Demand in a Fragmented Global Carbon Market: Outlook and Policy Options

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Preface

According to the UNEP Synthesis Report “The Emissions Gap Report 2012”, the global emissions have already exceeded a level, which in 2020 would be consistent with the 2°C target. The currently estimated emissions gap in 2020 of being on track to stay below the 2°C target is 8 to 13 Gt CO₂e. The recent UNFCCC conference in Doha noted this gap with grave concern and decided “to identify and explore in 2013 options for a range of actions that can close the pre-2020 ambition gap with a view to identifying further activities for its plan of work in 2014.”

Carbon markets were established in 1990s to serve as a tool for cost-effective implementation of climate policy. After a tremendous growth in both volume and monetary terms, the markets now face a serious demand crisis resulting in oversupply of permits and credits with very low prices. This has led some stakeholders to question the legitimacy of the policy tool altogether. At the same time, the use of carbon markets and clarification of the related accounting rules have been identified as one of the options that could help bridging the pre-2020 ambition gap. This is why the Nordic Working Group for Global Climate Negotiations (NOAK) decided in 2012 to launch a study “Demand in a Fragmented Global Carbon Market: Outlook and Policy Options” to provide policy-relevant insights into the future supply and demand in carbon markets and, specifically, to explore political options to tackle the lack of ambition for mitigation action. This report identifies measures and circumstances that could be created to boost ambition and overall demand for international credits.

The study has been carried out by GreenStream together with Climate Focus for NOAK, a working group under the Nordic Council of Ministers. The aim of NOAK is to contribute to a global and comprehensive agreement on climate change with ambitious emission reduction commitments. To this end, the group prepares reports and studies, conducts meetings and organizes conferences supporting the Nordic negotiators in the UN climate negotiations.

Helsinki March 2013

Harri Laurikka
Chair of the Nordic Working Group
for Global Climate Negotiations

Summary

To avoid dangerous climate change, the international community has agreed that the increase of global mean temperatures must be limited to no more than two degrees. However, current country pledges to control greenhouse gas emissions fall significantly short of the ambition level consistent with the two-degree trajectory.

Many countries have linked increased ambition with the availability of market-based instruments to promote cost-effective implementation of climate policy. Emissions trading and crediting schemes are already widely utilized at domestic, regional and international levels, with new schemes emerging and under consideration in both developed and developing countries.

Within the framework of the Kyoto Protocol's project-based mechanisms, the international community and the private sector have developed UN standards for international credits issued for emission reductions against pre-established baselines. Alternative standards for international and domestic credits and emission allowances also exist and new ones are emerging. Some national and regional schemes allow the import of units, often subject to qualitative and quantitative restrictions.

Together, these schemes form a mosaic of partially linked but increasingly fragmented global carbon markets. This global market currently faces a deep demand crisis. The consequent price fall reduces the private sector's incentive to scan for additional low-cost mitigation potential and increases the risk of locking in carbon-intensive infrastructure with long lifetimes. Given the private sector's crucial role in financing mitigation at scale, its continued engagement is critical for keeping the two-degree target within reach.

This report analyses the status and outlook of global carbon markets and identifies measures and circumstances that could be created to boost ambition and overall demand for international credits, taking into account the trend towards fragmentation of carbon markets. Key findings are summarized below.

Demand of international credits is closely linked to the ambition of country pledges, and boosting one can boost the other. To bridge the ambition gap, countries must increase the ambition of their pledges, apply strict accounting rules, and implement policies to untap the significant cost-effective mitigation potential. The availability and accessibility of cost-effective policy tools such as international crediting is linked to many countries' willingness to commit to more ambitious targets.

Encouragement of wide use of international credits across emissions trading schemes can promote both ambition and international credit demand by linking markets to extend their reach to a wider range of cost-effective mitigation opportunities and thus reducing the economic cost of achieving ambitious targets. Amid increased interest in linking, it is easy to forget that the primary condition for any type of linking is guaranteeing sustainable demand. Linking per se will not directly increase or reduce demand but merely re-distribute, and expand the scope of demand and supply.

Encouragement of voluntary initiatives and pioneering alliances for mitigation can boost ambition and international credits demand especially in the short term, given the lead times of international policy-making. Existing initiatives have the potential to be scaled up to contribute significantly towards bridging the ambition gap.

Dedicated public or public-private credit purchase vehicles can also increase ambition and international credit demand. Such purchase vehicles offer readily available opportunities for a coalition of the willing that wishes to provide incentives for uninterrupted cost-effective mitigation action via market mechanisms. Like linking, purchase vehicles do not increase credit demand *per se*, unless the acquired international credits are cancelled or used towards increased ambition rather than existing pledges.

The global climate negotiations still lack an integrated perspective on who should increase ambition and boost international credit demand in the post-2012 era, and how. The climate negotiations in Doha in December 2012 delivered little in terms of concrete progress on ambition and international credit demand but did provide a second commitment period under the Kyoto Protocol and a timetable for exploring options to close the pre-2020 ambition gap.

The study concludes by considering options available for Nordic climate negotiators and policy-makers for boosting ambition and international credit demand.

1. Background

1.1 Climate change challenge: policy responses and ambition gap

Worldwide, scaled-up mitigation action is needed to limit the increase in the global mean temperature to no more than two degrees above pre-industrial levels, a goal agreed by the international community in hope of avoiding the worst impacts of climate change.

In 1992, the international community agreed, under the UN Framework Convention on Climate Change (UNFCCC), to stabilise atmospheric greenhouse gas (GHG) concentrations “at a level that would prevent dangerous anthropogenic interference with the climate system.”¹ This ultimate objective was translated into concrete action in 1997, when the Kyoto Protocol set the first binding emission caps to industrialised countries for the period of 2008–2012. A second commitment period under the Kyoto Protocol was agreed in the Doha climate meeting in December 2012. Due to the limited coverage of Kyoto caps, which only apply to around 15% of global emissions, parallel negotiations are ongoing under the Ad Hoc Working Group on the Durban Platform for Enhanced Action (ADP) on a global treaty that aims to limit the GHG emissions of all major emitters from 2020 onwards.

During 2010, developed and developing countries submitted pledges for limiting emissions by 2020. These non-binding pledges represent a shift away from the top-down Kyoto approach of mandatory caps towards a bottom-up pledge-and-review approach. Current pledges are insufficient for keeping the world on the two-degree trajectory. According to UNEP,² global emissions must be reduced by 12 Gt below business-as-usual levels by 2020 to keep the two-degree target within reach. Current pledges would reduce emissions by 2–6 Gt below business-as-usual, leaving a gap of 6–10.5 Gt in mitigation ambition. Thus, to remain on track, a significant increase in ambition levels is urgently needed already before the new global agreement enters into force in (or after) 2020.

Developed countries have pledged to mobilize new climate finance of 100 billion USD per year by 2020 to support mitigation and adaptation in developing countries. A significant share of this finance is expected to

¹ UNFCCC (1992): Background publication 1992.

² UNEP Synthesis Report (2011).

come from private sector sources, for example via market mechanisms. The Green Climate Fund (GCF) was launched at the Durban climate conference in 2011 to “play a key role in channelling new, additional, adequate and predictable financial resources to developing countries and will catalyse climate finance, both public and private, and at the international and national levels.” The GCF, including its private sector window, “may employ results-based financing approaches, including, in particular for incentivizing mitigation actions, payment for verified results, where appropriate.”³

1.2 Global carbon markets: meeting targets cost-effectively

Market-based mechanisms can serve as tools for identifying and implementing cost-effective mitigation action, thus ensuring that climate policies and targets are achieved at lowest cost. With such cost-containment tools at hand, countries may be willing to commit to more ambitious targets than without access to market-based instruments. In principle, the greatest efficiency gains are achieved under a global carbon market with maximal coverage. Direct and/or indirect linking of domestic and regional carbon market schemes can enable a gradual shift from fragmented to global carbon markets and hence encourage countries to adopt increasingly ambitious targets. And vice versa: limiting linking and access to international market mechanisms can make countries reluctant to increase ambition.

The current global carbon market consists of a mosaic of various types of market mechanisms and trading schemes. In this report, “GHG unit” refers to all types of units that represent one tonne of carbon dioxide equivalent (tCO₂e) and can be traded in the carbon markets. Market-based systems can be categorised as cap-and-trade schemes and baseline-and-credit schemes, depending on how the GHG units are generated. Cap-and-trade schemes create allowances *ex ante* which can be allocated free of charge or via auctioning. Baseline-and-credit schemes often exist outside a capped environment, and carbon credits are generated *ex post* by individual emission reduction projects or programmes against a pre-approved crediting baseline.

In 2001, agreement on the rules of the Kyoto Protocol’s market-based mechanisms marked the emergence of the global carbon market. The Kyoto Protocol creates an international cap-and-trade scheme for developed (so-called Annex I) countries, whereby parties are issued Assigned

³ UNFCCC/FCCC/CP/2011/9/Add.1.

Amount Units (AAUs) equivalent to their Kyoto cap. The Protocol also introduced two baseline-and-credit schemes, the Clean Development Mechanism (CDM) for emission reduction projects in developing (non-Annex I) countries and Joint Implementation (JI) for projects in Annex I countries. International Emissions Trading (IET) under the Kyoto Protocol enables countries to trade all types of Kyoto units, such as AAUs from the Kyoto cap, Certified Emission Reductions (CERs) from CDM projects and Emission Reduction Units (ERUs) from JI projects. Notably, Parties can also authorise private entities to trade, thus offering private sector direct access to carbon markets. When a baseline-and-credit scheme exists within a capped environment, as is the case with JI, credit issuance requires the conversion of an equivalent amount of AAUs into ERUs to avoid double-counting of the emission reductions.

Under the UNFCCC, which also includes Kyoto non-ratifiers and aims for a global climate treaty, parties have agreed to establish a New Market Mechanism (NMM) and a Framework for Various Approaches (FVA), including market-based approaches “to enhance the cost-effectiveness of, and to promote, mitigation actions”.⁴ This NMM might supply the global carbon market with new types of international carbon credits, for example credits from Nationally Appropriate Mitigation Actions (NAMAs) and market-based approaches have also been considered in the context of Reducing Emissions from Deforestation and Forest Degradation (REDD) in developing countries. The FVA might serve as a mechanism for UN recognition of various GHG units developed outside the UN framework and expand fungibility (acceptance) of such units. Any units generated from market-based mechanisms to be established under the UNFCCC may be used for compliance also under the second commitment period of the Kyoto Protocol, which runs from 2013 until the end of 2020.⁵

In 2005, the global carbon market significantly expanded in scope and volume through the launch of EU’s installation-level cap-and-trade scheme, the EU Emissions Trading Scheme (EU ETS), whereby Member States assigned part of their Kyoto commitments to high-emitting industries. Installations covered by the scheme must cover their GHG emissions with EU Allowances (EUAs) and, within certain limitations, CERs and ERUs.

Besides the EU ETS, several other regional or national emissions trading schemes exist or are emerging worldwide, from Australia, New Zealand and South Korea to California and Quebec. Various developing countries are also considering and developing market-based approaches, with China at the most advanced stage.

⁴ UNFCCC: FCCC/CP/2010/7/Add.1.

⁵ UNFCCC: FCCC/KP/CMP/2012/L.9.

The existing and emerging market-based schemes vary in terms of objectives, nature (mandatory vs. voluntary), level (international vs. regional vs. domestic) and rules on e.g. scope, target-setting, allocation method, credit eligibility and price formation. Various types of credits and allowances are traded in the markets, each with their own compliance values and thus, differing supply and demand profiles and dynamics. This fragmentation, which may well increase in the future, complicates the linking of schemes and the balancing of global demand and supply.

1.3 Market in crisis: Weak carbon credit demand

To date, the demand for international (Kyoto) carbon credits in the compliance markets has been driven by industrialised countries and EU/Japanese companies aiming for compliance under the Kyoto Protocol and regional/national schemes, respectively. Kyoto carbon credits, namely CERs and ERUs, are supplied by CDM and JI projects, respectively.

The global carbon market is currently in crisis. Significant oversupply of Kyoto units is likely to persist under current market conditions, specifically the lack of mitigation ambition.⁶ Oversupply – or, under-demand – will depress the market price, and the incentive for mitigation action. This oversupply is already evident in the credit markets, with secondary CER and ERU prices well below one euro in December 2012 compared with their peak of almost 35 euros in mid-2008, followed by a period of relatively stable prices of around 15 euros between 2009 and mid-2011.

The carbon markets are regulated by international and regional agreements or national policies. With prices at their current low, the relevance of the carbon markets for the private sector is diminishing, both in terms of business opportunities that these markets offer, and in terms of the financial and regulatory incentive these markets create to reduce emissions.

Paradoxically, this oversupply is partly due to the success of the carbon markets. CDM and JI have managed to attract an unprecedented amount of private sector investments for mitigation action. Arguably, as both mechanisms are streamlining their operations and strengthening their institutional resources, they could potentially be even more successful in scaling up mitigation action in the future if the market price for international credits was strong enough to incentivise such investments. From the perspective of the two-degree target, the market crisis is not to be blamed on excessive supply of emission reductions but the lack of demand due to insufficient ambition of countries' climate com-

⁶ World Bank (2012) and CDC Climat Research WorkingPaper No. 2011–10.

mitments. To date, the international community has failed to commit to sufficiently ambitious mitigation commitments and action to achieve the agreed goal of limiting warming to two degrees. The global economic downturn has reduced demand for carbon credits further via reduced emission levels. Meanwhile, voluntary private initiatives undertaken by entities ranging from large corporations to households and individuals seem to be maintaining and gaining momentum – testimony of broad-based support for climate action and ambition. Although these initiatives may go some way in filling the void caused by weak political ambition, they are unlikely to close the ambition gap.

While the private sector contributed to the successful generation of large amounts of CERs and ERUs during the past decade, its appetite to invest further in CDM and JI project is rapidly fading due to low prices and future uncertainty. This is a concern since the private sector has a crucial role to play for developed countries to meet their financial commitments towards developing countries in terms of financing mitigation action. Provision of continuous incentives for low-carbon investments to the private sector is also critical for preventing the lock-in of carbon-intensive infrastructure. To date, carbon markets have been by far the most effective mechanism for leveraging private sector finance for mitigation. Effective alternative instruments to mobilise private funding are absent. Whether and how private sector confidence can be restored are key factors affecting the future balance of supply and demand in the carbon markets as well as for the ability to mobilise finance of sufficient scale to keep the world on the two-degree trajectory.

1.4 Aims and structure of the study

This study aims to provide policy-relevant insights into the future supply and demand in the carbon markets, particularly in the light of fragmented markets and the emergence of various market-based approaches in developed and developing countries as well as under international climate negotiations. Specifically, the study aims to conclude with a discussion on political options to tackle the lack of ambition, and consequent lack of demand for mitigation action.

This study focuses on compliance trading, that is, markets driven by mandatory caps under the Kyoto Protocol or domestic/regional emissions trading schemes. An analysis of the voluntary markets is beyond the scope of this study.

Section 2. explores the outlook of the carbon markets, presenting current and expected future sources of demand and supply under various scenarios. Section 2.2 considers options for boosting ambition and international credit demand.

Section 3 investigates the requirements for linking various emissions trading schemes, for fungibility (compatibility) of various GHG units, and for bilateral or regional trading between EU and other schemes.

Section 4 provides an overview of current negotiation positions of key countries in the international negotiations on issues relevant for the supply and demand of international carbon credits, and linking of various emissions trading schemes.

Section 5 concludes the study by summarising key findings and presenting political options available to Nordic countries for addressing the current demand crisis of international credits, and the potential for utilising the leverage effect of market mechanisms on encouraging higher ambition in climate policy.

2. Options to boost ambition and credit demand

This section provides an overview of the status and trends of the carbon market, followed by consideration of options for addressing the lack of ambition and international credit demand.

2.1 Status and outlook of carbon markets

Below, the status and outlook of demand and supply sources for international credits (CERs and ERUs) are presented, and the supply-demand balance is investigated under various scenarios.

2.1.1 Demand for international credits

Demand for international credits during 2008–2012 is driven by the internationally binding Kyoto caps whereas 2013–2020 demand stems mainly from voluntary pledges,⁷ some of which have been converted into nationally/regionally binding targets and new Kyoto caps.

Governments are responsible for reaching targets in all sectors where it has not transferred the emission reduction burden to e.g. companies via an installation-level ETS. Compliance with the ETS target is the responsibility of covered installations. Sovereign and private demand for international credits depends on the extent to which their use for compliance is allowed, as well as the required level of the mitigation effort.

To date, EU has been the main source of demand for CERs and ERUs, representing over 80% of the total demand.⁸ EU demand stems from two sources: EU Member States and EU ETS installations.

EU Emissions Trading Scheme

The EU ETS covers approximately 50% of EU emissions, but its share of the emission reduction burden is higher, reflecting its high emission intensity and emission reduction opportunities.

⁷ Although some Kyoto Parties have translated their voluntary pledges into binding caps under the Kyoto Protocol's second commitment period, demand associated with the second Kyoto caps is equivalent to the voluntary pledges made by the Parties joining the second commitment period.

⁸ About 84 % of total demand according to the World Bank (2012): State and Trends of the Carbon Market 2012.

EU ETS installations may use CERs or ERUs for compliance purposes up to a certain limit and subject to certain qualitative restrictions (see table 1.) Under the current -20% target, EU ETS installations are allowed to use up to 1.75 billion international credits (CERs or ERUs, or other possible credits allowed via bilateral agreements) towards compliance during the period 2008–2020. Estimates of EU ETS demand range between 1.33 and 1.75 billion credits. Under the -30% target, EU ETS demand for international credits is estimated to be between 1.774–2.750 billion credits.⁹

The EU ETS covers installations from 27 EU Member States plus Iceland, Liechtenstein and Norway.

EU Member States and Norway

During 2008–12, EEA¹⁰ reports that ten EU-15 Member States (Austria, Belgium, Denmark, Finland, Ireland, Italy, Luxembourg, the Netherlands, Portugal and Spain) plan to cover part of their non-ETS emissions with units acquired through the Kyoto mechanisms, namely CERs, ERUs and AAUs, to meet their Kyoto commitments. In total, these countries had planned to purchase up to 84 Mt CO₂e per year (total of 420 Mt) for compliance purposes in the period 2008–2012. However, between 2008–11, Member States used only an average of 31.8 Mt CO₂e of Kyoto units per year – considerably less than the expected annual average. Estimates of overall Member State demand during 2008–2012 range between 238 and 584 million tCO₂e.¹¹ Point Carbon's estimate from September 2012¹² amounts to 325 Mt, including 81 Mt of AAU purchases. This would imply total CER and ERU demand of roughly 240 Mt during 2008–12, some 58% less than expected. Norway's demand for international credits is estimated at around 30 Mt during the 2008–12 period.

During 2013–20, EU's Effort Sharing Decision (ESD) allows Member States to use Kyoto credits (CERs and ERUs) towards compliance by up to 3–4% of their Annual Emission Allocation (AEA) for the non-ETS sector, totalling 750 MtCO₂e of CERs/ERUs. Kyoto credit quotas and part of the AEA can be transferred to other Member States, and banking and limited borrowing are also allowed.¹³ Estimates of Member State demand during 2013–2020 range from 396 to 792 Mt.¹⁴

Adoption of the more stringent -30% target would increase the non-ETS sector target from -10% to -16% below 2005 emissions,¹⁵ decreas-

⁹ CDC Climat Research Working Paper No. 2011–10.

¹⁰ EEA (2012).

¹¹ CDC Climat Research Working Paper No. 2011–10.

¹² Point Carbon (2012): Carbon Project Manager database. (Accessed 4.11.2012).

¹³ EEA (2012).

¹⁴ CDC Climat: Research Working Paper No. 2011–10.

¹⁵ European Commission COM(2010)265 final.

ing the emission budget to 2,261 MtCO₂e.¹⁶ The ESD does not specify how moving to the -30% target would impact the credit quota. Assuming that 50 percent of the additional reductions can be used by Kyoto credits, the additional quota is estimated to be 373 Mt. However, the actual demand will probably be lower.¹⁷

Overall, EU Member States are estimated to over-achieve their 2020 non-ETS targets by 33.97 and 222.72 MtCO₂e without and with additional measures, respectively. Without additional measures, 15 countries (Austria, Belgium, Denmark, Estonia, Finland, France, Greece, Ireland, Italy, Latvia, Luxemburg, Malta, Slovenia and Spain) are estimated to face shortfalls totalling 83.56 MtCO₂e, and even with additional measures, six of these countries would remain 13.2 MtCO₂e short of their 2020 target.¹⁸ The estimated total shortfall of under-achieving Member States is well below the 750 Mt quatum for credit use even without additional measures, suggesting that EU Member State demand will be below the allowed maximum use unless EU adopts stricter targets and/or experiences faster emissions growth than estimated.

