

Issue 71 'Introduction of a baselining methodology as an alternative to Physical Notifications'



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About This Document

This document is the Issue 71 Group's Report to the BSC Panel. ELEXON will table this report at the Panel's meeting on 11 October 2018.

There are two parts to this document:

- This is the main document. It provides details of the Issue Group's discussions and proposed solutions to the highlighted issue and contains details of the Workgroup's membership.
- Attachment A contains the Issue 71 proposal form.

ELEXON raised [Issue 71 'Introduction of a baselining methodology as an alternative to Physical Notifications'](#) on 15 June 2018.

Modification Proposal [P344 'Project TERRE implementation into GB market arrangements'](#) seeks to align the Balancing and Settlement Code (BSC) with the European Balancing Project TERRE (Trans European Replacement Reserves Exchange) requirements. The solution developed by the P344 Workgroup allows customers (or independent aggregators acting on their behalf) to participate in TERRE (and the Balancing Mechanism (BM)) independently of their electricity Supplier, by registering a 'Secondary BM Unit'.

The P344 solution is intended to facilitate participation in the BM and TERRE by a wider range of industry market participants, including customers and independent aggregators. It is envisaged that the existing BM Settlement arrangements will remain unchanged. Balancing Service providers that want to participate in the BM must indicate at what megawatt (MW) level they expect their BM Unit to be at for any given Settlement Period. This is known in the Grid Code as a Physical Notification (PN). At Gate Closure this MW level is finalised and sent to Settlement where it is termed the BM Unit's Final Physical Notification (FPN) and acts as a baseline for any future deviation instructions from National Grid.

P344 Workgroup members noted that the requirement to provide a Physical Notification (ahead of Gate Closure) may be problematic for customers and independent aggregators, where the asset they control (and whose output they can forecast accurately) may share a network connection with other Demand or Generation whose output is outside of their control. Inaccurate PN's may lead to customers not being paid fully for delivery even if they had responded as requested.

There is a potential that the aforementioned issues could create a barrier to entry to certain customer sites and hence, the participation of Demand Response in Replacement Reserve (RR) may not be optimised. Issue 71 seeks to examine the possibility of Settlement calculating Non-Delivery using a baseline value (calculated from historic metered data), rather than the FPN submitted to National Grid by the Lead Party for purposes of dispatch. This would result in the FPNs for dispatch being decoupled from the baseline values used for Settlement and being of a different value

A further Issue has been raised, [Issue 70 'Settlement of Secondary BM Units using metering at the asset'](#), which seeks to examine the possibility of Settlement of Secondary BM Units using metering at the asset. These baselining and asset metering issues are complementary, as Parties may opt to apply baselining at a site dependent on the metering set up and where Settlement takes place i.e. at the Boundary or at the asset.

Conclusions

It is deemed that resolution of this wider Issue could open up the market to new participants, along with removing barriers to entry. The questions considered under Issue 71, presented in Table 1: A summary of questions considered under Issue 71, were discussed by the Issue Group members on 11 July 2018 and the initial proposals suggested can be found in section 3 or summarised in section 4 of this paper.

The majority of the Issue Group believed that there was sufficient discussion to consider the progression of a subsequent Modification; with members believing that a subsequent Modification should be raised.



Secondary BM Unit

A new type of BM Unit, registered by a Party who uses it to deliver RR Acceptance and/or BOA, but is not responsible for Energy Imbalances created by the Plant and Apparatus it contains (except where they arise from failure to deliver an RR Acceptance or BOA). Each of the SVA Metering Systems in a Secondary BM Unit must also be included in a Supplier BM Unit.



What is Replacement Reserve?

Replacement Reserve (RR) products are Pan-European balancing energy products with a >15 minute lead time.



Demand Response

Demand response provides an opportunity for consumers to play a significant role in the operation of the electric grid by reducing or shifting their electricity usage during peak periods in response to time-based rates or other forms of financial incentives.

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P344 solution

The P344 solution is intended to facilitate participation in the BM and TERRE by a wider range of industry market participants, including customers and independent aggregators. It is envisaged that the existing BM Settlement arrangements will remain largely unchanged. Under the BM, National Grid can issue MW profile instructions to a BM Unit to deviate from a MW baseline.

