Impacts of the European Carbon Emissions Trade Directive on Industry

A Finnish researcher recently investigated the economic impacts of the European emission trading scheme on energy intensive manufacturing industries. The results show that the total cost impacts remain below 2% of the production value for most industries in the Kyoto period. Nevertheless, this figure may rise considerably in the post-Kyoto phase assuming a more stringent emission reduction target.

The Kyoto Protocol, signed in 1997, aims to reduce greenhouse gas (GHG) emissions by 5.2% from the 1990 level by 2008-2012. The European Union has committed to an 8% emission reduction, with the obligation distributed among the Member States. To enforce the implementation of the Kyoto requirements, in January 2005 the EU launched the GHG Emission Trading Scheme (EU ETS), which commenced operation as the largest multi-country, multi-sector GHG emission trading scheme worldwide. The scheme is based on Directive 2003/87/EC, which came into force on 25 October 2003. It covers over 11,500 energy-intensive installations across the EU, which represent close to half of Europe’s emissions of CO₂. These installations include combustion plants, oil refineries, coke ovens, iron and steel plants, and factories making cement, glass, lime, brick, ceramics, pulp and paper. Under this scheme, from its own emission quota each MS allocates a certain amount of CO₂ emission allowance units (EAUs) to the industries covered by the directive. The ETS allows industries to trade their emission allowances. But what are the impacts of such emission trade schemes on industry?

A Finnish researcher has recently investigated the potential economic impacts of the ETS on energy-intensive industries. To this end, and for the first time, microeconomic analyses were carried out in order to determine the cost effects starting with the Kyoto level and moving then to more stringent cases (the EU has discussed possible post-Kyoto targets of 15%-30% reductions by 2020). The researcher considered only primary cost effects: direct CO₂ emission reduction costs and the effect on the price of purchased electricity.

The results of the analysis suggest that the total cost impacts will remain below 2% of the production value for most industries within ETS in the Kyoto period. Nevertheless, for the post-Kyoto phase, and assuming a 30% compulsory reduction, the total cost impact might rise to 8% of the production value in the heavy industry sectors of the ETS. The study shows that the pulp and paper and the oil refining industries are less affected, while the largest impacts can be expected in the steel and cement industries.

If the costs of the carbon emission allowances are transferred into the electricity price, then the cost impacts of the ETS on energy-intensive industries may be doubled compared to the industry’s own carbon reduction costs. Electricity-intensive industries outside the ETS are also affected, with the aluminium, chlorine and silicon industries experiencing indirect cost impacts that could represent up to 10% of production value already in the Kyoto period.

The observed increase of the operation expenses might directly affect the profitability and competitiveness of several European industries. The author proposes several correcting mechanisms in order to compensate for the indirect cost impacts such as taxation schemes or re-allocation of the EAUs within the national allowance quota.

As industry sectors are affected differently, when considering a future emission trading scheme the author recommends introducing a normalisation factor to account for differences in industries. This would help keep the relative total emission reduction costs at the same level for all industries.

1For more information on the EU ETS: [http://ec.europa.eu/environment/climat/emission.htm](http://ec.europa.eu/environment/climat/emission.htm)


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