



COMBAT CLIMATE CHANGE
A Business Leaders' Initiative

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Linkage and Leakage

3C's Recommendations for Policy Makers

3C (Combat Climate Change) -
A Business Leaders' Initiative

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Executive summary

The 15th Conference of Parties, taking place in Copenhagen in December 2009, is widely seen as a turning point in the global efforts to combat climate change. Much of the future success of these efforts may depend upon the world's governments agreeing a broad framework that points the global economy in a new direction: towards a low-carbon future.

It is likely that the details of national commitments and policy implementation will be matters for ongoing negotiation and development beyond 2009. Nonetheless, from the perspective of global business, there are some areas where an international framework can already accelerate the practical work of institution building. One of the most important is the global trade in carbon.

Carbon markets are emerging in national and regional contexts, and will continue to do so for some years. It is the position of the 3C Initiative, however, that a global market in carbon is an important objective that should be supported by the provisions of the international framework.

Given the different development stages of various carbon markets, 3C believes that the establishment of a stepwise model for integrating these markets is a realistic course of action on the road to full linkage. The international framework can facilitate this integration in practice by: establishing and empowering **a forum for dialogue about carbon market integration**; establishing **provisions for 'pilot' linkages** between markets; describing **a pathway towards full linkage** between markets.

Related to efforts to link different carbon market regimes is the challenge of 'leakage' of carbon-emitting production from strict regimes to less strict regimes. This issue has become an obstacle to political efforts to cap or otherwise impose a price on emissions, and many national governments have discussed and proposed measures, some controversial, intended to counteract the leakage phenomenon. The global framework can contribute meaningfully by establishing which kinds of compensatory measures all parties can accept as legitimate.



Recommendations

Linking

Until a global agreement is in place, it is important to provide practical support for linking national and regional carbon markets. Two key elements of market design that may affect the potential for linkage are approaches to the management of price levels and volatility, and the provisions for offsetting through reductions in sectors and countries not covered by the cap-and-trade system. Harmonizing the approaches taken in different markets would significantly boost progress towards globalized trade in carbon. The 3C (Combat Climate Change) initiative has developed recommendations for how a global framework can support such progress on these two issues.

A step-wise approach is a realistic course of action in order to arrive at full linkage. Such an approach should include the following three steps:

1. Dialogue
2. Pilot linking
3. Full linking

Step 1 - Dialogue: An international forum (ICAP or a similar body) should host a dialogue involving both policymakers and participants in the cap-and-trade system. Linking markets is primarily a challenge of building trust and shared mindsets, and such a forum will likely be necessary to support convergence between markets on many issues going forward. It should explicitly take up the issues of price management and offsetting. The next two steps, pilot linking and full linking, should be supported by dialogue within this forum to ensure that the participants trust and support the process.

The aim of the dialogue would be to reach an agreement about the path forward, including milestones.

Issues needing ongoing dialogue regarding price management:

1. What are the underlying factors for the historic price swings – how can these be avoided? What lessons have been learned about information access and transparency that can prevent major swings?
2. How will national policies influence prices?
3. What aspects of market design can support price convergence?
4. What measures can protect participants who are particularly vulnerable to high prices?

Issues needing on-going dialogue regarding offsetting provisions:

1. The basis for the use of offsetting (i.e. economic efficiency, political engagement, sustainable development, etc). A shared view of the role of offsets will support linking.
2. Standards for environmental integrity in offsetting provisions – dialogue should develop a common view and eventually common standards.



3. Price effects – harmonizing offsetting provisions will also depend on the relative effects offsets have on the overall price. This effect will in turn be based on the type and quantity of offsets available. Dialogue can support the exchange of data and a shared view on the role offsets can play in linked markets.
4. Recognition of international offsetting mechanisms such as CDM and JI, and their presumed successors within the global framework.
5. Standards for domestic offset systems – dialogue should develop a common view and eventually mutual acceptability.

An overarching objective of the dialogue should be to view these issues with respect to a stepwise process: creating enough harmonization to allow “pilot linking” and eventually full linkage between markets.

Step 2 - Pilot linking: The aim is to pave the road for full linkage. By initiating linkage, although restricted in some fashion, markets can create trust and establish interests among participants in favor of increased links between markets. The pilot linking period should be restricted in time to, for example, five years. A clear set of benchmarks should be defined as to when the pilot linking should be expanded into full linkage.

Pilot approaches that accommodate different approaches to price management:

There are two different types of “pilot linking” that should be considered:

1. *Unilateral linking* - allowances can only flow from the system without a price cap (or a safety valve, offsetting, penalties in lieu of permit repurchase etc.) to the system with a price cap.
2. *Restricted linking* by one of the following methods:
 - a. Cap on the amount of traded allowances – the participating companies are only allowed to buy or sell a certain percentage of the needed allowances outside their own cap-and-trade system.
 - b. Exchange rate of the traded allowances – the cap-and-trade regime without any price management mechanisms can introduce an exchange rate to limit the flow of allowances.
 - c. A ‘gateway’ approach - installations in the cap-and-trade systems would be restricted from trading allowances once the market price goes above the level of the price cap which one of the systems have introduced.

Pilot approaches that accommodate different approaches to offsetting:

Restricted linking

1. A ‘gateway’ approach – acceptance of only those credits generated by certain pre-agreed types of offsets.



2. Cap on the amount of traded allowances (addresses price effect but not environmental integrity)
3. Combinations of 1 and 2 above

Step 3 – Full linking: When the participants have developed a certain level of trust, it will be easier to introduce full linking, wherein the cap-and-trade systems have sufficiently harmonized approaches to price management and offsetting.

What full linking will require in terms of harmonization of price management:

Policy makers need to abandon or alternatively agree on price management strategies in order to fully link the systems. By initiating linkage, although restricted, one creates a “dependency” on linkage and the confidence and trust in other cap-and-trade regimes increases and it is easier to abandon (or agree on) price management incentives.

The process of integrated price management should be supported by trust-building dialogue. The effects of pilot linking on price volatility and levels should be carefully scrutinized as policymakers move towards full linkage.

What full linking will require in terms of offsetting harmonization:

Full linking requires policymakers to agree on the type of offsetting mechanisms available. The easiest and most-straight forward solution is for all cap-and-trade systems to use internationally governed mechanisms (e.g. CDM or its successor) projects.

If, however, some cap-and-trade regimes use domestic offset systems there will be a need for institutions that harmonize and/or set the standards for these systems.

