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18 October 2012

Dear Andreas,

Electricity Balancing Significant Code Review (SCR) – Initial consultation

Thank you for the opportunity to provide views on your initial consultation paper on policy considerations for the Electricity Balancing Significant Code Review (SCR). This response is provided on behalf of National Grid Electricity Transmission plc (NGET) and is not confidential. National Grid owns and operates the high voltage electricity transmission system in England and Wales and, as National Electricity Transmission System Operator (NETSO), we operate the Scottish high voltage transmission system.

In the UK, our primary duties under the Electricity Act are to develop and maintain an efficient network and to facilitate competition in the generation and supply of electricity. Our activities include the residual balancing in real time of the electricity system.

Summary

The electricity industry is currently undergoing unprecedented changes through the increase in low carbon generation, the closure of fossil fuel plant due to the Large Combustion Plant Directive, and economic conditions. As noted in the government's Electricity Market Reform (EMR) white paper, these changes will have an impact on security of supply which in turn will pose a greater challenge for National Grid in balancing the electricity transmission system. As the balancing regime affects the incentives on the market to invest in electricity generation, a review in this area is welcome and we consider an SCR to be the appropriate means of achieving this.

Since the balancing and settlement arrangements became effective in 2001, a number of modifications have been made to the balancing arrangements, particularly in the area of cash-out which is a key aspect of the SCR. Whilst changes such as the Balancing and Settlement Code (BSC) Modification P217A¹ sought to remove 'system' actions from the cash-out price calculation, we do not consider that the current methodology fully reflects the cost of energy balancing at times of system

¹ Revised tagging process and calculation of cash-out prices
<http://www.elexon.co.uk/pages/p217.aspx>

stress. The lack of marginal pricing can dampen the incentives on parties to balance their positions. We believe this is an important issue and therefore its inclusion in the scope of this SCR is welcome.

We consider it essential that market participants are incentivised to balance their own positions and that these incentives accurately reflect the marginal energy cost and the price of SO actions. It will be important for the SCR to consider developments under the Government's EMR work and also to be consistent with the wider aim to harmonise European energy markets and facilitate cross border trade. Given the finite industry resources and the significant level of ongoing developments, the effectiveness of the SCR will be enhanced if the interactions with the European Target Model are more fully understood and the key elements of the SCR are clearly prioritised.

We note that the initial consultation covers a broad range of issues which have been grouped into 'primary' and 'secondary' considerations, with the main focus at this stage on the primary considerations. We also note the interactions between primary considerations, leading to a range of potential policy package outlined in the initial consultation. Implementation of any of these packages is likely to require significant changes to our and the industry's IT systems, as well as business processes; the timescales associated with this will therefore need to be carefully considered.

Given the above issues, we believe that the SCR should focus on reforms to the cash-out regime rather than wider reforms to the balancing processes.

The remainder of this response in the Appendix provides our thoughts in relation to the specific questions asked within the consultation document.

If you wish to discuss the content of this letter further or have any queries please contact Ian Pashley on 01926 653446 in the first instance.

Yours sincerely

Mike Calviou
Director of Transmission Network Service

Appendix: Responses to questions raised in the consultation

Chapter 2: Approach

Question 1: Do you agree with the approach and the proposed stakeholder engagement throughout the SCR?

We agree with the proposed high-level approach for achieving the SCR objectives and engaging with stakeholders. In particular, a flexible approach would ensure that the SCR findings could be aligned with other ongoing industry developments (e.g. European Target Model and EMR) thus avoiding unnecessary changes and costs, and delivering the overriding objective of a secure electricity supply.

We note the interactions between the primary considerations set out in the initial consultation, and agree that combining these considerations into potential policy packages seems appropriate.

The criteria for assessing the options appear to be comprehensive but could be made clearer. For example, it is not clear what is meant by the criterion 'impact on consumers' and whether any option should seek to minimise the impact on consumers.

We would like to emphasise the importance of clearly defining any code changes resulting from the SCR process. This would not only help minimise the timescales for the code change process but would also provide clarity for any resulting IT changes.

