Carbon prices within the EU ETS

1 The price of carbon within the scheme

Graph 4 â€‘ 1 : EUA Spot price on EEX

When the EU ETS was established experts expected the price of EUAs to hover just over 10â,¬ per tonne [1] , but the first half of 2005 the price of EUAs was increasing rapidly and it peaked on 07/07/05 at â,¬ 29.03 per tonne of carbon. After a correction it grew steadily to its new all-time high at â,¬ 29.95 per tonne of carbon on 14/04/06. After the data on the verified emissions became available and the participants realized that the allocation of allowances has been quite generous, the price plummeted within two weeks to â,¬ 11.55.

Unfortunately some of the actual carbon figures have been published three days early on an official EU website, this enabled some power companies to build up short positions and profit from the fall of the EUA price. [2] They were profiting twice, once from the hypothetical cost of carbon added to the customerâ€™s bill and from the asymmetric information in the market. The graph further illustrates the high volatility in the market.

Still about 80% of the trading is done directly or through brokers. The remaining 20% is traded on exchanges [see 4.3], of which the most active is the European Climate Exchange, which is based in Amsterdam but trades through a platform in London. [3]

In this chapter the characteristics of carbon emissions as a commodity will be described. Then there will be an examination of the price drivers of EU-Allowances and further a quick overview of some exchanges and their products on carbon emissions traded will be given.

1.1 Characteristics of Carbon Emissions Credits

Carbon emissions are not a commodity like Silver or Oil since the characteristics are different. In the first place Carbon Emission Credits can only be set free by a reduction of emissions. Within a cap and trade system the credits will be allocated through targets and if one holder is able to reduce more than the target he will end up with a surplus. There are no costs of storage since they are only stored as data in the national registries. The cost for holding the allowance would be the opportunity cost of capital. One might come up with a declining time value for Phase-I EUAs, because these EUAs cannot be banked and have to be used for compliance between 2005-2007. Carbon can be regarded as a cost since it is a by-product of many manufacturing processes.

The next section will look at the main price drivers of EUAs.

1.2 Price drivers of EU-Allowances

The EU ETS has created a market for emissions reductions and therefore the emissions â€œcurrencyâ€ EUAs should also be driven by market forces. A closer look at the supply and demand factors for EUAs is therefore necessary.

The initial Supply of EUAs to the participants will happen through the NAPs. They distribute all the EUAs initially available in the EU. Transferring ERUs or CERs and converting them to EUAs is the only way to increase the amount of allowances. The only other way of supplying EUAs is of course a reduction of emission and selling them on the market. This reduction can occur as a windfall from mild weather as well as through investing in newer cleaner technology.

Demand will be influenced growth of the Gross Domestic Product which causes increased manufacturing activity and greater need for energy. About 54% of the electricity in the EU 25 is generated using fossil fuels that emit carbon in the process. [4] Estimating the emissions from the different sectors under the EU ETS and subtracting the caps can be used as a measure of the allowance demand. Pointcarbon terms this, Emissions to Cap (E-t-C) and uses it as allowance demand indicator. [see 9.8] Weather in the form of temperature and precipitation together with fuels are seen as the main determinants for E-t-C and are therefore the main creators of demand. [5]

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Short-term

Long-term

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Graph 4 â€‘ 2 : Short-term and long-term price drivers in the EU ETS **[6]**

The graph below shows Pointcarbonâ€™s E-t-C indicator and the price of EUAs. The RÂ² of 0.92 shows that the E-t-C indicator can explain 92% of the changes in EUA prices in 2005.

Graph 4 â€‘ 3 : EUA price and fuel and weather **[7]**

Some of the exchanges and their carbon products will be introduced in the subsequent section.

1.3 Exchanges and their products

The following table shows the exchanges where EUAs and their derivatives can be traded.

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Start date trading	22/04/05	04/10/05	09/03/05	28/06/05	24/02/05	11/02/05	24/06/05
Type	**ECX CFI Futures** Phase 1: Monthly contracts delivery up to March08 Phase 2: Delivery each December	**Futures** Delivery each December First Period: 2006 – 2007 Second Period: 2008 – 2012	**Spot**	**Spot**	**Spot** (Day-ahead)	**Forwards** from 2006-2012 with December (and March) delivery	**Spot**
Price tick /t	0.05 â,¬	0.01 â,¬	0.01 â,¬	0.01	0.01 â,¬	0.01 â,¬	0.01 â,¬
Contract volume (lot size) in tCO_2	1000	1000	1	1	1000	1000	1000
Trading hours	07.00-17.00 GMT on UK business days	08:55â€“16:00 CET		08:00â€“15:30 CET	08:00â€“15:30 CET		9:00-17:00 CET on business days
Last trading day	Last Monday of the contract month.	Penultimate exchange trading day in the month of November in each case.	Na	Trading according to published calendar. At least every second Tuesday	Na	First business day in delivery month for December contracts. Last Monday of the contract month for March contracts.	Na
Delivery date	From 19:00 on the business day following the last trading day until 19:30 on the third business day following that last trading day.	On the second settlement day after the last day of trading, i.e. on the first settlement day in December.	Transfer in 2 exchange trading days	-Information not available	The seller must transfer the EUAs to Nord Pool by 4 p.m. C.E.T. on Final trading day. Transfer to the buyer is executed during the following day.		Trade is delivered once the CITL sends official notice that the transfer is complete

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Table 4 â€‘ 1 : Exchanges and their products **[8]**

The exchanges maintain their own accounts at a National registry [see 2.3.1], which they use for â€œphysicalâ€ delivery. Members who want to take physical delivery have to open have an account there as well. The ECX has planned to offer options at the end of 2006. Some exchanges require the trading parties to register with a national registry and submit their account detail to them.

The graph below draws the EEX Futures and their corresponding traded volumes for Phase-I and Phase-II of the scheme.

Graph 4 â€‘ 4 : EEX Futures and Volumes **[9]**

It can be clearly seen that the Futures Market is not yet a very liquid market. Trading does not take place every day and the volumes are small.

Interestingly the futures for Phase-I traded at a higher price than the Phase-II futures even though the penalty for Phase-II is higher. Since Phase-I and Phase-II allowances can be considered as

different products, one could not speak of a backwardation between the phases. The situation changed when it got nearer to the submission date for EUAs and the price plummeted after information about the amount of verified emissions was released on March 15th. From then on the futures all trade in contango.

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[1] Economist, Cleaning up, 04/05/06

[2] Economist, So much hot air, 04/07/06

[3] Economist, So much hot air, 04/07/06

[4] VDEW, Stromerzeugung in der EU, 03/05/2005

[5] Point Carbon (2006): â€Carbon 2006.â€ Hasselknippe, H. and K. RÃ¸ine eds.

[6] Point Carbon (2006): â€Carbon 2006.â€ Hasselknippe, H. and K. RÃ¸ine eds.

[7] Point Carbon (2006): â€Carbon 2006.â€ Hasselknippe, H. and K. RÃ¸ine eds.

[8] Compiled from the product specifications of the different exchanges

[9] European Energy Exchange