2008 Research Highlights
And
Press Coverage

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Trinity Hall, University of Cambridge
About Climate Strategies

Climate Strategies aims to assist governments in solving the collective action problem of climate change. It connects leading applied research on international climate change issues to the policy process and to public debate, raising the quality and coherence of advice provided on policy formation. Its programmes convene international groups of experts to provide rigorous, fact-based and independent assessment on international climate change policy.

To effectively communicate insights into climate change policy, Climate Strategies works with decision-makers in governments and business, particularly, but not restricted to, the countries of the European Union and EU institutions.

Contact Details

Managing Director: Jon Price
Climate Strategies
c/o University of Cambridge, Office: +44 (0) 1223 748812
13-14 Trumpington Street www.climatestrategies.org
Cambridge, CB2 1QA, UK jon.price@climatestrategies.org

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A selection of Climate Strategies’ Executive Summaries, Report Extracts, Briefing Notes and coordinating Press Releases from 2008

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Summary of 2008 Research Prospectus

Three core areas:

1) **International economic instruments post 2012 for industrialized countries**

These projects cover existing instruments under the Kyoto Protocol that are already well-rooted institutionally, and how the EU & other domestic emission trading schemes, and linked international mechanisms for industrialized countries may extend post-2012:

1. **Tackling Leakage in a world of unequal carbon prices**
2. **Linkages among Emissions Trading Schemes and with offset projects**
3. **International sectoral agreements:**
   - case study for the steel sector
   - possible case study for aviation and shipping
4. **Green Investment Schemes: Maximizing their benefits to the climate and society**

2) **Developing countries programme: post 2012 issues**

1. **The Clean Development Mechanism in the post-2012 Climate Change Regime**
   a. CDM performance (empirical analysis)
   b. Enhanced CDM (policy, sectoral; focus on China and India)
   c. LDCs, programmatic CDM
   d. Broadening the scope of the land-use sector ( revegetation, soils)
2. **North-South cooperation on domestic climate policies, financial flows and technology transfer**
   a. Existing case studies of bilateral collaboration, such as in development aid
   b. Commercial incentives for technology transfer, other than the CDM
   c. Case study Chinese power sector
3. Upscaling agricultural and forestry activities in developing countries
   a. Upscaling "slow-in" activities, such as afforestation, reforestation or revegetation; improving degraded lands
   b. Inclusion of deforestation as a major source of global GHG emissions (Reducing Emissions from Deforestation and Forest Degradation in tropical countries, REDD)

3) Synthesis into a broader political agreement post 2012

Inter alia, this integration will be achieved through three specific activities:

- **International Climate Change Policy: Options for the G8** - This project brings together top influential researchers on climate change in the EU, US, Japan and Russia to map out options for the G8 Hokkaido Summit and follow-on processes.

- **RECIPE** project (Report on Energy and Climate Policies in Europe). Our role is to compile viable policy scenarios that will feed into top-down climate-economy models which will deliver a detailed and comprehensive overview of GHG mitigation potentials and respective abatement costs for the European Union. We will support sector-specific bottom-up assessments of mitigation potentials. Focus on the role of innovation and technological change in long-term scenarios for atmospheric stabilization.

DIFFERENTIATION AND DYNAMICS OF EU ETS INDUSTRIAL COMPETITIVENESS IMPACTS

AUTHORS
JEAN-CHARLES HOURCADE
DAMIEN DEMAILLY
KARSTEN NEUHOFF
MISATO SATO

CONTRIBUTING AUTHORS
MICHAEL GRUBB
FELIX MATTHES
VERENA GRAICHEN
Executive summary

Concerns about the loss of industrial competitiveness and leakage of CO\textsubscript{2} emissions remain one of the major barriers to placing more robust CO\textsubscript{2} mitigation obligations on industrial sectors in the EU. Existing literature has defined concepts, established the analytics, and offered some quantitative insights on the impacts of profitability, production and market-share.

There is consensus in the literature that most sectors have the theoretical potential to make short-term profits from the existing structure of the EU ETS, if they receive CO\textsubscript{2} allowances for free, and pass opportunity costs of CO\textsubscript{2} through to product prices. However, for manufacturing sectors of internationally mobile products, their ability to pass through CO\textsubscript{2} costs it is constrained by:

- the potential loss of exports, and displacement of domestic production by imports from existing facilities in response to the resulting price differentials;
- the extent to which sectors do face cost increases that are not matched by allowances (principally through electricity price effects);
- possible impacts of CO\textsubscript{2} price differentials on location decisions for new production facilities.

This study aims to take the analysis of competitiveness issues further by (a) more robust and comprehensive analysis of data, also with brief international comparisons, (b) a more systematic analytic framework, and (c) modelling and more extensive discussion on the two sectors of potentially greatest concern. We aim to shed some light on the determinants of the balance between short-run profit potential versus leakage over time, by examining in particular the relative magnitude of carbon-related costs for different sectors at the 4-digit SIC level, and discussing issues, evidence, and impacts on (and for two sectors, modelling) trade effects.

Our focus is on the long-term effects of unilateral or asymmetric CO\textsubscript{2} prices in industrial sectors. Firstly, we quantify CO\textsubscript{2} cost impact for a wide range of manufacturing sectors and use a screen to identify specific economic activities that face relatively high CO\textsubscript{2} costs. We then use simulation models and qualitative analysis to assess the risk of leakage and competitiveness distortions in these potentially exposed sectors. Finally we discuss to what extent free allowance allocation can address these concerns.

I. Screening to find industry activities that face high CO\textsubscript{2} costs.

We assess which sectors of the economy face high CO\textsubscript{2} cost impacts due to direct CO\textsubscript{2} emissions (combustion and process) and indirect emissions from electricity. Impacts are quantified for manufacturing sectors defined using the Standard Industry Classifications at 4 digit level. A CO\textsubscript{2} price is €20/t CO\textsubscript{2} and induced electricity price increase of €10/MWh are assumed. Findings from the CO\textsubscript{2} cost screen are summarised in Figure 1. The results have been discussed in industry consultations and incorporated various feedbacks and updates of official government data available at the time of publication to the authors’ knowledge. To improve the robustness of results, this data has been compared with results from other studies where possible.
The height of the lower part of the bars depicts the *indirect* cost increase from anticipated electricity price increase with the ETS, relative to gross value added (GVA) of the sector. The upper part of the bars reflects the *direct* cost increases relative to GVA, due to CO\(_2\) emissions in combustion and process.

![Figure 1 CO\(_2\) cost screen: Subsectors potentially exposed under unilateral CO\(_2\) pricing](image)

Threshold levels of 2% *indirect* cost increases relative to GVA and 4% cumulative impact are applied. Low threshold levels are selected so as to enable sector specific discussions for a broad set of potentially exposed sectors. Cost increases at and below these levels are likely to be dwarfed by volatility and variability of factors like exchange rates, taxation, labour costs or infrastructure provision. Of the 159 sectors in the manufacturing section examined:

- Two sectors stand out in terms of maximum impact on costs relative to value added: Cement and Basic Iron and Steel.
- In 4 sectors (Aluminium, Other Inorganic Basic Chemicals, Fertilisers and Nitrogen, and Industrial Gasses) the *indirect* impact from electricity price increase alone results in cost increases relative to value added in excess of 4%.
- In 20 sectors, cumulative cost increase exceeds 4% of GVA.
- All together, 23 sectors exceed either 2% indirect or 4% cumulative impact. Direct emissions from the 23 potentially exposed sectors collectively contribute 11% of total UK GHG emissions. Their indirect emissions from electricity contribute 3%.
- Their share of UK GDP and employment are 1.1% and 0.5% respectively.

The small relative share does not mean that the leakage issue can be ignored. To the contrary, the focus on specific subsectors allow for tailored and technical solutions where leakage is a valid concern, thus improving robust economic performance and the credibility of EU ETS as an instrument for delivering emission reductions.
For sectors where the distinctions between processes may be more important than the final product, analysis focusing on the production process chain is necessary to compliment understanding gained from this analysis. As such, the cement and steel industries were chosen for the case studies for this report.

II. Impact of unilateral CO₂ prices – how they impact exposed sectors

For the sectors that emerged from the screening process applied to UK data, we test various metrics in order to understand more fully the potential impact of persistent CO₂ price differentials.

First, we look at the share of the market that is traded with other EU countries and with the rest of the world. As expected due to the geographical position of various countries, the intensity of trade with other EU countries is larger for Germany, while trade with non-EU countries is larger in the UK. Trade intensity is low for three reasons. Firstly, if transport costs are high relative to value added, for example in lime, cement and complex refined products, there is less incentive to trade. The second reason is that safety procedures increase transport costs, as in the case of industrial gases. Lastly, trade intensity is reduced when local resources are used as inputs, for example, in the recycled paper and pulp sector.

Second, we assess whether changes in technology and industry structure can increase trade intensity. In a case-study for cement we observe a steady, but moderate, increase of clinker and cement imports. Current imports are, however, focused on EU countries where unexpected demand growth cannot be satisfied domestically and additional materials are provided by countries with spare production capacity. Increasing globalisation of companies facilitates imports from foreign production sites. However, our cement and steel case-studies did not yet provide quantitative evidence for such a transition. One concern raised is that imports might accelerate once global demand growth declines, and large excess supplies are available at low prices.

Third, we discuss whether CO₂ prices may change these trade patterns. In principle there are multiple effects. CO₂ prices can increase transport costs, and asymmetric CO₂ policy can also trigger national and international regulatory responses and thus act as a disincentive for internationalisation of production. However, where CO₂ costs contribute a large share of overall costs and transport barriers are relatively low (e.g. for intermediate products like clinker and coke), some response in trade flows from cost differences is expected.

Fourth, we simulate the mid-term equilibrium trade flows resulting from asymmetric CO₂ prices, using economic estimates of trade elasticities and ranges of CO₂ price pass through. We assume full auctioning of allowances as a reference case. If producers pass CO₂ costs through to product prices, then profitability is unaffected. Yet at the same time market share losses can be significant, particularly in the cement sector and to a smaller extent in the steel sector if we assume trade elasticities at the upper end of values reported in the literature. If producers do not or cannot pass through CO₂ prices to product prices, then market share losses are low, but profitability is significantly reduced and could limit the ability of the sector to pursue future investments. Results of the simulations are sensitive to the assumed rate of opportunity cost pass-through and trade elasticities.
Fifth, we discuss how investment and closure decisions (which are likely to be a main determinant for future trade flows) might respond to CO₂ price signals. Namely, we examine potential leakage and re-location of semi-finished products of cement and blast furnace steel. The cost impact of CO₂ is high, while the commodity nature and internationalisation of producers increases the profitability of relocation. The political economy of national, and more importantly international, climate policy implies significant uncertainties about the future stringency of carbon prices. This creates an option of waiting until more clarity has evolved, which delays investment and closure decisions. In contrast, our preliminary analysis for the refining sector suggests that despite moderate cost increases relative to value added, re-location of existing production is improbable. New refining capacity or capacity expansion is not expected irrespective of EU ETS.

III. Impact of unilateral CO₂ prices – does free allowance allocation address leakage?

Continued free allocation of allowances in the period 2013-2020 is frequently discussed as a means to address leakage concerns raised for some sectors, whilst the system as a whole moves towards a base case scenario in which all allowances would be auctioned.

- **Impact of free allocation on profitability and its trade-offs**

Our simulation results suggest that free allowance allocation may lead to significant profit for cement and steel sectors, due to the pass-through of opportunity costs of allowances to product prices. Transmitting the CO₂ price signal throughout the economy is an important and desired effect, necessary to shift demand away from carbon intensive products.

The political debate discusses whether opportunity costs of using freely allocated certificates are treated differently from incurred costs. However, there has been little convincing evidence that firms behave against the fundamental principles of economics and pass opportunity costs of CO₂ to product prices.

It is difficult to anticipate what fraction of costs firms in the cement and steel industry will be able to pass through, most likely more than 0% and at least in the island situation of the UK also less than 100%. If we assume for example that 50% of the costs of CO₂ allowances are passed through, then free allocation covering about half the emissions retains current profit levels. This result is sensitive to assumptions on international trade elasticities.

The Phase 1 experience has shown that free allocation can not only create pure rent, but it also creates perverse incentives. For example, it gives additional compensation to producers of CO₂ intensive goods for losses induced by demand side response – a shift in demand from high to lower carbon products. This not only increases the overall costs of emissions reductions in the economy but also sends mixed signals that may affect long-term investment decisions.

- **Impact of free allocation on leakage and its trade-offs**

This analysis has identified that leakage concern focuses on very specific CO₂ intensive intermediary products used in production. For example in the cement industry, leakage concerns are focused on the production of clinker (the most carbon intensive process in cement-production where significant process emissions are released from heating limestone)
which could be relocated while companies retain the free allowances for the duration of allocation period (e.g. 2013-2020). In the production of steel using a blast furnace (BOF steel production), some of the emissions are due to burning coal in a low oxygen environment to produce coke. While process gases are currently used in integrated steel works, the existing transport chain for coal could easily be used for imports of coke.

These examples suggest that free allocation would have to be conditional on continued production. In sectors like cement, with low annual fixed costs relative to the value of potentially freely allocated CO₂ certificates, firms might retain installation operational at minimum production volume. In these cases, addressing leakage requires an allocation proportional to current or recent production volumes.

- **Impact on free-allocation on inter-EU competition**

  In many sectors, trade volumes between EU countries are higher than those towards third countries. At the same time, transport and non-transport related trade barriers tend to be lower internally compared with trade with Non-EU countries. Hence the impact of distortions between Member States is likely to be bigger, suggesting that any free allowance allocation should be harmonised across Member States, for example with a minimum auction level for different sectors.

**IV. Tipping points**

This study examined possibilities of identifying tipping points of CO₂ prices above which trade patterns would suddenly change. We argue that tipping points can be identified only by making simplifying assumptions about various factors which are intrinsically uncertain and may evolve over time. These parameters include the future evolution of transport costs, product and service differentiation, stringency of different climate and other policy frameworks, potential trade restrictions, and the demand-supply balance in different countries.

**V. Data**

The analysis and discussions showed that particular attention to data quality is required for at least three reasons. First, classification of industrial activities and attribution of energy use is not trivial and there were some significant classification errors in earlier data. Also, data based upon energy expenditure surveys is subject to price uncertainties and does not capture process emissions. Second, projected emissions data and industry data on emissions, except for a few sectors had a systematic tendency to over-estimate emissions compared to 2005 verified emissions data, to varied but sometimes remarkable degrees. Third, literature estimates for trade elasticities, demand responsiveness and potential of efficiency improvements vary significantly. Where these values had significant impact on the results, we have pursued sensitivity analysis.

We believe we have obtained a reasonably consistent and accurate representation of emissions for the sectors studied, from a range of estimates available (BERR 2007, DEFRA 2007, UNFCCC 2006, European Commission, 2006).

Our analysis is based on a moderate price for CO₂, in the range of €20 to perhaps €50 /t CO₂ and a time frame to 2020. Leadership and a successful example will contribute towards a
more harmonised international solution that can support higher CO$_2$ prices where they are required to deliver the necessary decarbonisation.

VI. Key Conclusions
- The CO$_2$ cost screening process has assessed manufacturing subsectors for potential leakage. In only a few subsectors, CO$_2$ costs are significant relative to GVA and could therefore influence trade and locational decisions.
- Non-price aspects restrict the propensity for trade and thus reduce leakage concerns in some sectors. In particular, local resource base, constraints on transport of hazardous substances, high transport costs relative to CO$_2$ costs, integrated production processes, customer specific product and service specification and more broadly customer relationship are relevant.
- Several approaches can address leakage concern and need to be assessed on a sector by sector basis. They include government lead sectoral agreements, border adjustments pursued in an appropriate international framework, and continued free allocation.
- Whilst continued free allowance allocation is politically convenient, it also creates perverse incentives that reduce the economic efficiency of the scheme.
- Implementing targeted policies for the few identified subsectors can allow unilateral pursuit of stringent emission reductions by a region without risking economic performance or inducing significant leakage.
- Closer trade relationships among European countries indicate the priority for harmonisation of allocation methodologies and volumes, for example by sector specific minimum auction requirements.
CLIMATE STRATEGIES REPORT

EMPIRICAL ANALYSIS OF PERFORMANCE OF CDM PROJECTS

AUTHORS

PAULA CASTRO
AXEL MICHAELOWA

POLITICAL ECONOMY AND DEVELOPMENT, INSTITUTE OF POLITICAL SCIENCE, UNIVERSITY OF ZURICH, MÜHLEGASSE 21, 8001 ZURICH, SWITZERLAND, CASTRO@PW.UZH.CH; AXEL.MICHAELOWA@PW.UZH.CH
Executive Summary

The Clean Development Mechanism (CDM) aims at a cost-effective reduction of GHG emissions and technology and capital transfer from industrialised to developing countries. The CDM has seen a true gold rush period, with thousands of projects being developed in a few years. More and more governments and companies bet on the CDM to fill their compliance gaps.

Many CDM project developers and buyers of CER forwards underestimate the risks related to generation of Certified Emissions Reductions (CERs) from CDM projects. The CDM is governed by an internationally unprecedented set of rules and regulatory institutions administering these rules. The CDM project cycle has a number of serious pitfalls, which can lead to longer than expected lead times, to reductions in the expected CER volume or even to a rejection of a project.

To analyse the likelihood that the registered CDM projects and those currently in the validation pipeline will produce the CER volumes necessary to close the European gaps with regard to the Kyoto Protocol commitments and the EU ETS, to identify the key parameters that influence CDM project success, to inform CER procurement strategies and the discussions about CDM reform, we undertook an empirical analysis of CDM projects, including samples of those registered, in the pipeline, rejected and withdrawn. This was underpinned with in-depth case studies in China, India and Brazil, and the analysis was complemented with expert interviews and secondary information.

We analyse the ratio between actual CERs issued and estimated in the request for registration (CER issuance rate); the time from project submission to validation and project registration (lead time); the likelihood that a project fails in validation (assuming that projects staying over one year in the validation stage are failing); the prevalence of rejections or withdrawals. We try to explain these parameters of project success through possible explanatory variables such as project type/category, project size, consultant, validator and host country, unilateral or bilateral character. We use data from the UNFCCC website and from the UNEP Risø Centre CDM Pipeline, with cut-off date of late June 2007.

We find that many CDM projects have a serious CER underperformance. Consultants and validators tend to strongly overestimate the emission reduction potential of the projects. Each step of the CDM project cycle leads to a downward adjustment of CER levels. CERs forecast at the request for registration stage reached 85.2 million CERs per year. However, only 64.8 million CERs (76% of initial forecast) were actually issued.

The countries where most CDM projects are being developed (China, India and Brazil) are not necessarily the ones with best performance in terms of CER issuance rate. While India has been issued more CERs than expected so far, Brazil has less than expected but still above the world average, and China is below the average. Other countries performing very well are Korea, Egypt, Peru, Malaysia and Chile.

In terms of CER issuance rate, we have not found evidence of a direct effect of host country on project success. However, changes in the countries’ emissions factors affect mainly renewable energy projects. This effect has been observed for projects in China and Brazil, but is likely to be present in other countries.
Project lead times up to registration may also affect project success in terms of CER generation, if we do not consider early-start projects. Most projects experience delays in the start of the crediting period. Host country-specific factors, such as overwhelmed DNAs and DOEs, or delays in getting governmental licenses can contribute to longer CDM project lead times, but may not be the only or main causes of project delay.

The host country does not appear to be a relevant factor leading to failure in validation. In contrast, the host country, especially in interaction with certain types of projects, appears to be a relevant factor leading to rejection. India and Brazil host most rejected projects, and in both cases a high share of them are cement blending projects, which were all rejected due to problems with additionality.

Other host-country related barriers found along the study are: governmental interference with CER prices; governmental interference in the decision about who buys the CERs; non-approval of projects by DNA; and investment and regulatory risks.

Bilateral projects are more successful than unilateral ones in terms of CER issuance rate (77% versus 67%). Out of the bilateral projects, those with European participants perform best with 121% success. Possible reasons for the better performance of bilateral projects might be improved access to technology, technical support, quality control and upfront financing.

Unilateral projects have on average shorter lead times (275 days) than bilateral ones (325 days). However, there are many more unilateral than bilateral projects lagging for over a year in the validation stage. Unilateral projects are more likely to be rejected, but considering also the withdrawn projects they are not necessarily more likely to fail at registration. In the country case studies in China, India and Brazil we did not find enough evidence to support or discard the theory that unilateral projects face more barriers than bilateral ones.