We also note our ongoing development of a global best practice Electricity Balancing System (EBS) for balancing real-time electricity supply and demand². The EBS is scheduled to be implemented in late 2013, which may have an interaction with the balancing SCR depending on the potential changes to IT systems which the SCR may develop. Whilst the consultation does not mention changes to such systems, the potential impact of, and the lead-times to deliver, such changes should be borne in mind as part of the proposed approach. These lead times are typically 12 months but can potentially be longer for substantial IT changes.

Question 2: Do you have any evidence that you would like to submit that may be relevant for any aspect of this document?

Our general comments and any views are provided in other sections of this response and we do not have any specific evidence to submit at this stage. If any evidence warrants submission during the course of the SCR, we would bring this forward at an appropriate time.

Question 3: What is your view on the interactions between our considerations and aspects of the EU Target Model?

The EU Framework Guidelines; and the resulting EU network codes (particularly those associated with Electricity Balancing and Capacity Allocation and Congestion Management) are likely to have significant interactions with the SCR.

The EU Target Model, in seeking to deliver an integrated Energy market across Europe, has the potential to bring about greater harmonisation of gate closures and settlement period durations, creation of cross-border reserves, pre-gate closure harmonisation of trading through market coupling

² The EBS aims to replace the current Balancing Mechanism (BM) systems with a new IT system which, once implemented, should be better able to accommodate future functionality changes.

at day-ahead and within day timescales, and multiple pricing zones for more efficient management of constraints (multiple pricing zones could have far reaching implications). The potential impact of these aspects of the EU Target Model should be considered as part of the SCR to ensure that any interactions with the GB balancing regime are fully understood and that the intentions of either the EU Target Model or the SCR are not adversely impacted by an aspect of the development work of the other.

It should be noted that, where the balancing regime in GB places a less sharp incentive on a market participant who is out of balance than that of a neighbouring transmission system, this could lead to participants active in both markets choosing to cover their position in the other market and accepting imbalance charges in GB. Any design options for GB balancing arrangements should ideally include alignment with the balancing regimes in neighbouring markets to ensure that there are comparable incentives on parties to cover positions in interconnected markets. This issue could become even more significant under a common merit order where a Party in one Control Area is offering balancing services to a Transmission System Operator in another Control Area.

Chapter 4: Primary Considerations

Question 4: Do you feel there are any further alternatives to the reform options presented under our primary considerations?

We believe that the range of options covered by the consultation is sufficiently broad.

Question 5: What other benefits or drawbacks can you identify for each of our primary considerations? Please provide any evidence you may have to support your position.

General

We have identified areas where we can see potential benefits and drawbacks for each of the considerations. In addition, we have commented on potential impacts where changes in one consideration will affect other considerations. Due to the scale of some of the changes, we believe that it is necessary for a full matrix of the impacts of each change to be developed in order to ensure that there are no unintended consequences. In particular, we are concerned that the packages proposed will have consequences on risk management strategies of market participants (e.g. holding reserve within their portfolios). We note that the impact on reserve procurement will be unknown until the interactions between proposals have been studied but we believe it is important to be aware of how the reserve holding characteristics of counterparties affect the efficiency of the market and the role of the NETSO. We have set out our comments below in more detail.

More marginal cash-out price

National Grid agrees with the consultation that the current PAR value of 500MWh may be dampening price signals and lessening the signal for market participants to balance at times of high system stress. Our proposal in BSC Modification P194 showed that more marginal cash-out prices would have led to stronger commercial incentives for participants to balance their positions. We maintain that setting a lower value of PAR, such as the 100MWh proposed in P194, would provide more accurate pricing signals to the market. Due to a changing generation mix and the expected increased challenge on the NETSO to balance the network, now is an appropriate time to review PAR so as to reduce the likelihood of situations where it may be more economical for parties to pay the System Buy Price than the market price for the peak value of energy.

More marginal cash-out prices could also provide appropriate price signals for the market to invest in additional, more flexible capacity. This will be necessary to provide options to both the System Operator for managing periods of system tightness as well as providing additional capacity to the market over the demand peaks. This will compliment the work on a Capacity Mechanism being carried out under EMR - more marginal cash out prices could also provide incentive for the development in new technologies (e.g. involving demand side response) and would allow them to effectively compete in the market.

