

Andreas Flamm
Wholesale Markets
Ofgem
9 Millbank
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22 October 2013

Dear Andreas

Electricity Balancing Significant Code Review: Draft Policy Decision

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, and energy supply to end users. We have over five million electricity and gas customer accounts in the UK, including residential and business users.

In our response to the 2012 consultation, we stated that while we support the principle arguments that Ofgem make, we saw no compelling evidence of systematic market failure in relation to electricity balancing and highlighted some of the practical issues with the proposed changes. We also considered that a Capacity Mechanism (CM) was a more certain mechanism to improve security of supply. While we continue to believe this to be the case, if changes are to be made to cash-out arrangements we suggest a cautious approach particularly given the introduction of the CM and risk of unintended consequences.

The transitory impact of implementing multiple reforms at the same time has not been assessed in Ofgem's impact assessment or Baringa's quantitative analysis. We suspect, in the short to medium term, given the uncertain interaction of the multiple reforms, there is a high probability of market participants being prudent in their assessment of the impacts of cash-out reform on wholesale prices when pricing their capacity in the CM. This cautiousness is unlikely to be enduring, but in the near term might slightly increase suppliers' costs and ultimately consumers.

We think it would be beneficial to implement the proposed cash-out reform using a staggered approach. The straight-forward elements, single price and changes to PAR, could be implemented earlier than other aspects of the proposals, which require further more complex design.

In summary:

- Ofgem's preferred package P5 is forecast by the modelling to provide benefits to security of supply, as a result of having the most significant price signal for new investment to avoid shortfall cash-out, due mainly to PAR1 and revised pricing for

reserve. However, in our view the introduction of the CM under EMR will be a much more important driver of investment in new capacity than cash-out reform.

- Baringa's modelling results suggest that differences between P2, P4 and P5 are relatively modest and there are some residual risks associated with PAR1 due to system pollution i.e. distortion of the cash-out price caused by the inclusion of system balancing actions in the price calculation. It recognizes that Package P4 with PAR50 could help mitigate against the residual risk. Since we believe that the introduction of the CM will be a more important driver than moving to PAR1, our preferred package is P4 with PAR50 or higher.
- Ofgem's rationale to move to a single price seems reasonable but should be approached with caution. In a dual pricing structure, there is a clear incentive for parties to trade if they hold a long or short position, as the price which the long party will receive is generally substantially less than the price which the short party will pay if both go to cash-out with their positions. There is therefore a firm incentive to trade, as both parties receive benefit from doing so. With single price, the incentive to trade is driven more by the opportunity to reduce uncertainty. Although Ofgem's analysis seems to suggest there are competition and distributional benefits in moving to a single cash-out price, we have some concerns that there could be unforeseen impacts on liquidity in short term trading. Also, there may be increased incentives for self-balancing after gate closure, which could render some of National Grid's balancing actions inefficient.
- We support valuing the cost of "non-costed" actions in cash-out. The potential for cash-out prices to rise to VoLL levels should encourage avoidance of shortfalls at times of scarcity and thereby reduce the need for voltage reduction or disconnection.
- While in principle we support the idea of disconnected NHH consumers being paid, we consider that this will be very rare¹, administratively complex and will need to be managed carefully to ensure consumers understand the reasons for the payment.
- Much work is needed on the implementation of the Reserve Scarcity Pricing (RSP) function and some elements of the proposals to include the cost of non-costed actions.

¹ Ofgem, Electricity Capacity Assessment Report 2013, Report to the Secretary of State, 27 June 2013, p.47.

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 me or Mari Toda on 07875 116520.

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 be "Mark Cox".

Mark Cox
Head of Transmission and Trading Arrangements

Attachment

Electricity Balancing Significant Code Review: Draft Policy Decision

EDF Energy's response to your questions

Questions for this consultation and consultation on the accompanying Impact Assessment

Question for the Draft Policy Decision:

Q1. Do you agree with our proposal to make cash-out prices more marginal?

In our response to the 2012 consultation, we stated that we saw no compelling evidence of systematic market failure in relation to electricity balancing. We also considered that a Capacity Mechanism (CM) was a more certain mechanism to improve security of supply. While we continue to believe this to be the case, we also recognize that the electricity market in GB is changing and a number of factors may suggest that certain aspects of the balancing arrangements should be reconsidered.

We accept the economic argument that more marginal cash-out prices would improve the signal of scarcity in the market. We recognize that the current averaging of cash-out prices could reduce the signal of scarcity passed through to forward markets, contributing to the 'missing money' problem. By reflecting the marginal cost of residual actions taken by the System Operator (SO) on to participants with imbalance, those participants receive the correct signals to incentivise them to take cheaper actions where they can. Therefore, in principle, we would support the proposal to make cash-out prices more marginal.