P344 allows SVA Customers (or aggregators acting on their behalf) to participate in Project TERRE (and the Balancing Mechanism) independently of their electricity supplier. In order to do this, the participating party would:

- register a Secondary BM Unit containing a portfolio of SVA Metering Systems (within a single GSP (Grid Supply Point) Group) with which they are able to deliver Replacement Reserve (RR) Acceptances and/or Bid Offer Acceptances (BOAs);
- provide National Grid (prior to Gate Closure) with Final Physical Notifications (FPNs) that reflect the anticipated metered volume of the portfolio of SVA Metering Systems (in the absence of any RR Acceptances or BOAs); and
- if the BM Unit does receive an RR Acceptance or BOA, despatch generation or demand side response to vary the aggregate output of the portfolio away from the FPN, in accordance with the instruction received from National Grid.

A RR instruction will work similar to normal BM instructions; with National Grid issuing an instruction sent to the control point of an RR accepted BM Unit to deviate from their current committed level.

Balancing Service Providers that want to participate in the BM must indicate at what megawatt (MW) level they expect their BM Unit to be at for any given Settlement Period. This is known in the Grid Code as a PN. At Gate Closure this MW level is finalised and sent to Settlement where it is termed the BM Unit's FPN and acts as a baseline for any future deviation instructions from National Grid.

For each instruction received, Settlement calculates Offer or Bid Acceptance Volumes based on the difference between the instruction and the baseline. BM participants are settled (i.e. paid or must pay) on the basis of these volumes.

$$\text{FPN} - \text{adjustment instructions} = \text{settlement volume}$$

What's the Issue?

P344 Workgroup members noted that the requirement to provide an accurate and therefore meaningful Physical Notification (ahead of Gate Closure) may be problematic for customers and independent aggregators, where the assets providing the service and which they control (and whose output they can forecast accurately) may share a network connection with other Demand or Generation whose output is outside of their control, variable and thus difficult to accurately forecast.

What is a Physical Notification?

Physical Notification means, in respect of a Settlement Period and a BM Unit, a notification made by (or on behalf of) the Lead Party to the Transmission Company under the Grid Code as to the expected level of Export or Import, as at the Transmission System Boundary, in the absence of any Acceptances, at all times during that Settlement Period;



Balancing Service Providers

Balancing Service Provider (BSP) is a market participant providing Balancing Services to the Transmission System Operator (TSO).

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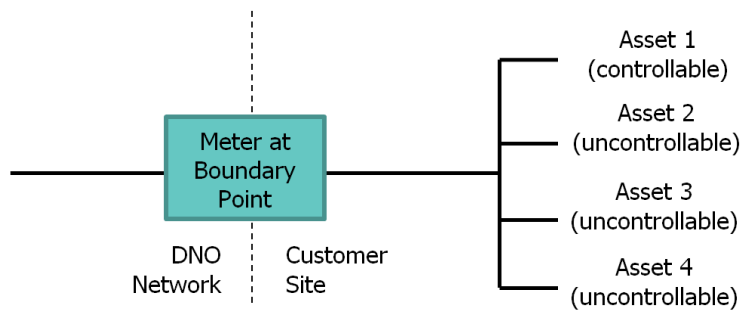


Figure 1: A site with controllable and uncontrollable assets

As Virtual Lead Parties (VLPs) are required to submit PNs that reflect power flows at the Boundary Point, the PN for a Secondary BM Unit including the site in figure 1 would need to include forecasted output not just for asset 1 (which can be controlled by the VLP), but for assets 2 to 4 (which cannot). If the output of these assets was hard to accurately forecast the result would be that the PN would not accurately reflect flows at the Boundary. Where the FPN differs from actual flows this creates non delivery charges or the aggregator may not get fully paid for the delivered service.

The P344 Workgroup agreed that this proposal warranted further assessment, but did not believe this assessment could be performed within the scope of P344 (in order to avoid delaying P344 approval). This Issue was raised to facilitate discussion and clarification of the most appropriate solution.

Potential solution

Issue 71 seeks to examine the possibility of PN for a site being created via an alternative baselining methodology. The solution must recognise that currently – in the Balancing Mechanism and the approved P344 solution – PNs are used for two separate purposes:

- Dispatch; and
- Settlement.

As discussed in section 3 below, the Issue 71 solution envisages that these two usages would become decoupled. Dispatch of BM Units by National Grid (and the converse process of Settlement calculating the accepted volume) would use a PN submitted by the Lead Party; while the calculation of Delivered and Non-Delivered Volumes in Settlement would use a baseline volume.

