



Measuring inefficiency in international electricity trading

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Abstract

Interconnectors reduce the cost of electricity supply if they are operated efficiently. We show that established metrics used to monitor electricity trading inefficiency become increasingly inaccurate in several trading conditions. We devise the Unweighted and Price-Weighted Inefficient Interconnector Utilisation indices to address these deficiencies. These metrics are substantially more accurate than existing ones and perform equally well whether or not markets are coupled. Our results show a substantial decrease in inefficient trading between Great Britain and both France and the Netherlands after the European Union's market coupling regulations were introduced in 2014.

In view of Great Britain's likely withdrawal from the European Union, the paper also evaluates how market uncoupling would affect cross-border trade. We find that uncoupling would lead to inefficiencies in trade, the electricity price differential between GB and France (Netherlands) rising by 3% (2%), net imports into GB decreasing by 26% (13%), congestion income decreasing by 10% (5%), and infra-marginal surplus decreasing by 1.6% (1.6%) of coupled congestion income. We also show that, should the EU decide to implement an equivalent carbon tax to GB's Carbon Price Floor, uncoupling impacts would be slightly magnified due to electricity prices converging (by about 1% of coupled congestion income).

Keywords Electricity trading efficiency; cross-border allocation; interconnector; market coupling; metrics.

JEL Classification: C81; F14 ; F15; Q41

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