I. Introduction

On 24 September 2008, following ongoing talks with British Energy, EdF announced that it had agreed a takeover of the company for the sum of £12.5 billion. On 3 November 2008, given that the transaction had a Community dimension within the meaning of the Merger Regulation, EdF notified to the Commission its intention to take sole control of the company, having made a public offer to purchase its entire issued share capital.

The parties’ activities would overlap in several areas of the British electricity markets. The deal would also strengthen the vertical integration of the combined post-merger entity. On examination, it was found that even though the combined shares of the two companies were not extremely high, there were some aspects of concern specific to the electricity markets under investigation. These concerns were to a large extent linked to the fact that the combined post-merger entity would in many respects be highly complementary. In particular it would combine EdF’s flexible UK fossil fuel plants with British Energy’s almost exclusively nuclear fleet, a source for baseload electricity, leading to concerns about a possible withdrawal strategy. Secondly, the deal would combine two strong players on the British wholesale electricity market, one with a “short” position and the other with a “long” one, thereby potentially facilitating a reduction in liquidity on the wholesale market. Finally, the deal would give EdF access not only to nuclear capacity but also to a high proportion of sites most likely to be suitable for a first wave of new nuclear build with the consequence of removing many possibilities for competitors to acquire such sites.

Following a substantive analysis including an in-depth first-phase market investigation and cooperation with the UK regulator for gas and electricity (Ofgem), the Commission decided to clear the case, subject to substantial remedies.

II. The parties and the transaction

Electricité de France (EdF) is a mainly state-owned French energy company listed in Paris. While based in France, EdF and its subsidiaries are active globally in all segments of the electricity markets: generation and wholesale trading, transmission, distribution and retail supply of electricity to all groups of customers. In particular, EdF prides itself on being the world’s leading nuclear power utility, operating a French nuclear fleet consisting of 58 reactors across 19 different sites. Within the UK, however, in terms of generation of electricity, prior to the transaction EdF UK had no nuclear assets. Rather its generation portfolio was comprised of gas and coal fossil fuel plants.

British Energy is a plc limited by shares, incorporated under the laws of Scotland and listed on the London Stock Exchange. It was established in 1995 to operate the eight most modern nuclear power plants in the UK and privatised in 1996. Operating exclusively in the UK, it is active in the British markets for generation and wholesale trading of electricity and retail supply of electricity to industrial and commercial customers.

The company had been in financial difficulties for some time in 2002, when it first approached the British Government for financial aid. In the run-up to the takeover, notwithstanding financial assistance, British Energy faced challenges due, among other things, to its plants’ ageing technology and scheduled closures of its AGR fleet. In the context of the HM Government White Paper on New Nuclear Build, the company took the decision to seek a business partner. The British Government supported this and consequently the decision by the Board of British Energy to recommend British Energy shareholders to approve a takeover by EdF.

III. Market definition

The parties’ activities were found to overlap on the markets for generation and wholesale supply of electricity, retail supply of electricity to industrial and commercial customers, sites for new nuclear build, carbon trading, procurement of nuclear fuel and financial electricity trading. No particular issues were found to exist in relation to carbon trading,

(1) The content of this article does not necessarily reflect the official position of the European Commission. Responsibility for the information and views expressed lies entirely with the authors.
procurement of nuclear fuel or financial electricity trading.

**Wholesale electricity markets**

Both parties were active in the wholesale electricity markets in Great Britain. The parties agreed with the approach taken by the Commission in previous cases, according to which there is a single product market for both electricity generation and wholesale supply. Furthermore, in line with the Iberdrola/Scottish Power decision, no distinction was made between the different sources of electric energy within the wholesale electricity market for the purpose of market definition. However, the Commission did investigate whether the various sub-segments of the wholesale market (non-standard non-brokered, OTC brokered, Power Exchange and Balancing Mechanism) could comprise separate markets. It also examined whether, within the OTC brokered segment, the various products traded (such as baseload and peakload) constitute separate markets. This was not supported by the market investigation.

