

Henrik Hasselknippe*

The Role of the Carbon Market in Future Climate Policy

The first commitment period of the Kyoto Protocol is approaching rapidly and countries and companies are preparing for life in a carbon constrained future. At the same time, the negotiations on a future climate agreement that will follow Kyoto in 2013 are in an early phase. Meanwhile, a multi-billion euro market for trading of greenhouse gas allowances and credits has established itself, providing incentives for the private sector to reduce internally or invest in projects abroad. What is the role of the carbon market in the development of international climate policy, and are there alternatives that could provide larger reductions in the short to medium term?

First, what are the criteria that need to be fulfilled for an international climate agreement to be successful? Here, we shall use the following as measures of effectiveness for such an agreement: 1) Large scale reductions must be met at an achievable cost. 2) All countries, both industrialised and developing, must be involved. 3) The private sector must be involved and given opportunities to invest where the carbon effectiveness, i.e. GHG reduction per euro invested, is greatest. This article will explore these questions by looking at the current state of the carbon market in general and the involvement of developing countries in particular.

Market Activity in 2005

The volumes and values presented in this article are based on observed trends in Point Carbon's proprietary databases, interviews with market participants, and our assessment of policy developments and their potential market impacts. The analysis of the size of the Clean Development Mechanism (CDM, project investments in developing countries) and Joint Implementation (JI, project investments in industrialised countries) market in 2005 is furthermore based on interviews with around 60 of the major players in the market, together with registrations in Point Carbon's transaction database, and Point Carbon's project database.

* Senior Analyst with Point Carbon, the global provider of independent analysis, forecasting, market intelligence and news for the power, gas and carbon emissions markets, Head Office, Oslo, Norway.

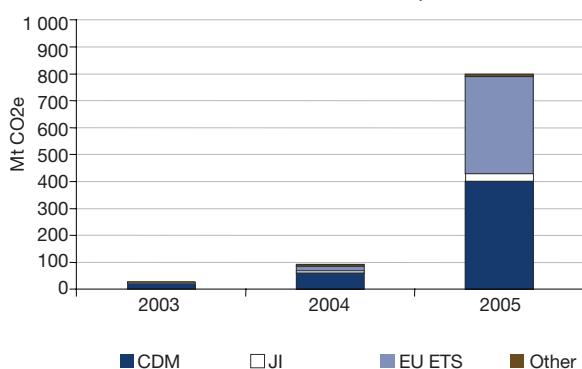
We find that the global carbon market did a total of 799 Mt CO₂e in 2005, corresponding to a financial value of €9.40 billion. See Figure 1 for an overview of historic volumes in the carbon market. In comparison, the market saw an estimated 94 Mt, €377 million in 2004. The growth and speed in the carbon market has been quite extraordinary, with an eight-fold increase on the year in volumes from 2004, and about 25 times larger financial values in 2005 than the previous year.

The EU Emissions Trading Scheme (ETS) was the largest market segment in financial value, although not in terms of physical volumes. In total, 262 million EU allowances (EUAs), worth €5.4 billion were transacted through brokers and exchanges in 2005, 79% of this through brokers. In addition, we estimate that the bilateral market (company-to-company, not brokered or exchanged) did 100 Mt, €1.8 billion. In comparison, the EU ETS did an estimated 17 Mt, €127 million in all segments in 2004. Although growth slowed down towards the end of the year, each quarter saw record volumes and value. This growth has also continued in 2006, with the market trading 91 Mt, €2.3 billion year-to-date (10 February).

CDM is by far the dominant of the two project-based mechanisms, and we find that contracts for 397 Mt, €1.9 billion were entered into in 2005. JI saw 28 Mt, €95 million contracted in Central and Eastern Europe (CEE). Other carbon markets remain insignificant in the larger picture, and did 7.8 Mt, €52 million in 2005. The New South Wales trading system in Australia remains the largest of these, at an estimated 93% of the financial value.

