## **CHAPTER 6:**

# **CDM Transactions: A Review of Options**

The Clean Development Mechanism's dual goals of supporting sustainable development while creating cost effective greenhouse gas emission reductions can be achieved only via carefully structured contracts. Although all contracts can be complicated, CDM transactions offer particular challenges, as the parties often have extremely different business and cultural perspectives. This chapter describes various ways in which contracts to buy and sell CERs can be structured, and examines various risks associated with the CER transactions and how to minimize them:

#### STRUCTURING TRANSACTIONS

- Box 6.1: UNDP's position on carbon trading
- Upfront payment for future stream of CERs
- Forward contract for delivery of CERs at fixed prices
- Forward contract for delivery of CERs at floating prices
- Option payment for future delivery of CERs
- Spot market trades

## **CONTRACTING ISSUES**

- Delivery risk
- Timing risk
- Counter-party credit risk
- Country risk and currency risk

# **CHAPTER 6: CDM TRANSACTIONS: A REVIEW OF OPTIONS**

The Clean Development Mechanism's dual goals of funding sustainable development while creating cost effective greenhouse gas emission reductions can be achieved only via carefully structured contracts. Although all contracts can be complicated, CDM transactions offer particular challenges, as the parties often have extremely different business and cultural perspectives. Purchasers of CERs will often be large, sophisticated multinationals with significant experience in project finance, commodity and derivative transactions. While some CER sellers will be multinationals as well, the sustainable development component of the CDM means local energy developers, community groups and even NGOs may end up as counter-parties. These smaller and less sophisticated sellers will likely require support to ensure that they engage in equitable contractual arrangements.

In order to successfully execute a CDM transaction, the buyer and seller need to reach agreement on an appropriate structure for the transaction and an appropriate contract for the transaction. The structure of the transaction specifies the timing of cash payments by the buyer and the timing of CER deliveries by the seller. It is important that the legal agreement protect both the buyer and seller from the risk of non-performance by the other party. This chapter examines various ways

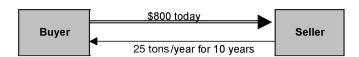
of structuring CDM transactions that may be appropriate and help minimize risks in different situations.

### STRUCTURING TRANSACTIONS

The details of how CERs generated by the CDM are exchanged can vary widely. However, several basic structures for transactions have already emerged.

## **Upfront payment for future stream of CERs**

When projects to demonstrate efficient reductions in CO<sub>2</sub> emissions were first initiated in the late 1980s and early 1990s, most used an investment modality in which purchasers of emission reductions would pay either the entire project cost, or the incremental improvement cost, at the outset of the project. Many of these projects were developed by local NGOs from developing countries, few of which were in a position to carry investments themselves. A great number of the early projects were land conservation projects with high upfront acquisition costs and low ongoing operational costs.



Earlier, more rigid interpretations of additionality, were thought to mean that projects could only claim to be additional (and therefore receive the benefits) if the

### **BOX 6.1: UNDP'S POSITION ON CARBON TRADING**

UNDP believes that developing countries must be empowered to negotiate effectively for fair market rules and high quality investments and technology under emerging market-based policies for addressing global climate change. Trading in carbon emission credits is a part of international agreements designed to combat climate change, thus effectively creating a new 'commodity' in international trade – one that is increasingly produced in the developing countries and consumed by more industrialized countries. International traders in this new commodity of carbon offsets should learn from the lessons gleaned from patterns of other globally traded commodities produced by the developing and less developed countries. UNDP advocates capacity development in all aspects of relevant human, institutional and system-wide issues and the creation of efficient and enabling environment and institutions for the developing countries that are producers of carbon credits. This will ensure that they have favourable terms of trade and ability to negotiate with the private sector and other buyers as equal partners.

project could not have occurred without the participation of the investor entity. This was clearly easiest to prove if lump sums were made available by the investor at the outset. Obviously, from the perspective of developing country project developers, this upfront investment model was extremely attractive. As the carbon commodity was not fully defined at either the domestic or international level, the required performance was delineated via bilateral contracts between sellers and buyers. Failure to perform was difficult to quantify or qualify, as few – if any – credits were evaluated by regulators in a compliance context.

