



WHY WE NEED TO FIX OUR BROKEN ELECTRICITY MARKET

Special Report

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The British electricity market isn't working. Another independent supplier has gone bust and the customers have been taken on by one of the big utilities. Not only that but new entrants are few and far between, market liquidity is poor, and there is a perception that the big utilities are profiteering, especially in the light of recent oil price falls that do not feed through straight away to lower gas and electricity prices for customers. The regulator, Ofgem, has published the initial findings of its inquiry into competition in the sector and seems to be reasonably satisfied with the market despite some obvious failings. Now calls are coming in for a Competition Commission referral. In this short special report we ask 'can we fix the electricity market and what needs to be done?'

Back to the Beginning

To answer this question we need to go back to the beginnings of the current market. NETA was introduced in 2001 by Ofgem, becoming The British Electricity and Transmission Trading Arrangements or BETTA market in 2005 when Scotland was included. This market design is partly to blame for the lack of active competition in electricity. NETA replaced the original 'Pool' set up at the time of privatisation of the industry. The aim was to create a wholesale electricity market that would lead to competitive prices to the benefit of consumers.

The new market was designed to act, as far as was possible, like any other commodity market. The key aim was to drive trading in electricity in forward contracts but in practice this new market has had the opposite effect.

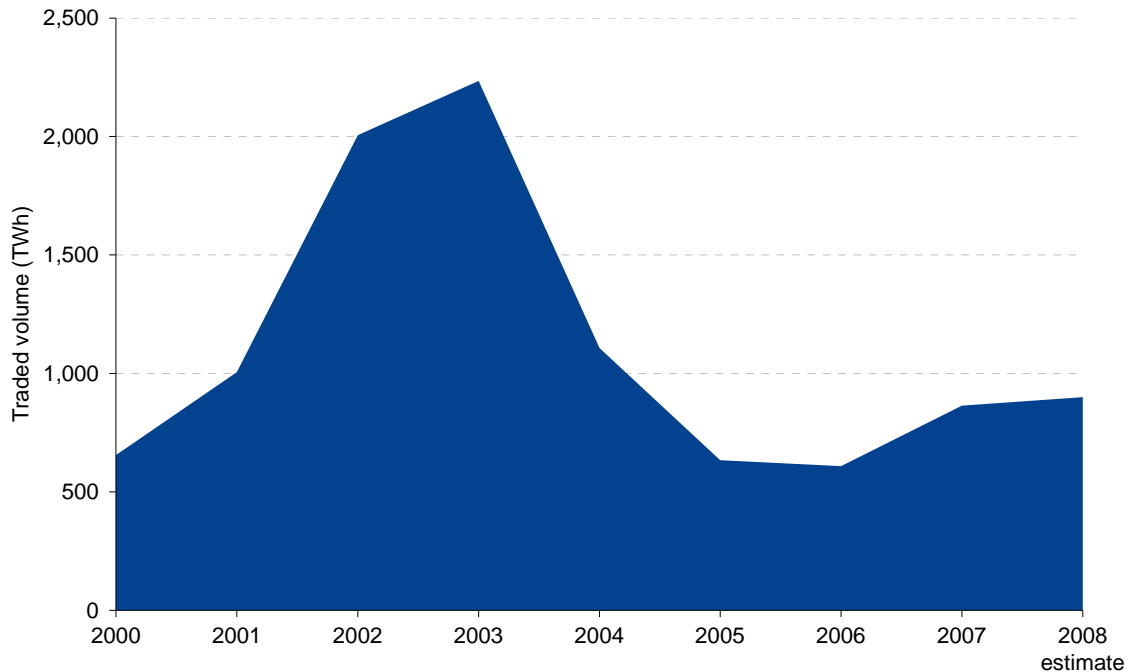
The reasons for this lie behind the nature of electricity and the need to balance supply and demand on the entire electricity system instantaneously. To encourage participants to trade their positions in wholesale markets and maintain their own balance, a system of unattractive imbalance charges exists so that physical and contractual positions must be matched i.e. the amount of electricity they sell and buy matches the amount they generated or supplied to customers. If the contractual positions do not match physical positions then the residual generation or demand faces unattractive imbalance prices, where players must buy and sell electricity at very high or low prices respectively. The mechanism for setting imbalance prices has changed over time and further changes in the offing but these are unlikely to go far enough.

