

GIVING CREDIT WHERE IT IS DUE

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The ten day international UN COP 8 meeting in Delhi which took place in October 2002 was dramatic. Not for the negotiations, which were complex and relatively inconclusive, but for the commercial activity on the periphery. The Delhi meeting represented a sharp upward shift in the presence of carbon traders, brokers, project finance folk and consultants seeking opportunities to capitalise on what many expect to be a very large global market.

This article reviews both the tedium of the negotiations and the fizz of the carbon finance activity, and relates both directly to the market opportunity for decentralized energy (DE)¹. It also highlights some fundamental WADE concerns over the emerging shape of carbon credit trading and the switch in emphasis away from essential power sector reform.

THE NEGOTIATIONS – NO FIREWORKS

Perhaps the most significant development in respect of DE was that the Clean Development Mechanism (CDM) became operational, with the COP agreeing on rules of procedures and simplified 'fast-track' procedures for 'small-scale' emission reduction projects. The CDM will channel private-sector investment into emissions-reduction projects in developing countries.

¹ WADE defines DE as high efficiency cogeneration systems (regardless of size, fuel or technology) and decentralized renewable energy, both on- and off-grid.

The first CDM projects are likely to be approved during the first quarter of 2003. More on the CDM later in this article.

Other elements of the Delhi deliberations were as follows:

- Most significantly, there were the first discussions and negotiations on post-Kyoto timeline reduction targets. Little was resolved, this will take some years, but it is probable that targets for the period around 2020 will be both deeper, for those countries which already have targets, and broader, to embrace those that do not. In other words, the longer-term market environment for low emission DE systems looks healthy;
- The guidelines on national emissions reporting standards and emissions registry specifications were completed. This means that countries which wish to participate in emissions trading now know what structures to put in place to assess performance against targets;
- By the end of the COP, 96 countries had ratified the Protocol². Russia, on whose head Kyoto will sink or swim, said it will send the Protocol to its Parliament for ratification in the short-term.

In short, much of the enabling infrastructure for the entry into force of the Protocol is now in place, and the world awaits Russia. The emerging ‘big issue’ for future negotiations is the shape of the climate regime beyond 2012.

THE CORRIDORS – SHARP SUITS APLENTY

Each COP has a series of public side-events organised by business and NGO groups from all over the world. Here is a short list of some of the Delhi side-events:

- *Role of companies and the Kyoto Mechanisms*
- *The Dutch CDM programme: a practical way of doing business; and the Dutch experience with joint initiatives (JI) and emissions trading (ET)*
- *Evaluating commitment period reserve in emissions trading; and accounting for GHG allowances under Japanese accounting standards*
- *A market based mechanism for GHG mitigation*
- *Corporate environmental performance*
- *CDM and Joint Initiative: opportunities for industry*
- *Engaging the private sector in the CDM*
- *Launch of landmark study: climate change and the financial services industry*

² Full details at: www.unfccc.int/resource/kpthermo.html

- *Climate change issues and CDM opportunities in Asia*
- *Preparation on emission trading – experience with GHG monitoring and future outlook regarding GHG monitoring systems*

In short, there was a tremendous amount of activity by those with a commercial interest in emissions trading and the clean energy investment opportunity. The list of companies represented at the COP read like a world top 50 of banks and energy companies. These organisations recognise that where there's emissions reduction, there's business - whether this will be in carbon commodity trading, project development or equipment sales.

This, then, was the highlight of Delhi as far as future DE development is concerned. However, all is not well in this process. WADE has two key concerns:

- The guidelines for small CDM projects, which will enable certain projects to be fast-tracked under, discriminates against certain types of DE project;
- There is a real danger that governments will use the CDM rather than electricity sector reforms to pave the way for cost-effective DE development. This will lead to massive financial waste for both industrialised and developing countries alike.

FAST-TRACK DEFINITIONS DISCRIMINATE AGAINST SOME DECENTRALIZED ENERGIES

The CDM, under the supervision of its Executive Board, is the first of the Kyoto Protocol's emissions trading mechanisms to move forward into practical project activity. Potential CDM projects are divided into 'fast-track' and 'non fast-track', with the former benefiting from simplified procedures, including baseline assessments. Non fast-track projects are expected to be subject to more stringent baseline examination in order to ensure genuine environmental additionality – in other words to more effectively ensure that such projects would not have proceeded in the absence of a CDM crediting mechanism.

The fast-track types in the electricity sector are as follows:

1. Renewable energy projects <15 MWe;
2. Energy efficiency projects which reduce energy consumption on the supply and/or demand side by <15 GWh/year. As WADE understands this definition, high efficiency and decentralised cogeneration projects will qualify;
3. Other small-scale projects which reduce emissions by <15kTCO₂/year.