Many developers/sellers still consider this to be the natural form of emission reduction transaction.

Naturally, many project developers – especially NGOs who want to participate in the CDM market – still want to have substantial revenue paid up front. However, while some investors are willing to put money into a project at the outset, they usually seek to mitigate their risk by getting project equity in return, as well as carbon credits.

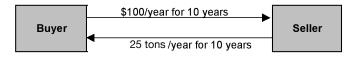
CER buyers who are strictly looking for returns on investments seek to put as little upfront cash at risk as possible. Buyers strongly prefer the forward contract/payon-delivery model (see below), whereby payments are only made after credits are fully validated, certified, registered and transferred. This leaves it up to project developers to find ways to take the financial commitment and turn it into financing for the project in question.

As more credible purchasing counter-parties enter the market, and as financial markets get used to the idea of established payment structures for environmental performance, it is likely that financial institutions will begin to get comfortable lending to carbon credit sellers based upon the value of their emission reduction purchase agreements just as banks currently finance power generation facilities based on power purchase agreements. This will help bridge the divide between sellers' desire for upfront capital with buyers' risk aversion. From the perspective of developing country sellers, there is a strong potential in this path of market development, as it increases the percentage of hard currency in domestic project financing. For such a system to work, it will be essential to educate local financial institutions on the basics of the CDM and enable this

kind of finance to become operational at the local level.

## Forward contract for delivery of CERs at fixed prices

By far the most common structure for CDM transactions is the forward purchase agreement. In forward contracts, little – if any – cash changes hands on signing of the contract. The price for delivery of CERs is set at the time of signing the contract. Accordingly these transactions are also referred to as 'pay on delivery' structures. These forward delivery contracts range from one year to twenty years, with a substantial number set at either ten years or through the year 2012, which is the end of the first commitment period.



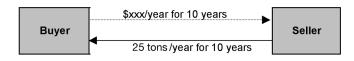
The forward contract structure generally requires the seller to deliver a specific number of CERs, or occasionally a range of CERs, with a minimum and maximum number per year. The buyer is required to pay a fixed price for the CERs, usually in US dollars or Euros. The fixed price will sometimes be structured to increase over time, based on an inflation index or a pre-agreed step-up in price.

A complexity in a ten-year contract emerges if a project uses a seven-year baseline with the baseline reanalysis for up to two more periods (see chapter 5 and annex 3 for details on the baselines). If the contract structure 'outlives' the baseline, the seller is clearly at risk of the seven-year reassessment impacting the achievable deliverables. Hence, CER sellers are wise to insert contract clauses to ensure that recalculation of baselines as required by the terms of the Marrakech Accords does not penalize them.

# Forward contract for delivery of CERs at floating prices

A key issue in 'pay on delivery' contracts is whether forward prices for delivery are set firmly or are benchmarked to some outside parameter. A transaction structure with floating prices requires the seller to deliver a pre-determined volume of CERs each year, but the price paid by the buyer is reset each year based on an index.

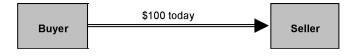
Given the relative market power of the limited number of buyers in the market as of 2003, most buyers



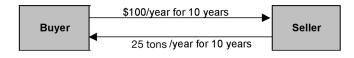
have successfully pressed for fixed price contracts. However, while a floating price structure appears more attractive to sellers in a market where participants assume that carbon prices will increase, it is not without substantial risks to sellers. Specifically, a floating price makes it much more difficult for the seller to plan future cash flows, as the total payment to be received from the buyer will be uncertain every year. This could impact the potential for bank financing based on the CER flow. If there is an oversupply of credits in future markets and prices fall, the seller will receive much less than they may be currently envisioning, which could lead to the seller being unable to meet financial obligations on the project.