Norway currently has plans to purchase approximately 30 Mt of carbon credits during 2008–12 and allocated a further 630 million kroner (approx. 85 million euros) for carbon credit purchases in their draft budget for 2013, with an intention to utilise Kyoto mechanisms to a “significant extent” in the post-2012 period.¹⁹

Qualitative restrictions on international credits

Besides the qualitative restrictions already in place (See table 1), the European Commission has informed that further bans on project types are possible. In autumn 2012, the European Commission reportedly proposed to limit the ability of EU ETS installations to utilize ERUs that are issued after 31 December 2012. If implemented, such restrictions could cut ERU supply by some 100 Mt according to CDC Climat.²⁰

Project type bans do not concern the non-ETS sector; project types that were eligible in the EU ETS in 2008–2012 are eligible under the ESD during 2013–2020. However, some EU Member States, including Denmark, Finland and Sweden, have voluntarily declared that they will refrain from the use of such CERs in the 2013–2020 period under the ESD.²¹

¹⁶ European Commission staff working paper WD (2012) 5 final.

¹⁷ CDC Climat Research Working Paper No. 2011–10.

¹⁸ EEA (2012).

¹⁹ Ministry of Environment Norway (2012).

²⁰ CDC Climat (1/9/2012).

²¹ Council of European Union (2011).

Allowed use of CERs and ERUs in 2008-2020

Total some 1.7-1.75 billion CERs by 2020 (20% target) or to 2.6-2.75 billion CERs (30% target). This includes:

- Existing installations: The higher of the amount allowed in 2008-2012 and 11 % of 2008-2012 allocation
- New installations: 4.5% of 2013-2020 emissions
- Aviation: 1.5% of 2013-2020 emissions
- In total max 50% of the required emission reduction within the scheme

Eligible CERs and ERUs

- Post-2012-registered projects:
 - Eligible only if located in the Least Developed Countries or in countries who have bilateral agreements with the EU (none to date)
- Pre-2012-registered projects:
 - Generally eligible
 - Credits from HCF and adipic acid N2O projects banned from May 2013 onwards

Source: CDC Climat Research Working Paper No. 2011–10; Official Journal of the European Union, Directive 2009/29/EC of the European Parliament and of the Council of 23 April 2009, amending Directive 2003/87/EC so as to improve and extend the greenhouse gas emission allowance trading scheme of the Community (2009). European Commission (2011): Climate Action Newsroom (8/6/2011).

Australia

Australian installations were initially allowed to cover up to 50% of their emissions with Kyoto credits, including potential credits from new market mechanisms. Credits from CDM projects that are registered post-2012 are accepted as long as they are recognised by the Kyoto Protocol. Project type restrictions are the same as under the EU ETS.

However, Australian CER demand potential was slashed in August 2012, as Australia and the EU announced their intentions to link their emissions trading schemes. A one-way link, allowing EUA imports into the Australian scheme, is planned for mid-2015 and full linking no later than July 2018. This linking is set to reduce Australian CER demand considerably, as part of the 50% quota for international credits would be reserved for EUAs. Consequently, the use of CER and ERUs would be reduced to 12.5% of Australian installations' emissions.²²

Based on emission projections by the Australian Government,²³ the quota for CERs and ERUs (12.5% quota) is estimated to be some 45 mil-

²² European Commission (2012).

²³ The treasury of Australian Government (2012).

lion units per year or 270 million units by 2020. Barclay's estimates Australian CER demand at 210 Mt.²⁴

New Zealand

Installations covered under the New Zealand ETS are allowed to use CERs and ERUs without quantitative quotas. In the end of 2011, the same qualitative restrictions were introduced as under the EU ETS.²⁵ In 2011, 73% (8.4 Mt) of the units surrendered under the scheme were CERs or ERUs.²⁶ In October 2012, the opposition Labour party proposed introducing a quantitative limit to international credit use in the forthcoming amendment of the ETS bill, thus re-directing demand to domestic forestry credits.²⁷

Point Carbon estimates total New Zealand demand for international credits by 2020 at 50 Mt.²⁸

Japan

The Japanese government and companies have been the largest buyer in the global carbon markets to date. Japanese demand is driven by voluntary agreements between the government and major industries.

During 2008–12, Japanese demand for international units (CERs, ERUs and AAUs) is estimated at 200–372 Mt.²⁹ Recent Point Carbon estimates set Japan's Kyoto demand at only 102 Mt, of which 75.5 Mt have already been met with AAUs rather than with CERs and ERUs, suggesting that Japan has largely turned away from the CDM and JI market.

Meeting its pledge to reduce emissions by 25% below 1990 levels by 2020 requires mitigation efforts of almost 190 Mt. Japan's estimated demand for international credits by 2020 may be up to 80 Mt.³⁰ In addition, Japan has been developing its own Bilateral Offset Credit Mechanism (BOCM), whereby Japan would supply low carbon technologies, products and services to the partner (developing) country and receives offset credits in return. This mechanism may compete with Japanese future demand for international credits.³¹ Japan is not expected to impose any qualitative or quantitative restrictions for the use of international credits, making it the main source of demand for "grey" CERs³² post-2012.³³

²⁴ Carbon Trading Magazine (10/2012).

²⁵ World Bank (2012).

²⁶ New Zealand Government (2011).

²⁷ Point Carbon News (25/10/2012).

²⁸ Point Carbon (2012): Carbon Project Manager database.

²⁹ CDC Climat Research Working Paper No. 2011–10.

³⁰ CDC Climate Research (2012).

³¹ Ibid.

³² "Grey" CERs refer to CERs that are ineligible under the EU ETS in the third phase.

³³ Point Carbon (2012): Carbon Project Manager database.

Others

There are also other mandatory and voluntary emissions trading schemes operating or emerging, for example in California, China, Colombia, Costa Rica, Kazakhstan, Quebec, Mexico and South Korea. These schemes are expected to allow the generation of certain types of credits (or offsets) in the non-trading sector and their use for compliance in the trading sector, but they do not currently constitute a demand source of international credits.

However, by absorbing domestic credits in domestic trading schemes, developing countries may reduce the supply of international credits in cases where the domestic projects would have otherwise supplied the international market (see Box 3. for a case study on China).

In this section, the potential impact of these emerging schemes on the supply and demand of international credits is assumed to be zero or close to zero, due to lack of data to suggest otherwise.

Table 1. Summary of the CER/ERU demand sources by 2020 (billion units)

Demand source :	Average (EU20%)	Low scenario	High scenario	Average (EU 30%)
EU ETS	1.54	1.33	1.75	2.262
EU Governmental	0.984	0.634	1.334	1.357
Japan	0.326	0.2	0.452	0.326
Australia ETS	0.235	0.2	0.27	0.235
New Zealand ETS	0.05	0.05	0.05	0.05
<i>TOTAL :</i>	<i>3.135</i>	<i>2.414</i>	<i>3.856</i>	<i>4.23</i>

2.1.2 Supply of international credits

CER supply

According to UNEP Risoe,³⁴ some 12,000 projects have started CDM validation. 4,685 of these projects have achieved registration and 4,336 projects are still in the approval process. The rest have been rejected, terminated or withdrawn. The number of new projects starting validation has reduced during 2012, but a significant number of new projects have been entering the pipeline within the second half of 2012, racing to meet the December 2012 deadline for EU eligibility (Figure 1).

³⁴ UNEP Risoe (2012).

Figure 1. Number of CDM projects started validation in each month and their status in September 2012, and the corresponding CER volume based on PDD estimates

Source: UNEP Risoe (2012).

The Project design document (PDD) volume of the active CDM pipeline³⁵ is 12.2 billion CERs by 2020. Of this, projects that have been registered and already issued CERs account for 4.4 billion; projects that are registered but not yet issued for 3.1 billion; and projects in the earlier phases for 4.7 billion. However, not all of the PDD volume is likely to materialise as delivered CERs.

The expected CER volume by 2020 is scaled down to 6.8 billion credits by adjusting the PDD volume with the historical registration and issuance success of different CDM project types, and assuming issuance in the year following generation. The estimate is further reduced to 6.0 billion if it is assumed that only 50% of renewable crediting periods will be renewed and that projects that have been under validation for two years or more will not achieve registration. This expected volume does not assume any new projects start validation.³⁶

The expected volume is further adjusted to reflect the qualitative restrictions on eligible credit types under the European, New Zealand and Australian schemes, and the European restriction on registration date. Exclusion of CERs from the industrial gas projects (HFC and adipic acid N₂O) from 2013 onwards reduces the expected volume down to 5.4 billion. Of this, 4.3 billion would be from pre-2013 registered projects and thus eligible in the European scheme (consisting of 3.9 billion from already registered projects and 0.4 billion from projects that will still be registered by end of 2012).³⁷

This expected volume is in line with recent CER supply estimates by selected analysts³⁸ during 2012, ranging from 3.9 to 4.5 billion of EU ETS eligible CERs by 2020.

The collapse in the CER price can be expected to slow down CER supply at some stage by reducing incentives to invest in new CDM projects and also by increasing the unit transaction costs of CER issuance for existing projects. Analysis of the potential impact the low CER price on CER supply is beyond the scope of this study due to lack of empirical evidence, but it is reasonable to expect that its negative impact on CER supply will be non-negligible.

³⁵ Projects that have been registered or are under validation/determination and that have not been rejected or withdrawn from validation/determination.

³⁶ The data source of the supply analysis is IGES CDM Project Database (version that contains CDM project info as of 31. Aug 2012.).

³⁷ Ibid.

³⁸ CDC Climat Research Working Paper No. 2011-10 and Point Carbon (2012).

ERU supply

According to UNEP Risoe,³⁹ 641 JI projects have entered the JI determination process as of October 2012. Of these projects, 419 have been registered, 28 withdrawn or rejected and 194 are at determination. PDD volume (pre-2013) of active JI projects³⁵ is about 0.92 billion ERUs consisting of 0.65 billion from registered projects and 0.28 billion from projects that are still at validation. In the beginning of October, 0.23 billion ERUs had been issued.

According to Point Carbon,⁴⁰ a total of 0.26 billion ERUs have been issued as of October 2012, and total ERU supply is estimated at 0.52 billion units. Half of the total ERU supply is expected to originate from Russia, and a further 35% from Ukraine. Russia recently removed its self-imposed ERU cap of 0.3 billion ERUs, but estimates of total Russian ERU supply remain below this cap, at around 0.26 billion, of which 0.08 billion had been issued by October 2012. CDC Climat's ERU supply forecast is slightly lower at 0.485 billion ERUs (issued by 1 May 2013), of which 0.335 billion could be issued by 1 January 2013.⁴¹

For the analysis of supply and demand, we assume the ERU supply to amount to 0.5 billion credits by 2020. This scenario does not include any ERU supply from emission reductions generated, or new JI projects registered after 2012, although the former are eligible under the EU ETS, at least in principle. There are several reasons for assuming zero ERU supply from post-2012 emission reductions and projects. Firstly, the second commitment period under the Kyoto Protocol has not yet been confirmed and thus, there are no second commitment period AAUs against which to issue post-2012 ERUs. Furthermore, it seems that there will be few potential JI host countries joining the second Kyoto period, as Russia has indicated that it will not join and new JI projects in EU Member States are not able to generate EU-eligible ERUs. In any case, the carbon market seems to be significantly over-supplied already with credits supplied by existing CDM and JI projects and the current low ERU prices do not incentivize investments in new JI projects. Finally, the European Commission has proposed to limit use by EU ETS installations of ERUs issued after 31 December 2012 via an amendment to the registry regulation. If implemented, such restrictions could cut ERU supply into the EU ETS by some 0.1 billion according to CDC Climat.⁴² In the EU ETS Directive, ERU eligibility is linked to the period of generating the underlying emission reductions rather than the issuance date. The possibility of extra ERU restrictions increase their risk compared to CERs and thus, they currently trade at a discount to CERs.

³⁹ UNEP Risoe (2012).

⁴⁰ Point Carbon Analysis, (23/10/2012).

⁴¹ CDC Climat (1/9/2012).

⁴² Ibid.

Figure 2. The current CDM pipeline compared to the anticipated demand of the UN carbon credits (billion units by 2020)⁴³

- 1) Expected volume from current CDM/JI pipeline.
 2) Same as vol.1, but HFC, N2O excluded from 2013-.
 3) Same as vol.2, but only pre-2013 registered.
 4) Same as vol.2, but China excluded from 2015.

2.1.3 Supply and demand balance

Figure 2 and 3 summarise the anticipated supply and demand of CERs and ERUs discussed in the earlier sections. As concluded in section 2.1.1, the total demand for CERs and ERUs is estimated at some 3.1 billion credits by 2020. Our CER supply analysis indicates that already registered CDM projects that meet the tightest eligibility criteria (the qualitative restrictions of the EU ETS) could generate some 3.9 billion CER which already exceeds the anticipated total demand for international credits by 0.7 billion units by 2020 (see Figure 2, Column “Expected vol3”). Moreover, 0.5 billion credit are expected from the JI projects and 0.4 billion from CDM projects that still have a fair chance to achieve registration by the end of 2012. Thus, the sup-

⁴³ Expected volume includes PDD volumes of all active CDM projects adjusted by historical registration and issuance performance of the projects. Expected volume 2 is otherwise the same, but reflects qualitative restrictions of the European and the Australian ETS by excluding HFC and N2O reduction projects from 2013 onwards. Expected volume 3 reflects the qualitative restrictions of the European scheme by excluding also projects to be registered after 2012. Expected volume 4 illustrates the case where Chinese credits are taken away from the market from 2015 onward as discussed in (Section 2.2). Figure 2. illustrates also the role of Chinese supply (Column “Expected vol4”): Diversion of all Chinese CERs from 2015 onwards into a domestic market has the potential to bring the international supply and demand more or less to balance. The prospects for such a diversion are considered further in Box 3.

ply of EU ETS eligible credits could exceed the total demand for international credits by around 1.7 billion. Moreover, some governmental demand for credits may be fulfilled by AAUs.

Figure 3. Demand and supply of international credits by 2020 (billion units, cumulative)⁴⁴

In conclusion, it seems likely that the market of UN credits will be oversupplied by 2020 by one billion international credits or more. The expected oversupply is already reflected in the collapsing prices of CERs and ERUs and their de-coupling from the EUA price (Figure 4). As mentioned above, the collapse in the CER price may start to slow down CER supply at some stage by reducing incentives to invest in new CDM projects and also by increasing the unit transaction costs of CER issuance for existing projects, which could from its part decrease the surplus from the estimated. However, such “pending supply” might enter the markets quickly, should carbon prices recover.

⁴⁴ CER supply adjusted as follows: PDD volume adjusted by historical registration and issuance success of CDM projects; only CDM projects that have started validation by Sep 2012 considered; projects that have spend over 2 years at validation not considered; only 50% of the renewable crediting periods considered; CERs from HFC and N2O reduction projects excluded from 2020 onward.

Figure 4. sCER and EUA price development

Source: InterContinentalExchange (ICE).

2.2 Options to boost ambition and demand

This section explores measures and circumstances that could be created to boost ambition and overall demand for international carbon credits, taking into account the trend towards fragmentation of carbon markets.

Overall demand for various types of credits is the sum of several fragmented markets with varying rules and criteria, as well as complex dynamics and interactions.

The following types of complementary and partially overlapping options to increase demand are considered:

- increasing the ambition of pledges of both developed and developing countries, coupled with wide use of international credits towards compliance and recognition of such compliance in the UN context.
- encouragement of the use of international credits within and across existing and emerging trading schemes through extensive linking and utilisation of international credits, and encouragement of establishment of new trading schemes.
- encouragement of voluntary demand for international credits.
- boosting of ambition and new international credit demand through dedicated public or public-private credit purchase vehicles.

2.2.1 Increasing ambition under the UN framework

Ambition drives demand

Ambitious targets are the ultimate driver of demand for tradable GHG units, including international credits. The ambition level of the target determines the needed emission reduction effort compared to business-as-usual. National, regional and sectoral targets determine the distribution of efforts between countries and sectors and thus, potential sources of supply and demand for international carbon credits which embody mitigation efforts, to the extent that trading of such credits is allowed.

Theoretically, the maximum potential demand for international carbon credits would be equal to the mitigation gap between the target and the business-as-usual levels, assuming that there were no restrictions for the use of international carbon credits towards compliance. Thus, having a meaningful level of ambition – that is, a target that leads to sufficient deviation from business-as-usual to remain on the two-degree trajectory – is central to increasing demand for international carbon credits. In case of unambitious targets, there are no significant costs associated with achieving the targets, and consequently no need for market-based mechanisms and international carbon credits for lowering those costs.

Current pledges insufficient

Since Copenhagen, 42 developed countries and 44 developing countries have submitted voluntary pledges on limiting their GHG emissions by 2020. These countries represent 75% of global emissions.⁴⁵ Many of the pledges contain a range of targets, with the low end of the range unconditional and the high end of the range conditional to certain events such as other countries adopting equivalent targets or providing financial and technological support, and the availability of market-based instruments to contain the costs of compliance. To improve transparency and comparability across pledges, many Parties have already submitted further information on data sources and assumptions associated with their pledges.

The current ambition level is widely acknowledged as falling significantly short of the level needed to remain on the two-degree trajectory. According to UNEP,⁴⁶ current pledges lead to an ambition gap of 6–10.5 GtCO₂e between the targets and the reductions needed to remain on track to keep warming below two degrees (see table3). The associated warming is estimated at over 3 degrees.⁴⁷ This lack of ambition, and associated weak demand for international carbon credits, is reflected in

⁴⁵ Netherlands Environmental Assessment Agency (PLB) (2012).

⁴⁶ UNEP (2011): Bridging the emission cap.

⁴⁷ Climate Action Tracker (2012): Technical paper: Changes in Temperature estimates.

the considerable over-supply and depressed prices in the global carbon markets, as presented in section 2.1 above.

Obviously, the realisation of the ambition requires full implementation of pledges. Many major emitters, namely Australia, Canada, Japan, Mexico, South Africa, South Korea and the U.S., are not on track to achieve their existing targets with current policies.⁴⁸ Publicly available progress tracking, as provided by the Climate Action Tracker,⁴⁹ can offer independent material to exert pressure via name-and-shame to under-performers, but ultimately countries respond best to pressure by their own citizens.

Accounting rules count

Accounting rules play a critical role in determining the de facto ambition level of pledges, and ongoing negotiations are thus key in ensuring genuine ambition. UNEP estimates that application of lenient accounting rules to current unconditional (low-end) pledges lead to an ambition gap of 10.5 GtCO₂e. Application of strict rules would reduce the gap by some 1 Gt. In case of conditional (high-end) pledges, the impact of rules is even greater: application of lenient rules implies an ambition gap would be 9 Gt while strict rules would reduce the gap by 3 Gt to 6 Gt (see Table 3).

By lenient accounting rules, UNEP refers to a situation where countries can meet part of their targets through surplus GHG units and allowances from Land Use, Land Use Change and Forestry (LULUCF) accounting. Under stringent rules, allowances from LULUCF accounting and surplus GHG units are not used for compliance. Double-counting of offsets must also be avoided through coordinated tracking of GHG units, and carbon leakage prevented through a level playing field.

LULUCF accounting rules for the post-2012 period were agreed at the Durban climate conference in December 2011. The potential impact of these rules is estimated to be relatively small, with LULUCF action constituting up to 2% of 1990 emissions for EU and Annex I parties as a whole.⁵⁰ Assuming that all Annex I countries adopt the new rules, LULUCF action's share of compliance would amount to 0.4 Gt which, under stringent accounting rules, would need to be achieved through additional (non-LULUCF) mitigation efforts. If some Annex I countries adopt their own, more lenient accounting rules for LULUCF, the impact could be even larger.⁵¹

Allowing surplus GHG units to be carried over from the first to the second commitment period under the Kyoto Protocol would imply lower

⁴⁸ Climate Action Tracker Update (3/9/2012): Governments still set on 3°C warming track, some progress, but many playing with numbers.

⁴⁹ Climate Action Tracker (2012).

⁵⁰ Grassi G. Den Elzen M.G.J., Hof A.F., Pilli R. and Federici S. (2012).

⁵¹ Netherlands Environmental Assessment Agency (PBL) (2012).

mitigation effort and lower *de facto* ambition in the post-2012 period. Without restrictions on the carry-over and use of surplus AAUs, Annex I Parties (excluding US) could carry over around 14 Gt of unused AAUs, CERs and ERUs and removal units from LULUCF activities. If the use of surplus units was restricted to domestic purposes only, the impact on ambition would be limited to 0.9–1.5 Gt.⁵²

Table 2. Increased ambition through higher pledges and stricter rules

Option to increase ambition and international credit (IC) demand	Mitigation potential (GtCO ₂ e)	IC demand potential (GtCO ₂ e)
Starting point: Business as usual (mitigation gap 12 Mt)	- 12	6.0
<i>Mitigation potential with existing pledges (max)</i>	<i>- 6.0</i>	<i>1.8</i>
Unconditional pledges (lenient rules)	- 2.0	
Conditional pledges (lenient rules)	-1.0	0.25
Strict accounting rules	- 3.0	1.5

Source: See Appendix 2.

