

The Clean Development Mechanism and Business Opportunities

Introduction

In the not too distant future it is likely that there will be a global climate policy regime in which firms will have to work within a low carbon system. There will be new developing markets for carbon trading and also opportunities in markets for green technologies. Companies that enter into these new markets will be taking some risks but they will also benefit strategically in learning and understanding these new markets and positioning themselves for the new and developing international markets.

Several countries are making preparations to begin domestic emissions trading such as the United Kingdom and Canada. There are also blocs of countries interested in trading, such as the European Union that is preparing to establish a regional emissions trading system by 2005. It is also now possible to earn credits from projects in developing countries using the Clean Development Mechanism (CDM).

New Zealand is at a crossroads in the promotion and development of climate change business opportunities. The Government intends to ratify the Kyoto Protocol by September 2002. This has far reaching implications for the possible acceleration and utilisation of climate change business opportunities in New Zealand. There is also the issue of whether New Zealand will miss out on those opportunities with few companies in New Zealand understanding the Kyoto Protocol Mechanisms and the opportunities they present.

An example of this is the use of CDM in the technological progress and market penetration of renewable energy (RE). This penetration and development will be central to both the evolution of a price for carbon and the shifting of New Zealand's energy system to a more sustainable energy pathway. The Kyoto flexibility mechanisms have been developed as market-based approaches to respond to climate change, however, they are only a partial solution to a complex problem. This article examines the:

1. The potential business opportunities of the CDM?
2. What is the CDM and its requirements?
3. Funds available for CDM projects
4. A United Nations Industrial Development Organisation (UNIDO) workshop held on industrial CDM projects in Bangkok.

The creation of a CDM market in the Asia Pacific region will bring with it increasing commercial opportunities for New Zealand companies to become involved in a multitude of energy related projects previously not feasible. The role New Zealand companies could play ranges from investors in projects to facilitators or project designers. However, those benefits will only take place if companies become involved in active participation in using emissions trading, JI or CDM.

What is the Clean Development Mechanism?

The 1997 Kyoto Protocol established the CDM to facilitate sustainable development projects in developing countries that would reduce greenhouse gas emissions. The CDM allows transfers of certified emission reductions (CER) from projects in developing countries to developed countries. The latter are then able to use the CERs to meet their quantified emission limitation and reduction commitments. The advantage of this for a company is that a project to reduce emissions in a developing country could cost less than the cost of putting in place a similar project in its home country.

The operational rules and the type of projects to be included in CDM will be finalised by an Executive Board (EB) established to oversee CDM projects. The approval of the CDM at Marrakech last year has opened potential business opportunities for New Zealand companies. Recognition of CDM means developed countries in order to meet their commitments for the first Kyoto Protocol target period (2008-2012) can use CERs from a CDM project that began after 2000, and meets the rules established by the EB. There has already been progress in the CDM with many organisations, countries and companies making preparations for CDM and in some cases beginning projects they believe will meet CDM criteria.

The major advantage of CDM is that developing countries as the hosts can obtain advanced abatement technology and investment. In return, Annex 1 country investors receive a percentage of CERs gained from abatement project activities that can be used to meet their Kyoto commitments from any project commencing after 2000.

CDM Project Activities Requirements

CDM project activities must comply with several requirements, agreed upon by the signatories to the United Nations Framework Convention on Climate Change (UNFCCC) Kyoto Protocol. The major CDM requirements or criteria are that projects:

