GB Capacity Market auction – lessons from the first 10 years

A Capacity Market was introduced in Great Britain ten years ago to address the "missing money" problem inherent in the energy-only electricity market, with the primary goal of ensuring electricity supply security. Certain technologies within the electricity generation mix, such as gas-fired power plants, faced economic challenges as they were unable to recover their full costs through energy market revenues alone, thereby threatening their viability. These technologies, which are among the most flexible, play a crucial role in responding rapidly to demand spikes and ensuring energy security. The Capacity Market provides capacity providers with a stable revenue stream by compensating them for the availability and reliability of their resources. These payments are specifically designed to address the "missing money" problem, ensuring reliability by maintaining the operation of existing plants and encouraging investment in new ones.

This paper provides a comprehensive description of the GB Capacity Market, with a particular focus on the auction mechanism used to allocate capacity contracts. The auction design — a multi-unit procurement descending clock auction with intra-round bidding and last-accepted-bid mechanism — is notably intricate. We discuss the rationale behind these design choices and evaluate their economic implications.

In the second part of the paper, we analyse the outcomes of the auctions conducted over the past decade. During the first seven years, clearing prices remained low, indicating a market design that was effective in curbing market power and ensuring cost-efficiency. However, in the past two years, clearing prices have risen significantly, with auctions concluding in the second round at prices near the starting price.

We investigate the factors that may have contributed to this shift, examining the auction parameters and market conditions that could have influenced the results. Finally, we assess whether the Capacity Market continues to achieve its primary objective of ensuring energy security at the lowest possible cost.