Driving up pre-2020 ambition

Even if Parties agreed to implement strict accounting rules and move to the high end of existing pledges, overall ambition falls roughly 6 Gt short of the two-degree target. Hence, it is imperative that ambition is urgently increased to the upper range of pledges and beyond.

Further means to bridge the pre-2020 ambition gap through pledges include encouraging countries without pledges to submit meaningful pledges, and for countries with pledges to increase the ambition of their (high-end) pledges and/or to over-achieve their targets.

Countries that have not yet submitted pledges represent around 20–25% of global emissions. Applying strict accounting rules, their pledges could increase ambition by up to 1.2 Gt.⁵³

If Annex I countries moved from their current pledges ranging from 12–18% below 1990 levels to a more stringent 25%, this would narrow the ambition gap by 1.5 Gt. Moving to 30% and 40% would further reduce the ambition gap by 0.9 and 1.9 Gt, respectively, bringing global emissions to a level that is compatible with the two-degree target.⁵⁴

⁵² Ibid.

⁵³ Climate Action Tracker Update, (3/9/2012).

⁵⁴ Netherlands Environmental Assessment Agency (PLB) (2012).

Box 1. Nordic ambition leads away

Nordic countries are leading the way by over-achieving their Kyoto targets and committing to ambitious 2020 targets. Sweden aims to reduce its emissions by 4% from 1990 levels during 2008–12 and by 40% by 2020 to achieve climate neutrality by 2050. Thus, Sweden plans to over-achieve its Kyoto target of +4% compared to 1990 levels, as well as its share of the current EU target of -17% from 2005 levels by 2020 for the non-ETS sector. By 2020, Sweden's emissions will be around 20 Mt lower than in 1990, which is roughly 10 Mt beyond EU requirements. Similarly, Norway has pledged to over-achieve its Kyoto target by 10% (5 Mt), to reduce emissions by 30% by 2020 unconditionally, and – subject to an acceptable international climate agreement – to become carbon neutral by 2030. Denmark's 2020 target is among the most ambitious in the EU: reduction of Denmark's emissions by 40% from 1990 levels by 2020.

Source: Swedish EPA (2012); Ministry of Finance of Norway (2012); Lidegaard M. (2012); Personal communication with Sara Almqvist (19/12/2012); Swedish EPA and Personal communication with Stefan Nielsen (17/12/2012); Danish Energy Agency.

Table 3. Country-led options to increase ambition and international credit (IC) demand (GtCO₂e)

Option to increase ambition and international credit (IC) demand	Mitigation potential (GtCO ₂ e)	IC demand potential (GtCO ₂ e)
<i>Further mitigation potential by countries (max)</i>	-10.5	2.90
Annex I ambition from -17.5% to -25%	-1.5	0.75
Annex I ambition from -25% to -30%	-0.9	0.68
Annex I ambition from -30% to -40%	-1.9	1.40
New pledges from countries without pledges (Strict Accounting)	-1.2	
Planned but not mitigation in China	-0.7	
Planned but not mitigation in India	-0.6	
Reducing emissions from deforestation by 50% by 2020	-0.9	
Applying strict additionality rules for CDM projects	-0.4	
Reducing HFC emissions	-0.5	
Phasing out fossil fuel subsidies	-0.9	

Source: See Appendix 2.

Figure 5 Options for bridging ambition gap

Source: Netherlands Environmental Assessment Agency (PBL) (2012).

Table 3 and Figure 5 summarise various options available to governments to increase ambition, including mitigation potential in gigatonnes of carbon dioxide equivalent and a rough estimate of the possible role of international credits in achieving this mitigation potential (see Appendix 2 for underlying assumptions). While part of the individual options might overlap and the exact figures should be treated with caution, the table clearly illustrates the existence of scope for increasing ambition and also increasing demand for international credits to further narrow the current mitigation gap of approximately 6–11 Gt.

Tackling barriers to increased ambition

Often-cited barriers to increasing ambition are concerns over the economic costs of stringent climate policy and of competitive disadvantages and carbon leakage, especially in case of unilateral action. These concerns would be best addressed through a multilateral agreement that offers a level playing field, international support to facilitate developing country mitigation, and international cooperation and global carbon markets to ensure cost-effectiveness of mitigation efforts.

The link between countries' willingness to commit to binding targets and access to market-based instruments was clear at the time of negotiating the Kyoto Protocol in the 1990s. Agreement on the rules of market-based mechanisms in 2001 was a central trigger for the ratification and consequent entry into force of the Kyoto Protocol. Also regarding 2020 pledges, many countries have made access to cost-effective market-based instruments an explicit condition to increasing the ambition of their targets, as noted above and discussed in more detail in section 4.2 below.

Boosting international credit use

Although ambitious targets are an essential precondition for international credit demand, increasing ambition does not automatically boost demand for international credits. Take Denmark as an example: Denmark aims to reach their ambitious 2020 target fully domestically, and thus, Danish ambition does not result in additional international credit demand.

To support demand for international carbon credits, ambitious targets need to be coupled with extensive utilisation of international carbon market mechanisms. Theoretically, the gap between business-as-usual emissions and the emission budget consistent with the two-degree trajectory could be fully bridged with international credits. In reality, however, the demand for international credits will be limited by quotas and competition with alternative compliance tools such as national policies and measures, domestic offset schemes and trading of allowances and emission quotas.

For example, the Japanese Bilateral Offset Crediting Mechanism (BOCM) might divert Japanese demand away from international credits: although Japan's potential mitigation gap is almost 190 Mt, Japan is ex-

pected to cover only 0–96 Mt of this gap with international credits, with a similar or greater role envisaged for its BOCM.⁵⁵

The use of the Kyoto mechanisms for compliance is limited by the “supplementarity” requirement, whereby the Kyoto mechanisms should be “supplemental to domestic action” and “domestic action shall thus constitute a significant element of the effort made by each” Annex I Party in meeting their Kyoto targets.⁵⁶ Originally agreed as part of the Marrakesh Accords in 2001 laying out the rules for the first Kyoto period, this requirement was reconfirmed at the climate conference of 2011 in Durban to apply also in the future.⁵⁷ This requirement has not been quantified, but many Parties, such as the EU, have interpreted it to mean that at least half of the mitigation effort should be achieved domestically. However, Switzerland has indicated that it will use Kyoto mechanisms for up to 75% of its mitigation effort, and the New Zealand ETS covered over 70% of their annual emissions with international credits in 2011, suggesting more lenient interpretations of supplementarity.

Means to improve international credit use include:

- *Enhancing desirability and acceptability* of international credits: enhancing the cost-efficiency of the mechanisms through streamlined procedures and predictable rules. The generation of co-benefits beyond mitigation can broaden the support for the mechanisms among a wide range of stakeholders, thus reducing associated approval, implementation and reputational risk. Enhancing the environmental integrity, transparency, credibility and public acceptance of international credits can reduce the desire of countries to limit international credit use. However, if international credit use is restricted in order to support domestic investments, boosting environmental integrity and public acceptance of international credits will not help to ease restrictions. The economic crisis can pull both ways: recovery plans may aim to stimulate green growth domestically while tight budgets call for efficient and low-cost options offered by global carbon markets.
- *Maximising and facilitating access* to international credits: the demand base for international credits would be maximised by allowing also non-Kyoto Parties and Parties that do not sign up to second Kyoto targets to access international credits. Currently, many developing countries wish to restrict access to CERs, thus limiting already weak CER demand, in the hope of leveraging more countries to sign up to new Kyoto caps. International credits compete with

⁵⁵ CDC Climate Research (2012).

⁵⁶ UNFCCC: FCCC/KP/CMP/2005/8/Add.1

⁵⁷ UNFCCC: FCCC/KP/CMP/2011/10/Add.1

alternative mitigation tools in terms of cost, accessibility and political stability. Offering easy access to cost-effective international credits to governments, ETS installations and other potential credit buyers, through carbon funds and other investment vehicles can make international credits the mitigation tool of choice, thus maximising their actual utilisation rate.

Box 2. International credits and net mitigation

Discount factors, conservative baselines and limited crediting periods are means to enhance the acceptability – and in some cases, also demand – of international credits by introducing a net mitigation element to international crediting mechanisms. Under demand-side discounting, the credit buyer would be required to purchase more than one carbon credit to offset one tonne of emissions, or the host country would be required to purchase part of the issued credits. If the net mitigation is considered additional to existing pledges, discounting can increase ambition by requiring greater underlying mitigation effort to satisfy a given credit demand, financed by the credit buyer or host country. In the case of supply-side discounting, for example through conservative baselines and assumptions as well as limited crediting periods, the project owner is effectively sponsoring net mitigation action in the host country, since it receives carbon credits only for part of the achieved emission reductions. Under current CDM and JI, conservativeness and limited crediting periods are already applied, and further elements of net mitigation are under discussion and can be readily incorporated into these mechanisms. Similarly, the New Market Mechanism is expected to include some form of net mitigation, for example by setting crediting baselines or emission caps below business-as-usual levels.

Source: CDM Policy Dialogue (2012).

Broad-based support for, and confidence in the environmental integrity and cost-effectiveness of the global carbon markets and international carbon credits are essential for maintaining and increasing the role of international credits in mitigation efforts. Ideally, international credit standards would enjoy global acceptance so that individual countries or regions would not feel compelled to fragment the market by imposing quantitative and qualitative restrictions for international credits. A Framework for Various Approaches (FVA), possibly dealing with a range of different offset types, is currently being negotiated under the UNFCCC, with the aim to enhance the integrity and transparency of various market-based schemes via robust standards, common rules for tracking mitigation outcomes and prohibiting double-counting.⁵⁸ CDM and JI have

⁵⁸ UNFCCC: FCCC/KP/CMP/2005/8/Add.1

the potential to serve as global offset standards, provided that their shortcomings are addressed to ensure confidence in their environmental integrity and cost-effectiveness, and to garner support for their use among policy-makers, politicians, NGOs and the general public.⁵⁹ Both CDM and JI will be reviewed in the course of 2013 to enhance their efficiency, acceptability and relevance in the post-2012 era.

2.2.2 *Maximising use of international credits and linking under national and regional schemes*

The pledges discussed in section 2.2.1 are partly implemented through market-based mechanisms at national or regional level, such as emissions trading schemes. These schemes impose mandatory or voluntary targets to covered installations who may be allowed to use international credits towards compliance. Demand of international credits under such schemes depends on the acceptability and accessibility of international credits, that is, any quantitative and qualitative restrictions that the scheme administrator may impose on international credit use (as discussed in more detail in the previous section).

Mandatory and voluntary emissions trading schemes exist or are emerging worldwide, and numerous further countries and provinces are investigating opportunities to utilise market-based approaches to implement climate policy cost-effectively, for example under the World Bank's Partnership for Market Readiness (PMR).⁶⁰

Most planned schemes are expected to allow the generation of certain types of domestic offsets in the non-trading sector and their use for compliance in the trading sector, but only some schemes are expected to allow import of international credits. Nonetheless, by absorbing domestic credits in national trading schemes, developing countries can reduce the supply of international credits in cases where the domestic projects would have otherwise supplied the international market, thus alleviating the over-supply problem. Examples include China, South Korea, Colombia and Costa Rica, whose emerging emissions trading schemes are expected to accept domestic CER-type credits. Similarly, South African companies facing a carbon tax may opt to invest part of the tax in emissions reductions, thus creating demand for domestic CER-type offsets. China's domestic credit demand potential has been estimated to be up to 0.6 Gt per year (see Box 3).

⁵⁹ CDM policy Dialogue (2012).

⁶⁰ The World Bank: Partnership for market readiness.

If California and Quebec were to allow use of international credits under their current offset quotas, they could potentially create new demand (diverted away from domestic offsets) of up to 0.2 Gt by 2020.⁶¹

Box 3. Emissions trading and domestic offsets in China

China aims to utilize market-based approaches to achieve its climate target of reducing the emission intensity per unit of GDP by 40–45 % below 2005 levels by 2020. With support from the World Bank's Partnership for Market Readiness, China is preparing a roadmap for developing national market-based instruments.

Currently, several provincial and city-level emissions trading pilots are under different stages of development. These pilots intend to pave way for a nation-wide emissions trading scheme after 2015. The most advanced pilots in Beijing, Shanghai and Guangdong province are expected to start in 2013 or 2014 and aim to achieve emission reductions of some 3.5 million tonnes. Participation is mandatory for installations that exceed a certain emission or coal consumption threshold. The Guangdong market will be the world's fifth largest in terms of coverage.

All three schemes are likely to allow the use of domestic non-ETS emission reductions or "Chinese CERs" (CCERs) for compliance. New CDM-type projects and CDM projects without CER issuance are expected to be eligible to generate CCERs for the Chinese schemes. To the extent that existing CDM projects choose to supply credits to the Chinese markets rather than the CDM market, the CER supply would fall accordingly.

The pilot schemes are unlikely to generate substantial demand for CCERs, but the planned launch of a national emissions trading scheme after 2015 has the potential to significantly divert Chinese CER supply from the international to the domestic markets. If all CERs from existing Chinese CDM projects were absorbed by the domestic markets, this would reduce international CER supply by 28% to 1.5 Gt and potentially bring the supply and demand of international credits more or less to balance (see Figure 2). Sindicatum estimates China's credit demand potential to be 0.6 Gt.

Source: The World Bank: Partnership for market readiness; Razzouk W. and Phillips G. (2012) and Greenstream (2012).

2.2.3 Further options for wedging the gap

Voluntary demand may be a key source of increased ambition and demand especially in the short term, given the lead times of international policy-making. If countries fail to promptly demonstrate political will and leadership commensurate to the urgency and scale of the climate challenge under the UN framework, coalitions of willing – ranging from progressive governments, large corporations, international sectors,

⁶¹ Carbon Trading Magazine (7/8/2012).

mayors of major cities, non-governmental organisations (NGOs) to individual citizens – can voluntarily implement and finance mitigation action outside the UN arena. Such “complementary initiatives” have been recognized and discussed in the UN climate negotiations (see section 4.2).

A study by Blok *et al.*⁶² elaborates a bottom-up approach for “wedging the gap” through 21 initiatives, involving actors such as major cities, large companies and individual citizens, that together could trigger up to 10 gigatonnes of CO₂e by 2020 in addition to pledges by governments under the UN framework. These initiatives are already promoted by forerunners and offer co-benefits besides climate impacts to participants. Scaling these initiatives to their full potential, however, requires reinforcement through progress in top-down processes at national, regional and international levels. Top-down oversight is also needed to avoid double-counting of mitigation impacts, and to incorporate the successes of bottom-up initiatives into the UNFCCC process.

Key initiatives with considerable mitigation potential additional to current country pledges include, *inter alia*, voluntary offsetting by companies and consumers; reduced deforestation; phasing out subsidies for fossil fuels; boosting wind and solar photovoltaic energy; and reducing emissions from cars and trucks. Coalitions of major cities, large companies, progressive industries and governments, as well as environmental NGOs, wealthy individuals and green-minded citizens could wedge the mitigation gap resulting from weak ambition at UN level by 2020. Selected non-governmental activities amount to some (7) Gt, which might potentially lead to increased credit demand of (4) Gt (See table 5 and Appendix 2 for further details and underlying assumptions).

A voluntary initiative that is rapidly gaining political momentum is the Climate and Clean Air Coalition to Reduce Short-Lived Climate Pollutants.⁶³ Participation has expanded from 6 to 25 countries – including Denmark, Finland, Norway and Sweden – in less than a year. Besides governments, partners include NGOs and multilateral organizations such as World Bank and various UN bodies. Private sector participation is also encouraged. This voluntary partnership focuses on mitigating short-lived yet high-impact climate gases such as black carbon, methane and hydrofluorocarbons (HFCs). While such efforts slow down warming in the short run, they might not reduce the ambition gap in the longer run due to the short lifetime of the target gases. Nonetheless, the initiative’s significant mitigation potential of some 1 Gt is included in the summary table above.

⁶² Blok *et al.* (2012).

⁶³ UNEP: Climate and clean air coalition.

Table 4. Non-governmental options to increase ambition and international credit (IC) demand (GtCO₂e)

Option to increase ambition and international credit (IC) demand	Mitigation potential (GtCO ₂ e)	IC demand potential (GtCO ₂ e)
<i>Further mitigation potential via non-governmental initiatives (max)</i>	-6.6	4.0
Top 1,000s companies' emissions	-0.7	0.4
Voluntary offsets by companies	-2.0	2.0
Voluntary offsets by consumers	-1.6	1.6
Major Cities' Initiative	-0.7	
Sub-national governments	-0.6	0.06
Mitigation action by car and truck manufacturers	-0.7	
Mitigation measures by international shipping and aviation	-0.3	

Source: See Appendix 2.

2.2.4 Boosting ambition and demand via carbon credit purchase vehicles

Credit purchase vehicles as bridge over troubled water?

In the past, multilateral public-private carbon funds – such as the World Bank's Prototype Carbon Fund (PCF) and the Baltic Sea Region Testing Ground Facility (TGF) – and bilateral governmental purchase programmes – such as those of Denmark, Finland and Sweden – have played a central role in creating and developing the global carbon markets and stimulating demand for international carbon credits and maintaining and developing the carbon market. In the future, they can play an equally important role in facilitating international credit use. Funds do not increase credit demand *per se*, unless the acquired international credits are cancelled or used towards increased ambition rather than existing pledges. If such early action were to be somehow acknowledged in the 2020 global agreement, this could increase the motivation for participation.

Carbon credit purchase vehicles can cater for any or all of the three demand sources identified in the previous sections, driven by sovereign pledges, installation-level trading schemes and voluntary initiatives. By providing access to international credits, promoting the development of market-based mechanisms and offering a stable and predictable source of demand and upfront support for mitigation action, such vehicles can enhance confidence and encourage participation in global carbon markets. They can increase ambition in two ways: in the long run, easy access to robust carbon markets may encourage countries to increase the ambition of their pledges. In the short term, they can enable the purchase and cancellation of international credits, resulting in an immediate increase in ambition.

Extensive capacity readily available

In 1999–2000, the first multilateral public-private carbon fund (World Bank's Prototype Carbon Fund, PCF) and first governmental purchase programmes (by Finland and the Netherlands) were launched. Within a decade, the number of carbon funds and purchase programmes had

reached almost one hundred, capitalised at over 10 billion EUR.⁶⁴ During 2008–2009, a new wave of post-2012 carbon funds emerged in anticipation and support of a healthy post-2012 carbon market and agreement on an ambitious climate deal in Copenhagen in December 2009 – which failed to materialise.

Thus, there is ample institutional capacity and expertise to create additional demand on short notice, if capital to do so becomes available.

In its final report, the High-Level Panel on the CDM Policy Dialogue – commissioned by the CDM Executive Board to carry out an independent review of the CDM – urged parties to urgently address the current carbon credit demand crisis, for example by establishing a CER reserve bank, a CDM “stabilisation” fund and/or utilising the CDM (and JI) framework for making results-based payments against verified mitigation outcomes under the GCF.

Rationale and objectives

The rationale behind a carbon credit purchase vehicle is to increase pre-2020 ambition by providing uninterrupted, cost-effective incentives for mitigation throughout the period 2013–20, especially to the private sector, via purchase and cancellation of international credits.

Participants could potentially cover a broad spectrum of actors, ranging from governments and sub-national entities to industry, NGOs and individuals, all of whom share a common desire to contribute to increased pre-2020 ambition and to promote “early” (or transitional) private sector investments in mitigation action via market mechanisms. Alternatively, purchases could be structured via the GCF.

Design options

There are various ways to structure the credit purchase vehicle, depending on the goals and priorities of its participants. The vehicle may even be a fund that offers a range of investment windows for different types of potential participants.

Generic design options include:

- *Sovereign purchase programmes.* Sovereign purchase programmes offer a readily available option for governments to increase ambition by voluntarily withholding or retiring acquired international credits and thus serve as *de facto* CER reserve banks or vehicles for increased ambition. Many countries have already approved budgets and institutional structures available for further purchases of international credits but voluntary retirement would require changes in the political mandate of sovereign purchase programmes. During

⁶⁴ CDC Climate Research: Carbon funds in 2010.

the first Kyoto period (2008–12), many governments face lower carbon credit demand than initially expected and are scaling down their carbon credit purchase plans (e.g. Denmark, Norway and Ireland).⁶⁵ Austria has increased its purchase target substantially during 2012, while Spain has sent mixed signals about its purchase plans. The EEA expects at least Belgium, Ireland, Greece, Luxembourg, Malta and Spain, and possibly also Austria, Denmark, Estonia, Finland, France, Italy, Latvia, Slovenia to be potential credit buyers in the post-2012 period.⁶⁶ Sweden and Norway have also indicated their intention of purchasing international credits in the post-2012 period. Since Sweden plans to mainly use its credit purchases to cover its voluntary pledge beyond the EU target, the country is effectively already utilising its sovereign purchase programme for boosting ambition and international credit demand. Sweden may wish to highlight this point by voluntarily withholding or cancelling part or all of the acquired credits by 2020.