Consultants are the main responsible for the estimation of the project potential in the PDD and have an incentive to achieve as many CERs as possible. Performance in terms of CER issuance rate varies greatly among and within types of project developers, and the sample analysed is too small to draw definitive conclusions. The performance of consultants might be related to the project types they focus on, or to the countries they operate in. Interestingly, in-house developed projects perform much better than most consultancies in terms of CER issuance, which would question the facilitating role of external consultancies to some extent.

Project type and general project category have an important influence on CER issuance rates, lead times, and validation and registration success. Waste projects perform worst in terms of CER issuance, with only 31% of CERs forecasted being issued. Overestimations in the waste growth or gas generation models, management and operation problems, and monitoring difficulties are the factors leading to these results. Projects involving industrial processes have a better performance (79%), slightly higher than the overall average. Among them, N₂O projects consistently generate more CERs than expected, and HFC projects have a varied performance. Renewable energy and energy efficiency projects have a decent performance, above average in both cases. Among them, hydro power plants have the best CER issuance rate (93%). These projects benefit from the fact that their monitoring methodologies are not as complex as those for waste projects.

Project performance in terms of CER issuance may improve in time, as shown by the analysis of monitoring reports of four Indian CDM projects. To further improve project performance, monitoring quality should be paid special attention by project consultants and owners. Good
training of the operative staff and presence of the developer also after registration are important.

Validation success appears to be similar in all project categories and types. However, rejections are related to project category and type: most rejected projects are energy efficiency ones, and mainly of the cement blending type. All these projects were located in India and Brazil, and were rejected due to insufficient demonstration of additionality. Although all withdrawn projects are biomass energy projects, withdrawal does not seem to be related to project type.

Project size is relevant for CER issuance rate. In general, the smaller the project the better its performance in terms of CERs issued as compared to those forecasted. Projects generating below 20,000 CERs per year outperform all other project sizes. This may be due to the less complexity and the higher conservativeness involved in small projects. This trend is no longer valid for very large projects, above 540,000 CERs per year. This category includes mainly the N₂O and HFC projects. As seen above, N₂O projects have the best performance among all project types.

Small-scale projects appear to have more problems at validation than large ones. However, experts interviewed for this study hold the view that the bigger the project, the longer it takes to validate it and the more complex it becomes. In line with this opinion, large projects appear to have more problems at registration than small ones. As most withdrawn projects are small-scale, however, no conclusion can be drawn whether project scale has any impact on its registration failure.

The analysis of CER issuance rate by validator shows that the performance of DOEs is related to the types of projects dominating in their portfolios, rather than to a perceived conservativeness of particular validators. An expert interviewed during the study holds the view, however, that the experience of a validator, and also the personal experience of the team in charge has an influence on the requirements set by the DOEs. In his opinion, validators can be arbitrary in setting additional requirements that can take a long time to comply with. Our data are not sufficient to test this claim.

An additional factor affecting project performance, in the view of the experts interviewed, is the role of the project owners, both during project planning and during implementation. Companies with longer experience and from the private sector may perform better. Lack of sufficient training of the local staff may lead to errors in monitoring, which will have an effect on CER issuance.

From the analysis in the three case studies in China, India and Brazil, we conclude that additionality demonstration is still a problem in all three countries, whereas all of them have both good and bad examples of additionality demonstration. Public comments, corrections and clarifications during validation and requests for review are frequently related to issues pertaining project additionality. A good knowledge of the in-country economic and policy context is needed to assess project additionality.

Additionality is the main cause of project rejection. 65% of the rejections were caused – at least in part – by problems in the additionality demonstration. In all of them, the barrier analysis was found not sufficiently convincing or demonstrated. Additionality demonstration seems to be a more critical issue for large projects than for small: while 75% of large projects were rejected due to additionality, only 50% of small ones were. PDDs with only a barrier
analysis for additionality demonstration could have a higher risk of being rejected than those with a full investment analysis, especially in the case of large projects.

There are no specific internationally recognised requirements for ensuring good-quality stakeholder consultation processes in CDM projects, apart from for example voluntary certification schemes such as the CDM Gold Standard. It is up to each host country to establish its own requirements for stakeholder consultation. Neither in China nor in India are there specific procedures for carrying out stakeholder consultations in CDM projects. On the contrary, Brazil has established a standard procedure.

In China, the consultation method mostly used is the written survey or questionnaire, followed by the public meeting. While allowing the participation of a large number of different people, questionnaires gather answers that might not be sufficiently informed and provide limited space for additional comments. Several of the Chinese PDDs do not provide sufficient information on the consultation methods, the people participating or the communication channels they used. This could reflect just the current institutionality in China or also a lack of transparency in the description of the consultation process.

In India there are several procedures that investment projects in general need to follow in order to be allowed to operate, including the approval from the village representative body, the Panchayat. The description of the stakeholder consultation process seems to follow a standard model in Indian projects, although there is no regulation about it. 70% of the PDDs mention having had some kind of consultation meeting. However, several PDDs do not describe the consultation process clearly, and many do not prove that they have undertaken a specific consultation process for the CDM.

The Brazilian DNA has established a mandatory, standard procedure for inviting stakeholders to issue comments to CDM projects, which consists of a written consultation to a defined group of stakeholders. However, less than 5% of Brazilian CDM projects receive any comment from stakeholders, and most of the comments received are not really informing project design. The Brazilian standard stakeholder consultation procedure, with a one-way communication that offers respondents a chance to send written comments themselves, does not seem to be sufficient for gathering potential concerns, expectations or questions from local stakeholders.

We have not been able to draw any links between quality of the stakeholder consultation processes described in the PDDs and the rejection or withdrawal of projects. As the failed CDM projects come from different countries, in some cases these results reflect the national regulations regarding stakeholder consultation processes.

Host countries are the ones defining how CDM projects shall contribute to sustainable development. Although the Chinese, Indian and Brazilian DNA have a definition of the contribution to sustainable development CDM projects should achieve, they fail to include quantifiable indicators to measure it. Nonetheless, the Chinese government differentiates preferred projects from others by establishing levies on CER revenues coming from reduction of gases other than CO2 or methane.

In many of the cases, especially when referring to employment generation opportunities and positive environmental impacts, the concerns and demands of the population are in accordance with the sustainability benefits that the project developers expect to attain. However, in all three cases, but especially in India and Brazil, the project developers’
expectations regarding contributions to sustainable development far exceed the expectations from the stakeholders whose opinions they managed to gather. This gives the impression that stakeholders are not really informed about the economic benefits brought by CER sales and the benefits that could “trickle down” to them from these revenues.

At least some projects in India and Brazil mention some voluntary, additional contribution to local development among their expected sustainability benefits, or make the effort to provide quantitative indicators of their expected impacts on sustainable development.

The performance of CDM projects in terms of their contribution towards sustainable development does not have any evident impact on their success in terms of CER issuance, lead times, validation or registration success. Buyers do prefer good projects, with sustainability benefits, but they do not have a strong position since demand for CERs is larger than the offer. However, this aspect needs not to be disregarded, if the double aim of the CDM is to be achieved. More detailed monitoring guidelines or measurable sustainability indicators may contribute to improve the sustainability performance of CDM projects.
Energy and Climate: Opportunities for the G-8

Research by Climate Strategies
Prepared for Cambridge Centre for Energy Studies

Professor Michael Grubb,
Chair, Climate Strategies and Chief Economist, the Carbon Trust
Project Leader:

Michael Grubb, Chair of Climate Strategies and Chief Economist, the Carbon Trust

Contributing Authors:

<table>
<thead>
<tr>
<th>Name</th>
<th>Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Erik Haites</td>
<td>MARGAREE</td>
</tr>
<tr>
<td>Stefania Omassoli, Cath Bremner and David Vincent</td>
<td>CARBON TRUST</td>
</tr>
<tr>
<td>Nigel Purvis</td>
<td>Climate Advisers</td>
</tr>
<tr>
<td>Benito Muller</td>
<td>Climate Advisers</td>
</tr>
<tr>
<td>Nick Butler, Yasuko Kameyama, and Misato Sato</td>
<td>CAMBRIDGE Institute for Energy Studies</td>
</tr>
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More detailed documents on several of the specific proposals were prepared by the authors, as referenced in the text and published as:


About Climate Strategies

Climate Strategies aims to assist governments in solving the collective action problem of climate change. It connects leading applied research on international climate change issues to the policy process and to public debate, raising the quality and coherence of advice provided on policy formation. Its programmes convene international groups of experts to provide rigorous, fact-based and independent assessment on international climate change policy.

To effectively communicate insights into climate change policy, Climate Strategies works with decision-makers in governments and business, particularly, but not restricted to, the countries of the European Union and EU institutions.

Climate Strategies
Managing Director: Jon Price
Research Director: Bernhard Schlamadinger

Contact Details:
Jon Price  Mobile: +44 (0)7775523376
Managing Director  Office: +44 (0) 1223 765467
Climate Strategies  www.climate-strategies.org
Judge Business School / CCES / Rm a0.03  jon.price@climate-strategies.org
Cambridge University CB2 1AG, UK
Key Recommendations

The G-8 countries at the Toyako Summit must promote synergies between concerns about energy security and climate change. Rising food prices also highlight the need for long term, strategic management of climate impacts and adaptation. We identify five specific areas with associated specific recommendations through which the G-8 could turn the present crises into opportunities to invigorate the global effort:

I. Reduce dependence on oil and associated emissions
The Summit must accelerate efforts to reduce dependence upon oil without increasing greenhouse gas emissions by adopting wide-ranging recommendations from the IEA and others on energy efficiency and the promotion of low-carbon sources, and take specific steps to address the most rapid source of global growth in oil consumption and emissions that currently falls outside all forms of regulation:

Support the introduction of specific, legally-binding international cap-and-trade systems to limit the growth of oil consumption and emissions from international aviation and marine transport, and thus ensure that these activities pay for the costs they impose.

II. Accelerate technology development and diffusion
Technology is essential but efforts must span the whole chain of innovation, above and beyond R&D. A major challenge is to accelerate the commercialisation and international transfer and diffusion of better technologies globally:

Commit to establish and finance a network of Low Carbon Technology Innovation and Diffusion Centres, including in a range of key developing countries with support from industrialised countries, to accelerate the development and diffusion of energy efficient and low-carbon, non-oil energy technologies.

III. Clarify the form of post-2012 mitigation and supporting commitments to be negotiated under the UNFCCC
Experience has demonstrated the importance of clear, legally binding commitments, agreed at an international level. Clear G-8 endorsement of this principle, and reference points for targets, will simplify the enormously complex task of negotiating, adopting and implementing an agreement under the UNFCCC:

Undertake to negotiate legally-binding but differentiated commitments to mitigate emissions significantly by 2020: developed nations should commit to fixed national emission targets which take account of both actions implemented and emission trends since 1990, whilst greater flexibility and technological and financial assistance will be needed for major developing country emitters to commit to quantified actions.

IV. Expand and restructure finance for adaptation
The rise of global food prices has exposed the vulnerability of global systems and in particular of many developing countries, foreshadowing the potential impacts of accelerating climate change caused by the accumulation of greenhouse gas emissions to date. These needs will grow over time and current financial levels and structures are inadequate to the task. The G-8 countries should:

Acknowledge that adapting to the adverse impacts of climate change will cost many billions of $/€ annually, and that capacity to adapt requires long-term, strategic funding subject to appropriate international governance; consequently that G-8 countries will pursue new and innovative international financial mechanisms over and above traditional donor channels.

V. Develop the foundations for the global energy transition
Major economies need to develop a shared vision of the path towards reducing dependence on fossil fuels and decarbonising their economies, and to oversee implementation of agreed actions in this respect:

Seek to expand and strengthen cooperative structures, spanning all major economies, for shared analysis of the issues and options and potentially for managing appropriate dimensions of implementation at the request of the UNFCCC.

An expanded role for a restructured International Energy Agency, going well beyond its original oil focus and OECD scope, is one option that should be actively considered, and all participating economies should commit to implement more comprehensive systems of energy and emissions measurement.
Executive Summary

The G-8+ Summit in Toyako, Japan, offers an important opportunity for progress on energy and climate change. Responses to the oil shock are likely to define whether and how the world tackles climate in the long-term. Although high prices are driving greater energy efficiency, they are also leading to a surge of investment in more carbon-intensive fuels and resources like tar sands, oil shales and coal, all of which involve more CO₂ emissions. The response to the oil shock thus risks exacerbating, not alleviating, long-term emissions. Thus the G-8’s central task is to promote synergies between the concerns about energy security and greenhouse gas emissions; its central outcome must ensure that responses to global oil prices support rather than undermine progress on climate change.

In addition, the G-8 should acknowledge the likely links between concerns about food prices, and the long term management of climate impacts and adaptation. In the final year of the US Administration and the first year of a new Russian President, it must also serve to advance their respective positions so as to maintain momentum, and thus help to create the conditions necessary for a successful outcome of global negotiations under the Bali Action Plan.

To these ends, we identify five key areas that should be addressed by the G-8 and under these areas offer specific recommendations that could be substantially advanced by appropriate commitment from G-8 countries at Toyako and after.

1. Oil and emissions
The summit must accelerate efforts to reduce dependence upon oil without increasing greenhouse gas emissions from other energy sources. There is a significant risk that responses to high oil prices could increase greenhouse gas emissions, through resort to technologies such as coal-to-liquids which could double the carbon intensity of transport fuels. Response measures should include accelerating efforts on energy efficiency as recommended to the G-8 by the International Energy Agency, and in the UN Foundation Expert Report on Realising the Potential of Energy Efficiency submitted to the Heilegendamm Summit last year. In addition, the G-8 countries should provide technical and financial assistance to help developing countries move to renewable energy sources (see II).

The strongest source of growth in global oil consumption and associated emissions is in the transport sector. International aviation and marine transport alone account for almost 10% of global oil consumption and over 1 billion tonnes of CO₂/yr, and the climate impact of aviation is around two to four times its CO₂ emissions due to emission of other gases at high altitudes. Both have been growing rapidly at a historic trend of 3-6%/yr and are expected to continue to grow substantially. Notwithstanding temporary impacts of high oil prices, projected growth would place unsustainable pressure on global oil supplies and is fundamentally incompatible with managing climate change, and in particular the G-8’s mid-Century goal to reduce global emissions by 50%.
Unlike surface transport, these huge sources of oil consumption and greenhouse gas emissions are currently explicitly exempt from taxation and do not fall under any meaningful international GHG regulation. More than ten years of efforts to address them through the International Civil Aviation Organization (ICAO) and the International Maritime Organization (IMO) have proved entirely unsuccessful. Specific sectoral approaches, as advocated by the Japanese G-8 Presidency, are appropriate for international transport, but if the concept is to have any credibility the time has come for governments to step in with decisive action. Whilst international taxation is prohibited under existing international regulations, the same is not true of emissions limits with trading, which could effectively cap the sector’s growing emissions and oil consumption. Phasing in auctioning of allowances over time would avoid immediate additional pressure on costs but still generate an important and predictable source of international revenue over time. There are no technical obstacles to adequate monitoring and reporting required for such a system. Consequently, the G-8 should:

**Recommendation I.** Support the introduction of specific, legally-binding international cap-and-trade systems to limit the growth of oil consumption and emissions from international aviation and marine transport, and thus ensure that these activities pay for the costs they impose.

**II. Technology**

The world’s energy and environmental problems cannot be solved without accelerating the pace of innovation in low-carbon technologies. There are a wide range of technologies that could contribute, at various stages of development. The International Energy Agency has made a number of recommendations to the G-8 for enhancing energy technology research and development, and the Joint Science Academies have made a specific call for a massively increased commitment to fund demonstration projects on carbon capture and storage. We endorse these calls.

Effective innovation is a much broader process than just publicly-funded research and development, and is driven in part by private sector expectations about future regulation, which defines how companies engage in R&D activities. Most publicly-funded R&D remains concentrated in the G-8 countries and transfer to private sector investment, domestically and globally, is very slow. Faced with the scale and urgency of the energy-environment crises, a large part of the challenge is to accelerate the commercialisation and international transfer and diffusion of better technologies.

In this area, a huge gap remains that requires a different approach from large-scale public funding of demonstration projects on particular ‘big-ticket’ technologies. The need is for publicly-funded organisations that can work across a wide range of

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technologies appropriate to the needs of host countries and engage local as well as multinational companies in the process of commercialisation and diffusion. Extensive experience – both in the energy sector, and other sectors has demonstrated that appropriate initiatives can achieve this, and also (where appropriate) ensure that legitimate protection of Intellectual Property Rights does not form a barrier to accelerated diffusion. Specifically, the G-8 should:

**Recommendation II. Commit to establish and finance a network of Low Carbon Technology Centres**, including in a range of key developing countries with support from industrialised countries, to accelerate the development and diffusion of energy efficient and low-carbon, non-oil energy technologies, and thereby also contribute to an enhanced agreement under the UNFCCC on technology development and transfer.

### III. Form of mitigation and supporting commitments

To tackle climate change, governments must implement politically difficult domestic policy measures, sustained across successive administrations. To change their investments, companies must expect measures to be sustained, and have credible expectations about the strength of future action. In this context, experience has demonstrated the importance of clear, legally binding commitments, agreed at the international level. If ratified, these have far more impact on domestic policy formation than the purely domestic targets of any single administration, or voluntary agreements with business. In most countries, a firm legal basis is also required to give financial value to greenhouse gas emission reductions, for example through cap-and-trade systems.

The Bali Action Plan refers to the need for ‘quantified emission limitation and reduction objectives, by all developed country Parties’. It does not state that these should be legally binding, or even the result of a negotiated outcome as opposed to purely unilateral declarations, nor does it indicate the basis of these commitments. The Bali Action Plan also refers to the need for ‘measurable, reportable and verifiable nationally appropriate mitigation actions by developing country Parties in the context of sustainable development, supported by technology and enabled by financing and capacity-building.’

Developments since Bali have increased the scope to give clearer direction to these twin statements. The US has indicated willingness to consider an agreement based upon legally binding, negotiated national caps but sees the key in the involvement of all major emitters; Russia recently offered a similar view; developing countries have stressed in particular the centrality of financial and technological support. Whilst a final resolution is likely to form the core of the Copenhagen process, Tokayo could remove a great deal of uncertainty if it agreed that:

**Recommendation III. The UNFCCC negotiations should result in all major emitting nations making legally-binding but differentiated**
commitments to mitigate their emissions significantly by 2020. Developed nations should commit to quantitative, legally binding, and fixed national emission targets, which take account of both actions implemented and emission trends since 1990. Supported and enabled by clear and specific G-8 commitments on technology, financing and capacity-building, major developing country emitters should commit to legally binding, nationally appropriate, quantitative national or sector-specific goals, such as numerical objectives for improving energy efficiency and carbon-intensity, strengthening technology performance standards and reducing emissions from deforestation.

By agreeing to this now G-8 leaders could add momentum to global climate negotiations, increase the prospects for concluding a new climate pact next year and, importantly, significantly improve the prospects that the United States Congress would ratify the new agreement.

IV. Adaptation and finance

Whilst the industrialised countries have understandably focused mostly upon debates around emissions mitigation, developing countries have increasingly emphasised other dimensions of the climate change challenge. They have stressed that, with basic economic development an overriding priority and for several other reasons acknowledged in the UNFCCC, most will require financial and technological assistance to engage in more substantial mitigation actions. Most fundamentally however, they increasingly emphasise that the ‘real and present danger’ for them is coping with the impacts of climate change. The fact that this is caused by the accumulation of greenhouse gas emissions to date underlines their case that industrialised countries must assist them in efforts to adapt.

Present financial assistance from G-8 countries for adaptation is inadequate in scale and inappropriate in form. Long-term, predictable finance is required to enable developing countries to invest in the capacity to make good use of adaptation funding. That requires expenditure modalities that are strategic, rather than tactical; do not depend on the vagaries of ODA-type replenishment and the politics of economic and electoral cycles; and are subject to appropriate international governance in which developing countries have an adequate stake. This in turn also implies innovative funding sources – for example, linked to regulation of international transport fuels and/or issuing of emission allowances. Consequently, the G-8 countries should:

**Recommendation IV.** Acknowledge that adapting to the adverse impacts of climate change will cost many billions of $/€ annually, and that developing the capacity to adapt requires long-term, strategic funding subject to appropriate international governance; consequently that G-8 countries will pursue new and innovative international financial mechanisms over and above traditional donor channels.
Energy and Climate: Opportunities for the G-8  
Michael Grubb

V. Foundations for the global energy transition

Responding to climate change involves issues of ever-growing complexity. Success will depend on a combination of carefully targeted agreements and implementation programmes working in support of a common goal. The development of adequate information, trust, and effective institutional structures to manage, oversee and link these efforts is essential. Adaptation is intrinsically a global challenge; the focus of mitigation needs at least to encompass the major economies, and this will only be effective if they can develop a shared analysis and vision of how to foster a global transition away from fossil fuels towards a low-carbon global economy.