Geographically, the Commission, as supported by the market investigation, considered that the relevant market comprises the whole of Great Britain. This area is regulated by BETTA and therefore subject to similar conditions of competition.

**Retail supply of electricity to industrial and commercial customers**

In the past, the Commission had identified separate product markets for large and small industrial customers. In relation to the British market, it had differentiated between customers on the basis of kW demand. However, following liberalisation of the electricity markets, there were findings that the retail electricity market could be subdivided between three categories: domestic customers, smaller industrial and commercial customers (SMEs) which do not use “half hourly rates” and large industrial and commercial (“I&C”) customers which do use half hourly rates.

In this case, the parties submitted that the relevant product market is the broader market for the supply of electricity to all industrial and commercial (“I&C”) customers, encompassing supply at both half hourly (HH) and non-half hourly (nHH) rates. This was not supported by the market investigation, which clearly favoured the subdivision of the retail electricity market into the three categories mentioned above.

As for the wholesale market, the Commission found the relevant geographic market to be Great Britain (England, Scotland and Wales, excluding Northern Ireland).

**Sites for new nuclear build**

The definition of a market for sites for new nuclear build is set against a background of the need for the UK to address the renewal of the large number of power stations due to close over the next 15 years and the adoption of policies on energy and climate change, which support the building of new nuclear power stations. In particular, there is an ongoing Strategic Siting Assessment (SSA) procedure which is to establish a list of suitable sites to be included in the National Policy Statement (NPS), expected to be published in early 2010.

The Commission made no distinction between the different sources of electric energy for the wholesale market. However, it considered in the light of the particularities of the ongoing SSA and of the special characteristics of such sites that there is a separate product market akin to a real estate market for sites considered suitable for building new nuclear power stations. At least in the first wave of new nuclear development, expected over the next ten to fifteen years, this market can be expected to include a limited number of sites. According to the 2008 White Paper these are expected to be in the vicinity of existing nuclear facilities. This position was strongly supported by the results of the market investigation.

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(1) Case M.4517 — Iberdrola/Scottish Power.

(2) Gas fired, coal fired, nuclear, hydroelectric power stations, wind farms or others.

(3) The technology portfolio of each generator played a central role in the competitive assessment, however, as detailed in section IV.

(4) Rather, the market investigation favoured the retention of the definition of one wholesale electricity market comprised of different segments. This can also be said for the various products sold (weekday, weekend, baseload, peak hours, etc). The majority of respondents indicated that splitting these products into separate markets would not be appropriate, as different products simply represent different groupings of the same basic trading units, which are half-hourly quantities.

(5) British Electricity Trading and Transmission Arrangements.

(6) Half-hourly rates are used for consumers whose consumption can effectively be metered on a half-hourly basis.

(7) Market division also supported by the market investigation in case M.2890 — EdF/Seeboard.

(8) This is in line with the market definition in case M.4517 — Iberdrola/Scottish Power.

(9) The 2008 White Paper on Nuclear Power states that new nuclear stations should have a role to play in the country’s future energy mix alongside other low carbon sources.

(10) See the Jackson Report.

In relation to the geographic market for new nuclear build, the Commission decided to leave the scope of the market open. (15)

IV. Competitive effects of the merger

As mentioned above, even though the combined shares of the two companies were not extremely high, the case raised issues quite specific to the electricity markets under investigation.

Withholding in the wholesale market

The parties’ market shares on the UK wholesale electricity market were not particularly high, and would not necessarily appear, at first sight, to constitute a serious source of concern. The transaction would lead to a combined market share in the UK wholesale electricity market lower than 30%, with an increment of less than 10%, while the parties face a number of competitors in the UK, including E.ON, SSE, RWE, Iberdrola/Scottish Power, International Power, Drax and Centrica, each of them having a market share between 5% and 15%. (16) Yet the Commission found that the transaction, as initially notified, would lead to significant competition concerns on the wholesale electricity market. This finding followed a detailed economic analysis of the effects of the transaction.

