The Challenging Task of Negotiating a Climate Protocol

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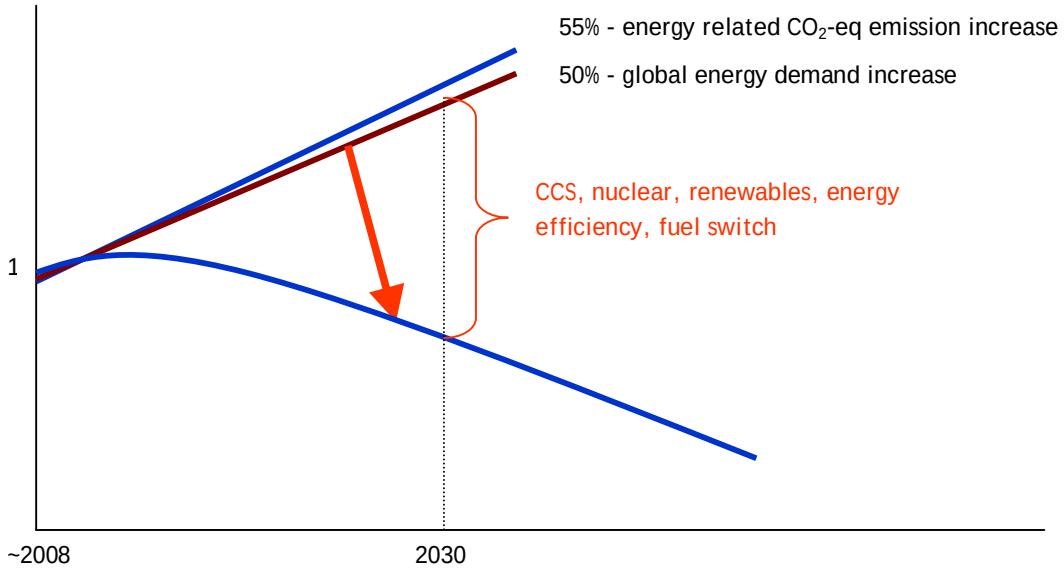
1. Our Climate and Energy Challenge

According to the International Energy Agency (IEA), in their *Energy Technology Perspectives 2008* report, global energy demand is likely to double from present levels between 2030 and 2050 (IEA, 2008). Without additional dedicated climate policy measures, this energy demand development will be accompanied by a 55% increase of energy-related CO_2 emissions. However, from IPCC (2007) it has also become clear that in order to keep the concentration of CO_2-eq in the atmosphere at the level of 450 ppm,[1] industrialised countries would need to reduce their emissions to below 1990 levels in 2020 by 25% to 40%, and by 2050, global CO_2-eq emissions would need to be halved (below 1990 levels). The Figure below shows the challenge described above.



[1] Staying below the 450 ppm concentration level would help in preventing average global temperatures from rising by more than 2°C above pre-industrial levels, which is considered a maximum temperature increase to avoid irreversible damage to global climate and ecosystems and which has become an official policy objective of the EU (note that an increase in CO_2 concentration to 550 ppm is projected to lead to an average temperature increase of ~6°C)

In order to be able to move from a +50% to a – 50% CO_2-eq. emissions trend, IEA (2008) expects that the following annual technology investments will be needed globally to meet global energy demand in a sustainable manner, while keeping economic costs at minimal levels:

- 30-35 coal-fired plants (500 MW) equipped with CO_2 capture and storage (CCS),
- 1-20 CCS gas-fired plants (500 MW),
- 24-32 nuclear plants (1000 MW),
- Hydro capacity (13,000 MW),
- 30 – 100 biomass plants (50 MW),
- 3000-14,000 on-shore wind turbines (4 MW),
- 775-3,750 offshore wind turbines (4 MW),
- 50 – 130 geothermal power units (100 MW),
- 115 – 215 million m^2 solar photovoltaic panels, and
- 45 - 80 concentrating solar power plants (250 MW).