However, we are very concerned about the timing of the proposed package of reform. The CM auction is scheduled for November 2014. Capacity Providers (CP) will have to bid in to the auction with no real understanding of the extent of the long term impact the proposed package of reform will have on the forward market. The timing of these proposed changes means that CPs are likely to be prudent when bidding in the CM which may lead to higher costs for suppliers, and ultimately consumers, in the short term.

The uncertainty of EBSCR on market prices should crystallise or dissolve over time according to (i) certainty that it will happen/regulatory uncertainty, (ii) evolving forecasts, (iii) experience. If it becomes certain, there should be an immediate forward price impact for the relevant forward periods according to the risk created. As forecasts adjust and experience grows, that initial reaction will be modulated. Although it would be difficult to implement the full package of changes within the proposed timeframe, we believe early decision would help reduce undue risk for CP.

We are also concerned about more marginal cash-out prices leading to unintended consequences as discussed further under Q2 below.

Q2. Do you agree with our rationale for going to PAR1 rather than PAR50? Are you concerned with potential flagging errors, and would you welcome introduction of a process to address them ex-post?

While we understand Ofgem's rationale for going to PAR1 (it is theoretically the most economically efficient option, that would fully reflect the SO's marginal cost of balancing the system), we are not persuaded that it is the right thing to do. Baringa's modelling forecasts that Ofgem's proposed packages P3 and P5 provide the greatest benefits to security of supply, as a result of having the most significant price signal for new investment to avoid shortfall cashout, due mainly to PAR1 and reserve scarcity pricing. However, we note from Baringa's report that their analysis has primarily focussed on the impact of the cash-out policy packages in isolation of other policy measures. As they recognise, we believe the introduction of the CM under EMR will be a more important driver of investment in new capacity than cash-out reform. Given that Baringa's modelling results suggest that differences between packages P2, P4 and P5 are relatively modest and there are some residual risks associated with PAR1 due to system pollution, we would argue that P4 with PAR50 (or higher), would help mitigate against these risks, and is our preferred package.

In practice, there are many approximations and assumptions inherent in determining the price from real-time actions and applying it to half-hourly aggregate imbalances. Interactions between different settlement periods due to the dynamic characteristics of physical plant and demand, and details of individual imbalance and balancing actions in real-time within half-hours cannot all easily be considered. A partly averaged price such as PAR50 reduces the impact of potential errors and anomalies in the determination and application of imbalance price to half-hour imbalances. We note that deficiencies in the flagging/tagging arrangements have been reduced following the implementation of P217A. However, if a more marginal approach were to be taken, the tagging process would need to be monitored very carefully, and refinements made where shortcomings are identified. There would be increased scope for small volumes of expensive balancing actions to influence imbalance prices. More consideration of the reasons why particular actions are taken might be required. In this regard, we welcome National Grid's proposal to bring forward change to address current limitations around the correction of mis-flagging after the settlement period. However, accurate flagging must be done close to real time to provide the correct signals for participants to react to manage their risks. Participants will not be assisted by post-event revisions that expose them to imbalance costs they could have avoided, or self-balancing costs that turn out to have been unnecessarily expensive.

Q3. Do you agree with our proposals for pricing of voltage reduction and disconnections, including the staggered approach?

From a theoretical perspective, we agree that voltage reduction and disconnections ('Demand Control') are effectively balancing actions taken by the SO and should be included in the calculation of cash-out prices. The potential for cash-out prices to rise to VoLL levels should also encourage shortfall avoidance at times of scarcity and thereby prevent the need for voltage reduction or disconnection to take place.

We also agree with Ofgem's proposal to implement VoLL using a staggered approach. VoLL of £3,000/MWh at the introduction of cash-out reform in 2015, rising to £6,000/MWh in 2018 to align with the introduction of the CM seem sensible.

From a practical perspective, however, implementation would be necessarily approximate, and fraught with difficulty. The appropriate volumes to use are difficult to estimate with accuracy. The table below is from Ofgem's Electricity Capacity Assessment Report 2013. The report explains that events larger than 2,750MW could result in controlled disconnections of electricity customers, but controlled disconnections would involve the largest I&C customers first and Ofgem would seek to ensure that domestic households are protected for as long as possible. We appreciate that there is a possibility of NHH customers being disconnected as a result of supply shortfall, given that the estimated frequency of the largest supply shortfalls (i.e. those large enough to risk customer disconnections at 2,750MW+) peaks at 2015/16 with a probability of 1-in-12 years. However, we are not persuaded that it would be cost effective to develop a detailed process to pay suppliers for electricity procured for which they cannot bill their customers due to disconnections, and pay consumers compensation for involuntary DSR service provision.