Dispatch

The Transmission Company would (as currently) dispatch a BM Unit by issuing a Bid Offer Acceptance (BOA) or RR Instruction (RRI) constructed with reference to the Physical Notification submitted by the Lead Party. The nature of this PN is a matter for the Grid Code rather than the BSC, but because this solution decouples the PN from the Non-Delivery calculation, it may be appropriate for Lead Parties to submit a different type of PN compared to current arrangements.

Regardless of how the PN is constructed, National Grid would send the Final Physical Notification (FPN) to Balancing Mechanism Reporting Agent (BMRA) and Settlement Administration Agent (SAA) as currently (for use in calculating the Bid Offer Volume).



Virtual Lead Party

A BSC Party who is able to register Secondary BM Units. This could be a customer, independent aggregator or electricity Supplier.

Settlement

For Settlement purposes, for those BM Units for which the Lead Party has elected to use a subsequent baseline solution, BSC Central Systems could construct a baseline volume (from historic metered data) for each Settlement Period. This baseline volume could be used (instead of the Final Physical Notification) to calculate the Period Expected Metered Volume (QME_{ij}), and hence the Non-Delivery Volumes.

Calculating baselines for Settlement after the event should further increase the accuracy of the baseline values when compared to the values used for dispatch, as a different metering data set could be used i.e. wait until Settlement Final (SF) data is available before Settlement. This solution recognises that the FPN for dispatch will be different from the FPN used for Settlement purposes and will therefore require changes to industry systems.

Baselining methodologies

There are numerous potential baselining methodologies for a Modification Workgroup to consider, each with their own merits. It is worth noting the majority of baseline methodologies fail to provide accurate forecasts for highly variable loads, which is where work in conjunction with Issue 70 may complement this Issue.

For example if there is a site with highly variable demand then the installation of Operational Metering at the asset which is then subsequently used for Settlement will cut out that variable demand from the process (for SBMU's).



Virtual Lead Party

A BSC Party who is able to register Secondary BM Units. This could be a customer, independent aggregator or electricity Supplier.

Overview of the BSC Issue process

The Workgroup discussion started with an overview of the Balancing Settlement Code (BSC) Change process and the Issues process specifically. ELEXON outlined the circumstance in which a BSC Party can raise an Issue e.g. when the Party would like to discuss a concern or issue with the wider industry and how this process differs to the Modification Procedures. The members were informed that the output of the Issue process is a final Issue Report to the Panel. The Issue Group members were informed that a BSC Party can take forward a Modification or Change Proposal at any point in the Issue process.

Defining the Issue

The Issue Group were given an overview of P344 by ELEXON, as outlined in Section 2 of this report. This information covered where the discussions surrounding this Issue first arose and how the solution for Modification P344 could potentially create barriers to participation for some customers.

The Issue Group noted that inaccurate PN's may lead to customers not being paid fully for delivery even if they had responded as requested, which will deter them from offering their services or pricing in this risk thus increasing cost.

There is a potential that the aforementioned issues could create a barrier to entry to certain customer sites and hence, the participation of Demand Response in RR may not be optimised resulting in the cost of Balancing Services being higher. In this situation, the expertise for new market entrants lies in calculating the cumulative change (delta) for the customer's sites but not the cumulative change relative to total Demand for those customer sites.

To summarise, the general consensus of the Issue Group was that the key aim of Issue 71 or any future Modification would be in finding a method of producing a more accurate FPN which reflects normal behaviour, with the end result being that payment for delivery reflects the actual impact on the System.

Questions for the Issue Group to consider

ELEXON drafted a series of key questions for consideration by the Issue Group and these are outlined in the table below. They cover topics which were discussed in the P344 Workgroups, as well as additional points highlighted in the proposal form, found in Attachment A. The Issue Group discussed these questions. The discussions and the conclusions are detailed in this report.

Questions considered under Issue 71	
1	Is a non-zero PN value needed for the Dispatch of Secondary BM Units? – Can the PN be a zero value or a delta?
2	What interaction is there with Grid Code and National Grid systems?
3	Do the PN's for Dispatch and Settlement need to be the same value?
4	Which BM Units would the Issue 71 solution apply to?