We believe that BSC Modification P217A, which proposed the removal of system actions from the cash-out methodology, has addressed many of the concerns the industry had with P194 regarding the pollution of cash-out by system actions. The P217A analysis, carried out by Ofgem, is aligned with our own reporting on the accuracy of system management action flagging³, showing that the process is working in line with initial expectations. In light of this, we support the reviewing of PAR as we believe a more marginal imbalance price will deliver stronger signals for participants to balance their energy positions and to invest in capacity to support system security at peak demand times; a true marginal price would provide the strongest investment signal.

Analysis of the impact of a more marginal imbalance price on smaller parties needs to be undertaken as the imbalance price could be many multiples of the pre-gate traded market prices. Such an imbalance price may require additional securities to be put in place and has the potential to act as a barrier to new entrants to the market.

Single or dual cash-out price

As stated above, we believe that a more marginal cash-out price will be beneficial in encouraging participants to self balance. However, we acknowledge that this will lead to a greater spread between the main and reverse prices. The current imbalance pricing methodology has been developed to incentivise this and as such the dual nature of imbalance pricing reflects the different costs incurred by the NETSO to balance the system under different conditions (i.e. whether the system is 'long' or 'short'). This provides the mechanism through which it should always be preferential to a counterparty to trade their position ahead of gate closure, thus encouraging a liquid market prior to gate closure. It is important to recognise that there are physical characteristics that are by necessity included in BM offer/bid prices, e.g. start-up, which will get factored into the main imbalance price and therefore, as NETSO, we see this as two prices for two products. To highlight this we include a sample of prices available in the Balancing Mechanism (BM) on a typical day (Figure 1).

³ <http://www.nationalgrid.com/uk/Electricity/Balancing/transmissionlicencestatements/>

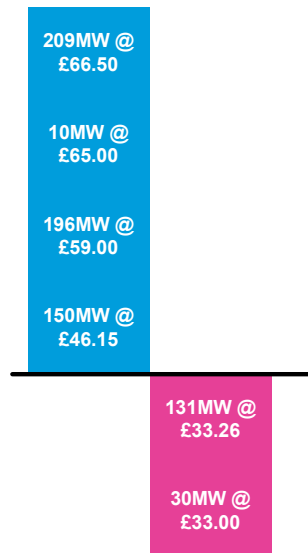


Figure 1: Sample of prices available in the BM for upward and downward regulation on 15 August 2012

We note that a bid to reduce generator output will always be equal to or less than the cost of generation, while an offer to increase generator output will always be greater than the day ahead price of energy, otherwise the generator would have sold the power in the market. Pre-gate, there is one market price for power (at any one time) while at delivery, within the BM, this effectively changes to two; one to increase generation and one to decrease generation.

The impact of a single cash-out price on Net Imbalance Volume (NIV) needs to be appreciated. It would reduce the incentive for counterparties to balance their own position, instead they could act on their forecast of NIV in the expectation that they may receive more for their imbalance than they would through contracting in the market. This becomes an issue for the NETSO when viewed in conjunction with other proposals, such as the Balancing Energy Market (BEM) which requires the NETSO to forecast NIV to the market. The forecast of NIV is primarily used by National Grid to infer the actions that we should statistically take to balance the system. Were rational market participants to use the information and in turn adapt their behaviour accordingly, the forecast would inevitably become less accurate and potentially unstable.

The composition of the dual cash-out prices needs to fairly reflect the costs imposed by participants through their imbalances; this is particularly the case for parties with a small portfolio of generation who can find it difficult to self-balance.

Single or separate trading accounts

This issue has been covered through a separate code modification, BSC Modification P282, which proposes to allow energy reallocated via a Metered Volume Reallocation Notification (MVRN) to be reallocated to either a Production or Consumption Energy Account regardless of a BM Unit's P/C Status. This would remove the current restriction that energy can only be reallocated from a Production BM Unit to a Production Energy Account, or a Consumption BM Unit to a Consumption Energy Account; and hence allow netting of imbalances. A majority of P282 Workgroup members consider the analysis carried out for the modification to show that P282 would reduce overall balancing charges.

