

Regulatory Impact Assessment for BSC Modification P194 – A National Grid response

Executive Summary

1. We welcome the opportunity to respond to the Impact Assessment issued for BSC modification P194 “Revised Derivation of the Main Imbalance Price.” National Grid agrees with the conclusions drawn by OFGEM in its impact assessment. As the proposer of P194 and the System Operator we continue to champion the modification. We believe the positive benefits to Security of Supply at times of system stress which flow from the Modification, are central to why we chose to bring this modification proposal forwards. However, there are also wider benefits to the market, and we would summarise the key positives of P194 as being:
 - Security of Supply is improved as parties will have enhanced incentives to balance.
 - The cost burden of imbalance will more appropriately be allocated to those parties who contributed to it.
 - As far as it can be achieved by an appropriate incentive to balance, the drivers to increase liquidity in the forward market will be improved.
 - The forward curve will more appropriately reflect the marginal cost of generation and provide accurate signals of system scarcity. This in turn will contribute to the understanding of long-term plant economics and consequential decisions taken, both in terms of existing capacity and new build.

Background

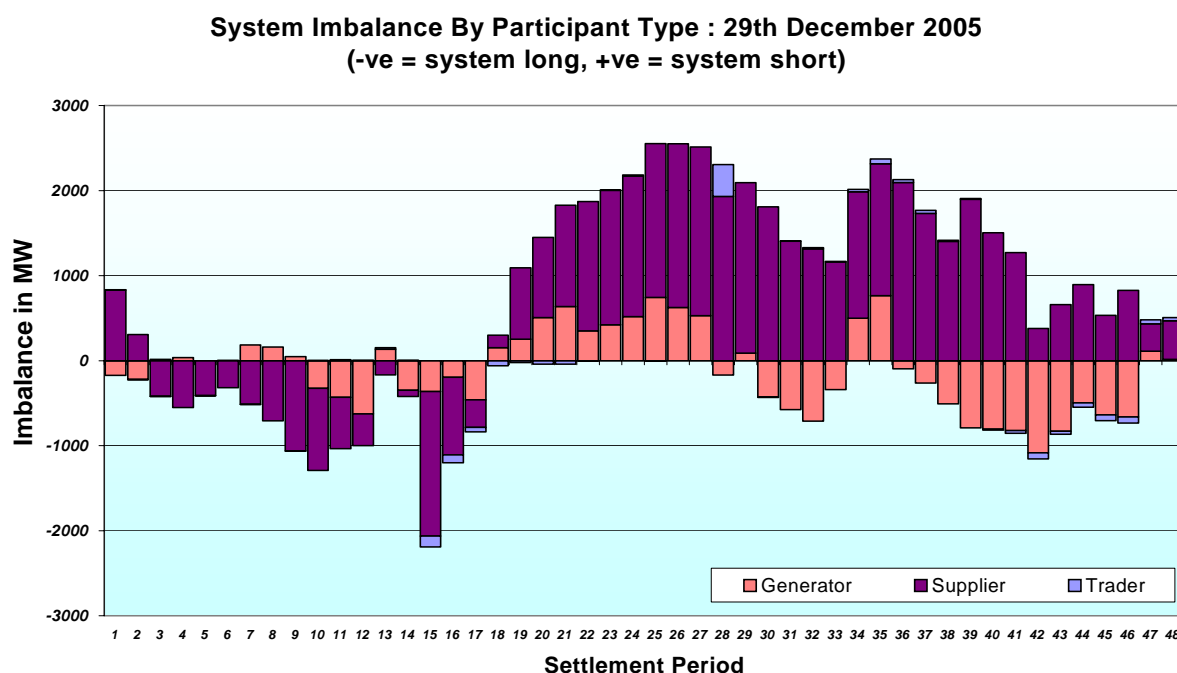
2. There is no obligation on BSC parties to contract sufficiently to cover their energy position prior to Gate Closure, and hence it is imperative that in periods of peak demand, incentives to balance and to maintain security of supply are properly aligned. We believe participants respond rationally to clear economic incentives. Hence, in our view it is clear that P194 will bring about material change in the behaviour of market participants in the limited number of peak demand periods (typically in a winter peak), and will create significant security of supply and wider benefits to the market.
3. Whilst economic rationality is evident in the behaviour of participants under the current pricing regime, under certain periods of high demand, this regime can create inappropriate incentives whereby rational participants could find it economically beneficial not to resolve any perceived energy account shortfall, but to accept exposure to System Buy Price. This has been demonstrated repeatedly in the analysis that National Grid has undertaken in support of this modification and is demonstrated again in a recent observed example period included within this paper. P194 would ensure that parties had more appropriate incentives to manage their positions.
4. P194 will better facilitate the applicable BSC objective (c) “Promoting effective competition in the generation and supply of electricity, and (so far as it is consistent with) promoting such competition in the sale and purchase of electricity”. P194 will also encourage parties, in periods of peak demand, to trade ahead of Gate Closure and so better facilitate applicable objective (b) “the efficient, economic and co-ordinated operation by the Transmission Company of the Transmission System”.
5. The remainder of this response will focus on addressing our view of the impact P194 has in relation to the categories laid down in the Impact Assessment Consultation. We have chosen to lead on the positive benefits to Security of Supply at times of

system stress which flow from the modification, as these are central to why, as the System Operator, we chose to bring this Modification proposal forwards.

