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Draining liquidity: a novel vertical effect in electricity mergers?

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Introduction

The acquisition of the United Kingdom's largest nuclear generator British Energy (BE) by EDF—and the subsequent sale of a 20 per cent stake in the nuclear assets to Centrica—came under close scrutiny from the European and British competition authorities in late 2008 and mid-2009 respectively.¹ Because EDF and Centrica both have significant electricity wholesale and retail operations, the competition analysis in each case considered possible vertical effects. More standard potential unilateral effects in the generation market were also subject to detailed analysis, but are not discussed further in this article.

The fact that the competition authorities looked at non-horizontal effects was not surprising—it is routine in vertical mergers to consider whether a transaction will increase the ability and/or incentive of the parties to engage in foreclosure strategies. What was surprising about the vertical analysis in these cases was the *nature* of the possible vertical effect that concerned the European Commission and the OFT. Neither competition authority was especially concerned

about what might be termed “strategic” foreclosure, i.e. deliberate actions taken by the merging parties to harm rivals. Instead, the main concern was due to the risk of a reduction in market liquidity—i.e. the prospect that the transactions might result in less electricity being traded on the wholesale market, and that this in turn could harm consumers.

The two BE cases create a precedent for the assessment of liquidity effects in future mergers in the electricity sector. In addition, because the logic of the concern about liquidity effects is not specific to electricity, one cannot rule out that such effects will be considered in other industries in which a vertical merger might reduce trading on the wholesale (or merchant) market. For the reasons outlined in this article, we do not consider that the addition of liquidity effects to more established foreclosure concerns would be a positive development for merger analysis in Europe.

How could a loss of liquidity reduce competition?

Most major incumbents in the European electricity sector are active in both generation (upstream) and retail supply to final customers (downstream). Firms that have an excess of generation output relative to their sales to final customers can be considered “long” in generation, whilst firms with the opposite position are “short”. In order to balance their overall positions, firms that are long in generation sell their excess output in the wholesale market, whilst firms that are short buy from the wholesale market. Trading also takes place for a variety of different reasons, with generators, suppliers and traders using the market to hedge risk, balance short-term imbalances and engage in arbitrage. Therefore the total volume of trades taking place in the market will typically be substantially greater than the minimum volume required to balance long and short positions.

The concept of “market liquidity” captures the overall extent of trading in the wholesale market, i.e. looking only at trades between different market participants and excluding “captive” sales that take place within vertically integrated groups.

A merger between an electricity firm that is long in generation and one that is short may lead to a reduction in trading on the wholesale market if the merged entity opts to internalise transactions which were previously going through the market.

When can such a reduction in liquidity lead to adverse non-horizontal effects from a merger? There are three possible theories of harm which can be applied to this type of case (all of which were at least mentioned in the

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¹ The European Commission cleared the acquisition of BE by EDF in December 2008, subject to remedies (see Commission Decision of 22 December 2008 declaring a concentration to be compatible with the Common Market according to Regulation 139/2004 (COMP/M.5224-EDF/British Energy)). The UK's Office of Fair Trading (OFT) unconditionally cleared Centrica's acquisition of 20% of BE's nuclear assets in August 2009 (see OFT Decision of August 7, 2009 (ME/4133/09-*Anticipated Acquisition by Centrica of 20 per cent of Lake Acquisitions*)). The authors of this article advised Centrica throughout the competition process.

Commission's review of *EDF/BE*):

- **Customer foreclosure:** By internalising trades that were previously part of the merchant market, a merger may deprive independent generators of a potential customer base. According to the theory of customer foreclosure, this could in turn increase their (variable) costs and in an extreme case induce their exit. In order to be economically robust, this theory of harm needs to assume that the foreclosure effect from a non-horizontal merger is significant. Moreover, the merging parties need to be able to *both* internalise their own downstream requirements *and* compete with independent generators in the merchant market with the same or similar intensity as in the pre-merger situation (e.g. by expanding output without facing binding capacity constraints). Otherwise, the mere internalisation of trading would reduce both demand and supply in the merchant market by the same amount, without any obvious adverse effect on other non-integrated generators or their customers. The conditions under which harm to competitors translates into harm to consumers in the event of customer foreclosure are also strict, especially if the merger leads to greater overall wholesale output and therefore benefits to consumers in the short-run.