Poor Liquidity

As a result it is very risky for financial and physical players (i.e. those with electricity stations and customers) to trade in spot markets as they face high costs if they cannot close out positions and end up buying and selling their residual contracts at the unattractive imbalance prices (in imbalance settlement). With high risks in spot markets liquidity is very poor at only 1-2% of physical volume. This has knock-on impacts into the trading of other longer term products, such as monthly and annual contracts, as with little in the way of a spot market, traders have fewer options available to close out positions.

Figure 1 shows the estimated volumes of traded electricity since 2000 and the large fall off in liquidity from 2003. With banks pulling back on trading operations in these markets, following the financial crisis, the outlook for liquidity in 2009 is not good, especially for the further forward contracts, in which for the reasons above, these financial players concentrated.

Figure 1 – Estimated Traded Volumes of Electricity



Source: Heren, APX, Pöyry Energy Consulting

Price Indices

Without a reliable spot market index the number of products that can be offered to manage market risks is also reduced. Developments are taking place that may improve this situation with a formalised day-ahead auction due to start in early December. The formalised auction may help in creating a spot market index that reflects a price that is reliable and replicable in actual trading. Current spot markets are reflective of weighted averages of trades undertaken, but with high levels of volatility and wide bid-ask spreads in the continuously traded markets these indices tend not to be replicable and are therefore not seen as reliable. The success of this initiative will depend on how much volume trades through it. The Futures and Options Association is running a competition with two bidders to set up a day-ahead auction, one of whom has announced the start of their auction regardless of the result of the competition. It would be unfortunate for the potential success of the initiative if we ended up with two competing market places.