## Option payment for future delivery of CERs

Buyers occasionally wish to structure a transaction in which they purchase an option, but not the obligation, to buy a pre-determined number of CERs at a specific price from the seller at a specific time in the future. In this structure, the buyer must pay the seller for the option today, in return for the right to exercise the option at the future date specified. The price of an option to buy is usually a fraction of the actual agreed-upon price of the CERs.



If buyers exercise their option, then:



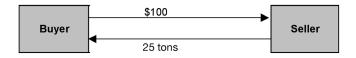
The advantage to a buyer of an option structure is that it provides a great deal of flexibility and allows a hedge against uncertainty. For example, buyers who think they will need additional CERs in the future, but who are uncertain of the amount they will need, can use an option contract to offset the risk of rising prices for

CERs. An option structure provides sellers with an upfront payment, and may not require delivery of CERs in the future. However, an option structure can create additional risk for sellers who are unable to deliver CERs if and when the buyer exercises the option.

Sellers are usually advised to enter into option structures only when they expect to have a large number of CERs to offer, and generally then offer options only on a small proportion of their total CERs. Also, while the premium may be a valuable source of immediate capital, the question remains about the degree to which a project can be forward-financed based on options, since there is no certainty that the option will be exercised.

### Spot market trades

The spot market is a structure in which a seller delivers CERs from one year of emissions reductions in return for a one-time payment from the buyer. In this structure there is no forward commitment between the seller and buyer for additional delivery of CERs or payment, although there is nothing precluding the parties of a spot transaction from executing another spot transaction the following year.



The advantage of the spot market to both buyers and sellers is that it provides both parties with maximum flexibility for the future. However, the disadvantages for a seller are the risk of not finding a buyer in subsequent years, and the risk that the price declines in the future. For the buyer there is significant risk that the price of CERs will increase in subsequent years, the trend that is predicted by many market analyses.

## **CONTRACTING ISSUES**

Any fair contract should minimize the risk to both parties in the event that either fails to meet the contractual obligations. In this early stage of the CDM market, the buyers are almost all large, financially stable organizations, while the sellers range significantly in size and financial strength. Therefore, most contracts are

designed primarily to protect the buyer from the risk that the seller does not perform as per the requirements of the contract. Another issue that must be negotiated is what happens in the event that the project activity produces additional credits. Typically, many buyers, such as CERUPT, place an option on first right of refusal. This must be negotiated, however, because the price may actually be higher, or lower, in the future, which benefits either the seller or the buyer respectively. Key contractual risks include the following and the possible solutions are discussed below.

### **Delivery risk**

In a fixed delivery contract, the seller agrees to deliver a set volume of CERs at a particular time in the future. The buyer takes on substantial risk if the seller fails to deliver the contracted CERs in time to meet the regulatory requirement for which they have been purchased. The buyer risks not finding replacement CERs in time to meet his requirement, and the risk of finding replacement CERs at a higher price than had been contracted for.

Given the volatility in the price of CERs, and the expectation that prices will increase in the future, the price risk associated with non-delivery is viewed as significant for many buyers. The result is that certain buyers have contractually required substantial financial penalties (often several times the agreed-upon purchase price from the same year) if sellers are unable to deliver under the terms of the contract. This provides the seller with a significant incentive to deliver on time and to properly hedge against the risk that may be incurred

Sellers have strong financial incentive to take on delivery risk mitigation responsibilities. This is accomplished by:

- Committing only a percentage of a project's anticipated performance to a firm delivery contract;
- Cross-collateralizing several projects into a pooled production portfolio;
- Purchasing delivery options from other producers –
   often combined with business interruption insurance
   to have the financial flexability to exercise the
   options in a time of underperformance; and
- Developing more formal insurance products. Several financial institutions are developing such instruments either through using cash premiums or

bundling many projects into a pool. However, it is expected that this will be useful only for industrial producers of CERs.

