P376 'Utilising a Baselining Methodology to set Physical Notifications for Settlement of Applicable Balancing Services'

To allow the Final Physical Notification, which feeds into the Settlement of Trading Charges, to be created via a Baselining Methodology. The new Physical Notification will be de-coupled from the Physical Notification used by National Electricity Transmission System Operator (NETSO) for dispatch. This change will allow Balancing Service Providers to be fully recompensed for their actual change from normal usage and the impact this change has on the system, thus enabling greater participation.

ELEXON recommends P376 is progressed to the Assessment Procedure for an assessment by a Workgroup

This Modification is expected to impact:

- Virtual Lead Parties
- Half Hourly Data Aggregators
- ELEXON
- NETSO

ELEXON

Phase

- Initial Written Assessment
- Definition Procedure
- Assessment Procedure
- Report Phase
- Implementation

© ELEXON Limited 2018

Contents

1 Why Change? 3
2 Solution 6
3 Areas to Consider 9
4 Proposed Progression 10
5 Likely Impacts 12
6 Recommendations 15
Appendix 1: Glossary & References 16

About This Document

This document is an Initial Written Assessment (IWA), which ELEXON will present to the Panel on 13 December 2018. The Panel will consider the recommendations and agree how to progress Modification P376.

There are two parts to this document:

- This is the main document. It provides details of the Modification Proposal, an assessment of the potential impacts and a recommendation of how the Modification should progress, including the Workgroup's proposed membership and Terms of Reference.
- Attachment A contains the P376 Proposal Form.

Contact

Matthew Woolliscroft

020 7380 4165

matthew.woolliscroft@elexon.co.uk

© ELEXON Limited 2018

1 Why Change?

Project TERRE participation

ELEXON raised Issue 71 'Introduction of a baselining methodology as an alternative to Physical Notifications' on 15 June 2018. This Modification P376 builds on the back of this Issue and P344 'Project TERRE implementation into GB market arrangements', and formally raises a Modification Proposal relating to the same defect.

Modification Proposal 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 BM) independently of their electricity Supplier, by registering a 'Secondary BM Unit'. This solution allows Balancing-related activities to be separated out from Imbalance-related activities, where previously the BSC required a single party to be responsible for both.

- Imbalance-related activities broadly correspond to the role of 'Balance Responsible Party' (BRP) as defined in the Electricity Balancing Guideline (EB GL). These activities remain the responsibility of the customer's Supplier, even if the customer has contracted separately with an independent aggregator. BSC processes that relate to this role include:
    - Contract Notification;
    - responsibility for all Energy Imbalances relating to the customer (with the exception of those arising from non-delivery of a balancing action by the independent aggregator, which the Supplier is protected from through a process of Imbalance adjustment); and
    - accounting for Residual Cashflow Reallocation Cashflow (RCRC).
- Balancing-related activities broadly correspond to the role of 'Balancing Services Party' (BSP) as defined in the EB GL. The P344 solution allows these activities to be undertaken by a 'Virtual Lead Party' (VLP), which may be the customer themselves or an independent aggregator acting on their behalf. BSC processes that relate to this role include:
    - the calculation of Bid and Offer volumes for each BM Unit;
    - the payment of the Bid and Offer volumes to BSC Parties; and the recovery of the costs of balancing from the Electricity System Operator (ESO).

Physical Notification requirement of TERRE

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 mega-watt (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 NETSO.

What is Replacement Reserve?

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

What are Secondary BM Units?

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 Bid Offer Acceptance). Each of the Supplier Volume Allocation (SVA) Metering Systems in a Secondary BM Unit must also be included in a Supplier BM Unit.

What are Contract Notifications?

Trading Parties are required to notify ELEXON of the volume of electricity it has contracted for ahead of time (before the start of the Settlement Period). Any difference between a Party's Metered and contracted position (once adjusted for balancing actions) is known as its Energy Imbalance. This is Settled through the Imbalance Settlement process.