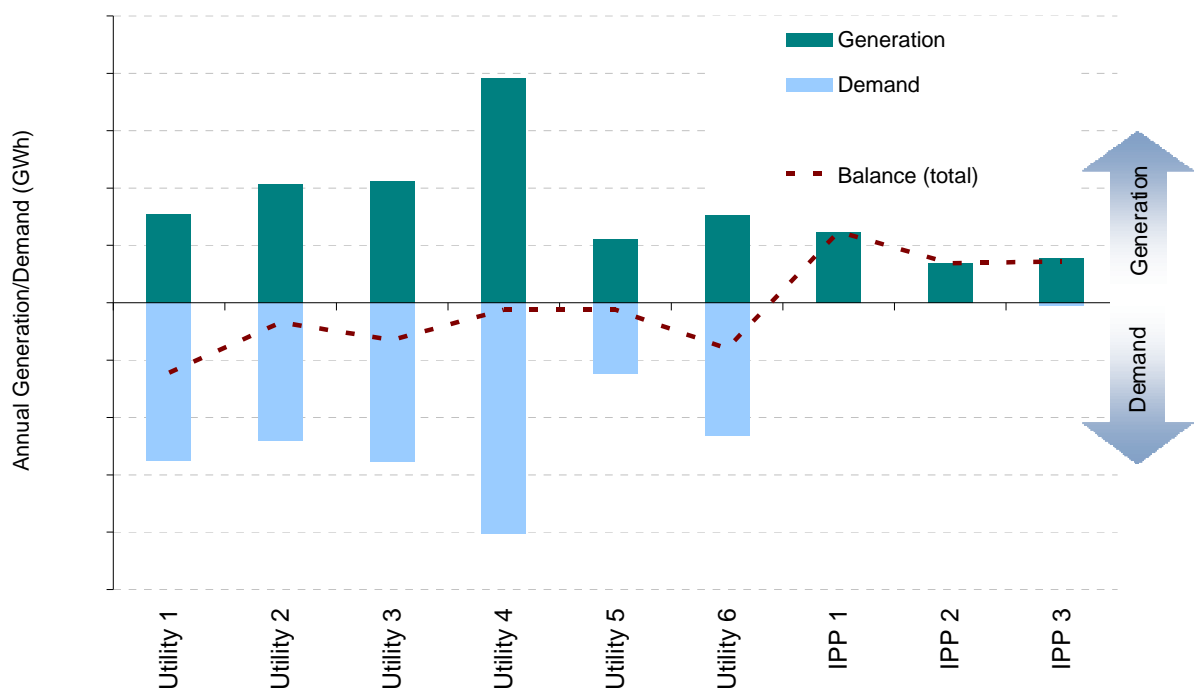
Entry Barriers

The fact that there is no reliable market price creates a large entry barrier. To enter the current market you need both electricity retail and generation. The economies of scale in generation mean that owning cost-effective generation requires a large amount of upfront capital which now more than ever is difficult for a new business to access. And the credible threat of entry is crucial to provide the impetus for competition. This is especially true in the large industrial and commercial sectors of the market where retail entry is perhaps more realistic – conventional wisdom has it that residential retail requires a customer base in the millions to spread costs and compete. Ofgem recognises these issues in its review of the market, and on market liquidity proposes to consult with the big utilities to find a solution.

Market Structure

Of course one could argue that changing the rules in a game played by a small number of competitors will not have much effect. The argument is that the structure of the electricity market, with an ever-diminishing number of players that are vertically integrated between electricity generation and retail is the main problem. With self-supply, where companies that own generation also supply customers, there is little need to trade. The possibility exists that this will get worse if Centrica takes 25% of British energy’s electricity generation, as the need to trade will reduce further with serious knock-on implications for liquidity. By comparison the German market has greater liquidity and has a structure with many smaller buyers of electricity.

Figure 2 – Degree of vertical integration in GB electricity market



Source: Company data, Pöry Energy Consulting.
 Note: Figure assumes Centrica has access to 25% of British Energy’s generation but not its customers.

But there are good reasons to have a number of large energy players. These companies have the scale and the balance sheet necessary to undertake the needed investments in this capital intensive sector. Assuming that we are not about to break up the structure of the industry once again, the focus for improving the market should be on the operation of the market and breaking down barriers to new entry, which would include creating the conditions for a liquid reliable wholesale market.

Impact of Wind

Another concern is that electricity markets are changing. The central premise of the current market design is that electricity is just another commodity. That premise was always faulty but in the past was of less importance. In a world of much higher levels of intermittent renewable generation, with growing contributions from onshore and offshore wind farms, electrical energy will not always be the most important element of electricity

supply. For a reliable supply we need to focus on the other aspects of electricity such as reserve capacity and speed of supply, or response, that will back up the electricity system when the wind doesn't blow. These are elements that are not captured by the current market adequately. For example wind generation will vary over time and the main need is unlikely to be for immediate backup generation, rather it will be for backup capacity on a 4-hour timescale. So markets for reserve capacity that operate close to real-time may be appropriate.

At this stage is difficult to be too prescriptive about what is needed in the new market as further analysis needs to be done to understand the impacts of a high level of renewables in the electricity system to make the new market design 'future-proof'. As a result Pöyry Energy Consulting is launching a major new multi client study to investigate the impact of large increases in intermittent generation in the British and Irish electricity markets.

A New Market Design

So the electricity market needs to be rethought, both to deal with the current failings of poor liquidity and barriers to new entry and to make it fit for purpose in a changing world dealing with the threat of climate change. The creation of a liquid traded spot market, together with markets for capacity and for response is what is called for. A complete redesign is in order, but delivering a liquid spot market with a reliable index is the first step.

With further consolidation now clear and with high targets for renewables, we need action to fix the broken market as soon as possible.

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