Security of Supply

6. There is no firm obligation on BSC parties to contract sufficiently to cover their energy position prior to Gate Closure. Parties incentive to resolve their positions in the forward market will be solely determined by the difference between likely exposure from imbalance prices and the cost of buying that energy forward. It is therefore imperative that at times of system stress the incentives on participants to cover their contractual position are appropriate. Deriving a volume weighted average price from the entire NIV does not always form a good proxy for the marginal cost of balancing energy. In periods of peak demand where the system is short the differential between the average and marginal cost of resolving NIV, as shown by our analysis, is likely to be greatest.
7. The forward market clears close to the marginal cost of electricity traded. The Balancing Mechanism clears at the average cost. As such, at the relatively few times of system stress where demand is at a peak and the market is noticeably short, the System Operator is likely to procure electricity at a value greater than SBP to resolve imbalance. Any economically rational participant will seek to minimise costs. If the cost of buying the marginal unit in the forward market is greater than the likely exposure from imbalance prices then economic rationale would make it unlikely that the marginal unit would be bought in the forward market. Therefore the current methodology is effectively imposing an inappropriate cap on the forward energy price equivalent to the expected level of the average imbalance price.
8. The market cannot be operating at its most optimum if, upon days of system stress, market participants find it economically beneficial to go short into the Balancing Mechanism. It is specifically on these days that the incentive to balance should be the strongest as the System Operator's options for resolving imbalance are likely to be the most limited. The current methodology is not reflective of costs at these times and so does not provide appropriate incentives for participants to balance ahead of Gate Closure. This can be observed from the example on the 29th of December. The System Operator indicated to the market at 20:35 on the 28th of December, by means of a NISM, that there was insufficient available capacity to meet demand and its reserve requirement. Even accounting for the level of plant loss that occurred, the level of market response to this warning, and to the subsequent High Risk of Demand Disconnection (HRDR) issued at 07:00 on the 29th of December, was not sufficient to resolve the large system shortfall.
9. Based on the above, it is necessary to ascertain whether participants were appropriately incentivised to balance in this situation, both in terms of day ahead and on the day response, and in the longer term. The forward spot price was approximately £470/MWh for period 35, which was the peak demand of the day. The SBP out-turned out turned at £587.62/MWh. However in that particular period the System Operator took over 600 MWh of offers greater than the forward spot price, with over 270 MWh at prices greater than £1400 MWh. Under the P194 proposals PAR100 methodology the imbalance price would have out-turned at £1526.76/MWh. Given that NIV was 1254 MWh in this period, the SO purchased over half the actions to resolve system imbalance in a period of extreme system stress at prices greater than the value of deals being transacted in the forward market. In doing so the SO paid for these BOA at prices that economically rational parties would not procure at and economically rational generators would not sell at. This quite effectively demonstrates the liquidity suppressing, capping effect that the current methodology exhibits at times of system stress and the consequential impact on Security of Supply.

10. This material effect of this behaviour is demonstrated by the following graph that indicates the level of supplier and generator imbalance that occurred in this particular period.



11. P194 effectively removes the capping effect that the current volume weighted imbalance price methodology has on the forward market price. This methodology more appropriately signals the costs of energy scarcity and as such enables participants to make more informed and appropriate commercial decisions regarding the economics of being balanced.

Economy and Efficiency

12. It has been suggested by some participants during the P194 assessment that certain parties might be inappropriately impacted by the modification, both in the change in their Imbalance prices, and in any subsequent changes in cash flows associated with the settlement RCRC process. However, National Grid would highlight that in our view all parties should be equally incentivised to balance, and further, that there is significant information out there to help parties to this end.

Impact of Imbalance on NIV

13. Each MWh of energy account imbalance has an equal impact on the value of NIV. Therefore, it is appropriate that all BSC participants should be equally incentivised in relation to each MWh of imbalance that they have contributed to the system imbalance volume. The specific characteristics of the particular BSC participant should have no bearing on the level of exposure of each MWh of imbalance. Elexon has carried out analysis that investigates whether, under a P194 imbalance price regime, there is any relationship between the net cost, per MWh, of a participants credited energy position and the relative size of those parties market share. This analysis concludes that *there is no clear correlation between whether P194 is a benefit or a disadvantage and a party's market share*¹.
14. Therefore any change in a BSC participant's relative proportion of cost exposure is related to the proportion of a BSC parties credited energy position that is exposed to

¹ OFGEM Impact Assessment P194, Appendix 2 Elexon Cash Flow Analysis

imbalance rather than the size of the participants market share. This is entirely correct in that parties should be appropriately incentivised to minimise this imbalance. This is an incentive that is not reflected in the current imbalance price when the system is under stress.