Given the specific characteristics of electricity markets, market shares only constitute a very crude indicator of the likely effect of a merger between electricity generators. For example, one essential characteristic of electricity is that it cannot be stored. In addition, demand for electricity is inelastic and is characterised by a high degree of variation. (17) Given these specificities, a mix of generation technologies is usually used so that supply can meet demand at any point and market imbalance or rationing is avoided. Technologies with a low marginal cost of production, also known as baseload technologies, tend to be used most of the time, while other, more expensive, technologies may be used only when demand is high.

Beyond market shares, the impact of such a transaction therefore critically depends, among other things, on the generation portfolio of the parties and their competitors. In this respect, the merger of EDF and British Energy could be seen as a textbook example of a situation in which combining generators with complementary technology portfolios could lead to higher prices through capacity withholding. The proposed transaction would bring under common control British Energy’s mostly baseload and predominantly nuclear capacity with EDF’s flexible capacity (coal and gas). This led to the potential concern that the merged entity would have an incentive to withhold flexible capacity in order to increase the market price that it would receive on its infra-marginal units. This effect is a direct consequence of the merger since, post-merger, the combined entity could benefit from price increases on a larger production base and have more opportunities to withhold flexible capacity.

Ultimately however, the extent to which the proposed operation would be likely to lead to anticompetitive effects is an empirical question. In particular, the effect of the merger on prices would depend, among other things, on the slope of the supply curve, the ranking of each plant in the merit order and the level of demand, which typically varies hour by hour. In order to estimate the likely impact of the transaction, the parties submitted a model incorporating the assumption that prices are set on the basis of the marginal cost of the most expensive plant on the merit curve that is called into production, and based on which the impact of different withdrawal strategies was considered.

The Commission carried out a substantive sensitivity analysis of the model provided by the parties. In order to reflect more accurately the technical constraints faced by the plant operator if it were to engage in a withdrawal strategy, the Commission also considered a wide range of possible withdrawal strategies, defined as the minimum period during which a plant could be withdrawn, and incorporated in the model an estimate of the cost of withdrawal for each plant. On the basis of this detailed empirical analysis, the Commission found that the results of the model provided by the parties were very sensitive to assumptions concerning demand, capacity and other variables, such as the marginal cost of certain plants, (18) and that the transaction would lead to significant price increases under a number of plausible assumptions.

(15) In the first instance, nuclear power plants supply the wholesale market and as such it was considered that it could not be larger than national. The SSA is also theoretically national. On the other hand, the Scottish authorities do not support new nuclear build and can prohibit it in Scottish territory. Therefore it was left open whether as a minimum the market should be defined to include only potential sites in England and Wales or whether it would be national further to the issuance of the National Policy Statement.

(16) Figures on market shares are valid both for installed capacity and for effective production.

(17) Part of this variation is predictable well in advance (as it relates for example to differences between weekends/weekdays, seasons, time of the day), but part of it is not (as e.g. it relates to weather conditions).

(18) The Large Combustion Plants Directive (LCPD) restricts the running hours for opted-out coal plants to 20 000 between 2008 and 2015 (8 years) before they must be retired. The marginal cost of the opted-out plants was increased in order to take this constraint into account in the model.
In addition to the quantitative analysis, a number of qualitative arguments were considered since the UK market differs in many ways from this simplified model representation. In particular, the UK market structure is prominently characterised by bilateral and forward trading and a correspondingly small spot market. However, the Commission concluded that this specificity of the UK wholesale electricity market does not imply that the merged entity would lack the ability to increase prices. In fact, post-merger, the merged entity could reflect its ability to withhold capacity in the price of its forward contract sales independently of whether it actually withholds capacity in the short term.