Supply shortfall event [MW]	Frequency [1 in n years]					
	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
0 – 10	1-in-0.10	1-in-0.04	1-in-0.03	1-in-0.1	1-in-0.5	1-in-0.2
10 – 500	1-in-0.5	1-in-0.2	1-in-0.1	1-in-0.5	1-in-3	1-in-1
500 – 750	1-in-23	1-in-10	1-in-6	1-in-24	1-in-126	1-in-55
750 – 2,750	1-in-12	1-in-5	1-in-3	1-in-12	1-in-65	1-in-28
2,750 +	1-in-47	1-in-19	1-in-12	1-in-49	1-in-256	1-in-112

Q4. Do you agree with our assessment of the interactions with the CM and its impact on setting prices for Demand Control actions?

We agree with Ofgem's view that cash-out reform is unlikely to have a large impact on investment decisions in the short term but could affect investment decisions in the medium to longer term as the price signals work through the system. It appears Ofgem believes that the CM is a short to medium term intervention and that, in the longer term,

capacity adequacy can be addressed by cash-out alone. However, it is difficult to determine how the two will interact during the transitional or parallel-running years. We understand that the CM is a practical method of procuring capacity collectively, and EBSCR a method of adjusting the contributions of individual participants to the costs of capacity according to how it is used, with an expectation of more efficient use of capacity as a result. It would be inefficient for each participant to procure its own reserve, and the increased risks created by the proposed EBSCR reforms would be very difficult to manage without some form of agreed collective arrangement. Ultimately, the expected levels of security of supply in electricity are very high, and efficiency would be best met by better signalling and commitment by consumers of the value they place on electricity.

The consultation recognizes that with the introduction of the CM, part of the 'missing money' problem could be resolved. As a result, it proposes to set VoLL for the purpose of costing disconnection and voltage control at £6,000/MWh, assuming GB introduces a CM. We agree that using the upper end of the I&C VoLLs seems sensible as it could encourage more I&Cs to enter into interruptible contracts and provide DSR services (which should naturally reduce energy prices, providing security at lower cost than the VOLL itself). It also seems reasonable to assume that prices would send signals for the efficient use of interconnectors, so that electricity flows to consumers who value it most.

Q5. Do you agree that payments of £5/hr of outage for the provision of involuntary DSR services to the SO should be made to non-half-hourly metered (NHH) consumers, and for £10/hr for NHH business consumers?

While in principle we support the idea of disconnected NHH consumers being paid, we consider that this will be very rare², administratively complex and will need to be managed carefully to ensure consumers understand the reasons for the payment.

As mentioned above in our response to Q3, the business case for developing complex industry processes and system changes is not presented in the consultation or Baringa's quantitative analysis to support Ofgem's Impact Assessment. Moreover, given that the Baringa report³ states that the consumer surplus arising from the payment for involuntary disconnection is expected to be 0 in both 2020 and 2030, we believe the proposal could be to the detriment of consumers since costs of industry process and system changes affecting all suppliers are likely to be recovered ultimately from consumers.

We would welcome further discussions with Ofgem if there are net benefits to consumers which we have not understood. It is also important to consider whether introducing the concept of setting up a payment scheme for involuntary DSR is beneficial at a time when

² Ofgem, Electricity Capacity Assessment Report 2013, Report to the Secretary of State, 27 June 2013, p.47.

³ Baringa, EBSCR Quantitative Analysis to Support Ofgem's Impact Assessment, 18 July 2013, p. 74 - p.77.

industry should be encouraging consumers to actively choose to engage in demand side response. Nevertheless, if Ofgem continues to believe that consumers should be paid for involuntary DSR, it would be beneficial to engage with DNOs who already have a route to paying consumers for network disconnections. The precise amount of compensation should be discussed at that stage. For NHH business consumers, we assume the compensation would be per site, but clarity should be provided as early as possible if this policy is pursued.

Consumers would be greatly confused by differing compensation terms for disconnections due to energy shortfalls and disconnections due to network failures. They simply would not know, upon experiencing a power cut, whether compensation was to be £5/hr with immediate effect, or whether different block compensation, amounting to a much lower hourly rate, would only take effect (for network-related power cuts) after 18 hours. A co-ordinated information initiative would be required.

Q6. Do you agree with the introduction of the Reserve Scarcity Pricing (RSP) function and its high-level design? Explain your answer.

Currently, the costs of STOR are divided into 'utilisation fees' and 'availability fees'; the former are captured directly in the cash-out price calculation, whereas the latter are captured indirectly through a Buy Price Adjuster (BPA). We agree that the current arrangement for pricing reserve services in is not optimal as it is difficult to target the overall costs accurately into the settlement periods in which they are used, potentially reducing the cost reflectivity of energy balancing actions. In particular, the utilisation fees of contracted STOR providers do not reflect the scarcity value of energy when system conditions are tight, potentially dampening cash-out prices at these times.

