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Dear Camilla

Retail Market Review: Intervention to enhance liquidity in the GB power market

EDF Energy is one of the UK's largest energy companies with activities throughout the energy chain. Our interests include nuclear, coal and gas-fired electricity generation, renewables, combined heat and power plants, and energy supply to end users. We have over five million electricity and gas customer accounts in the UK, including residential and business users.

We agree with Ofgem and many other commentators that it is difficult to prescribe an "appropriate" level of liquidity in most markets. This is true for the GB wholesale electricity market and we do not believe that consumer interests will be best served by targeting a prescribed level of liquidity. We do not consider that the levels of liquidity in the GB wholesale electricity market are an impediment to independent generators or suppliers, nor have we seen any evidence to support this hypothesis. Nevertheless, EDF Energy would welcome market driven initiatives that can make a positive contribution to enhancing liquidity in the GB wholesale electricity market.

We understand that benefits may accrue from increasing liquidity in forward markets and for this reason we would support Ofgem in developing market-driven, rather than regulatory, initiatives which might enhance liquidity. As well as trading across the forward curve, we remain supportive of initiatives to increase liquidity, including the further development of N2EX. We are pleased that Ofgem has noted the progress being made by the industry/market and N2EX in facilitating an effective short term market. This auction and continuous trading platform initiative appears to be working well, with competitor sign-up increasing to 37 members in early 2012 and cleared volumes increasing fivefold over the last year or so. This platform has recently been selected to implement the market coupling model on IFA, which, in conjunction with a planned increase in cross-border capacities, should further boost liquidity and reliability of the market index. As such we believe that N2EX provides a good platform for further market developments.

We agree with Ofgem that market initiatives which assist or improve the availability of a range of products that support hedging beyond the near term and across the trading horizon might ultimately be beneficial to all market participants. However, we also recognise and understand that there is a wide variety of reasons why participants, including new entrants and smaller suppliers, might not trade longer dated products. Reasons for this may be inherent market uncertainty, risk management and hedging policies and the sharp increase in credit/collateral requirements when trading further

forward from delivery. As such a Mandatory Auction (MA) could in practice act as a hindrance for new entrants and small suppliers rather than a help.

Therefore, while we understand why Ofgem might see merit in proposing a MA as a safeguard against the industry failing to develop market-led initiatives to improve liquidity, EDF Energy believes that it would be more efficient to support the market in enhancing liquidity where possible. We also have deep concerns with both the principles of Ofgem's mandatory auction proposals and its proposed design.

EDF Energy strongly disagrees with the proposal that the MA should be applicable only to the six large vertically integrated supply companies and that it should include only sales volumes (rather than sales and purchases). We believe that the exclusion of a significant proportion of generation market participants, including many of the primary shape providers, and the asymmetry in mandated volumes, would affect the very running of the auction and the clearing prices across the intended products.

In terms of the proposed auction design, it is our view that it will not deliver a workable solution that will benefit either customers or independent suppliers/generators, for the following reasons:

- As one of the mandated companies we would effectively be obliged to provide products that we are not able to generate economically within our portfolio (e.g. peak shape) or be forced to provide a disproportionate volume of the products that we do produce. This means we will have to either run our plant out of merit or go to market as a distressed purchaser to fulfil our obligations. Either option is likely to result in additional risks and higher costs to EDF Energy. What is true for EDF Energy will also be true for other participants, as none of them are likely to have a generation or supply portfolio that matches the volumes prescribed in the MA. Hence we believe that such a prescription would lead to a purely unnecessary increase in the cost of energy, which would eventually flow through to customers.
- The prescribed volumes of auction products seem to over-prescribe peak products versus base load by a factor of three. This has the potential to distort prices in the existing market for peak products and will not benefit suppliers, who will naturally require more baseload, particularly further forward from delivery as they seek to hedge contracted customer volumes.
- In setting the target volumes for the MA, Ofgem needs to recognise that outturn generation data can vary significantly from historical levels. Therefore, using historical data to set targets for use many years ahead on an ex-ante basis will cause severe problems for mandated participants.
- A uniform distribution of MA products in a monthly auction does not take account of seasonality or liquidity in existing forward markets.
- We are uncertain about the buy side rules and the issue of reserve prices, which poses a significant risk for all generators. We believe the proposed buy side rules would lead to clearing prices becoming volatile and that this uncertainty would widen bid-offer spreads and ultimately lead to higher costs to customers.

