Electricity Balancing Significant Code Review (EBSCR)

Draft Business Rules

Published 15 May 2015

This Business Rules document has been developed as an informal supporting document to the Final Policy Decision (FPD) for the EBSCR published in Spring 2014 and should be read in the context of the FPD and EBSCR Directions, which are available from the Ofgem website. This document has been developed by Ofgem, National Grid Electricity Transmission plc (NGET) and ELEXON in order to assist industry ahead of the industry code modification process. These Business Rules themselves are not binding, but outline a potential route to implementing the FPD for the EBSCR in a number of areas. Industry may choose to develop the processes outlined in the Business Rules further or pose alternative processes to those outlined in this document (addressing the principles in the Directions), and detailed rules will be subject to industry consultation as part of the usual industry code modification process. Where specific details are left for further consideration of industry, this is noted by reference to the modification workgroup in this document. All terms are as defined in the Balancing and Settlement Code (BSC).

These Business Rules explain the proposed changes to the Balancing and Settlement Code (BSC), relevant supporting BSC documents, the Standard Condition C16 Statements of the NGET Transmission Licence and other industry codes where applicable, associated with the EBSCR.

Contents

1. Price Average Reference (PAR) Arrangements

Policy

- PAR will be set at PAR250 for the purpose of cash-out by early winter 2014/15[1].
- This will reduce to PAR50 by early winter 2015/16 and to PAR1 by early winter 2018/19.

1.1 (a) For each Settlement Period the imbalance price is calculated based on the volume-weighted average of a defined volume of the most expensive balancing actions (that remain following the application of flagging and tagging processes to remove the price impact of system balancing actions). This defined volume is the PAR volume and will be set at 250MWh by early winter 2014/15 such that:

- Where the System is short, System Buy Price (SBP) is calculated as a volume-weighted average of not more than 250MWh of the most expensive actions in the Net Imbalance Volume (NIV) (i.e. up to 250MWh of highest priced buy balancing actions).

- Where the System is long, System Sell Price (SSP) is calculated as a volume weighted average of not more than 250MWh of the most expensive balancing actions in the NIV (i.e. up to 250MWh of lowest priced sell balancing actions).

(b) This defined PAR volume will reduce to 50MWh by early winter 2015/16 and to 1MWh by early winter 2018/19.

(c) Indicative imbalance prices will be published by ELEXON for future price scenarios to demonstrate the impact of changes to PAR based on PAR250, PAR50 and PAR1 as soon as possible, and by November 2014 at the latest. This is to assist industry in the transition to more marginal pricing and is purely for information only.

1.2 It is possible that not all of the volume of the NIV is priced, and the volume associated with actions that are classified as Second Stage Flagged for a particular Settlement Period will be null-priced. Where Second Stage Flagged volume exists in the NIV it must be assigned a Replacement Price. The Replacement Price is calculated from a volume-weighted average of the most expensively priced balancing actions known as the Replacement Price Average Reference Volume (RPAR). The RPAR will be set at 1MWh by early winter 2015/16. The PAR50 and PAR1 price scenarios in 1.1(c) will also set RPAR to 1MWh.

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[1] Where reference is made to 'by early winter', this indicates implementation through ELEXON's BSC change process in the 'November BSC Systems Release'.

2. Single Price Cash-Out Arrangements

Policy

- Cash-out will no longer have dual pricing (Main and Reverse Price). Only the imbalance price derived from the Main Price methodology will apply.
- Parties will pay or receive the Main Price depending on their imbalance position. This will be introduced by early winter 2015/16.

2.1 For each Settlement Period there will be a single imbalance price that is applied both to those Parties whose imbalance contributes to and those whose imbalance reduces the overall Transmission System imbalance.

2.2 The single price will be calculated using the existing main pricing method which uses balancing actions taken by the System Operator for that Settlement Period. The reverse price methodology will not be used for calculation of the cash-out price.

2.3 The Transmission System imbalance for the Settlement Period will determine whether the main pricing method is based on the existing SBP or SSP Main Price calculations.

(a) If the NIV is negative, reflecting a long Transmission System, then the main pricing method will be used to calculate the imbalance price as per the SSP Main Price calculation.

(b) If the NIV is positive, reflecting a short Transmission System, then the main pricing method will be used to calculate the imbalance price as per the SBP Main Price calculation.

(c) Appropriate treatment of the imbalance price shall be developed by the modification workgroup for Settlement Periods in which the NIV is zero.

(d) The calculations to determine the energy imbalance price as described here are provided in 2.4.

