

ENERGY MARKET INVESTIGATION

Summary of hearing with the University of Exeter Energy Policy Group on 3 December 2014

Background

1. The University of Exeter Energy Policy Group (EPG) focused on energy policy and regulation and the role that it played in the shift to a more sustainable energy system. It undertook comparative research focused on innovation and how energy systems might change to being more sustainable whilst also being affordable and secure. An example was the impact of intermittent renewable electricity and the integration of demand-side management into the electricity system.
2. EPG's focus was on governance structures and the barriers they raise to new technologies and entrants. It argued that the limited number of big participants in the market militated towards the status quo. It said that increasing transparency of price and liquidity in the market was a necessary condition for change.
3. The Competition and Markets Authority (CMA) theories of harm were to be welcomed, but were considered too limited. For example, the Great Britain (GB) capacity mechanism was a retrenchment of an old system which maintained the current means of operating and regulating the system to the benefit of the incumbent generator-suppliers. EPG argued that to address the causes of harm in the energy market the CMA needed to consider its overarching governance, system design and institutional arrangements.
4. Alternative models of governance did exist internationally that encouraged more renewables, flexible system operation and demand side participation. In these models renewable generation was both shifting the load curve to displace reliance on fossil fuels and reducing peak period prices.

Overall energy market design

5. The EPG did not consider nuclear energy, from a systems perspective, to be a sustainable technology to support. The way forward for a renewable system was to discard the conventional supply-led approach and make demand more flexible to fit variable supply. This greater flexibility in both supply and demand

linked by new technologies would enable faster matching and allow there to be less capacity on the system than before. This lower level of capacity would lead to lower costs. Big blocks of inflexible capacity like nuclear power were not necessarily compatible with this system. Unlike some other low carbon technologies, technologies like onshore wind were becoming competitive with conventional technologies like gas powered generation, whereas nuclear energy was too high cost to be competitive.

6. EPG told us that through the Electricity Market Reform (EMR) we had the beginnings of a system with demand side response, but that this was limited. It said that EMR would deliver between half and 1% of GB capacity in the form of demand response, but that in some markets in the US this could be around 12%. EPG explained that this was possible using demand-side aggregators who could facilitate small amounts of demand response entering into the system. One reason why [a US-based electricity regional transmission organisation] managed a 12% reduction in supply was because small clip sizes could be bid in the demand response market. While the original design for security measures had been intended to facilitate the demand side, the final design favoured generation capacity to be paid for its availability. It was a supply driven, capacity driven system. This stopped new entrants and new ways of doing things in the market.
7. In the British Electricity Transmission and Trading Arrangements (BETTA), there was a minimum clip size of 2MW. There was not enough aggregation in the market that would bring low levels of supply together. There were developments anticipated in terms of demand like heat pumps and electric cars that would change patterns of demand in future. There was a need to both smooth demand and respond to intermittent supply. Overall the value of flexibility and of low carbon were not being properly priced. It could not be assumed that markets would automatically facilitate this complex change, so there was a need for institutional change, different business models and different types of customer relationships.

Power market design, market rules and EMR

8. The current power market design of the New Electricity Trading Arrangements NETA (now BETTA) was based on bi-lateral contracts which were problematic for new, small entrants for whom these contracts had high transaction costs. Bi-lateral contracts in a vertically integrated system hindered transparency of price, were costly to negotiate and militated towards predictable rather than intermittent generation.
9. EPG explained that some reform of the balancing market that allowed for easy access through this mechanism may help mitigate for the high level of

bi-lateral contracts. However, it suggested that a binary approach between the two systems was too simplistic and that both could exist together as they did in the German and Nordpool market. There were higher levels of liquidity in the Nordpool market. This was partly due to a larger number of smaller actors (for example 80 suppliers in the case of Denmark).

