



Trading in Europe

Perspectives on Energy Market Developments

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RWE Trading



Contents

2

Editorial

RWE Trading's CEO, Peter Terium, introduces the theme of the third edition of *Trading in Europe*

4

Review Article

The EU Emissions Trading Scheme (ETS): a qualified success

9

Guest Article

What can be learned from the EU Emissions Trading Scheme so far; criteria for future success
Imtiaz Ahmad, Morgan Stanley

14

Focus on Markets – Germany

The impact of the ETS on energy prices
Professor Franz Jürgen Säcker

17

Opinion Board

Editorial – Peter Terium, CEO of RWE Trading

Welcome to the third edition of RWE Trading's biannual European energy market publication, *Trading in Europe*.

Almost a year after its inception, and five months after I became CEO of RWE Trading, the ETS is still a big topic in European energy. The overwhelming feeling within the energy trading community is that it has taken a lot of effort to make it work but we have already seen signs of success. The latest edition of *Trading in Europe* looks in-depth at the carbon trading market as it stands today – delivering the verdict on its first year of operation and what the future issues are.

Our *Review Article* sets out exactly where we are to date. In particular, how prices and volumes of emissions have developed. The impact of the key driving forces behind price movements are also investigated, as well as the different roles of exchanges compared with the brokered market.

One of the main features of this edition is a focus on the lessons that can be learnt from this first year of Phase 1 of the ETS. The harmonisation of rules across the EU and the drawing up of realistic National Allocation Plans are key to the long-term success of the ETS. Industry must also be encouraged to engage in what has so far proved to be a highly complex framework for the market arrangements, in order to add length to the carbon market.

Further out, the inclusion of other sectors in the scheme will have a significant impact, both in terms of volumes and liquidity. CDM and JI credits via the Linking Directive will have a short-term impact but in the longer-term the ETS is likely to need to link to other international schemes in order to meet the main objectives of reduced global emissions.

The future success of the ETS will also be dependent on the views surrounding the development of prices for carbon allowances. Prices have reached levels during 2005 that many had not previously anticipated and this is regarded in some quarters as impacting adversely on power prices across Europe. However, these price levels reflect the shortage of certificates currently bid into the market and have also been impacted by a number of supply issues in the fuel market. Under market conditions prices will naturally move towards the marginal cost of switching fuels in the short-term and towards the level of remuneration for new build low-carbon technologies in the medium- to long-term. And this has been the objective of the ETS from day one.



Peter Terium, CEO of RWE Trading GmbH

In our first *Guest Article*, Imtiaz Ahmad of Morgan Stanley, explains these factors and the short-term development of carbon prices under the ETS. Moreover, Imtiaz goes on to take a positive view on the ETS based on the fact that its cap and trade foundations are the best market mechanism to achieve carbon reductions. Adequate planning and harmonisation across the EU are themes that Imtiaz defines as central to establishing the longer-term success of the scheme.

Over the course of the year, some commentators have argued that the ETS simply allows European energy companies to pass on extra costs to their customers with no impact on these companies themselves. However, as Professor Franz Jürgen Säcker, Director of the Institute for German and European Economic, Competition and Energy Law, explains, there are a whole range of factors that impact on European power prices. In a *Focus on Markets Guest Interview*, Professor Säcker outlines what the fundamental issues in the German market are, highlighting what considerations must be made before taking a stand-alone view of individual markets.

These sentiments are echoed by our panel of experts when applied more widely across Europe. In most instances, our *Opinion Board* representatives draw similar conclusions from Phase 1 of the ETS. In particular, they agree that despite the frustrations in implementing the scheme, there have already been significant achievements. The operation of the market itself is regarded as a great success given the current constraints – issues that need to be addressed centrally by decision-makers.

At an operational level there is still much to do. Registries are not yet complete and linking CDM and JI project credits to the ETS has taken some time. Standardised documentation will provide many market participants with the confidence to trade across the EU and will encourage new entrants to the market. As the ETS develops these issues will be overcome but it is clear that the uncertainty regarding future allocation periods must be resolved soon in order to maintain the success of the scheme to date.

Peter Terium
CEO, RWE Trading GmbH

Review Article – The EU Emissions Trading Scheme: a qualified success

Since it was launched at the start of 2005, traded volumes on the EU Emissions Trading Scheme (ETS) have grown sharply and prices have been volatile and higher than expected. Rising volumes and prices suggest that the market has had a successful beginning but imminent decisions about the scope and operation of the scheme could determine whether or not it will meet its long-term objectives.

Almost a year after the world's first international CO₂ carbon trading scheme was established, participants and observers are taking stock of the successes and failures of the scheme so far.

The EU Emissions Trading Scheme (ETS) was launched on 1 January 2005 and is one of the EU's primary instruments to achieve its Kyoto Protocol target of an 8% reduction in greenhouse gas emissions by 2010, compared to 1990 levels. The impact of the ETS is already being felt across Europe.

The first phase of the ETS caps emissions at 2001 levels. The scheme also covers about 12,000 factories and plants, which account for 40% of EU emissions.

Rising volumes and prices

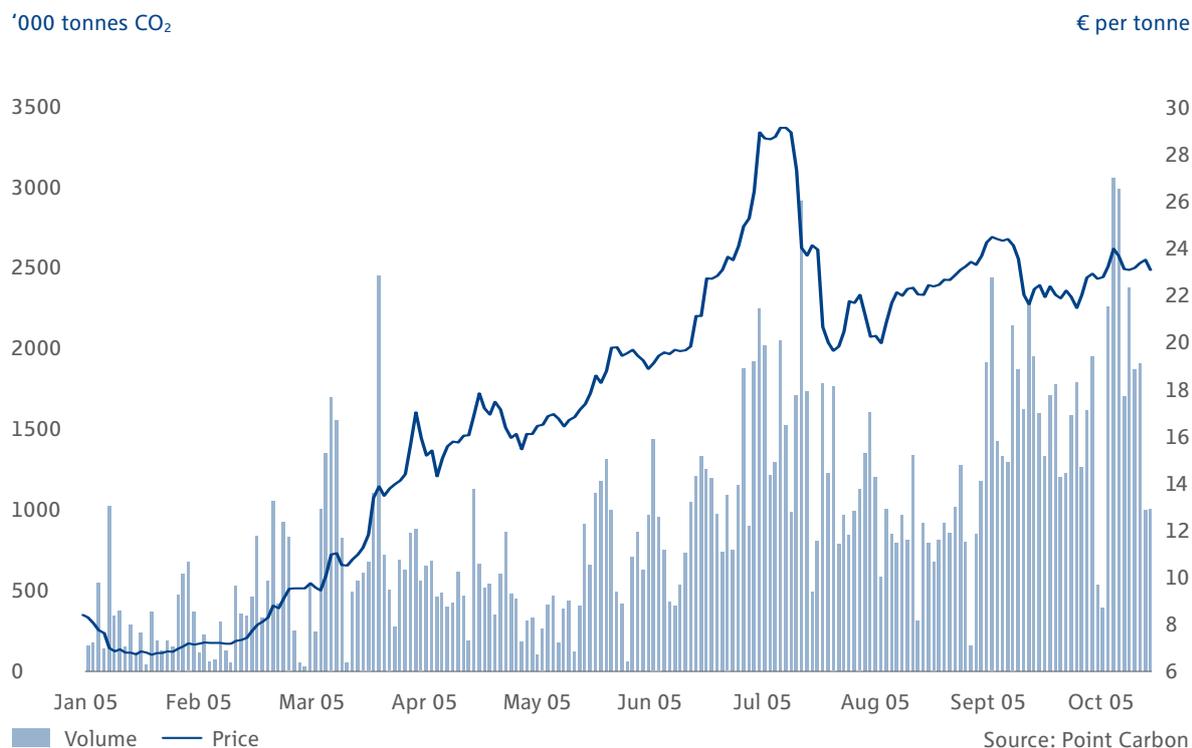
So far the ETS trading market has been characterised by steadily rising prices and growing volume. Although prices have stabilised at about €23 per tonne of CO₂ (at the time of writing) recently, they remain at the high end of expectations, and are being driven essentially by market fundamentals: underlying gas and coal prices and weather conditions.