The discussion above only sketches some of the main findings of the very detailed analysis carried out by the Commission in this case, from both a qualitative and a quantitative standpoint. The Commission’s investigation relied not only on a very detailed empirical analysis, but also on a full consideration of the market’s specific characteristics, which included, among other things, the position of each market player by technology, the marginal cost of production for each plant, the hourly variation of demand, the relationship between spot and forward prices, the presence of long-term contracts or the companies’ specific hedging strategies. Despite the relatively limited market shares of the merging parties, the Commission concluded on the basis of this comprehensive economic analysis that the transaction could lead to anticompetitive effects on the wholesale electricity market.

Impact on liquidity: effects in the wholesale and supply markets

Another concern that was raised during the market investigation is that the merger, as initially notified, could lead to a reduction of liquidity in the wholesale electricity market. British Energy has a long generation position as it produces more electricity than it supplies to its final customers, while the opposite is true for EdF, which buys part of the electricity it supplies to its final customers on the wholesale market. Respondents to the market investigation were concerned that the merger could lead to increased internal use of electricity that would otherwise have been sold to the market.

Market test respondents indicated that there is currently, and independently of the merger under review, a concern in the UK about relatively low levels of liquidity. Lower levels of liquidity may increase the cost of trading on the wholesale market and may possibly create barriers to entry on the retail market and/or wholesale market. Although further investigation would be necessary to establish whether the proposed transaction would effectively lead to customer harm as a result of reduced liquidity (taking into account the efficiencies brought by vertical integration), the Commission’s first-phase investigation established serious concerns with respect to the ability and incentive for the merged entity to internalise trades and thereby affect trading possibilities of competitors, including new entrants. In addition, the Commission estimated the possible reduction of liquidity that could result from the merger on the basis of a series of market characteristics and assumptions (such as e.g. the merged entity’s future hedging strategies, the availability of power plant, the type of product traded or the existence of long-term contracts), which was necessary to assess the likely impact of the remedies proposed by the parties.

Retail supply of electricity to industrial and commercial customers

The parties’ activities overlapped for industrial and commercial customers on both half hourly (I&C HH) and non-half hourly (I&C nHH) rates. For customers on nHH rates, the increment of market share was found to be very minor and the market investigation did not identify any serious doubts for this market. As regards I&C HH, the transaction would lead to a combined market share of [30-40]% by volume, with an increment of [10-20]% As a result of the deal, the combined entity would therefore become the undisputed market leader in this market. The investigation therefore focused on this segment of the retail market.

During its analysis, the Commission took into account data which indicated that there are subsegments within the I&C markets with differing customer characteristics based on expenditure, consumption and number of sites within a portfolio. However, the market investigation did not identify these segments as separate product markets.

The Commission found that the parties compete to a large extent on different segments of the customer market. In particular it found that while EdF focuses on multi-site customers consuming lower volumes, British Energy focuses on very large high volume-consuming single-site customers. Although both companies are active in the same market, they focus to a large extent on different types of customer, and are therefore unlikely to exert a particularly strong competitive constraint on each other.

The Commission also examined the substitutability of the products offered by the parties. Feedback from the market test indicated that the parties’ products were not considered close substitutes but that the products offered by EdF are similar to those offered by its main competitors. In this regard the Commission considered that the merged entity’s incentive to raise prices is more likely to be con-
strained when rival firms produce close substitutes to its products, as was the case at hand.

As a consequence, while the combined entity would be a market leader in the supply of electricity to I&C HH customers, the Commission considered that EdF and British Energy are not particularly close competitors. Remaining competitors active in the market, particularly E.ON, RWE and SSE, would be sufficient to ensure that competition is maintained. Therefore the transaction did not give rise to serious doubts on this market.