As NETSO, National Grid would be concerned should the creation of a single trading account lead to market participants altering their position post-gate closure (by adjusting demand to account for unforeseen changes in generation), to manage their own imbalances. We note that the obligation on

market participants to comply with their Physical Notification submissions under the Grid Code would continue to exist; however, there would be a post-gate closure incentive for market participants to minimise their imbalance exposure by other means such as demand adjustment. This needs to be considered in conjunction with the other proposals which have the potential to make the imbalance charge more marginal. We also see that there are interactions between this proposal and the Retail Market Review, as market liquidity is essential to ensuring a robust reference price is created.

Pay-as-bid or Pay-as-clear

The current arrangements provide a competitive environment for participants to offer products to the NETSO for energy balancing and system actions. The majority of actions that National Grid takes resolve more than one issue, meaning that the NETSO is achieving multiple synergies with each action. The sample price stack above shows that under the current methodology participants are not bidding in at a forecast marginal price, rather their submissions are based on a wide variety of physical generation dynamics, such as Notice to Deviate from Zero time and run-up and run-down rates. These characteristics result in a reduced level of competition close to real time meaning that market power could become a factor in cleared price setting.

As the NETSO takes both energy and system actions in the BM in a given settlement period, it is difficult to see how two pricing regimes could be present (pay-as-clear for energy actions and pay-as-bid for system actions) at the same time. This would be unlikely to give a strong incentive for participants to submit prices equal to their marginal cost. Moves to separate actions to create a homogenous balancing product (as also highlighted under 'single or dual cashout price'), such as the creation of a Balancing Energy Market, are unlikely to work as, in our view, such a product does not exist when short term balancing actions and plant dynamics are taken into account. Notwithstanding our views above, we consider that a BEM could decrease operational efficiency if energy actions needed to be subsequently undone for system management reasons. Given the different issues with each approach, we consider it essential to fully consider the pros and cons of each approach, through cost-benefit analysis, before deciding to move beyond incremental improvements to the existing cash-out arrangements.

Attributing a cost to non-costed actions

We agree that there is merit in investigating the impact of the Value of Lost Load (VoLL) as part of this SCR, noting that the recent outcome of the Gas SCR⁴ has seen Ofgem proposing the creation of a VoLL priced at £20/therm. However, we note that there are fundamental differences between the two markets. We envisage that creating such a figure for electricity will be difficult and will have a direct impact on the ongoing Capacity Mechanism work being undertaken through EMR, with a low VoLL leading to a reduction in security of supply. National Grid believes that an appropriately priced VoLL could lead to stronger incentives for consumers to contract for partial interruption of non-critical loads (e.g. domestic refrigeration) and for demand side service providers to participate in the Balancing Mechanism. We also believe that procuring voluntary demand side management balancing services, as opposed to involuntary disconnection, would be the preferred approach to managing the system in an economical manner.

Emergency voltage reduction actions on the Transmission network are extremely rare events only used where commercial balancing options have been exhausted and so inclusion of these actions into cash-out needs to be considered in this context. Investigations following these control actions have demonstrated that the volume of demand reduction is difficult to quantify and has sometimes proven to be less effective than expected. This is because of the lack of metering where the action has taken

⁴ <http://www.ofgem.gov.uk/Markets/WhIMkts/CompandEff/GasSCR/Pages/GasSCR.aspx>

place (i.e. distribution network), the time-based variation of voltage effects, and the changing demand types (e.g. less resistive demand today). Therefore, any cost attributed to such an action would be necessarily notional (e.g. a simple estimated volume and a price based on agreed percentage of VoLL).

Improved allocation of reserve costs

National Grid uses Short Term Operating Reserve (STOR) to provide both energy actions and margin availability at least cost. The availability of STOR during periods when system margin is traditionally tight avoids the need for more expensive actions, such as BM start-up, to provide the required Operating Margin as mandated under the NETS SQSS. Targeting STOR availability payments into periods of utilisation would be an inaccurate method of assessing the costs of the service. Instead we suggest the current arrangement of capturing the availability fee through the Buy Price Adjuster during the periods when the service was available is the most appropriate targeting method.

We agree that demand side response can assist in system balancing and that potential service providers may not currently have the appropriate incentives to participate (e.g. lack of true marginal imbalance prices). Improved allocation of the utilisation of non-BM reserves could help deliver stronger price signals to incentivise developments in this area. Furthermore, consideration of restrictions on plant dynamics (e.g. Minimum Zero Time) and accurate targeting of utilisation costs into appropriate settlement periods, rather than 'shoulder periods', could also improve price signals to the market. The delivery of our new Electricity Balancing System (EBS) for balancing real-time electricity supply and demand (to replace the current BM systems), could be more flexible to accommodate future functionality changes.