Leakage

The problem of carbon ‘leakage’ – whereby production of emissions relocates from a more strict regime to a less strict regime – has become a key concern for policy makers and for certain industries that are perceived as particularly vulnerable. These concerns are best addressed through a harmonized international policy where all countries take on similar restrictions, and a global agreement should thus be worked out. Given the uncertainties around the development of the international policy, it has been proposed to discourage leakage through e.g. compensatory and/or punitive measures for the sectors most exposed to carbon leakage.

Concerns about leakage thus threaten to both delay action on climate and undermine progress toward freer global trade. In order to maintain momentum an international framework should address the issue by accommodating both short-term and long-term solutions in parallel, similar to the step-wise approach proposed for linkage.

The most important role the framework could play would be to establish common principles for compensatory action on carbon leakage. Parties to the framework should agree to avoid trade-based measures, and to establish common acceptance of:

1. Cost-containment provisions (short-term)
2. Coordinated international action (long-term)



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Principles for acceptable cost containment measures could be agreed and maintained via the framework, while simultaneously participating parties develop coordinated action (e.g., sectoral agreements) where it can be agreed.

Step 1 - Cost containment provisions: Free allocation can be used for certain sectors, especially during the first years of the cap-and-trade scheme, but should eventually be phased out and be replaced by auctioning. A part of the auctioning income could be used to support the most vulnerable industries, as long as it does not conflict with the WTO rules.

Step 2 - Coordinated international action: It is important to involve as many countries as possible. International coordination to 'level the playing field' may therefore need to start with limited ambition but high participation.

For some industries sectoral agreements may form part of a solution that can be introduced in a shorter timeframe than a global commitment. While sectoral arrangements are politically contentious, less ambitious agreements which are not perceived as unfairly burdensome by objectors may be sufficient to moderate competitive distortions created by different carbon regimes.



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Annex 1

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1 INTRODUCTION

The 3C Initiative

The 3C Initiative is a global opinion group consisting of companies showing leadership by demanding an integration of climate issues into the world of markets and trade, facilitated by means of a global framework coming into force in 2013.

Today, the 3C initiative comprises business leaders from 67 large companies with operations in all countries and virtually every major sector. The 3C initiative was launched on January 11, 2007 by a statement appealing to the global community and all its representatives to join forces with business leaders around a common vision of a low-emitting, sustainable society and to cooperate to create a roadmap that leads to its realization.

To support the process, 3C develops recommendations for policy makers on the climate issues relevant to business. The recommendations in this paper concern linking of carbon markets and reducing the leakage of emissions between different national and regional regimes.

The importance of linkage and leakage

Linking between carbon markets occurs when the authority that maintains one system allows regulated entities to use allowances or credits from another system to meet domestic compliance obligations. Linking creates opportunities for inter-system trading that can reduce the aggregate cost of meeting emission targets by broadening allowance and credit markets, and by permitting emission reduction efforts to be redistributed across linked systems.

The concept of carbon 'leakage' most often refers to the relocation of carbon-emitting production from a more strict regime to a less strict regime. This leakage is driven by differences in costs created by explicit or implicit prices on carbon – and can occur both between sectors (e.g. the substitution of a regulated product for an unregulated alternative) and between countries and regions with different regimes. Climate regimes that impose costs on their participants but do not have full coverage will, in theory, suffer from carbon leakage.

Carbon markets are developing in national and regional contexts, but in order to price carbon most effectively, and without distorting global trade, that price will need to be global. While global trade in carbon credits will of course take time to emerge, there are important steps that can be taken to support this via linking markets. The rewards of doing so -- better price formation, a broader base for reductions, technology transfer, positive effects on trade -- clearly outweigh whatever political risks linking might entail.

The companies of the 3C Initiative urge leaders to reach a global agreement that will simplify linking and reduce the leakage problem. Until this is in place, it is important that the framework provide practical support for linking national and regional markets and to begin to define which compensatory/punitive measures are acceptable in striving to reduce the leakage problem.

Aim of the report

The objective of this report is to shed light on the challenges of linking carbon markets and to formulate concrete proposals supporting the step-wise integration of carbon markets. The objective is



furthermore to analyze the carbon leakage problem and to formulate recommendations as to which policy responses to leakage should be supported by an international framework.

2 CAP-AND-TRADE SCHEMES

The European Union is the global leader in emission trading, with the EU ETS in place since 2005. Norway also has a cap-and-trade system, which is linked to the EU ETS since first of January 2008. There are various cap-and-trade systems emerging in New Zealand, Australia, Switzerland, Japan and Canada. In the United States a number of sub-national cap-and-trade systems have been developed in the absence of federal action. At the federal level, various bills have been introduced both in the Senate and in the House of Representatives. The two most significant initiatives coming out of Congress have been the American Clean Energy and Security Act of 2009 (ACES 2009) by Henry Waxman and Edward Markey and America's Climate Security Act (ACSA, 2008) by Joseph Lieberman and John Warner. The latter met defeat on the Senate floor while the first is under negotiation at the time of writing.

The EU and the United States combined account for almost 60 % of current Annex I emissions (UNFCCC, 2009). Correspondingly, the EU and US are likely to account for the largest share of demand for offset credits from developing countries in any such post-Kyoto scheme. It is therefore important that the systems under development in the EU and US do not diverge in ways that create problems for coordinated international efforts.

The environmental ambitions differ between the countries/regions. The EU has opted for cuts 21 percent below 2005 levels by 2020 and 80 percent by 2050. Under the Waxman-Markey bill in the US emissions would be reduced by 17 % compared to 2005 level (and 83 % by 2050). New Zealand has a target of being carbon neutral by 2040. But it is not only the emissions cap that gives an indication about the environmental ambitions. The compliance framework and intervention mechanisms, temporal flexibility (banking and borrowing) and use of offsetting mechanisms have a great impact on the reductions of emissions achieve within the sectors and regions regulated. Australia has, for example, proposed a cap to avoid high allowance prices; this is achieved by imposing a penalty fee for non-compliance rather than the full cost of the allowance shortage. This takes away the absolute cap in the system.

The European Union's Executive Commission hopes to have a global carbon market in which cap-and-trade regimes are linked by 2020. It wants to see national schemes in all OECD countries by 2013 and for those to be linked by 2015 (European Commission, 2009). In the United States the aim is to pass a bill on emission trading prior to the negotiations (COP 15) in Copenhagen in December. The focus is on getting enough support domestically for the bill and less attention has been paid to the possibilities of linking the scheme to others. Australia aims to have its cap-and-trade system up and running by July 2011.