© ELEXON Limited 2018

What are Final Physical Notifications?

By the time of Gate Closure, participants must submit their FPNs from their generating plant and large consumption units. These notifications are used by the NETSO to help establish the actions necessary to balance the system. As signatories to the Grid Code, participants are required to provide accurate FPNs. FPNs act as a baseline for participants submitting bids and offers to deviate from their FPN into the BM. It is therefore in BM participants' interest to provide accurate FPNs. FPNs are not used to calculate participants' imbalance position.

What is the issue?

P344 Workgroup members noted that the requirement to provide a PN (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. In terms of the BSC the VLP may incur Non Delivery Charges which are described later on in this IWA.

For example, a waste water treatment site may have significant pumping load that must run to schedule as well as a Combined Heat and Power (CHP) generator. The site may be able to modulate the CHP output in response to an instruction in the BM, but an unrelated step change in the pumping load could negate, or double, the CHP output at the Settlement Boundary. In the P344 solution the VLP would need to know the pumping change was going to happen and reflect that in the FPN. This can be difficult as often the VLP only has access to the schedule for the asset providing Balancing Services. Also, the Settlement Boundary Meter is the responsibility of the Supplier, and therefore an independent VLP often does not have access to the metering data at the boundary. If the VLP creates an inaccurate PN, they could be liable for non-delivery volumes on Balancing Services volumes that were actually delivered, or conversely, avoid charges they are due to pay for failures which were masked by independent loads. An example of such a site is given in Figure 1 below.

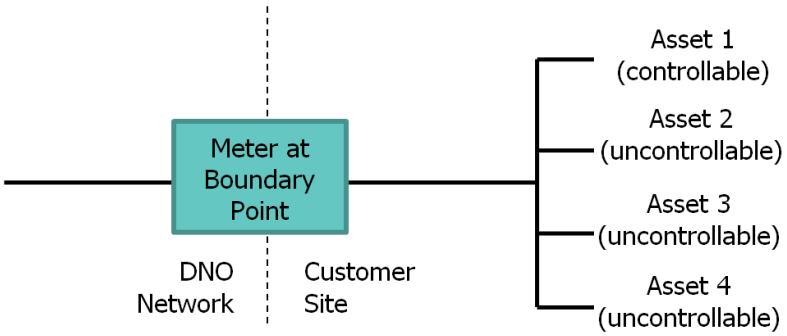

Figure 1: A site with controllable and uncontrollable assets

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.

A related Modification Proposal aims to allow Operational Metering Data to be used for Settlement and the PN submitted will relate to that Operational Meter. This will allow more accurate PN's to be submitted. There may be cases where it is not possible to install Operational Metering near to the asset or at a location which separates the asset from

What is RCRC?

For all Settlement Periods, the Total residual Cashflow (TRC) is calculated as being the sum of all energy imbalance charges across all parties and accounts. This value represents the total amount of money to be redistributed (or collected) via the Residual Cashflow Reallocation Cashflow (RCRC).

What are BOAs?

When Balancing the System, NETSO will accept Bids and Offers from Parties, instructing them to deviate from their FPN. These instructions are known as Bid Offer Acceptances (BOAs).

What is Demand Response?

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

© ELEXON Limited 2018

other onsite Generation/Demand; the Balancing Service Provider may not have access to real time metering data for this asset, and/or the installation of additional Operational Metering may be cost prohibitive. For these sites another solution is required to aid the submission of accurate PN's for Settlement. Therefore, although the defects are the same, the different solutions will not fully solve the defect for various subsets of customers.

FPNs have been noted as a problem for VLPs

The potentially complex composition of consumer sites and assets within the sites can make it difficult for VLPs to post accurate FPNs. While the P344 Workgroup acknowledged this issue, it was agreed that it could not be addressed within the limited timescale to ensure compliance with the EB GL.