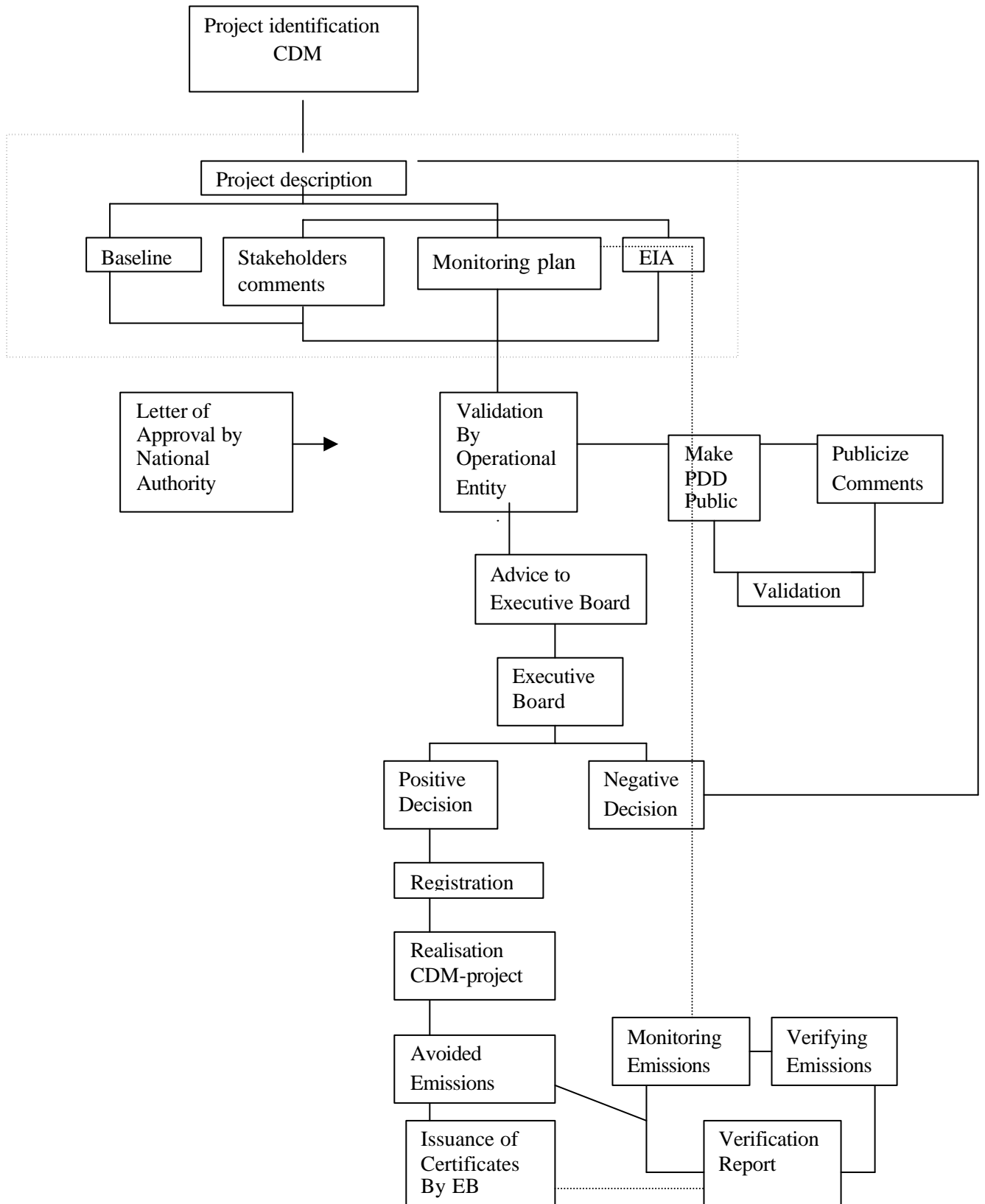
- have the voluntary participation of each party involved;
- assist developing countries in achieving sustainable development;
- not be funded by overseas development aid;
- provide reductions in emissions that are additional to any that would occur in the absence of the certified project activity, and
- provide real, measurable and long-term benefits related to the mitigation of climate change.

