

Effects of Allowances Allocation Schemes on the Emissions Leakage and Contract Shuffling

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Abstract

This paper examines the effects of emissions allowances allocation schemes on the extent of the GHG (greenhouse gas) leakage and the contract shuffling. Two allocation methods are considered. Whereas grandfather separates future allowances allocation from today's decisions, the output-based approach links the future awarded allowances to today's output level. The latter effectively subsidizes generators' production costs, encourages more output and consequently elevates GHG allowances prices. In this paper, we first analyze the effect of output-update allocation on the leakage and shuffling using a stylized duopoly model, which abstracts from details of point-of-regulation. A single-stage computable model, which allows representing source-, load and first-seller programs, is then applied to examine the implications. The latter model is equivalent to a two-stage formulation with perfect foresight. Our results suggest that the magnitude of GHG leakage is inversely associated with per MWh of the future allowances awarded for today's output. The power prices under output-update approach could higher compared to the grandfather as opposed to being lower as claimed elsewhere. The equivalence among source-, load-based and first-deliverer approaches remains valid under certain conditions.

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