

## **Charting a path to sectoral mechanisms**

The CDM will only get us so far; entire developing world industry sectors need to be brought into the carbon market. **Richard Baron** and **André Aasrud** consider the why and how of sectoral crediting and trading.

We are now in the final stretch of negotiations for a post-2012 climate change policy framework. The political and technical complexity of the UN Framework Convention on Climate Change (UNFCCC) negotiations is daunting and it is therefore time to come back to the fundamentals of a successful global mitigation strategy. All projections concur on one point: the world will never get on track to stabilise the global climate if policies do not send a strong price signal to emitters of greenhouse gases. It is also clear that the current apparatus is not nearly adequate. New market mechanisms are needed to achieve the required global mitigation goals.

A cursory examination of the global electricity sector illustrates this vividly. For example, to reach a scenario of stabilising carbon in the atmosphere at 450 parts per million (ppm), the International Energy Agency (IEA) *World Energy Outlook 2008* projects that carbon dioxide (CO<sub>2</sub>) emissions from fuel combustion need to be cut by 14.8 GtCO<sub>2</sub> by 2030 compared with business-as-usual projections, with 9.7 GtCO<sub>2</sub> in electricity alone.

In that sector, such reductions would imply a 60% and 50% departure from business-as-usual inside and outside the OECD, respectively. If OECD countries managed to bring their power sector emissions to zero by 2030, an unlikely outcome, the current trend in electricity demand and fuel choices in developing countries would still make 450 ppm unachievable.

The Clean Development Mechanism (CDM) seems unable to tackle this problem. With a total pipeline of some 2.9 GtCO<sub>2</sub>, adjusted for projects that were not launched and others that are unlikely to fully deliver, the CDM ought to generate some 1.2 GtCO<sub>2</sub> of carbon credits by 2012, with some 0.4-0.6 GtCO<sub>2</sub> in power generation – and very little through end-use electricity savings. This is at most a 1% dent in the 60 GtCO<sub>2</sub> that electricity generation will have released in developing countries over 2003-2012. Without denying the achievements of the CDM on many fronts, its project-by-project approach seems insufficient to deliver necessary GHG mitigation in developing countries.

Developed countries have realised the CDM's shortcomings and have tabled proposals at the UNFCCC to expand the international carbon market established by the Kyoto Protocol. In an ideal world, every country would adopt a national target, set emissions caps on key sectors and installations and allow these to trade internationally. However, few developing countries are likely to do so, which has spurred consideration of mechanisms to engage countries, at the industry sector level, on the road to mitigation. There is also eagerness to reform the existing CDM, e.g. with standardised multi-project emissions baselines to lower transaction costs, and possible discounting of certified emission reductions to enhance the environmental benefits of the mechanism.

However, between a reformed CDM and national caps, two concepts have been proposed to scale up the carbon market: sectoral crediting and sectoral trading. (Some governments argue that a focus on

industry sectors may be too restrictive and suggest applying crediting or trading to nationally-appropriate mitigation actions, or ‘NAMAs’.)

Under crediting, emissions baselines for sectors could be drawn up as emission intensity targets (expressed as a tCO<sub>2</sub>-equivalent per megawatt hour, tonne of cement or steel etc.), or as absolute amounts of emissions in the sector – a cap. Credits would be issued after verification of the performance of the sector against its pre-agreed baseline. Some governments propose that the sectoral crediting target could be of a non-binding (or ‘no-lose’) nature: a country would be credited if its sector beats the sectoral baseline and would not be penalised otherwise. Sectoral crediting may have radically different interactions with carbon finance from those we know today in the CDM context. We come back to this issue below.

Trading would differ from crediting on several grounds: based on an absolute amount of emissions, allowances would be issued to the host country at the outset, with the possibility to devolve these allowances to entities in the sector – much like emissions trading under Article 17 of the Kyoto Protocol has enabled the establishment of the EU emissions trading system.

Essential to these proposals are environmentally ambitious emission baselines. Industrialised countries argue that these are necessary for developing countries to start shouldering part of the global mitigation effort, whereas CDM projects simply shift emissions around to lower compliance costs. With baselines below business-as-usual trends, developing countries would need to contribute to global GHG mitigation before they can generate offsets. However, while baseline setting is a complex yet essentially technical exercise under the CDM, ensuring environmental ambitious sectoral baselines would require some political bargaining between developed and developing countries.

What would be the incentives for developing countries to move from the CDM to these scaled-up market mechanisms? There are, in theory, several advantages with sectoral crediting or trading compared to the CDM:

- Scaling up would lead to a larger volume of credits and carbon market revenues;
- A higher volume of credits could also reduce the transaction costs of bringing credits to the market, once the necessary framework has been established internationally;
- The sectoral mechanisms could lead to increased technology transfer, when mitigation requires it, through economies of scale and a more structured discussion on intellectual property, trade barriers, etc.;
- Countries might also receive direct support to build the domestic policy framework to operate the new market mechanism; and
- Last but not least, when considering the power sector, a sector-based approach ought to give host countries more freedom on technology choices – the CDM currently excludes carbon capture and storage and nuclear, two options that some countries will wish to consider when curbing their emissions.