A CDM project must first be identified and can range from a large to small-scale project. There is a process in development that will allow the fast track of smaller CDM projects that are:

- Renewable energy with a maximum output of 15MW
- Energy efficiency improvement equivalent of 15 GW hours per annum, or

- Project activities that directly emit less than 15ktns of CO₂ equivalent annually.

The diagram below illustrates a possible CDM Project Cycle.



The CDM project cycle follows a series of stages from project identification, project description with details of the baseline, stakeholder input and a monitoring plan. Then the project must get a letter of approval from the CDM National Authority in the host country with the projects baseline validated by an operational entity that also provides an opportunity for NGOs, stakeholders and the public to make comments on the project. Once this is completed the project proposal goes to the CDM Executive Board who either rejects or accepts the project. If accepted the project will be registered and proceed with ongoing monitoring and verification of emission reductions upon which an issuance certificate is made by the EB for the credits accrued from the project.

International Developments

Greenhouse gas credits from abatement will add an additional income stream to renewable energy technologies that are currently viewed in the commercial world as uneconomic. The Asian Development Bank in its review of energy policy has estimated the potential value of greenhouse gas trades in developing countries for the first Kyoto Protocol target period to be \$US11-19 billion annually. The project investments will be several times the value of the actual greenhouse gas trades. Internationally, many countries and institutions are trying to better understand the use of JI and CDM Projects. This article outlines four programmes promoting the use of renewable energy credits. They are:

- World Bank Prototype Carbon Fund
- Dutch Certified Emission Reduction Unit Procurement Tender (CERUPT), and
- Australian International Greenhouse Partnership Programme
- The Cross Border Project Programme.

The World Bank has a Prototype Carbon Fund (PCF) with 6 countries and 17 private sector companies contributing to the fund a total of US\$145 million. The countries include Norway, Holland and Sweden with major participating companies such as BP and Tokyo Electric Power.

The PCF has three primary objectives

1. Show how project-based greenhouse gas emission reductions transactions can promote and contribute to sustainable development and lower the cost of compliance with the Kyoto Protocol.
2. Provide the Parties to the UNFCCC, the private sector, and other parties an opportunity to learn by doing in the development of policies, rules, and business processes in the reduction of greenhouse gas emissions under the JI and the CDM.
3. Demonstrate how the World Bank can work in partnership with the public and private sector in addressing of global environmental problems through market-based mechanisms.

Below is a list of projects that the World Bank's PCF is investigating and what the US\$ cost of the emission reductions and the total project cost.

Possible PCF Projects

Country/Project	PCF ER Purchase	Total Project Cost
Latvia: capture of landfill gas and power generation	2.477	16.97
Uganda: small hydropower displacing diesel oil in the rural West Nile Region.	3.9	21
Chile: 26 MW run-of-river hydro power facility set up in cascade with other hydro projects	3.5	37
Brazil: replacement of coke in pig iron production by charcoal	5	TBD
Morocco: construction of wind farm displacement gas-fired generation	7-10	TBD
India: energy from municipal solid waste	8	48

Note: TBD to be determined

There have been over 130 project proposals submitted to the PCF with several of these projects likely to proceed in the next year or so. There are several projects identified in Latin America, Eastern Europe, Central Asia and Africa. US\$ 15 million of the PCF has been set aside for use in the Asia Pacific with discussions taking place in China, Philippines, Thailand and Vietnam.

The price the Prototype fund is paying for credits for a project is around US\$5 for a ton of CO₂. There is also a major emphasis of the fund to promote the use of renewable energy projects. Further information about the guidelines to make proposals are available on the website www.prototypecarbonfund.org.

Last year the author visited Senter in Holland which operates the Netherlands Government carbon.credits.nl programme. Through this programme the Dutch Government purchases reductions in greenhouse gas emissions (carbon credits) from Joint Implementation and the Clean Development Mechanism projects. One carbon credits has a 1 t CO₂ equivalent. This programme is a tender process that allows companies to put in proposals for projects in the following areas:

- Renewable energy (hydro, solar, biomass, etc)
- The replacement of CO₂ intensive fuels by fuels generating less pollution;
- Waste processing;
- Afforestation/reforestation (only in Central or Eastern Europe), and
- Energy efficiency.