Table 1 summarises the CDM fast-track project structure:

Type number	Project type	Examples
Type 1	Renewable energy projects up to 15 MWe capacity	<ul style="list-style-type: none"> ▪ 10 MWe windfarm ▪ 5 MWe hydro plant ▪ 15 MWe biomass cogeneration plant ▪ Solar PV home system
Type 2	Energy efficiency projects on supply or demand side which reduce energy consumption by 15 GWh/year	<ul style="list-style-type: none"> ▪ 1.8 MWe baseload gas-fired cogeneration plant ▪ 3.7 MWe intermediate load gas-fired cogen plant ▪ Efficient motor replacement programme
Type 3	Other projects which reduce emissions by up to 15 kTCO ₂ /year	<ul style="list-style-type: none"> ▪ 7 MWe baseload gas-fired cogeneration plant ▪ 14 MWe intermediate load gas-fired cogen plant ▪ Fuel switch project

Type 1 is clear and the simplified arrangements should act as a valuable new incentive for on-site decentralised renewable energy systems, including PV and mini-hydro.

Type 2 is less clear since it is not immediately apparent what size of high efficiency cogeneration plant will be embraced, nor the emissions saving which might result. However, using a general assumption that a cogeneration system results in a fuel saving of around 25% and has an electrical efficiency of around 33%, the type 2 limitation means that the size of a baseload cogeneration plant is capped at around 1.8 MWe and the size of a plant operating at a load of around 50% is capped at around 3.7 MWe.

Based on an annual fuel saving of 15 GWh and a power sector fossil fuel mix (nuclear and renewable plant will normally not be displaced by cogeneration plants) of 59% coal, 12% oil and 24% gas, the annual CO₂ emission saving would be around 3,800 tonnes³. If the same size threshold

³ These are general figures which will be higher or lower depending on national circumstances. They nonetheless give a flavour of what size of project can qualify for the fast-tracking.

applied in type 1 were also applied to high efficiency gas-fired cogeneration plants, i.e. 15 MWe, such a plant operating as baseload would reduce emissions by more than 31,000 tonnes/year. This is a most substantial additional saving than is available through the type 2 definition.

Given that the objective of the CDM is to reduce greenhouse gas emissions as cost-effectively as possible, the restriction on cogeneration, through the type 2 thresholds, makes little environmental or economic sense. WADE is drawing up an analysis which it will present to the CDM Executive Board in order to adjust the limits.

The threshold and definitions for type 3 have created some uncertainty. According to the guidelines, there is nothing to exclude a high efficiency cogeneration plant. On the assumption that such a project could qualify, this would enable a 7 MWe baseload or 14 MWe intermediate load cogeneration projects to benefit from CDM fast-tracking. For the moment, therefore, the definitions suggest that project developers could seek to qualify their decentralized cogeneration proposals as a type 3 fast-track rather than a type 2 in order to build larger projects – and generate greater emission reductions.

THE CDM WILL BE CRUCIAL FOR COMPLIANCE WITH KYOTO

Greenhouse gas emissions in industrialised countries continue to climb beyond the target levels required for Kyoto compliance in 2008-2012. There is some sign of the rate of increase beginning to slow, though this is probably due more to economic slowdown rather than any policy efforts to reduce emissions. It seems increasingly unlikely that Annex I emissions will fall back to target levels during the compliance period.

Even if the US stays outside of the process, compliance can only be achieved through substantial selling of surplus ‘hot air’ permits by Russia, the Ukraine and other east European countries. A key question is the extent to which buyer countries will be prepared to meet compliance through purchase of such ‘hot air’. Some will not do so and others may be pressurised against doing so.

In many scenarios, therefore, Annex I will not comply with its commitments without the buying of potentially substantial amounts of CDM credits from non Annex I countries. The opportunity for the CDM incentive to lead to a widespread development of low emission decentralised energy (DE) systems in developing countries is therefore potentially very great indeed.

One important issue which still requires greater clarity is the balance between project transaction costs and the market value of CDM credits. If Annex I demand is going to be high, as we suggest it probably will be, then this issue will diminish in importance.

To enable projects to go ahead, CDM fast-tracking will have to work effectively and, as we have seen, should spread a slightly wider net in order to capture maximum environmental advantage from DE projects. For those DE projects which cannot benefit from fast-tracking, it is going to be vital that project transaction costs can be kept to a minimum and that individual developing country government support for the CDM process is in place. DE developers will need to track how different countries are responding to the CDM opportunity and should identify those countries which are most CDM-friendly.

If this can be done, there is likely to be a substantial growth in DE project development in non Annex I countries over the period to 2012. But this then begs a fundamental question.

To what extent should the CDM and other emissions trading opportunities be used by governments to make cost-effective those projects which are not economic because of institutional and regulatory barriers?