The leakage problem was initially discussed in Europe as participating industries expressed doubts about the effects of the impending ETS. For the third trading period (2013-2020) the EU Commission has, in an attempt to protect the industries that are most exposed to the leakage problem, decided to allocate some allowances for free rather than by auctioning (which will be done for the other sectors). The leakage debate is today more heated in the United States, where the industries are afraid of competitors, mainly in China. This has led to a great deal of discussion of protectionist measures related to carbon leakage and relative competitiveness.



An overview of the different and-and-trade regimes can be found in Annex 1.

There is an ongoing discussion about the merits carbon dioxide tax versus cap-and-trade system. The 3C Initiative believes that a global, long-term and credible emission trading system has fundamental advantages, both in terms of practicality, environmental efficacy, and political sustainability. Carbon dioxide taxes could, however, be used as a complementary tool. It is worth noting that many of the barriers to linkage of cap-and-trade schemes also are relevant for a coordinated global carbon dioxide tax.

Box 1 – A global carbon dioxide tax

A carbon dioxide tax is often applied as a tax on fossil fuel, aimed at limiting the emissions of carbon dioxide from combustion. The purpose of a carbon tax is to promote energy efficiency, and increase the attraction of alternative fuels and energy sources.

A global coordinated tax is a tax levying the same tax base and with a minimum tax rate in countries accounting for the bulk of the global consumption of fossil fuels. Many countries have introduced national carbon dioxide taxation, and the main problem has been competitive effects relative to industries in countries that have not imposed such taxation. The leakage problem that is discussed in sections 5 and 6 for cap-and-trade schemes is thus valid for national carbon dioxide taxation as well.

Advantages of a carbon dioxide tax include comparability with other taxes that already exists, such as value added tax and energy taxes. Disadvantages include the lack of an absolute environmental target and the relative political fragility of tax regimes. In addition, while global markets in commodities and even currencies have been established over time, there is no existing example of a coordinated global tax.

In the absence of a coordinated global carbon dioxide tax, border tax adjustments could level the playing field, at least in terms of carbon leakage. The problems with this approach are addressed in the context of carbon markets in section 5.

3 LINKING DIFFERENT EMISSION TRADING SCHEMES

The long-term objective is to create a global carbon market, thus establishing a single carbon cost and creating equitable access to the prevailing lowest cost abatement opportunities. Yet a global agreement leading to the “ideal” situation of a global cap with all nations participating in a single carbon market is unlikely to be in place in the near future. Thus initial, valuable steps in that direction could entail the establishment of bi- or multi-lateral linkages between cap-and-trade regimes. Linkage creates opportunities for inter-system trading that can reduce the aggregate cost of meeting emission targets by broadening allowance and credit markets, and by permitting emission reduction efforts to be redistributed across linked systems.

The main benefits of linking are:

- Reduced long-run cost of mitigating climate change



- Improved market liquidity and reduced price volatility
- Implementation of "common but differentiated responsibilities" across differing systems without increasing the overall cost of global emission reductions
- A broader context for low-carbon technology, innovation and R&D
- Accelerated technology transfer
- Reduced competitive distortions and 'leakage'
- Broader political engagement towards the aim of creating a global carbon market.

There are, of course, complications – both practical and political. Standards for some tradable credits, for example from project-based offsets, will have to be harmonized at an acceptable standard. National control over the design of markets is also reduced, and there are distributional concerns as the effective carbon price is raised in one system and lowered in another.

There are several types of linkage. Connecting two cap-and-trade systems can be considered two-way linking; when one cap-and-trade system is linked with an emission reduction trading system not driven by a cap (for example CDM) it can be called one-way linking. Direct linking occurs when two cap-and-trade systems agree that their respective systems should link (for example, Norway's ETS is directly linked with EU ETS) while indirect linking occurs if two cap-and-trade systems are linked to the same emission reduction trading system but are not linked directly with each other.

In a two-way linkage the design of the trading systems must be harmonized and the price in the linked systems will be affected. When a cap-and-trade system is linked with an emission reduction trading system (one-way linking) there are additionality and baseline issues that can reduce the credibility of the linked system. This policy paper focuses on two-way linkages as one-way-linking is captured in the discussion of offset use.

3.1 Issues that complicate linking

Linking can have implications for the price, and, in some cases, absolute emission levels in the linked regimes. It can also reduce a government's control over the impacts of its system.

The issues that complicate linkage have been divided into two categories:

- **Technical design issues:** Issues that would need to be resolved to link cap-and-trade systems but which are not politically sensitive. It should therefore be possible to reach an agreement on these issues, although it might be useful to lift some of them to the multilateral level.
- **Political design issues:** Key issues that complicate linking and are related to countries' (or regions') ambitions in mitigating climate change. Since these issues tend to be more politically sensitive, the global framework may be able to play a role in resolving them.

The **Technical design issues** include but are not limited to:

- *Registers.* Registers need to be compatible in order to enable the transfer of allowances across linked systems. It is possible to achieve technical compatibility of registers if there is a political willingness to do so.



- *Monitoring, Reporting and Verification (MRV)*. Important in the integration of cap-and-trade systems in order to avoid emissions exceeding the defined cap. These elements are important for each cap-and-trade system but the linking as such does not complicate the MRV process.
- *Allocation methods*. Carry significant implications for a system's distributive and environmental effects but do not complicate linking. The exception would be a 'relative cap' design, which caps emissions intensity rather than absolute emissions. Here the relevant economic activity determines the number of allowances issued.
- *Banking and borrowing*. Banking is when unused allowances can be saved for the next year. Borrowing is when allowances from future trading periods can be used in advance. Allowing borrowing could raise concern about enforcement within other markets and thus create a perception of risk regarding allowances from the system with borrowing. Nonetheless use of banking and borrowing provisions is unlikely to be a fundamental barrier to linking.
- *Point of regulation (up-stream versus down-stream)*. Should two systems regulate emissions at different stages in the process chain (e.g., capping carbon content in fuels while the respective products are traded between different systems some harmonization will be required to maintain full coverage.
- *Different trading periods*. Different time horizons for caps will increase complexity of linkage. It could also weaken the environmental credibility of a cap-and-trade system that has a later start date by allowing credits that were accrued and banked for years prior to the start date to flow into it.