2.4 Determination of Energy Imbalance Prices under Single Pricing

(a) In respect of each Settlement Period the Final Ranked Set of System Actions shall be established in accordance with Annex T-1 of the BSC.

(b) In respect of each Settlement Period, if the Net Imbalance Volume is not equal to zero, and is a positive number, and $\left\{\sum_i\sum^n\sum^k\{QAO_{ij}^{kn} * TLM_{ij}\} + \sum^m QBSAB_j^m\right\}$ is not equal to zero, then the System Buy Price will be determined as follows:

$$SBP_j = \left\{\sum_i\sum^n\sum^k\{QAO_{ij}^{kn} * PO_{ij}^n * TLM_{ij}\} + \sum^m\{QBSAB_j^m * BSAP_j^m\}\right\}$$
$$/\left\{\sum_i\sum^n\sum^k\{QAO_{ij}^{kn} * TLM_{ij}\} + \sum^m QBSAB_j^m\right\} + \{BPA_j\}$$

where $\sum_i$ represents the sum over all BM Units, $\sum^n$ represents the sum over all accepted Offers in the Final Ranked Set of System Buy Actions, $\sum^k$ represents the sum over all Acceptances within the Settlement Period, and $\sum^m$ represents the

sum over all Balancing Services Adjustment Buy Actions in the Final Ranked Set of System Buy Actions;

and the System Sell Price will be determined as follows:

$$SSP_j = SBP_j$$

(c) In respect of each Settlement Period: if the Net Imbalance Volume is not equal to zero, and is a negative number, and $\left\{\sum_i\sum^n\sum^k\{QAB_{ij}^{kn} * TLM_{ij}\} + \sum^m QBSAS_j^m\right\}$ is not equal to zero, then the System Sell Price will be determined as follows:

$$SSP_j = \left\{\sum_i\sum^n\sum^k\{QAB_{ij}^{kn} * PB_{ij}^n * TLM_{ij}\} + \sum^m\{QBSAS_j^m * BSAP_j^m\}\right\}$$
$$/\left\{\sum_i\sum^n\sum^k\{QAB_{ij}^{kn} * TLM_{ij}\} + \sum^m QBSAS_j^m\right\} + \{SPA_j\}$$

where $\sum_i$ represents the sum over all BM Units, $\sum^n$ represents the sum over all accepted Bids in the Final Ranked Set of System Sell Actions, $\sum^k$ represents the sum over all Acceptances within the Settlement Period, and $\sum^m$ represents the sum over all Balancing Services Adjustment Sell Actions in the Final Ranked Set of System Sell Actions;

and the System Buy Price will be determined as follows:

$$SBP_j = SSP_j$$

(d) In respect of each Settlement Period, if the Net Imbalance Volume is equal to zero, or $\left\{\sum_i\sum^n\sum^k\{QAO_{ij}^{kn} * TLM_{ij}\} + \sum^m QBSAB_j^m\right\}$ is equal to zero, or $\left\{\sum_i\sum^n\sum^k\{QAB_{ij}^{kn} * TLM_{ij}\} + \sum^m QBSAS_j^m\right\}$ is equal to zero, then the System Buy Price shall be set at a level to be developed by the modification workgroup; Some options include:
  i.   SBP = 0
  ii. SBP = Market Price
  iii. SBP = Credit Assessment Price or another market reference price;

and the System Sell Price will be determined as follows:

$$SSP_j = SBP_j$$

3. Reserve Scarcity Pricing (RSP)

Policy

- Balancing Mechanism (BM) and non-BM (NBM) Short Term Operating Reserve (STOR) actions will be assigned a new initial price before being entered into the cash-out calculation. This price will be the greater of the utilisation fee for that STOR action and the RSP price for the Settlement Period in which the STOR action is used.
- The RSP price will be the Loss of Load Probability (LOLP) multiplied by the Value of Lost Load (VoLL). The LOLP for each Settlement Period will be calculated in accordance with a new 'LOLP calculation methodology'. The VoLL value used will be consistent with the administrative VoLL used for the VoLL Price (see section 4).
- STOR availability payments will no longer be allocated to settlement periods using the Buy Price Adjustment (BPA). However, the BPA will remain in place for the allocation of BM Start-up costs and forward contract options.
- The RSP price for Settlement Period j will be set at Gate Closure and will be released to the market as soon as it is practical to do so. Indicative LOLPs, and the data that feeds into the calculation of these indicative LOLPs, will be released to the market ahead of Gate Closure.
- The indicative LOLPs will be calculated in accordance with the 'LOLP calculation methodology', acknowledging that the further ahead of Gate Closure the indicative LOLP is calculated, the greater the potential discrepancy between that and the outturn LOLP due to input value movements in the intervening time.
- The 'LOLP calculation methodology' will be published in advance. It will be reviewed and consulted on from time to time and as needed. The RSP will be introduced by early winter 2015/16.