The price for individual allowances has risen from €8–€9 in January to almost €30 in July (see Figure 1). Prices were expected to increase

after the start of the ETS as companies moved towards low carbon options to try to meet their emission targets, but the scale of the increase has taken some by surprise.

Traded volumes have grown significantly since the launch of the scheme, as has the number of companies trading in the market. So far this year over 170 million allowances – each equivalent to one tonne of CO₂ – have been traded. About 8–9 million allowances are now traded every week on the ETS, although daily volumes vary significantly. By the end of the year, it is expected that over 200 million allowances will have been traded. Utilities have dominated trading, but banks and other financial institutions are also stepping up their involvement.

Coal, gas and crude oil markets are now tied to the emissions market and each influences the ETS, with the European power market most closely linked to carbon price movements. The market has largely been driven by the price differential between coal and gas prices, where it is possible to switch between the two for power generation. Initially, allowance prices had little to do with the relative prices of coal and gas, and were driven by perceptions of demand. However, as the market has grown, the importance of fossil fuel prices has also increased.

Figure 1 – Daily EUA volumes and closing prices, 2005

Weather conditions have also had an impact on price, with the lack of rainfall and high temperatures in southern Europe this summer contributing towards the surge in prices in July. For example, the drought in Spain meant that utilities were forced to burn coal rather than using cleaner hydro power. Warm weather can also cause utilities to switch away from nuclear generation towards fossil fuel burning.

The European Commission's hard-line approach to some National Allocation Plans has contributed to the rise in prices. The insistence on tighter emission allowances in the Czech, Polish and Italian Plans affected market perceptions and helped to push up prices. Recently, the EU Court of First Instance (case T-178/05) annulled the EU Commission decision declaring that the UK's proposed amendment of its draft National Allocation Plan for the allocation of greenhouse gas emissions allowances was inadmissible. After the notification of its NAP to the EU Commission, the UK increased the allocation in its NAP from a

total of 736 to 756.1 mt CO₂ over Phase 1 of the ETS and, subsequently, the EU Commission had concluded that the UK was not entitled to increase the total quantity of allowances to be allocated. However, the EU Court held that the Commission could not restrict a Member States' right to propose such amendments and thus the UK was entitled to propose amendments to its NAP and that the EU Commission was not entitled to constrain the UK in the exercise of its right. In light of this however, the EU Commission is still entitled to reject such an amended NAP, in whole or in part, if it is incompatible with the criteria laid down by the directive governing the ETS.

Despite this uncertainty going forward prices are expected to continue to be bullish. This winter will be crucial. If the drought in Spain continues, and particularly if this coincides with a cold winter, carbon prices are likely to go on rising. If oil prices also keep moving upwards, there could be a significant impact on the price of carbon.

Prices are also expected to remain high in Phase 2 since the perception is that allowances will be scarcer in the second stage. However, the fact that it is over a longer, 5 year time horizon should mean that trading can take place more effectively.

The role of the exchanges

Carbon emission trading is executed through brokers or via a number of energy exchanges. Emissions trading in spot or futures contracts is available through the European Climate Exchange in Amsterdam, the Climex Alliance, Powernext in France, Nord Pool, the European Energy Exchange (EEX) in Leipzig, and markets in Austria and Spain.

Despite this, brokered deals remain more popular, with only 16% of total market share going through the exchanges in September, compared to over 30% in July and August. In the third week of October, brokers were responsible for over 7 million of the total 8.5 million allowances traded, with exchanges handling the rest. Nord Pool has the longest established carbon forward market which attracts significant volume. For example, between October 4 and 21, 160,000 allowances went through for 2006, whereas the newly-established EEX carbon futures market traded just 40,000 allowances for 2006 over the same period. The market may not be able to sustain so many exchanges, and some consolidation is expected to take place.

Per-Otto Wold, chairman and senior advisor at Point Carbon, believes that 'exchanges over time will increase market share in 'vanilla contracts' while brokers will dominate the flexible contracts. The OTC market will still dominate the carbon market for some time, however.'

So far industrial users have not been very active in the market. More risk-averse than others, many are waiting to see how the market develops before committing to trading. Whether industrials trade on the exchanges depends partly on expertise. According to Tim Atkinson, Head of Emissions Markets Europe at environmental

transaction specialists Natsource, industrials may only trade once or twice a year so they will look at the costs involved. 'You need a certain level of expertise before you can trade on the exchanges. Exchanges will continue to play a role for active traders, but they provide little assistance in helping industrial companies understand trading and how best to enter the market.'

Eastern Europe's potential surplus

The market is also waiting to see the effect of eastern European players on the allowance prices. 'Many anticipate that Eastern and Central European companies will be quite long allowances. However, due to delays with NAPs and registries few have entered the market to date. This will no doubt change in the coming months', says James Blunt, Head of Green Markets at energy brokers Spectron.

These countries offer good opportunities to reduce greenhouse gas emissions substantially at low cost. Although there was a sharp decline in emissions following the collapse of inefficient Soviet-era industries in the 1990s, carbon intensity remains higher than the EU average. However, credit issues remain a significant obstacle in several of these countries, and this makes forward trading more difficult.

The influx of more players from eastern Europe should, however, push up volumes and this in turn should encourage banks, institutional investors, and hedge funds to enter the market. The establishment of registries should also provide a level of certainty that will improve confidence in the market and attract more players.

Prospects for Phase 2 of the ETS

Discussions continue on how the ETS should develop in the second phase, from 2008-2012, but there will be no changes in the directive governing the ETS. Subordinate legislation like the monitoring and reporting guidelines may be changed and there will be a different level of penalties, as already foreseen in the directive adopted in 2003.

Phase 2 may work better than Phase 1 because the preparatory work, for example identifying installations, has already been done. 'Phase 2 in Europe will work better because all the registries will be in operation and the companies and institutions will have 3 years of experience,' says Aitor Moso, Head of Power and Emissions Trading at Iberdrola.

Peter Zapfel, ETS Coordinator at DG Environment of the European Commission, says that each Member State can decide on its own whether to include more sectors or greenhouse gases in the scheme as of 2008. A Commission report foreseen for mid 2006 will, among other aspects, consider the harmonisation of the scheme so that all Member States extend the parameters of the scheme in the same way. However, a harmonised extension requires a change in the directive, and this is unlikely before any Third Phase begins.

The transport sector

Recently the Commission announced that aviation should be included in the scheme, and this is now the subject of talks at EU level. Although the sector represents only 3% of greenhouse gas emissions, its share of total emissions is growing faster than any other industry. EU emissions from international flights rose by 73% between 1990 and 2003, and are expected to have jumped by 150% by 2012.

Road transport and shipping are also candidates for inclusion, as well as sulphur dioxide and nitrogen oxide emissions. Tim Atkinson of Natsource suggests that if other sectors are brought in this will need to be done in good time, and not in a rushed manner. 'Companies need to have confidence going forward, regulatory consistency is vitally important so that people can plan their compliance strategy.'

According to John McElroy, Head of Environment Strategy at RWE npower, 'in the long-term, if the ETS is to be a successful instrument, other sectors need to be brought in. If you do this, it must be clear that they can monitor and

verify their emissions accurately and have good base-line data that will be acceptable as a basis for allocating allowances. In making any decision to bring in other sectors, policy makers need to understand the impact on the market. In particular that there is an understanding of the potential for emissions reductions and how costs are likely to be distributed across other sectors.' James Blunt of Spectron believes that other sectors will be included: 'Shipping, aviation and public transport contribute considerably to emissions on a national and international level. These sectors are a major percentage of emissions and should not be ignored.' However, inclusion of these sectors may again have to wait until a third trading period of the ETS, which would run from 2012.

The extension of emissions trading to cover domestic emissions is also on the agenda. NGOs in particular support the introduction of personal carbon allowances so that each individual will have to consider the consequences of their actions for the planet. This proposal is being studied by research institutes such as the Tyndall Centre for Climate Change Research in the UK, which is looking at Domestic Tradable Quotas (DTQs) as a possible policy instrument for emissions reduction.

Member States are now drawing up Phase II NAPs, with a deadline for completion of the end of June 2006. A decision on allocation should be made at the end of December 2006. It is not clear whether all will be able to meet this deadline, since governments will have to consult with all the industries involved and draw up a NAP which is credible and likely to be approved by the EC.