10. EPG did not have particular concerns about Contracts for Difference (CfDs) as they differentiated between technologies and offered a degree of certainty for investors. However, the outcomes of the CfD process were not completely clear because of the Levy Control Framework and there was a lack of clarity about what would happen after 2020.
11. An auction arrangement could work for CfDs but the issue was in the detail of the auction design. The best way to foster investment was through a well-digressed feed-in tariff. This would be the cheapest option for the customer and would transfer the risk from the developer to the government.
12. In terms of capacity, EPG suggested that there could be a bigger investment in interconnectors with Europe. It reiterated the key issue of flexibility in the system that was needed to accommodate new technologies and suppliers. It also reiterated the helpfulness of aggregators in terms of encouraging demand side responses to capacity need. Aggregators operated well in the US because they could make sufficient value, but this was not currently possible in the GB market. In some American markets, demand response had allowed total demand to fall by 12%, although the average across the US was 6%.

Pricing in the electricity market

13. EPG suggested that prices under current market conditions were not transparent, and that they were more transparent in a pool pricing system like Nordpool, the Electricity Reliability Council of Texas (ERCOT) or California. Currently, prices in the GB market were available to traders, brokers, generators and suppliers but not to members of the public. This was problematic because it limited the availability of accurate pricing data for public debate.

Vertical Integration and foreclosure

14. EPG saw Vertical Integration (VI) as creating the incentive for stability in terms of incumbent customer base but it was also a way of dealing with the risks of illiquid wholesale markets and limiting imbalance costs.

15. It was unhelpful if supply firms were put in charge of the implementation of energy efficiency measures as there was no incentive for these firms to run these schemes successfully.
16. Foreclosure was not an issue on the generation side, but it was on the supply side. However, if you were a small scale generator then it was difficult for you to get value out of your generation. For example, [one smaller GB supplier] took up to 85 or 95% of small scale generation because it was willing to offer a reasonable price. Other suppliers were unlikely to offer full value for small scale generation input. The lack of transparency of prices made it difficult for small scale generators to know the value of their power. This problem might be solved if there were more aggregators.
17. Up to 2010, small scale power generators had not been able to obtain purchase agreements but changes in regulation and the introduction of Feed-in Tariffs (FiTs) helped because these meant that small generators would know that they would get a certain price for a certain length of time and therefore the contracts were financeable. If it was easier for small-scale generators to sell power directly to customers or into a pool rather than to larger generators, then the market might function more effectively.

Retail supply

18. Ofgem should provide a regulated price comparison website of all suppliers. It was very difficult to trust current comparison sites, and it was also difficult for consumers to obtain the right information on tariffs and understand their bills. Without customers understanding their current usage and expected usage over a set period, it was difficult for them to effectively compare tariffs. This contributed to low levels of consumer engagement.
19. Even with Retail Market Review (RMR) and tariff limitation there were still a large number of tariffs for a consumer to understand. It was not important how many tariffs there were, but the consumer needed to be able effectively to compare tariffs.
20. In the US the majority of states had a default tariff, which was a price to beat. The default tariff was cheap, with a margin of 1 to 2% profit for the companies that provided it, so that competition operated on customer service and other product-differentiating characteristics. The default tariffs often had rising block tariffs where consumers paid more after buying a certain amount of energy.
21. EPG supported moving to 1 year tariffs like those for house and car insurance so that evergreen contracts ceased to exist.

22. The Green Deal had been unsuccessful because the model was based on borrowing money from financial providers for the measures, such as insulation, at a higher rate of interest than was available from a local bank. Most customers were not interested in energy efficiency measures even when they were provided for free.

Codes and network regulation

23. The current systems of codes limited and prevented change. This was because the majority of representatives on code panels were from incumbents and because of the process that was involved in agreeing and implementing any changes. One solution would be to change the membership of code panels and review the objectives of codes to ensure that they were consistent with changing policy requirements like issues of sustainability. The code system could be simplified.
24. There should be a system operator along the lines of the one in Denmark which was independent and state-owned, which had the responsibility for both the transition and security, and where the market and network were institutionally together so that the value in a market was linked to a more efficient running of the network.