3.1 For each Settlement Period where a BM or NBM STOR action is taken, an associated price to that action will be calculated to feed into the BM stack of accepted buy actions. This price will be the greater of the utilisation price of the STOR action and the RSP price, where:

- For both BM and NBM STOR, the utilisation price of the STOR action is the utilisation payment (£/MWh) as contained in the service provider's tender and the submitted offer price within the BM (in the case of BM STOR);

- The RSP Price is calculated as a product of the Loss of Load Probability (LOLP) and the VoLL Price.

3.2 The VoLL Price will be as defined in paragraph 4.2(a).

3.3 The LOLP for each Settlement Period will be calculated by NGET in accordance with a new 'LOLP calculation methodology' (the LOLP Calculation Methodology Statement) which will be contained in a subsidiary document to the BSC and therefore governed through changes to the BSC. The BSC Panel will be responsible for establishing and maintaining at all times the LOLP Calculation Methodology Statement. Any changes to the LOLP Calculation Methodology Statement must be subject to industry consultation

by the BSC Panel and approval of the changes by the Authority. Review of the LOLP Calculation Methodology Statement by the BSC Panel will be conducted from time to time and as needed. The BSC Panel may ask ELEXON to conduct these reviews on its behalf.

3.4 The LOLP will be a function including, but not limited to, the following input metrics:

- Margin, which will be a function of: the generation capacity including STOR availability (BM and NBM), the forecasted Reserve for Response and the demand forecast estimate for that Settlement Period. For the avoidance of doubt, the measure of margin will exclude emergency actions[2], as well as the new balancing services (Supplemental Balancing Reserve (SBR) and Demand Side Balancing Reserve (DSBR))[3].

- Plant unit availability rates updated annually by plant type;

- Demand forecast errors for the timeframe considered;

- Wind forecast;

- Wind forecast errors for the timeframe considered;

- Plant generation mix by fuel type.

3.5 The LOLP Calculation Methodology Statement will contain the (full) definition of the data and methodology used in the derivation of the LOLP, including as relevant:

(a) That the final LOLP, for use in the RSP function for Settlement Period j, will be determined at Gate Closure {(j) – 1 hour} for that Settlement Period;

(b) That one or more indicative LOLPs, for Settlement Period j, will be measured and published ahead of Gate Closure;

(c) The Statement will contain for each final LOLP input metric,

- The constituent input data items used to calculate that metric;

- Any calculations applied to allow the metric to be used in the LOLP calculation for a given Settlement Period, e.g. how a single value is derived from an array (e.g. minimum, average);

- The timing and frequency of updates of the data item(s);

- Any associated validation and defaulting rules that shall apply to the metric and/or data item(s),

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[2] such as Emergency Instructions as defined in the Grid Code
[3] SBR and DSBR will be excluded from the calculation of margin unless this is inconsistent with how these services are priced into cash-out which is still to be decided.

(e.g. if for unit *a* and Settlement Period *j*, Final Physical Notification: $FPN_{aj} = 0$, Notice to Deviate From Zero: $NDZ_a > 60$, then Assumed Maximum Export Limit: $MEL_{aj} = 0$);

(d) Where rules applied to the indicative LOLP input metric deviate from those set out in paragraph 3.5(c), the Statement will specify this and outline those applicable to the indicative LOLP.

3.6 For the avoidance of doubt, the modification workgroup may propose a 'LOLP calculation methodology' that does not meet the all of the requirements in paragraphs 3.4 and 3.5.

3.7 National Grid will submit the final LOLP, and the associated LOLP input metrics that the modification workgroup deems to be required, to the Balancing Mechanism Reporting Agent (BMRA) as soon as reasonably practicable after Gate Closure, and so that the BMRA receives the data in sufficient time to feed it into the calculation for the Balancing Mechanism Reporting Service (BMRS) '15-minute' run[4].

3.8 National Grid will submit the indicative LOLP(s), and those associated LOLP input metrics that the modification workgroup deems to be required, to the BMRA as soon as reasonably practicable after the constituent input data items are available, so that the BMRA receives the data at set time(s) in advance of the Settlement Period to which the data pertains. The frequency and timing of the indicative LOLP submission will be set as the modification workgroup deem appropriate. As an example, indicative LOLPs could be published 4 hours, 3 hours and 2 hours in advance of each Settlement Period.