The Commission wants future NAPs to be less complex and more transparent and there may also be more standardisation of information to make these more accessible. The final publication of the new NAPs is likely to provide another price impulse to the ETS to add to fuel prices and weather conditions.

Another new element will be introduced into the ETS later this year when the EU Linking Directive comes into force, allowing Member States to use credits from CDM (Clean Development Mechanism) and JI (Joint Implementation) projects and convert these into allowances and use or trade these within the ETS.

Until the end of 2007, installations are allowed to make unlimited use of CDM credits, but this will change in Phase 2 when Member States are required to limit the use of project credits in line with the principle that the use of these mechanisms should be supplemental to domestic action to reduce emissions.

Post-2012 regime under discussion

With the next UN Climate Change summit on the post-2012 climate change regime taking place in Montreal from November 28 2005, there is speculation about how the world will approach the need to establish a new framework for combating climate change.

Peter Zapfel of the European Commission believes that 'post-2012, we should continue to work with market-based mechanisms such as the ETS and the Clean Development Mechanism. We also need to engage more with countries around the world and see what governments can do to bring about deeper cuts in emissions, for example by using low carbon technology.'

According to Dirk Forrister, Managing Director of Natsource London, as targets get tougher and as the regime's future becomes clearer beyond 2012, this will send a more powerful signal to industry that they should begin to make more investment in cleaner generation.

John McElroy of RWE npower believes that emissions trading post-2012 has to be developed within the context of an international climate change framework. 'A large number of significant players are not willing to sign up to the Kyoto Protocol, while there is also the Asia-Pacific agreement now. Going forward, there has to be a mix of drivers for low carbon technology development and market-based instruments, and only in that way will we engage a number of the major emitting countries.'

Although it is still early days, the ETS can be seen as something of a success story. It has established a CO₂ reference price, liquidity is improving and the range of participants is growing. Although prices have been higher than expected, they remain around the range where participants will consider switching to low carbon options, the main objective of the scheme. The EC and national governments have learned lessons from Phase 1, but the next stage of the scheme will be critical for the development of a credible and functioning European emissions trading scheme that can deliver the required reductions in greenhouse gas emissions and encourage investment in low-carbon technologies.

Guest Article – What can be learned from the EU Emissions Trading Scheme so far; criteria for future success

Imtiaz Ahmad of Morgan Stanley reviews the operation of the ETS, arguing that cap and trading is the most cost-efficient way of reducing CO₂ emissions and that there is scope for an international carbon market to emerge.

Background

The ETS was established as a cap and trade scheme across the 25 Member States of the EU, and was designed to encourage the reduction of carbon dioxide emissions consistent with the EU's commitment to reduce emissions of green house gases (GHGs) by 8% from 1990 levels by 2012.

In order to comply with the rules, firms may choose to buy EU Allowances (EUAs) in the market if they are short and find this option cheaper than abating at their own installations. Conversely, they may sell allowances, or retain them for compliance in the following year, if they are inherently long under the trading scheme or are able to abate emissions of carbon dioxide for less than the prevailing EUA price.

As a general trend, the National Allocation Plans left industrial firms neutral to long and the generators generally short. The rationale for this was that the majority of emissions captured by the ETS are from the power generation sector, and switching from coal-fired generation to gas fired generation was seen as the main source of abatement.

As a general rule a coal fired plant with 36% efficiency emits 0.9 tonnes of CO₂ per MWh generated, whilst a combined cycle gas turbine plant with 49% efficiency will emit 0.45 tonne of carbon dioxide per MWh generated, which illustrates that running more gas-fired generation

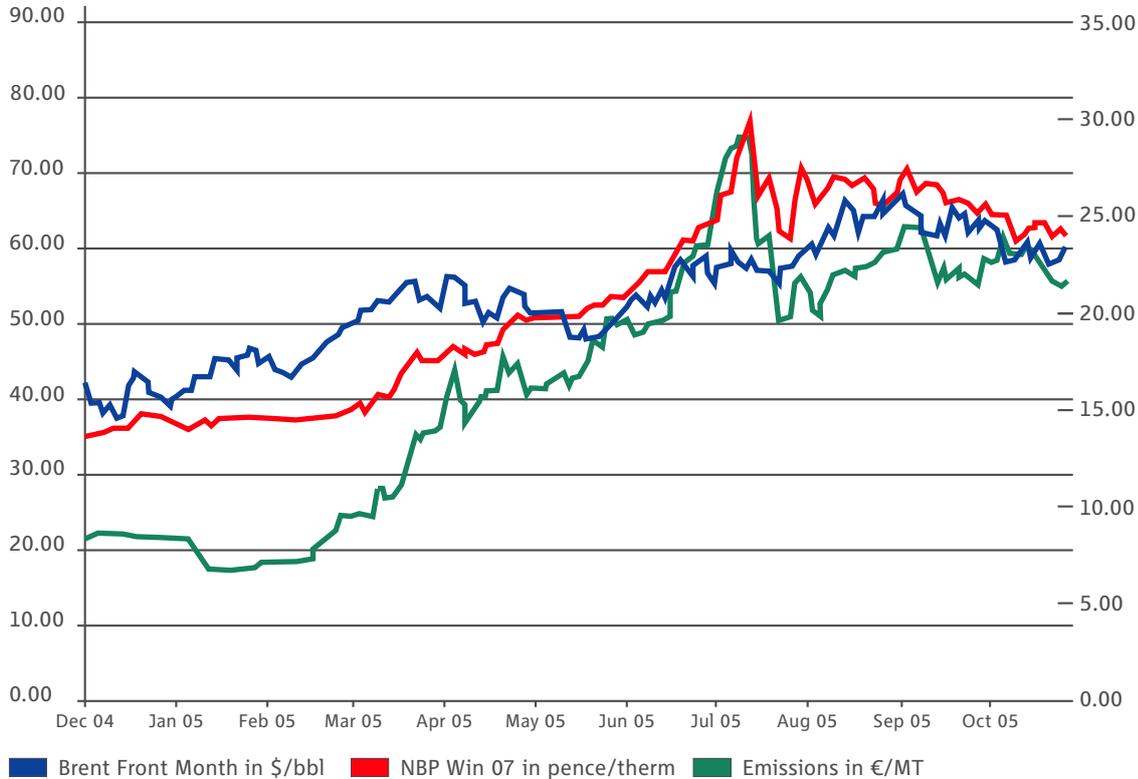
can reduce carbon emissions by half. The problem is the limited amount of existing installed Combined Cycle Gas Turbine (CCGT) capacity within the EU, with the UK and Spain seen as the main sources of potential abatement for Phase 1.

EUA market experience to date

With the official launch of the ETS, formal EUA trading opened with a trade at €8.40 per tonne on 4 January 2005 between Shell and BHP Billiton and was followed with a quick fall to the record low of €6.35 per tonne with the price staying below €7 per tonne for the rest of January 2005 (see Figure 2). The reason for the fall was due to a continuing combination of mild weather, relatively soft gas prices and a view that the National Allocation Plans were likely to be on the lax side.

Sentiment changed from February onwards, as announcements by the EU Commission that the NAPs of Poland, Italy and the Czech Republic would be cut back, and by the UK that it would not seek to increase its own NAP, combined with colder weather and rising oil and gas prices to raise EUA prices. Amid industry estimates that the shortage across the 3 years of Phase 1 of the ETS would range between 150–200 million tonnes, rising oil prices in July 2005 culminated in a record price for EUAs of €29.55 per tonne for the December 2005 contract, with the December 2007 trading at €30.

Figure 2 – EUA, Brent oil and gas prices 2005



Source: Morgan Stanley

Prices for EUAs fluctuated in the following months, heavily influenced by oil and gas markets, as well as on occasion by rumours of large volume Eastern European sellers and some strong industrial selling.

Many market participants seem to have overlooked the key role of the coal-to-gas differential in the UK. The UK has greatest scope for abatement, and in order for sufficient carbon abatement to occur the EUA price will, in theory, have to go to a level whereby coal fired generation plant in the UK is displaced by gas-fired CCGT plant. If one was to take the UK NBP summer contract price at the 42 pence per therm level and the forward API#2 coal price for the same period at \$55 per tonne, the implied carbon price would be €35 to €36 per tonne, yet the recent carbon price level has been ranging between €21 and €23.