The Bali Action Plan call for “comparability of efforts, taking into account differences in national circumstances” poses complex challenges. Assessing comparability of effort in emission goals – including through international transfers - will be hard enough. Action on both production and consumption of relevant traded goods might be relevant. Comparison might also need to put some value on efforts which offer indirect rather than direct emissions reduction - such as investment in technological research, capacity and enabling infrastructure, the development of renewable energies, and product labelling. And assessing ‘comparability of effort’ is just one of many potentially huge and ongoing analytic tasks.

The institutional needs to support implementation will be even more demanding. Countries cannot effectively manage their energy consumption and emissions without good, comparable data; the IPCC has established guidelines for national greenhouse gas inventories, but their application is limited particularly (but not exclusively) across developing countries. Developed countries will be unwilling to make large international transfers without commensurate confidence in the ability to track the use and effectiveness of those expenditures. Other measures, such as the network of innovation centres proposed, would benefit from international oversight. The management of linkages between domestic trading schemes will also pose new governance challenges.

Our contribution in this area underlines a number of principles upon which progress should be based. One of these is pragmatism – being willing to work with what can most effectively do the job. In this context, a key reality underpinning many of these issues is that they cannot effectively be addressed by the G-8 alone; yet nor can they realistically be conducted directly by the UNFCCC, which has the ultimate role in governance of global responses but which spans every country in the world. In an increasingly complex and globalised world, decarbonising energy systems need to be addressed by the world’s major economies working together. Where possible, responses should also seek to build upon the capacities of existing organisations, with relevant expertise but not at present directly focused on climate change. Consequently the G-8 should:

**Recommendation V.** Seek to expand and strengthen cooperative structures, spanning all major economies, for shared analysis of the issues and options and potentially for managing appropriate dimensions of implementation at the request of the UNFCCC.
An expanded role for a restructured International Energy Agency, going well beyond its original oil focus and OECD scope, is one option that should be actively considered. In addition, tackling key issues will require major economies to implement more comprehensive systems of energy and emissions measurement and reporting in accordance with established recommendations of the IPCC.
Climate Change: Financing Global Forests

Executive Summary

This is an executive summary of the Eliasch Review, produced by the Office of Climate Change and published 14 October 2008
Executive summary

1. The scope, aims and approach of the Review

The Eliasch Review is an independent report to government. It aims to provide a comprehensive analysis of international financing to reduce forest loss and its associated impacts on climate change. It does so with particular reference to the international debate surrounding the potential for a new global climate change deal in Copenhagen at the end of 2009.

The Review focuses particularly on the scale of finance required and on the mechanisms that can, if designed well, lead to effective reductions in forest carbon emissions to help stabilise greenhouse gases in the atmosphere and avoid the worst effects of climate change. It also examines how mechanisms to address forest loss can contribute to poverty reduction, as well as providing incentives to preserve other ecosystem services such as biodiversity and water services.

This Review draws on a large amount of previous research in the literature, responses to a stakeholder consultation exercise and visits to various countries including forest nations in Latin America, Africa and south east Asia. A range of new research and analysis was undertaken by the Review Team and commissioned for the Review from the following international organisations and institutes: AEA; Chatham House; Climate Strategies; CSERGE, University of East Anglia; Ecosecurities; IES; IIASA; IIED; Judge Business School, Cambridge University; LTS International; The Met Office, Hadley Centre; ODI; ProForest; the Royal Botanic Gardens, Kew; School of Biological Sciences, Plymouth University; and the United Nations Environment Programme, UNEP/WCMC.

2. Headline messages

Urgent action to tackle the loss of global forests needs to be a central part of any future international deal on climate change. A deal that provides international forest financing could not only reduce carbon emissions significantly, but also benefit developing countries, support poverty reduction and help preserve biodiversity and other forest services. Forestry, as defined by the IPCC, produces around 17 per cent of global emissions, making it the third largest source of greenhouse gas emissions – larger than the entire global transport sector. In the tropics, it is estimated that an area of forest the size of England is cleared every year, and current annual emissions from deforestation are comparable to the total annual CO₂ emissions of the US or China.

If the international community does nothing to reduce deforestation, modelling for the Eliasch Review estimates that the global economic cost of climate change caused by deforestation could reach $1 trillion a year by 2100. This is additional to the impacts of industrial emissions. Moreover, without tackling forest
loss, it is highly unlikely that we could achieve stabilisation of greenhouse gas concentrations in the atmosphere at a level that avoids the worst effects of climate change.

This Review believes that an ambitious international climate change deal should aim to halve deforestation emissions by 2020 and make the forest sector carbon neutral by 2030 – with emissions from forest loss balanced by new forest growth. Reducing deforestation rates significantly will require substantial finance. Nonetheless, even taking this into account, the net benefits of halving deforestation could amount to $3.7 trillion over the long term.

In order to achieve this, a global step change is needed in the way land is used and commodities are produced. Success will rest largely on action at the national level. Demand for agricultural commodities and timber will continue to rise as the world population grows and becomes wealthier. National and international policies will need to shift the way demand for commodities is met away from deforestation and towards more efficient and sustainable methods that ensure forest nations and communities grow and prosper. Improvements in agricultural productivity and the sustainable management of forests will play a key role. Consumer countries can also provide incentives for sustainable production through preferential procurement of sustainably-produced products and increased consumer awareness.

A central element in making this shift work will be the inclusion of the forest sector in global carbon markets. In doing so, the costs of reducing global carbon emissions will be reduced substantially, and lower costs will mean that a more ambitious overall emissions target will be possible. The Review’s analysis suggests that including deforestation and degradation (REDD) – and additional action on sustainable management – in a well-designed carbon trading system could provide the finance and incentives to reduce deforestation rates by up to 75 per cent in 2030. With the addition of afforestation, reforestation and restoration (ARR), this would make the forest sector carbon neutral.

In addition, the cost of halving global carbon emissions from 1990 levels could be reduced by up to 50% in 2030 and by up to 40% in 2050 if the forest sector is included in a trading system. This is due to the relatively low cost of forest abatement compared to some mitigation in other sectors. These lower costs could also allow the international community to meet a more ambitious global emissions target.

Full global carbon trading will take time to evolve. Any system should meet the needs of countries at different levels of development, particularly the poorest. In the transition period from 2012, the Review recommends that forestry abatement is supported through a combination of finance from carbon markets and other sources from the public and private sectors.

For this to be successful, four building blocks will be needed:

- Effective targets dependent on baselines

  Emissions reductions should be measured against national baselines that provide incentives for action by countries with high historical deforestation rates as well as continued action by those with an effective track record of avoiding deforestation.
• Robust monitoring and reporting

While advances in measuring techniques mean that forest emissions can now be estimated with similar confidence to emissions estimates in other sectors, this will require substantial capacity building in many forest nations.

• A well-designed mechanism for linking forest abatement to carbon markets; and additional funding from the private and public sector

Forest abatement in developing countries needs to be matched with more stringent emissions targets for Annex I countries. Getting this balance right could reduce costs, attain a more ambitious global target, and maintain financial incentives for clean technology transfer to developing countries. The Review shows that, if properly designed, inclusion of the forest sector in the EU ETS should have little or no impact on the EU carbon market price. This would maintain incentives for EU investment in new clean technologies. However, a smooth transition that maintains price stability will mean that additional funding from sources outside carbon markets will be needed in the short to medium term. Under one scenario modelled by the Review, $7 billion could be generated by the carbon markets in 2020 which would leave $11-19 billion to be financed from elsewhere if deforestation were to be halved. Much of this may need to come from international public funding.

• Strong governance and effective mechanisms for the distribution of finance

National governments should take the lead in implementing a successful system to tackle deforestation. Clarifying and securing land tenure user rights, and strengthening institutional capacity at all levels, will be essential. Finance may be directed to national and regional levels, local projects or a combination. The full participation of forest communities will make reforms more likely to succeed and benefit the poor. To help promote transparency, countries may choose to manage carbon revenues through a special fund and should report on the policies and measures they have put in place to reduce the loss of their forests.

In the very short term, developing countries will need substantial support for capacity building to prepare for entry into forest credit schemes. Estimates for this Review suggest that capacity building in 40 forest nations could cost up to $4 billion over five years. This will include three key areas: research, analysis and knowledge sharing; policy and institutional reform; and demonstration activities. If international funding from a combination of carbon markets and other sources is to be effective, the finance will need to be well managed and coordinated. The international community will need to agree on the proportion of finance from different sources. Several funds already exist or are planned, and there is potential for overlap and duplication. The UK should help mobilise international action, working with forest nations, major donors, the UN, World Bank and others to build a coordinated system of multilateral funding. This should build on, and draw together, current multilateral initiatives. Given the risks of climate change, the international community must act swiftly and decisively.
3. Recommendations

Strong and urgent action to tackle forest loss is key to a comprehensive approach to tackling climate change. This Review recommends the following:

Finance

- The international community should aim to support forest nations to halve deforestation by 2020 and make the global forest sector carbon neutral by 2030. The international community should provide the necessary finance to meet these goals. A combination of international finance from carbon markets and other sources from the public and private sectors will be needed in the short to medium term.
- As a leading international donor, the UK should make a significant financial contribution to tackle global forest loss.
- The forest sector should be fully included in any post-2012 deal at Copenhagen, with market access provided by emissions trading schemes. This should be matched by stringent emissions reductions targets for Annex I countries and appropriate supplementarity limits on international credits. A linking mechanism between forest abatement and global carbon trading should be institutionalised as part of a wider global carbon market framework. The international community should agree on the proportion of finance from different sources.

Sustainable production

- Forest nations and the international community should undertake research to better quantify land availability at global, national and regional scales and determine the most effective country-specific policies for shifting to more efficient, sustainable production of commodities and timber. Policies could include improvements in agricultural productivity in the context of wider sustainability policies, use of idle land and sustainable forest management.
- Consumer countries should examine demand-side policies – for example, through preferential procurement of sustainably produced products and increasing consumer awareness, ensuring that this is compatible with WTO rules. This should provide incentives for forest nations to promote sustainable production.

Capacity building

- The international community should support forest nations in urgent research and analysis to provide more consistent and accurate data on current emissions from the forest sector.
- Countries with specific expertise in the forest sector should share their knowledge and expertise. In particular, satellite technology and data management should be made available to support poorer forest nations in measuring and monitoring changes in forest emissions. This will build capacity for countries to participate in financing mechanisms and provide transparency in reporting emissions reductions.
- Many forest nations will want to undertake policy and institutional reforms in order to
create a governance environment in which sustainable land and resource management is possible and profitable. Clarifying and securing land tenure and user rights will be an essential part of this. The international community should provide urgent support for capacity building where necessary.

- **Demonstration activities** will be needed to test new approaches and demonstrate how credit mechanisms can be used to make land use more efficient and sustainable, promote REDD and ARR and secure wider social and environmental benefits.

- **International public funds should be coordinated effectively**, avoiding a proliferation of competing mechanisms. The UK and EU should help mobilise international action. The UK Government should work with forest nations, European leaders, major donors, the UN, World Bank and others to build a coordinated system of multilateral funding. This should build on, and draw together, current multilateral initiatives such as FCPF, UN-REDD and FIP.

### 4. Chapter summaries

#### 1. Introduction

Climate change is a major global threat. As carbon emissions rise, so does the likelihood of significant damages to water resources, ecosystems and coasts, as well as the impacts on food supplies and health. To avoid the worst effects of climate change, we should aim to stabilise levels of atmospheric greenhouse gases at 445-490 parts per million CO$_2$e or less. Achieving this global stabilisation target will require strong and urgent international action on a number of fronts – and forests will need to play a central role.

Forestry, as defined by the IPCC, produces around 17 per cent of global emissions, making it the third largest source of greenhouse gas emissions – larger than the entire global transport sector. Annual forest emissions are comparable to the total annual CO$_2$ emissions of the US or China. If we do not tackle deforestation, it is highly unlikely that we could achieve a CO$_2$e stabilisation target that avoids the worst effects of climate change.

Forests also deliver additional ecosystem services such as regulating regional rainfall, flood defense, maintaining soil stability and supporting high levels of biodiversity. Many of these services are crucial for maintaining life and livelihoods, with 1.6 billion people depending on them for their welfare and livelihoods to some extent.

#### 2. Forests, climate change and the global economy

Forests play an important role in regulating the earth’s climate. Deforestation and forest degradation release stored carbon into the atmosphere as CO$_2$ emissions. The global forest sector produces an estimated 5.8 GtCO$_2$ annually. Deforestation is occurring rapidly in the tropics, where an estimated 13 million hectares – an area the size of England – are converted to other land uses each year. Deforestation in tropical regions generally emits significantly more CO$_2$ than forests elsewhere in the world.

Modelling for the Eliasch Review estimates that the global economic cost of the climate change impacts of deforestation will rise to around $1 trillion a year by 2100 if unabated.
14. Conclusions

Deforestation is progressing rapidly, particularly in the tropics. Firm and urgent action is needed. If not, it is highly unlikely that we can achieve a CO$_2$e stabilisation target that avoids the worst effects of climate change.

Action on deforestation needs to be taken as part of the international negotiations under the Bali Action Plan towards a global climate change deal in Copenhagen, as well as in the wider context of goals on poverty reduction and the preservation of ecosystem services. A step change is needed in the way land is used and commodities are produced. A shift to more sustainable production will be complex and challenging, but not impossible if the international community acts together effectively.
Scaling Up AFOLU Mitigation Activities in Non-Annex I Countries

12 June 2008- Working Paper

A report by

Climate Strategies & GHG Offset Services for the Eliasch Review

Penny Baalman
Bernhard Schlamadinger

This paper was commissioned by the Office of Climate Change as background work to its report ‘Climate Change: Financing Global Forests’ (the Eliasch Review). Further information about the report is available from www.occ.gov.uk.
Executive Summary

Agriculture, Forestry and Other Land Use (AFOLU) activities in non-Annex I countries can play a significant role in achieving reductions in the accumulation of greenhouse gases in the atmosphere, it is predicted that in the order of 20% of current annual global emissions or some 10,000 MtCO₂ of annual reductions can be achieved through forest-based activities in developing countries (IPCC, 2007a).

AFOLU activities also have the potential to aid non-Annex I countries achieve sustainable development as well as contributing to the ultimate objective of the Convention. This is especially true in least developed countries where activities can be of substantial benefit to rural communities and for which non-AFOLU activities are limited due to a lessened reliance on fossil fuels.

To date there has only been one AFOLU project activity registered under the Kyoto Protocol’s Clean Development Mechanism (CDM) and as yet no units have been issued. The uptake of AFOLU projects is currently largely restricted to the voluntary market where forest-based activities make up some 30% to 40% of all voluntary offset projects. The modalities and procedures for Afforestation/Reforestation (A/R) activities that were agreed in 2003 were designed to restrict activities whose inclusion was not taken into consideration when establishing targets and whose risks were perceived to be greater than they are.

Of the differences in the modalities and procedures between A/R and non-A/R activities discussed in the report it is those aspects that directly affect investment confidence that have had the greatest impact on reducing the uptake of A/R CDM projects. They include their determination as expiring units, their non-bankability and that the responsibility for replacement falls to the retiring Party. Their exclusion from the main immediate market, the European Union Emissions Trading Scheme (EU ETS), has also been significant.

It is important to re-address the modalities under the CDM for A/R as this will remain the only feasible mechanism for many non-Annex I countries in the immediate future. The single most important aspect is that of the issued units. The creation of expiring units has proven limiting for A/R activities, an alternative approach is proposed where a buffer of credits is established based as a percentage of created units to be held in the event of a reversal. In this way the liability is taken off the buyer, holder or retiree of the credit, enabling the creation of a fungible unit. Uptake could also be increased by addressing the other inconsistencies in the rules applied to AFOLU activities, including the restriction of verifications to 5-yearly events, the simplification of approved methodologies and associated tools, increasing the threshold limit for small-scale activities and allowing all AFOLU activities to be eligible.

While the CDM’s programme of activities is a useful step in allowing greater flexibility for AFOLU activities, it is unlikely to make a substantial change of itself. However the approach to extend non-Annex I countries the ability to account for reforestation and deforestation activities is likely to significantly increase activity as well as progress capacity in non-Annex I countries. Of particular importance is the ability to enable participating host Party governments the opportunity to address non-permanence.
Executive Summary

THE ROLE OF AUCTIONS FOR EMISSIONS TRADING

COORDINATING AUTHORS
KARSTEN NEUHOFF
FELIX CHR. MATTHES

CONTRIBUTING AUTHORS
REGINA BETZ
SUSANNE DRÖGE
ANGUS JOHNSTON
MARIUSZ KUDELKO
ANDREAS LÖSCHEL
STÉPHANIE MONJON
LENNART MOHR
MISATO SATO
WOJCIECH SUWALA

Climate Strategies aims to assist governments in solving the collective action problem of climate change.
Sponsors include departments from European governments and other stakeholders.

October 6, 2008
About Climate Strategies
Climate Strategies aims to assist governments in solving the collective action problem of climate change. It connects leading applied research on international climate change issues to the policy process and to public debate, raising the quality and coherence of advice provided on policy formation. Its programmes convene international groups of experts to provide rigorous, fact-based and independent assessment on international climate change policy.

To effectively communicate insights into climate change policy, Climate Strategies works with decision-makers in governments and business, particularly, but not restricted to, the countries of the European Union and EU institutions.

Contact Details:
Managing Director: Jon Price
Climate Strategies
c/o University of Cambridge,
13-14 Trumpington Street
Cambridge, CB2 1QA, UK
Office: +44 (0) 1223 748812
www.climatestrategies.org
jon.price@climatestrategies.org
The Role of Auctions in Emissions Trading: Executive Summary

Karsten Neuhoff and Felix Chr. Matthes

The European Union Emissions Trading Scheme (EU ETS) is a central pillar of European climate policy, which has many strengths but also opportunities for improvement. The EU ETS:

• puts a price on carbon for investment and operation decisions; the carbon price is also intended to feed through the value chain to incentivise CO₂-efficient production and use of products and services;

• creates clear accounting rules to ensure management focus;

• creates incentives for low-carbon innovation and investment;

• generates revenues through payment of the carbon price, which can be used for variety of valuable applications;

• allows government to credibly commit to a low-carbon trajectory, with a clearly defined emissions target and cap for the installations under the EU ETS.

As well as being an essential part of the EU’s commitment to reduce its own emissions the EU ETS is a component of, and serves to reinforce global efforts. It is the major driver behind the global carbon market, which assists low-carbon investment in developing countries through the use of project credits and auction revenues. The scheme has the potential to be the ‘strongest currency’ in a network of interlinked emissions trading schemes that are already emerging in different parts of the world. An effective European system post-2012 could form a focal point for global negotiations up to the Copenhagen 2009 conference and beyond.

However, the EU ETS in its current design is far from perfect and to deliver the far-reaching objectives of effectiveness, efficiency and innovation, a significant revision of EU ETS after the first two trading phases is required. In particular, experience has revealed a number of serious problems arising from the free allocation of emissions allowances. A key element of the EC package proposes that most emissions allowances for the period beyond 2012 should be sold in auctions rather than handed out for free to emitters.

This report explains the economic rationale for auctioning, and examines the practical implications.

1. Problems of free allocation and the rationale for auctioning

Within a given cap allowances can be either given out for free or auctioned. Extensive analysis and accumulated evidence suggests the following:

1. Within the framework of the EU ETS as a multi-period scheme with a series of direct and indirect updating provisions, free allowance allocation distorts the carbon price signal for efficient investment, operation and consumption choices; uncertain future allocation rules complicate investment decisions.
Auctioning creates a robust policy framework, ensures efficient corporate and private decisions that contribute to the most economical response to climate policy, and removes uncertainties about further changes in the allocation scheme.

2. The wide range of options for free allocation of allowances was used by many Member States, in the first two phases of the EU ETS, to offer support for the continued use of carbon intensive technologies and production processes. These approaches delay market opportunities and create uncertainties for low-carbon alternatives.

Auctioning creates a clear and transparent market framework for innovation and investment in low-carbon processes, products and services.

3. Free allowance allocation distributes public assets to the operators of installations, which are often financially strong companies. These companies are not required to use the income either for investment and innovation in low-carbon options or for any other activity that benefits the country that issues the allowances.

Auctioning creates government revenue to support innovation, cooperation with developing countries, tax reductions to support economic growth and to address the economic hardship of high energy prices for poor households.

Free allowance triggers public opposition to windfall profits, as illustrated by the 2006 debates in Germany, Netherlands, UK, Spain and Scandinavia. This can spread to other countries and sectors, and undermine support for EU ETS. National responses, such as windfall profit taxes, also create investment uncertainty and can create distortions between European countries.