As a consequence of this least-cost pathway, IEA expects that between now and the year 2050 around 19% of the required CO_2 emission reduction will be achieved through CCS, 6% through nuclear energy, 21% through renewables, 7% through power generation efficiency and fuel switching, 11% through end-use fuel switching, 12% through end-use electricity efficiency and 24% through end-use fuel efficiency.

This challenge requires an ambitious climate policy for the next couple of decades with a clear long-term (*e.g.* for 2050) CO_2-eq emission reduction target adopted within the UNFCCC/Kyoto Protocol negotiation framework, and which is supported by substantial mid-term emission reduction objectives.

2. Climate Negotiations as a Complex Game

The first UN-level agreement on climate change was achieved in 1992 at the UN Conference on Environment and Development (UNCED), held in Rio de Janeiro, Brazil. This agreement, the UN Framework Convention on Climate Change (UNFCCC), contained a first set of principles for future climate policy making and, among others, established the Conference of the Parties (COP, with countries that had ratified the UNFCCC) as an annual session to further develop an international climate policy regime.

The first concrete result of the COP was the Kyoto Protocol of 1997, which contained quantified emission reduction or limitation commitments for the group of industrialised countries listed in Annex B of the Protocol, while developing countries were exempted from such commitments. In the Kyoto Protocol country commitments have been expressed in terms of national emission budgets which are expressed as a percentage of countries' CO_2-eq emissions in 1990. The Kyoto Protocol entered into force in 2006, after it had been ratified by enough countries to cover at least 55% of the 1990 CO_2-eq emissions in industrialised countries. A major disappointment during the ratification process was the reluctance of the Clinton-Gore administration to send the Protocol for ratification to the House of Representatives and then the eventual decision by the Bush-Cheney administration to step out of the Kyoto Protocol process.

In Montreal, in 2005, the COP began the negotiations on a new, post-Kyoto climate protocol, which led to a Plan of Action in Bali (Indonesia, 2007) for finalising negotiations on a new Protocol by 2009 when the COP will meet in Copenhagen (Denmark). This year, the COP will meet in Poznan (Poland) and this will give an important indication of progress made thus far and work that remains to be done.

Climate policymaking is complex because climate change is a global problem. Unlike the issue of reducing emissions of ozone-depleting substances during the 1980s-90s, no single sector can be held responsible for the increase in CO_2-eq emissions (heat, electricity, industry, forestry, transport, agriculture, *etc.*, all contribute to these emissions). Another global aspect is that greenhouse gases mix evenly in the atmosphere and emissions of CO_2-eq have an impact on all regions in the world. Moreover, since countries are sovereign states, there is no supranational government to decide on commitments, policies and measures and enforcement regimes. The main body to govern the development of an international climate policy regime is the UN, which is an intergovernmental organisation without supranational powers. Addressing climate change is furthermore hampered by the problem that the alternatives to fossil fuels are still relatively expansive. Finally, climate change is seen by many politicians as a long-term problem and is often considered less urgent than, *e.g.*, the present financial crisis and looming economic recession.

Usually, according to game theory, the size of a coalition (*i.e.* of countries) is determined by the so-called marginal country, for which the costs of joining the coalition are higher than the benefits.[2] This implies that a coalition would become smaller if the required actions were more stringent and therefore would lead to higher costs.

However, given the global nature of the climate change issue, the climate policy coalition must have a global scope. After all, should a climate coalition be limited to a small group of countries, then prisoners' dilemmas may occur when countries within a coalition hesitate to undertake measures because the non-coalition members would freely benefit from that; also, the coalition countries would still suffer from the damage caused by emissions in non-coalition countries. The implication is that, without an overarching authority, the cost-benefit assessment for a global climate policy must be favourable for basically all countries or regions in the world.