A further key factor has been the fact that Spain has experienced one of the driest years on record. The table below (see Figure 3) shows that although more CCGT generation ran in Spain during the first six months of 2005, it ran at the expense of zero-emitting hydro and nuclear plant. There was also an increase in the load factor of fuel oil plant. Average emissions per MWh by fuel type indicate that, on a year-on-year comparison, Spain increased its emissions by just over 7 million tonnes for the first six months of 2005 compared to the first six months of 2004.

Figure 3 – Spanish generation comparisons, 2005 and 2004**Year 2005**

Emissions tonnes of CO₂/MWh	0	0	0.9	0.83	0.45
GWh Generated	Nuclear	Hydro	Coal	HFO	CCGT
January	5,602	1,473	6,830	603	2,360
February	4,930	1,358	6,187	771	2,545
March	4,484	1,401	6,346	1,381	3,349
April	3,821	1,523	5,630	438	3,027
May	3,671	1,908	5,801	474	3,296
June	3,794	1,737	5,992	923	4,480
YTD Total	26,302	9,400	36,786	4,590	19,057

Year 2004

Emissions tonnes of CO₂/MWh	0	0	0.9	0.83	0.45
GWh Generated	Nuclear	Hydro	Coal	HFO	CCGT
January	5,466	3,352	5,957	440	1,358
February	5,181	2,858	5,985	359	1,666
March	4,970	2,779	6,605	619	2,187
April	5,135	2,536	5,294	302	1,783
May	4,904	2,796	5,215	359	1,995
June	5,170	2,440	6,018	373	1,968
YTD Total	30,826	16,761	35,074	2,452	10,957

Source: Morgan Stanley

The impact of the registries bottleneck

Recent market activity in October has focused on spread trades, and highlighted the adverse effects on liquidity of a market where the administrative and legal framework is still incomplete. A number of firms who had bought volumes from the EU Accession States, and sold them forward for delivery on 1 December 2005, entered into spread trades to buy the 1 December 2005 contract for a premium over the 1 December 2006 contract. At one point, this caused the market to hit a backwardation of 70 Euro cents. The backwardation was exacerbated as firms scrambled to buy back the allowances they had sold for delivery on 1 December 2005 amid uncertainty over the go live date of the national registries of Poland,

Slovakia, and the Czech Republic. Indeed, in spite of the Czech registry since going live, the 2005/2006 spread market still trades at a 5 to 10 cent backwardation. Traders will watch the go live date of the remaining Accession State registries to see if this allows a more liquid market to develop.

Prospects for Phase 2

The Phase 2 period will require a greater reduction in the NAPs compared to Phase 1, and there has been much speculation about future price levels in Phase 2. There are two schools of thought about Phase 2, with one stating that with additional shortages the price will storm up above Phase 1 levels. Whereas the alternative viewpoint suggests that the price for Phase 2 will out-turn below the

2007 price, due to volumes becoming available from Clean Development Mechanism (CDM) and Joint Implementation (JI) projects, along with Russian and Ukrainian 'hot air' (their surplus inventory of emissions permits, arising from national allocations based on industrial capacity levels such as existed prior to the break-up of the USSR).

Much will depend upon the prevailing oil, gas, and coal prices and the weather at the time. There has been speculation that some governments are concerned about the EUA price reaching €60 per tonne, but it should be noted that in Phase 1 to date there has been no actual realised flow of project credits into the market, whereas more projects should come on line in the future and provide greater abatement, be it through industrial efficiency (such as upgrading boilers in some of the Accession State installations) or be it through CDM and JI projects.

Suggested amendments to the ETS

Speculation and debate has focused around whether aviation should be added to the trading scheme or whether additional GHGs should be added to Phase 2 of the ETS. If aviation is to be added, then it is important for the airlines to know at an early stage when and how they would be captured by the trading scheme, in order to allow them to plan ahead for compliance purposes.

Rather than focusing on amendment, it is more important for EU Member State governments to formulate and publish their draft plans as soon as possible in order to allow for forward planning and to avoid the repeat of Phase 1 when some Member States were very late in submitting their NAPs. A key factor for the Phase 2 NAPs is to give a clear and early message to those captured by the trading scheme as to what their position is

likely to be, in order to allow firms to plan ahead for their compliance strategies and make efficient investment decisions based on the correct incentivisation signals. Some utilities might be seeking to invest large sums of capex into new build plant, and industrial firms might be seeking to invest in more efficient technologies, whilst others may be looking at investing in JI and CDM projects.

One area Member States may look at more closely is the method of allocation. There is a debate about whether or not this should be based on grandfathering (i.e. historical emissions) or instead on benchmarking or another alternative system. It may well be that for Phase 2 a greater use of benchmarking against best practice is used for the sector level allocations. However, time is the key practical constraint and Member States must ensure that they use a method that does not take too long to put into place or is too complex.

It is also important for the Member States to work together where possible to adopt a degree of harmonisation between the different NAPs to prevent distortions to the market. This will relate to issues such as the treatment of plant closures, and the allowing of project credits from CDM and JI projects. It is very important to stress that firms are making investment and funding decisions about new projects and how or whether or not to abate.

Volumes and liquidity, OTC and exchanges

The following table (see Figure 4) shows the rapid recent growth in the scale of the EUA market, although it should be noted that some of the volume growth in September was accounted for by 1 December 2005–1 December 2006 spread trades.

Figure 4 – Exchange and OTC volumes

	OTC	ECX/IPE	Nordpool
January 05	6,385,000		
February 05	7,795,000		371,000
March 05	15,058,000		1,065,000
April 05	14,515,000	370,000	1,664,000
May 05	8,647,000	1,076,000	1,092,000
June 05	13,113,000	6,325,000	4,007,000
July 05	13,410,000	11,090,000	2,900,000
August 05	6,750,000	5,633,000	3,461,000
September 05	28,935,000	17,931,000	2,883,000
Total	114,608,000	42,425,000	17,443,000

Sources: Point Carbon, ECX, Nordpool, Morgan Stanley

At least seven screen brokers and three voice-only brokers exist for the carbon market, and five exchanges have been set up for EUA trading. Two exchanges, the European Climate Exchange (ECX) and Nordpool, have accounted for most of the volume to date out of the various exchanges that exist. There has been speculation that a number of financial players such as banks and hedge funds have been more active on the ECX and a number of the larger utilities more active on Nordpool.

A complication in the OTC market has been the adoption of three different contracts for the same underlying product. The ISDA, IETA and EFET contracts are used and different market participants have expressed varying preferences for each of the contracts. This in turn has at times led to a degree of fragmentation in the market and occasions where bid and offers are made at the same price but due to contract issues, the two parties cannot match. A major advantage that the exchanges have brought to the market is the ability to use EFPs ('exchange of futures for physical') trades to clear trades between parties who use a given exchange, but who, either due to contract or credit reasons, cannot trade with each other and this has enhanced the volume of trading in the market.

Desired outcome

The ETS is the best mechanism to enable the EU to meet its Kyoto targets in the most cost-efficient manner. The alternative would be a carbon tax, which may prove more costly and would fail to provide the incentive signals for efficient investment and plant dispatch that a trading scheme should provide for.

The potential impact of the cap and trading mechanism has yet to be fully realised, but the current approach should bring a number of advantages. These include the facilitation of the transfer of technology – in the case of the CDM, to the developing world. This will assist with sustainable development, whilst at the same time providing an offset of CO₂ emissions elsewhere, often at a lower abatement cost than can otherwise be achieved.

Given that climate change is a global issue it is constructive to seek a global solution and the CDM provides such a mechanism. Provided that the CDM Executive Board and the International Transfer Log function as planned, then the scope exists for a true international carbon market to emerge.

Focus on Markets – Germany

The impact of the ETS on energy prices

The ETS has been blamed for contributing to the recent rise in European power costs. However, according Prof. Franz Jürgen Säcker of the Institute for German and European Economic, Competition and Energy Law, several other significant factors have contributed to rising energy prices in the German market, and the ETS appears to be providing market-based incentives for utilities to invest in cleaner generation technology.