Auctioning provides a fair and simple scheme to enhance public support for climate policy and thus contributes to long-term investment security.

Given these factors, the EC package is right to place the ‘burden-of-proof’ on why allowances should be given out for free. Eight years after the introduction of the EU ETS with almost free allocation for two trading periods, the most serious argument in favour of free allocation could be the need to avoid leakage. However, the existing indications show that serious leakage problems only could occur for a narrow range of sectors and products. Only certain types of free allowance allocation can address this leakage concern and these must be tailored to the specific requirements of the sector. Other options to address leakage, such as provision of State Aid or border adjustment, might be more suitable.

Careful analysis and international cooperation is required to find the most suitable solution. Premature commitment to free allowance allocation for specific sectors obstructs the choice of the most effective policy instrument to tackle leakage concerns. It also pre-empts the outcome of international discussions on climate policy and thus undermines international cooperation on effective climate policy.

Any decision on specific instruments needed to address leakage requires careful and well-founded analysis. If leakage concerns are the primary motivation for the debate on free allocation and its alternatives, the complex issues of identifying leakage-sensitive sectors, the differentiation between operational and investment leakage problems, and the most practical and least-distorting implementation approaches of compensation measures, must all be analysed in a comprehensive way.

The remainder of the report sets out findings with respect to auctioning in the power sector and manufacturing industry.
II. The role of auctions for the power sector

The power sector represents the largest share of emissions covered by the EU ETS. No serious leakage concerns can be identified for the power generation sector in the EU-27. Against this background there is no reason to exempt any party in the electricity generation sector from allowance auctions.

Furthermore, from the first two phases of the EU ETS, robust evidence of the pass-through of the full costs of carbon in liberalised electricity markets exists. This trend was observed even in cases where a significant share of the allowances was allocated for free. As the new Member States are now also liberalising their power markets, the same effect is currently being observed in these countries.

Our analysis suggests that cost increases for fossil fuel based power generation, and the associated increases in wholesale prices, are unlikely to result in large scale relocation of power generation to countries not covered by EU ETS. This is because of the limited existing interconnection capacity, the time delay in network expansion and the uncertainty surrounding the long-term viability of projects. The concern about relocation of electricity intensive production processes in response to power price increases is constrained to a few sectors, and is most likely better addressed by direct measures like State Aid.

III. Equity considerations

The purpose of emissions trading is to create incentives to shift production and consumption choices to less carbon-intensive products and services. This shift is intrinsically gradual, and will be accompanied by continued emissions. The draft Directive of the European Commission proposes for the cap within the unilateral EU target a budget of 2 billion allowances for 2013 that falls to 1.7 billion by 2020. At a carbon price of 30 Euro/t CO₂, the rights to emit this carbon are valued at 50 to 60 billion Euro annually.

The allocation will thus have significant distributional impacts and will raise equity issues – that if miss-handled may reduce the political acceptability of the ETS in the long-run. Free allocation will generally make high-income households better off compared to low-income households, since they tend to benefit more from higher share price increases. Auctioning of allowances creates public funds - some of which can be used to compensate poor households for short-term increases of energy and commodity prices associated with climate policy.

This can be illustrated by the example of the power sector: Compensation for poor households for the power price increases can involve direct payments, increases of benefits and pension schemes, or support for investment in energy efficiency measures. Auctioning in the power sector provides the necessary financial resources.

IV. Empirical and analytic evidence on leakage

If auctioning is the generic approach to allocation for the EU ETS from 2013 onwards, the question is raised for which sectors and products leakage presents a serious concern. Detailed analysis is available on cost increases due to carbon prices in different sectors across many countries. Analysis suggests that leakage is not an economy-wide problem, but is specific to individual activities.
Detailed analysis for Germany and the UK shows that only 1% to 2% of GDP is associated with activities that face significant cost increases from carbon pricing. These activities are, however, significant in terms of emissions. Therefore it will be important to avoid leakage in these sectors to ensure environmental effectiveness.

Many factors have to be considered in assessing whether leakage really is a concern in the sectors that have been identified in the existing analysis. Three approaches are currently being pursued to see whether a sector with significant cost increases could be subject to leakage, and to evaluate the different mechanisms and where they are required to address leakage concerns.

- **Empirical evidence of leakage – or no leakage – based on changes of trade flows or investment choices is desirable.** However, with less than two years of significant carbon prices during the first trading period, the observation period is short. Also, with large increases in fossil fuel and commodity prices it is more difficult to identify changes that can be attributed to carbon pricing. Hence it is too early for empirical data to give robust evidence on the existence or non-existence of leakage.

- **Economic models of the entire economy, like Computable General Equilibrium approaches, offer the opportunity to assess the interactions across production processes and terms of trade.** They have provided robust results that leakage from relocation of production has only a very limited impact on the overall economy. The model resolution is currently not high enough to analyse the risk of leakage in individual activities. The analysis also points to the potential interactions for fossil fuels with global markets. While not directly relevant to the analysis of leakage effects associated with industrial production, it does warrant further analysis on an empirical basis and possible policy responses.

- **Analysis of individual sectors shows that the leakage problem differs in nature between sectors.** First, leakage concerns as a result of the direct costs of CO₂ from the purchase of allowances are assessed. With respect to leakage concerns, these CO₂ costs are significant for only a few sectors or products. Second, indirect costs from CO₂ cost pass-through in the power sector are far less relevant than direct costs in other key sectors with leakage concerns. Third, the different leakage mechanisms must be considered. Whilst short and medium-term operational leakage as a result of relocation of production from existing installations is a major problem, it is only relevant to a few products. For some other sectors investment leakage might be of concern, specifically where the relocation of production is linked to investment decisions for new facilities.

This illustrates that the analysis of leakage concerns requires a sector specific assessment. Only a narrow selection of sectors could prove to be relevant regarding leakage concerns. This study presents different approaches to identifying sectors where leakage could potentially occur and where provisions to avoid leakage might be necessary. We identify indicators of direct and indirect CO₂ costs, gross value added (at factor costs), trade-intensity and capital-intensity of the sectors or products as robust and suitable approximations for the reliability of leakage concerns. In addition to these indicators; transport costs, expected growth of production, and product differentiation should also be considered for the in-depth assessment of leakage concerns.
V. Policy instruments to address leakage concerns

The portfolio of provisions to deal with leakage concerns is significantly larger than that of free allocation of allowances. No individual measure is suitable to effectively address all forms of leakage given the variations of leakage concerns.

The experience from the first two phases of National Allocation Plans was that the repeated free allowance allocation created perverse incentives for market participants. The ability of the EU ETS to support effective investment, operational and closure decisions has been limited. One important motivation for the move to auctioning was to avoid these distortions.

The justification of free allowance allocation post-2012 lies in its use as a mechanism to address potential leakage concerns. However, any attempt to address these leakage concerns through allocation must be conditional on investment, operational and closure decisions of firms. This illustrates that free allowance allocation as an instrument to address leakage will create perverse incentives for and undermine the efficiency of investment, operational, closure and consumption decisions.

- Free allocation to existing installations coupled with plant closure provisions could prevent leakage as a result of relocation of facilities. However, the first two trading periods have demonstrated the difficulty in formulating effective plant closure provisions, particularly in sectors with many or complex site installations.

- Free allocation to leakage-sensitive new entrants could reduce the incentive to locate new facilities in regions without carbon pricing. In the first two trading periods support was usually technology specific, thus reducing incentives to shift to low-carbon fuels. Outside of the power sector the definition of uniform benchmarks has proven difficult, thus the incentives for investment in energy and carbon efficiency have been limited.

- The design of free allocation to address operational leakage from existing installations is challenging. In theory, linking the allocation to current or recent production volumes is effective. In practice, ex-post adjustments of allocation volumes create uncertainties for the entire scheme and have been excluded by Commission and Parliament. They also create administrative constraints that restrict innovation in production processes and substitutes.

- For all options, the specific design of the allocation provisions is crucial to prevent operational or investment leakage. The definition of benchmarks will play an important role. If the benchmarking scheme for free allocation reflects technology, fuel, and other specifics of the respective installations, it could further increase the cost of emissions reductions.

A second option for dealing with leakage concerns is direct compensation (State Aid) applied to support investment or re-investment in sectors that are at risk of leakage. This could help to avoid leakage from capital-intensive investment with leakage effects that could be far-reaching in the future. Thus State Aid could replace free allocation in leakage-sensitive sectors. According to our preliminary assessment this approach could provide more certainty to investors in sectors which are sensitive to investment leakage (i.e. capital-intensive sectors), than implicit capacity payments from free allocation in a multi-period emissions trading scheme in the context of an emerging multilateral climate regime. However, potential
difficulties in gaining State Aid approval within the EU must be addressed early and consistently to avoid legal and regulatory aspects of State Aid create significant barriers to the introduction of direct compensation.

A third option for addressing leakage concerns is the use of border adjustments. This approach is very similar to value added tax. An example could be the implementation of an import duty, corresponding to the costs a domestic producer with best available technology faces when buying allowances. Exports are reimbursed for the cost at the same level. Thus the combination of full auctioning and border adjustment does not discriminate against foreign producers – an important aspect needed to ensure WTO compatibility.

The challenge for border adjustment is not the economic dimension, or WTO legality, but the political implications. After all, developing countries have experienced decades of border measures that hindered their economic development and might see border adjustment as a further impediment. This would undermine efforts for international cooperation on climate policy.

Border adjustments can therefore only be taken forward in an international approach. To gain the support of other countries, it will be important:

- To clearly demonstrate the need for border adjustment to ensure environmental effectiveness of emissions trading with auctioning – by allowing the carbon price to feed through the economy and preventing the use of free allowance allocation that undermines incentives for innovation.
- To discuss in an international and transparent manner all aspects related to the approach, in order to develop a common basis of understanding and trust for cooperation on potential implementation of border adjustment. This could be done either by using informal platforms or through formal institutional arrangements, to limit the use of border adjustment in scale and scope.
- To focus border adjustment on a narrowly defined group of products and implement it in a way that does not discriminate against foreign producers.

Border adjustment is not the solution for all leakage concerns, but can provide one economically effective option. As such it is worthwhile exploring the detailed provision and international structures required for its potential implementation.

A key result from the analysis of leakage concerns is that a combination of provisions will be required, not only to ensure that the wide range of leakage concerns are effectively addressed, but also to provide a tailored solution that is suited to the basic architecture of carbon pricing within the EU ETS. In this context, free allocation will not play a major role if leakage concerns constitute the primary motivation.

The emerging international climate regime, which will take shape in 2011, will have a significant impact on the role of free allocation and other measures to avoid leakage for the trading phases beyond 2012. However, the interactions between the international regime and the need for special provisions to address leakage concerns require the ability to adjust these measures in the context of the existing regulatory framework of the EU ETS.
VI. A simple and robust design of auctions within the EU ETS can be implemented

The introduction of large allowance auctions is not a highly complicated issue for the EU ETS. The fundamental structure of the scheme enables a robust and simple design of auctions. The large coverage of the scheme in terms of regions, sectors and participants limits the problems that could develop regarding collusion and/or market manipulation. A move from free allocation to auctions improves market performance by increasing liquidity in spot and hedging markets and reduces the incentives for market manipulation. The ongoing EU ETS allowance with publicly quoted prices avoids any need for complex auction designs and also ensures that auctions do not interrupt the continuity of the market.

The analysis on appropriate auction designs for the EU ETS suggested that single round, sealed bid auctions with a uniform market-clearing price would be most effective. To ensure the transparency and reliability of the market, the frequency of auctions should be high (at least monthly) and the distribution of allowances to be auctioned over time should be clearly defined and announced in advance by the relevant authorities. No serious argument was identified to limit the eligibility for the participation in auctions beyond the registry account holders within the EU ETS. European harmonization is a crucial issue for the phase-in of auctions at a large scale within the EU ETS. However, different options exist for formal and informal coordination of EU ETS auctions. These must be explored in more detail, especially to take into account political and legal constraints.

The concerns of strategic behaviour and exercising of market power are relevant in all markets, and therefore should also be considered in emissions trading schemes. A market monitoring mechanism for allowance trading, like in other commodity markets, will be necessary and useful to improve the market transparency and to limit concerns on the abuse of market power or collusion. Auctioning will contribute to better market performance by increasing liquidity of trading and hedging activities, and by reducing the ability of market participants to exercise market power in order to alter the value of grandfathered allowances in spot markets.
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Contact: Jon.price@climatestrategies.org
Climate Strategies
C/O University of Cambridge
13-14 Trumpington Street,
Cambridge, CB2 1QA

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Forecasts of environmental control costs, and of energy demand / emissions, have persistently turned out to be too high. This note examines the lessons and their implications for carbon price projections. The EC’s Impact Assessment estimates carbon prices rising from €26/tCO2 in 2013 to €39/tCO2 by 2020, and some modelling studies conducted this year have projected higher prices. This note explains why, for the proposed emissions cap, realised prices are likely to be much lower than the models suggest, in the lower part of the range €20-40/tCO2.

Introduction

Future prices in any market are uncertain, so all predictions need to be handled with care. However, history has revealed two patterns of great relevance to carbon price projections:

- The cost of environmental control has been littered with inflated projections, including examples of asbestos, benzene, lead (in petrol), and vinyl chloride. Figure 1 compares the estimated to actual costs for various environmental policies in the UK. Other examples include CFC phase-out - for which realised costs proved to be around a third of the initial estimates - and most famously, sulphur dioxide, where costs in the US trading scheme have been half to a third of initial estimates.

- Of direct relevance to carbon costs and the impact of recent events, energy forecasts from the 1970s were notoriously embarrassing in the degree of their errors; they vastly underestimated the decoupling of energy demand from economic growth and the ‘one-way’ response to the 1970s energy price shocks that was not reversed as prices fell during the 1980s and 1990s. This note asks what this experience tells us about carbon price projections.

Energy forecasting.

Have forecasts learnt from history? The most systematic attempt to improve energy forecasting came in the US with the work of the Energy Information Administration. This provides a long series that can be rigorously analysed. A recent study found that a good record of forecasting aggregate energy demand concealed a systematic error of about 5% inflation in 5-year forecasts of industrial energy demand - the area most relevant to the EU ETS - that has not improved over the years. A consistent upward bias of far less than 5% in as many years, if sustained post 2012, would imply massive overestimation of the costs and difficulty of achieving the EU cap.

Forecasts are based on economic or sector modelling, which needs to be informed with projections of underlying driving forces (such as economic or sector output growth) and other influential parameters (such as fuel prices), together with estimates of likely responses. Most of these can now be estimated econometrically, hence “using the past” to project the future. However such projections err to the extent either that input assumptions on driving forces prove wrong, or future responses may not be a continuation of past patterns. In addition, economic growth and sector output projections are liable to systematic error, as there are strong pressures towards optimism: no government likes to lay out a gloomy economic future, or project that it will mismanage the economy; no company raises capital, justifies a new project, or energises its workforce, by proclaiming a future of decline. Nothing from the DOE evidence, or projections of carbon prices, suggest that this central lesson has been sufficiently factored in to the Phase III carbon price projections.

Figure 1: Estimated costs of environmental policies - before and after

The history of CO2 allocations
Evidence from the actual ex-post history from cases where governments have sought to negotiate allocations of CO2 emissions is even more striking.

In the UK, a pilot “bid-in” trading scheme early in the decade involved 32 companies that agreed targets to reduce emissions by around 14% by 2006 relative to projected baselines. In practice, trading prices peaked after a few months, and then fell towards zero as it became increasingly clear that the market was in surplus. The official assessment of the scheme studied four of the biggest participants (that accounted for more than 50% of the incentive funding) and reported that emission reductions were nine times that of the baseline with 66% attributable to the scheme. At a bigger scale, the UK Climate Change Agreements established targets for 44 industrial sectors, defined biannually through to 2010. Despite the enormous effort expended in negotiating the original targets, the second target period assessment report found that ‘...the assumptions of growth and energy prices on which the original BAU forecasts were made are now outdated and of limited relevance’ – this during one of the UK’s most sustained and stable periods of economic growth. Excluding the steel sector, in target period 1 (2002) the savings were about 40% greater than the targeted savings relative to base year; for the second period, the savings were more than double the target. Exceedence in the steel sector was much bigger still. As a result, the review process resulted in a tightening of the initially agreed targets in all but four of the sectors.

The biggest test of all was the 2005 verification data on the EU ETS. The most detailed analyses confirm that allowances issued for 2006 exceeded verified emissions by close to 100MtCO2, or about 5% of the total. Within this, deliberate cutbacks in the power sector (notably in the UK) offset much larger surpluses from other sectors, and in all sectors in the Accession countries. The percentage surplus in non-power sectors ranged from 5-30% or higher in some cases – within just a couple of years of the allocations being completed.

It is hard to estimate how much of the surplus was due to abatement as compared to inflated forecasting. Inadequate data at the outset amplified the potential for error. The other factor is abatement itself, given the new incentives. After regulation is in place, industries expend more effort in sourcing the most efficient technologies, unimagined advanced or innovative control measures often emerge and substitutes are often found. Prior estimates either overlook or are unable to include these factors and thus the costs of regulation are often overestimated.

Whatever the balance of these varied causes, the underlying evidence is fully consistent with the historic tendency to overestimate the difficulty of achieving environmental targets. The evidence for inflated ‘baseline’ forecasts, matched by underestimation of the flexibility of responses, is thus overwhelming, and the causes are identifiable. What might this imply for carbon prices in EU ETS Phase III?

Implications for EU ETS prices after 2012
A recent analysis by the Carbon Trust (2008) has illustrated how the overall EU 20-30% greenhouse gas (GHG) reduction goals compare to the various factors that can build up to give emission projections. Working from underlying economic projections in the Impact Analysis that the EU economy grows by about 40% over 2005-20, the implications for emissions are adjusted by structural changes, capital stock turnover, and the impact of other policies. Explicit programmes to improve energy efficiency, and implementation of the Renewable Energy Directive, will further reduce emissions. The scale of the abatement challenge – and hence carbon prices – depends heavily on all these factors, and also on the degree of access to international crediting.

Figure 2: EU ETS emission projections for 2020 and the impact of the renewable energy policies.

The importance of the renewable energy contribution in EU ETS sectors is illustrated in Figure 2. The EU Commission scenarios project that the electricity industry will deliver 38-48% of the overall renewable energy requirement (SEC(2008) 85/3, p.82), to which would be added the industrial use of renewables (e.g. biomass in cement kilns).
The difficulties with liquid biofuels in particular suggest that a higher share may have to come from the EU ETS sectors than originally assumed. The Figure shows how the residual requirement for emission reductions that need to be driven by energy efficiency policies and the carbon price declines rapidly as the share of renewable energy increases.

Moreover, none of the modelling studies used to predict carbon prices explicitly build in the impact of the EU's third target - to improve energy efficiency by 20% relative to projections. As the Carbon Trust analysis indicates, if this were to be achieved, against the baseline projected and the delivery of renewable energy targets, this would actually in itself more than deliver the EU's GHG goals for 2020. This underlines that projections depend on numerous assumptions that determine the 'baseline', and a large part of the overall GHG target may be delivered by implementation of the EU's other policy pillars, on energy efficiency and renewables. The present high energy prices, as indicated below, will both reduce the baseline, and enhance implementation of renewable and energy efficiency policies.

**The range of technological options**

The biggest single reason for historic overestimation of environmental control costs has been underestimating the technological responses. Tackling CO2 encompasses a huge range of technology options in both supply and demand, and it is impossible for them all to be captured explicitly in modelling. Moreover, as revealed with the US SO2 experience, the essence of an ETS is that it gives flexibility and incentives to pursue new ways of limiting emissions.

If the models assume the EU's ambitious renewables targets are met (and many of the consultant studies do not), this reasonably captures the renewable energy potential to 2020. None of the modelling studies assume the EC's energy efficiency target is met; they tend to model energy efficiency on the basis of past aggregate responses to energy price changes, often the relatively modest price fluctuations in the 25 years preceding 2005. It is in energy efficiency that myriad un-represented possibilities are likely to emerge in response to higher energy prices, strengthened efficiency policies, and carbon-related policies including carbon product labelling. Again, supported by the evidence of past experience, models tend to underestimate the overall response to new incentives. In which case - other things being equal - the carbon prices they predict are likely to be an upper bound, limited by the impossibility of capturing all the possible responses.

**The impact of 2007-8**

Of course, other things can change - and have. The biggest question is what will be the long term impact of the credit crunch, and of the record energy prices of 2007-8? The EC's forecasts were based mostly on modelling grounded in data from previous years. The events of 2007-8 have changed at least three things of direct relevance to Phase III carbon prices:

- lower economic growth forecasts tend to reduce emission projections (though not proportionately);
- the impact of higher fossil fuel prices is already evident in behaviour, levels of investment in energy efficiency, and the strengthening of government policies on energy efficiency;
- a widened gas-coal price differential could increase the cost of fuel switching in power generation, if high gas prices are sustained through Phase III, which increases the carbon price required to switch away from coal.