- **Input foreclosure:** An alternative theory of harm from liquidity effects in electricity markets is that the internalisation of market trades raises the input costs of downstream rivals. That is, the merged firm, in addition to internalising trades, could *also* reduce its generation levels in order to raise wholesale prices and soften competition downstream. Again, internalisation of a fixed amount of pre-merger trading is not sufficient for this theory of harm to apply, as it removes the same amount of supply and demand from the traded market. In order for there to be harm to customers there must be a reduction in output rather than a mere internalisation of supply. Moreover, even if the merger were to lead to higher wholesale prices, standard double-marginalisation efficiencies from vertical integration imply that final consumers may still be better off as a result of the transaction.

- **"Pure" liquidity effects:** Finally, a more direct liquidity effect (separate from standard vertical effects) can be postulated, which rests on internalisation alone. The concern is that a reduction in market liquidity could increase the volatility of wholesale prices in the face of external shocks, thereby reducing the reliability of the wholesale market as a signal for entry and investment decisions. According to this theory of harm, the fall in liquidity could therefore raise barriers to entry in generation and in retail (by, for example, increasing collateral requirements), thereby potentially leading to higher wholesale and retail prices.

Liquidity concerns considered in the British Energy transactions

The EDF/BE transaction

In late 2008, EDF emerged as the victorious bidder for BE, which owned most of the nuclear capacity in Britain and a coal-fired plant (with a total of roughly 11GW of capacity). EDF's generation consisted of two large coal plants and some gas-fired capacity (totalling approximately 5GW). Both parties were active in the supply of electricity to large industrial customers, and EDF also in the supply of electricity to residential customers.

Alongside standard horizontal overlaps in generation and retail markets, the European Commission analysed the impact of the transaction on market liquidity. In terms of overall generation and downstream supply levels, BE was long in generation absent the merger, while EDF was short. The Commission was therefore concerned that as a result of the transaction BE's sales to the wholesale market and EDF's purchases from it would be netted off internally, resulting in a less liquid traded market.

The reasons why this was seen as problematic appear to have included both the two relatively standard foreclosure effects (i.e. customer and input foreclosure) but also the "pure" effects on liquidity summarised in this article. However, while references to foreclosure effects are made in the third party concerns reported by the Commission, no standard vertical analysis is presented in the Decision (along the lines put forward in the Commission's Guidelines on Non-Horizontal Mergers [2008] OJ C265/6). Given the low combined post-merger market shares of the parties (roughly 25 per cent or less in both the generation and retail markets; below the 30 per cent safe harbour for foreclosure concerns in the Commission's Guidelines),² it is unlikely

² The generation shares are based on the generation output data for 2007 contained in the Commission's Decision in COMP/M.5224-EDF/*British Energy*, para.39 (reporting 350 TWh for the British market as a whole), para.43 (indicating 27 TWh for EDF), and para.60 (indicating 60 TWh for BE). Downstream sales data for BE is reported at para.60 (reporting 27 TWh of direct sales for BE in 2007), whilst corresponding sale data for EDF (52 TWh in 2007) can be found in EDF's *Sustainability Performance Report* (available at <http://www.edfenergy.com> [Accessed January 10, 2010]). Retail shares were above 30% if one considers only large industrial and commercial customers (with consumption metered on a half-hourly basis) (see para.92 of the Decision in COMP/M.5224-EDF/*British Energy*), so in principle a foreclosure concern with respect to this customer group would not have fallen within the safe harbour contained in the Guidelines. However, the European Commission did not develop a non-horizontal theory of harm that was specific to this specific retail market. Moreover, it found that the higher combined share present in this retail segment would not lead to adverse unilateral effects, since EDF and BE were not close competitors, and faced sufficient competition from other parties (see para.101 of the Decision in

that a standard analysis of ability and incentive to foreclose would have shown a realistic prospect of a substantial lessening of competition from the merger.