Much has been made of rising energy prices in Germany and across Europe – particularly since the introduction of the EU Emissions Trading Scheme (ETS). What are the key economic and political factors driving the increase in German energy prices?

There are several structural, economic and political factors at work and, over time, some will be more significant than others.

For a start, the power grid is a natural monopoly for the simple reason that it would be uneconomical to build competing grids. Previous attempts to reduce what suppliers have to pay grid operators have not been effective. The new German regulator is expected to reduce access tariffs across the network but the impact on consumer prices is not likely to be significant. Reducing fees by some 20–25% across the existing network of some 800 grid operators would only reduce municipal power prices by 7–8%.

Political taxes and the shortage of capacity are more significant factors driving the increase in prices. For example, existing public charges of more than 20% will rise further when the use of wind energy is expanded because of the construction of new grid lines required for transmitting the electricity from northern to southern Germany.

Also, the increased use of balancing energy needed to compensate for the erratic electricity supply from wind turbines will increase costs. In my view, wind power generators should only be allowed to sell their power to the grid when it is economically sensible to do so.

A more serious issue in the medium-term is the shortage of generation capacity. Because of limited power plant capacity, prices at the EEX, the European energy exchange in Leipzig, which are benchmark values for new electricity supply contracts, are rising continuously. Limited interconnection capacity at Germany's borders means that imports are impeded. Although several new power plants are being built, nobody knows whether new plant will result in lower prices because of the global increase in fuel costs (gas, coal, oil).

Finally, the operation of the ETS is having an immediate impact on energy prices. The market is short of CO₂ certificates and this is forcing up the cost of certificates and power prices. This could have been predicted but the situation has been aggravated by the rise in oil and gas prices, which is delaying the politically intended switch from coal- to gas-fired generation.

As you have stated, in Germany, as elsewhere in the EU, the market is short of CO₂ certificates but the market has to be short for the ETS to be effective. In your view, is this a short-term phenomenon or will it persist?

Emissions trading is meant to achieve a reduction in CO₂ emissions by increasing the relative cost of operating power plants that emit high levels of CO₂ (e.g. coal), and encouraging investment in 'cleaner' generation. A short-term rise in power prices to incentivise investment in 'cleaner' generation is what the politicians intended should happen when they introduced the scheme.

Regardless of how CO₂ certificates are allocated initially, electricity companies have to make a choice either to produce electricity and thereby use their CO₂ certificates, or not to generate electricity and sell the certificates to other companies. Only if electricity prices are higher than the short-term marginal costs of generation plus the market value of the required certificates will the electricity utilities opt to produce. Otherwise they will save their certificates or else sell them.

The hope of being able to reduce this hike in prices over time by building and using more gas-fired power plants with lower CO₂ emissions has been dashed by the rapid rise in the price of gas. The consequent reduction in production from gas-fired power plants means that more electricity has to be produced instead from more emissions-intensive coal-fired plants. As a result, more CO₂ certificates are required and this is driving up prices. Moreover, the EU has brought about a shortage in the market by curtailing the National Allocation Plans of, among others, Poland and the Czech Republic. As a result, there is a 'shortfall' of about 200 million certificates through to 2007.

How are German utilities reacting to the rising price of CO₂ emissions?

Evidence would suggest that power companies are behaving in a rational way. They are maintaining market share by opting to produce power from existing plant using their existing certificates and buying additional certificates in the CO₂ market when they have to do so for economic reasons (e.g. when selling electricity forward and when more electricity has to be generated than planned by short-term power plant dispatching so that additional CO₂ allowances are required.)

What are the possible implications for German security of supply (in the short- and long-term) if generators do decide not to produce?

If German power generators were to decide to stop producing, the resulting lack of supply would immediately lead to power shortages and blackouts. Existing cross border transmission lines are not sufficient to allow for adequate imports from abroad. If only a few generators stop or reduce production, supply would decrease and lead to rising wholesale prices. Against this backdrop energy politics must not discourage generators to invest in new build just because current power prices are increasing as a result of the ETS.

With that in mind, will the ETS have the desired longer-term effect of incentivising the power sector to invest in generation capacity with lower CO₂ emissions?

One of the main deficiencies of the ETS is the length of the current Phases. Three or 5 years periods are much too short for investment. A decision today to build a new and efficient power plant would lead to emissions reductions in 5 to 7 years from now. There remain great uncertainties about the future design of the ETS and CO₂ prices. However, some EU Member States have implemented incentives for new investments. The German NAP, for instance, allows a transfer of emissions allowances from old plant to replacement plant for 4 years, which enables investors to sell excess allowances on the market or use them internally for other purposes. This instrument clearly fosters investment in new and efficient facilities.

How successful do you believe the ETS will be in encouraging low carbon generation across the EU?

If designed properly, the ETS can add to emissions reductions across Europe. One of the key questions is how Member States set incentives for investments. Some industries are criticising the system for its price effects (which, in fact, are an essential part of its success) and go as far as demanding the cessation the ETS completely. If the EU Commission and its Member States do not overdo it (in terms of setting targets that are too restrictive and, therefore, increasing the overall burden for European industries) and implement the right incentives, the ETS should contribute considerably to achieving Europe's emissions reduction targets.

In order to encourage new low-emission technologies the economics must be right. What are the essential pre-conditions for a stable investment climate and trading environment in the German energy market?

Any reluctance to build new power plants, despite the high level of current electricity prices and availability of private capital, is probably the result of uncertainty about future energy policy. Political demands, such as the mandatory tendering of power plant capacities, auctioning of CO₂ certificates for the 2008–2012 period, or the statutory distribution of profits from the planned extension of the lifetime nuclear of power plant, increase the risks associated with investing in new capacity.

I believe that effective liberalisation of the markets with competition protected within a realistic legal framework, a predictable environmental policy which makes economic sense, and an equitable incentive-based regulation to limit the price of network access charges, are indispensable components of a successful long-term energy policy.

In my view, the authorities should not attempt to hide behind the shortcomings of national energy and environmental legislation by accusing companies of manipulating the market when they are in fact responding to market forces within the current legal framework.

Professor Franz Jürgen Säcker is Director of the Institute for German and European Economic, Competition and Energy Law of the Free University of Berlin, and a member of the European Energy Institute. His experience in the field of competitive markets includes serving as a member of the German Government Commission on competition law reform and the German Regulatory Authority for Telecommunications and Posts.

Opinion Board

Our guest panel tackle questions centred around the first year of operation of the ETS, and its future prospects. While undoubted difficulties have emerged in implementing the ETS, there is strong support among panel members for the view that its market-based principles are the right approach to emissions control in the longer term.

What are the lessons to be learned from the ETS so far?

'It has been a frustrating and long process. This was to some extent to be expected and there is some sympathy for all involved in trying to find common ground. What is clear is that the pan-European allocation methods need to be harmonised, but you can't blame people for finding it difficult – it has been a steep learning curve.'

Tim Atkinson

*Head of Emissions Markets Europe,
Natsource Europe Ltd.*

'The ETS Phase 1 is essentially a test system anyway, and it is perhaps too early to say what lessons have been learned. With some NAPs still to be confirmed, registries not operational and the impact of both Eastern European allowances and CDM/JI projects still unclear, it is early days for this market. Few of the sectors affected by the ETS are actively involved as yet so again there are large elements that will become clearer in time. Once we have seen a full cycle of allocation and submittal of allowances come year-end, we will know more. However, it is likely that we will need to wait until the end of Phase 1 before we can be sure how successful the scheme has been. Despite all the question marks raised, this market has experienced very encouraging growth in both volume and participant terms and there are sure signs that ETS is maturing well.'

James Blunt

Head of Emissions Broking, Spectron

'There are at least two important lessons. First of all, this market works and provides the right scarcity signals. That in itself is a great success. Though the price level is higher than most people expected, it is clearly related to the fact that the reduction targets for CP1 (the first compliance period of the ETS 2005-2007) will have to be primarily fulfilled through the fuel switch from coal to gas fired power generation at a time when oil and gas prices as well as the spread between gas and coal prices have reached historical highs. As a consequence, high carbon prices are required to increase the relative attractiveness of gas fired generation.'