The Dutch Government recently announced the results of its first tender for JI projects entitled Emissions Reduction Unit Procurement Tender or ERUPT. As a result, the first greenhouse gas emission credits from East European countries have taken place. The Dutch Government purchased four mega tonnes of CO₂ reduction credits for 79 million guildens (US\$31.5 million) over five years from Poland, Romania and the Czech Republic. The projects are:

- A 60 Megawatt wind-power park in Poland
- A series of biomass-fuelled boilers in the Czech Republic, and
- Two urban heating projects and a hydropower plant in Romania.

The Dutch have renamed the ERUPT programme to carbon.credits.nl with a tender closing last month for CDM projects. The CDM tender is called Certified Emission Reduction Procurement Unit Tender or CERUPT. The provisional results of the CERUPT tender produced projects with reduction ranges from 47,000 to 8 million tonnes of CO₂ equivalent and with 65% of the projects aiming to produce renewable energy. The initial assessment of the projects is scheduled for completion in May at which time Senter will invite selected companies to submit tenders. Further information about the guidelines to make proposals are available on the website www.carboncredits.nl.

In 1997 the Australian Government created the International Greenhouse Partnerships Programme with funds of A\$6 million for JI and CDM projects. As a result, a series of projects have been implemented in the Asia Pacific region. This includes several renewable energy projects in Indonesia, Mauritius and a Natural Gas Conversion project in Chile. Further information about the guidelines to make proposals are available on the Website www.isr.gov.au/resources/energy_greenhouse/igp/index.html.

In 2001 the Energy Federation of New Zealand undertook an initiative that brought New Zealand its first internationally funded project to explore innovative and sustainable options for reducing our greenhouse gas emissions by cross border investment in green projects. A research consortium was established by the Japanese, New Zealand and Australian World Energy Council Member Committees to study the feasibility of early commencement of cross border investment in GHG reduction projects in the WEC Asia-Pacific region.

The objective of the Cross Border Project (CBP) research is to encourage facilitation and direct involvement of WEC Asia Pacific members in a variety of international cross border greenhouse gas reduction projects involving the use of the Kyoto flexible mechanisms. The project partners in the research consortium included the Japan Energy Association, Energy Federation of New Zealand, Energy Council of Australia, TrustPower Ltd, CRL Energy Ltd, Pritchard Udovenya, Tokyo Gas, Tokyo Electric Power, Osaka Gas, Kansai and Chubu Electric Power. All of the members of the consortium have an active interest in greenhouse gas emissions and the options to reduce them.

The Kyoto Protocol allows for international abatement solutions through three flexible mechanisms Joint Implementation (JI), CDM and International Emissions Trading (IET). The first study looked at whether a New Zealand project would proceed using a Kyoto Protocol Mechanism that allows for carbon emission credits to be sold to overseas investors in projects to reduce emissions in another country. The project selected was the Tararua Stage 2 wind farm. The study demonstrated that the IET flexible mechanism was appropriate and that such a project could proceed as soon as the New Zealand Government developed policy to allocate greenhouse gas credits for projects of this nature.

The consortium and new members are now examining the possibility of undertaking research into the use of the CDM in the Asia-Pacific Region.

All these international developments are the beginning of a global market in carbon trading and are likely to expand considerably in the next few years.

UNIDO Workshop

In December 2001 the United Nations Industrial Development Organisation (UNIDO) held an Expert CDM Group Meeting in Bangkok, Thailand. It discussed important CDM issues concerning the environmental and business opportunities that the CDM could generate for the industrial energy sector in the Asia Pacific region. The UNIDO aim is to develop a strategy that will help industry become more actively involved in climate change projects in developing countries through a three-phase programme.

