Security of Supply, the Role of Interconnectors and Option Values : insights from the GB Capacity Auction

David Newbery[1] and Michael Grubb[2]

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Abstract

The UK Government has carefully designed a Capacity Mechanism to deliver reliable electricity. This paper criticises the determination of the amount to procure, and argues that the amount proposed will likely be excessive, particularly (but not exclusively) in ignoring the contribution from interconnectors. Too little attention has been given to either the political economy or the option value aspects. Procuring too little raises fears of 'the lights going out', but over-procurement increases consumer costs; undermines renewables by transferring capped finance to fossil generators; and impedes the Single Market including by weakening the business case for interconnectors. Making more use of the demand-side and potentially available 'latent' capacity lowers risk and increases options allowing more capacity procurement to be deferred. Capacity markets are intended to address problems of 'missing money' in terms of energy-only market incentives to invest; but over-procurement risks exacerbating the underlying problem, whereas addressing market failures and missing markets, and properly accounting for interconnectors, reduces the underlying problem.

Keywords: Capacity auctions, procurement volume, interconnectors

1 Email dmgn@cam.ac.uk, +44 1223 335248, Faculty of Economics, Sidgwick Ave, Cambridge CB3 9DE, UK

2 Newbery is Director of the Energy Policy Research Group at Cambridge University, Research Fellow at Imperial College London, and a Member of the Panel of Technical Experts for DECC on National Grid's *Electricity Capacity Report*. Grubb (m.grubb@ucl.ac.uk) is Professor of International Energy and Climate Policy at University College London, and Senior Advisor on Sustainable Energy Policy at Ofgem. Both are writing in their academic capacities and drawing only on published evidence. Newbery gratefully acknowledges all the input he received the other panel members, A. Bankovskis, G. Doyle and G. Strbac and the DECC team, as well as an anonymous referee, without implicating any of them in any views expressed here.

NON-TECHNICAL SUMMARY

Mechanisms for securing sufficient firm electricity generation capacity are being introduced or considered widely across Europe, in response to concerns about reliability. Such a Capacity Mechanism is included as a key part of the UK Energy Market Reform. Britain's first electricity capacity auction was held in December 2014 for delivery in 2018-19.

Much of the policy effort and academic discussion has focused on either the need for, or detailed design of, such Mechanisms. We consider here a third aspect: assessment of the amount to be procured. We examine the process for determining the procurement volume, compare the outcome against predictions, and draw lessons for future capacity procurement auctions. We conclude that the volume sought is likely to be excessive, particularly (but not exclusively) in its (lack of) assumed contribution from interconnectors. A conservative approach is understandable, but we argue costs can be substantially reduced by deferring some procurement until later auctions and including interconnectors.

The amount to procure on different timescales involves a delicate balance of risks. Not enough attention has been paid to either the political economy of this process, or the benefit of waiting and developing more options. The risk of over-procurement, particularly of new conventional capacity on long-term contracts, is that it drives up the costs to consumers; undermines renewable energy by implicitly transferring financial support from renewables to conventional generators; and impedes the EU Single Market by weakening the business case for other options, including future interconnectors.

We argue that the institutional arrangements for setting the volume were biased towards excessive procurement, leading to higher than needed capacity prices, lower energy prices that exacerbate the missing money problem with adverse impacts on financing renewable generation. Excess procurement risks a vicious circle undermining the energy market and reinforcing the need for capacity payments. The use of an auction led to a better outcome for consumers than might have been expected, once again revealing the power of auctions to deliver cost-effective solutions, although the cost was still excessive.

The risk of over-procurement is increased by a confusion of terms: the traditional measure of 'loss of load' is increasingly divorced from any risk of the 'lights going out'. The development of technologies and market structures, particularly with respect to the demand-side and potentially available – 'latent' – capacity further lowers the risks, and increases options. There is no 'cliff edge' at which the lights go out, but rather an increasing array of options for managing tight conditions – including the regional pooling of capacity implied by interconnectors. This in turn implies greater potential to defer the most expensive option of buying additional new conventional GB capacity.

Addressing market weaknesses and failures through improving the Balancing Mechanism and coupling interconnectors allows a more appropriate treatment of interconnectors in reliability

assessments. As with other commodities (including food and gas) international trade supplements domestic production capacity and security is not synonymous with self-sufficiency. Yet the first GB auction neither included any positive overall contribution from interconnectors, nor enabled their participation in the first Capacity Auction despite a Government *Impact Assessment* that showed their potential to dramatically reduce consumer costs. Before the 2014 auction, and under some pressure from the European Commission arguing that the auction discriminated against foreign sources of reliability, the Government consulted on and then announced that it planned to include interconnectors in the 2015 capacity auction, but not for 2018-19 delivery.

Overall, we argue that there is considerable 'latent capacity' in the electricity system, including but by no means confined to interconnectors, which could be brought into play in the next few years and thus help to maintain reliability in the face of uncertain trends in electricity demand. Given this, the costs of the (probably excessive) caution implied by the decision to procure 53.3GW for 2018-19 could have been substantially mitigated by deferring a much greater proportion of this to subsequent, shorter-term auctions.