The absence of standard foreclosure concerns was also supported by the fairly demanding remedies accepted by the Commission to address horizontal issues in the generation market (which were evaluated using an empirical analysis of incentives to withhold price-setting generation capacity as a result of the merger). The Commission required the divestment of two of the parties' price-setting power plants (Eggborough at 2GW and Sutton Bridge at 0.8GW) in order to address this concern. The divested capacity was equivalent to more than half of EDF's pre-merger generation capacity (i.e. more than half the relevant increment from the merger). By reducing the parties' ability and incentive to increase wholesale prices, the remedy also diminished any incentives the parties might have otherwise had to engage in input foreclosure.

In respect of the specific "pure" liquidity concern, EDF disputed that it would have an incentive to internalise the acquired generation in the first place. It argued that it already had sufficient generation to meet its own residential customer requirements, and could readily hedge the risk resulting from its non-residential demand by procuring energy on the wholesale market at the same time as it signed supply contracts with non-residential customers (i.e. on a "back-to-back" basis). However, the Commission was still concerned that internalisation would have taken place after the merger, and might have harmed consumers.³ A commitment to trade by the parties was accepted to address this concern (in addition to the plant divestitures summarised above). Under this commitment, the merged entity must sell to third parties an amount equivalent to approximately 10 per cent of its historical generation, each year from 2012 to 2015.

The Centrica/EDF/BE transaction

Subsequent to EDF's acquisition of BE, EDF agreed to sell a 20 per cent stake in the acquired nuclear assets to Centrica. This transaction was assessed by the OFT. The OFT also investigated the effects of the transaction on market liquidity, drawing on the concerns put forward by the Commission in its review of *EDF/BE*.

The OFT tested the conditions under which the transaction would result in a loss of liquidity by verifying

COMP/M.5224-*EDF/British Energy*)—which again would seem to rule out vertical concerns driven by downstream concentration levels.

³ In a recent article on the case, Reilly et al. state that, "further investigation would be necessary to establish whether the transaction would effectively lead to consumer harm as a result of reduced liquidity", but that serious concerns were raised by the first-phase investigation (see M.D. Reilly, P. Panayides and R. De Coninck, "EDF/BE: Yin and yang—why complementarity can be problematic" (2009) 1 *Competition Policy Newsletter*).

whether scenarios existed where the sale of output from EDF/BE to Centrica could be characterised as a transfer from a long player to a short one (as in the case of the merger between EDF and BE). The OFT considered two main approaches for measuring liquidity effects:

- one based on the Commission's analytical framework, which looked at total generation and total downstream sales by a firm to measure its net position pre- and post-merger; and
- one which considered instead the difference between generation and residential tariff demand as the effective net position of a firm in the wholesale market. This second approach was looked at on the grounds that non-residential demand (and also residential demand that is sold on fixed-price/fixed-term contracts) is easier to hedge in the market and thus leads to weaker internalisation incentives.⁴

Under the first approach, the OFT found that both Centrica and EDF/BE would be *short* in generation both in the near future and over the medium term (partially due to remedies associated with EDF's acquisition of BE, which reversed EDF/BE's long position relative to a scenario without remedies).⁵ Therefore the transaction would simply increase the short position of EDF while reducing that of Centrica, with no expected impact on the *combined* need for the two parties to procure power in the wholesale market.

Under the second approach (which only considers residential demand on tariff, and not total demand), the OFT found that EDF/BE and Centrica would both be long either with or without the transaction. This is explained in particular by the fact that Centrica's residential tariff demand is well below its overall electricity demand, coupled with the fact that Centrica was building a new gas-fired power plant (Langage) at the time of the deal, thus increasing its generation on a forward-looking basis. Therefore the transaction simply resulted in EDF becoming less long relative to its residential tariff demand, with Centrica obtaining a greater energy surplus—again with no clear overall effect on the expected levels of market liquidity.

The OFT also went a step further and examined Centrica's arguments that it did not face incentives to internalise all of the acquired generation. In doing

⁴ This approach recognised the fact that some suppliers, such as British Gas Residential (Centrica's residential gas and electricity supply business), offer both tariff and fixed-price products to its customers. The latter guarantee a fixed retail price to consumers for a certain period, even if wholesale prices change. Centrica reports that at the end of 2008 it was serving 15.6 million gas and/or electricity residential accounts in Great Britain, of which 3.6 million had contracted for a fixed price product.