The **Political design issues** include:

- *Level of the cap*. The level of the cap is not in itself a barrier for linking. Cap levels are, however, the key determinant of allowance price, the size of efficiency gains from linking and the distributional effects from linking. Cap-and-trade systems may be meant to perform either or both of two functions: 1) Induce future investment decisions to reduce CO₂ efficiently; and 2) influence current behavior (turn the thermostat down in the winter). If the cap is too high – and therefore the price too low -- the system will not deliver as desired. The level of the cap corresponds to the overarching climate policy goal and indicates how ambitious a country is in mitigating climate change. Less ambitious regimes – if they are not committed to a long-term goal – may also have incentive to relax caps over time order to sell allowances in linked markets. More ambitious regimes may also worry about sending the wrong signals by linking to a less ambitious region.
- *Price management*. Provisions for managing the carbon price -- 'safety valves', price caps/floors, offsetting, penalties in lieu of permit repurchase, etc. – can create barriers to market linkage. If scheme A without any type of price management is linked to scheme B that has a safety valve, the safety valve effectively becomes available to participants in scheme A. This may create a political disincentive to link systems.
- *Offsetting provisions*: Credits from mechanisms such as CDM, JI, voluntary schemes and domestic offset programs, as well as potential future mechanisms such as sector- or policy-based offsetting -- can be linked to cap-and-trade systems. The inflow of credits should be harmonized in linked markets, as it will affect the emissions levels in the sectors covered by



the system and the allowance price. There is a need to recognize offset projects as comparable and credible.

Box 2 – The Clean Development Mechanism, CDM

The Clean Development Mechanism (CDM) defined in Article 12 of the Kyoto Protocol allows for Annex 1 Parties (developed countries) to implement project activities that reduce greenhouse gas emissions in non-Annex 1 Parties (developing countries), in return for emission reductions (Certified Emission Reductions CERs - one CER equals one tonne of carbon dioxide emissions). The CERs generated by such a project can be used by Annex I Parties to help meet their emissions targets under the Kyoto Protocol. It is also stated in Article 12 that such project activities are to assist the developing country host Parties in achieving sustainable development.

A challenge with CDM is that for each project one must define the baseline in order to calculate the emission reductions. Since the baseline is a projected amount of emissions, it is by definition impossible to determine whether this is what actually would have happened if the project were not implemented. It is, furthermore, very costly to establish the baseline and show that this is the most credible for each project.

CDM is seen by many as a very successful tool, as it has enabled developing countries to be engaged in mitigating climate change. There is, however, room for improvement, especially with respect to the limitations of the project model. One solution under discussion is sectoral CDM, wherein reduction against a sector-wide baseline in an un-capped economy could be transferred to an economy with a cap. This would solve many of problems associated with the high transaction costs and long lead times to get projects approved. It might also make projects more credible in terms of additionality.

CDM offers a useful tool for linking cap and trade systems that use it as an offset mechanism; it may be even more important in establishing the basis for carbon trading in those countries that participate in the international framework but do so without near-term caps on emissions.

3.2 Issues in focus

Until a global agreement is in place it is important to provide practical support for linking national and regional carbon markets. The 3C initiative believes that the global framework could contribute most usefully to this objective by helping to resolve issues that are non-technical, politically sensitive, and that could, if resolved, significantly boost progress towards globalized trade in carbon. Two key elements of market design that may affect the potential for linkage are approaches to the management of price levels and volatility ('price management'), and the provisions for offsetting though reductions outside the market.

The price level and the volatility are of great concern from many market participants. Transparency of market information is the key to avoiding volatility, but price management tools such as caps, floors, and 'safety valves' may prove more attractive, particularly in the uncertain early years of a market's operation.



Offsetting provisions (CDM, JI, voluntary schemes and domestic offset programs) have faced criticism in principle and for their environmental effectiveness in practice. Because an international approach to offsetting could be a common one-way link between all markets that accept it, and because it could have a welcome effect on overall cost levels, aligning offsetting provisions across markets could have a large positive impact on the globalization of carbon trading.

3.3 The role of international cooperation

The development and operation of the necessary infrastructure to facilitate a global carbon market needs to be overseen by a specific body. Two-way links can be established by mutual recognition of each system's allowances, but international facilitation is preferable, as many aspects of harmonization will require negotiations that affect multiple players.

Such a body could establish the framework within which cap-and-trade systems can link; establish an agreed common trajectory for differing emission caps and allowance prices; specify a process for future adjustment of emission caps; create an international clearinghouse for transaction records and allowance auctions; provide for the ongoing operation of CDM or its successor(s); help build capacity in developing countries that would permit and encourage their eventual participation; and keep track of rational and consistent tax and accounting standards for trade in GHG emissions.

There are a number of forums where these issues are discussed, including UNFCCC, the International Emission Trading Association (IETA) and the International Carbon Action Partnership (ICAP), WBSCD, WTO and WEC. Of these the UNFCCC, IETA and ICAP are better placed for facilitating the linkage of cap-and-trade systems.

UNFCCC: The benefit of this forum is that almost all countries are signatories of UNFCCC and most countries have ratified the Kyoto Protocol. Given its familiarity with highly political negotiations, the UNFCCC might host discussions regarding more sensitive issues such as cap levels, linking non-Kyoto and Kyoto Parties systems and Offsetting provisions such as CDM and JI (domestic off-sets will probably not be discussed at this level).

IETA: The goals and objectives of IETA are:

- The development of an active, global greenhouse gas market, consistent across national boundaries and involving all flexibility mechanisms: CDM, JI and ET; and
- The creation of systems and instruments that will ensure effective business participation.

In IETA accounting, taxation, trade agreements, registries, validation and verification, as well as CDM issues are discussed. IETA contributes to the development of a global GHG market and a critical element in IETA's work remains the linking of trading regimes among Annex I countries, and its significance for the carbon market. Most issues are today discussed in this forum.

International Carbon Action Partnership (ICAP): ICAP is made up of countries and regions that have implemented or are actively pursuing the implementation of carbon markets through mandatory cap and trade systems. The partnership provides a forum to share experiences and knowledge. Sharing and evaluating best practices will help ICAP members determine to which extent their respective programs can be supported by, and or benefit from, the ICAP process. As in IETA most issues/barriers are discussed in this forum. A major difference to IETA is that the members of ICAP



are countries/regions that have implemented carbon markets, while IETA has members that are businesses participating in the carbon markets.