3.9 The calculation of the BPA will no longer include costs associated with STOR option fees such that:

$$BPA_j = (\Sigma FC_j \, / \, cF_j) + \Sigma(BC \, / \, cB)$$

FC_j = cost of purchases of Forward Contract option fees (£)

cF_j = capability of Forward Contracts for the relevant settlement period (MWh)

BC = cost of BM StartUp instructions to minute t (£)

      where BM StartUp Time = all minutes associated with BM StartUp instruction

cB = volume capability of BM StartUp instructions over the defined BPA period to minute t (MWh)

For the avoidance of doubt, if the denominator of the Forward Contract or BM StartUp component of the BPA is zero in any Settlement Period, then that component of the BPA will be set to zero in that period.

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[4] Indicative system imbalance prices are calculated and published via the BMRS approximately 15 minutes after the end of each Settlement Period.

4. Value of Lost Load (VoLL) Pricing

Policy:

- Demand Control actions[5] will be priced into cash-out. These actions will be included in the stack of balancing actions, with a price and volume attached, and subject to flagging and tagging procedures[6].
- Volumes of instructed Demand Control, based on the level reported by the System Operator (SO), will be priced at an administrative level of VoLL (a VoLL Price) of £3000/MWh by early winter 2015/16, rising to £6000/MWh by early winter 2018/19. This will be reflected in the cash-out prices that parties face on their imbalance volumes. The modification workgroup will consider whether automatic Low Frequency Demand Disconnection will be priced into cash-out, and if so will feed in an accurate estimate of volume (as far as reasonably practicable) to be priced at the same administrative level of VoLL.
- The application of VoLL pricing will be considered for: disconnection initiated by Licensed Distribution System Operators (LDSOs); voltage reduction initiated by LDSOs; a combination of voltage reduction and demand disconnection initiated by LDSOs; other reasons of disconnection due to energy imbalances such as automatic Low Frequency Demand Disconnection.
- Supplier positions will be adjusted to reflect SO instructed demand disconnection and automatic Low Frequency Demand Disconnection that has taken place. The modification workgroup will explore methodologies for the accurate calculation of supplier positions corrected for voltage reduction and propose a solution for implementation should a methodology that achieves sufficient accuracy be identified.
- Supplier positions will be adjusted regardless of whether Demand Control actions are flagged or tagged.

4.1   For each Settlement Period which coincides with a Demand Control incident a Demand Control action will be added to the initial ranked set of system actions as a buy action priced at VoLL. This section outlines first the 'top down' process for the indicative system imbalance prices (BMRS '15 minute' run) and the initial cash-out price calculation (Interim Information (II) run), and second the 'bottom-up approach' for the Initial Settlement (SF) and further settlement runs[7].

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[5] The Demand Control actions of relevance here are Demand reduction instructed by NGET, emergency manual Demand Disconnection and automatic low Frequency Demand Disconnection as described in paragraph GD.1 of the Grid Code.

[6] In terms of the derivation of the final ranked set of system actions, as set out in Annex T-1 of the BSC, the treatment of Demand Control actions will be consistent with that of System Buy Actions (i.e. the provisions for flagging, tagging and classification will apply).

[7] The Settlement calculations are performed several times for the same date between 5 working days after the date to approximately 14 months after. This is to allow more 'actual' data (i.e. data based on actual meter readings) for Non-Half Hourly metering systems to be used in the calculations. The first calculation run is called the 'Interim Information' (II) run, 5 working days after the date. This run is used to provide data for information. It is also used to estimate BSC Parties' exposure to Trading Charges that have been incurred but not yet settled. Parties must cover this exposure by lodging credit with ELEXON. The 'Initial Settlement' (SF) Run is approximately 16 working days after the date of the Settlement Period in question and is the first run that monies are exchanged on. Further information can be found in BSCP01 on the ELEXON website.

4.2   The BMRS '15-minute' run and Interim Information (II) run

For the purposes of calculating the indicative system prices for the BMRS '15-minute' run and for the Interim Information (II) run:

(a) The price for VoLL will be set at a single administrative level (a VoLL Price) for a given Settlement Period, which will be defined in the BSC. This will initially be £3000/MWh by early winter 2015/16, and will rise to £6000/MWh by early winter 2018/19. The modification workgroup may consider whether and how the VoLL Price is thereafter adjusted annually for inflation. Provision should be included in the BSC for the Authority to have the discretion to direct changes to the VoLL Price.

