

The Variation in Capacity Remuneration Requirements in European Electricity Markets

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Capacity Remuneration Mechanisms (CRMs) arise to compensate providers of firm capacity for ‘missing money’ i.e. insufficient returns from the energy only market to recover capital costs and incentivise investment. EU energy market harmonisation objectives include implementing a process of open, transparent and non-discriminatory practices to allow foreign bidders to gain access to capacity markets. EU policy makers expect that harmonised capacity markets should ensure that overall costs are reduced, and that cross-border investment incentives and short-term merit order operation of the integrated electricity system are not distorted. Within the EU single energy market, competition is fair across countries because generators generally face the same input costs and state aid decisions have sought to avoid country advantages. However, with the introduction of CRMs, there is additional competition between generators benefitting from selective state aid, even if approved by the EU.

This paper provides the first EU wide analysis of the variation in Capacity Remuneration Requirements throughout Europe which aim to resolve the “missing money” problem in various member states. Under the assumptions of the European Commission Reference Scenario, pan-European power optimisation and investment models are specified for 2030. We consider and model the impacts of country specific climate policy targets, sovereign risks, fiscal measures and gas network legacy infrastructures on investor returns and therefore remuneration requirements. The results show that future investment in gas generators will depend on the availability of capacity payments. CRMs can provide this “missing money”, but we show that capacity remuneration requirements vary considerably across countries.

The research literature on this topic suggests that cross border capacity market participation between interconnected markets has many benefits, including welfare, efficiency and optimising the procurement of suitable capacity. These studies observe competing market structures and note that harmonisation has the potential to provide these benefits. However, externalities outside of the electricity market may create a harmonisation problem. If capacity remunerations vary due to sovereign risks, fiscal measures and legacy infrastructures, this could in itself distort competition. Rationally, generators in member states which operate in low risk markets could bid into high risk markets to receive the largest capacity payments to maximise profits. Generators in high risk member could then be unable to compete in low risk markets due to their higher cost base. In the context of harmonised energy trading, this raises questions of how generation adequacy should be achieved, particularly in the context of higher penetrations of renewables.

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