We therefore have deep reservations about the merits of prescribing market activity as set out in these proposals, as opposed to prescribing standards for market behaviour.

Nevertheless, should Ofgem decide to proceed with a regulatory intervention in the form of a MA, then the following amendments to the proposed design would be an essential, minimum requirement to help mitigate the risks we have identified:

- Mandated auction volumes should be referenced to the participant's annual outturn generation production, to avoid issues with generator reliability, seasonality and changes in the merit order of generation in any year. This would allow actual market conditions to be taken into consideration rather than forcing participants to follow an outdated historical forecast.
- Mandated shaped products should not be included in the market design. The forward market contains uncertainty regarding which assets will provide intraday swing, adding to the uncertainty of how to price these shaped profiles. Any rules enforcing the mandatory offering of shaped products are likely to become too complex to actively enforce.
- We think the least cost and fastest way to progress the MA would be to use existing auction platforms, rather than go through an expensive development programme which effectively duplicates the work already completed in this area.
- The requirement to trade longer dated products should be introduced gradually. By progressively rolling out forward products, beginning with a week-ahead auction, we would see the market gain confidence in the MA.

Our strong preference is for the existing N2EX market gradually to develop forward products. This would start by adding week-ahead auctions to the daily auctions and gradually move along the curve as the market gains confidence in the products. We would therefore suggest expanding the daily model to create a weekly auction for week ahead trading, with subsequent further expansion into front month and so on. This evolutionary approach is most likely to foster confidence in the market. A cleared auction may also help create a reliable index to help develop the Futures market, which would simplify arrangements for new entrants and be consistent with the European Market Coupling model.

Our detailed responses are set out in the attachment to this letter. Should you wish to discuss any of the issues raised in our response or have any queries, please contact my colleague Ravi Baga on 020 7752 2143, or myself.

I confirm that this letter and its attachment may be published on Ofgem's website.

Yours sincerely,

A handwritten signature in black ink, appearing to read "D. Linford".

Denis Linford
Corporate Policy and Regulation Director

Attachment

Retail Market Review: Intervention to enhance liquidity in the GB power market

EDF Energy response to your questions

CHAPTER: One

Question 1: Do you agree with the objectives we have identified? Question 2: Do you think there are other objectives we should be considering?

We agree with the objectives specified. However they invite some normative assessment when translated into policy proposals.

1. **Providing products which supports hedging** - we agree. However it is up to suppliers to develop their own hedging strategies. An important dimension of competition in supply is assessment of risk and development of the appropriate strategy to mitigate risk. For suppliers this is linked to predictions of customer numbers and their demand profile. We are keen that the GB wholesale market is liquid across the curve and we are very interested in transacting baseload products across the market horizon. However, we are also realistic and understand that as well as uncertainty in customer volumes the increases in credit and collateral requirements further from delivery are a major reason why liquidity in far dated products is lower than that for near dated products.
2. **Robust reference prices generated along the curve** - we support this objective. However the formation of robust reference prices is ultimately linked to the demand for forward products which in turn is linked suppliers and their attitude to risk. Objective 2 is in essence a measure of success of objective 1. We would also say that as long as the nearer-term reference prices are formed in a robust manner then it may be appropriate to use such references for longer-dated products.
3. **Effective near term market** again we can endorse this objective and are pleased with Ofgem's endorsement of the current N2EX auction platform. It is our view that the market could build upon the success of this auction and extend it across the week-ahead, month-ahead and season-ahead horizons. We would be willing to support such initiatives.

CHAPTER: Two

Question 3: Do you agree with our views on market developments since summer 2011?

We do not agree with all of the assessments made in Chapter 2. Our specific feedback is as follows.

In Section 2.4 the chart in Figure 4 indicates Churn rates since 2000. EDF Energy would note that small downturn in churn from 2009 to 2011 coincides with the Global Financial Crisis and the exit from the power market of major financial institutions. For delivery in 2011, EDF Energy sold approximately 90TWh and bought back 80 TWh. We would invite

Ofgem to recognise that by trading 17 times our net portfolio position we are supporting market liquidity. Reductions in churn as suggested are not necessarily related to withdrawal by the large vertically integrated suppliers when, like EDF Energy, they are not vertically operating their assets.