4 STEPWISE INTEGRATION OF CAP-AND-TRADE SYSTEMS: HANDLING PRICE MANAGEMENT AND OFFSETTING PROVISIONS

A first step in realizing a global carbon market is to enable bilateral two-way linkage of cap-and-trade systems. Two key elements of market design that may affect the potential for linkages are approaches to the management of price management (price levels and volatility), and the provisions for offsetting through reductions outside the market. In line with the proposal by the World Business Council for Sustainable Development (WBCSD, 2007), the 3C Initiative proposes a step-wise approach to converge the use of Price Management and Offsetting provisions in cap-and-trade system in order to allow two-way linkage.

A step-wise approach is a realistic course of action in order to arrive at full linkage. Such an approach should include the following three steps:

1. Dialogue
2. Pilot linking
3. Full linking

4.1 Step 1 - Dialogue

In order to facilitate dialogue a forum that could host such dialogue needs to be established. The most efficient solution would be to build on and empower an existing forum. IETA has broad coverage and significant experience; however ICAP target the necessary audience of policy makers, which is why they are probably better off hosting a dialogue.

ICAP (or a similar body) should thus initiate a purposeful dialogue, involving both policymakers and participants from business, with the object of resolving issues and facilitating market linkage. Linking markets is primarily a challenge of building trust and shared mindsets, and such a forum will likely be necessary to support convergence between markets on many issues going forward. It should explicitly take up the issues of price management and offsetting from the outset. The next two steps, pilot linking and full linking, should be supported by dialogue within this forum to ensure that that the participants trust and support the process.

To ensure an active participation incentives will be useful. Today there are already stakeholders in the EU looking at linkage, while parties in the US remain focused on domestic priorities. Depending upon developments over the coming years, it may be necessary to incentivize participation in this forum. The UNFCCC process may be able to achieve this by tying certain benefits of participating in the global agreement to participation in this forum.

The aim of the dialogue is to reach an agreement about the path forward including milestones.

Issues needing ongoing dialogue regarding price management:



1. What are the underlying factors for the historic price swings – how can these be avoided? What lessons have been learned about information access and transparency that can prevent major swings?
2. How do national policies influence prices?
3. What aspects of market design can support price convergence, even in unlinked markets?
4. What measures are effective in protecting participants who are particularly vulnerable to high prices?

Issues needing on-going dialogue regarding offsetting provisions:

1. What is the basis for the use of offsetting (i.e. price efficiency, political engagement, sustainable development, etc)? A shared view of the role of offsets will support linking.
2. Standards for environmental integrity in offsetting provisions – dialogue should develop a common view and eventually common standards.
3. Price effects – harmonizing offsetting provisions will also depend on the relative affects offsets have on the overall price. This effect will in turn be based on the type and quantity of offsets available. Dialogue can support the exchange of data and a shared view on the role offsets can play in linked markets.
4. Recognition of international offsetting mechanisms such as CDM and JI, and their presumed successors within the global framework.
5. Standards for domestic offset systems – dialogue should develop a common view and eventually mutual acceptability. .

An overarching objective of the dialogue should be to view these issues with respect to a stepwise process: creating enough harmonization to allow “pilot linking” and eventually full linkage between markets.

4.2 Step 2 - Pilot linking

The aim is to pave the road for full linkage. By initiating linkage, although restricted in some fashion, markets can create trust and establish interests among participants in favor of increased links between markets. The pilot linking period should be restricted in time to, for example, five years. A clear set of benchmarks should be defined as to when the pilot linking should be expanded into full linkage.

Pilot approaches that accommodate different approaches to price management:

There are two different types of “pilot linking” that should be considered:

1. *Unilateral linking* - allowances can only flow from the system without a price cap (or a safety valve, offsetting, penalties in lieu of permit repurchase etc.) to the system with a price cap.
2. *Restricted linking* by one of the following methods:



- a. Cap on the amount of traded allowances – the participating companies are only allowed to buy or sell a certain percentage of the needed allowances outside their own cap-and-trade system.
- b. Exchange rate of the traded allowances – the cap-and-trade regime without any price management mechanisms can introduce an exchange rate to limit the flow of allowances.
- c. A ‘gateway’ approach - installations in the cap-and-trade systems would be restricted from trading allowances once the market price goes above the level of the price cap which one of the systems have introduced.

Pilot approaches that accommodate different approaches to offsetting:

Restricted linking

1. A ‘gateway’ approach – acceptance of only those credits generated by certain pre-agreed types of offsets.
2. Cap on the amount of traded allowances (addresses price effect but not environmental integrity)
3. Combinations of 1 and 2 above

4.3 Step 3 - Full linking

When the participants have developed a certain level of trust, it will be easier to introduce full linking, wherein the cap-and-trade systems have sufficiently harmonized approaches to price management and offsetting.

What full linking will require in terms of harmonization of price management:

Policy makers need to abandon or alternatively agree on price management incentives in order to fully link the systems. By initiating linkage, although restricted, one creates a “dependency” on linkage and the confidence and trust in other cap-and-trade regimes increases and it is easier to abandon (or agree on) price management incentives.

The process of integrated price management should be supported by trust-building dialogue. The effects of pilot linking on price volatility and levels should be carefully scrutinized as policymakers move towards full linkage.

What full linking will require in terms of offsetting harmonization:

Full linking requires policymakers to agree on the type of offsetting mechanisms available. The easiest and most-straight forward solution is for all cap-and-trade systems to use internationally governed mechanisms (e.g. CDM or its successor).

If, however, some cap-and-trade regimes use domestic offset systems there will be a need for institutions that harmonize and/or set the standards for these systems.



5 LEAKAGE – THE PROBLEM

The concept of carbon ‘leakage’ most often refers to the relocation of carbon-emitting production from a more strict regime to a less strict regime. This leakage is driven by differences in costs created by explicit or implicit prices on carbon – and can occur both between sectors (e.g. the substitution of a regulated product for an unregulated alternative) and between countries and regions with different regimes. Climate regimes that impose costs on their participants but do not have full coverage will, in theory, suffer from carbon leakage. The leakage will be reduced if the cost difference between the stringent and less stringent climate regime is reduced, which linking aims to achieve. Since there are many obstacles to truly levelling the playing field – including taxes and regulations not related to carbon regimes -- it is important to keep in mind that just mending the “leakage problem” will not lead to a fully harmonized global market.