As noted earlier an inaccurate PN may lead to incorrect Trading Charges but also create problems for NETSO in Balancing the System efficiently as the submission of the PN informs NETSO of what a site will be doing and changes the site will make. This Modification will not change the FPN used by NETSO for dispatch as this would require a Grid Code Modification to be raised.

How are FPNs used in Settlement?

The FPNs create the starting position for Accepted Bids and Volumes and are used to calculate Non Delivery. A detailed description of how FPNs are used to calculate Non Delivery Volumes is provided in Appendix 1.

© ELEXON Limited 2018

2 Solution

Proposed solution

The Settlement and calculation of Non-Delivery volumes will utilise a baseline value (calculated from historic metered data), rather than the FPN submitted to NETSO 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.

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 FPN) 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 require changes to industry systems.

All sites within a BM Unit will be Settled either using a Baseline value or a PN submitted as under the current arrangements. There cannot be a mix within the same BM Unit. This is because PNs are submitted at BM Unit level.

This solution could potentially be used for Primary and Secondary BM Units

Baselining Methodologies

There are numerous potential Baselining Methodologies for a Modification Workgroup to consider, each with their own merits. The Workgroup will determine the most appropriate Baselining Methodology for assessment purposes but the Baselining Methodology should reside in a subsidiary document so as to allow changes to be made outside the Modification process.

Allowing VLPs to use a Baselining Methodology to set the PNs used for Settlement would mean more customers with complex sites will be able to participate in TERRE and the BM. Increased competition within Balancing Services will lead to reduced costs of Balancing Services which ultimately benefits the end consumer.
Ofgem's recent minded to decision to charge a fixed charge for the Transmission and Demand Residuals may lead to increased numbers of flexible generation or demand offering Balancing Services.

Other Uses of Baselining

This Modification Proposal aims to create a FPN utilising a Baselining Methodology which is used in Settlement. However this solution could also be used by a number of Parties to create a more accurate PN, thus aiding the NETSO in Balancing the System.

© ELEXON Limited 2018

The Baselining Methodology could also be used to provide assurance over the delivery of other Balancing Services. For example the Baselining Methodology could predict the impact at the Boundary Meter and check that delivery of a Balancing Service has impacted the System. This will act as a way of proving independence of an asset which is an area to consider when using Operational Metering for Settlement, which is being proposed in P375 'Settlement of Secondary BM Units using metering at the asset'.

Applicable BSC Objectives

Impact of the Modification on the Relevant Objectives:	
Relevant Objective	Identified impact
(a) The efficient discharge by the Transmission Company of the obligations imposed upon it by the Transmission Licence	*Neutral*
(b) The efficient, economic and co-ordinated operation of the National Electricity Transmission System	***Positive***
(c) Promoting effective competition in the generation and supply of electricity and (so far as consistent therewith) promoting such competition in the sale and purchase of electricity	***Positive***
(d) Promoting efficiency in the implementation of the balancing and settlement arrangements	*Neutral*
(e) Compliance with the Electricity Regulation and any relevant legally binding decision of the European Commission and/or the Agency [for the Co-operation of Energy Regulators]	***Positive***
(f) Implementing and administrating the arrangements for the operation of contracts for difference and arrangements that facilitate the operation of a capacity market pursuant to EMR legislation	*Neutral*
(g) Compliance with the Transmission Losses Principle	*Neutral*

The Proposer believes that this Modification will have a positive effect on **Applicable BSC Objectives (b)**, **(c)**, and **(e)**. The rationale for this is provided below.

Views against Objective (b)

The Proposer believes that this Modification will have a positive impact on Applicable BSC Objective (b) as it removes a barrier to entry for Independent Aggregators and customers for the provision of RR, which increases the options available to NETSO when Balancing the System, thus leading to more efficient and economic balancing actions being procured. The ESO have also discussed potentially using Secondary BM Units for other Balancing Services.