With respect to Section 2.4, we request that Ofgem provide a full definition of liquidity and that a specific target for success is identified. It would be inefficient to develop and deliver a new market platform without a clear definition of success.

In response to Section 2.7, we would say that at delivery, shape is provided to the GB wholesale market from a number of other non-mandated participants and is not limited to the large vertically integrated suppliers. Shape is traded in high volumes in the prompt market, with particular liquidity seen in products such as overnights (a combination of EFA blocks 1 and 2) and EFA block 6. The pricing of this shape is extremely dependent upon local generating asset conditions, short term dispatch plans and ambient conditions. On this basis the cost of delivering shape over a longer period is extremely uncertain. This uncertainty in pricing manifests itself in wider bid offer spreads between the buyer (who will price shape at their prediction of likely outrun prices when all risks are known) and seller (who will cover the maximum cost of the manoeuvre to their plant). Given this uncertainty in price the market has naturally evolved to maintain an extremely liquid prompt shape market with asset owners hedging their risks further out along the curve using simpler and less uncertain products (baseload).

In Section 2.9, we disagree with Ofgem's finding that players would prefer physically settled transactions to hedge their output. The current N2EX day-ahead auction is extremely liquid, thus any active member of the N2EX is capable of turning a financial hedge into a physically delivered transaction at the day ahead stage, while effectively maintaining the original price of the future trade. Recent N2EX Market Council meetings have indicated that the greatest blocker to entry into the futures market has been TRM (Trading and Risk Management systems) capability in recording and tracking the transaction and not the nature of the contract.

With respect to Section 2.12, a tight bid offer spread is an indication of the liquidity of the market and therefore a measurement of objective 1. A trader might place an offer or bid on market and take into account the cost of reversing their position. In a very liquid market this assessment of cost reduces and therefore the quoted bid offer spread is likely to reduce.

In response to Section 2.16 we agree that an effective near term market is essential for all participants in the GB wholesale electricity market and we consider that any liquidity improvements along the curve always start with providing comfort on short term traded products which progressively translates in an interest in testing further dated products which is a lesson learnt from market developments on the continent (e.g. Germany).

In reply to Section 2.19, we believe that any assessment of intraday liquidity should take into account the routes to market provided by a competitive balancing mechanism and a robust cashout mechanism.

Finally for question 3 we respond to Section 2.25 of the consultation document and make reference to the European target model, specifically the coupling of market auctions on which future contracts settle will bring significant liquidity into the GB power market. EDF Energy are concerned that being mandated to auction volume that they cannot supply for a period in which huge regulatory change is possible will expose our portfolio to significant increased risk.

Question 4: What specific further developments would be necessary to meet our objectives?

It is our view that current market structure changes, such as the planned increase in interconnection capacities, implementation of the Third package and market coupling in particular, will increase liquidity due to optimised cross border trading. Together with potential market initiatives which we've outlined, such as the extension of the current day-ahead auction into week-ahead, month-ahead and season-ahead we believe that liquidity will be enhanced. Should these market initiatives receive support from other market participants and Ofgem then there will be no need to progress with the proposed MA regulatory intervention.

Another lesson learnt from market designs adopted across Europe demonstrates that mandated auction schemes adopted in Italy or in Spain, which are based on mandatory pooling of generation assets, have not achieved a significant level of forward liquidity. On the contrary, where market design have been mainly developed on a voluntary basis, like in Germany or the Netherlands, forward liquidity is very significant with reasonable bid/offer spreads.

Question 5: Do you agree that objectives one and two are current priorities given market developments?

No, not necessarily. Any initiatives to enhance liquidity are important. The near-term markets and auction should be important for all participants and independent generators and suppliers. With the support of the market and Ofgem it is possible, in our view, to build on the success of this day-ahead auction and progress in a measured and controlled way towards further dated product auctions. Progressing in this way will better assure confidence in the market initiatives and might avoid the big-bang risks associated with an MA which proposes to transact to season+5 immediately.

CHAPTER: Three

Question 6: Do you agree that the MA is the appropriate mechanism to meet our immediate objectives?