- *Public(-private) partnership by a coalition of the willing.* A coalition of like-minded governments and other actors could jointly establish a vehicle that purchases and either withholds or retires international credits from existing and/or new projects and/or from secondary markets. The acquired credits would not be counted towards the fund investors' reduction commitments.
- *Multilateral fund under the Green Climate Fund (GCF).* The GCF can use existing CDM (and JI) frameworks, or any other internationally accepted standards for measurement, reporting and verification (MRV) of mitigation results without having to create a new MRV framework. The GCF has the potential to become, at least in the medium term, an alternative or complementary structure for financing mitigation via international carbon credits. For now, the GCF remains a largely empty shell pending key decisions on its operationalisation and funding sources. However, once financial means are made available, existing capacity and institutional structures, like from the CDM and JI, can be relied upon. The GCF can contribute to increased ambition, by purchasing and cancelling Kyoto credits. However, funding used for this purpose should not be counted towards the developed countries' climate finance pledges.

Object of purchase

Credit purchase vehicles based on voluntary initiatives would be free to experiment with any combination of existing and new standards for

⁶⁵ Point Carbon's Carbon Project Manager data (accessed 2/11/2012).

⁶⁶ EEA (2012).

distributing finance, and even include payments for co-benefits and adaptation, should participants wish to do so.

Given that CDM (and Track 2 JI) are readily available international standards for measuring, reporting and verifying (MRV) mitigation outcomes and generating carbon credits as “receipts” of emission reductions,⁶⁷ vehicles aiming to increase ambition in the near-term could make extensive – and creative – use of the CDM (and JI) framework.⁶⁸

It is worth noting that CERs and ERUs are not offsets *per se*; the rules of their use rather than their generation determine if they are fully offsetting or if they include a net mitigation component. If CERs and ERUs are retired rather than used to offset the buyer’s emissions, they represent 100% net mitigation.⁶⁹

Once new market-based approaches and/or frameworks for distributing mitigation finance are agreed, they can be adopted as complementary or alternative instruments for incentivising private sector mitigation action and making payments for verified mitigation outcomes. Early vehicles may wish to pilot these new approaches and provide valuable input for their further development. Japan is already experimenting with its own bilateral market-based approach which is based on technology transfer and is effectively based on bilateral NAMA agreements with host countries.

Sources of funding

Fund capital could come from public and/or private sources, depending on who participates in the fund. Innovative financial sources could be utilised.

Parties may, for example, wish to channel earmarked tax revenue into the fund. An example is the Swiss industry’s voluntary Climate Cent Foundation initiative whereby revenue from a levy on fuel imports is used to purchase international and domestic credits.⁷⁰

Part of the mitigation effort could be financed by the host countries. They could, for example, purchase a share of the credits generated by domestic projects or programmes, or finance implementation of mitigation action up until an ambitious crediting threshold.

Required funding

Developing countries made more ambitious targets conditional upon financial support from developed countries. A fund to restore demand in the carbon market could provide a compromise.

⁶⁷ Raab U. (2012).

⁶⁸ Gallo, F. (2012).

⁶⁹ Raab U. (2012).

⁷⁰ Climate Cent Foundation.

The required level of funding would depend on the pricing mechanism. Payments could be based on the market price or some other pricing scheme.

The market value of the expected credit surplus of roughly 1 billion tonnes of at the current market price of around 1 USD would amount to 1 billion USD. To put the sum into perspective: 1 billion USD is 1% of the funding to be mobilised *annually* by 2020. The combined amount of funding allocated to the national carbon credit purchase programmes by Denmark, Finland, Norway and Sweden amounts to more than 1 billion euros.⁷¹ The value of voluntary carbon market transactions in 2011 was some 0.6 billion USD while the value of primary CER transactions was 3.3 billion USD in 2011, having peaked at 6.5 billion USD in 2008.⁷²

However, simply purchasing the current credit oversupply may not restore the market balance. Removing the international credit surplus might boost the market price, and thus require more than 1 billion USD of funding at market prices. On the other hand, higher prices are likely to encourage the private sector to bring pending and new supply to the markets, thus pushing the prices back down.

Research commissioned by the CDM Policy Dialogue Panel estimated that if 50 billion USD was used to finance developing country mitigation actions starting from the lowest-cost option and each tonne of reductions would be paid a price equal to the marginal abatement cost of the last unit of emission reductions, up to 4.6 Gt of mitigation could be achieved at a carbon price of 10.9 USD/tonne (8.5 EUR/t). China would host 30% of the mitigation action. If the power sector were to be excluded from mitigation options, for example due to it being covered by a domestic emissions trading scheme, 50 billion USD would achieve 0.35 Gt less in terms of mitigation action due to reduced scope for low-cost mitigation potential, associated with a slightly higher carbon price of 11.8 USD/t (9.2 EUR/t).⁷³ The cost of achieving this amount of mitigation could be significantly lower if payments were based on the incremental cost of each action, rather than of the last, most expensive unit.

2.3 Key findings

There will very likely be considerable oversupply of international credits, estimated at 1.7 billion by 2020, as long as current unconditional, unambitious pledges and climate policies persist. With current pledges, the international community faces a mitigation gap of 6–11 Gt between the emis-

⁷¹ Nordic Council of Ministries report (2011).

⁷² Developing Dimension (2012 and 2011).

⁷³ Gallo, F. (2012).

sion level implied by the pledges and the emission trajectory required to keep warming below two degrees. Thus, the problem is not the oversupply of mitigation action but lack of demand due to insufficient ambition.

As long as the carbon markets are oversupplied, international credit prices will remain close to zero, muting the once-powerful signal that incentivised private sector investments in mitigation. To revive the carbon market and its capacity to deliver cost-effective mitigation action, the ambition level of mitigation pledges must be urgently and significantly increased. Otherwise, the private sector will turn away from CDM and JI, and a decade worth of experience and capacity might be lost.

Loss of faith in CDM and JI might, at worst, lead to loss of faith in global carbon markets in general and consequently weaken the willingness of countries to increase the ambition of their pledges in the absence of cost-effective tools. Thus, efforts to support the development and functioning of existing and new carbon market mechanisms are central for building confidence in having stable and robust global carbon markets also in the future and enabling countries to increase ambition.

Carbon markets are created and regulated by policy-makers. New laws or even statements from policy-makers that may influence demand or supply can have an immediate impact on supply, demand and market prices. Thus, options for restoring carbon market balance are closely linked to policy choices, and cannot be implemented in isolation from supportive policy decisions, such as minimal restrictions on international credit use. Voluntary action can bridge policy gaps and voids, but mitigation of the required scale is unlikely to be achieved solely through voluntary measures, at least not without significant top-down support.

Higher pledges do not automatically lead to higher demand for international credits, nor do new regional or national emissions trading schemes. Some schemes only accept domestic offsets in their emissions trading schemes, and the use of international credits is typically restricted in terms of quantity and quality even when their use is allowed towards compliance under national targets or emissions trading schemes.

International credits compete with alternative compliance instruments, so to encourage international credit demand, international credits must be desirable, accessible, and of acceptable standard. Internationally harmonised offset standards and tracking systems that ensure environmental integrity and cost-efficiency, coupled with wide and easy access to international credits would promote maximal use of international credits. Improved/Increased access to international credits implies the delinking of participation criteria from the Kyoto framework and the adaptation of CDM (and JI) to the requirements of a wide range of actors in increasingly fragmented carbon markets. Broad-based acceptability of international credits is vital for their future demand as it limits the desire of countries to impose restrictions on international credit use. Acceptance of international credits also creates an indirect link between various emissions trading schemes, thus enhancing the cost-efficiency of

emissions trading. Access to inter-linked carbon markets might increase countries' willingness to raise the ambition of their pledges, thus boosting carbon market demand further.

Establishment of carbon credit purchase vehicles constitutes an interesting near-term option for increasing the ambition and demand for international credits even in the absence of higher pledges. Options to increase international credit demand are summarised in Table 5 below.

Table 5 below summarises the mitigation and international credit demand potential of various options considered in this section, illustrating the existence of scope for increasing ambition and increasing demand for international credits that exceeds the current mitigation gap of approximately 6 Gt. Further details and underlying assumptions are presented in Appendix 2.

Table 5. Potential for increasing ambition and international credit demand

Option to increase ambition and international credit (IC) demand	Mitigation potential (GtCO ₂ e)	IC demand potential (GtCO ₂ e)
Starting point: Business as usual (mitigation gap 12 Mt)	-12	6.0
Mitigation potential with existing pledges (max)	- 6.0	1.8
Further mitigation potential by countries (max)	-10.5	2.9
Further mitigation potential via non-government initiatives (max)	- 6.6	4.0
Further mitigation potential via Green Climate Fund (max)	-2.6	2.6
Total theoretical mitigation potential	-25.7	11.3

Source: See Appendix 2.

Figure 6. Options for increasing international credit (IC) demand⁷⁴

⁷⁴ Inspired by Vivid Economics (2012): The Future Context of the CDM, page 6, Figure 1.

3. Linking and fungibility of credits

3.1 Background on linking

With so many countries developing or considering developing a domestic cap and trade scheme, linking these schemes to each other to create a global carbon market is starting to become a relevant topic of discussion. The EU and Switzerland have been in negotiations to link their schemes since 2010 and the EU and Australia have recently agreed to a pathway to link their schemes. Linking is not only happening with the EU ETS, with California and Quebec as well as Australia and New Zealand having already begun negotiations to link their respective schemes. Other linking arrangements mooted for the future include Australia–California and New Zealand–South Korea, though no formal discussions have yet begun on these. Latin American and Caribbean (LAC) countries currently exploring the setting up of national ETS are also interested in understanding the conditions for linking.

Linking might have several meanings. Linking can refer to the linking among cap-and-trade schemes existing or planned in industrialised and developing countries. Linking can also refer to the connection between a cap-and-trade system with other market mechanisms such as sectoral crediting, NAMA crediting and international project based carbon credits. For the purpose of this document we focus on linking from the perspective of cap-and-trade schemes – that is, linking between cap-and-trade schemes and the acceptance of offset credits by cap-and-trade schemes. For the purpose of this document, we will understand linking in a broad sense including the connection among cap and trade systems and the eligibility of offsets by cap-and-trade systems. A more elaborated clarification on the different forms of linking is provided below.

Despite the fact that linking is becoming a subject of interest for carbon market actors it is important to keep in mind that guaranteeing existing and sustainable carbon demand will continue to be the primary condition for any type linking. Thus creating enough demand should precede the debate on linking. Linking per se will not increase or reduce demand as other most important factors determine supply and demand.

Forms of linking

A link can be either direct or indirect. A direct link allows trade between different schemes in one or more directions. A unilateral link is one where one scheme recognizes and accepts the allowances or credits

issued by another scheme for compliance purposes. One example of this is the EU Linking Directive, by which the EU recognizes and allows international offsets in the EU ETS from CDM and JI projects. With this unilateral decision, the EU ETS was linked to the CDM and JI. In a full bilateral link, allowances and credits can be freely traded both ways between two systems and each system's allowances become valid for compliance in both systems. If more than two schemes participate, this becomes a multilateral link. In theory the more systems that participate in linking, the greater the potential efficiency gains.

In terms of legal measures, direct linking of ETSs can be effected through a formal treaty or agreement, or through reciprocal domestic legislation. An indirect link, in turn, involves linking of two (or more) systems through another common system. For instance, schemes such as the EU ETS and the Swiss are currently indirectly linked through the CDM, as both schemes unilaterally recognize and accept these credits for compliance.

Whether schemes are directly or indirectly linked to each other, linking will affect the supply and demand for allowances and credits in both systems.⁷⁵

3.1.1 Existing legislative provisions referring to linking

Emission trading systems are typically established through one or more acts of legislation, which will include rules on the types of units that are accepted and made fungible. In a number of systems unilateral (or one-way) linking is provided for at the outset through the recognition of certain types of international offset credits, and in some cases a simplified legislative procedure is set out for changing rules on international offset eligibility. Legislation in several systems also lays down explicit procedures and prerequisites for two-way linking of ETSs.

Legislation on linking in proposed, existing and emerging schemes ETS tends to include provisions on the role and eligibility of offsets in each scheme. All schemes analysed for this report allow for some form of offsets. The EU, Switzerland, Australia and New Zealand schemes are largely focused on offsets generated under the Kyoto Protocol (CERs and ERUs), but all have introduced restrictions reflecting growing environmental integrity concerns. Australia also accepts credits from its domestically-developed Carbon Farming Initiative, and California and Quebec have both opted to develop their own offsets schemes or protocols that include offsets from international states and provinces,

⁷⁵ For more information on the different forms of linking, see Climate Strategies, "Linking Emissions Trading Schemes", May 2009, available at: <http://www.climatestrategies.org/component/reports/category/33.html>

rather than recognising JI and CDM credits. The evolving experience with linking to offset schemes is discussed further in Section 3.2.

Table 6. Comparison of legislative provisions on linking in ETS legislation

Scheme	Voluntary/ Mandatory	Offsets	Linking to other ETS	Conditions
EU ETS (Phase III)	Mandatory	CERs and ERUs (with provision for credits from Article 24a or bilateral agreements)	Pre-2012 registered projects; Projects in LDCs; No credits from land use, industrial gas and nuclear projects Large hydropower projects must meet sustainability criteria	Absolute emissions caps in partner system Mutual recognition of credits Recitals also emphasize importance of environmental ambition and a robust and comparable emissions MRV mechanism and compliance system
Switzerland ETS	Voluntary until 2012; Mandatory from 2013	Same as EU ETS	Same as EU ETS	No explicit conditions
Australia ETS	Mandatory	CERs and ERUs Carbon Farming Initiative credits	No credits from industrial gas, nuclear or Afforestation/Reforestation Large hydropower projects must meet sustainability criteria	No explicit conditions
New Zealand ETS	Mandatory	CERs and ERUs	No credits from industrial gas, nuclear or Afforestation/Reforestation Large hydropower projects must meet sustainability criteria	No explicit conditions
California Cap-and-trade	Mandatory	North American credits from specific offset protocols Sectoral REDD credits	Compliance with offset protocols	No explicit conditions in legislation, but proposals must be assessed against economic, environmental and social justice criteria
Quebec Cap-and-trade	Mandatory	Domestic offsets from specified project types	Compliance with domestic offset conditions	Mutual recognition of allowances Consolidation of registries Mutual recognition of decisions by competent authorities

Source: EU: Directive 2003/87/EC of the European Parliament and of the Council, 13 October 2003, consolidated. Swiss Confederation: Federal Act on the Reduction of CO₂ Emissions (CO₂ Act) of 23 December 2011. Australia Clean Energy Act 2011. Australia National Registry of Emission Units Act 2011. New Zealand Climate Change Response Act 2002 (as amended). Assembly Bill 32 (AB 32): California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms (the Cap-and-trade Regulation). Regulation respecting a cap-and-trade system for greenhouse gas emission allowances, 14 December 2011, and the draft amendment of June 2012.

Several pieces of legislation also lay down explicit requirements for linking with other ETSs, most notably the EU ETS Directive and the Quebec ETS legislation. As shown in Table 6, mutual recognition of allowances is required by both the EU and Quebec, while an environmental ambition, a

robust or comparable MRV and compliance system is also emphasized by the EU. The EU, for its part, required absolute emission caps, and Quebec required mutual recognition of decisions and the consolidation of registries.⁷⁶

These legislative requirements are discussed in more detail in Appendix 1.

3.2 Lessons from existing and emerging linking arrangements

3.2.1 *Linking ETS to offset mechanisms*

The majority of experience with linking gained to date involves linking emission trading systems to offset mechanisms. As carbon markets mature, some conclusions can be drawn on the the evolving approach to offset use in ETSs that can be summarized as follows:

- In the first place, as carbon markets have matured and global supply has increased, quality restrictions have become more prominent. In the EU, initial restrictions on CDM and JI credits from nuclear, land use and large hydropower projects have been supplemented with restrictions on industrial gas credits, which had previously constituted the largest share of international credits entering the system. Australia and New Zealand have similarly prohibited international offsets from nuclear, industrial gas and afforestation and reforestation (AR) projects, while placing restrictions on credits from large hydropower projects.
- Secondly, rules on offsets have increasingly come to be used to promote regulators' broader climate objectives. The revised EU ETS Directive, for example, has restricted CDM credits from non-LDCs, with a view to encouraging a shift to sectoral mechanisms in more advanced developing countries. This objective is also reflected in the provision in Article 11a (5) for bilateral agreements, which was intended to be used to pilot sectoral mechanisms.⁷⁷
- Several other countries have devised their own offset mechanisms that can be tailored to national objectives. Japan, for example, has developed a Bilateral Offset Credit Mechanism (BCOM), under which it will promote the use of Japanese technology abroad.⁷⁸ California

⁷⁶ The Waxman-Markey Bill I today linking to national and supra-national schemes, while the EU and Quebec are more flexible.

⁷⁷ European Commission (1/2012).

⁷⁸ CDC Climate Research (2012).

and Quebec, in turn, allow only offsets from projects developed under specific offset protocols. In both systems international offsets are permitted in principle, but thus far protocols developed have only provided for domestic projects, arguably reflecting a desire to ensure investments in offsets are channeled to the local economy. Australia has similarly developed its own offset mechanism, the Carbon Farming Initiative, which responds to domestic political priorities in the agricultural sector.

- Lastly, rules on offset use often reflect supply and demand dynamics in a system. The EU Commission has explicitly ruled out adopting measures for domestic or bilateral offsets schemes under Articles 24a and 11a (5) of the EU ETS Directive, in each case citing oversupply as the reason.⁷⁹ Similarly, Australia's agreement to accept EU allowances has led to it reducing the amount of permitted offsets.

3.2.2 EU Member States

Though technically not a linked system, but one scheme, the EU ETS remains relevant to this discussion due to its experience with varying levels of integration of its system among the different EU Member States where the EU ETS has been implemented. While operating under a single framework and comprising a single market, in the first two phases of the EU ETS a number of areas remained decentralised. Each Member State had an individual emissions cap and allocation plan, operated its own registry and conducted its own MRV on the basis of EU guidelines.

This decentralization led to several problems. Allocation plans were developed according to national economic and political circumstances, while MRV of emissions was also inconsistent across Member States. This led to competitiveness distortions and questions of environmental integrity, while national registries also led to inconsistencies. Responding to these issues, the EU has moved towards further centralisation, and in the third phase the EU will have a common emissions cap, EU-wide rules for the allocation of allowances, directly applicable EU rules on MRV,⁸⁰ and a single European Registry.⁸¹

Some important lessons emerge from the harmonization and centralization of the EU ETS. Firstly, in linking two or more systems, comparable allocation and comparable monitoring and reporting are key to ensuring environmental integrity and ensuring a level playing field. Moreover, the

⁷⁹ IETA (12/12/2011), Zapfel P (1/2011) and European Commission: Questions & Answers on use of international credits in the third trading phase of the EU ETS.

⁸⁰ Commission Regulation (EU) No 601/2012 of 21 June 2012 and Commission Regulation (EU) No 600/2012 of 21 June 2012.

⁸¹ Commission Regulation (EU) No 1193/2011 of 18 November 2011.

need to completely harmonise these systems in the EU highlights how even the close integration provided by a common supranational system may not be enough to ensure adequate levels of comparability.

3.2.3 EU–Australia Linking Negotiations

In August 2012 the European Commission and the Australian Government announced agreement on a “pathway” to linking their emission trading systems. Pending full linking (expected in 2018), an interim arrangement will apply under which the Australian ETS will accept EU ETS allowances from July 2015. To facilitate this partial link Australia has agreed to introduce a set of measures considered necessary to ensuring the functionality of the partial link, while measures on both sides to facilitate full linking remain under discussion. These agreed measures and discussions provide some important insights into the main issues linking of ETSs is likely to raise.

In the first place, ensuring compatibility of market rules has been the key. In order to introduce the partial link Australia has had to eliminate its price floor and set its ceiling relative to projected future EU unit prices, since otherwise EU units, which are not subject to floors and ceilings, could not practically be traded on the Australian market.⁸² Australia has also raised the issue of the potential impacts of EU policy decisions on the Australian carbon price, though a solution to this issue remains to be agreed upon. Similarly, ensuring comparable levels of mitigation commitment and aligning rules concerning free allocation to leakage-exposed industries has emerged as an important issue in agreeing to full linking have proved important to ensuring environmental integrity and avoiding economic distortions.⁸³

Compatibility of offset rules has also been a key issue. Australia has reduced the number of permitted offsets in its system to allow for the partial link, and the EU has stressed the need to agree on the types and quantities of third party units accepted, as well as on the role of land-based domestic offsets from Australia’s Carbon Farming Initiative, for moving to full linking.⁸⁴

Adequate and comparable measurement, reporting, verification, compliance and enforcement mechanisms are the further issues stressed by both parties. While each system boasts relatively advanced MRV systems and strong governance capacities, there remain to be determined a range of crucial issues that are currently only in very early stages of discussion.