⁵ On a "very conservative basis" the OFT found that EDF/BE might have been balanced in 2012/13 (see para.84 of the OFT Decision, ME/4133/09-*Anticipated Acquisition by Centrica of 20 per cent of Lake Acquisitions*). This does not change the assessment of potential liquidity effects.

so it took into account Centrica's stated rationale for pursuing the transaction—namely to obtain a structural hedge against wholesale gas prices (which are correlated with electricity prices) in order to offset its exposure in the residential gas market. To fully realise this hedge, Centrica faced incentives to trade at least some of the acquired generation, rather than internalising against demand which could in any case be easily hedged using the wholesale market. Although it did not need to conclude on this issue, the OFT noted in its assessment that, “the size of any impact would be reduced by Centrica's incentives not to internalise all of the volumes from EDF/BE” (para.98 of the OFT Decision, *ME/4133/09-Anticipated Acquisition by Centrica of 20 per cent of Lake Acquisitions*). Therefore no remedies were required to address potential liquidity concerns.

Implications for non-horizontal mergers in the electricity sector and beyond

As our summary of the two competition decisions on BE shows, liquidity concerns were not upheld in the *Centrica* case (assessed by the OFT), and in the *EDF* case (assessed by the Commission), resulted in relatively modest liquidity-specific remedies accepted during the first phase of the investigation, whereby the parties committed to sell a relatively small fraction of their output for a restricted period and with limited constraints on the terms of such sales.

Nonetheless, the degree to which these potential concerns were taken seriously by the European and British authorities suggests that these “pure” liquidity issues may well be raised in future mergers in the electricity sector (and possibly in other markets too).

It is widely recognised that vertical mergers are less likely to have anti-competitive effects than horizontal mergers. There are clear and well-understood ways in which vertical mergers can increase efficiency (e.g. in terms of pricing and investment incentives). Moreover, the conditions under which a vertical merger can materially increase the ability and/or incentive of the merged firm to foreclose its rivals by increasing their input costs or reducing their revenues are restrictive. These conditions are well summarised in the Commission's Guidelines on Non-Horizontal Mergers.

Against this backdrop, it is open to question whether a mere reduction in market liquidity following a vertical

merger can be automatically assumed to foreclose rival firms and lead to substantial anti-competitive effects. The potential foreclosure mechanism at work in the case of a “pure” liquidity theory of harm is significantly less direct than in standard foreclosure analysis, since it is essentially the volatility rather than the level of wholesale prices that is assumed to change following the merger.

A vertical theory of harm that is centred on a loss of liquidity therefore requires a particularly compelling empirical analysis. This should, for example, include evidence that the merging parties believe that one of the private benefits of the merger would be protection from competition due to a loss in liquidity, or that a reduction in liquidity would be significant and have a material foreclosing effect on non-integrated firms—to an extent that would be expected to result in higher prices for final consumers.

In analysing possible liquidity effects from a vertical transaction, it is also important not to simply assume that where merchant markets exist, vertical mergers will result in internalisation. As the OFT's discussion of the *Centrica* transaction accepts, incentives to trade in the merchant market may well still exist post-merger for a variety of reasons.

Even if some internalisation is expected to result from a vertical transaction, evidence that this will have a significant effect on the level and/or volatility of wholesale prices is needed to make the theory of harm robust. As for the standard cases of input and/or customer foreclosure, a vertical merger should only be able to lead to adverse effects on competitors and consumers if there is substantial market power upstream and/or downstream. If the wholesale and retail markets are effectively competitive, significant foreclosure effects are unlikely even if market liquidity falls after the merger.

Moreover, in those situations where the merging parties have significant market power, it is still likely to be the case that the standard framework of foreclosure analysis would be best suited to analyse the impact of a vertical merger—rather than a theory of harm that internalisation of market trades can be anti-competitive per se. In our view, the competition evaluations of the two recent transactions involving BE's assets do not provide a persuasive argument for adding “pure” liquidity effects to the standard list of possible concerns from vertical mergers.