Although we agree that enhancement of market liquidity is a good thing we do not agree that a mandatory auction is the best way forward. For the reasons stated throughout this response, we suggest that proposed structural market initiatives coupled with an Ofgem-backed extension of existing auctions is the better way to enhance liquidity.

Introduction of a regulatory intervention will not only subject mandated participants with additional risks it might result in market volumes being transferred from the continuous markets into the MA.

Question 7: Do you agree that, at the present time, the other mechanisms identified would not be appropriate for Ofgem to pursue?

We have not been offered a reason as to why there is an inherent market failure that prohibits organic development over time without the need for this extensive regulatory intervention in the form of a mandatory auction. We therefore request that Ofgem works with the industry to facilitate the delivery of market led initiatives to enhance wholesale market liquidity.

CHAPTER: Four

Question 8: Do you agree with the key features of the MA we set out?

No, for the following reasons:

- **Mandated Products need to reflect our capabilities**

EDF Energy is predominately a base load generator. The proposed MA requires us to sell peak products which we are unlikely to produce ourselves. This will mean we will have to go to market to source peaks to then sell in the MA. This solution is unlikely to result in lower prices for consumers if a number of the other mandated companies are forced into this same position.

As the products will have both prescribed shape and volume our buying strategy will not necessarily distinguish between forward products because from a compliance perspective falling short of any product will mean a licence breach.

- **Uniform distribution of Products and Calculation of Volumes is unrealistic**

Ofgem has provided annual volumes for various products. On the assumption that there is a monthly auction, Table 1 below illustrates the volume, in MW, that would be traded at each auction if they were uniformly spread across the year.

Table 1 Uniform Distribution of MA Products by Volume

Product	Baseload		Peak	
	TWh	MW volume per month	TWh	MW volume per month
Balance of Front Month	1.3	150	1.3	421
Month+1	1.3	150	1.3	421
Month+2	1.3	150	1.3	421
Quarter+1	2.6	25	1.9	51
Season+1	5.3	51	2.6	69
Season+2	5.3	51	2.6	69
Season+3	5.3	51	2.6	69
Season+4	5.3	51	2.6	69
Season+5	5.3	51	2.6	69

On inspection we find more peak volume than baseload volume yet peak periods are 5/14 of a week so if TWh volumes are the same the volume will be greater by a factor of

almost three. This would have a greater impact on portfolios which runs baseload when available.

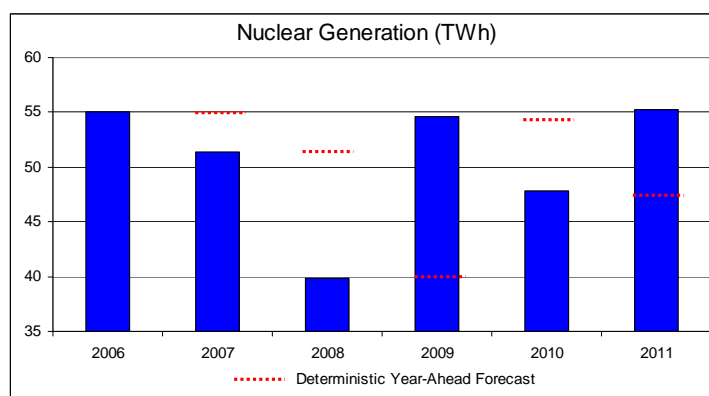
We also note that some products have substantially more liquidity in the traded market yet the proposed volumes do not acknowledge this.

- **Outturn generation can vary significantly both within and across years**

The development of mandated products assumes that generation output is reasonably constant such that it can meet the target volumes. However this is not the case as outturn generation can significantly vary both within and across years so much so that the targets set by Ofgem cannot be met under certain circumstances. This places mandated companies in the MA unacceptably vulnerable to licence breach.