Costs of compliance will not be spread evenly throughout the economy and some industries will find it easier than others to absorb costs or pass them on to consumers. The question is whether it is necessary to “level the playing field” for the most vulnerable sectors. Leakage and its implications have been widely discussed a lot and in theory have substantial effects on international competition, but it is worthwhile analyzing how markets respond in practice.

Factors that affect the size of leakages will include terms-of-trade effects, economic structure, substitution possibilities, tariffs, and the price and income elasticity of the market.

A global carbon market will have a positive effect of the leakage problem as the carbon shadow cost will be the same for all involved economies - the broader the coverage, the smaller the leakage problem. A global carbon market is probably out of reach in the coming decade but there are likely to be bi-lateral or tri-lateral linking agreements. If a bi-lateral (or tri-lateral) agreement is between major trading partners, it will have a significant effect on the leakage problem. The agreement is, however, likely to be between OECD countries. While they do trade a great deal with one another, the greatest political concern has lately focused on China and other emerging markets that have already established some cost advantages. A bi-lateral agreement between China the United States will not be in place by tomorrow, although bi-lateral climate talks have been initiated and hopefully this will lead to a commitment from both sides.

A global framework may lead to one or more type of a sectoral agreement. Sectoral approaches are proposed as a mean to broaden the global scope of greenhouse gas (GHG) mitigation to developing countries. There are several sectoral approaches under discussion: 1) Intensity goals – based on a GHG performance per unit of output, 2) Fixed emission goals – an absolute total quantity of GHG emissions – as the basis for crediting, with an *ex post* issuance of credits, or trading, with an *ex ante* allocation of allowances and 3) Technology-based sectoral objectives. A sectoral approach would introduce the carbon cost to the industry regardless of the geographical location and it would hence diminish the leakage problem.

5.1 Countries and sectors that are most exposed to carbon leakage

The degree to which degree increased energy costs translate into a decline in industrial output and employment depends on, among other factors, four key variables:

1. Energy intensity of production
2. Potential of efficiency improvement
3. Ability to switch to low-carbon energy sources



4. Product demand elasticity

Industries that are affected by leakages tend to be those that are very energy intensive, are exposed to international competition and, are active in markets that are sensitive to a price increase. The debate is of course valid for all countries that have or are in the process of introducing a cap-and-trade system (or introducing a carbon tax). An overview of the most vulnerable industries in Europe and the United States (where the issue has received the most attention) follows below.

Europe

Sectors mostly affected by leakage are:

- Non-ferrous metals (Al and Cu)
- Clinker and cement production
- Basic iron and steel
- Pulp and paper
- Chemicals

The main trading partners for these sectors are the United States and China (mainly cement).

USA

Sectors mostly affected by leakage are:

- Chemicals
- Non-metallic mineral products (cement)
- Non-ferrous metals (Al and Cu)
- Paper
- Ferrous metals

The main trading partners for these sectors are Canada and EU; however carbon intensive imports from the developing countries have increased substantially in the past 15 years

5.2 How large is the leakage problem in reality?

In theory carbon leakage could be substantial, and it is clear that leakage and its implications have been politically important. The question is how markets will respond in practice, and thus how large the leakage problem might actually be.

Two studies, using different approaches, find that introducing a \$10 per ton charge for carbon dioxide in the United States, but not in other countries, would result in 0,5 – 6 percent decline in output from the 5 carbon-intensive industries mentioned above. In EU the impact of the EU ETS shows a slightly lower decline in output, in part due to the free allocation of allowances, of 0,3 – 2,5 percent resulting from a \$10 price per ton of carbon dioxide.

McKinsey and Ecofys reviewed the EU ETS in 2006 in regard to the international competitiveness for the participating companies. They point out that production decisions are not based on average industry margin, but on the individual company's marginal costs for the last unit produced, which is



ultimately driven by the value of the emission allowance. Therefore, even for an industry in which EU ETS has zero impact on company profit margins, it cannot be assumed that there will be no shifting of production into regions without CO₂ costs.

The US-China trade deficit has grown from \$40 billion to \$250 billion in the last decade¹. The US climate debate is hence taking place against a backdrop of increased anxiety over globalization in general and US-China trade in particular. The five sectors most vulnerable to carbon leakage in the US correspond to 50 percent of the emissions of carbon dioxide from American manufacturing but less than 6 percent of the total emissions. These industries stand for 3 percent of the GDP and 2 percent of employment. This indicates that even though the industries are important, changes should not have a large impact on the economy as a whole.

The biggest effect of carbon leakage will not come in the short-term as factory closures, but later, as decrease in new investments.

It should also be highlighted that these effects are related to an intended structural change; the idea behind carbon pricing is in part to decrease demand for emission-intensive products. And it should not always be assumed that relocation of production will lead to carbon leakage; if aluminum or steel production moves to Brazil or Iceland, where their energy mix is relatively low-carbon, this is desirable from a climate perspective.

Since the EU ETS is the only cap-and-trade scheme that has a significant history, and since even its history is quite short compared to the lengthy processes of moving factories and/or starting-up new factories, it is difficult to prove the size of the leakage problem. Studies that have been performed based on trade patterns, vulnerability of the industries etc. show that for some specific sectors carbon leakage is a real problem but that the threat to overall economic competitiveness is exaggerated.

6 COMPENSATORY / PUNITIVE MEASURES

The problem of carbon 'leakage' – whereby production of emissions relocates from a more strict regime to a less strict regime -- has become a key concern for policy makers and for certain industries that are perceived as particularly vulnerable. These concerns are best addressed through a harmonized international policy where all countries take on similar restrictions. Given the uncertainties around the development of the international policy, some national governments have discussed discouraging leakage through compensatory and/or punitive measures for the sectors most exposed to carbon leakage.

There are three types of policy tools that can be introduced to take the pressure of the industries.

1. Cost containment measures
2. Trade measures
3. Coordinated international action

¹ This can be compared with the fact that poor countries will need \$140 billion by year 2020 to cut greenhouse gas emissions according to a report for the EUs finance ministers.



6.1 Cost containment – limit the cost of compliance

Cost containment means that the compliance cost for the exposed industries is reduced. This can be done in several ways. In the EU ETS actors exposed to carbon leakage will receive emission allowances for free. This will help compensate investors, but it will not necessarily protect output or employment, as firms will still need to pay an increased price for inputs (especially electricity).