The last of these on its own would tend drive up carbon prices, but is also associated with higher energy prices generally - which reduces energy demand and carbon prices - and would also accelerate investment in gas supply infrastructure (and storage), which may relieve gas prices in Phase III. Lowered economic growth and energy demand will also relieve pressure on energy prices more generally, and many of the responses being observed now will not reverse. Most of the economic modelling studies (including, the Commission analyses) have assumed sustained economic growth rates above 2%/yr. Near-term projections have recently plummeted, down close to 1%/yr.

The overall direction of impact is clear, and substantial. A prescient detailed study of the German energy system found that an oil shock at $105/bbl would reduce German CO2 emissions in 2015 by about 10%, as compared to the mainstream forecasts based upon much lower fuel price forecasts. The Commission's own analysis did not reflect a transitional oil shock and used a reference oil price starting at $54/bbl and rising slowly; a sensitivity study showed a drop of €5/tCO2 in a high price ($121/bbl) projection. Any reasonable interpretation is that the events of 2007-8 are bound to depress emissions and Phase III carbon prices. The only question is by how much - a question that cannot be answered until the full extent of the global economic turmoil becomes clearer.
The scope for international flexibility
The degree of international flexibility through the Kyoto project mechanisms will also affect the price. The EC proposal limits the use of external credits, to ensure that the majority of efforts remain focused upon reducing the EU’s own emissions. This implies that the international credit price is likely to be lower than the EU price. Currently, every month sees new projects submitted into the Clean Development (CDM pipeline) that are projected to save more than 100MtCO₂ /yr. The EC’s modelling suggests that opening the EU system to completely unlimited flexibility would produce a price collapse to €4/tCO₂ (if the EU was the only source of demand). Even with other major factors (such as a US trading scheme), the continuing inflow of projects to the CDM, that will continue generating credits post 2012, will sustain a big price difference.

However, all the pressures and related amendment proposals at present are to open the EU ETS more widely to international crediting, and to open international crediting to new forms of projects (such as Carbon Capture and Storage (CCS) and avoided deforestation). Without taking any view on the desirability of such steps in principle, they would certainly tend to increase supply and lower the carbon price further.

Though this note has concentrated upon the 20% target, in this context it is far from certain how much a move to the 30% reduction target in the context of a global agreement would drive up carbon prices in Europe. A tighter target would be accompanied by a much greater scope of access to international credits – for which the cost even at greatly expanded volumes is likely to be towards the low end of the range considered here. Governments might also try to contain the scale of the international transfers involved by increasing efforts to avoid a high EU ETS price, by further strengthening direct programmes on energy efficiency and lower carbon sources, which could be further facilitated by a context of an enhanced global commitment.

Many studies have suggested that to tackle climate change, more aggressive emission reductions, with much higher carbon prices, will be needed. The IEA’s intensive global study of what would be needed to deliver a global 50% greenhouse gas reduction by 2050 finds that carbon prices of several hundred €/tCO₂ may ultimately be needed. This may prove to be the case, but only makes sense in the context of a sustained global effort. From this perspective, Europe’s 2020 package is a modest offering. The carbon price required to drive investment in some of the major abatement technologies like CCS and offshore wind energy is probably around €50/tCO₂. The current proposals are unlikely to deliver that, but they do represent a good next step, and an incentive towards greater energy efficiency and innovation towards more serious carbon controls.

Conclusions
The author’s report published as Carbon Trust (2008) concluded that EU ETS prices in Phase III are likely to be in the range €20-50/tCO₂. Since making these estimates, the depth of the credit crises has worsened; energy prices peaked (we hope) at even higher levels; European economic forecasts have been downgraded; the inflow of new CDM projects has continued apace; and innumerable amendments have been proposed in the EC package legislation intended to increase the degree of flexibility, with hardly any proposing the opposite. Consequently, the higher levels of carbon prices in the range look increasingly implausible. A reasonable estimate is that in Phase III, under the proposed CO₂ cap, carbon prices would be in the range €20-40/tCO₂, and more likely in the lower part of this range.

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About Climate Strategies
Climate Strategies aims to assist governments in solving the collective action problem of climate change. It connects leading applied research on international climate change issues to the policy process and to public debate, raising the quality and coherence of advice provided on policy formation. Its programmes convene international groups of experts to provide rigorous, fact-based and independent assessment on international climate change policy.

Climate Strategies
Managing Director: Jon Price
Climate Strategies
c/o University of Cambridge, 13-14 Trumpington Street
Cambridge, CB2 1QA, UK
Office: +44 (0) 1223 748812
jon.price@climatestrategies.org
www.climatestrategies.org
Carbon Trust Publications

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Title: Cutting Carbon in Europe: The 2020 plans & the future of the EU ETS
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TACKLING LEAKAGE IN A WORLD OF UNEQUAL CARBON PRICES

PROGRESS REPORT

August 2008
Tackling Leakage in a World of Unequal Carbon Prices
Progress Report
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Participants in the Project

Project coordinator:
Susanne Dröge
German Institute for International and Security Affairs (SWP), Berlin
Contact: dge@swp-berlin.org; +49 30 88007 273

In collaboration with:
Karsten Neuhoff; Cambridge University, UK
Stephanie Monjon, Philippe Quirion; CIRED, Paris
Tom Brewer; Georgetown University, Washington
Tancrede Voituriez, Xin Wang, Matthieu Wemaere; IDDRI, Paris
Harro van Asselt; IVM, Amsterdam
Wojciech Suwala; Mineral and Energy Economy Research Institute, Cracow
Yasuko Kameyama; National Institute for Environmental Studies (NIES); Japan
Katja Schumacher, Lennart Mohr; Öko-Institut, Berlin
Yukari Takamura; Ryukoku University, Faculty of Law, Kyoto
Michael Mehling; University of Greifswald
Roland Ismer; University of Munich

Associated partners
Pedro Linares; IIT - Instituto de Investigación Tecnológica, Madrid

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A Climate Strategies Project
www.climate-strategies.org
Executive Summary

Project’s Focus and Procedures

The Climate Strategies project “Tackling leakage in a world of unequal carbon prices” was launched in February 2008 and focuses on the following issues:

- Framing the debate on carbon leakage from the EU emission trading scheme after 2012.
- Giving special attention to border adjustments as a means to address carbon leakage and their role for major EU trade partners.
- Providing insights by comparing border adjustments to other tools available to address leakage and analysing their effectiveness for the reduction of price differentials between countries with and without GHG mitigation.
- Legal, institutional and quantitative analyses of border adjustments.
- Connecting the debate on border measures against carbon leakage to the international negotiations on a new global climate regime after 2012.

State of Procedures:

The project has been launched with a workshop in Paris on February 4th, 2008. In February/March the project teams took up their work and coordinated their inputs to the different packages. Involvement of new partners has been coordinated continuously during the whole project duration.

For collection of further research input, there has been an expert meeting with partners from new member states on April 8th, 2008 in Warsaw, Poland. The exchange with a research team from the Institute for Research in Technology, Madrid (IIT - Instituto de Investigación Tecnológica) has been established, but no commitment vis-à-vis the project is agreed. Instead, the project leader will keep mutual exchanges with the group at IIT.

The project has been and will be disseminated to different research and policy communities, establishing links with researchers and stakeholders from major trade partners of the EU, namely the US, Canada, China, and Australia, by presenting the project at a number of related events and discussing selected issues.

In the first half of the project duration in 2008, project teams have conducted their research, first results were presented at the interim meeting July 16th and 17th, 2008 in Paris.
Executive Summary

Next steps:
The project teams will continue and deepen the empirical and analytical parts of their work in order to come up with results by end of 2008/beginning 2009. In particular, in the second half of the project’s duration, we will hold an expert meeting on the potential agreement of border adjustments on September 10th in Geneva with a small group of trade lawyers. This event is crucial for finding a common basis between trade partner countries to agree on the use of border adjustments without opening the door for protectionist use.

An event focusing on policy issues around border adjustments at the global level is envisaged for October/November at Chatham House, London. By then, the ideas on a multilateral border adjustment approach will have become more precise and the aim of this workshop will be to discuss the carbon leakage phenomenon with special attention given to the future use of border measures to address leakage. We strongly aim at having major trade partners, esp. experts from China, India, Brazil included.

For establishing a feedback with industries, IDDRI plans to hold expert meetings (esp. cement industry) later this year or in early 2009. Industries are very active in bringing forward a number of measures against leakage, mainly sectoral agreements. We would like to learn more about the potential for border measures from their point of view.

Besides the project-led events, the participants and the project leader will further engage in the exchange on carbon leakage with EU member states, EU policy makers, and EU industry. Moreover, the associated team from Spain will feed in results from their analysis. For presentation of the final report to funders and interested parties, a final event is due in spring 2009. An overview of the timetable is given below in section C.

Work Packages: Progress Summary

The project comprises three major work packages.

(i) The first package pays attention to the leakage debate in academia and in the EU. A first milestone is a drafted working paper that identifies the different concepts of carbon leakage and the empirical findings of the past, esp. from economic models. Attention is given to the framing of the EU debate and to showing the need for more research on leakage due to different regional carbon prices. This paper is authored by Susanne Dröge (SWP), Manuel Graf (SWP), Roland Ismer (LMU), and Stéphanie Monjon (CIRED) and will be published in early autumn 2008.

(ii) The second work package focuses on measuring and addressing carbon leakage. The aim is to provide empirical evidence on the leakage potential caused by EU carbon pricing in different energy intensive sectors and for different EU regions (East, South). Moreover, we will combine analysis of tools to address leakage, and their effectiveness to reduce leakage and frame a potential multilateral option for border adjustments. There are two sub-
packages. One on sectoral analysis and tools comprising 4 teams, the second focusing on legal aspects of multilateral border adjustments.

- From the first sub-package, first results were presented on the polish power sector at the interim meeting, July 16th in Paris by Wojciech Suwala (MEERI). A report is due in September.

- The second team in this package works on a comparison of measures to limit carbon leakage due to the EU ETS in a multi-sectoral model (aluminium, cement, electricity and steel industries). First results are due in October, but the full newly created model (CASE II) results will only be available in early 2009, as the authors (Stephanie Monjon, Philippe Quirion, both CIRED) wait for crucial data input from third parties.

- A third project in this package is conducted by Oeko-Institute, where Katja Schumacher works on trade flows and cost structures of exposed industries in the EU-27. The work was taken up in August and feedbacks into the CASE II model are envisaged.

- The fourth topic are the opportunities and constraints to use export taxes in a climate policy mix from the Chinese point of view and with a focus on EU-China trade. This work is conducted by Tancrede Voituriez and Xin Wang at IDDRI. First results were presented at the interim meeting on July 16th. Further steps until end of 2008 include the political economy of export taxes and the assessment of the optimal levels for Chinese export taxes across different scenarios/policy objectives.

The last issue in the second work package is the legal and institutional analysis for an international agreement on border adjustments, carried out by Roland Ismer (LMU), Matthieu Wemaere (IDDRI), and Karsten Neuhoff (Cambridge). They have drafted a first framework for a multilateral agreement on limiting border measures, presented at the interim workshop. The next milestone of this package is an experts’ discussion with trade lawyers from the US, EU, Australia and developing countries on September 10th in Geneva.

(iii) The third working package investigates the political implications of using border adjustments to address carbon leakage. This will deliver focused political (and legal) analysis of selected trade partner countries’ perspectives on border tax adjustments (esp. US and China). Not least, in this WP we embed the EU analysis into the international process of climate negotiations. Harro v. Asselt (IVM), Tom Brewer (Georgetown), and Michael Mehling (Greifswald) will focus on border adjustments in US and EU policy. Their work will start in September, including interviews in the US with decision makers and industry. The team will finalise its research after the US elections in November. Another focus is on the debate in Japan. Yukari Takamura (Ryukoku) and Yasuko Kameyama (NIES) will analyse Japanese climate policy and possible options that Japan would take to address carbon leakage, and examine how Japanese government and industries would perceive, evaluate and possibly respond to measures taken by the EU and other industrial
nations against leakage, such as border adjustments. The analysis will start in August, interviews are to be conducted during fall 2008. Part of this package is monitoring the EU Policy Process, as an input to all project members. This overview is updated by Anne Koch (SWP) on a regular basis. As a final part of the project’s report we plan to give some assessment on the implications of measures against carbon leakage for the Post 2012 global climate regime, its negotiation, and for other attempts to balance carbon pricing. This will be conducted at SWP by Susanne Dröge and Anne Koch (SWP) at the final stage of the project.
Emerging Japanese Emissions Trading Schemes and prospects for linking

October 2008

AUTHORS
HITOMI KIMURA\textsuperscript{1}
ANDREAS TUERK\textsuperscript{2}

\textsuperscript{1}INSTITUTE FOR GLOBAL ENVIRONMENTAL STRATEGIES (IGES)
\textsuperscript{2}JOANNEUM RESEARCH
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Abstract

This paper analyses the development of the Japanese Climate Policy since the Rio summit, including climate policy instruments implemented to date and the recent change of position regarding the introduction of a mandatory emissions trading scheme (ETS) in Japan. Several proposals to introduce a mandatory ETS have been published at both the national and regional levels in the last months. This paper first assesses the existing voluntary ETS (JVETS), then outlines the proposed voluntary test-phase ETS scheduled to start in October 2008, and finally analyses different approaches currently being discussed for a mandatory Japanese ETS regarding their ability for linkages to other trading schemes. The two analysed proposals for a national mandatory ETS, one by the Ministry of Environment (MoE) and the other by the Ministry of Economy, Trade and Industry (METI) both use intensity target approaches to be consistent with the current Keidanren Voluntary Action Plan approach. As absolute targets can not be expected before 2013, direct bilateral linkages between a Japanese ETS and other ETSs will most likely occur after this. The METI proposal includes several additional design features that are potential barriers to linking. Both proposals foresee a substantial use of international credits to meet targets and both would therefore indirectly link a Japanese scheme to other trading schemes. Until 2013 a link to the CDM and hence indirect links with other schemes that accept CERs would be the major linkages for a Japanese ETS. The paper concludes that current discussions on the design of a mandatory Japanese scheme should seriously consider critical design issues now, if Japan wants a direct bilateral link of its scheme to other schemes in the future.

Corresponding author:

Hitomi Kimura (Ms./木村ひとみ)
Researcher (LL.M.), Institute for Global Environmental Strategies (IGES)/地球環境戦略研究機関（IGES）研究員
2108-11 Kamiyamaguchi, Hayama, Kanagawa 240-0115 Japan
〒240-0115 神奈川県三浦郡葉山町上山口2108-11
Tel: +81-46-855-3816 (Direct), Fax: +81-46-855-3809, email: kimura@iges.or.jp
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1 Development of Japanese climate policy

Japanese climate law and policy have been gradually developing since the Rio Summit in 1992. To a large extent this development has proceeded in reaction to the development of international climate policy. Japanese climate diplomacy has focused on UN-based multilateral forums, seeking a careful balance between U.S. and EU positions (Oberthür and Ott 1999). Rather than taking leadership by implementing a mandatory ETS early on, Japan has carefully followed international developments. Japanese climate policy has been strengthened through a step-by-step approach, rather than via a sudden introduction of policies and measures. Japan started with the Keidanren Voluntary Action Plan, based on the voluntary adoption of intensity targets, and then introduced a voluntary emission trading scheme (JVETS). To counterbalance emission increases in the household and transport sectors due to the limited ability to control these emissions, emission reduction efforts in Japan focus primarily on the industrial sector.

Keidanren’s Voluntary Action Plan was developed in 1997 with the aim of stabilizing energy-source and industrial-source CO2 emissions at their 1990 level by 2010. It has been reviewed and strengthened by the government as one of the main pillars of the Kyoto Target Achievement Plan (KTAP), but it is not a legally binding agreement. Within Keidanren’s Voluntary Action Plan companies can take targets based on total CO2 emissions, CO2 intensity, energy consumption, or energy intensity. Furthermore, companies can buy and use CERs, ERUs, and AAUs1 without any limitation to comply with their targets. To date, of these instruments, companies have primarily used CERs, reflecting Japan’s geographical interests in Asia as well as fear of creating a negative impression through a heavy reliance on future allowance-based AAUs. Green Investment schemes, which may serve to improve the acceptability of using surplus AAUs, are currently being implemented in several Eastern European countries, and there is increasing interest by Japanese companies in purchasing AAUs.

In 2005 Japan introduced a voluntary emission trading scheme the JVETS, based on absolute targets. This scheme however attracted only a very small number of participants. In 2008, however, a domestic consensus to reposition the Japanese climate policy towards a mandatory ETS has emerged. This recent domestic consensus may give the impression that the Japanese position is still vague. However, once such consensus is reached in Japan, there is a high probability of implementation. A review of the KTAP in March 2008

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1 CERs are Certified Emission Reductions which result from projects in developing countries. ERUs are Emission Reduction Units that are generated by through Joint Implementation projects in Annex I countries. AAUs are Assigned Allowance Units. Annex I nations with surplus AAUs can sell them to other nations.
showed that Japan will face a shortage 22-36 MtCO2 by 2012 with current policies and measures (Prime Minister of Japan and His Cabinet 2008a). To reach its Kyoto Protocol target of a six percent reduction, additional policies and measures will be needed. A move to a mandatory ETS is likely to be an important additional measure. However, a transition period to a mandatory ETS is foreseen as lasting until 2013 and is expected to allow for a smooth transition from the current approach under Keidanren’s Voluntary Action Plan. To accomplish this, during the transition period both mandatory caps and intensity targets are likely to be utilized. As a first step of this transition Japan will introduce a voluntary test-phase ETS from October 2008. By including intensity based targets it aims to get a large number of companies under Keidanren’s Voluntary Action Plan into the trading scheme.

2 The Japanese Voluntary Emissions Trading scheme ‘JVETS’

The Ministry of Environment (MoE) introduced the Japanese Voluntary Emissions Trading Scheme (JVETS) when the Kyoto Target Achievement Plan (KTAP) was adopted in 2005. The JVETS was introduced as a voluntary ETS due to strong opposition to a mandatory ETS by the industrial sector and METI. The JVETS is characterized by voluntary targets but targets are absolute rather than intensity-based and they are binding with penalties once a firm has agreed to participate. Subsidies are available to firms to assist in achieving reductions, and CDM credits can also be used (Kimura 2006). Subsidies, however, will no longer be available after April 2009.

The JVETS includes

- Participants, such as factories and offices, which make voluntary agreements with the MoE to reduce CO2 emissions. These participants receive an initial allocation based on emissions over the past few years of operation. They are eligible for subsidies and are referred to, under the JVETS, as target participants.
- Financial intermediaries and brokers without targets. These entities are referred to as trading participants. Trading participants do not receive allocations but rather hold accounts and transfer credits within the registry established by MoE.

The MoE provides financial support with 30 billion Yen (about USD 300 million) to target participants to subsidize up to one-third of the cost of installing new facilities and measures to reduce CO2 emissions. Reductions of non-CO2 emissions are credited toward JVETS targets. Target participants are allocated Japanese Emission Allowances (JPAs). To achieve its pledged target, a target participant can buy JPAs from other participants as well as CERs.
from CDM projects (j-CERs). Neither AAUs nor ERUs are eligible for use in meeting JVETS targets. There is no limit on the use of j-CERs for compliance, but j-CERs should be used as supplementary measure, not the primary means of achieving the pledged targets. In case of non-compliance, companies have to refund any subsidies received, and the names of corporations that fail to meet their targets will be made public. Banking is allowed, but borrowing is not allowed (MoE 2006; MoE 2008a; Kimura 2006).

In 2007, the MoE developed guidelines for Monitoring, Reporting and Verification (MRV). Participants monitor emissions or other relevant data such as inputs or outputs and submit annual reports for review by the verification body and approval by the competent authority. Reporting follows ISO14064/14065 guidelines (Ninomiya 2008). A preliminary assessment of the JVETS shows that the trading scheme has led to an accumulation of knowledge on both cost effective emission reductions and on the trading mechanism. The costs of emission reductions have been relatively low and have decreased since the introduction of the JVETS: 2,000-4,000 JPY/t-CO2 (USD 20-40/t-CO2, Phase I); 1,080 JPY/t-CO2 (USD 10/t-CO2, Phase II); 1,766 JPY/t-CO2 (USD 17/t-CO2, Phase III) (Table 1).