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Questions considered under Issue 71	
5	What links can be drawn with Issue 70?
6	How would the numerous baselining methodologies be assessed and reviewed? - Should this be done as part of the Issue Group

Table 1: A summary of questions considered under Issue 71

PN values

Dispatch and Delivery

The Issue Group initially discussed the nature and purpose of PNs submitted to the Transmission Company for dispatch purposes. Because the Issue 71 solution potentially decouples the PN from the Non-Delivery calculation, some Issue Group members suggested that it may be appropriate for Lead Parties to submit a different type of PN compared to current arrangements:

- It might be appropriate for them to submit a zero PN, in which case the BOA or RRI issued by the Transmission Company would become a 'delta' instruction (rather than an instruction to an absolute MW level); or
- Alternatively, they could submit a PN that reflects the expected output only of the actual assets (demand or generation) delivering the response. This would represent a change to the currently defined P344 solution, which incentivises Lead Parties to provide a PN that matches the expected output of the site as a whole (as recorded on the Settlement Metering installed at the Boundary Point).

These are both issues that would be resolved in the Grid Code, but the Issue Group felt it was an important area of discussion.

Regarding the first point, National Grid outlined that a zero PN would not be acceptable and a PN would still have to be given which relates to expected flows, as it gives a crucial as is representation of the system. A zero PN does not give visibility of what the site is currently doing in terms of Importing/Exporting. Issue Group members questioned what the significance of the PN is, how accurate does it need to be and ultimately how is it utilised in the control room. National Grid confirmed that PNs are utilised to understand expected flows on the system. National Grid also expressed some concern that decoupling control room PNs and settlement PNs would weaken market signals for parties to provide accurate PNs to the control room.

In regard to the second point, National Grid foresaw that they could in theory receive a PN constructed by the Lead Party to match the expected output of the controllable assets delivering the service (as recorded on the operational metering), rather than the expected output of the site as a whole (as recorded at the Boundary Point). Many members believed a PN given at operational meter level would be more useful and a better representation of site behaviour.

These areas and issue were noted to be required to be dealt with in the Grid Code and are not in scope for the BSC or any subsequent BSC Modification.

Settlement

Under the approved P344 solution, Delivered and Non-Delivered Volumes are calculated by comparing the BM Unit Metered Volume to a Period Expected Metered Volume (QME_{ij}), calculated in accordance with Section T4.3.3 of the BSC:

$$QME_{ij} = FPN_{ij} + QBS_{ij}$$

The Issue 71 solution would replace the Final Physical Notification (FPN_{ij}) in the above calculation with a new data item, representing the baseline Metered Volume for the BM Unit. The baseline Metered Volume would be calculated by the Supplier Volume Allocation Agent (SVAA), in accordance with an agreed baseline methodology, using actual Half Hourly metered data for the relevant SVA Metering Systems. The baseline methodology could potentially use Half Hourly metered data for Settlement Periods up to (but not including) the Settlement Period for which the value is being calculated.

Using a baseline methodology in this way is consistent with the majority of Demand Side Response markets across the world. It also has the potential to be more accurate than using Lead Parties' PNs as the baseline, because the baselining methodology could use up-to-date Settlement metering data that would not be available to Lead Parties in the timescales for creating PNs.

Note that Settlement Systems would still need to receive the Final Physical Notification submitted to the Transmission Company, in order to calculate acceptance volumes. But the FPN would no longer be used in determining the Period Expected Metered Volume.

Which BM Units should the solution apply to?

The Issue Group discussed whether the solution should be optional (giving Lead Parties the option of whether to be settled using a baseline or a PN), or mandatory. The Issue Group proposes that Lead Parties should be given the choice, as they will naturally be incentivised to select the option that leads to most accurate Settlement.

Baseline methodologies

An Issue Group member raised a supporting point in that other EU states e.g. France, multiple methodologies, three or four types are open to use. It was echoed that it should be a similar case in GB, as there was consensus that no single methodology could be comprehensively applied to all customer sites to accurately predict its behaviour.

It was discussed that it would be favourable not to specify the available baselining methodologies in the BSC itself, but rather establish a standing group that would be tasked with continuously evaluating, assessing and maintaining various baseline methodologies, with the goal of selecting several methodologies which could be applied to a range of different sites and technologies. The agreed methodologies would be maintained in a Code Subsidiary Document, and changes made in a controlled manner, using the Change Proposal process.

