

Cross-Border participation: A false hope for fixing capacity market externalities?

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Overview

Capacity mechanisms are gaining momentum in Europe, and the latest EU electricity market reform further reinforces their role. The negative externalities exerted by these national mechanisms in interconnected zones might, therefore, become a growing issue. With the hope of mitigating cross-border externalities, EU regulation requires Member States with a capacity market to enable the explicit participation from resources located in neighboring Member States. However, the effectiveness of this rule in reducing externalities hasn't been conclusively established. In this paper, we assess the effectiveness of "explicit" and "implicit" cross-border participation in addressing the externalities of a national capacity market on a neighboring system without any capacity mechanism.

Methods

We use an equilibrium model formulation representing a stylized electricity system of two zones.

Results

First finding, cross-border participation does not entirely mitigate the externalities of the capacity market on neighboring consumers, generators and the interconnector. Second finding, implicit and explicit cross-border participation yield equivalent results. Third finding, the cross-border effects of national capacity mechanisms can prevent them from effectively achieving their very objective - ensuring security of supply.

Conclusions

Based on the first and the third findings, we conclude for the medium term that we will need to evolve from national capacity markets towards a Europeanized adequacy mechanism to effectively ensure security of supply and avoid cross-border effects. Based on the second finding, we have a shorter-term conclusion for the objective of the latest electricity market reform to streamline the implementation of capacity mechanisms at the national level. Because implicit is simpler than explicit cross-border participation, and they both equally mitigate externalities in the energy-only zone, we could consider moving from explicit to implicit cross-border participation in capacity markets.

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