EX-POST ANALYSIS OF COST-EFFICIENCY IN THE 2 ND PERIOD OF THE EU ETS

In economic theory, an emissions trading system can be shown to be the best instrument to reach a given emission target ("cap") at least costs under perfect market conditions (Montgomery, 1972). The possibility to trade emission certificates at the market creates a situation where – in theory – all firms participating in the emissions trading system face equal marginal abatement costs, equal to the market price for emission certificates. Firms, which face a situation where the cap requires emission reductions with higher marginal abatement costs than the market price, purchase emission certificates in the market instead of reducing emissions. Firms, where the cap requires emission reductions with lower marginal abatement costs than the market price, realize additional emission reductions and sell their excess emission certificates at the market. This mechanism ensures that only least cost abatement options are realized. In contrast, regulatory measures do not provide the flexibility inherent to an emissions trading system. Hence, chances are small that under regulatory measures, such as e.g. minimum standards, equal emission reductions can be reached at comparable costs.

In 2005, the EU Emissions Trading System (EU ETS) as the world's largest emissions trading system was launched. It covers CO2 and other greenhouse gases from around 11.000 installations in 31 states (EU 28 + Iceland, Liechtenstein and Norway). In total, about 45% of the EU's greenhouse gas emissions are regulated under the system (about 1870Mt CO2e verified emissions in 2012), mainly from power and heat generation as well as energy- intensive industries such as iron and steel, non-ferrous metals, cement, pulp and paper, glass and ceramics and the production of chemicals.

With the end of the second period of the EU ETS at the end of 2012, it is now a good time for a first ex-post evaluation of the instrument and its major characteristic, the cost-efficiency of the system. More specifically, the aim of this paper is to describe different methodological approaches for an ex-post cost-efficiency analysis of the EU ETS and present some first numerical results from the application of the different methodological approaches for the second period (2008-2012).

The structure of the paper is as follows: Following this introduction in section 2, a short literature review on ex-post analyses of emissions trading systems, methodologies and applications is provided. A systematic description of the methodology and the data used is presented in section 3. Results of case study applications of the described methodologies to assess the cost-efficiency of the EU ETS in the second trading period are shown in section 4. Section 5 concludes.