What were the main drivers for the price development over the year? As in any market, the price is set by supply and demand. The supply in EU ETS is determined first by the caps set under the different National Allocation Plans (NAPs), together with the amount of reserve allowances and CDM credits coming into the market. Demand is set by the amount of emissions through the year in relation to the overall allocation. Briefly put, the allowance demand can be measured by estimating the emissions from the different sectors under the EU ETS and subtracting the caps. This fig-

Figure 1
Contracted Volumes 2002-2005, Mt CO₂e



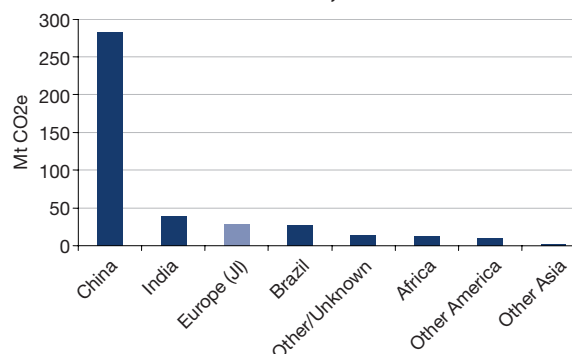
Source: Point Carbon

ure will change on a continuous basis due to a number of factors, but in particular weather, as temperature determines power/heat demand and precipitation the potential for hydropower production, and fuel prices, as the relative price for coal and gas will determine which of the fuels will be used for power production. In other words, if the winter is cold and the gas-to-coal price differential widens, emissions will increase as more power is consumed and coal, which emits more GHGs per unit of output than gas, is the preferred fuel source. Thus, carbon prices will also increase. A different situation would occur in a mild and wet summer, in which there is less demand for power and the rainfall increases the potential for hydropower production.

Have we seen evidence of the market reacting to these fundamentals? In fact, the first year of the EU ETS has shown that the market is indeed responding to changes in fuel prices and weather. Nevertheless, policy decisions still have the potential to shift prices. However, some would still argue that the current price neglects fundamentals, in the sense that “switching prices” in the UK are well above the European Union Allowances (EUA) prices. Hence, one would need higher EUA prices and/or lower gas prices to trigger substantial switching from coal to gas.

Volumes in the project markets also increased considerably in 2005. The lion’s share of transactions still takes place in developing countries, where CDM contracts worth 397 Mt CO₂e were registered by Point Carbon, corresponding to an estimated financial value of €1.9 billion (7% discount rate). Thus, CDM accounted for 93% of the physical volumes transacted in the project market and 95% of the total financial value. The JI market is still considerably smaller than CDM, Intereconomics, March/April 2006

Figure 2
Contract Volumes Registered in Different Host Countries in 2005, in Mt CO₂e



Source: Point Carbon

but nevertheless almost tripled in volume in 2005, growing to 28 Mt CO₂e, €95 million, worth of reported transactions.

In 2005, future delivery of in total 397 million certified emission reductions (CERs), at a volume weighted average price of 6.7 €/t, were contracted. As for JI, the volume of emission reduction units (ERUs) contracted more than doubled, to 28 Mt, while the average price increased slightly to 5.1 €/t.

There are several reasons for the substantial increase in the volume transacted throughout 2005. The most obvious reason is that the supply of potential projects has increased. By the end of 2005 there were more than 900 CDM and JI projects that had reached the public validation stage. Several host countries have shown increased support for the project base mechanisms, in particular China and Brazil. Also, large-scale projects are contributing significantly.

China, India and Brazil are the main seller countries when it comes to numbers of CDM projects. The large volumes in China are primarily due to a few large projects, but there are several smaller projects currently in preparation. For the JI market, Romania has been an active seller, but volumes become small when compared to CDM market volumes. In fact, Brazil alone is about the same size as the total JI market.

On the demand side EU ETS installations have the ability to use CERs directly for compliance. With increasing prices for EUA delivery it is evident that this has contributed to the demand for project credits. The increasing number of carbon funds has added further to the demand. This sector includes govern-

mental procurement funds, private sector investment vehicles, and private-public funds (e.g. all World Bank funds). While CDM investment is now increasingly being dominated by private investors and funds, JI is still mainly attracting governmental buyers.

What Does the Future Hold?

Trading is already well under way in the second year of the EU ETS, and new projects are coming into the CDM and JI pipelines on a regular basis. But where will the carbon market go in the future? The market for EUAs with 2008 delivery has not yet fully taken off, and there are very few CDM/JI projects that extend beyond 2012. What are the challenges and opportunities that market participants will face in the years ahead, and what is the importance for the development of international climate policy?

