected shortfall in CP2. Both also happen to hold AAU surpluses from CP1. Neither country has formally stated that they will commit to CP2.

IV. THE INTERNATIONAL CONTEXT – SETTING THE SCENE FOR DOHA

The international community is to meet in Doha, Qatar from 26 November to Friday, 7 December 2012 to consider a wide range of topics, one of which is the possible agreement to add a second commitment period under the Kyoto Protocol. This topic itself raises various questions, not least the banking of AAUs from CP1 to the envisaged new CP2.

Our earlier analysis of the impact of the AAU carry-over on post-2012 regime identified a wide range of options that can be devised to deal with AAU banking issue[26]. In Durban in December 2011 and Bonn in May 2012, proposals were made by the African Group, AOSIS and Brazil that would have significantly restricted the use of CP1 AAU surplus in CP2.

Some of the main ideas of the proposals can be summarised in three categories: Firstly, to limit the total number of AAUs, such as only assigning AAUs to countries with CP2 targets that are lower than recent years. Secondly, to limit the use of surplus AAUs for example to compliance with CP2 targets only and not trading. Thirdly, to cancel any remaining surplus at the end of CP2.

At the negotiations in Bangkok in August 2012 the three groups worked together to replace their proposals with one single joint proposal which was presented by Brazil on behalf of the G-77 and China. The new proposal uses some elements of the preceding proposals and it is summarised here:

- All CP1 surplus AAUs and ERUs can be carried over into the next period and are placed into a Previous Period Surplus Reserve (PPSR).
- The proposal does not include trading of PPSR units.
- The proposal aims to prevent the creation of the new surplus inherent in the CP2 targets by capping the assigned amount at actual emissions levels in 2012. If a party has an assigned amount that allows, on

[26] Assigned Amount Unit: Seller/buyer analysis and impact on post-2012 climate regime, Point Carbon, 2009.

average, higher emissions than the 2012 emissions, the difference between the CP2 assigned amount and the 2012 emissions times the length of the commitment period is cancelled.

- Parties can use PPSR units for compliance if their emissions are higher than their initial assigned amount (as defined in article 3.7 and 3.8 KP). They can only use as many PPSR units in as far as their emissions exceed the initial assigned amount. In other words, they cannot sell their CP2 units and then use PPSR units for their own compliance.
- At the end of CP2 the remaining surplus in the PPSR will be canceled.
- The rules for CERs remain as they are under current Kyoto rules: The carry-over of CER is limited to up to 2.5% each of the total amount of AAUs a country received for CP1.

In effect, the proposal seeks to isolate and reduce the surplus from CP1, so that it can be used for compliance only in CP2 and any remaining AAUs are cancelled. It also seeks to eliminate the possibility of a new surplus building up in CP2. While a full analysis of the impact of the G-77 proposal is not in the scope of this study, it is evident that the proposal would likely lead to a very low use of CP1 AAU surplus units and prohibit their trading. CERs carried over from CP1 would make up the bulk of the surplus used in CP2 (see last bullet above).

While the succession of proposals has led to a relatively clear proposal on the part of G77+China, such proposals so far have met consistent opposition by the surplus holding countries.

If a second commitment period under the Kyoto Protocol is to be agreed at COP 18/CMP8 in Doha in November 2012, then Parties will have to address this issue. The Parties may come to an agreement on changes to the rules on the carry-over of surplus AAUs, for example limiting their number or usage. In the event that no agreement is reached, or a process is created to finalise the issue further down the line, then the status quo will be maintained. The existing Kyoto rules allows for full carry-over and trading or compliance use of AAUs.

V. THE EFFECT OF A POSSIBLE INCREASE IN AMBITION LEVEL IN THE KYOTO PROTOCOL CP II

As demonstrated in Section IV, unless the level of ambition in CP2 is raised, CP2 will remain oversupplied even if no AAUs from CP1 are carried over to CP2. To estimate the potential impacts increased ambition levels could have on the CP2 market balance, two possible scenarios are assessed here: the highest range of the Copenhagen pledges and a mid-point between the highest range and currently expected pledges.

Exhibit 10: Shortfall created by a possible increase in ambition in climate targets – Mid scenario (Gt CO_2e)

		KYOTO TARGET	EMISSIONS[27]	SHORTFALL	CREDIT USAGE[28]	NET SHORTFALL
EU Members	-25%	34.8	37.3	2.4	2.5	0.0
Australia	-15% on 2000	3.4	4.8	1.5	0.6	0.9
New Zealand	-25%	0.4	0.6	0.2	0.1	0.1
Other		6.4	4.6	-1.8	0.0	-1.8
Total		45.0	47.3	2.3	3.1	-0.8

Exhibit 11: Shortfall created by a possible increase in ambition in climate targets – High scenario (Gt CO_2e)

		KYOTO TARGET	EMISSIONS[29]	SHORTFALL	CREDIT USAGE[30]	NET SHORTFALL
EU Members	-30%	32.5	37.3	4.8	2.5	2.3
Australia	-25% on 2000	3.0	4.8	1.8	0.6	1.3
New Zealand	-20%	0.4	0.6	0.2	0.1	0.1
Other		6.4	4.6	-1.7	0.0	-1.7
Total		42.3	47.3	5.1	3.1	2.0

The analysis shows that the CP2 targets as they stand do not create a sufficient shortfall to match the surplus of AAUs, even before the CP1 carry-over, unless the countries participating in CP2 take on targets in the highest range of their Copenhagen pledges.

