

UK Electricity Market Reform and the Energy Transition: some emerging lessons from the UK's energy revolution

Michael Grubb and David Newbery

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Summary

Some two decades after the privatisation of the UK electricity system that year, and its creation of a competitive electricity market, attracted global interest, the UK government embarked on a radical reform which some critics described as a return to central planning. The UK's Electricity Market Reform (EMR), enacted in 2013, has correspondingly been a topic of intense debate, and global interest in the motivations, components, and consequences.

This explains the EMR in context - its origins, rationales, and characteristics – and analyses results to date. We explain why the EMR is a consequence of fundamental and growing problems with the form of liberalisation adopted, particularly after 2000, combined with the growing imperative to maintain system security and cut CO₂ emissions, whilst delivering affordable electricity prices.

The four instruments of the EMR have indeed combined to revolutionise the sector; they have also both drawn on, and helped to spur, a period of unprecedented technological and structural change. Competitive auctions for both firm capacity and renewable energy have seen prices far lower than predicted, with the fixed-price auctions for renewable sources estimated to save over £2bn/yr in the cost of financing the projected renewables investments, compared to the previous support system. A minimum carbon price level has brought cleaner gas to the fore. Electricity prices may have peaked from 2015, with energy efficiency helping to lower overall consumer bills.

New forms of generation have expanded rapidly at all scales of the system. Renewable electricity in particular has grown from under 5% of generation in 2010, to almost 25% by 2016, and is projected to reach over 30% by 2020 despite a political de-facto ban on the cheapest bulk renewable, of onshore wind energy. The environmental consequences overall have been dramatic: coal generation has shrunk from about 2/3rd of generation in 1990, to 35% in 2000, to 10% in 2016, halving CO₂ emissions from power generation over the quarter century: coal is set to disappear from the UK system within about five years

Neither the technological nor regulatory transitions are complete, and the results to date highlight other challenges. The Capacity mechanism has proved ill-suited to encouraging demand-side response, and in combination with the growing share of renewables, has underlined problems in transmission pricing. As the share of variable renewables grows further, the associated contracts will require reform to improve siting efficiency and avoid adverse impacts on the wholesale market. The results to date show that EMR is a step forwards, not backwards; but it is not the end of the story.