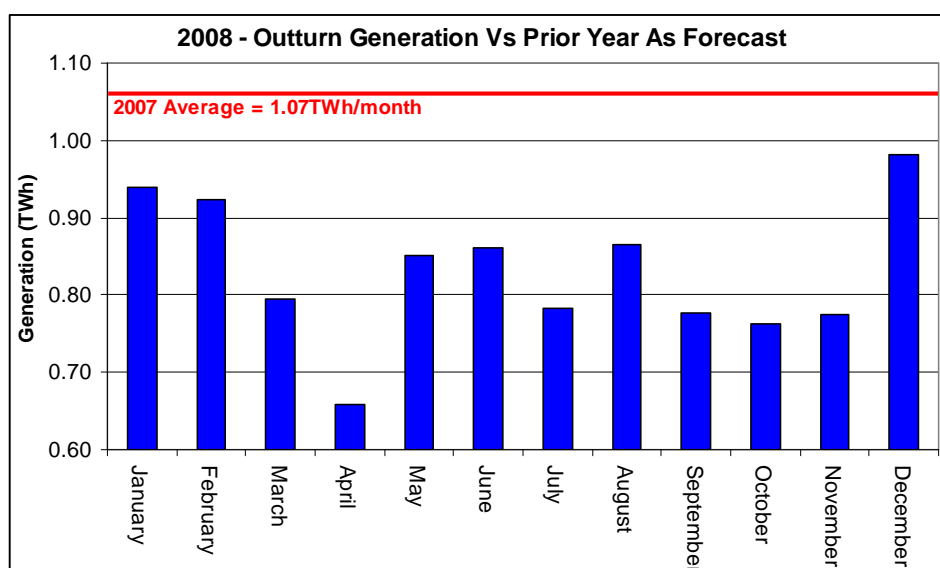
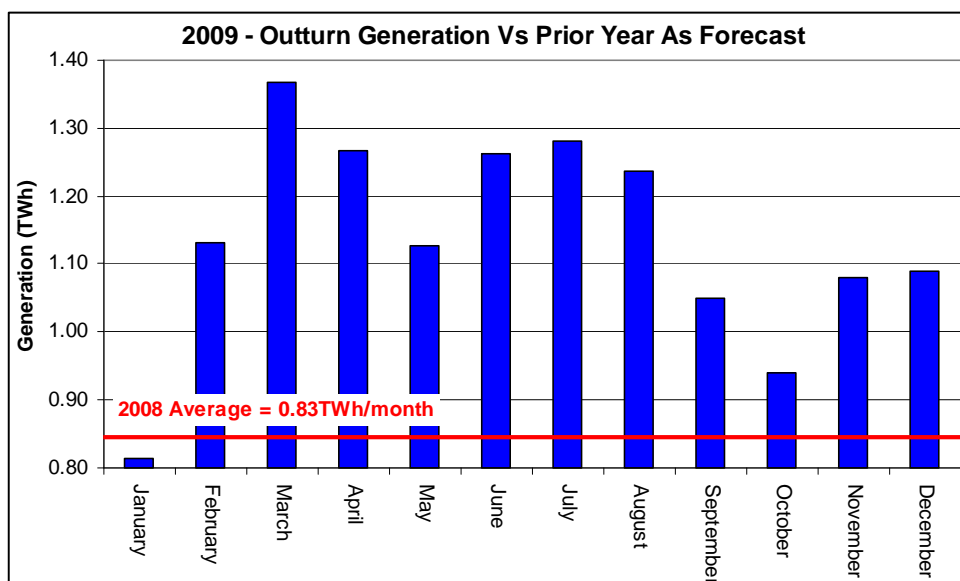
Outturn generation can vary greatly which means limits would be calculated without taking current generation condition, availability or commercial opportunities and market conditions into account. Figure 1 below shows GB nuclear outturn generation since 2006. Nuclear generation might be expected to have the flattest profile, given its ‘must run’ nature. However, GB nuclear generation has varied between around 40TWh and 55TWh, with the dotted red line showing the deterministic forecast using outturn generation from the previous year.

Figure 1 Actual versus Forecast Generation (nuclear)



There is also variation of GB nuclear generation within year. Figure 2 illustrates the monthly (within-year) variability of GB nuclear plant and the impact of using historic outturn data to determine future Mandatory Auction levels. The uppermost chart of Figure 2 shows how each months outturn in 2008 (25% nuclear generation) is below the 2007 average outturn in every single month. The bottom chart shows 2009 outturn (25% nuclear generation) versus the 2008 average. Outturn is above forecast in all but one month.

Figure 2 2008 Outturn versus 2007 Forecast



Question 9: Do you consider it appropriate to have buy-side rules in place and do you have any comments on the detail of such rules?