The effectiveness of the JVETS is, however, limited because many major emitters did not join the system, targets do not require deep reductions, and penalties are not severe. A voluntary ETS, in general, attracts participants that can easily achieve the pledged targets. Although the number of participants in the JVETS has been increasing, participation is not sufficient to support a truly effective and efficient market (31 target participants and 7 trading participants (Phase I); 61 target participants and 12 trading participants (Phase II); 61 target participants and 25 trading participants (Phase III)). The number of transaction is small with 24 in Phase I and 51 in Phase II. The JVETS, with its absolute targets, does not include the firms in the most energy intensive sectors such as steel and power, although such firms do participate in the Keidanren Voluntary Action Plan which has intensity-based targets.

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2 The Japanese government issues j-CERs to be used in the JVETS for CERs.
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</thead>
<tbody>
<tr>
<td>Target participants + trading participants</td>
<td>31+7</td>
<td>61+12</td>
<td>61+25</td>
<td>73+TBD</td>
</tr>
<tr>
<td>Total target (Mt-CO2) (Percent of Japan’s emission)</td>
<td>0.27Mt-CO2 (0.019%)</td>
<td>0.21Mt-CO2 (0.015%)</td>
<td>0.23Mt-CO2 (0.017%)</td>
<td>0.32Mt-CO2 (Estimates) (0.023%)</td>
</tr>
<tr>
<td>Emission reductions (Mt-CO2) (Percentage of Japan’s emission)</td>
<td>0.37Mt-CO2 (0.027%)</td>
<td>0.28Mt-CO2 (0.02%)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Cost/t-CO2 (JPY/t-CO2) (USD/t-CO2)</td>
<td>2,000-4,000 JPY/t-CO2 (USD20-40/tCO2)</td>
<td>1,080JPY/t-CO2 (USD10/t-CO2)</td>
<td>1,766JPY/t-CO2 (USD17/t-CO2)</td>
<td>758JPY/t-CO2 (w/out subsidy) (USD7/t-CO2)</td>
</tr>
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</table>

Table 1: Assessment of JVETS during Phase I-IV (Source: MoE 2008a)
*Note: Japan’s 2006 emissions (1,340Mt-CO2) are used for Phase III/IV calculation.

Since CERs can be used for compliance, JVETS has a unilateral link to the Clean Development Mechanism. But JVETS has no bilateral link with any mandatory scheme, which is not surprising given that it is a temporary voluntary scheme. However, the CERs, create an indirect link between the JVETS and the EU ETS. The JVETS will not be continued in its current form, but will be expanded into a voluntary test-phase ETS starting in October 2008. The purpose of this test phase is to bring companies currently under the Keidanren’s Voluntary Action Plan into an ETS.
3 The way to a mandatory ETS in Japan and prospects for linking

3.1 Introduction

The spring and summer of 2008 witnessed a change in Japan’s position regarding the introduction of a mandatory ETS. Although it is still not easy to introduce a mandatory ETS in Japan, it should be possible to introduce one sometime in 2009 or later, taking into consideration the enabling legislation process. The test-phase ETS, however, will be implemented starting in October 2008. Two proposals for a national mandatory ETS have been published, one by the MoE and one by the Ministry of Economy, Trade and Industry (METI). In addition, the Tokyo Metropolitan Government has passed a law to establish a regional ETS.

As part of the introduction of the Kyoto Target Achievement Plan (KTAP), more than 13,000 companies with annual emissions of more than 3,000 tCO₂ are required to calculate and report their emissions, with penalties imposed in case of non-compliance with the requirements, including as misreporting. The Keidanren Plan includes sector-based, voluntary emission reduction targets, and these targets could serve as the basis for the initial allocations under a mandatory ETS. Therefore, once a political agreement on the design of a mandatory ETS is reached, the necessary database for the scheme already exists and a mandatory ETS could be implemented rather quickly (Kimura 2005).

3.2 The Fukuda Vision and discussions on a mandatory ETS

Japan’s desire to demonstrate political leadership at the G8 summit was the critical factor in bringing climate change to the top of political agendas in Japan and moving Japan towards the introduction of a mandatory ETS. At the World Economic Forum’s annual meeting in January 2008 in Davos, Prime Minister Fukuda made a positive statement regarding the introduction of a mandatory ETS in Japan (MOFA 2008). Pressured by this speech, Keidanren, the largest Japanese industrial group, which had been strongly against the introduction of a mandatory ETS, changed its position in February 2008 indicating that it would accept a mandatory ETS in line with the international trend, although there was still strong opposition by the steel and power sectors (Nikkei Newspaper 2008). In June 2008, Prime Minister Fukuda announced the introduction of a mandatory test-phase domestic
ETS to start in the autumn of 2008. An objective was to bring participants from as many sectors and companies as possible into the test system. In regard to the appropriate stringency for a Japanese mid-term target, the Environmental Minister Saito expressed his view that a reduction of more than 25% was feasible (Mainichi Newspaper 2008), while METI estimated that a 14% reduction in the 2005-2020 period, as reflected in the Fukuda Vision, was more in line with the industrial potential. The Liberal Democratic Party (LDP), the majority in the lower house, was initially cautious, reflecting the interest of industrial sectors, but has now released an interim report mentioning an emissions reduction target of 25% by 2020, 60-80% by 2050 (below 1990), and the introduction of a mandatory ETS to start in 2010 (LDP 2008). The Democratic Party of Japan (DPJ), the majority in the upper house, submitted a bill, which includes the introduction of an ETS in 2010, a 25% reduction target by 2020, and a 60% reduction target by 2050 (below 1990). This bill also includes the introduction of a carbon tax and an increase of renewable energy to 10% of total energy by 2020 (DPJ 2008).

Figure 1 shows the envisioned gradual transformation from a voluntary to a mandatory ETS in Japan. In a first step the existing JVETS will be transformed to a voluntary test-phase ETS. During this test phase, both intensity-based and absolute targets will be allowed. It is thus expected that the test ETS will include a much larger percent of Japan’s emissions than the current JVETS. Following this voluntary test phase, the ETS would become mandatory, but initially both intensity-based and absolute targets may be allowed. At some time, the use of intensity-based targets would no longer be permitted under the ETS.

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<tbody>
<tr>
<td>JVETS</td>
<td>Test-phase voluntary ETS (absolute+intensity targets)</td>
<td>Mandatory ETS (absolute+intensity targets)</td>
<td>Mandatory ETS (mainly absolute targets)</td>
</tr>
</tbody>
</table>

**Figure 1: Timeline for a future Japanese ETS** (Source: Hitomi Kimura, IGES)

The detailed designs for a national mandatory ETS are being developed by three committees established by the Cabinet Office under the Prime Minister, METI and the MOE. The resignation of the Prime Minister in September 2008, however, may impede the

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3 The “Fukuda Vision” also includes a long term target for Japan of a 60-80% reduction by 2050 (below 2005), a peak of Japanese emissions within the next 10-20 years, a clean technology fund, a strategic fund for forestry ($1.2 billion), and a tenfold increase in solar power capacity by 2020. Based on a bottom-up sectoral assessment a 14% reduction by 2020 (compared to 2005) was proposed, but the official 2020/2030 target will be announced in 2009 (Prime Minister of Japan and His Cabinet 2008b).
early introduction of a mandatory ETS. Neither proposal for a mandatory ETS currently explicitly considers a linkage to other trading schemes. Linkage is planned to be considered at the time the ETS is implemented, where issues such as minimizing the cost of meeting targets will be discussed.

Another development in 2008 was the announcement by the Tokyo Metropolitan Government (TMG) of its intention to establish a mandatory ETS in the Tokyo area in 2008, with a starting date of April 2010 (Tokyo Metropolitan Government 2008). In 2008 the TMG also joined the International Carbon Action Partnership (ICAP), a group of representatives of trading schemes who try to ensure sufficient harmonization and compatibility to support direct bilateral links between schemes. This action emphasized the TMG’s positive position on linkage. The initiatives by the TMG are expected both to drive the introduction of a mandatory ETS at the national level and to push linkage considerations forward.

All proposals for a Japanese ETS envision an increase in Japan’s dependence on CERs, especially from Asia, to achieve the proposed mid and long-term targets. This orientation will also assist in establishing a low carbon society in the Asia-Pacific region. This strategy is in contrast to that within the EU where the focus is on achieving reductions domestically.

3.3 Introducing a test-phase ETS

Since July 2008, a team of officials from government ministries and agencies, including the Cabinet Secretariat; METI; the MoE; the Financial Services Agency (FSA); the Ministry of Foreign Affairs, the Ministry of Agriculture, Forestry and Fisheries; and the Ministry of Land, Infrastructure, Transport and Tourism, has been working on details of the planned test-phase ETS. The basic structure of the test-phase ETS was released in September: during the test-phase ETS, entities can decide whether to participate in this voluntary test-phase ETS as well as the level of their absolute or intensity targets.

 Tradable units will include:

- Excess units accumulated under Keidanren’s Voluntary Action Plan,
- Units tradable under the JVETS (JPA and j-CERs),
- Credits from a domestic offset system similar to the CDM. Under this approach small and medium enterprises (SMEs) not covered in the ETS would be granted credits for emission reductions achieved through projects undertaken voluntarily, under rules similar to those in operation for the CDM. Large companies under the ETS will be able to purchase emission credits generated from these projects and use them for their own compliance.
As of the time of writing this paper, opinion was still divided as to whether industrial umbrella organizations would be included as a single participant (e.g., allowances would be allocated to the umbrella organization and the industry as a whole would be responsible for meeting the target), and whether actual or presumed emissions should be used in the case of companies with an intensity target. The Japanese government will decide the final details and start looking for the participants, including financial intermediaries such as trading companies and banks, in October 2008. Representatives from the steel and electricity sectors expressed their intention to participate under the condition that this test-phase ETS will not lead to the introduction of a mandatory ETS. Although the design remains to be determined, the test-phase ETS can be described as an expanded JVETS to cover the energy-intensive companies currently participating in the Keidanren’s Voluntary Action Plan, but a face saving devise that allows sectors such as steel and electricity to join.

3.4 Proposal by the MoE for a mandatory ETS

In June 2008 Japan’s MoE published a proposal for a mandatory ETS to start in 2010 that it forwarded to the Advisory Committee on the Emissions Trading Scheme, which operates under the Cabinet (MoE 2008b). The MoE proposes the following basic design. The scheme would have a pre-2012 trading period, a second trading period from 2013-2020 and a third from 2021-2050. For the pre-2012 phase, the existing Kyoto Target Achievement Plan would be the basis for the amount of total emission allowances granted. For the second phase, Japan’s 2020 target will be the basis. The covered gases would include energy-related CO₂ initially, but the trading scheme would be expanded to all six Kyoto gases at some future date. Each entity covered by the ETS would have to retire annually emission allowances equal to the amount of its verified emissions in the last fiscal year. In the event of non-compliance, a fine will be charged corresponding to the amount of the excess emissions. This charge would be set substantially higher than the expected allowance price. In addition, the excess emissions would have to be offset in the subsequent reporting period. The MRV guidelines would conform to ISOs and other international standards. Existing systems such as the GHG Reporting scheme under the revised Kyoto Target Achievement Plan (KTAP) and the “Monitoring and Reporting Guidelines” of Japan’s Voluntary Emissions Trading Scheme (“JVETS”) could serve as a good base. The JVETS registry system, already in use, will be the basis for reporting, with any necessary improvements. Banking and limited borrowing would be allowed. The establishment of an “Administrative Carbon Market Board” for market control will be considered, similar to the Carbon Market

4 Energy-source CO₂ emissions account for more than 95% of total emissions in Japan.
5 The level of accuracy required under monitoring, reporting and verification (MRV) regulations, the feasibility of achieving these levels for a given GHG, and the share of each GHG in Japan’s total emissions would be considered in determining when and to which gases the scheme would be expanded.
Efficiency Board proposed in the U.S. A price cap will not be considered since it allows for the expansion of total emission allowances. International credits such as Kyoto credits may be used for compliance with some limitation. Details will depend on the post-2012 international regime. Qualified domestic credits that satisfy criteria regarding additionality and verification will be allowed for compliance within limits.

There is no precise description of types of eligible offsets in the proposal, but a MoE committee on offsets listed as possible types of offsets Kyoto credits, credits under JVETS (j-CER/JPA), and Verified Emission Reductions (VERs) satisfying criteria set forth in a guidelines document for domestic use (MoE 2008c). For specific industrial sectors where there is a major risk of carbon leakage, exceptional treatments such as free allocation and border adjustment measures will be explored. There is also no clear position about linkages with other ETSs at this moment. The MoE proposal does, however, state that options for linking with other systems should be explored and hence the compatibility with other ETS should be considered.
The MoE proposal outlines four options for including entities in the target sectors in the ETS:

<table>
<thead>
<tr>
<th>Allocation methods and entities</th>
<th>Merits</th>
<th>Demerits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Upstream</strong> (producer/importer/distributor of fossil fuels), full auctioning</td>
<td>High coverage of entities (nearly 100%)</td>
<td>Auctioning causes direct costs for companies Limited to energy-source CO₂</td>
</tr>
<tr>
<td><strong>2. Downstream</strong> (end-users of fossil fuels and electricity) free allocation at the beginning, gradual phase in of auctioning</td>
<td>Demand-side incentive for emission reductions across the economy</td>
<td>Since small-size energy users will not be included, the coverage is lower than that of upstream allocations</td>
</tr>
<tr>
<td><strong>3. Downstream</strong> (Large direct emitters in the power sector, industry, and business sectors). Power companies: full auctioning Large-size energy users: gradual phase in of auctioning Small-size energy users and transport are covered optionally</td>
<td>Direct incentive for emission reductions by large emitters.</td>
<td>Small energy end users are not covered from the beginning (coverage: 60%)</td>
</tr>
<tr>
<td><strong>4. Downstream</strong> (Large direct emitters in the power sector (intensity targets); other industry and business sectors (free allocation) May be replaced with option 2 or 3 after 2013. Even beyond 2013, this option might apply to industries that may be identified as vulnerable to the impact of international competition or to the significant risk of carbon leakage.</td>
<td>Wider support from industries that are in favour of intensity targets. Burden sharing of activity, and Consistency with the current Keidanren’s Voluntary Plan</td>
<td>Despite absolute caps, large direct emitters are only responsible for emissions due to changes in their GHG intensity, but not for excess emissions resulting from increased activity levels</td>
</tr>
</tbody>
</table>

**Table 2: Four options for including target emission sources in an ETS**

Among the four options examined, option four is currently supported most. Under this option, large direct emitters in the power sectors are only responsible for meeting intensity targets; they are not responsible for emission changes resulting from increases in activity levels. The other three options are based on absolute caps.
3.5  Proposal by METI for a mandatory ETS

Keidanren’s Voluntary Action Plan, which was first issued in 1997, even before the Japanese ratification of the Kyoto Protocol in 2002, has been continually strengthened through its annual review process. Although it operates through voluntary emission reductions by industrial groups, some say that it can be considered, in practice, as imposing caps on major sectors and individual companies. Each stakeholder evaluates the effectiveness of its voluntary emission reduction target, but some companies recognize the necessity of further emission reductions to achieve Japan’s Kyoto Protocol target of a six per cent reduction compared to 1990. Companies increasingly see that it is unlikely they will be able to escape from emission caps in the long run. Therefore, there is a possibility that even METI will support the introduction of a mandatory cap-and-trade scheme, once an understanding of the situation on the part of industry increases and more support is built in the industrial sector.

A report by METI for the design of a mandatory ETS released in June 2008 mentions the necessity of limiting total emissions, the possibility of a transition from Keidanren’s Voluntary Action Plan to legally binding agreements, and use of a domestic offset system similar to JI. The domestic offset system envisioned would enable large companies to purchase credits from SMEs and to use the acquired credits to achieve their Keidanren’s Voluntary Plan targets in return for transferring and financing new technology to SMEs. If a cap-and-trade type ETS is to be adopted, benchmarking on the basis of intensity is preferred to grandfathered absolute allocations and free allocation is preferred over auctioning of allowances. METI takes a positive view in regard to borrowing, a price cap, and a liberal use of international credits (e.g., CDM). Furthermore, METI prefers a down-stream approach to an up-stream approach.

3.6  Plans of the Tokyo Metropolitan Government for a local ETS

The Parliament of the Tokyo Metropolitan Government (TMG) passed a municipal law in June 2008 to mandate a reduction of CO₂ emissions. Some 1,300 large facilities which consume more than 1,500 kl (oil equivalent) of fuel/heat/electricity would be affected by the law. The law includes the use of an ETS to assist entities in meeting targets, including the use of domestic, Japanese offsets from outside of the TMG region. The initial commitment period would run from April 2010. This ETS, with its target, forms the main pillar of the TMG’s comprehensive effort to achieve emissions reductions of 25% between 2000-2020.

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6 According to interviews with industries
In addition to Tokyo, the Hyogo prefecture (FY2009-), Hiroshima City (FY2009-) and the Fukuoka prefecture are also planning to introduce an ETS, although precise rules and designs are not clear yet. Many of the TGM schemes’ details will be developed at the end of FY 2008 including the ending date of the compliance period and the stringency of targets; penalties, however, have already been set. In case of failure to meet targets, entities will be ordered to reduce emissions by up to 130% of the difference between the target and their emission level. Failure to comply with this order will result in penalties of up to 0.5 million Yen plus the cost of purchasing sufficient allowances or reduction credits to cover the deficiency in emission reductions. The Tokyo Metropolitan Government (TMG) takes a positive position in regard to linkage with other ETSs and joined ICAP as an official member in 2008. If a national ETS fails to be introduced by April 2010, the TMG system will begin to operate and it will then be necessary to consider the relationship between the TMG system and the national system adopted. For example, it may be necessary for the national ETS to give credits for early reductions achieved under the TMG ETS and other local ETSs if they should evolve. Since Environmental Minister Saito expressed his view that a national-level mandatory ETS may not be initiated until 2010 or 2011, this situation could easily arise.

3.7 Prospects for linking a national Japanese trading scheme to other ETSs

No direct links to mandatory ETSs are foreseen and considered during Japan’s test phase voluntary ETS except indirect links through the CDM. However, since the scheme allows the use of international credits, it will be indirectly linked to other trading schemes accepting such credits. Direct links will be implemented only after the introduction of a mandatory ETS. Since the Japanese ETS will result in a medium-sized market, under direct bilateral linking a national Japanese system would be affected by the volatility of larger markets such as EU-ETS. Japan would be a price taker with entities buying or selling allowances at the price established by the larger system. Therefore, Japan will need to give careful consideration to linkage and carefully watch the performance of other trading schemes before linking to them.

The following sub-sections provide an overview of design features that could form potential barriers to linking the MoE and METI proposals to other ETSs. As some design elements of these proposals have not yet been decided, this assessment is confined to general considerations. The assessment shows that the two proposals differ significantly regarding their ability for direct bilateral linking. Some of the design features in the MoE proposal may introduce barriers to bilateral linking such as the use of intensity targets. The METI proposal includes additional design features that are barriers to linking including a
price cap, no strict penalties for non-compliance and a relatively modest 2020 reduction target.

**Stringency of the target**
The relative stringencies of targets is one of the most critical issues when two systems consider linkage, it may be a political precondition for linking that all systems implement comparable caps (Sterk et al. 2006). The MoE and METI have significantly different views on appropriate Japanese 2020 reduction targets. While the MoE recommends a 25% reduction target compared to 2005, METI’s position is that only a 14% reduction target is feasible. How these targets will compare to targets taken in other schemes for the year 2020 remains to be seen. It should be pointed out that even with comparable overall targets; it is very unlikely that there will be equity of effort at the sectoral or entity level (Blyth and Bosi, 2004).

**Sectoral and gas coverage**
The MoE proposal outlines 4 options for sectoral coverage, one upstream and three downstream options (See Table 2). One downstream option provides for an optional inclusion of small-size energy users and transport. The more diverse and the more numerous the participants, the larger the potential cost savings. Thus, linking trading programs that cover different categories of sources should increase the potential cost savings. Such differences should not affect the environmental integrity nor raise issues of institutional compatibility (Haites/Mullins 2001). However it will be important to avoid any double counting that might arise as a result of linking schemes with different coverage. This can be avoided, however, if the boundaries of the two schemes to be linked are clearly defined and there is a proper accounting of emissions (Blyth/Bosi 2004). When designing an upstream system, the potential for such double counting can be avoided simply by excluding exported fuel from the allowance requirement. If schemes have a different coverage of gases this poses no barrier to linking; on the contrary it may lead to cost savings, as the reduction of non-CO2 gases is more cost efficient than the reduction of CO2 emissions (Blyth/Bosi 2004). One scheme, however, may not want to link up to another scheme if it has no confidence the scheme’s MRV provisions as this could undermine the integrity of its own trading scheme. However, this may not likely to happen in the case of Japan, since 95% of the emissions come from energy-related CO2 even if the covered gases in the trading scheme would be expanded to all six Kyoto gases at some future date.