**Market for sites for new nuclear build**

Another concern raised during the market investigation related to the fact that the merger, as initially notified, would lead to a high concentration in the ownership of sites most likely to be suitable for a first wave of new nuclear build. The merged entity would hold or have some influence on the development of seven out of nine (or seven out of ten) such sites. This was of particular significance to the transaction given that the British Government had recently adopted new policies on energy and climate change which clearly support investments in nuclear new build as part of the UK’s electricity mix. (19)

The market investigation carried out by the Commission identified nine to ten sites that are most likely to be part of the National Policy Statement (NPS) and thus suitable for a first wave of new nuclear build in the foreseeable future. At the time of the Commission’s market investigation, out of these potential sites for a first wave of new nuclear build, five belonged to British Energy while three belonged to the Nuclear Decommissioning Authority (NDA) and land at one site belonged partly to the NDA and partly to British Energy. EdF had furthermore already purchased land next to the NDAs land at Wylfa and British Energy’s Hinkley site. Therefore, the merger, as initially notified, increased the control by the combined entity over the market for sites most likely to be used for a first wave of new nuclear build.

Most of the respondents to the market investigation voiced concerns in relation to the potential dominance of the merged entity in the market for new build nuclear sites. On the other hand, the Commission also took into account the Sites Undertaking which EdF had entered into with the British Government, as well as the Simultaneous Marketing Agreement (SMA) signed by EdF with the NDA, both of which could make available to competitors of the merged entity a number of potentially suitable new build sites. (20)

Third parties pointed out to the Commission that as a result of the merger and because of the conditions contained in the Sites Undertaking for the release of sites by EdF, new entrants could be put at a time disadvantage and face higher risks. In particular, the conditions contained in the Sites Undertaking could delay the development of the Bradwell and Dungeness/Heysham sites as the release of land by EdF was contingent on EdF obtaining the necessary consents and planning permission on other developments. It was argued that this could clearly have the effect of preventing or delaying entry by other parties.

In terms of the counterfactual (absent the merger), considering the high number of sites in the hands of British Energy and given the fact that it lacked the resources to develop at least a majority of these sites on its own, it was likely that British Energy would have opted for a joint venture approach to develop its sites jointly with competitors. As a consequence the market for sites for new nuclear build could be significantly altered by the merger in so far as it removed many possibilities for competitors of the merged entity to acquire such sites.

Additionally, as the market investigation indicated, the inherent uncertainty about the scope and timing of the release of sites (and which sites would be finally released following the Sites Undertaking) could act as a disincentive for competitors to invest in the considerable up-front planning work involved.

Finally, it was also considered relevant that the parties to the transaction appeared to be in a very good position to compete with each other in new nuclear build in the UK in the absence of the merger. EdF had already acquired land potentially suitable for nuclear generation in the UK at Wylfa and at Hinkley; it already held connection agreements which could support a nuclear reactor at each of these two sites and is an experienced nuclear operator.

On the basis of the above considerations, the Commission expressed serious doubts as to the compatibility of the transaction, as initially notified, with the common market.

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(20) The Sites Undertaking required EdF, in certain circumstances, to dispose of specified areas of land adjacent to or near existing nuclear sites, including land currently owned by BE. EdF had furthermore entered into a marketing agreement with the NDA, under which the NDA will offer through a competitive auction land at Bradwell, Oldbury and Wylfa and at the same time EdF will offer its own land at Wylfa.
Overlap in connection agreements

A further concern related to the number of connection agreements held by EdF and British Energy respectively, at specific locations, which could potentially foreclose the opportunity for competitors to connect new power plants to the grid. It was specifically claimed by third parties that the combined entity would hold a large portfolio of connection agreements for gaining access to the transmission network, which could hinder other generators’ ability to develop new power plants. With respect to the merger-specific elements regarding connection agreements, the Commission identified an overlap between EdF and British Energy at Hinkley, allowing the merged entity to hold connections for three nuclear reactors at that location, when in fact the intention of the merged entity was to only develop two nuclear reactors at that location.

V. Remedies

In order to address the serious doubts identified by the Commission, EdF submitted a remedy package consisting in (a) the unconditional divestment of the Eggborough Power Plant and an auction of baseload electricity, (b) the unconditional divestment of a site at either Heysham or Dungeness and (c) the termination of one of the combined entity’s grid connections at Hinkley Point. Following a relatively negative market test, EdF submitted a revised proposal, which was found to address the serious doubts identified by the Commission in relation to (a) withholding, (b) liquidity reduction, (c) access to nuclear new build sites and (d) potential barriers to entry caused by the holding of grid connections.