Information to assist in Balancing

15. On the second point, there are a large number of sources of information available to market participants to enable participants to understand the state of the system and the likely imbalance price consequences. National Grid, through its own web-site, and Elexon, through the BMRS, provide significant information related to different system characteristics at various lead times. National Grid provides 2-14 day ahead Operating Plant Margin Requirements (OPMR) to enable participants to establish an overview of system condition. This is expanded in day-ahead time scales by information related to reserve requirements and the level of reserve still to be procured. The SO indicates to the market when it has undertaken pre gate transactions. PGBT transactions are flagged on the BRMS web site with an indication of the settlement periods impacted. Upon commencement of warming the SO, through its SONAR system, indicates to the market the capacity of the BMU and the start time of the unit if warmed to term. This information is updated in real time to take account of any change in requirements.
16. A number of other system indicators are provided to the market. Forecast of Demand is indicated to the market at different lead times and through the BMRS this information is updated half hourly from day ahead to real time. National Grid also provides real time out-turn spot demand values and aggregated settlement period demand information to aid participants in their energy account strategies. As such a large body of information exists within the market for participants to determine periods when the system is likely to be under stress. Coupled with the appropriate incentives, this information will enable participants to manage their energy account risk exposure in a manner that they deem economically desirable.

Competition and Distributional Impacts

17. The level of market imbalance is driven by a number of factors, which are both complex and interrelated, and the relative influence of these factors alters depending on the settlement period, day type and season. As such it is difficult to accurately determine the level of change that NIV will exhibit as an average across the year.
18. Extensive historical analysis has identified that the predominance of material changes in relation to the current System Buy Price will impact the limited number of periods where demand is high, declared availability is low and the market is short. All of which are characteristics predominantly confined to certain periods of the winter peak. All else being equal, rational participants will only alter their risk profiles in line with times when imbalance risk has changed. Therefore we are of the view, derived from quantitative assessment, that the change in SBP can only be considered a certain driver of change in market length in those limited periods. This limited change of profile in market behaviour is consistent with our view that the P194 methodology will more appropriately, incentivise participants to cover their position in these times of system stress.
19. The analysis in relation to the behaviour of SSP indicates that the impact on price will be seen in a greater percentage of periods. However, the evidence indicates that in the overwhelming majority of periods, the material cost difference will be very small. As such, the level by which rational participants adapt their risk profiles should reflect the level of this expected change in SSP. Consequently the impact of price drivers on the level of NIV in the periods when the system is long, which account for 74% of

all settlements periods², will be less certain but could conceivably see a small more consistent absolute reduction. Therefore the physical impact on market length will be felt most evidently over a very limited number of specific periods when the market is short and more generally, but with less physical influence, when the market is long.

Impact on the Environment

20. It is not obvious to National Grid how the environmental impact of generation will be significantly altered by the move to a more marginal pricing regime. It is uncertainty, as much as market length, that drives reserve requirement and hence part loading of generation. As has been previously demonstrated, the impact of P194 is likely to be limited to a very few number of relevant periods. As such the change in plant loading is only likely to change in those periods. Any increased part loading on the part of generators is likely to be offset in those periods by a reduction in the level of part loading initiated by the System Operator. Given this limited impact it is not clear that there will be any change in the environmental impact of system balancing.

Risks & Unintended Consequences

21. Although expressed from time to time as a concern it is unclear how price manipulation could be accomplished in the Balancing Mechanism. This has been a view reciprocated by the majority of P194 modification members whenever this subject has been discussed. It is also unclear how any manipulation could be exacerbated by this modification proposal. P194 will reduce the volume of actions utilised in the price stack and as such reduces the probability that any accepted offer would be included in the price calculation. It is further unclear, due the nature of cash flows related to imbalance, RCRC, and BSUoS how a participant could accurately predict they would receive a financial net gain from this activity. Although accepting that any participant able to financially gain from price manipulation would not advertise this ability, nobody has been able to demonstrate in the modification working group, or any other forum, a method by which this could be achieved. National Grid, acting economically and efficiently in its role as SO also looks to analyse the pricing strategies and consequential behaviours of market participants. It is not obvious to us that any consistent price manipulation could be achieved in the market or how this would change under P194. As such we do not believe that P194 will in any way provide parties with an opportunity to manipulate prices.

Conclusion

22. In conclusion we believe that BSC modification Proposal P194 will benefit the market in the following ways

- Security of Supply will be improved by improving the incentive to balance.
- The cost burden of imbalance will more appropriately be allocated to those parties who contributed to it.
- As far as it can be achieved by an appropriate incentive to balance, the drivers to increase liquidity in the forward market will be improved.
- The forward curve will more appropriately reflect the marginal cost of generation and provide accurate signals of system scarcity. This in turn will contribute to the understanding of long-term plant economics and consequential decisions taken, both in terms of existing capacity and new build.

23. As the System Operator and the proposer of P194 we continue to champion the modification, and believe that its approval would be consistent both with the applicable BSC Objectives, and the Authorities wider remit.

² Calculated on data from 01/01/05 to 31/12/05