⁸² The Australian (19/9/2012).

⁸³ EU Commission (2012), FAQ: Linking the Australian and European Union emissions trading systems, MEMO/12/631, (28 /8/2012); Australia Department of Energy and Climate Change (2012).

⁸⁴ Ibid.

The EU–Australia negotiations have also highlighted the varying reasons that regulators have for pursuing linking. While both parties emphasised economic efficiency and supporting the development of an international carbon market, the EU also emphasised that Australia is expected to be a net importer of international units, perhaps reflecting an important change in the EU’s traditional position as a net buyer of carbon units. Australia, on the other hand, emphasised the stability and credibility associated with linking to a much larger and more well-established emissions market, reflecting a set of priorities that are likely to be shared by other relatively smaller and more nascent markets. Australia also stressed the interconnectedness of the EU and Australia economies as an additional reason for linking.

3.2.4 California–Quebec

California and Quebec are currently in a relatively advanced phase of negotiations to link their respective ETSs, and currently expect to establish a full link in 2013.⁸⁵ However, a recent issues analysis by a California Air Resources Board Committee (the “ARB Committee”) identified several outstanding issues in establishing a link and recommended postponing linking the systems for several years.⁸⁶

Both California and Quebec are members of the Western Climate Initiative (WCI), a joint initiative designed to promote a common approach to market-based measures and facilitate linking among a range of US and Canadian states. As WCI members, both jurisdictions have worked to develop their schemes based on common WCI templates and recommendations. As such, their systems are already substantially similar, and are generally consistent on GHG reporting, cap-and-trade rules, and offsets.⁸⁷

Despite their similarity, linking the two systems has raised important issues. As with the EU–Australia discussions, market rules have proved paramount, with the need for harmonization being emphasised with regard to allowance budgets (in particular to avoid over-allocation), auctions and holding limits. While agreement on these issues was achieved, the issue of consistency in definitions and market rules for the use of compliance instruments, such as those regarding liability for invalid offsets and avoiding misinformation, has been identified by the ARB Committee as a major stumbling block to linking.

MRV, accounting and enforcement have also been crucial. Both systems agreed to harmonise transaction procedures (and already share a compliance instrument tracking system operated by WCI) and stressed the need

⁸⁵ Reuters Point Carbon (2012).

⁸⁶ Ibid.

⁸⁷ State of California Air Resources Board (2012).

for comparability on enforcement systems and reporting requirements. Despite this, the ARB Committee highlighted the lack of agreed precedents for cross-jurisdiction legal and regulatory oversight, as well as the existence of different approaches to legal interpretation and enforcement across jurisdictions as a key barrier to ensuring comparability of enforcement, echoing the issues experienced in ensuring enforcement in the EU. The committee also stressed the current inability to ensure compatibility in transparency rules in order to ensure against participants engaging in strategies that allow them to profit from their private information.

A further issue that remains to be resolved is how to provide for modifications to regulations in the linked system once linking is implemented. The California ARB has stated only that it would strive to work together with Quebec to find mutually agreeable solutions, but mentions that where these could not be reached, de-linking would remain an option.⁸⁸ This issue was further highlighted by the ARB Committee as a barrier to linking. Lastly, the need for agreeing on offset rules has been recognised, and some Quebec stakeholders have highlighted the need to resolve the issue of differing attitudes towards recognition of REDD+ credits.

The California–Quebec negotiations also have parallels with the EU–Australia discussions in terms of reasons for pursuing linking. Like the EU, California, by far the larger party, has stressed that Quebec will be a net buyer of units due to having more stringent targets.⁸⁹ Quebec, for its part, has not provided concrete reasons for linking, though it appears that Quebec will benefit from cheaper emission reductions by linking,⁹⁰ as well as the stability of linking with a bigger market. Given these parallels, it may be considered that larger ETSs may have little interest in linking with systems that are expected to be net sellers, while smaller systems may be willing to be net buyers in exchange for the stability and liquidity of linking to a larger partner.

3.2.5 *Australia–New Zealand*

In December 2011 a bi-lateral working group was established to work towards identifying options for linking, as well as issues that would need to be resolved for linking to proceed. Linking discussions remain in early stages. As of October 2012 no reports of the working group have been made publically available.⁹¹ However, several insights can be drawn from previous discussions on linking the two schemes.

⁸⁸ Ibid.

⁸⁹ Ibid.

⁹⁰ California Air Resources Board.

⁹¹ Minter, Ellison, Rudd, Watts (2/2012).

In the first place, the New Zealand experience shows that linking may be more crucial to smaller systems, that may otherwise lack liquidity and market stability, and these systems are likely to be more willing to adapt their rules to those of larger systems. The New Zealand ETS was originally modelled on the Carbon Pollution Reduction Scheme proposed by the Australian government in 2008.⁹²

Secondly, linking with systems in economies that are closely connected is often higher priority. Officials in both Australia and New Zealand have regularly stressed the interconnectedness of their respective economies when discussing linking.

Thirdly, both nations have recognised the key importance of compatibility of market rules for linking. As a result of dialogue between their climate change officials, the two countries have adopted compatible rules on allocation of permits to trade-exposed industries. A 2009 New Zealand Cabinet paper also identified the Australian decision to include a price cap and related restrictions on banking and trade in international credits as a potential barrier to linking and stressed the importance of harmonizing price caps and rules for the import/export of units.⁹³

As with other systems, MRV has also risen as a major issue, with the 2009 Cabinet paper stressing the need for harmonization on “administrative arrangements, including monitoring, reporting and verification.”⁹⁴

3.2.6 EU-Switzerland

Switzerland had the intention to link their emissions trading system with that of the EU from the inception of its scheme in 2008. Negotiations to this effect formally began in 2010,⁹⁵ and a bilateral agreement on linking is expected in 2015.

The Swiss–EU experience reinforces the conclusion that smaller states are more likely to be willing to adapt their rules to facilitate linking. Switzerland’s draft linking legislation,⁹⁶ shows that the country is adapting the majority of key design features of its scheme to the EU ETS, including those on scope, offsets, allocation, carbon leakage and monitoring and reporting. The provisions related to market oversight, auctioning and the registry are expected to also be adapted so they are compatible with the EU ETS after the bilateral agreement has been signed.

This case also highlights the importance of the economic links between the countries considering linking. The Swiss economy is highly

⁹² Carbon Market Institute (2012).

⁹³ New Zealand Ministry for the Environment (2009).

⁹⁴ Ibid.

⁹⁵ European Council (20/12/2010).

⁹⁶ The draft Ordinance can be found from the Federal Office for the Environment FOEN (Switzerland) webpage : <http://www.bafu.admin.ch/klima>

connected with that of the EU, with many companies operating in both markets. Under these circumstances linking is both more feasible and more important in order to avoid competitiveness distortions.

3.2.7 UNFCCC Negotiations

Linking between ETSs or linking ETSs with offset schemes is usually a bilateral (or, in the case of offsets schemes, often unilateral) matter, and so this is not an issue that is extensively discussed in the UNFCCC. In recent years, parallel discussions have begun to emerge on building a common framework for various approaches (FVA) to market and non-market based measures. While discussions remain in the formative stages, the FVA is understood by several parties as a UNFCCC-based framework that sets common standards and criteria on key aspects (e.g. MRV) of mitigation actions by Parties that do not take place within the UNFCCC framework proper.

Where such a framework were to become broadly respected and recognised, regional, national and sub-national ETSs, as well as decentralised offset schemes, could be designed based on certain common standards and guidelines set by the FVA to ensure greater compatibility and facilitate ease of linking. The advantages of this approach have been demonstrated in the negotiations between California and Quebec which, due to the similarities in their design as a result of the use of common templates and recommendations developed under the WCI, have encountered comparatively fewer major difficulties in agreeing on linking terms.

Of course, agreeing on common standards and guidelines in the context of the UNFCCC is likely to be a far longer and more laborious process than agreeing amongst a relatively small group of like-minded sub-national governments. Additionally, any framework will need to be flexible enough to accommodate certain aspects of existing, and particularly well-established, systems, with certain parties sure to resist any moves to require modification of politically sensitive aspects of their domestic systems. Nonetheless, even agreeing on basic principles and standards and establishing supportive institutional structures to facilitate these principles being met, for example through providing registry or MRV support may be crucial in providing the basis for more systems to link in the future.

3.3 Lessons and recommended actions

Practice on linking remains in its early stages, and yet existing experiences provide important insights not only into what issues are likely to be crucial for facilitating linking, but also how feasible it is to deal with them. The cases studied show that linking is likely to raise legal, economic, political and environmental integrity issues.

The following presents the most important lessons for linking arrangements that emerge from the foregoing case studies.

Economic Issues

- *Guaranteeing existing and sustainable demand* will continue to be the primary condition for any type of linking. Linking per se will not increase or reduce demand but only spread it between different systems. Other important factors determine supply and demand and these should be focused on as a matter of priority. As such, creating the debate over creating adequate demand should precede the debate on linking.
- *All emerging linking arrangements have highlighted the importance of harmonizing market rules.* In order to ensure environmental integrity and avoid market distortions, it is crucial to ensure compatibility, and in many cases harmonization, of market rules. The most important of these include rules on price stabilization mechanisms such as floors and ceilings and overall caps and allocation decisions. In this regard, systems with absolute caps often see it as paramount that potential linking partners also have absolute caps, as without these, significant uncertainty regarding supply becomes possible.
- *Emerging linking arrangements highlight shifting positions of key players in supply/demand dynamics.* Perhaps one of the most crucial lessons from emerging linking arrangements is the shift of the EU's traditional position as a net buyer of international units. While it is likely that the EU will continue to purchase Kyoto Protocol credits, a key reason for its decision to link with Australia was that Australia is expected to be a net buyer. Meanwhile, while California is likely to buy a certain portion of international offsets, it has also stressed Quebec's position as a buyer as underlying its linking decision. In each case, the systems expected to be sellers are the larger parties, and would have less to gain from linking with smaller partners who are also net sellers, while the smaller partners appear to be willing to link with net sellers in order to gain the stability and liquidity associated with linking with a larger party. These cases therefore highlight both a change in the traditional position of developed countries as only net buyers and the need for smaller systems to offer tangible benefits to a larger system to justify linking. While in a future scenario involving much greater demand these benefits may include the provision of comparatively cheaper units, in present circumstances the focus is likely to remain on countries who are net buyers.
- *Linking is more likely between countries with closely linked economies, regulatory systems and climate objectives.* The majority of linking arrangements currently emerging between ETSs are between economies with high levels of economic integration. Linking these sorts of economies has a range of benefits, most notably reducing competitiveness distortions between economies. Where economies

are closely integrated, closer linking arrangements can also be conceived. The emerging linking arrangements between Switzerland and the EU may provide a useful model for facilitating linking while greatly reducing transaction costs and reducing economic distortions on both sides. By adopting close to identical rules on allocation, MRV, offsets and leakage prevention, the two schemes greatly reduce the need to engage in oversight of the other's arrangements while limiting the possibility of carbon leakage.

Legal and governance issues

- *How to provide for policy changes and decisions in partner schemes is recognised as important, but limited measures exist to address this.* How to safeguard one scheme's interests and stability of the market from significant changes in policy or circumstances in the other scheme is an issue that has been raised by several jurisdictions, most notably Australia and California. However, no significant measures have been devised to provide for this. Australia has broadly referred to the possibility of "consultation and notice periods", while California simply states it would "work closely together (with Quebec) to resolve any potential issues", while reserving the option of de-linking where these are unsuccessful. This issue may be particularly relevant when considering linking to economies in which markets are actively managed or planned, or when the possibility of an indirect link emerges. Given the sensitivity of sovereignty concerns over national economic issues, agreeing on measures to address this issue are likely to present a significant challenge in linking arrangements.
- *Comparability of MRV is crucial, but may present major challenges in countries with poor governance.* All emerging linking arrangements have emphasised the importance of ensuring comparable MRV systems, though few clear guidelines on what constitutes adequate and comparable MRV are yet available. Even in closely linked systems which share strong governance capacities, moreover, ensuring comparability has been challenging to achieve. In the EU, difficulties with separate MRV arrangements under a common framework have led to harmonization under a single system. Ensuring comparability of these elements in less closely linked systems with more disparate governance abilities will be a major challenge.
- *A framework for various approaches under the UNFCCC may support linking, though limits to harmonization should be recognised.* The experience in the WCI has shown that designing ETSs based on common guidelines and principles can facilitate future linking arrangements. Given the lack of clarity on the requirements and standards regulators will expect from potential linking partners on matters such as MRV and enforcement, working to agree on basic principles and standards and establishing supportive institutional

structures to facilitate mechanism development may enable emerging systems to be designed to meet these requirements and therefore be crucial in providing the basis for more systems to link in the future. At the same time, even in the closely-integrated WCI states this has not dealt with all linking issues, and significant further integration has been necessary. Moreover, the diversity of legal systems and other circumstances of UNFCCC parties makes it less realistic to expect that this level of integration is possible under an FVA. Therefore, expectations regarding the ability of an FVA to lay the ground for linking should be managed, and other barriers to linking kept firmly in mind.

- *Registries must be compatible and capable of consolidation.* In order for linking to be practically viable and legally secure, compatible and comparably functional and secure registries are crucial. This is highlighted by the experience in the EU, where security issues in certain Member States' registries saw the system compromised and its integrity called into question.

Political issues

- *Approaches to linking with offset schemes reflect evolving political priorities.* Rules on offsets have increasingly come to be used to promote regulators' broader climate objectives. This can be seen from the EU's move to limit project offsets to LDCs to Japan's promotion of Japanese technologies and several countries seeking to promote domestic offsets. Political priorities of demand-side systems should therefore be a key consideration in designing future offset schemes.
- *Establishing clear and transparent linking frameworks and policies could also provide incentives for developing countries currently designing ETS or other type of market mechanisms to adopt ambitious national emission reduction programs.* Linking among ETS can increase political support for such schemes and create a more level playing field for international business. A good number of developing countries – South Korea, Mexico, Brazil, Peru – is currently analyzing or setting domestic ETS (pre-compliance or compliance schemes). Policy regulators in developing countries are interested in designing ETS that could be eventually linked to other existing ETS. Most often the expectation of developing countries is to link their national schemes to act as net sellers of carbon permits or offsets. By requiring substantive emission reduction targets as a condition for linking and establishing more clear policies on how linking will be performed, the EU can foster the adoption of ambitious ETS in developing countries.

Environmental Integrity Issues

- *As markets have matured, environmental integrity of offsets has become increasingly important.* Concerns over the environmental integrity of credits from industrial gas projects have led to bans on these credits in the EU, Australia and New Zealand ETSs. Other restrictions have been called for, including in relation to large hydropower and landfill gas projects. The likelihood of linking with emerging offset systems is therefore likely to be largely dependent on how they respond to emerging positions on the environmental integrity of certain project types. Objectives of environmental integrity are also leading to legal harmonization among different legal regimes.
- *The role of offsets in an ETS is a key issue in linking two or more ETSs.* The quantity and types of offsets an ETSs allows for compliance often plays an important role in ETS linking decisions. Regulators will frequently be reluctant to link to a scheme that accepts offsets it considers environmentally questionable, as has been seen in the EU-Australia negotiations, and to a lesser extent those between California and Quebec. Similarly, where a scheme has limited offset quantities for reasons of environmental integrity, there are likely to be issues linking to a scheme that allows a far greater number of offsets. These issues will need to be resolved through compromise on offset use or agreements on fungibility of offsets across systems.

While many of the foregoing issues are common to almost all linking arrangements, their importance and the ability to overcome them is likely to vary considerably from case to case. In some cases, they may be overcome with relatively little difficulty, while in others they may prove insurmountable. This points to a number of overall recommendations:

- *There is a need to undertake thorough feasibility analyses of potential linking arrangements at the outset.* Linking negotiations may be costly, time consuming and raise market expectations. Before moving forward with negotiations, therefore, it is important to undertake a complete feasibility analysis to ascertain if linking is likely to be workable and if issues are capable of leading to agreement.
- *Expectations concerning linking should be realistic.* When approaching linking regulators should be realistic concerning the linking arrangements that are likely to be feasible in the short and medium term and those which are not. While countries or other entities with closely integrated economies and similarly developed governance systems may be able to agree on linking arrangements after several years of negotiations, those with more disparate economies and governance capacities are not likely to be able to agree on two-way linking of ETSs in the short to medium term. These facts should be recognised and taken into account in international efforts to facilitate linking.

- *Expectations concerning linking should take into account changing dynamics.* At present it appears that developed and developing countries have different expectations on linking. While the EU and other developed countries foresee developing countries adopting ETSs as part of their growing commitment to domestic mitigation action, developing countries frequently view this as an opportunity to sell credits to developed countries. It is important that countries and other entities communicate effectively to ensure that they are clear on each others' positions regarding linking, while all countries should be aware of changing dynamics regarding net buyers and sellers. A single linking arrangement will never by itself increase demand on both sides.
- *Common standards can facilitate linking.* Greater international agreement on the basic prerequisites for linking and the development of common standards can assist the development of market-mechanisms in ways that facilitate future linking efforts.

3.4 Conclusions

Guaranteeing existing and sustainable demand will continue to be the primary condition for any type of linking. Linking per se will not increase or reduce demand, and to make linking worthwhile it is crucial that the adequate demand for credits on both sides exists. As such, creating the debate over creating adequate demand should precede the debate on linking.

Certain factors have proved crucial in all emerging linking arrangements. The most important of are:

- both linked schemes must be mandatory
- targets must be of comparable stringency
- rules on offset use must be comparable
- measurement, reporting and verification provisions must be comparable
- comparable, but most preferably equivalent, allocation provisions are deemed crucial to avoiding market distortions
- registries must be compatible and capable of consolidation.

How to provide for policy changes and decisions in partner schemes is recognised as important, but limited measures exist to address this. How to safeguard one scheme's interests and stability of the market from significant changes in policy or circumstances in the other scheme is an issue that has been raised by several jurisdictions, most notably Australia and California. However, no significant measures have been devised to provide for this. Australia has broadly referred to the possibility of "consultation and notice periods", while California simply states it would "work closely together (with Quebec) to resolve any potential issues", while reserving the option of

de-linking where these are unsuccessful. This issue may be particularly relevant when considering linking to economies in which markets are actively managed or planned, or when the possibility of an indirect link emerges. Given the sensitivity of sovereignty concerns over national economic issues, agreeing on measures to address this issue are likely to present a significant challenge in linking arrangements.

Comparability of MRV is crucial, but may present major challenges in countries with poor governance. All emerging linking arrangements have emphasised the importance of ensuring comparable MRV systems. Even in closely linked systems which share strong governance capacities, however, this has been challenging to achieve. In the EU, difficulties with separate MRV arrangements under a common framework have led to harmonization under a single system. Ensuring comparability of these elements in less closely linked systems with more disparate governance abilities will be a major challenge.

The international legal system is lacking adequate precedents for cross-jurisdictional enforcement oversight. Comparable enforcement measures are consistently emphasized by regulators as a prerequisite for linking. However, monitoring the implementation of enforcement measures in partner systems is complicated by strong national sovereignty in this area and is likely to be challenging in the absence of clear legal precedents. This is highlighted by the persistent difficulties that have remained in ensuring consistent enforcement even in the otherwise closely-related EU, and has been raised by the California ARB Committee as a key stumbling block to linking with Quebec. While countries with mutually strong governance capacities may be able to agree on mutual recognition of enforcement decisions, ensuring confidence in measures in jurisdictions with lower governance capacities will require that adequate oversight arrangements are put in place.

A framework for various approaches (FVA) under the UNFCCC may support linking, though harmonization is likely to be limited. The experience in the WCI has shown that designing ETSs based on common guidelines and principles can facilitate future linking arrangements. However, even in the closely-integrated WCI states this has not dealt with all linking issues, and significant further integration has been necessary. Moreover, the diversity of legal systems and other circumstances of UNFCCC parties makes it less realistic to expect that this level of integration is possible under an FVA. Nonetheless, working to agree on basic principles and standards and establishing supportive institutional structures to facilitate mechanism development may be crucial in providing the basis for more systems to link in the future. Working to better define how an FVA can work can enable better design decisions on MRV etc.