In practice, the objective to reach a global climate policy deal has reduced the stringency of the environmental targets. In 1992, the UNFCCC was globally supported but only contained non-legally binding stabilisation objectives for industrialised countries and the adoption of the principle of 'common but differentiated responsibilities'. In 1997, the Kyoto Protocol contained legally binding emission reduction commitments, but for industrialised countries only, and these commitments could largely be met through international emissions trading; especially the Clean Development Mechanism (CDM) was a benefit for developing countries to join the coalition of Kyoto. Since 1997, in order to make ratification of the Kyoto Protocol possible, pressure from key industrialised countries has led to a larger scope for carbon sequestration through land use, land-use change and forestry activities and a weaker compliance regime than initially envisaged.

Among the achievements of the Kyoto Protocol are the following. Overall CO_2-eq. emissions in industrialised countries have been reduced by 4.7% since 1990, although this trend is strongly influenced by the emission reductions caused by the disintegration of the formerly centrally planned economies in Central and Eastern Europe and the resulting phase-out of inefficient energy and industrial production technologies and techniques. Recent data presented by the UNFCCC Secretariat shows that CO_2-eq. emissions in the groups of industrialised countries (or Annex I Parties as per their listing in Annex I of the UNFCCC) have grown again by 2.3% since the year 2000. The UNFCCC Secretariat, however, rightly states that these figures cannot be considered a compliance assessment. For instance, the figures to do not include the emission reduction credits that Annex I Parties purchase through CDM projects in developing countries and which they can use for complying with the Kyoto Protocol commitments. As per November of this year, the CDM pipeline

[2] Obviously, determining costs and benefits is a country-context specific issue, where for some countries costs and benefits are largely determined by the threats of climate change (*e.g.* countries with low coastal areas), whereas other countries may be led in their cost-benefit assessment by industrial competitiveness and international trade effects.

contained over 4150 projects (projects under validation, officially registered projects by the CDM Executive Board and project waiting for registration), which together have the potential to generate around 2.8 billion tonnes CO_2-eq emission reduction. This, too, can be considered an achievement of the Kyoto Protocol.

On the negative side, it must be noted that the Kyoto Protocol has had relatively little impact on enhancing sustainable development on the African continent and in low-income developing countries in Southeast Asia and Latin America. For instance, of the abovementioned CDM projects, around 90% of the projects are (planned to be) implemented in only five developing countries (China, Brazil, India, Mexico, and South Korea). Based on this, it can be concluded that the Kyoto Protocol has not been able thus far to adequately promote low-carbon technology development and transfer to developing countries.

3. Current Climate Policy Negotiations

Since December 2005, there have been negotiations on a post-Kyoto climate policy regime. Although not a Party to the Kyoto Protocol, the USA participates in these negotiations via discussions within the context of the UNFCCC; a second negotiation track takes place within the context of the Kyoto Protocol (without non-Kyoto Protocol Parties) with the objective to evaluate the Protocol with a view to its continuation into a post-Kyoto regime. Both negotiation tracks develop simultaneously and in practice interact during the COP sessions.

At Bali 2007, the COP agreed on the objective to complete negotiations on a post-Kyoto regime by December 2009 (in Copenhagen). The Bali Action Plan also contains the objective that the successor of the Kyoto Protocol will contain stronger emission reduction commitments for the present group of Annex I Parties (*e.g.* 25% to 40% emission reduction below 1990 levels in 2020). The EU has proposed a unilateral CO_2 emission reduction of 20% below 1990 levels in 2020, which can be extended to a –30% target if other industrialised countries also adopt significant reduction targets.

The position of the USA is as of yet unclear. During the recent years, several climate policy acts have been submitted to the House of Representatives, which generally aimed at bringing US CO_2-eq emissions back to 1990 levels, at best. When realising that in 2006 US CO_2-eq emissions were around 15% higher than in 1990, it becomes clear that for President-elect Barack Obama it will be a difficult task to even return to 1990 levels, let alone that the next US administration would follow the EU proposals of 20% to 30% emission reduction below 1990 levels. In his paper for the Transatlantic Climate Policy Group, Elliot Diringer (PEW Center on Global Climate Change) argued that it is unlikely that the Obama Administration will present their new climate policy package before 2010.