Another way of protecting the industries is by allowing banking and/or borrowing and to use offset provisions. This will lower the compliance cost and, if applied correctly, will not compromise the environmental integrity.

Introducing a price cap will limit costs and uncertainty for exposed industries. It is, however, not possible to only target a certain sector as this measure is introduced across sectors. There is also a risk that it will undermine the environmental effectiveness of a cap-and-trade system.

Another way to compensate the most vulnerable industries is to use a part of the income from the auctioning of allowances to compensate these industries. This is not a “cost containment” measure but a tool to distribute the carbon cost more evenly between different sectors. This could be interpreted as a way of subsidizing these industries and could potentially conflict with WTO rules.

6.2 Trade measures

Trade measures seek to impose on foreign producers the same costs born by domestic firms. To impose carbon costs on imported goods requires an accurate estimate of the amount of carbon dioxide emitted during the production of the good. It is challenging to estimate the amount for standardized intermediate goods such as steel, chemicals and cement; it is nearly impossible to do so for the downstream products. Cap-and-trade systems introduce a cost on the emissions early in the product chain when the fossil fuel is incinerated. These costs are then passed on through the entire production chain to the consumer of the final product. The opposite is true for trade measures. The cost is introduced directly on the final product for the emissions that have taken place earlier on in the production chain. Since there are huge differences in production methods, energy sources and energy efficiency it is will be very difficult to calculate embedded emissions in a way that supports enforcement.

The cost could be introduced in two different ways, either by of widening the cap-and-trade system to include imported goods or by introducing duties against subsidized goods. The first option could for example be managed by dividing the available allowances into two different pools – one for domestic producers and one for importers. The second option means that the importing country claims that the exporting country, by not introducing the same carbon cost on its industry, subsidizes its industry. This is, however, politically sensitive, as the countries imposing the duties indirectly interfere with the other country’s climate legislation.

Another way of leveling the playing field is to provide that the imported goods meet various technical requirements that put a maximum level of the emission of greenhouse gases in the manufacturing process of the product.

It is important when discussing trade measures, and also re-allocation of auctioning income, to make sure that these are not in conflict with WTO rules. Every border adjustment where one country is treated unfairly is a breach to these rules. The challenge is thus to prove that the border adjustment is



worked out so that it aims to protect the earth from climate change and not to provide competitive advantage.

6.3 Coordinated international action

A third way to level the playing field is to persuade other countries to charge their companies with the same costs. The ultimate solution is a global agreement that creates conditions recognized as fair by all parties, including in terms of competitiveness.

Sectoral agreements have been proposed as an interim form of coordination if all countries are not able to establish economy-wide caps. For a sectoral agreement to be efficient it must include a critical mass of companies in the given sector, both from developed and developing countries.

Another interim step may be for large emitters to reach bi- and/or tri-lateral agreements. Such agreements could presumably both establish mutual reduction efforts and agreement on competitive effects.

6.4 How the international framework can reduce the leakage problem

The best way forward is to work towards a global solution and avoid the use of trade measures. In the interim it will be much more efficient – both environmentally and economically -- to introduce and manage costs directly on industries at home rather than through border adjustments. Only 18 percent of the aluminum, steel, cement, basic chemicals and paper (the most energy intensive industries) that is produced worldwide is actually traded. While emerging markets produce a growing share of the energy-intensive goods, the vast bulk is consumed domestically.

In order to maintain momentum an international framework should address the issue by accommodating both short-term and long-term solutions in parallel, similar to the step-wise approach proposed for linkage.

The most important role the framework could play would be to establish common principles for compensatory action on carbon leakage. Parties to the framework should agree to avoid trade-based measures, and to establish common acceptance of:

1. Cost-containment provisions (short-term)
2. Coordinated international action (long-term)

Principles for acceptable cost containment measures could be agreed and maintained via the framework, while simultaneously participating parties develop coordinated action (e.g., sectoral agreements) where it can be agreed.

Step 1 - Cost containment provisions: Free allocation can be used for certain sectors, especially during the first years of the cap-and-trade scheme, but should eventually be phased out and be replaced by auctioning. A part of the auctioning income could be used to support the most vulnerable industries, as long as it does not conflict with the WTO rules.



COMBAT CLIMATE CHANGE
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Step 2 - Coordinated international action: It is important to involve as many countries as possible. International coordination to 'level the playing field' may therefore need to start with limited ambition but high participation.

Sectoral agreements may form part of a solution that can be introduced in a shorter timeframe than a global commitment. While sectoral arrangements are politically contentious, less ambitious agreements which are not perceived as unfairly burdensome by objectors may be sufficient to moderate competitive distortions created by different carbon regimes.



Annex 1 – Overview of Cap-and-Trade Schemes

EU

- The European Union Emission Trading System (EU ETS) is the largest multi-national emissions trading scheme in the world, covering more than 10,000 installations in the energy and industrial sectors and close to half of the EU's emissions of CO₂ and 40% of its total greenhouse gas emissions
- Cap & Trade basis where the cap is defined, for each individual plant, via a National Allocation Plan (NAP) submitted by member states and approved by the EU Commission
- A sanction fine of €100 from 2008.
- Allowances in Phase 1 (2005-2007) and Phase 2 (2008-2012) are not interchangeable, and can only be used for compliance in their allocated phase.
- The linking-directive (2004) link EU ETS and Kyoto Protocol's Joint Implementation (JI) and Clean Development Mechanism (CDM) (except nuclear, forest and large hydro that does not comply with the World Commission on large Dams).
- No limit for import of credits from CDM in phase 1, national limits in phase 2 and proposal on an EU ETS limit of 3% of member states' total emissions in 2005, provided that the additional quantity does not exceed 50% of EU-wide reductions between 2008 and 2020.
- Enlarging the scope from 2012 of the scheme to include new sectors (e.g. petrochemical, ammonia, aviation and aluminum) and new gases (nitrous oxide and fluorocarbons)

Norway

Norway's domestic emissions trading scheme was implemented in 2005. During the first trading period of 2005-2007, the scheme covered 10-15 % of total GHG emissions.

