

Market Design for Generation Adequacy: Healing Causes rather than Symptoms

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While the focus of regulatory scrutiny and academic research concentrated mainly on short-term market efficiency and competitiveness in the early years of liberalisation, there is now much attention being paid to investments and the long-term performance of the liberalised electricity industry. In some U.S. states and European countries, there is also considerable political concern whether generating capacity will continue to be adequate to ensure security of electricity supply.

There is a consensus that the solution to the short-run supply security problem requires some form of centralised management, which is commonly dealt with by designating the responsibility for system operation to the system operator (SO). Contrary to short term security of supply, there is as yet no consensus on market and institutional designs to ensure long-term generation adequacy. Should it be left to decentralised market forces or should there be mandatory resource adequacy standards? How should the role of the SO be defined? Is there any 'best-practice' market design that can ensure generation adequacy in the long run at least cost while minimising regulatory interference with the market? In particular, is a separate mechanism to remunerate capacity necessary to maintain generation adequacy?

This paper aims to complement the existing literature by taking a somewhat more institutional and empirical perspective. The paper sheds light on how market design, market structure and the supporting institutions affect investment incentives by contrasting different experiences. We show how a range of supporting market institutions (various kinds of contracts, reserve, balancing and ancillary services markets) influence investment incentives.

We argue that the traditional divide between short-term reliability management under the responsibility of the SO and long term market based investment decisions overlooks the critical impact of scarcity price signals feeding from real time reserve, balancing, and congestion management markets through to contract markets. Many of the operating standards and practices inherited from vertically integrated

utilities are widely accepted as necessary or desirable in the liberalized industry, but their impact on investment incentives has consistently been underplayed.

We conclude that in the debate about the need for capacity mechanisms in electricity markets, the local industry structure as well as the regulatory and institutional environment are often overlooked. There is no 'one size fits all' solution to ensure generation adequacy: if there is a lack of investment, the priority should be to identify the roots of the problem, and the introduction of a capacity mechanism should only come as an optional supplement to wholesale and ancillary markets reforms.

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