On a project-by-project basis, sellers will often reserve 20 per cent or more of the credits from each year's production into a non-delivery 'buffer'. Buyers will often insist upon that type of buffering in the contract. In such cases, buyers will only forward contract for 80 per cent (or less) of the expected delivery volumes, and prohibit the seller from selling additional CERs until the buffer is full. This type of contract has a dual purpose: to help ensure that each year's commitments are readily achievable, and to buildup a pool of carbon credits. This pool can be tapped in case of a project failure to produce credits for a significant period of time. If project performance is solidly maintained and confidence grows in the seller's ability to deliver carbon credits according to the contract, a seller with a banked credit pool is well positioned to profit by participating in the carbon market. Over the medium or longer term, such position may result in an advantage if prices of CERs increase from their current US \$2-4/ton price range.

Buyers occasionally seek a 'right of first refusal' on the purchase of buffered credits. CER sellers should resist such language in the contract, unless the buyer provides compensation for this option.

### Timing risk

Sellers face a risk that the CERs they generate are sufficient in volume to fulfil the contract requirements, but that the timing of delivery varies from the dates specified in the contract. This can put the seller in a position of contractual non-compliance, triggering severe financial penalties.

A mechanism that sellers can use to mitigate timing risk is the use of a multi-year delivery period. In this contract, the seller is allowed to spread out the delivery of CERs over a longer time period. For example, rather than being required to delivery 100,000 tons/year for 10 years, the seller may be required to deliver no less than 300,000 tons in any three-year period, for a cumulative delivery of one million tons over 10 years.

However, whether a seller can spread out delivery of CERs is somewhat dependent on the needs of buyers, who are responding to their domestic policy imperatives. CER delivery can theoretically be more flexible than delivery of many other commodities, as utilization is based on reconciling accounts of emissions and reductions, rather than on the need to physically use an asset in question at a specific point in time.

## Counter-party credit risk

Buyers and sellers cannot enter into long-term contractual agreements if they believe that the counter-party carries with it a substantial credit risk. Counter-party

Smaller and less sophisticated sellers will likely require support to ensure that they engage in equitable contractual arrangements.

risk has traditionally been considered in terms of assessing sellers. However, given the radical shifts in global energy commodity markets (and market makers, such as Enron) over the past years, carbon sellers should also consider the risks inherent in engaging in long-term contracts with buyers from developed countries, particularly if the carbon transaction contracts are integral to project financing.

Counter-party risk for buyers is often significant because the sellers are located in developing countries. Credit committees in large corporations often have fairly rigid counter-party requirements and standards. The fact that a seller cannot have a higher credit rating than the country it is based in – and that many CDM countries have weak credit ratings – often presents an immediate hurdle to achieving an equitable contract. However, the

risk can be mitigated if the contract stipulates annual delivery of certified credits, which limits the buyer's financial exposure at any one period in time.

The traditional manner of addressing this kind of risk is via third party insurance, such as guarantees provided by export-import banks and the Multilateral Investment Guarantee Agency, a member of the World Bank Group. However, have no experience in assessing the risks inherent in CER contracts, these institutions are not yet equipped to handle them. Moreover, the types of insurance provided by international development institutions tend to be fairly narrow – covering items such as political insurgencies and force majeure events – rather providing comprehensive guarantees.

## Country risk and currency risk

Corporate buyers are often concerned about entering into a contractual arrangement with a seller in a number of developing countries due to a perception of significant country risk, which could come, for example, from the collapse of an economy or government, conflict or natural disaster. However, country risk is actually relatively low for buyers because most contracts are 'pay on delivery', so the buyer is not obligated to make any payment until verification from an independent party that the CERs have been created by the seller is received. Additionally, the seller is also required to have host country approval for the sale of CERs. Finally, participants in a CER transaction are almost never exposed to currency risk because the currency flows originate from developed countries, while the flow of CERs is not affected by currency rates. Enacting national macroeconomic policies and an enabling environment that promotes direct foreign investment keeping in view the national development priorities can reduce country risk.