The second lesson: No matter how well this market works, political decision-makers are unlikely to accept price levels perceived to be 'too high'. Rather than questioning the scheme itself, they should spur on the implementation of national registries, provide more support to their own industries outside the power and heat sector to actually allow them to bring existing but comparatively fragmented carbon length to the market. They should also exert a stronger influence on the UN to get the International Transaction Log on stream during the first compliance period. The latter is necessary for carbon reductions achieved outside the EU, like CERs, to physically enter the ETS.'

Peter Kreuzberg

Managing Director, RWE Trading

'We are following the development of the market closely. It is only a few months old and therefore it is too early to draw lessons. We have, however, learnt a lot in the allocation process in Phase 1. Based on these lessons we are preparing input to Member States on allocation in Phase 2. Also, it has been a resource-consuming operation due to the fact that a lot had to be done in Phase 1, for example finding the installations.'

Peter Zapfel

Team Leader, ETS, European Commission

'It is still a young market, and its functioning has not been as logical as expected. It's important that the administration and creation of the NAPs is more homogenous. It would be helpful for the market if these were published closer together, if not simultaneously. Counterparty credit risk has also emerged as an important issue.'

Mark Meyrick

Manager, Renewables and Emissions Trading, EDF Energy Merchants

Views contributed by Mark Meyrick throughout this issue's Opinion Board are intended as his personal perspective and do not necessarily represent any corporate view of EDF.

'One of the key lessons is the sheer complexity of introducing the ETS across all EU Member States. Nine to ten months into the first trading year, it is still the case that not all countries have finalised and implemented their NAPs. Also many registries are not up and running, so a large part of the market does not have a route to the spot market at the moment. The whole timetable to get the NAPs approved and implemented was a phenomenal task. It was all rather rushed and the end result is a very complex system with differing rules across the EU. I would like to see more transparency in the next phase with regard to the approval and implementation of the NAPs. There are other issues as well. The way in which the initial three-year compliance period was introduced was unsatisfactory, creating a market discontinuity at the end of 2007. Also, there is a lack of transparency as to what will be put in place

post-2008, let alone post-2012. One of the failings in market design to date is the lack of long-term transparency, long-term pricing.'

John McElroy

Head of Environmental Regulation, RWE npower

'The reaction of the European companies has been very positive with most of them taking into consideration this new element. The market is already a reality, and the liquidity of the market, with more than 2 million tonnes negotiated each day, is adequate.'

Aitor Moso

Head of Power & Emissions Trading, Iberdrola

'The market is working and will deliver the required emissions reductions. However, the market is not yet complete. Ten out of twenty five registries – including those in two of the largest emitting countries in Poland and Italy – are yet to go live which means that many participants in these countries are yet to even enter the market. This is a significant problem and the Commission and Member States need to work to correct this as soon as possible. Governments and the UN Framework Convention on Climate Change (UNFCCC) also need to work to ensure that the prompt start to the CDM mechanism becomes a reality by clearing the backlog of CDM project registrations, guaranteeing the delivery of the international transaction log in the early part of 2007 and ensuring that the Linking Directive is effectively transposed into national legislation. Another lesson we have learned is about the requirement for consistent contract documentation to avoid disconnects between the contractual provisions on a portfolio of sales and purchases (so-called 'contract basis risk'). ISDA, IETA and EFET have all worked closely together to minimise this. The EEP (Excess Emissions Penalty) clause is still a contentious issue however.'

Louis Redshaw

Associate Director, Barclays Capital

'The major lesson is that combating climate change has material costs – currently €22 per tonne of CO₂ abatement – and the likelihood is that that's going higher. The second observation is that companies have a variety of views about likely price developments and adopt a variety of strategies when faced with a CO₂ constraint. That variety itself strikes me as remarkably healthy since the alternative might be for us to 'put all our eggs in one basket'. Finally, we have seen that embryonic markets can reflect individual trading strategies for a surprisingly long period of time.'

Chris Rowland

MD Utilities Research, DrKW

The views described here are the personal views of the author which are not necessarily the same as those of Dresdner Kleinwort Wasserstein or any affiliate.

'There are a few lessons, although 2005–2007 is a test phase over a short period of time. Firstly, abatement from the power industry is operational, and abatement from industry means investment. Three years is a short period of time for industry to carry out abatement, and industry is not easily motivated to undertake abatement. Also there are changes arising from variations in temperature, rainfall, fuel prices and economic growth, and some players are not aware of this.'

Per-Otto Wold

Chairman and Senior Advisor, Point Carbon

How will Phase 2 of the ETS differ from Phase 1? What needs to be done?

'There are discussions in the European Commission about more harmonisation of key issues in the allocation process. In our experience industrial companies have been on a steep learning curve and lacked confidence in trading. In the second phase they should have more confidence to use the trading mechanisms. However, I don't blame them for not trading until they are completely comfortable. There should be more of a balance

between a reactive approach – buying or selling at the end of the year – and starting to be more proactive – identifying internal abatement projects and developing a trading strategy to reduce risks.'

Tim Atkinson

Head of Emissions Markets Europe, Natsource Europe Ltd.

'I think that again it is difficult to predict, but at the very least you would expect the trading mechanisms such as the registries and the ITL to be in place and NAPs to be resolved prior to the start of the phase. CDMs and JIs are coming on stream so we will have a better idea about how the different elements will fit together. Based on the long/short nature of Phase 1, I anticipate that the Commission will be better placed to allocate NAPs with the benefit of hindsight.'

James Blunt

Head of Emissions Broking, Spectron

'The market is still pretty clueless about Phase 2 and the whole ETS is unlikely to trigger major long-term carbon abatement decisions until this changes. Politicians need to work hard to decrease existing uncertainties, particularly in two areas: They need to avoid delays in National Allocation Plans as seen for CP1 and more emphasis needs to be put on the infrastructure required to achieve the linking between EUAs and other instruments like CERs in practice. The International Transaction Log is particularly critical for that.'

Peter Kreuzberg

Managing Director, RWE Trading

'Overall there will be no change in the legal framework, i.e. the directive. There are some differences foreseen in the directive (e.g. on the level of penalties) and there will no longer be the force majeure clause allowing member governments to issue extra allowances. Also it will be possible to include other sectors and gases in the ETS. We may revise the monitoring and reporting guidelines and we can use existing flexibilities in the directive to improve the

allocation process. We will recommend countries make Phase 2 plans simpler than those in Phase 1. We will also work to ensure more transparency of plans, with some of the information being standardised to make it more accessible.'

Peter Zapfel

Team Leader, ETS, European Commission

'There will be the NAP issue, and more overseas emissions credits (as envisaged by the EU's Kyoto Linking Directive) will come into play. There will be more players in the market as a consequence of the market maturing. I also think that a review currently being conducted by the EU will have an impact by the middle of the second phase. There may also be more and more frequent auctioning.'

Mark Meyrick

Manager, Renewables and Emissions Trading, EDF Energy Merchants

'I don't think that Phase 2 will look very different because the EU Commission can't change many rules. They have already said that they can't modify the directive, so the legal framework will look similar. I hope there will be harmonisation across the EU, for example on the definition of what an installation is and monitoring, verification and reporting requirements. Much beyond that is pretty impossible, for example the treatment of new entrants. Caps will be tighter though. One of the unsolved issues is that if emissions trading is to have credibility, all must play their part and deliver. In the first phase the burden fell on the electricity sector and this doesn't help to engage players in the market, so people have allowances but are not really engaged. We would like to see all sectors participating in the scheme to deliver carbon reductions.'

John McElroy

Head of Environmental Regulation, RWE npower

'Phase 2 in Europe will work better because all the registries will be in operation, and the companies and institutions will have 3 years of experience. However, the NAPs for the power sector have been based on free allocation, and there is a high probability that allowances will be auctioned and not allocated in the next phase.'