Balancing Energy Market (BEM)

Our understanding of the Balancing Energy Market (BEM) proposal is that the market could have the opportunity to trade out any imbalances identified by the SO at or following the normal gate closure of trading activity. However, trading out imbalances in the BEM could undermine and reduce market liquidity before gate closure which could adversely impact smaller players.

The overall balance position following the gate closure (as is) is the aggregation of over 100 trading counterparty positions. Each trading position will be short, balanced or long depending on their individual trading mandate along with the market liquidity. A positional signal seen by the SO will not affect the individual trading activity which will be determined by individual processes and risk structure.

A BEM would be able to resolve pre-gate closure imbalance (and determine an energy imbalance price based on those actions), however post-gate closure imbalance (e.g. demand forecast error and plant loss) would continue to be managed through the BM as now. Therefore, the BEM is only a mechanism to manage the imbalance being created by trading strategies rather than the genuine imbalance volume, which would still require further actions in the BM to manage. In addition, we have concerns regarding the loss of synergies due to potentially having to unwind actions taken in the BEM to resolve system issues and the effect of providing a statistical NIV forecast for the BEM on market participants' behaviour.

Under the proposed BEM, it is difficult to envisage how energy and system balancing actions can be separated through gate closure auctions whilst retaining a marginal energy cash-out price. For example, without some form of feedback loop such as the tagging of post-gate closure energy actions, genuine energy actions, such as those required to replace energy following a generator fault, would be flagged as system actions. This would not reflect the true cost of balancing the system and therefore would not provide the most appropriate incentives to the market.

Alternative arrangements for renewables

We continue to work with the industry to actively facilitate renewables to participate in the BM. We have concerns that the efficient operation of the market and the BM could be compromised should low carbon generators (which will provide a large proportion of GB's future electricity requirement) be separated out from the main market structure and not be exposed to the same incentives to balance.

We note that aggregation of power from low carbon sources could provide many benefits if managed effectively, and as such welcome the decision to explore options for renewables through this SCR process. Improved wind forecasting is one of the areas currently being discussed as part of the new system operator incentive regime (whereby National Grid could forecast wind generation output for the industry, with appropriate incentives to ensure investment in improving forecast accuracy). Improvements in generation forecasting, by whatever means, will allow National Grid to undertake optimal residual balancing actions. Aggregation brings other benefits for system operation, such as centralised contacts for information such as outages, benefits of output uncertainty/imbalance spread across many participants, economies of scale with trading activities and ancillary service provision, all of which could assist in efficient portfolio balancing by participants.

We note that DECC are currently consulting on Routes to Market for smaller generation, the outcome of which will interact with any proposals in the SCR and we believe that a coordinated approach is important to provide certainty to the market. The DECC review will explore the options open to small independent generators and the impact on Power Purchase Agreements. National Grid believes that, if appropriately managed, these could provide a method for the market to value and manage imbalance exposure. We would have reservations about taking the imbalance risk of other parties because isolating them from cash-out signals would reduce the incentive to self-balance and would be contrary to one of the key objectives of the SCR.

National Grid is keen to promote actions that will improve the integration of low carbon generation into the electricity market. However, more analysis of Ofgem's proposals needs to be undertaken to ensure that the incentives to improve low carbon forecasting and trading are appropriate.

Question 6: Which of the reform options considered under each of our considerations do you believe would provide the most efficient balancing incentives and why?

We consider that the most efficient balancing incentive is likely to come from a combination of these considerations. This would require a full assessment of the relationships between considerations and a detailed understanding of the interactions as unintended consequences could occur.

We consider that any assessment of the considerations should also take into account the relative roles of the market participants and the NETSO. For example, reserve procurement will be affected by the risk management strategies of individual counterparties and this could have a significant impact on the role of NETSO. Similarly, high cash-out prices may lead to increased reserve holding by market participants which may or may not be the most optimal solution.

Any reform options would ultimately impact consumers and we consider that the SCR and any chosen options should seek to provide the best outcome for consumers.