Developing countries have agreed to commit to mitigation action that can be measured, verified and reported on. What this action will look like is still an open question though. Agreeing on national emission reduction targets for rapidly developing countries seems to be a very difficult path. First of all, developing countries as a block have thus far taken the position that they would only be ready and willing to adopt quantitative emission reduction targets once industrialised countries have strongly reduced their CO_2-eq emissions (thereby relying on the UNFCCC principle of common but differentiated responsibilities). However, a second complexity is that a uniform emission reduction percentage would be really difficult to determine given the strong differences between countries like China, Brazil, Mexico, India and South Korea. As Höhne *et al.* (2008) have recently shown, a strategy to support modest investments in energy technologies in these countries would lead to a 6% CO_2-eq emission reduction below business-as-usual in Brazil and to a 36% emission reduction below business-as-usual in Mexico. Therefore, any quantified reduction

commitment would need to be differentiated between countries, which would open another negotiation game within the overall climate policy coalition building process.

One way to give meaning to *action* while avoiding national targets is by sectoral targets where countries, instead of national emission budgets, would have targets in terms of *e.g.* CO_2-eq emissions per unit of product, which would be tradable. Another possibility would be to agree with developing countries on packages of policies and measures which would favour low-carbon technology investments and help countries in following a sustainable development path. The implementation of such policies and measures would then need to be financially supported by industrialised countries.

A third option for committed actions would follow the example of the Central and Eastern European countries which had to incorporate the *Acquis Communautaire* 'rules and standards' in their national legislation before their accession to the EU in 2004 and 2007. Similarly, the present climate negotiations could lead to a kind of *Acquis* which all countries (including industrialised countries) would need to comply with; for developing countries implementing the *Acquis* could take place in a phased manner, similar to the granting periods for EU New Member States. One example of such an approach could be that countries agree that they will only invest in best available energy technologies or techniques (similar to the BAT standards set for the EU by the IPPC).

Finally, action by developing countries could be based on an extension of the CDM. One idea suggested by Müller and Ghosh (2008) is to retire CDM emission reduction credits from the registries of buying industrialised countries, so that instead of the present carbon-neutral CDM co-operation, a 'positive carbon' effect would result: an industrialised country invests in a CDM project, reduces CO_2-eq. emissions, receives carbon credits in his registry and subsequently retires these so that they will not count for compliance purposes. An important advantage would be that the system is based on the already established CDM infrastructure. One problem though is that it would need incentives for industrialised country parties to invest in CDM projects without being able to use the CERs for its compliance with post-Kyoto commitments.

The CDM could also be combined with a UN-led capacity building programme to help developing countries in formulating sustainable, low-carbon energy strategies. The recently published ENTTRANS study (http://www.jiqweb.org/enttrans-final-report.pdf) has provided several recommendations for that. The idea is that the post-Kyoto Protocol contains a support programme to assist developing countries in assessing their energy service needs (*e.g.* heat, electricity, cooling, industrial energy, *etc.*) and in finding suitable low-carbon technologies to meet those needs. Should the implementation of these technologies be hampered by blockages in a country's market system or by unfamiliarity with the technologies, then the CDM could help in accelerating the transfer and implementation of the technologies.

4. Facilitating Coalition Building and the Road Forward

In 2006-2007, the topic of climate change had great momentum with the *Inconvenient Truth* documentary by Al Gore and the publication of the Fourth Assessment Report by the IPCC, followed by the Nobel Peace Prize for Gore and the IPCC. Climate change definitely seemed to have moved into the centre of policy making. Although less strong as about a year ago, even during the present time of looming economic recession, climate change still is an important issue. However, and that will become the key question, to what extent will this increased sense of urgency be translated into a new climate protocol with stringent environmental targets and policy making within a global coalition?

Some examples of increasing the stringency of agreements have been discussed above and in general the emissions trading concept (through quota or projects) has been demonstrated as a successful tool to increase cost-effectiveness of abatement action. Another potentially important tool to streamline negotiations could be an ambitious package to support developing countries vulnerable to the adverse effects of climate change. Such a package may increase the willingness to undertake mandatory mitigation action in some non-Annex I Parties. Similar benefits could be expected if the finance 'building block' (as identified by the Bali Action Plan) were established as a substantial fund that would strongly support developing countries' activities leading towards a sustainable energy future.