REGULATORY REFORM FIRST

In WADE's recent 'World Survey of Decentralized Energy – 2002/03', we identified a remarkable similarity in the regulatory environment for DE in those countries which were assessed. In virtually all cases, DE development is severely constrained by a familiar raft of institutional and other barriers.

The assessment also revealed the persistence of these long-standing market, regulatory and policy barriers which tend to favour incumbent utility companies and the maintenance of the status quo – in particular, central power. Examples of these barriers, which occur in one form or another in most countries in the world, include:

- Unduly awkward and costly arrangements for grid interconnection;
- Restrictive regulatory arrangements for non-utility generators of electricity and/or supply of electricity to the grid and/or third parties;
- No or little recognition of the locational value of DE, for example through transmission and distribution (T&D) system capital deferral, grid reinforcement and reduction of grid losses;
- Power sector reform strategies which largely ignore the opportunity for DE and which frequently present price and market uncertainty for investors.

Most of these barriers are directly associated with the lack of effective and fair competition in national electricity markets and a lack of understanding among regulators and policymakers of the opportunity for DE. The current wave of power sector reform is an opportunity to eliminate these barriers once and for all.

If most of these hurdles were to be addressed by national governments in both industrialised and developing countries, there would be an enormous amount of new DE development – worldwide. This is through the simple observation that barriers to DE impose additional costs on potential DE projects which prevent them from becoming cost-effective. These potential projects therefore never see the light of day.

The CDM and other carbon crediting mechanisms, as we have seen, present an exciting new route to economic viability of DE projects through the additional revenue which projects can derive from the sale of carbon emission reductions. However, for governments to use such mechanisms as project incentives instead of removing persistent regulatory pitfalls is like wallpapering over cracks – the underlying problem remains and using other mechanisms to solve the problem simply increases the overall costs of dealing with it.

WADE believes that governments should first address the regulatory hurdles. It makes clear economic sense to do so. Frankly, if Annex I countries were to do this – sadly a most unlikely eventuality – compliance with the Kyoto Protocol might be achieved without undue difficulty. If non-Annex I countries did so but Annex I countries did not, there would still probably be a significant market for CDM credits and it would be the best of those DE projects which were genuinely uneconomic which would benefit most from credit trades.

Governments should therefore take the following two key steps ahead of moves to exploit the significant potential of the CDM:

- First, governments should be encouraged to understand that the level of energy waste from central power generation systems can be avoided by making decentralized energy (DE) solutions a priority model for new electrical capacity development. The best thing that governments can do in the short-term is to eliminate the many regulatory and monopoly-based barriers to DE that exist in almost every country in the world.

- Second, power sector reform must be taken forward in a way which does not inhibit DE. Electricity restructuring provides an opportunity to lock DE into future electricity system structures. Up to now, sadly, incumbent vested interests have generally constrained the development of DE.

TWO WADE PROGRAMMES TO GIVE CREDIT TO DE

WADE has identified two main programme areas which will underpin its work for the next few years – and which underlie the central issues addressed in this article.

ENABLING DE TO DERIVE FULL BENEFIT FROM THE CDM AND OTHER EMISSIONS TRADING SYSTEMS

This article has highlighted how current operational rules for the CDM will mitigate against the development of many high efficiency DE projects unless qualifying rules are adjusted. We need to work to ensure that this is done in the short-term.

Of equal importance is to ensure that developing countries develop the internal capacity to capitalise on the CDM opportunity. This will require training and awareness raising in developing countries, together with the development of mechanisms to reduce transaction costs and, if necessary, bundle projects together. It will also require the establishment of structures to pool carbon credits arising from DE projects to ensure they can derive full value in the world's emerging carbon trading markets.

GETTING POWER SECTOR REFORM RIGHT

So often, power sector reform can mean the privatisation but not the reform of the electricity industry. This article has emphasised the absolutely crucial significance of identifying and removing the many recurring barriers to DE development which occur in almost every country in the world. Ensuring that power sector reform is done in a fashion which eliminates these barriers is a major challenge for WADE and its national affiliates in coming years. We will continue to work to build capacity and expertise in the field of DE regulatory issues and support any effort to organise DE interests in these countries.

CONCLUSION

Many forms of DE are fully cost-effective in their own right and are kept from the market by dated regulatory arrangements which favour traditional means of generating electricity through central power. The key to correcting these profound economic inefficiencies is effective power sector reform which introduces competition that enables the market to select least cost generation options.

The secondary route to DE market growth is through pricing the carbon savings arising from DE projects. The CDM structure goes some way to achieve this but its fast-tracking limits discriminate against some of the most effective carbon mitigation options available today.

The challenge now is for governments and international agencies to improve the effectiveness of power sector reform and carbon pricing tools so that economically optimal DE applications can be fully implemented on a worldwide basis.