(b) Demand Control actions will be subject to the normal tagging and flagging rules (in particular the Continuous Acceptance Duration Limit (CADL) flag will apply such that if the overall duration of the incident is less than CADL the action will be considered as 'CADL flagged'). Where relevant, the BSC and the System Management Action Flagging (SMAF) Methodology will be amended to reflect this. In particular, consideration may need to be given to the incorporation of automatic Low Frequency Demand Disconnection actions into the SMAF pending the determination of its treatment by the modification workgroup.

(c) The Settlement Administration Agent (SAA) will derive an associated volume for each Settlement Period in which the incident has taken place (be it demand disconnection, voltage reduction, automatic Low Frequency Demand Disconnection (pending its determination by the modification workgroup), or a combination thereof), using data received from National Grid. Conversion of data received will apply the principles set out in the BSC Section T.3 on the treatment of BM actions.

(d) For each incident of Demand Control under 4.2(b), the BMRA will determine the total duration in minutes, which may be inferred from the timestamps of associated system notification(s) (as described in 4.2(e)) submitted by National Grid.

(e) For each Demand Control incident under 4.2(b), National Grid will submit to the BMRA, at a minimum, a notification of commencement of the Demand Control incident and a notification of cessation of the Demand Control incident. Should further information become available, National Grid may submit additional notifications if applicable. The notification of commencement will contain a (MW) Demand Control estimate by the SO based on total level of Demand Control instructed to the Licensed Distribution System Operator(s) (LDSOs). The notification will also include a SMAF flag and will specify which LDSOs have been impacted by the incident.

(f) The BMRA will publish any such notifications of Demand Control onto BMRS (www.bmreports.com).

(g) The modification workgroup will consider whether a separate process from that of the '15-minute' run can achieve greater accuracy in time for the II run, giving particular consideration to the methodology used for the SF run.

4.3   For the 'bottom-up' approach, for the purposes of adjusting supplier imbalance positions and for the SF and further Settlement Runs

To produce an accurate estimate of the volume of the demand disconnection, or automatic Low Frequency Demand Disconnection, a bottom-up estimate is created, using the consumption and registration details of each MPAN. The estimate of impact is created differently for Half Hourly (HH) and Non-Half Hourly (NHH) meters:

- For HH meters, the actual meter reading is compared to an estimate of the normal usage in the Settlement Period

- For NHH meters, the Estimated Annual Consumption (EAC) or Annualised Advance (AA) is profiled normally and a fraction of that estimate is taken based on the number of minutes that the meter was disconnected in the Settlement Period

(a) The estimates are then line loss adjusted and an estimate of Grid Supply Point (GSP) Group Correction Factor applied. This is expected to be consistent with existing rules for the GSP Group Correction Factor but will use historical data. The industry workgroup will consider which historical data will be most appropriate, ensuring transparency of the process. The estimates then feed into the calculation of the system imbalance prices and also into correcting supplier imbalance positions.

(b) The modification workgroup will consider the feasibility of producing an accurate estimate of the volume of voltage reduction, and propose a solution for a 'bottom up' approach that also allows adjustment of supplier positions as far as reasonably practicable.

4.4   For the process of adjusting supplier imbalance positions

This starts with the LDSOs. For the purposes of determining the impacted MPANs:

(a) For each incident of demand disconnection each LDSO which had customers disconnected during the incident, will generate a list of MPANs that were disconnected, along with the start and end times (in UTC) of the disconnection. This shall also be done for automatic Low Frequency Demand Disconnection and voltage reduction as considered relevant by the modification workgroup;

(b) The list will be distributed as a new flow over the Data Transfer Network to any Data Aggregator (DA) or Half Hourly Data Collector with impacted MPANs.

4.5   Half Hourly: for the purpose of correcting supplier imbalance volumes the Data Aggregator(s) and/or Half Hourly Data Collector(s) will estimate Half Hourly demand disconnection volume:

(a) For each energised Half Hourly MPAN that is in the list generated in 4.4(a), and for each Settlement Period that overlaps with the start and end times for that MPAN, a Demand Control Impact will be determined as:

Max (0, Estimated Reading – Actual Reading)

Where 'Actual Reading' is the validated Half Hourly Meter Data; and

'Estimated Reading' is an estimate of the meter advance in normal conditions and is expected to be calculated in accordance with Appendix 4.2 of BSCP502, although the modification workgroup may wish to consider alternative approaches.

(b) The estimates determined in 4.5(a) above will be adjusted for line losses, aggregated to BM Unit and Consumption Component Class level and reported to the Supplier Volume Allocation Agent (SVAA).