Views against Objective (c)

The Proposer believes that there is also a positive impact on Objective (c) because the change encourages more participation in the market, which increases competition. It must be ensured that the solution is implemented in a cost-effective manner to preserve the effect of the increased competition.

What are the Applicable BSC Objectives?

(a) The efficient discharge by the Transmission Company of the obligations imposed upon it by the Transmission Licence

(b) The efficient, economic and co-ordinated operation of the National Electricity Transmission System

(c) Promoting effective competition in the generation and supply of electricity and (so far as consistent therewith) promoting such competition in the sale and purchase of electricity

(d) Promoting efficiency in the implementation of the balancing and settlement arrangements

(e) Compliance with the Electricity Regulation and any relevant legally binding decision of the European Commission and/or the Agency [for the Co-operation of Energy Regulators]

(f) Implementing and administrating the arrangements for the operation of contracts for difference and arrangements that facilitate the operation of a capacity market pursuant to EMR legislation

(g) Compliance with the Transmission Losses Principle

© ELEXON Limited 2018

Views against Objective (e)

The Proposer believes there is also a positive impact on Objective (e) because the TERRE solution must allow for the participation of customers (or independent aggregators acting on their behalf) in RR. The proposed change will remove a barrier to entry for additional customers to participate in RR.

Implementation approach

This Modification is dependent on the Implementation of P344 Project TERRE, which is scheduled to be fully implemented in the BSC in November 2019. Ideally this Modification would be implemented at the same time, but it is unlikely there will be sufficient time to implement the system changes required for this Modification by November 2019. The next available Release should therefore be sought.

As there are numerous Baselining Methodologies in operation at the moment, from a pragmatic viewpoint, the Workgroup may consider building on the back of existing research, and utilising an existing well known Baselining Methodology for assessment purposes and then seek to finesse this methodology during implementation.

© ELEXON Limited 2018

3 Areas to Consider

In this section we highlight areas which we believe the Panel should consider when making its decision on how to progress this Modification Proposal, and which a Workgroup should consider as part of its assessment of P376. We recommend that the areas below form the basis of a Workgroup's Terms of Reference, supplemented with any further areas specified by the Panel.

Available Baseline Methodologies

There are numerous Baseline Methodologies available for the Workgroup to consider. The Workgroup should weigh the pros and cons of each methodology to determine which, if any, are appropriate for setting PNs used in Settlement. The Workgroup will also need to determine where in the BSC Documentation any agreed Baseline Methodology(ies) should be placed to ensure that it can be amended as required while maintaining rigorous assessment to any such amendment. The Workgroup may need to procure expert guidance on Baseline Methodologies to assist in its assessment.

Use and cost of Baseline Methodologies

The Workgroup will need to consider which Parties will be allowed to use the Baseline Methodology as an alternative to the traditional PN. i.e. will this be limited to VLPs and Secondary BM Units or should other Parties with Primary BM Units also be able to elect to use a Baseline Methodology?

Areas to consider

The table below summarises the areas we believe a Modification Workgroup should consider as part of its assessment of P376:

Areas to Consider
How will the Baseline PN be created and by whom?
Can the Baseline Methodology be used for other purposes other than providing the PN for Settlement purposes?
Consider how the new service will be funded? i.e. should only those who benefit from this service pay for the service?
Which Parties will be allowed to use a Baseline Methodology for their PN used in Settlement?
Will there be one Baseline Methodology or will there be different methodologies aligned to Technology type. If so how will this work in practice?
What changes are needed to BSC documents, systems and processes to support P376 and what are the related costs and lead times?
Are there any Alternative Modifications?
Should P376 be progressed as a Self-Governance Modification?
Does P376 better facilitate the Applicable BSC Objectives than the current baseline?

© ELEXON Limited 2018

4 Proposed Progression

The Proposer believes that this Modification should not be classed as Self Governance as enabling a greater variety of customers to participate in TERRE and the BM will likely have an impact on competition.

