Powering renewables with carbon

Renewable energy projects are struggling to tap into the carbon finance promised by Kyoto **Monique Willis**, **Martijn Wilder** and **Paul Curnow** consider the barriers such projects face, and how they can be overcome

The Kyoto Protocol is beginning to mobilise billions of dollars to finance greenhouse gas (GHG) emissions reductions around the world. Funds are beginning to flow particularly to developing countries, where investors are eyeing relatively low-cost emissions reduction projects that stand to generate carbon credits via the Clean Development Mechanism (CDM).

The Kyoto Protocol's CDM is intended to be, *inter alia*, a vehicle for investment and technology transfer (including the transfer of renewable energy technologies) into developing countries. Such investment will help those countries achieve sustainable development by enabling economic growth while also reducing global GHG emissions.

However, despite the intentions of the Protocol's authors, the renewables sector has struggled to benefit from the investment flows that the climate pact is beginning to generate. Despite representing a substantial number of CDM projects so far registered, the sector stands to generate a relatively small proportion of project reductions (see figures 1 and 2).

The 12 months since the Kyoto Protocol entered into force have revealed some hurdles in the operation of the CDM that renewable projects must overcome if the CDM is to enable significant growth of the renewable energy market to meet the growing energy demand of developing countries in a sustainable manner.

The Renewable Energy and International Law Project[1] has produced a report[2] to identify these hurdles, and to explore how they can be dismantled – and, indeed, are already being addressed.

Essentially, the fundamental problem faced by renewable energy projects is that the volume of carbon credits (Certified Emission Reductions, or CERs) they generate is much smaller per unit of output than the volumes created by projects which abate other GHGs such as nitrous oxide (N_2O), HFC or methane.

This is a function of two things: the relatively high equipment cost of most renewable energy projects compared to many industrial or agricultural emissions reduction projects; and the multiplier effects in global warming potential involved in capturing methane or destroying N_2O or HFCs – all of which are much more potent GHGs than the carbon dioxide from fossil fuels that renewable energy projects displace. Renewable energy projects are therefore at a comparative disadvantage in the CDM compared to projects that reduce other types of GHGs.

In addition, renewable energy projects such as wind farms have a long operation life that (for projects being constructed today), will extend far beyond the Kyoto Protocol's first commitment period, which runs to the end of 2012. In the absence of any post-2012 regulatory certainty, CER purchasers have been reluctant to make binding commitments to purchase CERs after 2012. The financial incentive created by CERs has in many cases therefore been insufficient to support renewable energy projects for their entire operational life.

These factors conspire to ensure that carbon finance represents a small fraction of the overall funding requirements of renewable energy projects. As a result, projects that may be eligible under the CDM have had great difficulty attracting the necessary project finance to get them off the ground. CER purchasers tend to simply commit to pay for CERs upon delivery, rather than provide financial support for the underlying project.

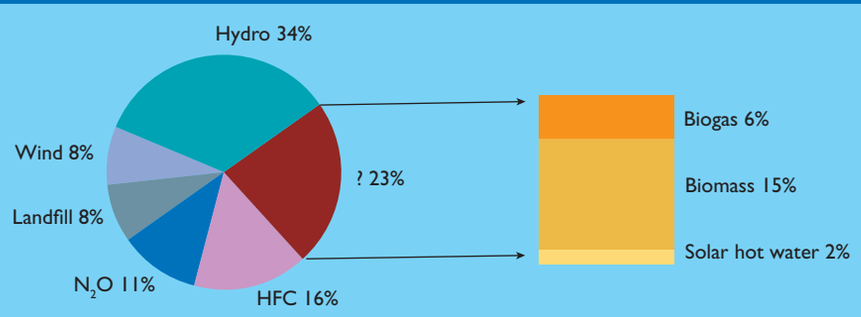
Furthermore, issues such as perceived regulatory, sovereign and political risk in developing countries and the higher level of technology risk involved in renewable energy projects have also posed barriers to attracting significant project finance. In addition, local host country regulations (such as grid connection or fee tariff arrangements) may not provide renewable energy projects with the priority or support needed to make them viable in the existing electricity market.

Also, transaction costs required to register these projects under the CDM (including the costs of external auditors, registration fees, consultants' fees and legal fees for the negotiation of CER purchase agreements and power purchase agreements) may be prohibitively high compared to the volume of CERs expected to be generated by the projects.

Finally, there have been a number of bottlenecks and inefficiencies in the CDM project approval process, largely caused by resourcing issues, which have – in common with other sectors – affected renewable energy projects.

However, a number of important steps have already been taken to address these barriers. For example, the parties to the Kyoto Protocol agreed in Montreal in December 2005 to continue the Kyoto Protocol for a second commitment period, and to negotiate

1. Registered CDM project types, January 2006



Source: Prepared by authors based on registered projects listed on UNFCCC CDM web site, 31 January 2006

1 The REIL Project is an international partnership in association with the Renewable Energy and Energy Efficiency Partnership (REEEP) in association with Baker & McKenzie's Global Clean Energy & Climate Change Practice and Yale University's Center for Environmental Law & Policy. See www.reeep.org

2 *The Clean Development Mechanism: Special Considerations for Renewable Energy Projects*, to be published at http://www.reeep.org/groups/reil.project

binding emission reduction targets for developed country parties. This should provide additional certainty for CER purchasers and investors in potential CDM projects that CERs will have some value after 2012.

A number of developing countries (such as China and Malaysia), when approving CDM projects, have given formal priority to projects which make a clear contribution to sustainable development, including renewable energy projects. In addition, some CER purchasers, such as the Dutch and Austrian governments, have excluded projects without direct sustainable development benefits (such as those that earn credits by destroying HFC23 emissions from refrigerant production) from their portfolios, or are prepared to pay a premium for CERs from renewable energy projects. Such measures give renewable energy projects a comparative advantage compared to other types of CDM projects.