Buy side rules would need to be incredibly complex and also difficult to effectively enforce. Buy side rules are an attempt to de-risk mandatory entry into the auction by permitting the participant to reduce their risk from 25% of their generation to +/-5%.

Buy side rules are required when the participation and obligation of members is asymmetric. Should a mandatory obligation be unavoidable for Ofgem then we believe

that creating an auction with symmetric risk and an obligation to offer (not clear) would be far stronger than using buy side rules to dilute asymmetric entry criteria.

CHAPTER: Five

Question 10: Do you consider that there are benefits and risks to the approaches that we have not identified?

- **Credit and Collateral**

We remain unconvinced that necessary demand from independent generators/suppliers and other non-mandated companies will be present in the auction for the further-term products beyond season +1 or season +2. This we believe is due to the increasing credit and collateral requirements for further-dated products.

Modelling work has shown that the potential future credit exposure for power purchased against the same profile provided by Ofgem would be ~£20/MWh purchased. This is the 95th percentile, and is the same basis upon which potential future exposures were calculated by investment banks for the purpose of collateral-free transactions with British Energy. This would necessitate either a) the ability to post such amounts as collateral or b) the need to execute collateral-free transactions with a counterparty, paying a credit fee which would take the credit-worthiness of the small supplier into account. Either way, the credit requirements make the structure proposed by Ofgem extremely expensive for a small supplier to hedge against.

On the same basis as the above, the potential future credit exposure of a season+5 contract is, at the start of delivery, 1.9 times as high as power traded season+1 and 1.5 times as high as power traded season+1. This illustrates how expensive it is, from a credit point of view, to trade further out along the curve.

- **Realisation of the benefits of MA**

On page 30 of the document Ofgem seems to set the benefit of the MA as being 50TWh of energy "that can support new entry" but the benefits of the RMR will only be realised if new entrants emerge in the retail market i.e. they will be deferred until that time. We do not see an assessment of how Ofgem was able to monetise the advantages of new entrants and compare them with transaction and opportunity costs (Box 1 p30). Furthermore we do not see why 50 TWh should be the optimal volume for the MA for no other reason than they had "stakeholder feedback" suggesting this was the case.

Question 11: Which approach do you consider is best placed to deliver our objectives at least in terms of cost and risk?

Whatever the approach finally adopted it will have to be flexible in its application as the market will change. We can imagine a number of scenarios where the obligation to sell would need to be amended:

- How do you go about withdrawing products for which there is no demand (potentially due to credit requirements) but which we would be mandated to sell?
- Introducing new products which small suppliers would like.
- Changes in generation portfolio or plant closure that have the effect of amending the target which would be set by the previous years output.
- Targeting what are now the largest six vertically integrated companies, when in the future this may change.

EDF Energy therefore has doubts about flexibility of mechanisms as proposed in this document, to deal with real life problems. This would involve altering the contract between obligated parties in Approach 1 or changing principles document in Approach 2 bearing in mind that the major suppliers would be required to produce an annual statement.

Governance arrangements need to balance the need for intervention with the risk that it will compromise market efficiency. "Approach 1" (p39) risks placing the governance burden on the regulator who will not necessarily in a good position to develop detailed functioning market rules. Secondly there is potentially a conflict of interest between the regulator intent on meeting liquidity targets setting the rules.

Use of licence conditions that set out minimum requirements with the industry left to design the market is our preferred alternative. Furthermore the industry has a track record in this process evidenced by the N2EX platform.

EDF Energy also believes that a phased approach building on confidence of existing markets is required for success. EDF Energy would support Ofgem and the market in building upon the success of the current day-ahead auction in developing a week ahead auction. Once this auction is proven robust and participants have confidence in its algorithm the market should consider extending to auctions such as month-ahead and beyond. Such arrangements would be more compatible with the direction of other European member states, market coupling and would enhance investor confidence as well as market liquidity.

Question 12: Do you consider that both approaches are able to meet our objectives?

As discussed, our strong preference is for an industry led solution with a clear support from the Regulator in setting specific target for success and helping the stakeholders to develop a comprehensive and efficient market scheme, consistent with the Electricity Market Reform and the European Target model.

EDF Energy
May 2012