These advantages may be well understood by governments in developing countries. However, sectoral crediting has triggered some hard questions by carbon financiers on the incentives to invest in actual changes at plant level. An agreement on a sectoral crediting baseline would not alone trigger investment in mitigation. Unlike in CDM projects, an installation that beats the national baseline is not certain to be rewarded with credits for two reasons.

First, bad performance in some installations could cancel out progress in others, because credit issuance would be based on a country-wide assessment of sectoral performance. Second, crediting would depend upon how the government planned to redistribute carbon market revenues to individual entities.

This is where sectoral crediting could differ radically from CDM. To be effective, sectoral crediting requires governments to introduce policy instruments to move each sector in the right direction. However, these instruments may still not directly bring the carbon market revenues to actual investors. The exception may be the case of a single utility managing a country's whole electricity supply.

This heavier responsibility put on host country governments may lead to a more robust strategy: the GHG response to beat the baseline would need to be fully integrated into the country's energy plans – e.g. support to renewables, the closure or retrofitting of less efficient power plants, stricter rules on generation technologies for new plants, and energy efficiency policies to curb demand growth. Private sector money could also be mobilised by proper regulatory measures to reduce GHG emissions, albeit probably at higher cost than what a straight CO<sub>2</sub> price could achieve.

From a cost-effectiveness perspective, therefore, countries would be well advised to go straight to sectoral trading. Trading would create carbon assets *ex ante*. Once devolved to individual entities, the emission allowances would bring the carbon price signal – and access to carbon finance – to investors themselves. We do not, however, ignore the political difficulty of a developing country moving from a win-win CDM approach to an absolute cap on one or several sectors' emissions. Emissions caps are still perceived as putting a lid on production growth. A system that secures broader access to carbon finance is developed countries' best option to foster the adoption of the new mechanisms by developing countries.

Regardless of the option chosen, developing countries may obtain support for the establishment of the needed domestic policy frameworks. Critical in this picture is the collection of data that will be the basis for both a proper baseline discussion as well as the *ex-post* assessment of performance to determine the quantity of credits, or compliance with caps. Environmental integrity should remain of paramount importance if these mechanisms are to play a larger role in global GHG mitigation.

When data is incomplete and the sector is on a rapidly growing emissions path with a risk of locking in carbon emissions over many years – as is clearly the case with electricity generation in developing countries – the IEA, in its recent *Sectoral approaches in electricity* report, considers the usefulness of restricting the scope of the mechanism to new plants first. This would limit data requirements, minimise administrative costs, and improve the quality of the data to support the market mechanism. In electricity, a new-plant-only approach would need to be complemented by policy intervention and support for the upgrade of existing plants, where there is clearly potential for negative-cost mitigation. Countries that have been collecting information to support the CDM in the power sector could, of course, aim for a more comprehensive sectoral goal.

While much remains controversial about the envisaged mechanisms, the scaled-up participation of developing countries in the carbon market appears to be a critical component of a post-2012 climate framework. Some fundamental questions lay ahead, if these mechanisms are to play the role that their promoters put forward.

First is the question of baseline negotiation to ensure their enhanced environmental contribution – i.e., how to ensure that baselines go much beyond business-as-usual? There is a strong and probably legitimate push-back on the use of globally standardised baselines. In sectors such as power, national circumstances loom large – not all developing countries aspire to, or are equipped to use nuclear power; some have large hydro or gas resources, with much lower CO<sub>2</sub> intensity as a result than countries with a high reliance on coal.

Second is the governance of mechanisms that could see many countries and sectors come with competing baseline proposals: a new body will have to manage this work-load under the UNFCCC – and hard lessons need to be drawn from the experience of the CDM Executive Board.

Thirdly, what is the supply-demand outlook with an increased supply of credits, and how will possible restrictions on the demand side play out? For instance, the US House of Representative's Waxman-Markey bill in its current form only allows US emitters to use foreign offsets based on absolute sectoral caps. Last but not least is consistency with the CDM. But while existing investments in the CDM should be protected, it is also important that the CDM does not create a comfortable niche, deterring countries from taking a more active part in global mitigation with sector-based mechanisms.

Looking back at the CDM, governments should anticipate the necessary evolution of whatever mechanism is put forward – e.g. a path from the CDM to sectoral crediting and eventually to trading, whether sectoral or country-based. In the near term, a clear and credible signal will be needed to avoid any damaging policy vacuum for carbon finance as it negotiates the transition from one mechanism to another.

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