Aitor Moso

Head of Power & Emissions Trading, Iberdrola

'The primary difference is that Phase 2 coincides with the first Kyoto commitment period. This will require many Member States to set challenging National Allocation Plans if they are to meet their Kyoto obligations. In Phase 2, we should also see increasing use of project credits from Clean Development Mechanism and Joint Implementation projects and the likely extension of the scheme to the aviation sector. Beyond that, there may be some efforts to harmonise the sectoral definitions and allocation methodologies to ensure a level playing field within individual EU industries. During the course of Phase 2 we would also expect the Commission and Member States to focus increasingly on extending the scheme to other new sectors and to investigate the linking of the scheme to similar trading schemes outside of the EU with a view to a broader international trading scheme in 2013. The pursuit of international emissions trading will extend the benefits of emissions trading to more jurisdictions, promote the wider mitigation of greenhouse gas emissions, while levelling the playing field for European industry who currently face competition from countries not operating under a similar constraint on emissions.'

Louis Redshaw

Associate Director, Barclays Capital

'My hope is that Phase 2 will see fewer administrative rules, especially related to new entrants, closures and transfers from old to new installations. These administrative rules distort the whole purpose of emission trading – which is to set a cap and then let market participants find the cheapest way of staying within that cap. A second difference is that in setting the total number of allowances in each EU Member State I would hope that there may be less discretionary interpretation of the number of allowances that is consistent with that country achieving its Kyoto target. The European Commission had to do much with the Phase 1 allocations to remove some of the 'outliers', but still some Member States ended up with relatively relaxed targets and some with tighter targets.'

Chris Rowland

MD Utilities Research, DrKW

'It is a 5 year time horizon, so people will need to look at longer-term abatement. Also, there is the CDM mechanism and the link with Japan and Canada.'

Per-Otto Wold

Chairman and Senior Advisor, Point Carbon

How important will carbon trading on the exchanges become in the short- to medium-term, compared to the OTC market?

'For the right people, exchanges offer an effective route to market, for example speculative traders trading on a day-to-day basis. We focus on assisting industrial companies, and they may only trade once or twice a year so they will look at the costs involved in trading. You need a certain level of expertise to trade on the exchanges. Exchanges will continue to play a role for active traders, but they provide little assistance in helping industrial companies understand trading and how best to enter the market that the OTC market provides.'

Tim Atkinson

*Head of Emissions Markets Europe,
Natsource Europe Ltd.*

'A clearing facility of some form is important because credit is key, especially when cross-sector and border trades are so prevalent. Exchanges have the facilities in place to enable efficient clearing. However, most counterparties prefer to trade OTC and then simply clear through the exchange. By utilising a broker the trader can get a good feel of sentiment in the market whilst on an exchange you get little or no feedback.'

James Blunt

Head of Emissions Broking, Spectron

'We expect OTC market transactions to continue to have the major volume share, but exchanges are catching up. On the one hand, EU allowances lend themselves more easily to standardisation than other energy products, which is what exchanges need. On the other hand, the potentially lower credit quality of many 'natural carbon sellers' will make exchanges

and exchange-based central clearing solutions particularly important.'

Peter Kreuzberg

Managing Director, RWE Trading

'I have no view on this as I work for the Commission – this is for people in the markets.'

Peter Zapfel

Team Leader, ETS, European Commission

'It looked as though the exchanges might take over much of the market from OTC trading, not least because of initial potential advantages that they offered in helping to negotiate counterparty credit risk. However, OTC trading has largely made up for its initial disadvantage in this respect due to the possibility of EFPs ['exchange of futures for physical' trades] and the exchanges may remain secondary to the OTC market.'

Mark Meyrick

*Manager, Renewables and Emissions Trading,
EDF Energy Merchants*

'This is for the traders to answer, not me. But the exchanges are coming in, and we will see more innovative products, though we don't have the long-term market signals.'

John McElroy

Head of Environmental Regulation, RWE npower

'With national registries coming into operation and the volume of spot transactions set to increase, it may be premature to analyse which will be more important, although OTC operations cleared via exchanges could have a very important role.'

Aitor Moso

Head of Power & Emissions Trading, Iberdrola

'Carbon trading on the exchanges is already important in helping market participants to manage their credit and delivery risks. Exchanges can also help to overcome the difficulties in negotiating bilateral contracts since market participants can agree to trade on the exchanges' standard terms.'

Louis Redshaw

Associate Director, Barclays Capital

'In principle, exchanges should be cheaper means to trade but at the expense of less market information flowing freely between participants. Over time the importance of efficient, cheap trading should displace the value of free flowing information which gives early participants confidence enough to take positions.'

Chris Rowland

MD Utilities Research, DrKW

'The exchanges will expand in the standardised product market while brokers will take the flexible contracts. Overall the OTC market will still dominate the carbon market for some time, although the exchanges will have more of the standardised products.'

Per-Otto Wold

Chairman and Senior Advisor, Point Carbon

Should the ETS be extended to include other sectors, e.g. transport?

'Yes, as long as demand and supply are maintained at an acceptable level and the introduction of new sectors is planned well in advance. Companies need to have confidence going forward. Regulatory consistency is vitally important so that people can plan their compliance strategy.'

Tim Atkinson

Head of Emissions Markets Europe, Natsource Europe Ltd.

'Definitely. Shipping, aviation and public transport are all major emitters and so it should cover them in the future as well if realistic emission reductions are to be tackled. Transportation is a major percentage of emissions and should not be ignored.'

James Blunt

Head of Emissions Broking, Spectron

'The answer to the question about which other sectors should be included in the system should be driven by the relative transaction cost to participate. Those costs increase with the degree

of fragmentation of fossil fuel burn in a sector. With regards to transport, one might think about including the fuel suppliers at the source and trust that they would put their cost of carbon through into the fuel price.'

Peter Kreuzberg

Managing Director, RWE Trading

'Recently the Commission has announced it wants to include aviation in the ETS. Inclusion of other sectors will be the subject of a report in mid-2006 looking at how this can be developed beyond Phase 2. The relevance of this is, however, for Phase 3.'

Peter Zapfel

Team Leader, ETS, European Commission

'Yes, because if the environmental burden falls as simple taxation – as it does at present on sectors like transport – the burden falls on consumers and the tax does not necessarily encourage emissions abatement. Extending the ETS to other sectors will instead provide them with a system of incentives to reduce emissions.'

Mark Meyrick

Manager, Renewables and Emissions Trading, EDF Energy Merchants

'In the long-term, if the ETS is to be a successful instrument, other sectors need to be brought in. If you do this, it must be clear that they can monitor and verify their emissions accurately and have good base-line data that will be acceptable as a basis for allocating allowances. In making any decision to bring in other sectors, policy-makers need to understand the impact on the market, in particular that there is an understanding of the potential for emissions reductions and how costs are likely to be distributed across other sectors. You will also have to simplify the NAPs, which have complex rules, and deal with the teething problems. We would like the ETS to be extended, and we support looking at aviation, but it is not a priority for Phase 2.'

John McElroy

Head of Environmental Regulation, RWE npower

'The participation of other sectors will mean that more companies will make efforts to reduce emissions, which will have a positive effect on climate change and will be, also, good for market liquidity. The allocation should take into account the potential for abatement in each sector.'

Aitor Moso

Head of Power & Emissions Trading, Iberdrola

'Absolutely, the more sectors that are included, the more opportunities there are to source lower-cost emission reductions via the traded market. Bringing more sectors within the cap and trade framework also delivers increased certainty in meeting Kyoto targets, because trading has to deliver the required reductions (as opposed to taxation or other controls that may have uncertain outcomes). For example, transport emissions are currently expanding which could negate the achievements under the ETS. If you put a cap on emissions from every key sector, a country can meet its Kyoto target more easily and, crucially, at lower cost to the economy.'

Louis Redshaw

Associate Director, Barclays Capital

'Yes, to other sectors and to other gases, but only when sufficient liquidity has developed to avoid the additional complexity turning away market participants. Also one must be mindful not to bring in too many participants where the verification and monitoring requirements add an administrative burden that is out of proportion to the possible advantage from encouraging those small participants to curb emissions. However, it is important that any sectors that are not included do not think they are excluded from the requirement to curb emissions. Other instruments – taxes or mandatory emission cuts – must still be imposed.'

Chris Rowland

MD Utilities Research, DrKW

'It is difficult, but yes if it is possible to do it well.'