On these issues the Poznan COP session might provide clarity. However, an important obstacle remains the willingness of Annex I Parties to formulate an ambitious emission reduction target towards 2020. The present difference between *e.g.* the US CO_2-eq emission growth path and the EU 20 to 30% emission reduction objective is very large. Moreover, it is generally assumed that without substantial 'meaningful participation' (to use that old terms from the times of the Kyoto negotiations again) by rapidly developing countries, it is unlikely that the USA will ratify a post-Kyoto Protocol. Therefore, in order to bring the USA on board, the EU might have to accept a less ambitious overall 2020 target for Annex I Parties and might increase the pressure on developing countries to define and accept mandatory mitigation action.

Whether this is desirable remains to be seen, but it might well be that the Copenhagen COP session will not be the end date for the post-Kyoto negotiations, but an important milestone to agree on the architecture for a new protocol: *e.g.* defining the nature of mandatory mitigation action by developing countries, agreeing on the role of forestry and forest protection in the new protocol and the structure of the finance 'building block', and on the adaptation package. The following COPs could then be used to 'fill in the figures'.

The advantage of such a phased approach would be that the decisions on the economically most sensitive issues (*i.e.* emission reduction commitments and actual financial contributions by industrialised countries) would be postponed until after the economic turbulence and the completion of Obama's first climate policy plan. This may enable Parties to agree on a more stringent deal later on. The risk of this approach is that it might provide less guidance to the business community for their decision-making on whether to invest in low-carbon technologies or not. It might also create uncertainty for carbon markets.

In addition, there is the issue of timing. Should Copenhagen lead to an agreement on the architecture of a post-Kyoto Protocol with the figures being filled in during the years thereafter, then the time left for ratification of the new protocol becomes increasingly shorter. In case a new protocol will define 2020 as a target year, then there might be enough time left to enable the protocol to entry into force. However, in case again a five-year crediting period (or even longer) would be agreed for, *e.g.*, 2015-2020, then the remaining time is really short.

The most important challenge within the present negotiations, irrespective of when a post-2012 protocol will be agreed upon, is that all countries (or negotiation groups) agree on a global, long-term strategy towards at least halving CO_2-eq emissions against the backdrop of an increasing global energy demand by 2050. Such a long-term strategy within the COP context (including a division of tasks between industrialised and developing countries) has thus far been absent and if this were the outcome of the Poznan-Copenhagen path, then it could be nicely backed up during 2010-11 with a new protocol covering the mid-term years 2015-2025.

References

Diringer, E. (2008), The U.S. Election and Prospects for a New Climate Agreement, PEW Center on Global Climate Change for the Transatlantic Climate Policy Group

Höhne, N.,, Ch. Michelsen, S. Moltmann, H. E. Ott, W. Sterk, S. Thomas, R. Watanabe, with contributions from S. Lechtenböhmer, K-O. Schallaböck (2008), Proposals for contributions of emerging economies to the climate regime under the UNFCCC post 2012, Environmental Research of the Federal Ministry of the Environment, Nature Conservation And Nuclear Safety, Research Report 364 01 003, UBA-FB 001200

International Energy Agency (IEA), 2008. *Energy Technology Perspectives 2008,* http://www.iea.org/w/bookshop/add.aspx?id=330

Müller, B. and P. Ghosh (2008), Implementing the Bali Action Plan: What Role for the CDM?, Oxford Energy and Environment Comment, Oxford Institute for Energy Studies, Climate Strategies.

UNFCCC (2008), UNFCCC data 2008: highlights, UNFCCC press conference, Bonn, 17 November 2008 (by Sergey Kononov)

Whalley, J. and S. Walsh (2008), Bringing the Copenhagen Global Climate Change Negotiations to Conclusion, CESifo Working Paper No. 2458, Category 7: Trade Policy.