Interactions between International and National Carbon Mitigation Policies

Carl-Philipp Anke, Hannes Hobbie, Steffi Schreiber, Dominik Möst

Chair of Energy Economics, TU Dresden, Germany

Abstract

The European Union Emission Trading System (EU ETS) constitutes the core instrument of the European Union climate protection policy. It limits greenhouse gas emissions of its member states and aims at facilitating an efficient allocation of emission reduction across national borders. Accompanying this policy at the European level, individual member states have introduced national mitigation policies, including renewable energy (RES) expansion measures or coal phase-outs.

This study examines to what extent national policies affect the effectiveness of the EU ETS and to what degree the impact is reflected in prices for European Union Allowances (EUA). To investigate this question, a fundamental optimisation model of the European electricity markets is deployed and model endogenous EUA prices are derived with a set of future market scenarios. Overall findings indicate that fundamental market forces strongly affect EUA prices. Furthermore, national policies play a critical role: The expansion of RES does not affect the capacity of the EU ETS to provide sufficient price signals for the desired level of decarbonisation but a coal phase-out has a strong price-suppressing effect. A withdrawal of certificates can re-establish the effectiveness of the EU ETS but prices can rise drastically when overestimating the necessary amount.

Keywords:

Carbon emissions, renewable energies, coal phase-out, EU ETS, energy systems analysis