The meeting marked the end of phase one of the programme and the beginning of phase two that will focus on the development of a strategy for capacity building for industry to become involved in CDM within the Asia Region. The strategy will include an assessment of CDM investment opportunities in the region, identification of real CDM projects. This will involve the technological assessment and the opportunity for CDM projects. The meeting included presentations from the National Experts, climate secretariat experts and also the potential of CDM industry initiatives by industry representatives. The author attended the workshop and presented some of the findings from the Cross Border Project research carried out in New Zealand and their relevance to the CDM as well as the interest of private energy companies in the use of CDM.

The Expert Group Meeting took place over three days. Five Association of South East Asian Nations (ASEAN) country representatives, from Malaysia, Indonesia, Thailand, Vietnam and Philippines attended the meeting. In addition, UN staff and consultants, representatives of the Asia Development Bank (ADB), organisations in Thailand, Japan and the region generally attended and presented at the meeting. The main purpose of the meeting was the formulation of strategies for capacity building and assessment of capacity-building technical procedures for CDM industrial projects.

The Asia-Pacific is the fastest growing global region in terms of population and energy supply. One of the biggest challenges facing Asian countries will be dealing with the

international community's concern over the growth in greenhouse gas emissions with their economic growth. The Asia Pacific Economic Cooperation (APEC) group's forecast for 2010, based on current trends, expect electricity output in the Asia Pacific to increase by 138% and coal consumption to increase by up to 180% as a consequence.

Coal is the dominant energy source in India and China. Plans by these and other Asia Pacific countries to increase the utilisation of coal will require cost effective ways to manage the large increase in greenhouse gas emissions. Options include the adoption of clean coal technologies, the use of alternative energy sources, forestry development and CO₂ capture and disposal.

New Zealand intends to ratify the Kyoto Protocol by August 2002. One option open to New Zealand companies is to consider the CDM. There are also opportunities for companies to be involved in project development, verification and providing the technology for energy related CDM projects.

One major step forward has been the formulation of the CDM Executive Board (EB) who are responsible for establishing an administrative and accreditation authority for CDM projects. The rules and accreditation process will be developed in 2002. A major opportunity for New Zealand companies is to be accredited as an Operational Entity (OE) responsible for verification of CDM projects.

The Meeting identified possible industrial project opportunities and identified issues that need to be resolved for projects to proceed, such as

- Increasing awareness amongst industrial users;
- Understanding the CDM project cycle process;
- The potential of using the fast track CDM process for smaller projects, and
- Potential business opportunity for a New Zealand company after becoming an accredited Operational Entity to verify CDM projects;

Conclusions

The development of carbon trading involving the CDM is at the pioneering stage with no actual CDM projects yet to be officially approved by the EB. However, with the move globally to regulate greenhouse gas emissions it is likely that the CDM will play a major role in facilitating emission reductions

Renewable energy technologies are already supplying informal credits internationally as outlined with the International Greenhouse Partnership Programme in Australia, the Dutch CERUPT tender process and the World Bank Prototype Carbon Fund. These funds provide opportunities for companies and project developers to initiate overseas projects. This allows industry players to better understand and develop networks with developing countries who will be major participants in future CDM projects.

The World Bank and the Netherlands carbon.credits.nl work illustrates the seriousness in which countries and organisations are taking in developing a framework and learning by doing in carbon trading areas, such as the CDM. If New Zealand ratifies the Kyoto Protocol in August 2002 it will be eligible for participation in CDM projects and New Zealand companies will also have opportunities to be involved in the CDM process.

If the ADB projections are correct then the carbon trading market is likely to be worth billions of dollars. The development and implementation of CDM projects will offer business opportunities for New Zealand companies in the renewable energy field, consultancy and project development.

Can New Zealand afford to sit on the sidelines and await the development of this market? Or do we participate now? These are the questions that the business community and the New Zealand Government must have to consider.

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