In countries with closely linked economies, regulatory systems and climate objectives, full harmonization can reduce transaction costs and economic distortions. The emerging linking arrangements between Switzerland and the EU provide a useful model for facilitating linking while

greatly reducing transaction costs and reducing economic distortions on both sides. By adopting close to identical rules on allocation, MRV, offsets and leakage prevention, the two schemes greatly reduce the need to engage in oversight of the other's arrangements while limiting the possibility of carbon leakage. At the same time, the level of integration and harmonization required in such arrangements will only be feasible in jurisdictions with closely linked economies, comparable and relatively similar regulatory systems and compatible climate objectives.

Approaches to linking with offset schemes reflect evolving economic and environmental priorities. Two main approaches to offset linking have been developed. The EU, Switzerland Australia and New Zealand have largely taken a permissive approach that allowed a broad range of offsets from the Kyoto project mechanisms, while grandually introducing further restrictions based on environmental and economic goals. California and Quebec (and to a lesser extent Australia) have opted to specifically design the types of offsets they will permit. While this may be partially explained by having fewer incentives to accept Kyoto credits, it also can be seen as allowing them to shape their designs around environmental and economic policy objectives.

4. Negotiation positions towards Doha

In the UN negotiations, Parties have taken various positions on the use of market mechanisms to create incentives for investments and/or international cooperation in mitigation action. Some Parties also specifically refer to the oversupply in the market and how this depresses the price of carbon credits. Also, the positions taken by developing countries show more diversity and variation than those of developed countries, reflecting differing national interests. This section provides an overview of the different positions in the run-up to Doha, and finishes with an update on Doha's outcomes relevant to this report.

4.1 General positions on markets

The general positions on carbon markets can be divided into three main positions. Key positions of various countries are presented in Table .

- Position 1: Countries that seek access to climate finance, but express concern over current low carbon prices and wish to make existing carbon markets more secure and/or introduce new markets. This is a position generally taken by developing countries and emerging economies.
- Position 2: Most developed countries point to the importance of offset mechanisms to reduce the costs of compliance and mobilise and/or secure commitment from the private sector.
- Position 3: Countries that do not have a strong position on the use of market mechanisms, but point to the importance of transparency and international standards for measurement, reporting and verification (MRV) of greenhouse gas emissions.

Table 7. Party positions on carbon markets

Position 1	Position 2	Position 3
Colombia	Australia	Indonesia
Costa Rica	Switzerland	Malawi
Honduras	New Zealand	The Gambia
Mexico	United States of America	Japan
Brazil		Malaysia
Guyana		
China		

The United States, which has historically been a keen supporter and implementer of market-based approaches to dealing with environmental problems, notes that “these market-based approaches demonstrate that rigorous trading and offset programs developed at both the national and sub-national levels play an important part in contributing to emission reduction goals”.⁹⁷ As international experience in using market-based mechanisms to finance and implement emission reductions has accumulated over a decade or so, an increasing number of developed and developing countries have endorsed and participated in these mechanisms. Now, the majority of countries are positive or at least neutral towards the concept of using markets to promote mitigation.

Bolivia is a vocal exception to this rule: the country opposes market-based approaches in general, raising ethical questions on the linking of forests to carbon markets from the viewpoint that what is considered sacred, Mother Earth, is being converted into a commercial commodity.

4.2 Positions on increased ambition

In general, developed countries link increased ambition with the availability of market-based instruments that allow mitigation to be achieved cost-effectively. Developing countries emphasise that enhancing their mitigation action is subject to financial and technological support and capacity building provided by developed countries in accordance with the Bali Action Plan and Cancún Agreements.

Increased ambition is negotiated under the Ad Hoc Working Group on the Durban Platform for Enhanced Action (ADP) under two workstreams: one on adopting a legally binding instrument by 2015 to introduce binding targets “after 2020”⁹⁸ and another on enhancing mitigation action before 2020. The workstream on pre-2020 mitigation ambition, strongly advocated by the EU, is of particular interest from the viewpoint of the supply and demand balance by 2020.

Various developed countries, including Belarus, New Zealand, Norway and Ukraine, explicitly tie their emission reduction targets to the continued existence of, and access to carbon market mechanisms and recognise the potential role of robust and enhanced global markets in increasing ambition for all Parties by promoting cost-efficiency of, and providing finance for mitigation action.

The EU, Norway and Switzerland all link the tightening of their target to increased use of international carbon credits. The EU would allow up to 50% and Switzerland would allow up to 75% of the the additional

⁹⁷ UNFCCC: FCCC/AWGLCA/2012/MISC.4

⁹⁸ Durban decision.

effort to be met with international carbon credits, with Norway stating that moving to the upper range of the country's pledge would imply "considerable" use of international carbon credits.^{99,100,101}

Australia also assumes that international carbon credits will contribute to its 2020 target. Access to international credit markets was a key motivator behind Australia's decision to join the Kyoto Protocol's second commitment period. Since New Zealand decided not to participate in Kyoto Protocol's second commitment period, the country's eligibility for continued use of Kyoto's flexible mechanisms is not guaranteed, since many developing countries (e.g. AOSIS, Arab Countries and ALBA countries) support restricting access to the Kyoto mechanisms only to second commitment period ratifiers. New Zealand has indicated that it will consider reducing the ambition of its national climate policy, should it be denied access to the Kyoto mechanisms in the post-2012 era.¹⁰²

Of developing countries, Egypt explicitly mentions "the potential role of an enhanced global carbon market in increasing the level of ambition" by developed countries, and invites consideration on "how a global carbon market can enhance (developing countries') voluntary mitigation actions". Costa Rica also noted that participation of markets will be critical to allow the country to expand current efforts and undertake new ones, thus increasing its contribution to global mitigation.¹⁰³

Ecuador believes that New Market Mechanisms can support the adoption of more ambitious targets. These mechanisms can be sectoral and host country-driven.

Table 8. Party positions on increased ambition

Markets as condition for increasing ambition	Complementary action needed beyond country pledges	Markets can support developing country mitigation action	Developed countries should achieve target mainly domestically	Developed countries must join second Kyoto period to access CDM and JI
Belarus Ukraine New Zealand Norway Australia Switzerland (EU) Ecuador	Norway EU	Egypt Costa Rica Colombia	China Malaysia	AOSIS ALBA Arab countries

⁹⁹ UNFCCC: FCCC/ADP/2012/MISC.1

¹⁰⁰ UNFCCC: Ad Hoc Working Group on the Durban Platform for Enhanced Action: Summary of Roundtable on Workstream 2.

¹⁰¹ UNFCCC: Note by the Co-Chairs of the Ad Hoc Working Group on the Durban Platform for Enhanced Action (2012).

¹⁰² Point Carbon (2012).

¹⁰³ UNFCCC: FCCC/AWGLCA/2011/INF.1

China calls for developed countries to take the lead in committing to ambitious targets and fulfilling the countries' obligations to provide support to developing countries. In China's view, developing countries have already contributed to mitigation more than developed countries, despite lacking finance and technology support and facing pressing development priorities. China links further enhancement of developing country mitigation efforts with developed country support.

Despite calls by various parties to move towards the upper range of their pledges, no country has increased the ambition of their pledges since November 2010.¹⁰⁴ Kazakhstan has adopted a voluntary commitment of reducing emissions by 15% in 2020 and by 25% in 2050 compared with 1992 levels, and is currently considering increasing the level of ambition and changing the base year from 1992 to 1990. However, the net impact of these changes on Kazakhstan's emissions is not clear.

Ambition can be increased with new, more ambitious targets but also by national or subnational (city, regional) initiatives that go beyond national pledges. The EU has also urged parties to increase the ambition of pledges and to launch complementary domestic, bi- and plurilateral initiatives, including internationally coordinated action within the framework of international bodies, to reduce emissions beyond the individual pledges. Norway also calls for global strategies that go beyond the sum of national actions by Parties.

4.3 Positions on market-based approaches

Role of markets in domestic climate policy

In submissions on further information on pledges, various developed countries (EU, Norway, Australia, New Zealand) mentioned domestic market-based approaches as a key measure to reach a country's target.

Kazakhstan announced the launch of an emissions trading scheme in 2013. In its submission to the UNFCCC the country left the option open as to whether this scheme will make use of offset mechanisms. However, policy-makers in the country have pointed out that only domestic offsets will be allowed.¹⁰⁵

In a workshop to further the understanding of the diversity of NAMAs, held in Bonn in May 2012, China noted that a major target of its current climate policy is to gradually establish a national emissions trading scheme. The country is already in the process of setting up voluntary emissions trading and emissions trading pilots (see Box 3).¹⁰⁶ In the same

¹⁰⁴ UNEP Synthesis Report (2011).

¹⁰⁵ UNFCCC: FCCC/SB/2011/INF.1/Rev.1

¹⁰⁶ UNFCCC Workshop on NA1 NAMAs (2012).

workshop, South Korea also showcased its market-based approaches to implementing its NAMAs, including the recently approved ETS.¹⁰⁷

Various developing country Parties, such as Brazil, Colombia and Peru, note in their NAMA-related submissions that CDM should not be excluded from the toolkit available for developing countries. Peru also acknowledges that its mitigation measures could use market-based mechanisms created under the UNFCCC.¹⁰⁸

Colombia explicitly supports “the use of market-based mechanisms in order to contribute to GHG mitigation actions in developing countries” and foresees that future market mechanisms could “help the Party to achieve greater emission reductions by deviating from the “business as usual” scenario”. Colombia recognises that the country’s national mitigation actions could be supported by market-based mechanisms. Costa Rica also envisages that its national mitigation action could be supported by international market-based funding.

Table 9. Reference to current and emerging ETSs in submissions and workshop material

Annex I Countries	Non-Annex I Countries
New Zealand	China
Japan (Tokyo)	India
Australia	Vietnam
EU	South Korea
Norway	Mexico
(Kazakhstan)	Taiwan

Limiting use of markets and international offsets

In China’s view, emissions reduction commitments by developed countries should mainly be developed through domestic efforts with a market-based mechanism possibly playing a complimentary role. However, additional guidelines need to be established for this. Malaysia is of the view that market-based mechanisms should not be used as a substitute for real and significant domestic mitigation actions. As a result, market-based mechanisms should be recognized as limited in terms of use as offsets.

Brazil states that appropriate market-based approaches exclude the use of offset mechanisms. The country argues new ideas on appropriate market-based mechanisms, which are not based on the expected generation of carbon offsets must be developed. Malawi states developing countries should have the option to make a choice between non-market based or market-based mechanisms dependent on the circumstances of each country.

The position of the Alliance of Small Island States (AOSIS)¹⁰⁹ is that heavy reliance on offset mechanisms should be avoided as it will effec-

¹⁰⁷ Yong-Gun, K. (2012).

¹⁰⁸ UNFCCC: FCCC/AWGLCA/2011/INF.1.

¹⁰⁹ UNFCCC: FCCC/SB/2011/INF.1/Rev.1

tively increase the global mitigation gap. AOSIS also proposes to exclude countries that did not put forward a target for the second commitment period from banking or carry-over of AAUs.

Framework on Various Approaches and New Market Mechanism

Developed countries have been the main advocates of having a common Framework for Various Approaches (FVA), including market-based approaches and a New Market Mechanism (NMM) under the UNFCCC. The EU has been the main advocate of the NMM, both in the negotiations and by commencing the development of sectoral mechanisms.¹¹⁰ There have been relatively few submissions from developing countries on this topic.

The NMM is most likely to be implemented in developing countries and consequently would result in the creation of credits or units that can assist developing countries meet their mitigation targets. The NMM should ensure a net decrease in greenhouse gas (GHG) emissions, which means not all emissions reduced under the mechanism should be credited. Therefore, this moves the NMM beyond the realm of “pure” (or basic) offsetting towards aligning with the increasing emphasis on own mitigation actions being taken by developing nations.¹¹¹ Norway is also committed to using existing and/or new mechanisms established under the UNFCCC. The Central African Forest Commission (COMIFAC)¹¹² countries refer to NMMs as alternative sources of funding including NMMs.¹¹³

Colombia presents a new market mechanism, called the Mechanism for Carbon-Efficient Economies (MCEE). Under the MCEE the ambition level of emission reduction targets correlate with the share of a country in the global emissions. What is new in this proposal is that it abandons the disparity between Annex I and non-Annex I countries, Ecuador also presents a new mechanism in which it proposes draft negotiation text for the Net Avoided Emissions. The country proposes a scheme in which the country is compensated for the opportunity costs of not exploring its oil reserves.

Japan is a proponent of “various types of targets” besides Kyoto-style quantified emission quotas, such as targets and action plans for penetration rates of best available technologies. Japan recognises the necessity of international cooperation in achieving low-carbon development globally and calls for further utilisation of markets in promoting cost-effective mitigation actions in developed and developing countries. The approaches implemented by Japan, focus on bilateral cooperation out-

¹¹⁰ European Commission, DG Climate Action (2012) and EuropeAid/132560/C/SER/Multi (2012).

¹¹¹ Climate Focus (2012).

¹¹² The COMIFAC countries are part of the Central Africa Forest Commission. The submission was supported by: Burundi, Cameroon, Central African Republic, Chad, Congo, Democratic Republic of the Congo, Equatorial Guinea, Gabon, Rwanda, Sao Tome and Principe.

¹¹³ UNFCCC: FCCC/AWGLCA/2012/MISC.3/Add.2.

side the scope of the UNFCCC which would need to be recognised under the FVA to be counted towards Japan's pledge under the UNFCCC, and internationally tracked to avoid double-counting.

The US notes that the decisions made in Durban are indicative of an important step forward on acknowledging the role of market-based mechanisms, including the role offset programs that exist outside of the UNFCCC will play in future efforts to address climate change.¹¹⁴

Canada does not specify whether it sees a role for carbon credits. Iceland leaves the possibility open to use carbon market options in the future.¹¹⁵

Australia points out that market-based mechanisms can enhance the cost-effectiveness of mitigation actions.¹¹⁶ Norway states that a NMM should set a price on a large share of global greenhouse gas emissions. It should also provide long term certainty and predictability to ensure market confidence. Norway also pointed at the need for a common accounting system for all Parties to avoid double counting.

New Zealand explicitly referred to the fragmentation of carbon markets and points out that there is an "important and time-limited opportunity now to better coordinate the international carbon market and increase consistency – to avoid a risk of fragmentation, and with it an increased risk of double-counting."¹¹⁷

India wants to keep new market-based approaches separate from the CDM and finds support from a number of developing countries which try to avoid competition between mechanisms. AOSIS asks Parties to refrain from participation in NMM unless there is clarity on the participation requirements, discount rates and the compliance value of the credits that could be issued in such a mechanism.

The various positions on new market-based approaches are summarised in table 10.

Table 10. Positions on market-based approaches

Market-based carbon mechanisms necessary	Market-based mechanisms necessary to achieve more ambitious additional reductions	Focus on using non market-based mechanisms or opposing markets	Parties presenting own proposals for market mechanisms	Participation should be voluntary and only once clear guidelines and procedures are in place
Australia Monaco New Zealand USA Japan	Norway Switzerland	Iceland Denmark Bolivia	Ecuador Colombia	China AOSIS

¹¹⁴ UNFCCC: FCCC/AWGLCA/2012/MISC.4

¹¹⁵ UNFCCC: FCCC/SB/2011/INF.1/Rev.1

¹¹⁶ UNFCCC: FCCC/AWGLCA/2011/MISC.2

¹¹⁷ UNFCCC: FCCC/AWGLCA/2012/MISC.4/Add.2

REDD+

REDD+ is a proposal that targets a major source of emissions from forestry activities but thereby it can also constitute a major source of supply of carbon credits. Positions on REDD+ point both at the urgency and importance of the issue as well as the market impact it could have when providing REDD+ with carbon market access.

Norway was the only country to emphasise that market mechanisms should be used to incentivise REDD+ only if the extended use of market mechanisms is paralleled by an increase in the overall ambition level. Switzerland put a proposal forward together with the Philippines and emphasised “market and non-market based approaches must be used to address the delay and uncertainty about the supply and demand for REDD+ credits”.¹¹⁸

The COMIFAC countries represented are open to the idea of a REDD+ market mechanism under the UNFCCC. However, they state that the Parties that do participate in REDD+ must have the choice to decide which funding mechanisms the Parties recognize as the most appropriate.

Colombia, Costa Rica, Honduras and Mexico point to the importance of the private sector in leveraging the amount of investment needed for REDD+ and in financing ambitious mitigation commitments. These countries argue that REDD+ credits should have a compliance value for emission commitments under the UNFCCC. Guyana supports this and adds that all emission reductions that are subject to MRV should have market access and the same compliance value as AAUs. Indonesia does not take a position on the relation of REDD+ with carbon markets but emphasises that REDD+ should be able to benefit from a large variety of different financing sources. The Gambia and Saudi Arabia oppose this position and want to keep REDD+ out of carbon markets. Saudi Arabia uses the argument that REDD+ credits could flood the carbon markets.

The Least Developed Countries state that REDD+ should be included in the negotiations on New Market Mechanisms. A REDD Mechanism should be complementary and additional to the CDM. In addition, instruments should be deployed to stabilize the price, for example with the use of proceeds from AAU auctions and/or carbon taxes. Countries with high forest cover and low historical deforestation rates should be able to adjust their reference emission levels.

¹¹⁸ UNFCCC: FCCC/AWGLCA/2012/MISC.3

India, supported by several other developing countries, suggests that the REDD mechanism cannot compete with and will lower market prices for actions taken under the Clean Development Mechanism (CDM). Therefore, while REDD should be addressed within a separate mechanism, a REDD mechanism must be complementary and additional to the CDM.¹¹⁹

Treatment of surplus AAUs

Since AAU banking will have a large impact on the supply and demand balance after 2012, the topic will be on the agenda in Doha. In a workshop on developed country targets, held in Bangkok in 2012, Parties expressed concern that the “carry-over and the use of surplus AAUs from the first commitment period of the Kyoto Protocol could undermine the ambition of current pledges” and recognised that “changes in global and regional economies can drastically affect our ability to make emission projections as demonstrated by the period of the early 1990s in Eastern Europe and more recently by the global recession of 2008–2009.”¹²⁰

In late October 2012, the EU tried to reach internal agreement on a negotiation position. In conclusion, the EU seeks a solution to the carry-over of AAUs as it considers the carry-over to be a threat to the environmental integrity of the second commitment period. It also states that the carry-over of AAUs applies only to countries that adopt a mitigation position for the second commitment period.¹²¹ The EU shares its concerns over the environmental impact of the carry-over with several NGOs.¹²² Russia, on the other hand, is not planning to sign up to a binding emission reduction target for a second commitment period but expects to be able to sell its AAU surplus.¹²³

4.4 Key outcomes from Doha climate conference

The 18th Conference of the Parties to the UNFCCC (COP18) and the eight Meeting of the Parties to the Kyoto Protocol (CMP8) convened in Doha from 26 November to 8 December 2012. Key outcomes relevant to this report included the adoption of a second commitment period (CP2) and associated Doha amendment to the Kyoto Protocol and agreement under the ADP to explore options for increasing pre-2020 ambition next year.

¹¹⁹ Bangladesh, Cameroon, Central African Republic, Congo (Republic), Costa Rica*, Cote d'Ivoire, Democratic Republic of Congo, Dominica, Dominican Republic, Fiji, Gabon, Ghana, Guyana, Honduras, Kenya, Pakistan, Panama, Papua New Guinea, Sierra Leone, Solomon Islands, Suriname and Uganda.

¹²⁰ UNFCCC (2012): Informal summary of the AWG-LCA Workshop.

¹²¹ Council of the European Union (2012), 3194h Environmental Council meeting.

¹²² Climate Action Network (2012).

¹²³ CCAP Europe (2012).

4.4.1 *Kyoto Protocol's second commitment period agreed*

Adoption of the extension of the Kyoto Protocol until 2020 did not directly increase the ambition of country pledges or international credit demand. In the Protocol's amended Annex B, the voluntary Cancún pledges of the 37 countries that joined CP2¹²⁴ were re-instated as binding CP2 targets. This said, some decisions taken at Doha have implications on the ambition level and Kyoto credit demand. Full carry-over of surplus AAUs from the first to the second commitment period was allowed, but their compliance use was restricted. Units can be used for own compliance without limits but compliance use of purchased units is restricted to 2% of the first commitment period Assigned Amount. Thirty-three Annex I countries¹²⁵ made political declarations not to purchase or use surplus AAUs, thus further limiting the negative impact of surplus AAUs on CP2 ambition. To alleviate developing country concerns over locking in a low ambition level until the end of 2020, it was decided that each Annex I Party will revisit its CP2 target by 2014 in order to increase the ambition of its target in line with an aggregate reduction of at least 25–40% below 1990 levels by 2020.¹²⁶ By April 2013, Parties were requested to submit information on their intention to raise the ambition level, to be considered at a high level ministerial round table in mid-2014.

