ELEXON

P410 ‘Changing imbalance price calculations to comply with the Imbalance Settlement Harmonisation regulations’ Workgroup 2 summary

Summary of discussions

A Workgroup member questioned whether system or energy balancing actions could be used to calculate a VOAA. Elexon commented that as the VOAA could be calculated from available but unused actions, they were inherently neither system nor energy, as there had been no need for them. It added that it was working with NGESO to determine how a group of realistic prices could be identified (i.e. actions that were valid, but would never be activated due to constraints). NGESO noted that it already flagged system actions, but it believed a new flag would be needed to identify impossible actions. Any action flagging would need to be achievable within the VOAA publication timescales. (30 minutes after the end of a Settlement Period)

A Workgroup member questioned what access to the TERRE and MARI algorithms GB would have post brexit. NGESO commented that negotiations were ongoing and noted similarities to the Swiss market. The working understanding was that it would be able to use the algorithms domestically, but would be limited on cross border trades. A power exchange representative echoed this view. NGESO agreed to check what algorithms it had access to and whether they could be made public for use in GB.

A Workgroup member questioned whether TERRE and MARI (as standard products) would be prioritised over things like the BM (as specific products). NGESO commented that this was the general principle, but that the Control room would dispatch assets in an economic manner. Elexon commented that the principle was that standard products were used unless there was a compelling case for the existence of specific products, but once they were established there appeared to be no hierarchy (according to Articles 25 and 26 of the Guideline on Electricity Balancing [EBGL]) .

A Workgroup member questioned how the BOAs could be split into FRR and RR. NGESO responded that every BOA would fall into one of the two categories and so it would be a valid VOAA component regardless of where it fell. The same was true for BOAs accepted for system needs.

Elexon presented its initial analysis into how a VOAA could be calculated. A Workgroup member questioned whether actions that could never be activated could be removed from the data set. Elexon responded that this could be complex and that there would be a decision of where to draw the line for appropriate filtering. It noted that it doesn’t currently have access to some dynamic data, but that it would work with NGESO to investigate how data could be cleansed and whether this was feasible to do within the timescale for implementing a solution, and also achievable within the deadline for publishing an imbalance price.

A Workgroup member questioned whether only feasible actions should be used in VOAA calculations. Elexon believes this is a legal grey area and that arguments could be made both ways. Elexon will seek further legal advice on this point.

A Workgroup member believed that the presented analysis showed a good correlation between the Imbalance Price and the MIP, but not for the midpoint VOAA, and concluded that the VOAA would be detrimental to Settlement. Elexon agreed to rerun its analysis over a longer period to better highlight any correlations. A Workgroup member questioned whether removing any actions for a small volume from the data set would affect the analysis. Another member was concerned that this would remove legitimate bids. A Workgroup member questioned whether the NIV could influence how the VOAA was calculated. They suggested that the highest price bid (that passes other filters) is used where NIV>0 and vice versa, only using the midpoint where NIV=0. Some members were concerned that a simple midpoint calculation would always provide a poor result. They questioned whether a more complex algorithm would yield better results.

A Workgroup member commented that while the MIP was not a valid VOAA component, it was a good indication of market conditions and reflective of short term energy costs. They questioned whether a VOAA algorithm could use it as a validation tool. Elexon expressed caution over the legality of this. The Workgroup agreed that regardless of the

solution, the MIP provided valuable information to market participants and should be retained going forwards as a data source.

The Workgroup discussed using machine learning to develop a solution that could be trained with the MIP to output an optimal VOAA algorithm. Elexon noted that this would be a lengthy process and was not likely to be possible before the legal deadline for delivery. It questioned whether P410 should implement an interim solution to allow an improved design to be developed. Elexon was also cautious of using other data sources such as the NIV or MIP in calculating the VOAA, and agreed to confirm the scope of its legal advice. Workgroup members commented that the NIV and MIP could be used to train a smart algorithm, which would then take available actions as input going forwards. Elexon advised that even if such a solution was possible it is unlikely to be available in time and so encouraged the Workgroup to focus on delivering an implementable solution (which could subsequently be replaced). NGESO added to this that any data cleansing may have to be a manual process initially until IT systems could be fully developed.

The Workgroup considered how the available products (TERRE/MARI/BM) should be weighted in a VOAA. The Workgroup noted that only clearing process rather than individual bids and offers were visible and questioned how bid prices could be used if they weren't visible. A Workgroup member noted that ramping times differed between TERRE/MARI and the BM and questioned how this would affect prices, they also noted that TERRE and MARI were paid as cleared rather than as bid.

Elexon asked the Workgroup whether the weighting between products should be straight, volume weighted or based on an assessment of which actions were most likely to be taken. A Workgroup member noted the lack of available TERRE/MARI data for assessment and suggested a VOAA should be based solely on BM data initially until the mechanics of TERRE and MARI were fully understood. Another member countered that as TERRE and MARI were clearing prices, they were arguably more correct than any price derived from hypothetical BM prices. The Workgroup agreed that this should be revisited in a subsequent Workgroup.

Elexon agreed to engage with Ofgem to understand how it would view a compliant, but undesirable solution versus a late but 'appropriate' solution. A Workgroup member commented that it would be a useful exercise to map business requirements onto the ISH regulation once complete to map how the requirements will be discharged. The Workgroup also believed that a step through of the regulations would be beneficial. Rather than a line by line review, the Workgroup agreed to review the ISH regulation independently and flag any specific areas for discussion at a subsequent Workgroup.

Actions

1. Elexon and NGESO will investigate how dynamic data can be used to cleanse the data set of actions to be fed into the VOAA calculations. Both for the purposes of initial analysis and operationally once the solution has been implemented.
2. Seek further legal advice on some clarification points:
    a. What constitutes an 'available action'. E.g. can/should constrained actions be used in VOAA calculations and can actions taken for system reasons be used?
    b. Can the MIP be used as a validation tool for a VOAA algorithm?
    c. Can NIV, MIP or historic prices be used in any way in the VOAA calculations e.g. to train machine learning?
3. Rerun the analysis for a longer period. Also investigate how other filters can make the VOAA better correlated with the imbalance price. Filters for consideration could include:
    a. Removal of infeasible actions
    b. Removal of actions with a volume below a threshold
4. NGESO will confirm what TERRE data and algorithms it has visibility of
5. Elexon will engage with Ofgem for guidance on what it prioritises in a solution
6. The Workgroup will familiarise themselves with the regulations and highlight any areas of concern of discussion for the next Workgroup.
7. Elexon to consider how benefits could be assessed for the P410 solution
8. Elexon to clarify costs associated with calculation and publication of the MIP