Under the RSP, the BPA is removed and STOR actions are re-priced using a single replacement price for each settlement period where a reserve action is utilised and where the replacement price is greater than the utilisation price offered by the unit. Rather than pricing based on the underlying costs incurred to procure the reserve plant, pricing from the reserve is derived from the demand side. While we understand that decoupling the pricing from the supply side costs overcomes the inherent difficulties with the targeting of these costs and instead reflects the value that operating reserve delivers, this is a significant departure from the principle of cost reflectivity which has been a key principle in other aspects of the package of reform e.g. introduction of PAR1 and moving to single cash-out prices.

At a conceptual level, we see value in incorporating scarcity pricing in the calculation of cash-out prices but the current lack of detail around the proposal for a RSP function makes it difficult to answer whether we support the introduction of the function. As Ofgem states in the consultation, there are a number of questions to be resolved regarding the detail of the implementation. Key design questions for the RSP function are

on how to define the RSP curve and how to measure the margin close to real time for a given half-hour. Given the potential rapid increase in replacement price with tightening margin, it is important that the RSP does not unfairly penalise out of balance parties.

We feel much work is necessary to fully understand the impact of the RSP; we support Energy UK's position to make the design and implementation of a RSP function a long term ambition and separate from the more simpler aspects of the cash-out reform package.

Q7. Do you agree with our rationale for a move to a single price, and in particular that it could make the system more efficient and help reduce balancing costs? Please explain your answer.

Ofgem's rationale to move to a single price seems reasonable but should be approached with caution. Further consideration of potential behavioural responses should be made before the final decision is made.

In a dual pricing structure, there is a clear incentive for parties to trade if they hold a long or short position, as the price which the long party will receive is generally substantially less than the price which the short party will pay if both go to cash-out with their positions. There is therefore a firm incentive to trade, as both parties receive benefit from doing so. With single price, the incentive to trade is driven more by the opportunity to reduce uncertainty. Although Ofgem's analysis seems to suggest there are competition and distributional benefits in moving to a single cash-out price, we have some concerns that there could be unforeseen impacts on liquidity in short term trading. Also, there may be increased incentives for self-balancing after gate closure, which could render some of National Grid's balancing actions inefficient.

Ofgem should conduct further analysis before the decision to move to single prices is made to ensure that it would not lead to unintended consequences.

Q8. Do you have any other comments on this consultation, including on the considerations where we did not propose any changes?

No.

Question related to the accompanying Impact Assessment:

Q9. Do you have any comments regarding any of the three approaches we have taken to assess the impacts of the cash-out reform packages?

No.

Q10. Do you agree with the analysis of the impacts contained in this IA? Do you agree that the analysis supports our preferred package of cash-out reform? Please explain your answer.

Ofgem's preferred package, P5, provides the most significant price signal for new investment due to PAR1, RSP and demand control actions, and is expected to provide the greatest benefits to security of supply. However, we believe that the introduction of the CM will be a more important driver of investment in new capacity than cash-out reform. Given that Baringa's modelling results suggest that differences between P2, P4 and P5 are relatively modest and there are some residual risks associated with PAR1 due to system pollution, P4 with PAR50 (or higher) would help mitigate against this and is our preferred package.

Q11. Do you agree with the key risks identified and the analysis of these risks? Are there any further risks not considered which could impact on the achievement of the policy objectives? Please explain your answer.

We agree with most of the key risks identified in the analysis. In addition, as mentioned above in our response to Q3, we are not convinced that the proposals to (i) pay suppliers for electricity procured for which they cannot bill their customers due to disconnections and (ii) pay consumers compensation for involuntary DSR service provision, would be to the benefit of consumers overall, since the costs of industry process and system changes for all suppliers and distributors are likely to be recovered from consumers. This is because the estimated frequency of the largest supply shortfalls (i.e. those large enough to risk customer disconnections at 2,750MW+) peaks in 2015/16 with a probability of 1-in-12 years which is very low.

Q12. What if any further analysis should we have undertaken or presented in this document? Do you have any additional analysis or evidence you would like to contribute to support the development of the EBSCR towards its Final Policy Decision?

As per our response to Q7, while we understand the rationale for moving to a single pricing structure, we are concerned about the impact it might have on liquidity.

There is currently adequate liquidity on the within-day market. In a world of single cash-out price, trading would only take place around the forecast cash-out price for electricity. The benefit from short term trading becomes less clear, and there may be a consequential reduction in liquidity. This has the potential to reduce the reliability of within-day price indices, with the potential replacement index of cash-out price being highly volatile, potentially swinging by 100% or more from a small change in Net Imbalance Volume.

**EDF Energy
October 2013**