Finally, a new paragraph (Article 3.7 ter) introduces a “shaving mechanism” whereby any positive difference between the CP2 target and the annual average emission level of 2008–10 times eight will tighten the CP2 target accordingly. Thus, any emissions growth in CP2 must be covered with (own) surplus AAUs from the first commitment period. This provision, which was reportedly added to the Kyoto amendment at the final hours by developing island states, has provoked Belarus – and possibly also Kazakhstan and Ukraine – to consider exiting the CP2. Unlike Ukraine, Belarus and Kazakhstan do not have a reserve of surplus GHG units from the first commitment period to allow room for growth in CP2, since these two countries did not have Annex I status, and hence, an Assigned Amount, in the first Kyoto period.¹²⁷

Regarding international credit demand, the Doha amendment secured the uninterrupted operation of the Kyoto mechanisms but had a negative impact on credit demand by restricting transfer and acquisition of Kyoto credits to CP2 participants only. This decision seems to prevent New Zealand, who opted out of CP2, from utilising Kyoto credits in its

¹²⁴ CP2 participants include: The 27 EU Member States and the European Union, Australia, Belarus, Croatia, Iceland, Kazakhstan, Liechtenstein, Monaco, Norway, Switzerland and Ukraine.

¹²⁵ EU and its 27 Member States, Australia, Japan, Liechtenstein, Monaco, Norway and Switzerland, see Annex II of FCCC/KP/CMP/2012/L.9

¹²⁶ UNFCCC: FCCC/KP/CMP/2012/L.9

¹²⁷ Reuters (2012): Belarus negotiator hints at Kyoto exit, says others could follow.

domestic emissions trading scheme. Lack of access to international credits has prompted the country to consider loosening the ambition of its pledge, again highlighting the close link between ambition levels and access to markets. Restricting access to Kyoto mechanisms can have larger negative impacts on ambition and credit demand beyond the exclusion of relatively low credit demand from New Zealand (8.4 Mt in 2011). Limiting the scope of markets limits their cost-effectiveness which, in turn, might reduce countries' willingness to take on more ambitious targets. Promoting a broader role for the Kyoto mechanisms in linking the fragmented carbon markets, including schemes operating outside of the Kyoto framework, might have served the developing countries' goal of higher ambition better than insisting on restricted access.

Regarding new market mechanisms, parties agreed that "any units generated from market-based mechanisms to be established under the Convention or its instruments" may be used for compliance under CP2.¹²⁸

4.4.2 CDM and JI under review

In 2013, CDM and JI will be undergoing reviews.

Regarding CDM, the EU showed a keen interest in improving the mechanism to better meet its preferences, indicating EU's interest in utilizing CDM also in the future. However, developing countries preferred to postpone such discussions and consider these proposals as part of the review in 2013, to be carried out by the Subsidiary Body for Implementation (SBI). Parties took note of the CDM Policy Dialogue's recommendations and requested the CDM Executive Board to consider those recommendations that are within its mandate. India, supported by other developing countries, proposed a paragraph encouraging Parties to establish "CDM stabilization funds" in line with the CDM Policy Dialogue's recommendation. However, this paragraph was not included in the final decision due to lack of consensus.¹²⁹

As for JI, Parties acknowledged the JI Supervisory Committee's work on the revision of JI rules and a proposal for transitional measures for ERU issuance before the establishment of the CP2 Assigned Amount. The SBI was tasked with the finalization of the revision of the JI rules, for adoption in December 2013 in Warsaw, and consideration, at an undefined point or time, of transitional measures for expediting ERU issuance. Parties already agreed on key attributes that shall characterize future JI, including: Agrees, with regard to the review of the joint implementation guidelines, on the following set of key attributes that shall

¹²⁸ UNFCCC: FCCC/KP/CMP/2012/L.9

¹²⁹ UNFCCC: The Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol, Draft decision -/CMP.8

characterize the future operation of joint implementation: a single unified track for all JI projects; closely aligned or unified accreditation procedures between JI and CDM; clear and transparent information regarding all relevant public information on the UNFCCC website; an appeals process under the authority of and accountable to the Kyoto Parties; clear, transparent and objective additionality criteria; and mandatory requirements for host Parties with respect to the approval of baselines, monitoring and reporting. The SBI shall consider, inter alia, the level of oversight needed to assure a common approach among host Parties; and the issuance of ERU (possibly by an international body).¹³⁰

4.4.3 Focus to Durban Platform for Enhanced Action

At Doha, the Ad Hoc Working Group on Long-Term Cooperative Action (AWG-LCA) negotiation track was brought to a conclusion, allowing parties to focus fully on negotiating a new global treaty under the Ad Hoc Working Group on the Durban Platform for Enhanced Action (ADP).

Parties forwarded outstanding issues from the AWG-LCA to the Subsidiary Bodies for further work. Work on various approaches, including opportunities for using markets, including preparation of work programmes and modalities for a NMM and FVA, were forwarded to the Subsidiary Body for Scientific and Technological Advice (SBSTA), for adoption at the next climate conference in Warsaw in December 2013. The work programme on the FVA shall cover: the purposes of the framework; the scope of approaches to be included under the framework; a set of criteria and procedures to ensure the environmental integrity of approaches in accordance; technical specifications to avoid double counting through the accurate and consistent recording and tracking of mitigation outcomes; and the institutional arrangements for the framework.

Regarding the work programme for a NMM, the SBSTA was requested to consider certain elements, including: standards that deliver real, permanent, additional, and verified mitigation outcomes, avoid double counting of effort and achieve a net decrease and/or avoidance of GHG emissions; requirements for accurate MRV; means to stimulate mitigation across broad segments of the economy; criteria, including the application of conservative methods, for the establishment, approval and periodic adjustment of ambitious reference levels (crediting thresholds and/or trading caps) and for the periodic issuance of units based on mitigation below a crediting threshold or based on a trading cap; criteria for the accurate and consistent recording and tracking of units; the facili-

¹³⁰ UNFCCC: The Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol, Draft decision -/CMP.8 Guidance on the implementation of Article.

tation of the effective participation of private and public entities; and the facilitation of the prompt start of the mechanism.

Under the ADP, Doha did not deliver concrete progress in terms of boosting pre-2020 ambition, but parties did, once again, “note with grave concern the significant gap” between current pledges and the ambition level required to keep warming below 1.5 to 2 degrees and decide “to identify and to explore in 2013 options for a range of actions that can close the pre-2020 ambition gap with a view to identifying further activities for its plan of work in 2014 ensuring the highest possible mitigation efforts under the Convention”. In addition, Parties re-instated their intention to agree on a global climate treaty by 2015, to come into effect from 2020, and plan to have a draft negotiating text ready by May 2015.¹³¹

4.5 Key findings

The positions formulated by countries on the different mechanisms do not yet offer a common overall vision on the effective use of market mechanisms in the future. Proposals for market-based approaches each have their advocates and opponents but lack an integrated perspective on the main questions:

- Who should provide demand for the credits that market mechanisms might generate in the future (or: who will co-finance the mitigation action)
- Which types of mitigation actions are most suitable and effective for the market-based approach?

The only proposals which really address the demand questions are those that make the use of market mechanisms or offset mechanisms conditional upon the adoption of more ambitious targets. In general, developed countries link increased ambition with the availability of market-based instruments that allow mitigation to be achieved cost-effectively. Developing countries emphasise that enhancing their mitigation action is subject to financial and technological support and capacity building provided by developed countries in accordance with the Bali Action Plan and Cancún Agreements.

Developed countries thereby touch upon the main idea behind markets and offset mechanisms: to reduce the cost of compliance by mobilising market forces to identify the cheapest mitigation options. Developing countries seem to still see market mechanisms as a means to receive

¹³¹ UNFCCC: The Conference of the Parties, Draft decision -/CP.18 Advancing the Durban Platform.

funds from developed countries, with only Colombia's NMM proposal shifting away from the bipolar division between Annex and non-Annex I countries towards a spectrum of development stages characterised by per capita emissions. Indirectly, though, the conditionality between developing countries' increased mitigation action and financial and technological support from developed countries could lead to new and increased demand for international credits, under the scenario where the Green Climate Fund was structured to provide financing by acquiring and cancelling international credits.

Looking at the developments in the EU for example, it seems unlikely that the EU will open its ETS to considerable new supply of offsets from non-Annex I countries either through direct linking or through higher quotas for international credits. As a consequence, market mechanisms can only work if demand is created in developing countries or countries with an emerging economy, through voluntary initiatives and/or through the Green Climate Fund. So far only a few countries are willing to adopt targets, on the national level or within a national ETS, that are stringent enough to create demand for offsets.

The climate negotiations in Doha in December 2012 delivered little in terms of concrete progress on ambition and international credit demand. However, the package of decisions known as the Doha Climate Gateway help to sharpen focus and shape of progress in the coming years, including timeframes for considering increases in the pre-2020 ambition level under the Kyoto Protocol and ADP and workplans for the modalities of a NMM and the FVA and for the revision of CDM and JI next year. The most concrete negative signal for increased ambition and international credit demand was the decision to allow trading with Kyoto mechanisms only for countries that join the second Kyoto period. The most concrete positive signal for ambition and demand was the decision to significantly limit trading of surplus AAUs the political declarations of many Kyoto Parties not to purchase such units.

To summarise, key positions that will have a significant impact on the supply and demand balance in the market are those related to:

- the question of whether the use of market mechanisms which offer the opportunity to lower the costs of compliance, should be coupled with higher emission reduction ambitions
- positions on new mechanisms and whether they will create additional supply and/or also additional demand
- creating demand for REDD credits without negatively affecting the supply and demand balance in the existing market mechanisms, notably the CDM.

5. Key conclusions and political options for the Nordic countries

5.1 Key conclusions

Demand for international credits during 2008–2012 was driven by the internationally binding Kyoto caps whereas 2013–2020 demand stems mainly from voluntary pledges,¹³² some of which have been converted into nationally/regionally binding targets and new Kyoto caps. Sovereign and private demand for international credits depends on the extent to which their use for compliance is allowed, as well as the required level of the mitigation effort.

To date, EU has been the main source of demand for CERs and ERUs, representing over 80% of total demand.¹³³ EU demand stems from two sources: EU Member States and EU ETS installations. Other key demand sources include Japan, New Zealand and, from 2015 onwards, also Australia. In total, we estimate the demand for international credits to be some 2.4–3.9 Gt by 2020 under current ambition levels, and on average some 4.2 Gt in case EU tightens its target from -20% to -30% compared with 1990 levels.

Our international credit supply analysis indicates that supply will exceed demand by between 0.7 and 1.7 Gt in 2020. This market imbalance has already resulted in a collapse of international carbon credit prices from their peak of some 30 euros in 2008 to well below one euro in December 2012. Current low markets prices are effectively signalling to the private sector that no further mitigation efforts are needed to reach current targets. However, this signal is in stark contrast with the message of scientists: mitigation efforts of unprecedented scale are urgently needed. In other words, the carbon market is not in crisis because of oversupply but because of lack of ambition to drive the urgently-needed mitigation.

¹³² Although some Kyoto Parties have translated their voluntary pledges into binding caps under the Kyoto Protocol's second commitment period, demand associated with the second Kyoto caps is equivalent to the voluntary pledges made by the Parties joining the second commitment period.

¹³³ About 84% of total demand according to the World Bank (2012): State and Trends of the Carbon Market 2012.

This report identifies several measures and circumstances that could be created to boost ambition and overall demand for international carbon credits, taking into account the trend towards fragmentation of carbon markets.

Promotion of international carbon markets is a key element for encouraging increased pre-2020 ambition by both developed and developing countries. Broad-based support for, and confidence in the environmental integrity and cost-effectiveness of the global carbon markets and international carbon credits are essential for maintaining and increasing the role of international credits in mitigation efforts. To support demand for international carbon credits, ambitious targets need to be coupled with extensive utilisation of international carbon market mechanisms.

Encouragement of the use of international credits within and across existing and emerging trading schemes through extensive linking and utilisation of international credits, and encouragement of establishment of new trading schemes builds confidence in, and interest and commitment towards a robust and broad-based international carbon market. And vice versa: robust international rules build confidence in carbon market mechanisms. This can support countries' willingness to commit to more ambitious targets and consequently boost demand for international credits.

Encouragement of voluntary initiatives and pioneering alliances that boost ambition and demand for international credits offer valuable readily available springboards for prompt mitigation action, and can play a key role especially in the short term, given the lead times of international policy-making. Preliminary analysis indicates that scaling up existing initiatives (e.g voluntary offsetting by companies and consumers and major cities' initiative, Climate and Clean Air Coalition to Reduce Short-Lived Climate Pollutants) could have the potential to bridge the ambition gap. Top-down oversight is also needed to avoid double-counting of mitigation impacts, and to incorporate the successes of bottom-up initiatives into the UNFCCC process.

Boosting ambition and new international credit demand through dedicated public or public-private credit purchase vehicles also offers readily available opportunities for a coalition of the willing that wishes to provide incentives for uninterrupted cost-effective mitigation action via market mechanisms, especially for the private sector. There is ample institutional capacity and expertise that offer readily available channels and resources to accommodate potential future increases in international credit demand, should a coalition of the willing wish to provide capital for new credit purchases.

Carbon purchase vehicles do not increase credit demand per se, unless the acquired international credits are cancelled or used towards increased ambition rather than existing pledges. By providing access to international credits, promoting the development of market-based mechanisms and offering a stable and predictable source of demand and upfront support for mitigation action, such vehicles can enhance confidence and encourage participation in global carbon markets. They can increase

ambition indirectly by providing easy access to carbon markets and thus encouraging countries to increase their ambition, and directly by enabling the purchase and cancellation of international credits, resulting in an immediate increase in ambition. If such early action were to be somehow acknowledged in the 2020 global agreement, this could increase the motivation for participation. There are various ways to structure the credit purchase vehicle, depending on the goals and priorities of its participants. The vehicle may be a sovereign purchase programme, the Green Climate Fund or a fund with various windows for e.g. public and private actors and/or for different types of activities. Voluntary vehicles would be free to experiment with any combination of existing and new standards for distributing finance, as well as utilise existing and emerging market mechanisms. Given that CDM (and Track 2 JI) are readily available international standards for measuring, reporting and verifying (MRV) mitigation outcomes and generating carbon credits as “receipts” of emission reductions, vehicles aiming to increase ambition in the near-term could make extensive – and creative – use of the CDM (and JI) framework. These vehicles could also be used to pilot emerging approaches such as a New Market-Based Mechanisms and a Framework for Various Approaches, and provide input for their further elaboration.

Linking and fungibility of credits

Many countries are developing a domestic cap and trade scheme or consider doing so. Linking these systems provides an opportunity to expand these carbon markets to regional or even global coverage. Despite the fact that linking is becoming a subject of interest for carbon market actors it is important to keep in mind that guaranteeing existing and sustainable carbon demand will continue to be the primary condition for any type of linking. Thus creating enough demand should precede the debate on linking. Linking per se will not increase or reduce demand as other most important factors determine supply and demand.

Experience with linking emission trading schemes is very limited. Most linking experience has been gained through linking ETSs to offset mechanisms, either with the same geographic coverage as the ETS or with a focus on international cooperation.

The following lessons can be drawn from linking cases:

- Existing and sustainable demand should be guaranteed, while noting that linking itself can not guarantee demand.
- Harmonised market rules are vital to the success of linking.
- Emerging linking arrangements reflect changes in positions of key players in supply and demand dynamics.
- Linking seems more likely between countries with similar levels of economic development or even a degree of economic integration, similar climate objectives and regulatory systems.

- Limited measures exist to provide for policy changes and interventions in linked schemes, even though this is recognised as important.
- Comparability of MRV and compatibility of registries are crucial but presents major challenges in countries with poor governance or infrastructure.
- The role of offsets is a key issue in linking ETSs.
- Expectations on the market impact of linking should be realistic, in particular on whether, and to which the extent, one of both schemes will be a net buyer.

The climate negotiations in Doha in December 2012 delivered little in terms of concrete progress on ambition and international credit demand but the package of decisions known as the Doha Climate Gateway help to sharpen focus and shape of progress in the coming years, including timeframes for considering increases in the pre-2020 ambition level under the Kyoto Protocol and Ad Hoc Working Group on the Durban Platform for Enhanced Action (ADP) and workplans for the modalities of a NMM and the Framework for Various Approaches (FVA) and for the revision of CDM and JI next year. The most concrete negative signal for increased ambition and international credit demand was the decision to allow trading with Kyoto mechanisms only for countries that join the second Kyoto period. The most concrete positive signal for ambition and demand was the decision to significantly limit trading of surplus AAUs the political declarations of many Kyoto Parties not to purchase such units.

5.2 Political options for Nordic countries to boost ambition and credit demand

This report has explored ways in which the ambition gap could be bridged, coupled with wide use of international credits in order to address the current oversupply in the global carbon markets.

Below, options to boost ambition and international credit demand have been summarised from the Nordic perspective. These options should not be considered as recommended action but merely identified possibilities for increasing international credit demand, should this be deemed desirable.

Options to increase international credit demand through UN negotiations (those with more direct impacts at the top of the list)

- Promote the establishment of multilateral credit purchase vehicles and/or credit reserve banks for increasing ambition via purchase and retirement/withholding of international carbon credits.

- Promote the eligibility of international credits for financing via the Green Climate Fund, and maximum utilisation of the CDM framework in the operationalisation of the fund.
- Promote increased ambition, e.g. through leading by example.
- Promote demand for international credit mechanisms, e.g. by stimulating their use also beyond the Kyoto framework to enhance their roles as an indirect link in various emissions trading schemes and the voluntary markets.
- Highlight the critical link between the availability of cost-effective market mechanisms in enabling and encouraging developed and developing countries to increase their ambition.
- Promote application of strict / accurate accounting rules that ensure genuine ambition and coordinated tracking to avoid double-counting.
- Promote maximum efficiency and acceptability of international credit mechanisms by engaging in their continuous development and adaptation to various needs from fragmented carbon markets, including consideration of options to increase net mitigation.
- Promote wider understanding and realistic expectations of (new and existing) market mechanisms (e.g. regarding price level and private sector participation) by sharing Nordic experiences and insights with market mechanisms in the negotiations.

Options to increase international credit demand outside UN negotiations (those with most direct impact at the top of the list)

- Commit to the purchase of international credits via purchase programmes and/or carbon funds, considering options to increase net mitigation.
- Initiate the establishment of a multilateral public-private carbon credit purchase vehicle for increasing ambition via purchase and cancellation of credits, and invite a coalition of the willing to join the vehicle.
- Encourage and support voluntary use of international credits by e.g. municipalities, companies and the general public, e.g. by providing GHG accounting and tracking tools or access to purchase pools.
- Promote increased ambition at the EU level, i.e. moving to the -30% target, e.g. through leading by example.
- Promote maximum use of international credits and minimal qualitative and quantitative restrictions for credit eligibility within the national/regional systems in order to enhance global market consolidation.
- Encourage indirect linking via international credits e.g. by engaging in the development of internationally harmonised standards for environmental integrity and investigating the potential impact of planned linking on the demand for international credits.
- Support wider understanding and development of high-quality market mechanisms by sharing Nordic experiences and insights with market mechanisms via e.g. the World Bank's Partnership for Market Readiness (PMR).

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7. Sammanfattning

Det internationella samfundet är enigt om att ökningen av jordens medeltemperatur bör begränsas till högst två grader för att avvärja en farlig klimatförändring. Nuvarande löften om utsläppsminskningar ligger dock under den ambitionsnivå som krävs för att nå tvågradsmålet.

Många länder har kopplat ihop en högre ambitionsnivå med tillgängligheten av marknadsbaserade instrument som främjar kostnadseffektiv implementering av klimatpolitik. Utsläppshandelssystem och krediteringssystem utnyttjas redan i stor skala på det nationella, regionala och internationella planer. Nya system utvecklas och planeras både i industriländer och utvecklingsländer.

Det internationella samfundet och den privata sektorn har utvecklat FN-standarder för internationella krediter som utfärdas för utsläppsminskningar som görs i förhållande till förutbestämda referensscenarier. Detta arbete har skett inom ramen för Kyotoprotokollets projektbaserade mekanismer. Det finns flera alternativa standarder för internationella och nationella krediter och utsläppsenheter och nya håller på att utvecklas. Somliga nationella och regionala system tillåter importen av enheter. Importen begränsas i flera fall med kvalitativa och kvantitativa krav.

Tillsammans skapar dessa system en mosaik av globala kolmarknader som är delvis länkade men allt mer fragmenterade. Denna globala marknad står för tillfället inför en djup kris på grund av brist på efterfrågan. Priserna har sjunkit och den privata sektorns intresse för att identifiera nya sätt att minska utsläppen har minskat. Den privata sektorns fortsatta engagemang är kritiskt på grund av dess centrala roll i finansieringen av åtgärder som motverkar klimatförändringen. Utan privata sektorns fortsatta engagemang faller tvågradmålet utanför räckhåll.

Denna rapport analyserar utsikterna för de globala kolmarknaderna och identifierar åtgärder samt omständigheter som kunde skapas för att öka ambitionen och höja efterfrågan på internationella krediter samtidigt som marknaden fragmenteras. De centrala resultaten sammanfattas nedan.