4.6   Non-Half Hourly: for the purpose of correcting supplier imbalance volumes the SVAA will estimate the Non-Half Hourly demand disconnection volume:

   (a) For each energised Non-Half Hourly MPAN that is in the list generated in 4.4(a), and for each Settlement Day that overlaps with the start and end times for that MPAN, the NHH DA will include that MPAN in a Demand Control section of the Supplier Purchase Matrix, which contains start and end times of disconnection and a Settlement Class level consumption. The usual aggregation and defaulting rules will apply to the MPAN.

   (b) Using the start and end time blocks from the Demand Control section of the Supplier Purchase Matrix, the SVAA will determine the impacted Settlement Periods.

   (c) For each impacted Settlement Period, the SVAA will profile and line loss adjust the data from NHH DAs to create an energy estimate at BM Unit and Consumption Component Class level. This is expected to be done in line with the existing NHH rules for profiling and the application of line losses. The estimates will be scaled according to the number of impacted minutes in the Settlement Period.

4.7   Estimating total demand disconnection volume for the SF and further Settlement Runs:

   (a) For each impacted Settlement Period, and for each impacted GSP Group, the SVAA will calculate an estimate of the GSP Group Correction Factor. This will be consistent with the current rules for calculating GSP Group Correction Factor, but will use historical data. The industry workgroup will consider which historical data will be most appropriate, ensuring transparency of the process.

   (b) The estimated GSP Group Correction Factor will be applied to the estimates of impact from HH MPANs and NHH MPANs, determined in accordance with 4.5(b) and 4.6(c) above.

4.8   The demand disconnection volumes calculated in 4.7(b) will be accounted for in calculating suppliers' imbalance positions by being included in suppliers' BM Unit Balancing Services Volumes.

(a) Demand disconnection volumes from Half Hourly MPANs will be reflected in that MPAN's metered volume for the Settlement Period. The relevant supplier's position will be adjusted by including the Demand Control volume in the BM Unit's Balancing Services Volume.

(b) Demand disconnection volumes from NHH MPANs will not be reflected in the profiled Settlement Period consumption value for that MPAN. The volume will instead have been smeared across all suppliers in the GSP Group through GSP Group Correction. All suppliers' positions will need to be adjusted by in effect reversing the GSP Group Correction of the Non-Half Hourly demand disconnection volume. This will be achieved by apportioning the total demand control in a GSP Group attributed to Non-Half Hourly MPANs over all Supplier BM Units in the GSP Group, according to the GSP Group Correction Scaling Factors. This BM Unit demand disconnection volume will be included in the BM Unit's Balancing Services Volume, and therefore be reflected in the energy imbalance calculations.

4.9   For the purposes of calculating the system prices for the purposes of the SF and further Settlement Runs:

(a) For each Settlement Period, the total Demand Control impact will be determined by summing the (GSP Group Corrected) Half Hourly and Non-Half Hourly impacts as determined in 4.7(b) above.

(b) For each impacted Settlement Period, the SAA will determine the Continuous Acceptance Duration (CAD) using reported times, by the Data Aggregators or National Grid, as the modification workgroup deem appropriate.

(c) For each impacted Settlement Period, when determining the energy imbalance prices in accordance with T4.4 of the BSC, the SAA will add to the initial Ranked Set of actions, a buy action with the volume as determined in (a) with the VoLL Price.

(d) When CADL flagging is performed in accordance with Appendix 3 of Section T of the BSC, the value of CAD determined in (b) will be used for the buy action created in (c).

(e) When CADL flagging is performed in accordance with Appendix 4 of Section T of the BSC, the action created in (c) shall be considered unflagged.

4.10   Irrespective of whether a Demand Control action is flagged and tagged, the associated volume of that action will be estimated and used to correct supplier imbalance volumes in a consistent manner to that for unflagged volumes.

5. Potential Consequential Modifications

This is a non-exhaustive list of potential consequential modifications that may be required following and/or to enable implementation of the EBSCR. This does not remove the obligation on Code Administrators to identify and coordinate consequential code modifications.

- If the reverse pricing method is no longer used for other purposes and the modification workgroup deems it appropriate to no longer retain a Market Price, ELEXON will no longer receive Market Index Data or calculate the Market Price, for the purpose of cash-out or otherwise, and the Market Index Data Statement (MIDS) will be retired.

  The Market Price, as defined within the BSC, is currently cross-referenced by the Connection and Use of System Code (CUSC) in the calculation of Interruption Payments[8] and Response Energy Payments[9]. If the Market Price is no longer maintained, the CUSC will require modification(s) to replace the BSC Market Price reference with an alternative value.

