The case for a simplified CDM

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It seems as if two different scenarios will be played out in the next five months as 160 nations begin to formulate rules to implement the Clean Development Mechanism (CDM) of the Kyoto Protocol.

In one scenario, signatories to the Protocol will be developing the elements of rules governing the creation of certified emission reductions (CERs) from CDM projects. These rules cannot become 'official' until sanctioned by parties to a ratified Kyoto Protocol, which could be several years in the future. In another scenario, the private sector, driven by custom and practice in the capital and commodity markets, will begin experimenting with CDM architecture designed to minimise transaction costs and promote transparency.

However, there is a fervent hope that the private sector design process will also guide policy-makers charged with developing rules and regulations associated with the origination of CERs.

Efficiency in the capital markets relies on both standardisation of a financial instrument or commodity as well as market architecture that minimises transaction costs and provides transparency. For example, successful spot and futures trading of commodities like wheat depends on uniform warehouse receipts specifying the quality of the underlying commodity.

It is self-evident to market participants that the greater the ambiguity in this process and in the definition of the CERs the higher the transaction costs will be. It is in this spirit that we strongly advocate a streamlined CDM origination process which results in Simplified Emission Reduction Credits (SERCs^{sm}). Participation would be voluntary. This new financial instrument would in many cases provide a lower cost, fast track alternative to the project-by-project analysis required to generate conventional CERs.

What is a SERC^{sm}? Simply stated, it is an emission reduction credit that is measured by the difference between a pre-determined reference emission rate (RER) and the implemented emissions rate (IER) associated with new or modified facilities. Measurement of the IERs would be conducted on a standardised basis.

As a hypothetical example of the SERC calculation process, assume the reference emission rate for electric power generation reflects a conventional gas-fired plant (0.55 tons of carbon dioxide (CO_2) per megawatt hour (MWh)). A newly installed zero-emission solar or wind plant producing 1,000 MWh in a year would therefore earn 550 tons CO_2 worth of SERCs. Independent monitoring and verification would only involve an on-site visit to determine the existence of the facility and subsequent documentation of its production rate. Baselines and additionality would have already been addressed through the use of a pre-determined RER and the IER.

Simply summarised:

$$SERC^{sm} = (RER–IER) * Production = (0.55–0) \text{ tons } CO_2/MWh * 1000 \text{ MWh/year} = 550 \text{ tons } CO_2/year$$

The table below gives a numerical example of a real 50 kilowatt solar facility in Amazonas, Brazil, and illustrates four possible baselines that it could face. It also shows the value of SERCs under a further simplifying assumption that the initial certification is for ten years.

Applying the SERC methodology, the project proponent would use a common global reference emission rate. This would vastly reduce uncertainties and CDM processing costs, while guaranteeing that renewable energy projects receive credits. Without this SERC one could imagine lengthy debates over project-level details among administrators of the host country government, staff of the climate secretariat, the CDM executive board, certifying agencies, NGOs and others. Without an agreed-upon standard, the debate could be endless.

The solar facility cited above could cost between $70,000 and $100,000. However, at a price of $5 per ton of CO_2, this project would yield carbon credits that are worth $1,300–$3,200 (discounted present value over ten years) depending on the RER. A project 50 times the size of this one would yield SERCs with a value of $65,000 to $160,000.

Why is this important? Numerous studies of the AIJ pilot phase conclude that establishing emission baselines and project additionality on a non-standardised, project-by-project basis causes high transaction costs and uncertainty regarding the carbon benefits produced. Initial estimates indicate that the process of defining a CDM project, establishing the case-specific emission baseline, documenting additionality and conducting all required certification, government approvals and registration would cost at least $40,000 for the simplest project types. This does not include the costs of selling these credits in the capital markets. Additional fees for legal, accounting and underwriting might still be required. We will be calling for simplicity in these parts of the process as well. All of this suggests that solar projects that cost as much as $5 million might derive little or no net economic benefit under the conventional CDM process. This is hardly a recipe for success for this important financial innovation.

Once again, we hope that policy makers will hear this clarion call for simplicity. EF

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Alternative credit calculations and value of credits for a 50kW power plant* in Amazonas, Brazil

Possible emission baselines	*Baseline CO_2 per MWh*	*Total tons credited per year (CO_2)*	*Value of credits at $5/ton CO_2*	*Value of credits at $10/ton CO_2*
Coal	0.9 tons	105	Annual: $525 DPV: $3,226	Annual: $1,050 DPV: $6,452
Gas	0.55 tons	64	Annual: $320 DPV: $1,966	Annual: $1,966 DPV: $3,932
Gas combined cycle	0.37 tons	43	Annual: $215 DPV: $1,321	Annual: $430 DPV: $2,642
Hydro	~0 tons	0	0	0

* Estimated production: 117MWh/yr, DPV = present value of a flat 10-year revenue stream discounted at 10%. The solar plant is assumed to run 365 days/year, at 80% of rated capacity for 8 hours/day