Everything should now be in place for countries to start talks on a second commitment period under the Kyoto Protocol, starting in 2013. Furthermore, a number of countries have signalled that their domestic initiatives will have a lifetime well beyond 2012, clearly indicating that carbon emissions will have a cost (and reductions a value) also from 2013 and onwards. This must now be taken into account by anyone undertaking new investments in industry and the power sector, even if the regions where the investments will take place do not currently operate under carbon restrictions. Certain non-Annex I countries have also arisen as prime candidates for taking on reduction targets in the future, such as South Korea, Mexico, South Africa and Argentina.

The EU ETS has established itself as the only truly commoditised segment of the global carbon market. This is, however, likely to change in the not too distant future. What other developments might we see in the next years? While we shall most likely see a commoditisation of CERs over the next couple of years, it is clear that the project market has some way to go. A well-functioning CDM market will bridge the international market segments and lead to an internationalisation of the EU market. Thus, project credits will constitute the link between the markets, and there might not be the need to develop direct links, i.e. through mutual recognition of different trading systems, before post-2012.

Still, given the size and liquidity of the EU market, it could remain the main driver of the carbon market in many years ahead, by setting the reference price for

other carbon markets, possibly even beyond 2012. This implies that the carbon market is currently very vulnerable to changes in the EUA price. If the EU ETS prices should collapse, this would remove much of the drive for market activity in the other market segments.

As we have shown in this analysis, countries are very far from meeting their Kyoto commitments even when taking into account their planned policies and measures, as well as current purchase programmes. This will have direct implications for the negotiations on a post-2012 climate agreement. While we believe it is currently unrealistic in light of the major challenges posed by the on-going negotiations, clarity about post-2012 commitments would be advantageous (to put it mildly) for fostering abatement measures that will deliver long-term reductions.

What role will CDM and JI investments play in future climate policy? Point Carbon's forecast for the CDM and JI markets indicated that total volumes could grow to more than 2,100 Mt CO₂e by the end of the Kyoto period. 88% of this will come from CDM investments in developing countries. If our forecasts hold true there would be consequences for the negotiations on a future international climate regime, and thus the future of the carbon market and international climate policy.

First, with a carbon market that has developed rules, regulations and processes for producing such substantial reductions, it would be obvious to parties that they could trust in continued deliveries of such volumes also in the future. The sooner the market can get strong signals on the continued demand for such credits in the long term, the sooner post-2012 project contracts can be signed. While the public sector and multilateral buyers have a special responsibility to kick-start the market, it is important also to include the private sector early on in the process.

Once a critical mass of such contracts has been signed there will be a signal to the policy-makers that the private sector has confidence in the ability of the market to reduce emissions also in the future. This should provide negotiators with much needed support in creating a market that will function also in the long run.

Secondly, the volumes produced through CDM in our 2012 forecast will provide developing countries with evidence that they are indeed contributing in a meaningful manner to the reduction of global greenhouse gas emissions. Granted, the reductions will have come about as a function of industrialised coun-

tries taking on commitments first, but in the end this is how the market has been created.

Finally, the amount of reductions that will have been produced in developing countries should tell them that it is indeed possible to take on some sort of commitment for the future, without jeopardising economic growth, as long as there is a carbon market in which these reductions can be sold. In fact, taking on a target, either for the whole economy or selected sectors, might make even more reductions available than under CDM as it would remove the need for elaborate additionality tests and international approval on a project-by-project basis.

Alternatives to the Kyoto Protocol will no doubt be flaunted in the years to come. The most talked-about candidate is the Asia-Pacific Partnership on Clean Development and Climate (AP6). The group, which consists of the USA, China, Japan, India, South Korea and Australia, has launched eight public-private sector task forces, which will look into ways to reduce emis-

sions in various sectors of the economy. There are a number of reasons indicating that AP6 is not a viable solution to the global climate problem. It sets no target for emissions, a measurement for success is not in place, and it does not place a cost on emissions or a value on reductions.

In order to have a cost-effective international framework for emission reductions there need to be cheap reductions available abroad for those countries which don't have sufficient domestic reduction options. This analysis shows that the price of carbon will have made this option available for industrialised countries, while at the same time ensuring investments and technology transfer for developing countries. Through this mutually beneficial mechanism the world should be able to arrive at a new and improved framework for the climate regime. Now somebody just needs to tell this to those countries still refusing to sign an international agreement without commitments from developing countries.