- Operating Code 6 of the Grid Code sets out arrangements for Demand Control, including the procedure for implementation and a description of the National Electricity Transmission System Warning notifications. Should new System Warning notifications be created, or changes be made to the existing notifications, a corresponding Grid Code modification is likely to be required.

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[8] Section 11 Interpretation and Definitions, definition for Interruption Payment
[9] Section 4.1.3.9A Balancing Services, payment formulae for Response Energy Payments

Annex 1: Assumptions

General

- The modification workgroup will consider whether the scope of the SMAF methodology may need to be revised as a result of implementation of EBSCR policies. At this time, it is not believed revisions will be required.

- It is envisaged that the principles by which the SO determines which actions to take to balance the system, such as the merit order in which the SO takes actions, or the procurement and use of STOR, will remain unchanged by these changes to cash-out arrangements at this time. Further background can be found in the EBSCR FPD.

Single Price Cash-Out Arrangements

- Whilst the concepts of SBP and SSP have less relevance in the context of a single pricing arrangement (since a Party will be subject to a single price irrespective of the direction of its imbalance), the terms will continue to endure with their existing meanings, which for the avoidance of doubt are as follows:

  o If a party has under-generated or over-consumed compared to their contracted volume (the party is short) they will be charged for that shortfall of energy at SBP;

  o If a party has over-generated or under-consumed compared to their contracted volume (the party is long) they will be paid for that excess of energy at SSP;

  This is summarised in the Table 1.

		System Position	
		Long	Short
Party Position	Long	Receive SSP (Main Price)	Receive SSP (Main Price)
	Short	Pay SBP (Main Price)	Pay SBP (Main Price)

Table 1: System prices under single pricing arrangements

Reserve Scarcity Pricing

- The costs associated with Forward Contract option fees and BM StartUp (except where used by National Grid for system management reason) will continue to feed into the BPA calculation, being allocated into periods where the requirement exists (as identified by National Grid at the time of instruction).

- Utilisation volumes associated with BM STOR actions will be based on volume instructed. The modification workgroup will consider the most appropriate treatment of NBM STOR utilisation volume.

- BM and NBM STOR actions will be subject to normal tagging and flagging rules as per the SMAF methodology.

Value of Lost Load Pricing

- Demand Control actions may take the form of the following: demand disconnection (instructed by the SO); voltage reduction (instructed by the SO); and automatic Low Frequency Demand Disconnection.

- Any list(s) of MPANs impacted produced in line with section 4.4 will be made available for the Settlement Period in which the Demand Control incident took place. Those parties and/or agents eligible for receipt of the data flows will be determined by the modification workgroup. Where parties have new roles or responsibilities in relation to new data flows, this should be stated explicitly in the modification report.

- At any point in time there is a single VoLL Price associated with demand control actions, i.e. there is no price differentiation between different forms of Demand Control (such as demand disconnection, automatic Low Frequency Demand Disconnection, or voltage reduction when priced into cash-out).

Annex 2: Glossary

automatic Low Frequency Demand Disconnection	The disconnection of users or customers that automatically operates when the frequency reaches the relay settings by fall in frequency (as described in Section OC6.6 of the Grid Code).
Balancing Mechanism Reporting Service (BMRS) 15-minute run	A run carried out by the Balancing Mechanism Reporting Agent (BMRA) by Continuous Acceptance Duration Limit plus 15 minutes. Operationally this is approximately 15 minutes after the end of the Settlement Period and produces indicative system prices that are published on the BMRS.
Balancing Mechanism (BM) Unit	The basic unit of participation in the Balancing Mechanism, describing one or more generation or demand units which import or export electricity from or to the electricity system.
Buy Price Adjuster or Buy Price Price Adjustment	The current mechanism for including STOR and other non-Balancing Mechanism costs in the imbalance price calculation.
Continuous Acceptance Duration (CAD)	The Continuous Acceptance Duration determined in relation to each Acceptance, as the period of time from earliest spot time associated with that Acceptance, or any other continuous acceptance, to the latest spot time associated with that Acceptance or any other continuous acceptance. Determined in accordance with paragraph 3.1A of Section T of the BSC.
Continuous Acceptance Duration Limit (CADL)	The CADL defines the minimum length for an acceptance to be included in the imbalance price calculation. It is designed to exclude short duration acceptances which are likely to be issued for system balancing purposes. CADL has been set at 15 minutes since being introduced in 2001.
Data Collector	A Party Agent appointed by a Supplier to retrieve, validate and process metering data in relation to SVA Metering Equipment
Data Aggregator	A Party Agent appointed by a Supplier to carry out the aggregation of metering data received from Data Collectors and to forward such aggregated data to the SVAA
Demand Control	Demand Control actions (defined in the Grid Code) are methods of achieving demand reduction and include: customer voltage reduction, customer demand reduction by disconnection, Automatic Low Frequency Demand Disconnection
Gate Closure	The point in time by which all Contract Notifications and Final Physical Notifications must be submitted for each settlement period. Parties should not change their positions other than through instruction by the SO after gate closure. It is currently set at one hour before the start of the relevant settlement period.
Grid Supply Point (GSP)	A point at which the Transmission System is connected to a Distribution System.
Grid Supply Point GSP Group Correction	A mechanism to ensure that all energy recorded entering a GSP Group is allocated within settlement.
Licensed Distribution	A licensed business that is responsible for one of 14 regional