An important factor in the resulting CP2 surplus is the expected use of offset credits, which was estimated on the basis of credit import limits already set or expected in the domestic emission trading schemes of CP2-participating countries. The CP2 surplus could potentially be eliminated if offset credit use was to be prohibited. Such action is politically very unlikely.

[27] Various sources including Point Carbon, UNFCCC, national agencies, European Environment Agency, European Bank for Reconstruction and Development.

[28] Point Carbon, "Demand by 2020" (http://www.pointcarbon.com/trading/cpm/demanddetails/by2020/report/), accessed 1 August 2012

[29] Various sources including Point Carbon, UNFCCC, national agencies, European Environment Agency, European Bank for Reconstruction and Development.

[30] Point Carbon, "Demand by 2020" (http://www.pointcarbon.com/trading/cpm/demanddetails/by2020/report/), accessed 1 August 2012

CHAPTER 3 CONCLUSIONS

We estimate the surplus for CP1 to be 12.6 billion tonnes of CO_2e (Gt CO_2e). According to our data analysis, even without any carry-over of AAUs from CP1, CP2 will be long by 3.6 $GtCO_2$. This could bring the total surplus in CP2 under current full carry over rules to as high as 16.2 $GtCO_2$.

If Australia and New Zealand do not join CP2, the CP2 surplus could be as high as 4.1 $GtCO_2$, or 20.3 $GtCO_2$ including the carry-over from CP1.

The projected emissions and the current level of pledges in CP2 demonstrate that it will be oversupplied even without CP1 carry-over. The effect differs from the short term to the long term.

In the short term, the effect on the wider carbon market is minimal. Because CP2 is oversupplied already, the presence of additional AAUs from CP1 would not make much practical difference - the market cannot absorb the additional surplus beyond the limits of the actual demand. Thus, a market oversupplied by 3.6 Gt (CP2 surplus only) would not behave much differently from a market oversupplied by 16.2 Gt (CP1 and CP2 surplus combined). With the current pledges and full carry over, CP1 surplus AAUs would therefore have little or no value to the majority of their holders. While there would be individual EU Member States with shortfalls in CP2, they would not be able to use CP1 surpluses for their compliance anyway as it is prohibited in EU legislation. Australia and New Zealand appear to be the only notable exceptions, as they would be the only countries with a projected shortfall in CP2. Both also happen to hold AAU surpluses from CP1. Neither country has formally stated that they will commit to CP2.

To put the estimated CP2 surplus in other words: The current CP2 pledges and current Kyoto rules on the use of offsets permit countries to emit 3.6 Gt more than they are projected to emit under business-as-usual (BAU) emissions projections until 2020. Because of that, the CP1 carry over would likely not be used during CP2 (assuming BAU emission projections are correct). There could be a number of scenarios under which the CP1 surplus could come into play compromising further environmental integrity in CP2. They are listed in no particular order:

- The level of ambition is raised to the top range of the Copenhagen pledges, eliminating CP2 surplus (full market liquidity is assumed).
- Offset credits such as from the CDM or any new market mechanisms are not allowed for use in CP2, in which case the CP2 surplus would be limited to 0.5 Gt.
- Emissions in countries that ratify CP2 rise dramatically above current BAU projections absorbing the 3.6 Gt CP2 surplus.
- A combination of the above.

The report also discusses potential liability issues that could arise in the EU because of the shadowing of EUAs by AAUs, if the surplus is severely restricted. The EU ETS is expected to have a significant surplus of EUAs at the end of 2012, which we estimate to be 1.5 Gt. Entities covered by the EU ETS are able to bank EUAs from 2012 into the third phase starting 2013.

In the event that the Kyoto rules on carrying over AAUs are changed, so as to significantly restrict the use of AAU carry-over, the EU Member States may have to provide CP2 AAUs. In some cases they may have to go to market to procure the extra AAUs.

Most importantly, preservation of the AAU surplus might have considerable implications in the longer term. The presence of such large volumes of surplus AAUs in the Kyoto system raises legitimate questions about the current system design. The political and market implications cannot be ignored as the future of the Kyoto Protocol is negotiated. Current targets to 2020 are not expected to absorb the oversupply. Should the surplus of the first two commitment periods pass into the post-2020 system, then the prospect of an oversupplied market never recedes. The long-term targets should reflect that surplus or risk having their environmental integrity undermined.