Implementing the EU Energy Package - Implications for Energy Intensive Industries

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(1) Overview

The EU energy package, which has been adopted by the European Commission in January 2007, comprises the threefold objective of simultaneously increasing sustainability, security of supply and competitiveness, while aiming at a 20 percent reduction of EU greenhouse gas emissions in 2020 as compared to 1990 levels, an improvement in energy efficiency as well as an increase of the level in renewable energy in the EU's overall energy mix to 20 percent in 2020. This paper sets out the results of an economic modelling exercise that investigates the economic and environmental effects of the energy/climate change package, with a focus on the consequences of different policy choices on energy intensive industries (EII).

(2) Methods

The analysis is based on the hybrid bottom-up top-down computable general equilibrium model PACE. The policy scenarios studied include a "free trade" versus national approach for reaching the renewable target, different constraints on the use of the clean development mechanism as well as policy measures that aim at dampening the negative effects of the GHG/REN targets on energy intensive industries, including (i) global sectoral agreements reflecting a minimum international agreement on CO2 reduction, (ii) free allocation of allowances, (iii) inclusion of indirect emissions in electricity input, and (iv) inclusion of importers in the ETS scheme.

(3) Results

Reaching the joint GHG/REN targets comes at a rather moderate cost for the EU as a whole. However, the differences in the relative burden across MS and especially across economic sectors are substantial. Without accommodating measures, EII would be hard hit leading to substantial carbon leakage. An international agreement with global sectoral agreements assuming realistic efforts by other regions would lead to substantially greater GHG reductions at the global level and have a positive, albeit modest, effect on the output performance of energy intensive industries. The overall economic effects of the EU's GHG/renewables package would, however, not be much affected. Moreoever, unless other regions take similarly constraining action as the EU has already undertaken and intends to deploy in the future, an international agreement would not be sufficient to significantly remedy the output losses of energy intensive industries. Free allocation of ETS allowances to energy intensive industries contributes strongly towards avoiding significant output losses, without reducing significantly total economy. The compensation for indirect costs arising from the CO2 content of energy intensive industries' intermediate energy consumption (e.g. electricity) through allocation of allowances significantly reduces carbon leakage. It also has a positive effect on EII output performance, while total economic costs at EU level are only marginally affected through a slight increase in electricity prices. The inclusion of importers of EII products in the EU ETS impacts positively on EII performance and generates some additional global GHG reductions. However, the pool of ETS allowances needs to be extended by the net amount of allowanced required by importers to avoid an excessive pressure on the ETS allowance price, which otherwise would have a negative impact on all ETS sectors and the economy as a whole.

(4) Conclusions

The analysis gives rise to the following conclusions: The costs of the energy package are rather moderate, but some economic sectors are substantial affected. Policy measures which aim at dampening the negative effects of the energy package on energy intensive industries, have only small economic impacts, but different implications for sectoral production and global emission levels.

References

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