System Operator (LDSO)	distribution services areas.
Loss of Load Probability (LOLP)	A measure of reliability indicating the probability that there will be insufficient generating supply to meet electricity demand over a given period.
Main price	There are two Energy Imbalance Prices, 'Main' and 'Reverse'. The Main Price is charged to parties out of balance in the same direction as the system. When the system is long, long parties receive the Main Price (SSP), whilst when it is short, short parties pay the Main Price (SBP).
Market Index Data	Data derived from trades over power exchanges which are used to calculate the Reverse Price.
Market Index Definition Statement (MIDS)	The MIDS defines the way the Market Index Price – used to determine the 'reverse' Energy Imbalance Price – is calculated. ELEXON reviews the MIDS annually, as required by the BSC.
Meter Point Administration Number (MPAN)	The unique identifier that defines a consumer's point of connection to the distribution network.
National Grid Electricity Transmission plc (NGET)	National Grid Electricity Transmission plc (NGET) is the system operator (SO) for the electricity transmission system in Great Britain (GB), with responsibility for making sure that electricity supply and demand stay in balance and the system remains within safe technical operating limits.
Net Imbalance Volume (NIV)	The overall energy imbalance on the system as determined by the net volume of actions taken by the SO in the Balancing Mechanism and under Balancing Services contracts.
Non-Half-Hourly (NHH) Meter	A SVA Meter which provides measurements which aren't on a half hourly basis for Settlement purposes.
Price Average Reference (PAR)	The volume of electricity from the energy stack (taken in descending price order) included in the calculation of the Main Price. PAR is currently set to 500 MWh. The PAR volume is always the most expensive 500 MWh of available electricity in the main stack.
Reserve for Response	As part of its licence obligations, NGET holds frequency response in order to mitigate the risk that a single large unit failure causes widespread disconnections. This response holding is made up (in part) of de-loaded generation in frequency response mode. The total amount of de-loaded capacity is referred to as 'reserve for response'. In accordance with NGET's licence obligations, measures must be taken to ensure that the response holding is maintained.
Reserve Scarcity Pricing (RSP)	The Reserve Scarcity Pricing (RSP) function derives pricing for reserve actions with reference to a measure of loss of load probability (LOLP) and the margin on the system for a given settlement period. The aim is to ensure that the reserve actions are reflected in the cash-out price according to the value that those actions deliver to the system.
Reverse price	There are two Energy Imbalance Prices, 'Main' and 'Reverse'. The

	Reverse Price is charged to parties out of balance in the opposite direction to the system. When the system is long, short parties pay the Reverse Price and vice versa. The Reverse Price is currently set to the Market Index Price.
System Administration Agent (SAA)	The BSC Agent for Settlement Administration in accordance with Section E of the BSC.
Settlement Class	For a Supplier a unique combination of Profile Class, Line Loss Factor Class, Time Pattern Regime and Standard Settlement Configuration within a GSP Group
System Buy Price (SBP)	The energy imbalance price applied to parties who have a short contracted position (negative energy imbalance).
System Operator (SO)	The entity charged with operating the GB high voltage electricity transmission system, currently NGET.
System Sell Price (SSP)	The energy imbalance price applied to parties who have a long contracted position (positive energy imbalance).
Supplier Volume Allocation	The determination of quantities of Active Energy to be taken into account for the purposes of Settlement in respect of Supplier BM Units.
Supplier Volume Allocation Agent (SVAA)	The BSC Agent for Supplier Volume Allocation in accordance with Section E of the BSC.
Transmission System	The national high voltage electricity network, operated by the SO.
Value of Lost Load (VoLL)	The value that a consumer places on maintaining voltage or supply in the face of voltage control or disconnection