Efterfrågan på internationella krediter är nära kopplad med ambitionen på de nationella åtaganden, ökar den ena så ökar den andra. Länderna bör öka sin ambitionsnivå, tillämpa noggranna redovisningsregler samt driva en politik som realiserar kostnadseffektiva lösningar i stor skala för att sluta ambitionsgapet. Tillgängligheten och åtkomligheten av kostnadseffektiva politikinstrument så som internationella krediter är avgörande för flera länders villighet att förbinda sig till mera ambitiösa mål.

Uppmuntran av användning av internationella krediter i stor skala kan både öka ambitionsnivån och höja efterfrågan på internationella krediter

genom länkning av marknader. Länkning expanderar räckvidden för kostnadseffektiv potential och sänker kostnaden för att nå ambitiösa mål. Man bör dock inte äventyra hållbar utveckling genom vårdlös länkning av marknader. Marknadsbalansen ändras som följd av att länkning omfördelar och expanderar räckvidden på utbudet och efterfrågan.

Uppmuntran av frivilliga initiativ och banbrytande allianser för motverkning av klimatförändringen kan öka både ambitionsnivån och höja efterfrågan på internationella krediter speciellt på kort sikt då tiden som det tar att förhandla internationella avtal tas i beaktande. Existerande initiativ har stort potential för att skalas upp.

Specialiserade fonder som köper krediter kan även öka ambitionsnivån och höja efterfrågan på internationella krediter. Dessa fonder kan vara antingen offentliga eller privata. Dylika fonder erbjuder lättillgängliga möjligheter för koalitioner som är villiga att skapa incentiv för kostnadseffektiva åtgärder som är oavbrutna och marknadsbaserade. Fonderna skapar ny efterfrågan om de förvärvda krediterna annulleras eller om de används för att höja ambitionsnivån.

De globala klimatförhandlingarna saknar fortfarande ett integrerat perspektiv om vem som borde öka ambitionsnivån och höja efterfrågan på internationella krediter efter att Kyotoprotokollet löper ut 2012. Deltagarna i klimatförhandlingarna i Doha i december 2012 enades inte om några konkreta åtgärder för att öka ambitionsnivån men de beslöt om en förlängning till Kyotoprotokollet samt om en tidtabell för att utforska alternativ för att sluta ambitionsgapet före 2020.

I slutsatserna till denna rapport övervägs olika alternativ för de nordiska klimatförhandlingarna för att öka ambitionsnivån och höja efterfrågan på internationella krediter.

8. Appendix 1.

Background information on regional and national emissions trading schemes

EU Emissions Trading Scheme (EU ETS)

The EU ETS is a supra-national mandatory emission trading scheme covering the 27 EU Member States plus Norway, Iceland and Liechtenstein. Operating since 2005, the scheme was revised in 2009 and in 2013 will enter its third phase, which will be largely governed by the revised rules.

The relevant EU ETS legislation is the EU ETS Directive 2003, as amended in 2004 and 2009. The revised Directive has explicit provisions on linking with offset schemes and other ETSs.

Linking with ETSs

Under Article 25 of the EU ETS Directive the EU may link its system with ETSs in countries listed in Annex B to the Kyoto Protocol. It may also link with systems in other countries or in sub-federal or regional entities, as long as those systems have absolute emissions caps. While the condition of having absolute emissions caps is not explicitly applied to systems in Annex B countries, this is likely due to the expectation that systems in these countries will have absolute caps, in line with the absolute caps Annex B countries have adopted under the Kyoto Protocol.

The Directive states that linking agreements with Annex B countries should provide for “mutual recognition” of credits, indicating that any links must be bilateral. With respect to other countries or entities, agreements should provide for recognition of allowances *between* the EU ETS and the other scheme, which in practice will likely require mutual recognition.

Though not an absolute requirement, the recitals to the revised Directive state any linking decisions should consider the environmental ambition in the linked scheme and the presence of a robust and comparable emissions monitoring, reporting and verification mechanism and compliance system.

Establishing a link with an Annex B country under Article 25 requires entering into an international agreement with the country or entity concerned. Agreements must follow the process for negotiating international agreements set out in Article 218 of the Treaty on the Functioning of the European Union. Under this provision, negotiations must be authorised by the EU Council, who may appoint a lead negotiator and issue directives to her/him. After negotiations have been concluded, approval of the Council is required to sign the agreement. The required legislation

can then be adopted by the Commission with the assent of Member States through a comitology procedure.¹³⁴

Offsets in the EU ETS

The EU ETS first linked to international offsets through the 2004 Linking Directive. The Linking Directive permitted ETS participants to use credits from CDM and JI projects up to limits set by each Member State. Quality standards were imposed by prohibiting the use of credits from nuclear and land use, land use change and forestry (LULUCF) activities, and requiring credits from large hydropower activities to meet certain quality standards.

The 2009 revision of the EU ETS Directive substantially overhauled the provisions on offset use and brought in several new restrictions. From 2013 onwards, credits can only be used from projects in Least Developed Countries (LDCs) or from CDM and JI projects that were registered pre-2012. In addition, the revised Directive allowed further qualitative restrictions to be introduced, and in 2011 the EU Commission introduced a ban on credits from industrial gas projects (HFC and adipic acid N₂O) from May 2013 onwards. While there have also been calls for further restrictions on credits from large hydropower projects, the Commission has stated that no new restrictions are currently planned.¹³⁵ If and when an international agreement is reached, an additional criteria is introduced: ratification of the international agreement by the host country.

If and when an international agreement is reached, an additional criterion is introduced: ratification of the international agreement by the host country. In January 2012 the European Commission clarified on their website¹³⁶ that they do not consider the second commitment period of the Kyoto Protocol as an “international agreement” which would trigger changes in the EU ETS Directive in terms of CDM/JI credit quotas or qualitative restrictions, since it is not accompanied by a legally binding post-2012 agreement with adequate commitments by the US and major developing countries in the period beyond 2012. It is possible, however, that the EU ETS Directive is amended once there is clarity about the new international agreement.

In autumn 2012, the European Commission reportedly proposed to limit the ability of EU ETS installations to utilize ERUs that are issued after 31 December 2012. If implemented, such restrictions could cut

¹³⁴ Comitology is a regulatory process through which the Commission adopts implementing legislation after consultation and assent with a committee of Member State representatives and the approval of the European Parliament.

¹³⁵ Climate Focus (2012).

¹³⁶ European Commission Clima News (2011).

ERU supply by some 100 Mt according to CDC Climat.¹³⁷ In the EU ETS Directive, ERU eligibility is linked to the period of generating the underlying emission reductions rather than the issuance date. The possibility of extra ERU restrictions increase their risk compared to CERs.

At the same time, the revised Directive introduced a provision to allow for a new offset regime to be established under Article 24a and for bilateral agreements allowing for offset use under specific schemes to be established under Article 11a (5). However, the Commission has indicated that it does not intend to introduce either of these schemes in the foreseeable future.

The move to limit offsets through these new restrictions may reflect a number of factors. On one hand, qualitative restrictions on industrial gas credits came in response to concerns over the environmental integrity of these credits, and broadly reflect the growing importance of environmental integrity of offset provisions for demand-side systems such as the EU ETS. At the same time, the overall move to limit offset use to LDCs reflects the EU's views that larger economies should move more toward setorial or economy-wide emission reductions. The unwillingness of the EU to initiate procedures for a mechanism under Article 24a or agreements under Article 11a (5), for its part, appears to reflect a reluctance to open the market to further credits given current over-supply in the EU ETS.

EU Effort Sharing Decision (ESD)

From 2013 onwards, non-ETS sector targets have been allocated to Member States under the Effort Sharing Decision (ESD), represented by the Member States' Annual Emission Allocation (AEA), which is partially transferrable to other Member States.

Switzerland

Switzerland began a voluntary emissions trading system in 2008. Companies who participate in the Swiss emissions trading scheme are exempt from the CO₂ tax that would otherwise apply. The legal basis for the scheme is to be found in the CO₂ Act and the implementing measure is the CO₂ Ordinance. In December 2011 the Swiss Federal Assembly adopted a new CO₂ Act and at the moment a draft CO₂ Ordinance is before the Assembly.

The new CO₂ Act states that the Federal Council can decide to make the ETS compulsory for certain industries. In the draft CO₂ Ordinance it is clear that in the expectation of a full link with the EU ETS, the system will become mandatory for those industries that also fall within the scope of the EU ETS. There is no explicit provision on a bilateral link with the EU or any other ETS in the CO₂ Act. However, the draft CO₂ Ordinance proposes

¹³⁷ CDC Climat (19/9/2012).

several changes to be in line with the EU ETS, which will be discussed more below. The provision on the link with CDM and JI projects (international offsets) will also be brought in line with the EU legislation.

Waxman-Markey Bill (US Federal)

Although the Waxman-Markey Bill was not ultimately passed into law, it remains the most advanced legislation on a possible federal cap and trading scheme for the United States, and any future proposals are likely to be influenced by the bill's approach. Its provisions therefore remain relevant.

The Waxman-Markey Bill allows international allowances from comparably stringent schemes to be recognized. No specific limitations are required to be placed on the import of credits from recognized schemes. Similarly, no restrictions are placed on other schemes seeking to purchase US allowances. Eligible schemes are those operated by a national government or supranational organizations that impose an absolute limit on GHG emissions, in a sector or across an entire economy. An eligible scheme must have comparable rules on monitoring, compliance, enforcement and quality and quantity restrictions on offset.

A variety of offsets are allowed in the proposed Waxman-Markey scheme. Offsets from developing countries, sectoral credits, credits issued by an international body, and offsets from reduced deforestation from approved countries would have been accepted up to a certain absolute limit (2 billion credits).

Australia

The Australian Carbon Pricing Scheme (CPS), approved in November 2011, is a mandatory mechanism to place a price on emissions in a range of sectors covering 60% of Australia's GHG emissions. It is currently undergoing a "fixed-price" period under which a fixed price is paid for each tonne of GHG emitted (initially 23 AUD/t (17 EUR), rising to 25 AUD/t (19 EUR) by mid-2014), and in 2015 will move to a "flexible price" period under which the price will be set by the market, rendering the scheme into a fully-fledged emissions trading scheme.

The relevant CPS legislation¹³⁸ does not contain specific provisions on linking with other ETSs. It does allow for regulations to be adopted recognising units issued "under the law of a foreign country", which would appear to include permits issued by foreign ETSs. Regulations are adopted by a Minister, and so avoid going through the full legislative process. In practice, however, linking with other ETSs will require certain changes to be made to the system that will require full legislative

¹³⁸ Australia Clean Energy Act (2011).

changes. This has been seen in the context of the recent moves to link with the EU ETS, with the government recently introducing seven bills into Parliament to facilitate linking.¹³⁹

The CPS legislation allows participants to use international offsets from CDM and JI projects to be used for up to 50% of their compliance obligations. Domestic offsets from projects under the country's Carbon Farming Initiative are also permitted. However, under the amendments expected to be adopted for linking to the EU, this allowance will be reduced to 12.5%. The legislation allows restrictions to be placed on the types of international units that may be surrendered. Restrictions may take into account, inter alia, environmental integrity considerations and any restrictions under the EU or New Zealand ETSs, indicating a certain unity on recognition of credits between systems. So far, restrictions have been placed on credits from industrial gas projects, nuclear activities, large-scale hydropower projects that do not meet certain sustainability criteria and temporary credits from afforestation and reforestation projects.

New Zealand

New Zealand's Emission Trading Scheme (NZ ETS) is an nationally-based mandatory scheme originally established in 2008 and later substantially revised in 2009 and 2012. The scheme is intended to ultimately include almost all major GHG emitting sectors of the country's economy, with different sectors being phased in over time. Participants in the energy and industry sectors need to cover only 50% of their emissions with NZUs. Until the end of 2012, participants pay a fixed price of 25 NZD/t (14 EUR).

As with Australia, the relevant New Zealand ETS legislation¹⁴⁰ does not contain explicit provisions on linking with foreign ETSs. Also similarly to Australia, however, credits issued "by an overseas registry" may be permitted by a Minister adopting regulations.¹⁴¹ Where linking involves changing substantive elements of the system, this will likely require that amendments to the legislation are adopted.

New Zealand allows international offsets from CDM and JI projects without any quantitative restrictions. As with the EU and Australia, New Zealand has however adopted restrictions on credits from industrial gas, nuclear and CDM afforestation and reforestation (AR) projects.

California

The California cap-and-trade programme is a mandatory ETS that sets a statewide limit on emission sources responsible for 85% of California's GHG emissions. The programme is administered by the California Air

¹³⁹ The Australian (2012).

¹⁴⁰ New Zealand Climate Change Response Act 2002 (as amended).

¹⁴¹ Ibid.

Resource Board (ARB) and participation is to be phased in between 2013 and 2015.

The California cap-and-trade programme's establishment was provided for in under Assembly Bill 32 (AB 32). The rules for the operation of the programme, however, were provided in a subsequent regulation, entitled "California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms" (the "Cap-and-trade Regulation"). The Cap-and-trade Regulation lays down specific provisions on both linking with other ETSs and on linking with sectoral and project-based offset schemes.

Linking with ETSs

The AB 32 Programme has been specifically designed to link with similar trading programs in other states and regions.¹⁴² Under the relevant cap-and-trade regulation, ARB must complete a new "rulemaking" to accept compliance instruments from a foreign ETS.¹⁴³ This would follow an agreement on linking between California and the state or region. A "rulemaking" is a regulatory procedure that is more straight-forward than a full legislative procedure, but nonetheless requires a range of consultations and impact analyses to be carried out. In practical terms, the result would be an amendment to the Cap-and-trade regulation.

The Cap-and-trade Regulation does not specify any specific criteria that a cap-and-trade programme must meet to be considered for linking. In practice, however, the impact analyses required for rulemakings will involve any linking proposals being assessed against a range of economic, environmental and social justice criteria, as well as being tested against several alternatives.

Once the rulemaking has been adopted, allowances from the approved ETS can be used without any quantitative limitation, though any offsets issued by that system would be subject to the same restrictions as other offsets.

Offsets

California's Cap-and-trade scheme provides for the use of project-based offsets from projects developed under specific offset protocols within the United States of America (USA), Canada or Mexico. So far, four offset protocols have been adopted:

- Livestock projects.
- Ozone depleting substances projects.
- Urban Forest Projects.
- AUS Forest and Urban Forest Project Resources

¹⁴² California Air Resources Board (ARB).

¹⁴³ California Code of Regulations.

All existing protocols relate only to projects in the USA. However, an additional option exists to recognise credits generated by sector-based offset programs from developing countries.¹⁴⁴ At present, only programs covering Reducing Emissions from Deforestation and forest Degradation (REDD) emissions may be recognised under AB 32. Eligibility is obtained pursuant to approval of the program by the ARB through an administrative procedure. Indicative requirements that may be set out by the ARB include:

- A plan for emission reductions from the sector.
- A transparent MRV and reporting system.
- Requirements to ensure offsets are.
 - real
 - additional
 - quantifiable
 - permanent
 - verifiable and
 - enforceable.

Quebec

On December 14, 2011 the Government of Québec adopted the *Regulation respecting a cap-and-trade system for greenhouse gas emission allowances*. Starting on 1 January, 2013, some 75 operators, primarily in the industrial and electricity sectors, whose annual GHG emissions are equal to or exceed the annual threshold of 25,000 tCO₂e (25 thousand tonnes of carbon dioxide equivalent), will be subject to the system. From 2015 distributors and buyers of fuel for consumption will also fall under the scope of the system.

In June 2012, an amendment to this Regulation was opened for consultation. The aim of this amendment is to harmonize Quebec's system with that of California, and it sets the rules under which Quebec will issue offset credits.¹⁴⁵

Linking with other ETs

Act of Quebec contains a provision (Section 46.14) for linking the cap-and-trade system to a cap-and-trade system of a government other than Quebec, a department of such a government, an agency of such a government, or an international organization. Such an agreement may provide for:

- the reciprocal recognition of the emission allowances granted under the different cap-and-trade systems and how they correspond to each other

¹⁴⁴ California Code of Regulations.

¹⁴⁵ Government of Quebec webpage: <http://www.mddep.gouv.qc.ca/changements/carbone/index-en.htm>

- the consolidation of registries; and
- the mutual recognition of decisions made by the competent authorities regarding the suspension, withdrawal or cancellation of emission allowances.

Offsets

Quebec has not linked to CDM or JI, and only allows for domestic offsets from projects that destroy methane at manure storage facilities, capture emissions from landfills, and destroy ozone depleting substances (ODS) found in old refrigerators and other appliances to comply with carbon caps.

Japan

Japan has implemented four market-based mechanisms to drive emission cuts: The first commitment period of the Kyoto Protocol, local emission trading schemes (like in Tokyo), Japan Voluntary Emission Trading Scheme (JVTES) and two voluntary crediting schemes. In addition of Kyoto Protocol, it is also possible to use Kyoto credits in the JVTES.

9. Appendix 2.

Options to increase ambition and international credit demand

Options to increase ambition and international credit (IC) demand	Mitigation potential (Gt)	IC demand potential (Gt)	Notes on assumptions
<i>Starting point: Business as usual (miti-gation gap 12 Gt)</i>	-12	6.0	<i>Assume 50% of effort with ICs</i>
<i>Mitigation potential with existing pledges (max)*</i>	-6.0	1.8	<i>IC demand potential 29% of total mitigation potential</i>
Unconditional pledges (lenient accounting)	-2.0		Assume zero mitigation effort by Annex I, thus zero IC demand
Conditional pledges (lenient accounting)	-1.0	0.25	Assume Annex I share 50%, of which 50% met with ICs
Strict accounting rules	-3.0	1.5	Assume accounting impact fully Annex I, 50% met with ICs
<i>Further mitigation potential by countries (max)</i>	-10.5	2.9	<i>IC demand potential 43% of total mitigation potential</i>
Annex I ambition from -17.5% to -25%**	-1.5	0.75	Assume 50% of effort with ICs
Annex I ambition from -25% to -30%**	-0.9	0.68	Assume 75% of effort with ICs
Annex I ambition from -30% to -40%**	-1.9	1.4	Assume 75% of effort with ICs
New pledges from countries without pledges (strict accounting)****	-1.2		
Planned but not pledged mitigation in China**	-0.7		
Planned but not pledged mitigation in India**	-0.6		
Clean Air Coalition To Reduce Short-Lived Climate Pollutants	-1.0		Assume implementation of 50% of technical potential
Reducing emissions from deforestation by 50% by 2020**	-0.9		In addition to current pledges by Brazil, Indonesia and Mexico
Phasing out fossil fuel subsidies***	-0.9		
Reducing HFC emissions**	-0.5		Assume additional to current developing country pledges
Applying strict additionality rules for CDM projects**	-0.4		

Options to increase ambition and international credit (IC) demand	Mitigation potential (Gt)	IC demand potential (Gt)	Notes on assumptions
<i>Further mitigation potential via non-government initiatives (max)***</i>	-6.6	4.0	<i>IC demand potential 61% of total mitigation potential</i>
Voluntary offsets by companies	-2.0	2.0	Assume 100% with ICs
Voluntary offsets by consumers	-1.6	1.6	Assume 100% with ICs
Top 1000s companies' emissions	-0.7	0.4	Assume 50% effort with ICs
Major Cities' Initiative	-0.7		
Mitigation action by car and truck manufacturers	-0.7		
Sub-national governments	-0.6	0.06	Assume 10% with ICs
Mitigation measures by international shipping and aviation	-0.3		
<i>Further mitigation potential via Green Climate Fund (max)*****</i>	-2.6	2.6	<i>Assume 50 bn USD used for IC purchase, no power sector, in addition to 1.6 Mt funded under high pledges</i>
<i>Total theoretical mitigation potential</i>	-25.7	11.3	<i>IC demand potential 44% of total mitigation potential</i>

Source: *UNEP (2011) , ** Netherlands Environmental Assessment Agency (PBL), (2012); *** Blok *et al.* (2012). **** Climate Action Tracker Update, (3/9/2012) ***** Gallo, F. (2012).

Demand in a Fragmented Global Carbon Market: Outlook and Policy Options

The global carbon market currently faces a deep demand crisis. The consequent price fall reduces the incentive to make low-carbon investments and thus increases the risk of locking in carbon-intensive infrastructure. The global carbon market relies on ambitious climate policy and consists of a mosaic of different schemes. Despite the current lack of ambitious global climate policy, various market-based approaches are emerging around the world, indicating increasing scope and fragmentation of the carbon markets.

This report, conducted by GreenStream together with Climate Focus, analyses the status and outlook of global carbon markets and identifies measures and circumstances how new demand for carbon credits could be created to strengthen global efforts to limit the global average temperature rise to 2°C, taking into account the trend towards fragmentation of carbon markets.