Chapter 16
Emissions Trading at Work:
The EU Emissions Trading Scheme and the Challenges for Large Scale Auctioning

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ABSTRACT

Arguably, the climate talks in Copenhagen in December 2010 did not deliver on the high expectations the world had raised for a post-Kyoto agreement. But the commitment to confront climate change at the highest level is beyond doubt. At the time of writing, the EU Commission is to propose a draft regulation on large scale auctioning in the European Union Emissions Trading Scheme (EU ETS) starting in 2013. Integrity and credibility of the EU ETS could be at stake if the EU Commission fails in setting proper grounds for auctioning.

After introducing the foundations of cap-and-trade markets, the authors of this chapter confirm that the market architecture of the EU ETS is working and that secondary market trading is functioning. But they also illustrate frictions in price discovery and variability in pricing relations. This leads to the conclusion that efficiency and integrity of the emissions markets are particularly susceptible to institutional uncertainty and supply and demand constraints. Against this background the authors set out recommendations for integrating auctioning into the existing market infrastructure and institutions. This way, large-scale auctioning could ensure a smooth and effective supply of the underlying emission allowances into the markets.

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INTRODUCTION TO EUROPEAN EMISSIONS TRADING

Arguably, the climate change talks in Copenhagen in December 2010 did not deliver on the high expectations the world had raised for a post-Kyoto agreement. But the commitment to confront climate change at the highest level is beyond doubt. To underpin its leadership claim and continued commitment to a global and comprehensive agreement for the period beyond 2012, the European Union recently reiterated its conditional offer to move from a set 20% to a 30% reduction of greenhouse gas emissions by 2020 compared to 1990 levels.[1]

Irrespective of the target level of reduction, the European Union Emission Trading Scheme (EU ETS) faces a fundamental change with the introduction of large scale auctioning for commitment periods starting from 2013.[2] At the time of writing this contribution, the EU Commission is to propose a draft regulation on auctioning which is due for adoption by June 30, 2010.[3] Integrity and credibility of the EU ETS could be at stake if the EU fails in setting proper grounds for auctioning as an integral part of the overall EU ETS market design. In short, a wrongly designed auctioning scheme could result in arbitrary liquidity shocks, excessive volatilities and distortions to secondary markets functioning.

Interactions with European Energy Markets

Structural breaks and distortions in the EU ETS markets could have an impact on the adjacent European energy markets. Whilst many sectors of the economy are directly and indirectly affected by the price levels of emissions allowances, the energy sector continues to be the sector carrying the highest burden in terms of emissions reductions. Hence, the energy market is most sensitive to changes in price levels and volatility in carbon markets. From the beginnings in 2005 it has been argued that the initiation of the EU ETS has resulted in a significant increase in electricity prices since emission allowances can now be considered as a direct production cost factor (Linares, Santos, Ventosa and Lapiedra, 2006; Smale, Hartley, Hepburn, Ward and Grubb, 2006). For example, there are early empirical findings for Germany and the Netherlands that, depending on the electricity generating technology employed, an allowance price of 20€ could result in an emission related power production costs mark up ranging between 3€ and 18€ per MWh (Sijm, Neuhoff and Chen, 2004). For the UK there are estimations that a 1% shock in carbon prices translates into a 0.42% shock in electricity prices (Bunn and Fezzi, 2007). Finally, there are some forward looking estimations for the Nordic area saying that in the second trading period from 2008 to 2012 the average electricity spot price might increase by 0.74€ per MWh for every 1€ increase per ton of CO_2 (Kara et al., 2008) .

Abstracting away from these empirical observations, it follows intuitive reasoning that electricity price levels and risk premiums in electricity markets are a function of the risk premium induced by emissions markets. In an emissions constraint economy the decision of an electricity producer whether to produce electricity in what capacities is closely related to the decision on when to abate emissions. For example, prior to the initiation of the EU ETS in 2005, the operators of a gas-fired power plant in Europe would have calculated the so-called *spark-spread* for deciding on whether to produce power (e.g., see Fiorenzani, 2006). This is defined as the net income from selling 1 MW of electricity and buying the gas required for generating it. Electricity producers would proceed with producing electricity only if the spark-spread was at least covering the running costs.

Under the EU ETS the consumption of emissions allowances constitutes an additional production cost factor. Hence, electricity producers' calculus is now based on the so-called *clean-spark-spread*, defined as the net income