The workgroup discussed the option that the choice of baseline methodology would have to be made for a BM Unit as a whole i.e. all sites within the same BMU would have their baseline created using the same baseline methodology (or be settled on the PN submitted by the Lead Party, if they opted not to use the Issue 71 solution for that BM Unit). In this situation, there could not be a mix of sites with some using a baseline and some not, within the same BMU. As well as this all sites within the same BMU would be baselined

using the same baseline methodology (if requested). If VLP's wished for certain sites to have their FPN created by a different baseline methodology then a new Secondary BMU would need to be created. An Issue Group member highlighted that this could lead to Parties not being able to pull together enough assets with the same baseline methodology, in the same GSP group to reach the 1MW minimum for TERRE/the BM. It was suggested that any subsequent Modification Workgroup should assess views from aggregators, to gauge how much of a barrier it could be to require a baseline to be set for a BM Unit as a whole.

It is important to consider the actual ongoing costs of a Secondary BMU in relation to the above point.

Attendees also discussed the possibility of having a standard methodology and baseline test; if the methodology does not accurately reflect the party's site to a given degree, an alternative methodology could be allocated. Members highlighted that the initial proposal should be that a single baseline methodology can be applied per Secondary BM Unit.

It was highlighted that as most baseline methodologies are linear, what would be the scope to employ a baseline for a wind generation site (Primary BM Unit), which does not have linear behaviour. In addition to this, how would this work with other renewables and instances of curtailment? The general consensus regarding baselines is that they struggle to forecast unpredictable load but within day adjustments of a baseline, taking into consideration daily weather, could potentially be used by a customer whose load is more weather-sensitive. The specifics of these potential future arrangements would be better explored in further detail in any subsequent Modification that arose.

Questions arose as to whether it would be possible for a participant of the BM to 'game' the system by selecting a baselining methodology which unfairly portrays activities on their specified sites, giving them disproportionate payment for the service actually delivered. Members of the Issue Group did not believe there had been any instances where this had occurred but these types of issues would lie within the Terms of reference of any Standing Group.

Baseline assessment

The Issue Group did not investigate the various types of methodologies but as previously discussed, the proposal was that this be done by a specifically established standing group. However the main points were covered in regard to the fact that any baseline methodology chosen should aim to be:

- be accurate for both small and large customers;
- be fair across Settlement accounts and customers;
- avoid extreme errors that could negatively affect individual Settlement payments; and
- be accurate not only for the most common event window but across all event windows.

Consideration would have to be taken by a Modification Workgroup how baselines would be set for new assets/technologies and also for the addition of assets to a customer's portfolio. It has been noted that any significant change to Network charges may affect the accuracy of Baselines as historic demand data will not act as an accurate predictor of future behaviour.

Links with Issue 70

The Issue Group discussed that the Issue 70 and Issue 71 solutions are complementary. Issue 70 will improve the accuracy of Settlement for sites where installing and operating Settlement-quality metering is feasible and cost-effective, but will not be appropriate for all sites (e.g. if access is difficult, or the nature of the site means that many Meters would be required). Issue 71 is a more general-purpose solution that can be applied to any site (whether it is metered at the Boundary Point, or using the Issue 70 solution).

The Issue Group also noted another potential link between Issue 70 and Issue 71; whereby an Issue 71 baseline methodology could be used as part of any statistical analysis required (under Issue 70) to verify that the metered assets were independent of other demand and load on the same site. This would aim to ensure that payment for delivery corresponds to the service provided. It would also be a way of measuring the accuracy of any PN submitted; certifying any major errors and deterring potentially fraudulent behaviour.

Other potential uses of baseline methodology

The potential to extend this aspect to other Balancing Services, other than RR, such as for example BM Short Term Operating Reserve (STOR), and Non BM STOR via the Virtual Lead Party and Secondary BM Unit route was also raised and seen as a strong future opportunity. In addition, the possibility for industry participants to utilise a baselining methodology to set their PN's for Primary BM Units, irrespective of whether they intend to submit a BOA was discussed.

4 Conclusions

The Issue 71 Group considered this wider market issue and the questions set out in Section 2 of this paper, at its meeting on 11 July 2018.

The Issue Group did not formally recommend that a Modification or Change Proposal be raised, however they believed that there was sufficient discussion to consider the progression of a subsequent Modification. It is deemed that resolution of this wider Issue could open up the market to new participants, along with removing barriers to entry.