**Linking schemes with absolute targets to schemes with intensity targets**
Another very important consideration in linking will be the type of targets set in various schemes. The METI proposal foresees the use of intensity targets, and option 4 of the MoE
proposal, which also uses an intensity target approach, is currently the most favoured option. Intensity targets (also referred to as relative targets) are expressed as emissions per unit of output or activity, such as GDP or per unit of input. Under an intensity-based target system, total GHG emissions may increase with an increase of GDP. The likelihood of this occurring depends on the prospects for economic growth as well as on the stringency of the targets. It is possible to link trading schemes with absolute targets to ones with intensity targets. Linking a scheme with intensity-based targets to a system with absolute targets does, however, raise economic equity concerns. Under an intensity-based system companies in effect have an incentive-or at least no disincentive—for increasing their output and therefore emissions. Intensity-based systems may also compromise the environmental effectiveness of a combined regime because output increases will inflate the number of trading units available (Haites and Mullins 2001, Marschinsky 2008). Another potential problem is that in intensity-based approaches allocations are given out post-hoc whereas in absolute systems, such as the EU-ETS, the allocations are given out in advance. The final allocation of allowances to a company can only take place once the output data of the companies is known. This could lead to liquidity shocks for the absolute scheme at the moment of adjustment (Sterk et al. 2006). The EU has currently ruled out linking its ETS with schemes based on intensity targets. The coming Canadian ETS, however, will be based on intensity targets, and may be a potential linking partner for a national Japanese scheme, although Canada has expressed interest in linking only with the US and Mexico.

**Banking and Borrowing**

Both the MoE and METI proposals include borrowing, the MoE proposal however would limit borrowing, without giving further details. Borrowing means that a company is allowed to use allowances for a future vintage to cover current emissions. If companies heavily rely on borrowing instead of carrying out emission reductions they may lobby for relaxing targets later. In addition, companies or facilities may cease to exist after having received their future allocations (Haites and Mullin 2001). Therefore, borrowing provisions in a partner scheme can be unacceptable for an ETS if it is perceived to carry the potential for weakening the environmental effectiveness of the scheme (Flachsland 2008). If a programme that did not allow borrowing were linked to a Japanese scheme that allows borrowing, the environmental integrity could be protected by limiting purchases from participants in the Japanese scheme to ex post purchases from participants that did not borrow allowances (Haites and Mullins, 2001).

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7 COMMISSION STAFF WORKING DOCUMENT Accompanying document to the Proposal for a DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL amending Directive 2003/87/EC so as to improve and extend the EU greenhouse gas emission allowance trading system
Offsets
There is only limited information on offset rules in both proposals and neither proposal has as yet defined eligible offset sectors. However, since 95% of total emissions are energy-related CO2, the possible sources are mainly small sources excluded from the ETS, and non-CO2 emissions. The MoE proposal lists credits under JVETS and Verified Emission Reductions (VERs) satisfying certain requirements as potential eligible offset types. The rules governing the offsets may not have the same stringency for additionality or Monitoring, Verification and Reporting as those under Track 2 JI. If Japan implements a domestic offset scheme, however, it is in effect a Track 1 JI scheme as long as any Kyoto units can be exported. If a Japanese ETS is linked with any other Annex B ETS the units exchanged will have to be (or be accompanied by) Kyoto units. In that case, the Japanese ETS units will need to be AAUs or equivalent and the domestic offsets will need to be ERUs or equivalent. If the rules for offsets are less stringent than those for Track 2 JI, it poses no problem for linking, but it means Japan is providing a subsidy to the offset generators.

Non-compliance provisions and price caps
A scheme with rigorous non-compliance provisions may be reluctant to link to a scheme with less stringent provisions. Setting financial penalties for non-compliance significantly higher than the cost of allowances, as provided in the MoE proposal, is an important determinant of a trading scheme’s environmental effectiveness, with environmental effectiveness one of the key criteria that will be used to determine acceptability of linking. Furthermore, the MoE proposal requires that the excess emissions would have to be offset in the subsequent reporting period. If the penalty for non-compliance releases the operator of an installation from the obligation to cover its full emissions with eligible units, it acts as a price cap and therefore linking poses a problem for linking (see Sterk et al, 2006). If the price of allowances in one program is higher than the non-compliance penalties of another program, linking the schemes could encourage non-compliance in the program with the low penalties and so compromise the environmental integrity (Blyth and Bosi 2004). The METI proposal, in contrast to the MoE proposal, foresees no strict penalties for non-compliance what in effect would act as a price cap. In addition the METI proposal explicitly mentions a

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8 If a host Party meets all of the eligibility requirements <http://ji.unfccc.int/Eligibility/index.html> to transfer and/or acquire ERUs, it may verify emission reductions or enhancements of removals from a JI project as being additional to any that would otherwise occur. Upon such verification, the host Party may issue the appropriate quantity of ERUs. This procedure is commonly referred to as the “Track 1” procedure. If a host Party does not meet all, but only a limited set of eligibility requirements, verification of emission reductions or enhancements of removals as being additional has to be done through the verification procedure under the Joint Implementation Supervisory Committee (JISC) <http://ji.unfccc.int/Sup_Committee/index.html>. Under this so-called “Track 2” procedure, an independent entity accredited by the JISC has to determine whether the relevant requirements have been met before the host Party can issue and transfer ERUs. http://unfccc.int/kyoto_protocol/mechanisms/joint_implementation/items/1674.php
price cap. If a system without a price cap is linked to a scheme with a price cap, the price cap will set the compliance cost for the combined schemes. As long as the allowance price is above the threshold price, companies from the scheme without a price cap will buy allowances from the partner region undermining the environmental integrity of the combined scheme (Sterk et al. 2006, Blyth and Bosi 2004). The MoE proposal mentions cost-containment measures, which in general may be a barrier to linking, there are however no details available at the moment.

There are other important design elements of a trading scheme which have to be carefully considered when linking, such as the compatibility of registries, the monitoring, reporting and verification (MRV) procedures and the allocation provisions. As details on these provisions are not available to date, they haven’t been considered in this paper.

### 3.8 Legal issues for linking Japanese schemes

This chapter discusses legal issues that arise when linking to a national or a sub national scheme in Japan.

**National mandatory scheme**

In case a mandatory ETS is implemented in Japan, the possibility of linkage depends on the legal nature of the linking agreement. There are several legal options for linking emissions trading schemes such as a non-binding political arrangement or a binding international treaty (see Mehling 2007). A binding international treaty with foreign countries can be made only by the Cabinet under the Japanese Constitution (Article 73). In Japan, a treaty agreed by the government is superior to domestic law, but inferior to the Constitution (Constitution 98-2). In most cases, Japan concludes a treaty through ratification, acceptance or entry. The enactment of a new law is possible, but it is more realistic to amend the existing law such as the Framework for Promoting Action to Cope with Global Warming to implement linkages. In both cases, government officials have strong power in legislation under the current Parliamentary System. If linkage involves any budget such as for establishing a common registry system for linkage, only the Cabinet can submit a budget request to the Parliament (Article 73-5 of Japanese Constitution). Treaty making and its domestic implementation in Japan takes at least one year.

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9 However, it shall obtain prior or, depending on circumstances, subsequent approval of the Diet.
10 Most laws submitted and approved finally come from the Cabinet, which are substantially drafted by the government officials and supported by the traditional ruling Liberal Democratic Party (LDP), although there are increasing number of bills by the legislators due to the breakthrough of the second biggest Democratic Party of Japan (DPJ)
The Tokyo scheme

If Japan could not introduce a national mandatory ETS until April 2010, when the Tokyo scheme is being implemented, the legal issue arises whether the Tokyo Metropolitan Government (TMG) can make an agreement with other countries or states without the consent of the national government, since the Japanese Constitution limits the power to make a diplomatic treaty to the national government. A preliminary legal analysis of California’s case in relation to the Federal Government shows that if it is an “arrangement” rather than “agreement”, or there is no clear intention to increase the State power, this would be less problematic (Echikson and Wedeking 2006). The Japanese local government has less power compared to U.S states.

4 Conclusions

While Japan has to date relied on voluntary instruments such as the JVETS and Keidanren’s Voluntary Action Plan, the discussion is now moving towards the implementation of a mandatory ETS. It is most likely that the JVETS, which currently is an absolute-target system, will shift to a test-phase voluntary ETS in autumn 2008 in which a combination of absolute and intensity targets will be used initially. Following this initial phase, foreseen as ending in 2010 or 2011, a mandatory ETS will be implemented in which again both mandatory and intensity targets will be used. As a scheme with absolute targets will not be implemented before 2013 direct bilateral linkages between a Japanese ETS and other ETSs will therefore most likely not occur before then. The present paper shows that the two proposals for a national mandatory ETS currently discussed in Japan differ significantly, however, in regard to their ability for direct bilateral linkages to other trading schemes. The METI proposal’s mid-term reduction targets may be too lenient to support a direct linkage to comparable stringent schemes, such as the EU-ETS. It also includes other major barriers to direct bilateral linking such as borrowing and no strict penalties for failure to meet targets. The MoE in contrast includes only few potential barriers to direct bilateral linkages. Any Japanese ETS is likely to increase its dependence on CERs, especially CERs from Asia. It will thus have strong links to the CDM market and indirect linkages to other schemes allowing Kyoto credits. Until 2013 a link to the CDM and hence indirect links with other schemes that accept CERs will therefore be the major linkages for a Japanese ETS. Whether Japan will be able to link its national ETS after 2013 bilaterally to other schemes depends on an early adjustment of critical design elements.
Implementing the Bali Action Plan:
What Role for the CDM?1

by Benito Müller² and Prodipto Ghosh³

Executive Summary

The Bali Action Plan (BAP) envisages enhanced “measurable, reportable, and verifiable” (MRV) developing country mitigation actions “supported and enabled by” MRV technology, financing and technology building from developed countries. Finding an acceptable operationalisation of this North/South relation will be key to a success of the BAP. The authors suggest that one way of doing so could involve using the Clean Development Mechanism (CDM) as an instrument for establishing direct ‘enabling links’ between MRV mitigation activities in developing countries and MRV finance from developed countries. In order to adapt the CDM for this purpose – and for this purpose alone (i.e. not for its traditional offsetting use) – the authors propose that developed countries take on obligations to obtain a certain number of CDM credits (CERs) to be retired (and not used as offsets against developed country mitigation commitments). As such, these Retirement-CER Obligations would, in essence, constitute an obligation to enable, through provision of finance, MRV mitigation actions in developing countries in conformity with the BAP. As such they would be separate from the mitigation commitments concerning developed country emissions. They would also be separate from MRV commitments in respect of technology transfer and capacity building, also required under the BAP.

1 This paper is part of a research project on the furutre of the CDM convened by Climate Strategies
2 Director Energy & Environment, Oxford Institute for Energy Studies. E-mail: benito.mueller@philosophy.ox.ac.uk
3 Distinguished Fellow, The Energy and Resources Institute (TERI), New Delhi.
General Considerations

The Bali Action Plan – adopted as Decision 1/CMP.3 during the recent UN Climate Change Conference in Bali/Indonesia – contains a decision to launch a process to reach an agreement by December 2009 on, among other things, enhanced national/international mitigation actions, considering, *inter alia*

(*) Nationally appropriate mitigation actions by developing country Parties in the context of sustainable development, supported and enabled by technology, financing and capacity-building, in a measurable, reportable and verifiable manner.  

Although some people still worry about potential ambiguities with regard to what exactly is meant to be measurable, reportable, and verifiable (MRV) according to this paragraph, the G77 and China statements during the final plenary at Bali clarified that the triple adjective is meant to apply both to the mitigation actions by developing countries, and the developed country support through finance, technology transfer, and capacity building of these mitigation actions. In some crucial respects, this paragraph therefore can and must be seen as an evolution of Article 4.7 of the Convention, in the sense that it makes developing country climate change actions conditional on, among other things, developed country payments (for agreed full incremental costs).

What is not quite so clear is how this MRV support and enablement of the MRV mitigation actions is meant to happen? There are a number of ways in which this North-South relation could be operationalised. For example, it could be a relation at the level of individual activities (projects): MRV projects would be directly supported by MRV finance, technology and capacity building. Or the support could be at an aggregate level, say in terms of some form of budget support, particularly for capacity building (as this may be more efficient than capacity building on a mitigation project by project basis). No doubt, considerable effort will be put into elaborating this relation in the months running up to the Copenhagen UN climate conference in December 2009. This paper is simply meant to consider the potential of the CDM – in whichever form (project-based, programmatic, sectoral) – to be used as one among possibly several instruments to implement the relationship envisaged in the BAP in respect of the provision of finance.

**CDM as implementing tool for paragraph 1.b.ii: Pros and Cons**

The idea of using the CDM as a tool for future mitigation action in developing countries (in compliance with Article 4.7) has been mooted long before the advent of the Bali Action Plan. Ambassador Chandrashekar Dasgupta (former chief climate change negotiator for India), for one, expressed some time ago the view that “it is essential to raise the Clean Development Mechanism from a project-based level to a sector- or programme-based level. This holds the key to success for a second commitment period under the Kyoto Protocol.”

In order to establish the sort of relation envisaged in paragraph 1.b.ii of the Bali Action Plan, the CDM would have to deliver nationally appropriate MRV mitigation actions in the context of sustainable development by developing countries, supported and enabled by MRV technology transfer, financing and capacity building. Can it do this?
**DC Acceptance.** Notwithstanding some of the reservations that have been raised concerning its current implementation, the idea behind the CDM has been precisely that of delivering nationally appropriate MRV mitigation actions in the context of sustainable development. Moreover, the CDM has one key advantage as concerns the implementation of the BAP, namely its general acceptance by developing countries. One has to realise that the North-South relationship stipulated in 1.b.ii has the potential for serious sovereignty concerns, depending on the nature of the envisaged ‘enabling and supporting’ relationship. As witnessed in the UNFCCC workshop on what has become known as the ‘Russian Proposal,’ many developing countries are very concerned, not to say suspicious about seemingly innocuous proposals regarding the mitigation of developing country emissions being used to force them into taking on binding commitments. This is why it is crucial for 1.b.ii implementing tools to be accepted by developing countries.

**Carbon Market Finance.** As concerns the developed country side of the MRV relation, the CDM has the added advantage of a well-defined (project-related) MRV financing model, based on the carbon market, where the size of the financing depends not (only) on the incremental mitigation costs for the actions in question, but on the amount of emissions mitigated, and on the prevailing price of carbon. The fact that this model goes beyond incurred incremental cost coverage by allowing (potential) carbon market profits is key to the attractiveness of the CDM to the private sector.

**The TT and CB Problem.** At the same time there are also certain aspects of the CDM which are problematic for its use as an instrument to implement the BAP. On the one hand, the CDM has thus far not been particularly effective in providing the other two components of the developed country MRV activities, namely technology transfer and capacity building.

**The Offset Problem.** The CDM also faces a problem with respect to the MRV mitigation actions (by developing countries), due to the fact that ordinarily, CDM mitigation actions generate offsets used to cover emissions elsewhere. This is problematic because it can be argued that it goes against the spirit, if not the letter, of the (*) reference to “mitigation actions by developing countries”: while there is no question about CDM activities being in developing countries, it can be argued that the (*) reference is meant to refer to activities which, apart from being carried out in developing countries, also contribute to limiting/reducing from baseline overall global emissions. This is not guaranteed if the generated CERs are used as offsets by developed country Parties.

**The Core Model**

Is it possible to overcome these problems without endangering the key features in favour of a use of the CDM in this context? As concerns the failure to deliver on technology transfer and capacity building, it can be argued that this should not really be held against the CDM qua instrument for implementing the BAP, provided that it is not regarded as the only way of doing so. Indeed, it would arguably not be reasonable to expect a project-based instrument to deliver all three of the developed country MRV constituents (finance, technology transfer and capacity building), particularly not with each and every project.

However, the issue of generally failing to reduce/limit global emission is a problem for the CDM as BAP instrument. But it can be overcome. One could, for example, simply not issue any CERs in the first place. Yet while overcoming the offset problem, this would also exclude a carbon market financing model. And while one could move to an incremental cost based model by directly reimbursing the
incremental costs of the mitigation actions, this could be an additional instrument, not exclusive of the use of CDM as a BAP instrument.

However, there is a way to overcome the offset problem without undermining the desirable features of the CDM, namely by ‘retiring’ (taking out of circulation) issued CERs once they are in a relevant (developed country) account. In other words, under this model, if a tonne of carbon dioxide emissions is

(i) reduced through a registered CDM project,
(ii) is certified (by a Designated Operational Entity), and
(iii) if the CER issued is retired from a developed country account,
then it would be deemed an MRV action pursuant to the BAP.7

One of the advantages of this use of the CDM is that, by retiring the generated CERs, the scheme manages to counter at least two of the reasons that are often put forward in defence of the additionality requirement under the CDM, namely (a) to safeguard environmental integrity and (b) to safeguard the price of carbon from a collapse due to a surplus of supply of CERs. This means that one may wish to consider waiving the additionality condition for CDM projects which are used solely for purpose of generating ‘Retirement CERs’ (R-CERs). This could considerably reduce transaction costs, and thus may create incentives for developed country actors to engage in the bilateral generation of such R-CERs, as opposed to their generation in unilateral projects, particularly if the scheme has a mandatory element to it (see below).

Variations

There are, as indicated already, a number of aspects of this ‘core model’ that could be varied in using the CDM to implement (*). For one, there is the issue of whether the retirement of R-CERs would be voluntary or under some form of obligation.

A scheme based on voluntary retirements of R-CERs would obviously be politically less problematic than a mandatory one, but it is not clear how the private sector could be incentivised to participate in such a scheme, and it is doubtful whether left to the country legislatures, public funding would be forthcoming to retire sufficiently many CERs to have a real impact on global emissions.

A mandatory scheme, based on some form of Retirement CER Obligations (‘R-CEROs’) taken on by developed countries – while politically more difficult – could overcome this problem, for it would be possible to pass on the obligation to sub-national entities. For example, anyone subject to a domestic cap and trade regime could be assigned R-CEROs in proportion to their permitted emissions, say as a percentage of allocated emission caps, or as a percentage of emission permits acquired at auctions. However, imposing such obligations creates its own problems.

Demand-side obligations are only fair if they can be fulfilled, which means, in particular if there is sufficient supply (of R-CERs). Moreover, fair obligations must not be excessive, which in this context would be an excessive deviation from the expected incremental mitigation costs. These are two reasons why the introduction of R-CEROs may have to be coupled with some sort of safety valve, making it possible to fulfil ones obligations even if the supply of R-CERs is insufficient to meet the R-CERO demand directly. One way of doing so would be to allow for an exchange of R-CEROs for cancelling Assigned Amount Units (AAUs) on a 1:1 basis, i.e. an exchange for additional national (developed
country) mitigation commitments. This would, in effect, introduce an endogenous price cap on R-CERs determined by the ‘regular’ carbon price of the regime. Unlike an exogenous price-cap, this approach would not compromise the environmental integrity of the regime.

There are other aspects of the basic idea of retiring CERs to implement the BAP apart from the retirement type (voluntary versus mandatory) that could be modified. One might, for one, wish to encourage the retirement of CERs from certain types of activities, say on the grounds of their desirability with respect to sustainable development, technology transfer, and/or capacity building. This, in turn, could be achieved by way of special incentives, such as subsidies or a restriction of the above-mentioned waiver of the additionality condition.

Alternatively, conditions with regards to technology transfer and capacity building which CDM activities would have to satisfy in order to be counted as being supported and enabled by MRV financing, technology and capacity could be specified, either generally, or left to the discretion of host countries.

Conclusions

Its general acceptance as tool for mitigating emissions in developing countries and its financing model make the CDM an ideal candidate for implementing the MRV (supported and enabled) mitigation actions by developing countries referred to in Paragraph 1.b.ii of the Bali Action Plan, provided that the generated CERs are retired from developed country accounts and not used as offsets for developed country compliance. In order to generate significant emission reductions in developing countries, developed countries may have to take on R-CER Obligations (R-CEROs) as part of their commitments. While this is not meant to replace ‘ordinary’ CDM offset activities, and while the CDM is not meant to be the only tool for implementing the Bali Action Plan developing country mitigation activities, CDM BAP activities have the potential of playing a major role in both respects.