Many developing countries, such as China and India, have begun to develop local regulatory frameworks in addition to the CDM that encourage the implementation of renewable energy projects, such as renewable energy targets or feed-in tariffs. Most importantly, the CDM Executive Board – which oversees the CDM – has recognised that such regulations should not affect a project's eligibility under the CDM (ie, that developing countries should not be 'penalised' in terms of CDM investment because they implement laws and regulations designed to reduce emissions).

Some countries are also exploring the use of domestic taxes to cross-subsidise clean energy and other more sustainable emission reduction projects. China, for example, has set a tax on the proceeds from the sale of CERs from high yield/low sustainable development projects and is using these funds to support sustainable energy programmes. This type of policy can act in conjunction with the host country CDM approval process.

Also, the CDM rules now explicitly allow the 'bundling' of projects to reduce transaction costs. In addition, the parties to the Kyoto Protocol have agreed that renewable energy projects that are implemented as part of government policies or a 'programme of activities' are eligible under the CDM. This additional flexibility in the rules should both reduce transaction costs for renewable energy projects, and also enable some smaller-scale projects that would not otherwise be feasible to be recognised under the CDM.

Finally, the Montreal meeting approved a number of measures that should go some way towards addressing the resources and capacity difficulties experienced in the early years of the CDM.

However, notwithstanding these positive recent developments, there remain a number of opportunities to improve further the market share of renewable energy projects under the CDM by utilising the existing rules:

☐ *Programmatic CDM* As mentioned above, the CDM rules have been clarified expressly to allow programmatic CDM projects. This creates an important opportunity for renewable energy policies and programmes – in particular, those promoting micro-renewables – to be recognised under the CDM. However, the development of such projects will require significant coordination.

Organisations with the capacity to implement programmatic CDM effectively, such as local governments, may not be aware of the opportunities created under the CDM, nor may they have the technical capacity to develop effective baselines. An opportunity therefore exists to build the capacity of local and regional governments.

☐ *Domestic policies* Further work needs to be done to examine how domestic policies that implement CDM architecture and processes in host countries can be enhanced to give priority to renewables projects.

As alluded to above, the CDM rules require that regulations favouring renewables should not be taken into account when developing renewable energy baselines. It is, however, easier said than done to calculate a project baseline in a 'hypothetical scenario' without certain laws or policies ever having entered into effect.

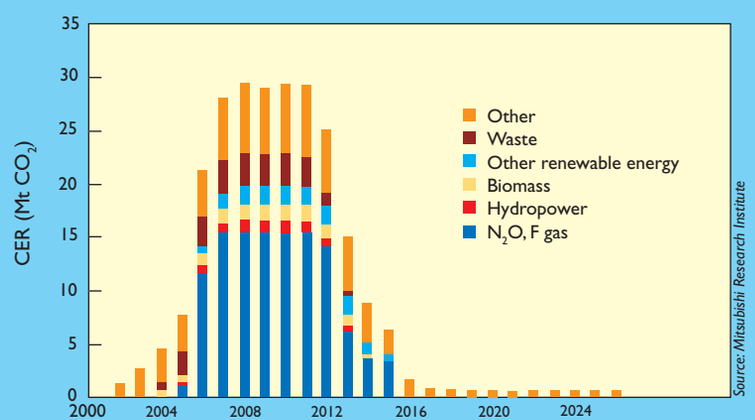
It may be difficult for individual project developers to develop the hypothetical baseline emissions for local, regional or national electricity generation projections. Because many developing countries do not yet have in place sophisticated national GHG inventories, there may be a lack of information available to assist developers to develop their baselines in accordance with the Executive Board guidance.

☐ *Project finance* The carbon market is moving away from the traditional 'pay on delivery' arrangements that were common in the pre-Kyoto market to packages more attractive to CDM project developers. These transactions may include:

- ○ upfront payments for some or all of the CER market value;
- ○ the provision of a loan to the project, with repayments of principal plus interest to be set off against payments owing for delivered CERs; and
- ○ buyers working with banks to offer bundled CER off-take and project finance.

However, while these developments make financing projects easier, renewable energy projects remain at a disadvantage for the reasons given above. In addition, there is often a lack of familiarity among traditional financiers (including local banks in the host country) with the risks of renewable energy technology and the workings of the CDM.

2. Forecast CERs accrued from submitted CDM projects



There is, therefore, an opportunity to build the capacity of such financiers to understand the opportunities offered by renewable energy projects under the CDM. In addition, there may be an opportunity for larger multilateral lenders, such as the World Bank or the Asian Development Bank, to assist local banks to finance renewable energy projects, by 'buying out' the difference between the local banks' acceptable risk/return margin, and the margin presented by renewable energy CDM projects.

Finally, countries should consider how the CDM rules themselves could be amended to give special consideration to renewable energy projects and allow them to compete for CDM investment on a more level playing field.

In conclusion, the CDM can be an effective tool, in conjunction with other national and regional regulatory frameworks, to encourage the development of renewable energy projects. The first year of the Kyoto Protocol's operation has seen a number of barriers identified and addressed, which should have a positive impact on the development and commissioning of renewable energy projects under the CDM.

However, more can and should be done to ensure that the CDM continues to provide opportunities for renewable energy projects to address rising global energy demand while also contributing towards the dual goals of sustainable development and mitigation of climate change. This year and next will determine the extent to which the modifications to CDM rules, regulations and market practice result in a significant increase in the number of commissioned renewable energy projects in developing countries. EF

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