Summary of key initial proposals

Issue area	Initial proposal
Is a non-zero PN value needed for the Dispatch of Secondary BM Units? - Is a zero PN or delta acceptable?	National Grid still requires a PN to be submitted for Dispatch. Zero PN not acceptable at this stage. Issue 71 does open the possibility of Lead Parties submitting a PN that only covers those assets which have operational metering (and not other unrelated assets on site).
Do the PN's for Dispatch and Settlement need to be the same value?	No, the values would be decoupled (for BM Units using the Issue 71 solution). Settlement (i.e. calculation of QME_{ij} and Non-Delivery) would use a value calculated using a baselining methodology, which would not be the same as the PN submitted to National Grid for Dispatch purposes.
What links can be drawn with Issue 70?	Baselining can be used in conjunction with asset metering (with Issue 71 bringing particular benefit for those sites where use of the Issue 70 solution is not cost-effective or practical).
Which BM Units would the solution apply to?	The Lead Party would choose for each BM Unit whether to adopt the Issue 71 solution. The solution could potentially be used for Primary BM Units as well as Secondary BM Units.
How would the numerous baselining methodologies be assessed and reviewed?	A standing group should be established to analyse, assess and review various baselines to ensure they are fit for site specific use.

Issue area	Initial proposal
How would a given baseline methodology be associated with a portfolio?	A single baseline methodology would be applied per Secondary BM Unit. If a participant wants to utilise a different baseline for certain assets, they would be required to create a new, separate Secondary BM Unit containing these given assets. It was suggested that any subsequent Modification Workgroup should assess views from aggregators, to gauge how much of a barrier it could be to set this requirement.
Could the scope be extended in the future to include further ancillary services e.g. FFR, STOR etc.	Possibility for industry participants to utilise a baselining methodology to set their PN's for Primary BM Units.

Recommendation

The majority of the Issue Group believed that there was sufficient discussion to consider the progression of a subsequent Modification; with the majority recommendation being that a Modification should be raised.

It is deemed that resolution of this wider Issue through a Modification could open up the market to new participants by removing barriers to entry.

Issue Group membership and attendance

Issue 71 Group Attendance		
Name	Organisation	11 July 18
Lawrence Jones	ELEXON (<i>Chair</i>)	✓
Harry Parsons	ELEXON (<i>Lead Analyst</i>)	✓
Damian Clough	ELEXON (Design Authority)	✓
John Lucas	ELEXON (Design Authority)	✓
Saskia Barker	Flexitricity	✓
Rick Parfett	The Association for Decentralised Energy	✓
Simon Noble	Smartest Energy	✓
Colin Prestwich	Smartest Energy	✓
Bill Reed	RWE Supply & Trading GmbH	✓
Jonathan Ainley	Kiwi Power	✓
Andrew Brand	Stark	✓
James Murphy	Stark	✓
Nick Wood	Powervault	✓
Romain Benquey	REstore	✓
Lisa Waters	Waters Wye Associates	✓
George Daniel	National Grid	✓
Adelle Wainwright	National Grid	✓
Steve Taylor	Quorum Development Ltd	✓
David Graves	Quorum Development Ltd	✓
Paul Troughton	EnerNOC	✓
Shane Sessions	EnerNOC	✓
Sam Botterill	Independent (Blockchain)	✓
Sebastian Blake	Open Energi	✓
Graham Oakes	Upside Energy Ltd	✓
Giulia Barranu	Gazprom Marketing & Trading Ltd	✓
Paul Jones	Uniper	✓
Rupert Redesdale	Energy Managers Association	✓
Andy Colley	SSE	✗

Appendix 2: Glossary & References

Acronyms

Acronyms used in this document are listed in the table below.

Acronyms	
Acronym	Definition
BM	Balancing Mechanism
BMRA	Balancing Mechanism Reporting Agent
BOA	Bid Offer Acceptance
BSC	Balancing and Settlement Code
BSP	Balancing Service Provider
FFR	Firm Frequency Response
FPN	Final Physical Notification
GSP	Grid Supply Point
QME _{ij}	Period Expected Metered Volume
RR	Replacement Reserve
RRI	Replacement Reserve Instruction
SAA	Settlement Administration Agent
STOR	Short Term Operating Reserve
SVA	Supplier Volume Allocation
SVAA	Supplier Volume Allocation Agent
TERRE	Trans European Replacement Reserves Exchange
VLP	Virtual Lead Party

External links

A summary of all hyperlinks used in this document are listed in the table below.

All external documents and URL links listed are correct as of the date of this document.

External Links		
Page(s)	Description	URL
2	Issue 71 page on the ELEXON website	https://www.elexon.co.uk/smg-issue/issue-71/
2	Modification P344 page on the ELEXON website	https://www.elexon.co.uk/mod-proposal/p344/
2	Issue 70 page on the ELEXON website	https://www.elexon.co.uk/smg-issue/issue-70/

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