- Companies that have a CO₂ tax have been exempted from the scheme in the first period, while the CO₂ tax level was adjusted down in the second period.
- Norwegian ETS 2008-2012 has a linking agreement with EU:
 - Norwegian ETS 2008-2012 covers 35-40 % of Norwegian emissions.
 - Installation may import credits from CDM and JI projects, but import is limited to approximately 20 percent on a national level and 13 percent of last year emission for each installation.
 - Unilateral inclusion of emissions of nitrous oxide (N₂O) associated with the production of nitric acid.

Australia

Carbon pollution reduction scheme (CPRS) bill is out for public consultation until 14 May.

The CPRS bill includes the following:

- 5-15 per cent emissions reduction target from 2000 levels by 2020
- Australia ETS to be linked to Kyoto and no restriction to use Kyoto credits
- The government will in early 2010 announce the specific cap for the CPRS participants for the first five years, and a high-low range for the cap the next 10 years
- All facilities that emit more than 25,000 ton of CO₂ equivalent will be included
- All six greenhouse gases covered by the Kyoto protocol will be included;
- More than 30 emission-intensive industries will receive 60-90 per cent of their permits for free, the rest will be auctioned.
- There will be a price cap of A\$40 in the initial years
- A working group has currently been set up to look at the possibility of linking the Australian and the New Zealand emission trading scheme.



New Zealand

- The Scheme includes the six greenhouse gases six covered in Kyoto Protocol.
- Sectors will be introduced gradually from 2008. By 2013, it will apply to all parts of the economy that emit these gases, including electricity generation and industrial heat and power, transport, industrial processes, forestry, agriculture and waste.
- The NZ ETS will operate within the cap on emissions established under the Kyoto Protocol (for the first commitment period) and within whatever cap is established under international agreements post-2012.
- The government will limit the number of units allocated for free under the scheme.
- Forestry will be in first – 1 Jan 2008. Owners of pre-1990 forests will not earn credits, but become liable for the carbon dioxide emitted if the forest is harvested and not replanted.
- Penalty for not obliging is NZ\$30 for each emission unit.

Japan

- The first period of Japan's Voluntary Emissions Trading Scheme (JVETS) was implemented in April 2005
- Allowances are allocated to companies that have set voluntary emission reduction targets and subsidies are provided for emission reductions. Participating companies can meet their target by purchasing emission reduction allowances from other companies or purchasing CERs.
- Second period of the scheme was launched October 2008 and has more than 500 businesses. Companies will set their own emissions targets.

Canada

- In April 2007, the Canadian government presented its Regulatory Framework for Air Emissions. Existing Facilities will be required to reduce their GHG emissions intensity by 6% each year from 2007 to 2010. Every year thereafter, a 2% continuous improvement in emissions intensity will be required.
- Compliance within the regulations will be permitted via a range of mechanisms, including contributions to a technology fund, use of emissions trading, including inter-firm trading, offsets, and qualified CERs
- Overall, capped emitters will trade emissions through three channels: internal abatements beyond the baseline which will trigger credits; a domestic offsets system to which capped emitters will have unlimited access; and qualified CERs to meet up to 10% of their compliance obligation.
- The government has also said that it will consider international linkages with other emissions trading systems

Switzerland

- In early 2007, the Swiss Parliament and the federal government agreed that a CO2 levy on heating fuels will be implemented on January 1, 2008. However, the 600 or so businesses that have already agreed on a CO2 emission cap with the federal authorities are required to have their voluntary agreement converted into a legally binding commitment by September 1 if they wish to be exempted from the levy in 2008.
- These companies could then trade their allowances. The scheme is estimated to cover 4-5 MtCO₂, or about 10-15% of Switzerland's total emissions.
- The CO2 Law will expire at the end of 2012, as will the Swiss ETS. The government has already announced it will make proposals for post-2012 in due time.

South Korea

- In August 2007, the South Korea government announced that it may launch a voluntary carbon trading market by the end of 2008, which will enable the country's largest emitters to trade allowances. It would run until 2011.



Regional Initiatives in USA

RGGI

- The Regional Greenhouse Gas Initiative (RGGI) is the first mandatory, market-based effort in the United USA. Ten Northeastern and Mid-Atlantic states will cap and then reduce CO₂ emissions from the power sector with 10% by 2018.
- States will sell emission allowances through auctions and invest proceeds in consumer benefits: energy efficiency, renewable energy, and other clean energy technologies.
- The ten states participating are: Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, and Vermont
- CO₂ offset allowances may be used to satisfy only a limited portion of a source's compliance obligation, 3.3 percent of a power plant's total compliance obligation during a control period, though this may be expanded to 5 percent and 10 percent if certain CO₂ allowance price thresholds are reached.
- The RGGI scheme also allows for emissions credits from CDM projects to be used as an offset under limited circumstances.

California

- On September 27, 2006 the Global Warming Solutions Act was signed. The Act caps California's greenhouse gas emissions at 1990 levels by 2020.
- The Scheme includes the six greenhouse gases six covered in Kyoto
- Sectors will be introduced gradually from 2008. By 2013, it will apply to all parts of the economy that emit these gases, including electricity generation and industrial heat and power, transport, industrial processes, forestry, agriculture and waste. Stationary energy and industrial processes will have full obligation from 2010, whereas waste, agriculture and Synthetic gases will have voluntary reporting from 2011, mandatory reporting from 2012 and full obligation from 2013. Forestry (pre-1990 forests) and forestry removal activities (post-1989 forests) will have full obligation from 2008.

Federal proposals in USA

Lieberman-Warner bill

- Aims for a reduction of 70% below 2005 emission levels by 2050. The bill proposes to cover U.S. electric power, transportation, and manufacturing sources that together account for 75% of U.S. greenhouse-gas emissions. The cap over those sources would start at the 2005 emission level in 2012 and then would lower year-by-year, reaching 1990 emissions level (15% below the 2005 emissions level) in 2020 and 65% below the 1990 emissions level (70% below 2005 emissions level) in 2050. The bill calls for the creation of a carbon-market efficiency board that will be authorized to trigger relief remedies in order to forestall any sustained adverse impact on the US economy.

Waxman-Markey bill

- The House energy committee approved the bill The American Clean Energy and Security Act of 2009 on May 22.
- The emissions will be reduced by 17 % compared to 2005 level
- The cap-and-trade bill would cover about 85% of the U.S. economy, requiring businesses like power companies and steel mills to get permits to cover their emissions.
- The bill would give a generous number of allowances to electric local distribution companies as well as energy-intensive, trade-sensitive manufacturers. The bill also allows for up to 2 billion carbon offset credits to be used for compliance per year.