Per-Otto Wold

Chairman and Senior Advisor, Point Carbon

How successful do you believe carbon trading will be in changing European generation to low carbon options?

'I think it certainly has focused companies' minds on the issue of carbon emissions, but within the power generation sector coal and gas prices still are the main drivers of the generation mix. Longer term targets in the second phase should provide a greater consistency and incentive for companies to look at more carbon reduction project opportunities.'

Tim Atkinson

*Head of Emissions Markets Europe
Natsource Europe Ltd.*

'Much depends on the value of emissions allowances. It's all about the marginal cost of abatement. If the price of carbon drops to €5/tonne then it will have little impact, but if it rises to €40/tonne then it's much more relevant. If the market for EUAs and CERs/ERUs is tight, then people will look for cleaner, more cost effective ways to generate in order to reduce emissions and hence overheads.'

James Blunt

Head of Emissions Broking, Spectron

'The carbon price will trigger fuel switch on existing plants as a relatively short-term event. The general technology shift towards low carbon options in the European generation fleet will involve major long-term commitments throughout the whole industry. Some of those commitments are unlikely to happen until the system has won the credibility to be there for more than a compliance period or two. If this credibility is achieved, the result will be more complex than a simple shift of the generation fleet towards gas. As far as power generation is concerned I believe that new coal technology and biomass will have a significant role to play. Obviously, this view is contingent on the future world of gas, which is probably worth an interview of its own.'

Peter Kreuzberg

Managing Director, RWE Trading

'Carbon trading is an instrument. Changes in European generation will be achieved by implementing the emission-reduction targets agreed in Kyoto and beyond.'

Peter Zapfel

Team Leader, ETS, European Commission

'It is the right tool, but the key factor is whether NAPs are sufficient and well-administered. The quality of emissions verification and creating a real shortage in the market is vital in this respect. Furthermore, Member States must be convinced that their burden sharing commitment is obligatory – they cannot be allowed to avoid it in the way that some Member States have avoided their stability pact commitments in the European Monetary System.'

Mark Meyrick

Manager, Renewables and Emissions Trading, EDF Energy Merchants

'I think that emissions trading has the potential to address this, but to do that we need to set out where we are going in the long term. The problem is if you look at the need for new capacity, it is quite significant. There are at least three to four year lead times to build new power plant and 15–20 years to remunerate the investment, so you have to inform the industry of what framework there will be over the period. For example, the US sulphur trading system was very successful, but people understood that they had emissions rights over 20 years to deliver – it was a long-term scenario. Now we only have three years, and we don't know where we are going post-2008 let alone after 2012.'

John McElroy

Head of Environmental Regulation, RWE npower

'It is already now a success, the shift to generation based on clean technologies, gas and wind power technologies being a fact, and with nuclear generation also in the debate.'

Aitor Moso

Head of Power & Emissions Trading, Iberdrola

'The penalty regime will ensure that the targeted emissions reductions will take place and the price of carbon will change to ensure the reductions happen on the ground. In the short-term, fuel switching between coal- and gas-fired generation will be required to meet the reductions, but in the long-term, the system also provides incentives to invest in lower carbon technologies and energy efficiency. This underwrites the need for regulatory stability going forward to ensure that market participants have a long-term signal to make the investments required to deliver a low-carbon future.'

Louis Redshaw

Associate Director, Barclays Capital

'Emissions trading is a fundamental mechanism for achieving the move to low carbon generation in the least cost way. However, it is the severity of the carbon constraint and the consistency of applying that constraint over the long-term that is important – not just the mechanism. That in turn comes down to policy-makers and implementation of policy.'

Chris Rowland

MD Utilities Research, DrKW

'It will be successful in the long-run.'

Per-Otto Wold

Chairman and Senior Advisor, Point Carbon

How should climate control be managed after the end of the Kyoto compliance period in 2012?

'We are advocates of continuing with the Kyoto flexible mechanisms and emissions trading. This has been a difficult start-up phase, but I hope when we get to 2012 that the flexibility offered by trading mechanisms will continue to assist companies to cost effectively meet targets. The next challenge will be getting the new developing countries involved in a target-based system. I would like to see the Kyoto system expanded.'

Tim Atkinson

Head of Emissions Markets Europe, Natsource Europe Ltd.

'As with many legislation-driven green markets before it, Kyoto has been developed, so far, for a limited period. Whilst 2012 may seem quite distant today, industry needs a longer-term goal if the implementation of an emissions reduction programme is to be effective. Extending Kyoto after 2012 will provide the certainty that companies need in order to invest in greener technologies.'

James Blunt

Head of Emissions Broking, Spectron

'Traders have a natural preference for market-based solutions. Personally, I believe that the future of the ETS beyond CP2 will critically depend on two things: Firstly, on absolute price levels and mitigating impacts such as from the linking with international carbon abatement through CERs and other instruments. Secondly, on the expansion of the international community ready to commit to concrete emissions or emissions reduction targets at all. The former is likely to be more critical than the latter because it would facilitate carbon to trade at a 'politically acceptable' level.'

Peter Kreuzberg

Managing Director, RWE Trading

'There is a lot of thinking and discussion going on. The European Commission took a position on this in February 2005 and we believe that we should continue to work with market-based mechanisms, e.g. the emissions trading scheme and the CDM. We should engage more countries around the world to reduce emissions, and we should see what we as governments can do to bring deeper cuts in emissions, for instance by using improved technology. As we will not be able to completely stop climate change, we should also see what further adjustments are necessary in adapting to a changing climate.'

Peter Zapfel

Team Leader, ETS, European Commission

'The big problem in trying to reduce GHGs is that you need investment certainty, otherwise no-one will make the necessary investments. The post-2012 environment needs to be created as soon as possible. The US and Australia are creating regional markets, and Japan is thinking of doing so.'

Mark Meyrick

Manager, Renewables and Emissions Trading, EDF Energy Merchants

'If I knew the answer to this I would be Prime Minister! The big question is that it has to be an international framework, post-2012. A large number of significant players are not willing to sign up to the Kyoto Protocol, while there is also the Asia-Pacific partnership now. Going forward, there has to be a mix of drivers for low carbon technology development and market-based instruments, and only in that way will we engage a number of the major emitting countries. It has to be a satisfactory international solution, and Europe should not be made uncompetitive. I hope the ETS is here for the long-term, but how it develops has to be within an international context, so there has to be a mix, a range of ways to tackle the issue.'

John McElroy

Head of Environmental Regulation, RWE npower

'I am sure that targets and commitments will be more ambitious, because it is necessary to do this. To achieve these targets market mechanisms will play an important role, as we understand this is the most efficient way to get the required reductions.'

Aitor Moso

Head of Power & Emissions Trading, Iberdrola

'Emissions trading will achieve a reduction in emissions at the least possible cost and the aim should be to develop an international trading scheme along similar lines to the EU scheme. Emissions trading provides companies and individuals with financial incentives to help the environment and to invest in environmentally friendly technologies. A welcome consequence of emissions trading is also the flow of capital to invest in low-carbon solutions in developing countries. The key to agreeing an international scheme will be to get all nations to agree to a reasonable cap on their carbon emissions which recognises the historic role of developed nations in contributing to the current problems while allowing developing countries to grow their economies in a sustainable manner.'

Louis Redshaw

Associate Director, Barclays Capital

'Emissions trading does secure abatement at the lowest cost. However, it has to be seen as one of a suite of policies. The biggest issue in my mind for long-term climate control is whether or not we stick with an absolute cap. The problem with absolute caps is that they make no recognition of the costs of complying with those caps. The emission trading scheme is pointing to abatement costs that are higher than previously recognised (€20–25 per tonne of CO₂ abatement). That, in turn, is raising doubts about the political acceptance of climate controls, particularly when some of Europe's trading partners are still operating in an unconstrained carbon environment. If a cap could be devised that was contingent on the costs of controlling emissions then the whole climate debate may be less polarised between those that fear the short-term detrimental impacts on competitiveness and those that see the merits of climate control regardless of cost.'

Chris Rowland

MD Utilities Research, DrKW

'By means of cap and trade arrangements, taking measures for abatement in developing countries, or by a gradual increase in the cap to facilitate economic development.'

Per-Otto Wold

Chairman and Senior Advisor, Point Carbon

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