Whereas in line with the Notice on Remedies the Commission clearly favours structural remedies, in exceptional circumstances it may also consider behavioural promises. In this case, in order to fully address the problems identified for liquidity in the wholesale market, behavioural remedies were accepted in addition to the plant divestitures.

The remedies, as described below, form an integral and conditional part of the decision.

Withholding

In order to address the withholding concerns identified by the Commission, the parties proposed to divest one coal-fired plant from British Energy (Eggborough) and one gas-fired plant from EdF (Sutton Bridge).

The Commission concluded that the merger, considered together with this remedy package, does not bring any significant additional scope for withholding. This is for several reasons. First, the transaction would then lead to a relatively limited increment (one coal-fired plant) in flexible technology for the merged entity compared to British Energy’s pre-merger portfolio. Second, the baseload production that would mostly benefit from a price associated with a withholding strategy is unaffected by the merger. Third, the merged entity would incur a similar marginal cost for withdrawing flexible plants to that currently incurred by British Energy, since both the merged entity and pre-merger British Energy only have coal-fired plants to withhold. This conclusion was also confirmed by the Commission’s calculations on the basis of the model presented above.

Impact on liquidity: effects in the wholesale and supply markets

In order to address the serious doubts raised by the Commission with respect to liquidity, the parties first proposed to commit to sell determined quantities through auctions. The results of the market test with respect to this proposal were in general rather negative. Not only were the proposed volumes generally considered insufficient, but concerns were also raised with respect to the auction mechanism itself. The parties subsequently revised their initial commitment, and instead committed to sell significantly higher volumes in the same way as the parties currently sell electricity on the wholesale market, i.e. through OTC trades and/or structured trades agreements. The revised commitments also include provisions to ensure that the volumes are not purchased back by the merged entity.

Considered in conjunction with the power plant divestitures, the proposed remedies significantly reduce the ability of the merged entity to internalise British Energy’s long position and consequently any possible negative impact on liquidity in the wholesale market.

Commitments for access to sites for new nuclear build

In order to address the serious doubts established by the Commission regarding access to nuclear sites most likely to be used for a first wave of new nuclear build, EdF offered to dispose of land owned by British Energy either at Dungeness or at Heysham to an independent operator on terms of sale approved by the Commission. The purchaser must elect which land to acquire within a specific period.

\(21\) Some market respondents indicated that the proposed auction mechanism, and in particular the proposed liquidity test and reserve price for the auction, could distort trading incentives and limit the effectiveness of the remedy.

\(22\) The traded amounts will be assigned to a separate trading book under the supervision of a trustee.
Commitment to terminate one grid connection agreement at Hinkley Point

EdF also offered a commitment to terminate one of the three connection agreements between National Grid on the one hand and EdF or British Energy on the other hand at Hinkley Point. The Commission considered that this commitment removed any overlaps identified regarding connection agreements in the hands of the merged entity.

V. Conclusion

Despite the relatively limited market shares of the merging parties, the Commission concluded on the basis of a comprehensive economic analysis that the transaction was likely to lead to anticompetitive effects on the wholesale electricity market. The Commission’s first-phase investigation also established serious concerns with respect to the ability and incentive for the merged entity to internalise trades, with consequent implications for a reduction in liquidity on the wholesale market. In addition, the Commission had doubts in relation to the market for sites for new nuclear build.

This was a complicated case, which could have gone to a second-phase review were it not for the fact that the parties were prepared to submit adequate remedies for each of these issues. It illustrates that while the combination of complementary opposites may be strategically good from a business perspective, it may, in specific circumstances, also raise issues from a regulatory point of view.

(23) Under the Sites Undertaking and the SMA, following the satisfaction of the relevant conditions, EdF’s land at Wylfa, British Energy’s land at Bradwell and any land acquired by the merged entity at the Bradwell NDA auction can also be made available to competitors.