Endnotes

1 Para. 1.b.ii, 1/CMP.3
2 The extent to which developing country Parties will effectively implement their commitments under the Convention will depend on the effective implementation by developed country Parties of their commitments under the Convention related to financial resources and transfer of technology, ...
3 To be absolutely clear: the issue here is not to define a new version of the CDM, but it is whether the CDM, in whatever shape or form it will emerge from the present negotiations, could be used as a tool to implement the Bali Action Plan. Moreover, the suggestion is not that the CDM should be the only way of implementing para. 1.b.ii, but (if at all) merely one of many ways.
6 Note that this is a significant advantage, because it pre-empts the otherwise inevitable debate of what level MRV financing should be, to be counted as supporting and enabling according to 1.b.ii.
7 Note again that this is only meant to be one of many possible ways in which such MRV actions could be carried out.
Press releases for:

‘Energy & Climate: Opportunities for the G-8’

and

‘The Role of Auctions for Emissions Trading’
New report warns G8 leaders: Don’t let oil prices hijack action on climate change

EMBARGOED UNTIL 0:01AM MONDAY 30TH JUNE 2008

30 June 2008 Spiralling oil prices should not distract G8 leaders from the crucial issue of agreeing a coordinated and legally binding global response to climate change, according to a new report published today by Climate Strategies, an international climate policy network based at the University of Cambridge, of which the Carbon Trust is a founding supporter.

Ahead of the G8 Summit in Toyako, Japan, next week, the Climate Strategies report warns world leaders that any kneejerk reaction to price rises could actually see an increase in emissions, with the focus shifting to finding new sources of oil and coal-to-liquids technologies that emit up to twice as much CO2. Climate Strategies’ report advocates how to reduce global dependence on oil whilst at the same time tackling climate change head-on. Without progress by the G8, it warns that there is little hope of securing an international agreement by the time of the UN Summit in Copenhagen in December 2009.

The Climate Strategies report, directed by Professor Michael Grubb and commissioned by Nick Butler, Director of the Cambridge Centre for Energy Studies and former adviser to Tony Blair, sets out five key proposals for G8 leaders to consider in Toyako:

1. International cap and trade systems for international aviation and shipping
2. Agreement that the UN negotiations should result in legally binding emissions reduction commitments
3. The foundation of a global network of low carbon technology centres in developing countries
4. New funding mechanisms to greatly enhance the scale and predictability of international assistance for adaptation
5. A new institutional structure, preferably building on the International Energy Agency, to support shared analysis and implementation of the global energy transition that is required this Century

As part of the project, Climate Strategies worked closely with the UK’s Carbon Trust, specifically around the call for low carbon technology centres. In support of today’s report, The Carbon Trust has published a paper demonstrating how this network of centres could be rolled out and funded across the developing world.

Tom Delay, Chief Executive, The Carbon Trust said, “Now is the time for world leaders to act if we are to stand any realistic chance of achieving a long term international agreement on climate change in the next 18 months. Strong action on
climate change represents a huge business and commercial opportunity and should be embraced at G8.”

The report states that the aviation and shipping sectors must be covered by dedicated international cap and trade systems if the G8 is to achieve its mid-century goal of reducing global carbon emissions by 50%.

Professor Michael Grubb, lead author of the Climate Strategies report and chief economist at the UK’s Carbon Trust said, “Aviation and shipping account for almost 10% of global oil demand and will place unsustainable pressure on global oil supplies. If you combined these two sectors they would account for the total carbon output of the sixth major emitting country – falling between Japan and Germany.”

Climate Strategies’ report also calls for the G-8 to clarify that commitments negotiated under the UNFCCC should be legally-binding, but differentiated across major economies: ‘developed nations should commit to fixed national emission targets, Grubb said, whilst “Supported by clear and specific G8 commitments on technology, financing and capacity-building, major developing country emitters should commit to legally binding, nationally appropriate, quantitative national or sector specific goals for improving energy efficiency and carbon intensity.”

Professor Grubb points out the need for an increase in financial support from G8 countries to assist the developing world adapt to the effects of climate change. The report says that without the establishment of new and innovative funding sources, developing countries will be unable to build the institutional capacities required to reduce their dependence on high intensive carbon forms of energy.

Finally, Climate Strategies’ report proposes the expansion and strengthening of international bodies. A reformed and restructured IEA is singled out as a potential forerunner for a new international body (the International Climate Agency) to support analysis and implementation of the required global energy transition, answerable to the UNFCCC.

Professor Grubb concluded, “The Toyako summit marks the formal culmination of the 3 year dialogue in climate change that was launched by Tony Blair at the Gleneagles summit. Its central task is to promote synergies between the concerns about energy security and greenhouse gas emissions."

“Its central outcome must ensure that responses to global oil prices also accelerate, rather than undermine, progress on climate change. And that will take a lot more than mid-Century targets.”

ENDS

For media enquiries about the Climate Strategies report please contact either Nick Faith or Ben Frankel at Luther Pendragon on 020 7618 9100.

Notes to editors

About Climate Strategies
Climate Strategies aims to assist governments in solving the collective action problem of climate change. It connects leading applied research on international climate change issues to the policy process and to public debate, raising the quality and coherence of advice provided on policy formation. Its programmes convene international groups of experts to provide rigorous, fact-based and independent assessment on international climate change policy.
To effectively communicate insights into climate change policy, Climate Strategies works with decision-makers in governments and business, particularly, but not restricted to, the countries of the European Union and EU institutions.

The Climate Strategies report is available online at http://www.climate-strategies.org/index.php

About Cambridge Centre for Energy Studies
The Cambridge Centre for Energy Studies (CCES) was set up to lead and coordinate a new multidisciplinary research programme at the University of Cambridge. The Centre addresses key issues in international energy policy and energy security.

CCES’ work is funded and supported by external partners and aims to promote knowledge transfer between academia and policy.

CCES is based at Judge Business School and was officially launched in October 2007.

About The Carbon Trust
The Carbon Trust is an independent company set up by government in response to the threat of climate change, to accelerate the move to a low carbon economy by working with organisations to reduce carbon emissions and develop commercial low carbon technologies. The Carbon Trust works with UK business and the public sector through its work in five complementary areas: insights, solutions, innovations, enterprises and investments. Together these help to explain, deliver, develop, create and finance low carbon enterprise.

The Carbon Trust is funded by the Department for Environment, Food and Rural Affairs (Defra), the Department for Business, Enterprise and Regulatory Reform (BERR), the Scottish Government, the Welsh Assembly Government and Invest Northern Ireland.

For more information on the Carbon Trust visit www.carbontrust.co.uk or call the Carbon Trust Advice Line on 0800 085 2005.
New report: Europe needs to agree on auctioning for the sake of global climate deal

- EU must resist moves by industry lobby groups to unravel proposals for Phase III of the emissions trading scheme

6th October 2008: Energy intensive industries should pay for the emissions they produce, rather than continually being granted allowances for free. A new report published by Climate Strategies, a European network of climate policy experts, shows that Europe will otherwise not be able to pursue effective climate policy. This would undermine the credibility necessary to negotiate an ambitious climate deal in Copenhagen next year.

The new paper comes at a crucial time for European environmental policy with the EU Parliament and European governments discussing the Commission’s plans to replace the current free distribution of carbon-dioxide permits with full auctioning to the power sector from 2013. In other sectors full auctioning is to be phased in by 2020.

Felix Matthes from Oeko Institut Berlin: “The EU ETS has become the flagship of European climate policy. Its development has silenced those critics who claimed that European ambitions on climate change were all talk and no substance. However, Europe must urgently draw consequences from the experiences we made with the EU ETS during the last years.”

The ETS in its current design is, however, far from perfect. Therefore the European commission has proposed to abandon repeated free allowance allocation and to instead sell allowances to industry. The report explains the economic rationale for auctioning and outlines key findings;

1. Use emission reduction opportunities across all industrial production and by consumers. Free allowance allocation creates distortions for the carbon price signal and reduces the efforts of some sectors to reduce emissions which in turn increases the costs for the remaining economy.

2. Investment in low carbon technologies. Free allowances distort the carbon price and uncertain future allocation rules mean that companies are uncomfortable about investing heavily in low carbon technologies. Auctioning creates a clear and transparent market framework for innovation and investment in those technologies.

3. Fuel poverty. Carbon pricing increases energy costs both with auctioning and free allowance allocation. Auctioning creates government revenue which could be used to address the economic hardship of high energy prices for poor households and to support investment in insulation to reduce energy bills.
4. **Carbon leakage** is only of concern to a very small group of highly carbon-intensive manufacturing activities. For these activities, tailored approaches deal better with leakage concerns than undifferentiated free allowance allocation across all sectors.

5. **Auctions for emission** allowances can be designed pragmatically and simply. The key challenge will be to develop an appropriate and streamlined approach towards an EU-wide harmonization. The successful phase-in of large scale allowance auctions in Europe could gain a strong recognition throughout the international debate on cost-efficient emissions trading schemes.

Karsten Neuhoff from Cambridge University: “If we are not moving from free allowance allocation to auctions post 2012, the EU ETS risks cementing existing industry structures, rather than creating incentives for a transition to a low carbon economy”. This would set a bad precedent for a world about to embrace ambitious climate policy.

ENDS

For media enquiries about the Climate Strategies report please contact either Nick Faith or Belinda Payne at Luther Pendragon on 020 7618 9100.

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The Climate Strategies report is available online at http://www.climatestrategies.org
The following pages are a selection of press cuttings for the reports’ ‘Energy and Climate: Opportunities for the G-8’ and ‘The Role of Auctions for Emissions Trading’

Energy and Climate: Opportunities for the G-8

Media Coverage, July 2008

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A warning that demand for fuels from coal could rise with oil prices

Rising oil prices might mean a return to coal, not more green energy.

Many analysts expect the skyrocketing price of oil to unleash a long-awaited rush to renewable sources of energy like solar and wind. But the oil price is triggering fears among some climate experts that the opposite might be the case.

According to Climate Strategies, an international climate policy network based at the University of Cambridge, one of the likeliest consequences could be a rush to highly polluting technologies to extract more fossil fuels from different sources, including technologies pioneered during the last century to extract liquid fuels from coal.

The problem with these kinds of technologies is that the conversion of hard coal into fuel for automobiles creates significant emissions of carbon dioxide, the main greenhouse gas, as a by-product. Despite hopes of a breakthrough, there are no commercially viable technologies to bury or sequester carbon underground or under the seabed.

A report issued Monday by Climate Strategies, an international climate policy network based at Cambridge, warns that politicians may support technologies like coal-to-liquids to ease the price shocks created by the voracious demand for oil.

The group warns that "any knee-jerk reaction to price rises could actually see an increase in emissions, with the focus shifting to finding new sources of oil and coal-to-liquids technologies that emit up to twice as much CO2." It called on G-8 leaders meeting in Japan next week to find responses to rising oil prices that help to curb climate change, rather than undermining those efforts.

How likely do you think it is that citizens will want their governments to pursue a new set of policies aimed at producing more fossil fuels? Would cheaper gasoline and diesel be too enticing? Or will citizens help to steer their politicians toward other priorities?
G8 should take key steps to encourage post-Kyoto deal: think tank

G8 leaders need to push ahead with efforts to find agreement on limiting greenhouse emissions and any action to deal with high oil prices should bolster the fight against climate change rather than undermine it by funding dirty technologies such as coal-to-liquid, a new report urges.

Climate Strategies, a climate policy think tank network based at Cambridge University, said attempts to deal with surging crude oil prices, such as a shift to new more carbon intensive sources of oil and coal-to-liquid technology, could drive up emissions.

Leaders of the G8 nations and five big developing world economies, Brazil, China, India, Mexico and South Africa, are gathering in northern Japan later this month, where the rising price of fossil fuels and combating climate change are high on the agenda.

"The G-8's central task is to promote synergies between the concerns about energy security and greenhouse gas emissions; its central outcome must ensure that responses to global oil prices support rather than undermine progress on climate change," said Michael Gould, chairman of Climate Strategies and chief economist of the Carbon Trust.

The report added: "The (G8) summit must accelerate efforts to reduce dependence upon oil without increasing greenhouse gas emissions from other energy sources. There is a significant risk that responses to high oil prices could increase greenhouse gas emissions, through resort to technologies such as coal-to-liquids which could double the carbon intensity of transport fuels."

The report identified several areas that needed to be addressed by the G-8 and followed up with commitments afterward so that an international climate deal can be reached at Copenhagen in December 2009.

Climate Strategies said that supported by G8 commitments on technology, financing and capacity-building, major developing country emitters should sign up to legally binding sector-specific goals, such as a target for improving energy efficiency and carbon-intensity, tougher performance standards for technology and reducing emissions from deforestation, a move that could prompt a positive response from the US.

However, Climate Strategies warned that efforts to agree a successor to Kyoto at the Copenhagen summit could fail if all major decisions were put off until next year, and urged the G8 meeting to agree on specific steps and structures to cut global emissions.

"Pushing off all major decisions until next year would jeopardise the internationally agreed upon goal of concluding a climate agreement in 2009. The post-2012 climate negotiations are politically and technically complex. Trying to resolve all major issues in the calendar year 2009 would strain the international process."

A Japanese newspaper reported today that a draft of the G8 agenda shows that developed countries may agree to set up a fund of $10 billion to finance clean technology projects.

The report adds that the G8 draft agenda includes discussion of quantified medium-term national targets to reduce GHG emissions by 2020-2030 and a long-term goal to slash emissions by 2050 although no specific reduction figures are included in the document.
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Critics of EU Emission Caps Gain Blocking Minority (Update1)

By Katya Andruz

Oct. 6 (Bloomberg) -- Poland has convinced enough other European Union members to block plans that would allocate all carbon-dioxide emission permits for electricity companies by auction from 2013, Environment Minister Maciej Nowicki said.

Greece, as well as Lithuania and Estonia have joined opposition to the proposed plan along with Slovakia, Hungary, Romania and Bulgaria, Nowicki said in an interview today. The countries have a combined 93 votes in the Council of Ministers, more than the 91 votes necessary to form a blocking minority in a vote expected on Oct 20.

The countries oppose EU plans that would force power producers to buy all their emission permits beginning in 2013, arguing electricity prices would rise too quickly and hurt their economies as they try to catch up with the richer member states. The dispute may prevent the 27-nation bloc from reaching an accord by a self-imposed deadline of the end of this year.

"We're not at all happy about the EU's proposals, and we have found other countries similarly critical," he said while attending a conference. "But the numbers could still change before we reach the final vote."

According to Climate Strategies, a group of climate policy specialists based at Cambridge University in the U.K., the EU must hold out for the tougher measures now planned, "despite intense pressures to water down current proposals," it said in a report published today.

"If we are not moving from free allowance allocation to auctions post-2012, the EU emission trading scheme risks cementing existing industry structures, rather than creating incentives for a transition to a low carbon economy," said Karsten Neuhoff in the report. "This would set a bad precedent for a world about to embark on ambitious climate policy."

Poland uses coal, which emits more than twice as much CO2 as natural gas when burned to generate electricity, to produce about 93 percent of its power. Greece is also heavily dependent on coal for electricity production.

PREVIEW - EU vote weighs carbon trading riches

Gerald Wynn and Pete Harrison

LONDON/BRUSSELS - European Union lawmakers are likely on Tuesday to support sweeping cuts in carbon emissions from coal plants, and tweak EU climate change proposals to ease costs for industries staring at recession.

The vote on "Super Tuesday" will set the EU Parliament position on how to spend 30 billion euros ($40.77 billion) or more that EU member states will earn annually from selling carbon emissions permits from 2013.

Until now, utilities have received most permits free, landing them billions of euros in windfall profits. From 2013, they will have to buy them in state-run auctions which will divert the money to member state coffers.

Tuesday's vote will set the tone for negotiations with EU leaders ahead of a final agreement which France, holders of the EU Presidency, wants to wrap up this year.

"It's as important as any vote in the European Parliament for many years," said John Ashton, climate change representative at Britain's foreign ministry, referring to the prospect for massive financial commitment to fighting global warming.

The vote could back 10 billion euros aid for an untested technology called carbon capture and storage (CCS), which many scientists and economists consider the closest thing to a silver bullet to fight climate change.

That would be by far the world's biggest endorsement of CCS, and pour subsidies into companies which aim to trap the greenhouse gas carbon dioxide from coal plant smokes stacks and then pipe them underground -- including engineering and oil and gas companies as well as utilities.

Lawmakers will also vote on tougher regulations which, if agreed, would set such tough limits on power plant emissions that they would effectively prevent any new-build coal plants without CCS -- either from 2012 or 2015.
Poland Leads Charge to Delay European Climate Reforms

By James Kanter

The Mysłowice coal mine in Poland. The country claims that new E.U. climate rules are disproportionately burdensome on the former East Bloc, which is more dependent on coal. (Photo: Piotr Malecki)

The E.U. created the world’s largest emissions trading market in 2005 to force heavy industries to cap their pollution levels. Next on the E.U.’s agenda: switching to 20 percent renewable energy and cutting greenhouse gases by 20 percent by the end of the next decade.

While the E.U.’s efforts to date have not really helped to cut emissions very much, policymakers in Brussels have been doggedly trying to improve the system by making it even more expensive to burn fossil fuels — and coal in particular.

The most contentious part of the reforms currently under consideration would make the industries covered by the system buy the majority of their permits to pollute by 2013.

Unsurprisingly, European industries for which this would be most costly — like steel manufacturers — have been strenuously lobbying to water down the measures. But what is more ominous for the future of European climate leadership is that some countries, led by Poland, are now pulling up a fight themselves.

Poland generates almost all its electricity from highly polluting coal. If the price of emitting goes up dramatically, that would force Polish utilities to spend more on complying with the regulations than utilities in, say, France, where the majority of electricity comes from nuclear power, which produces little CO₂.

A week ago, Poland reached an accord with Hungary, Slovakia, Bulgaria and Romania that called for a more gradual approach to the reforms.

In a joint statement, ministers from those five countries said that making it too expensive to use coal (which can be mined domestically in some EU countries) would only serve to weaken their energy security by pushing them to use natural gas. While natural gas may be less polluting than coal, it would make these countries — former Soviet bloc states — more reliant on gas imports from Russia.

Furthermore, the countries said that utilities in their countries would be at a disadvantage to Western European utilities, which are wealthier and could more easily afford to buy their pollution permits. The measures threatened to "external competitiveness of the European industry, labor market and financial situation of households," the ministers warned.

On Thursday, Poland reportedly reached a similar agreement with Greece — an alliance that could give the countries opposed to tightening the rules enough voting power to stall the "climate package" as it is known. Campaigners who favor implementing a robust climate package now face a tough fight to bring Poland and five other nations back on board.

Already they are warning that failing to do so could have global repercussions, because E.U. governments would be less able to push other governments into taking similarly ambitious measures during negotiations in December at the United Nations Climate Change Conference — which takes place in Poznan, Poland.

Such a failure would embarrass Europe's status as the leading player in trying to agree a global agreement on climate change, said a report issued on Monday by Climate Strategies, an international climate policy network based in England.

Climate Strategies encouraged governments, like the one in Poland, to take into account opportunities to make money from selling allowances to pollute, rather than giving them away for free. Selling the allowances "creates government revenue which could be used to address the economic hardship of high energy prices for poor households and to support investment in insulation to reduce energy bills," the group said.

While promising more money is often an effective way of bringing reluctant parties on board, there has been little sign so far that this incentive is enticing enough for the governments to change their stance.
EU's climate package 'in crisis'

Roger Harrabin

The EU's attempts to lead the world to a new deal on climate change will crumble unless its current policy crisis is resolved, a study has warned.

As economic turmoil continues, there are widespread fears about the effects of the EU's climate package.

A group of states led by Poland has assembled a blocking minority to protect their industries from having to buy permits to pollute.

Poland, which relies on coal for more than 90% of its electricity, says the scheme will reduce the nation's energy independence and put up prices.

But a report from policy network Climate Strategies warns that if the group succeeds, the EU will lose its most powerful weapon in the fight for a new climate treaty.

Climate Strategies says that the existence of carbon pricing in the EU puts up electricity prices anyway - so it's important that polluters all pay into a fund that could be used to cushion the poor from the price rises.

Stern warning

The report has been published at the same time as influential economist Sir Nicholas Stern warned that it would be a serious mistake to water down climate policy.

In an interview with the BBC's Today programme, Sir Nicholas compared the current credit crunch with climate change:

"One thing that we must have learnt from this story of the very serious financial problems facing the world is you have to look ahead and think about the consequences of your actions."

He added that the current crisis had been in the making for the past 10-15 years.

"If we had thought carefully over the interim period, we could have avoided this.

"We have to treat climate change in the same way. If we leave this for 15-20 years, we will be in very difficult circumstances."

Instead of changing the rules of carbon trading, which were an essential part of the EU climate scheme, Professor Stern said other European nations had to help Poland and its allies with their predicament.

The bid from the Polish-led group is one of several attempts to dilute the EU's climate policy.