Question 7: Alongside this initial consultation we have published preliminary analysis of the last modification to the cash-out arrangements, P217A. Do stakeholders agree with the initial findings of the analysis?

Before we comment on the findings of the P217A preliminary analysis, it is important to set out the context around this analysis. The balancing actions by the NETSO are rarely taken for one reason as a single action can typically satisfy several requirements (including system and energy). Consequently, flagging individual actions as 'system' or 'energy', with a view to separating out energy actions, is unlikely to be perfect.

In general, National Grid agrees with the finding of the preliminary analysis of P217A. Furthermore, we consider the majority of the points to be in accordance with the expectation of the modification outcome at the point of implementation.

Through the implementation of a flagging methodology, the majority of out of merit constraint actions are now removed / replaced within the cash-out mechanism. This in turn ensures that, in the main, only actions taken for energy purposes together with those re-priced to a representative energy price are used in the determination of the imbalance price. The initial analysis highlights that the mechanism is broadly reflective of the cost of energy; specifically, this is demonstrated through the two case studies, the high wind scenario (11th September 2011) and the cold spell (28th February 2012). In the first scenario, imbalance parties were protected from the costs incurred in managing the output from wind farms within a constrained zone. The second scenario resulted in parties out of balance being exposed to the high costs incurred in bringing on reserve plant to manage a shortfall energy position.

However, National Grid also believes that the current rules also acted as a dampening agent to the imbalance price due to the continuing high Price Average Reference (PAR) of 500MWh. 'PAR 500' may have been an appropriate mechanism to mitigate the impact of constraint actions (system actions) within the calculation under a pre P217A mechanism, but such a high averaging effect is no longer relevant when the pollution is largely not present. It is our view that this highly averaged position is evident by the much closer spread between the main and reverse price. The current mechanism is not reflective of subtle changes in the market value of energy which prevails from one settlement period to another as demand and supply fundamentals shift across the day and seasons. This can result in market inefficiencies as participants may not be incentivised sufficiently to self balance within 'normal' market conditions.

It could be argued that the disaggregation of BSAD has had a more unpredictable impact upon cash-out. However, we believe the disaggregation of BSAD and aligning the treatment of forward actions with that of BM actions is appropriate and has resulted in a better reflection of the cost of energy in cash-out.

Question 8: What additional analysis could be done as part of the SCR around Modification P217A and the flagging methodology it introduced?

It is our view that the intent of cash-out is to have appropriate signals for participants to balance. At present, we believe that the mechanism is too benign to achieve this. Therefore, any desirable cash-out change should be intended to influence behaviour towards different actions (i.e. for participants to self-balance). As a result, the analysis should ideally be able to infer whether potential changes will actually change behaviour towards the desired outcome. Notwithstanding our views above, we also understand that achieving such analysis could be quite challenging given the number of factors which impact upon how balanced a party wishes to be.

In addition to the analysis carried out to date, we believe that there would be some value in determining a reduced level of PAR, given the reduction in historical pollution remaining in the imbalance price calculation post P217A.

Question 9: Do you agree with our rationale for considering making cash-out prices 'more marginal'?

We agree with the rationale outlined in the consultation for considering making cash-out prices 'more marginal'. As stated in our response to Question 3 (More marginal cash-out prices), we consider that the current PAR value of 500MWh is dampening the price signals and we fully support a move towards more marginal cash-out prices. One area that would require further work is the impact of more marginal cash-out prices on the competitiveness of smaller players and new entrants so that the impact is not perceived disproportionate and that new entrants are not deterred from entering the market.

Chapter 5: Secondary Considerations

Question 10: Do you agree with the circumstances we have identified in which the secondary considerations are important?

The consultation document mainly focuses on the primary considerations which range from incremental improvements (e.g. reduction in PAR500) to fundamental reform of the current regime (e.g. Balancing Energy Market). Which secondary considerations to pursue is likely to depend on the choice of primary considerations. In our view, it is important to narrow down the scope of primary considerations before focussing on details of the secondary considerations so that unnecessary effort is not spent on secondary considerations which may not merit further investigation.

Question 11: Do you have any other comment on the secondary considerations presented here? Please provide any evidence you may have to support your position.

We have no further comments on the secondary considerations.