It should not be classed as Urgent as although the defect impacts VLP's ability to forecast (and thus be appropriately paid) for their Balancing Services, it will not have an impact until Project TERRE has been fully implemented into the GB arrangements. The Modification should be progressed to a six month assessment by a Workgroup.

Next steps

The Modification will be assessed by a Workgroup and submitted to the Assessment Procedure.

Workgroup membership

The assessment of this Modification Proposal requires knowledge in:

- Balancing Services;
- Baseline Methodologies;
- BSC Settlement Calculations, in particular Imbalance Volumes;
- Demand Side Response services; and
- the P344 TERRE solution.

It is important that membership of the Workgroup incorporates these areas to fully assess this Modification. ELEXON will provide training for Workgroup members who request it.

Timetable

The timetable below displays the proposed progression of the Modification.

Proposed Progression Timetable for P376	
Event	Date
Present Initial Written Assessment to Panel	13 December 2018
Workgroup Meeting	W/B 14 January 2019
Workgroup Meeting	W/B 11 February 2019
Workgroup Meeting	W/B 11 March 2019
Industry Impact Assessment	8 April 2019 – 26 April 2019
Workgroup Meeting	W/B 13 May 2019
Assessment Procedure Consultation	3 June2019 – 21 June 2019
Workgroup Meeting	W/B 1 July 2019
Present Assessment Report to Panel	8 August 2019

What is the Self-Governance Criteria?

A Modification that, if implemented:

(a) is unlikely to have a material effect on:
(i) existing or future electricity consumers; and
(ii) competition in the generation, distribution, or supply of electricity or any commercial activities connected with the generation, distribution, or supply of electricity; and
(iii) the operation of the national electricity transmission system; and
(iv) matters relating to sustainable development, safety or security of supply, or the management of market or network emergencies; and
(v) the Code's governance procedures or modification procedures; and

(b) is unlikely to discriminate between different classes of Parties.

© ELEXON Limited 2018

Proposed Progression Timetable for P376	
Event	Date
Report Phase Consultation	12 August 2019 – 23 August 2019
Present Draft Modification Report to Panel	12 September 2019
Issue Final Modification Report to Authority	13 September 2019

© ELEXON Limited 2018

5 Likely Impacts

Impact on BSC Parties and Party Agents	
Party/Party Agent	Potential Impact
Virtual Lead Party	VLPs will be able to use a Baselining Methodology as an alternative to submitting PNs
Half Hourly Data Aggregators	Data Aggregators may need to provide HH data to the Baseline Methodology administrator for use in PN calculations

Impact on Transmission Company
The PNs used for dispatch will be decoupled from the PNs used for Settlement. Though this will not lead to a direct impact on NETSO.

Impact on BSCCo	
Area of ELEXON	Potential Impact
Performance Assurance Framework	The use of a Baseline Methodology will provide assurance that accurate PNs are being used for Settlement.

Impact on BSC Systems and processes	
BSC System/Process	Potential Impact
Settlement Allocation Agent (SAA) Systems	The SAA systems may start receiving PNs from an alternative source.

Impact on BSC Agent/service provider contractual arrangements	
BSC Agent/service provider contract	Potential Impact
New Baselining Methodology process	A new service may need to be procured for administration of Baseline Methodologies.
SAA	SAA may start receiving PNs from an alternative source.

Impact on Code	
Code Section	Potential Impact
Section K 'Classification and registration of Metering Systems and BM Units'	Changes will likely be required to allow Parties to use a Baseline Methodology to calculate PNs for Settlement.
Section Q 'Balancing Service Activities'	
Section S 'Supplier Volume Allocation'	
Annex S-2 'Supplier Volume Allocation Rules'	
Section T 'Trading Charges'	
Section V 'Reporting'	

© ELEXON Limited 2018

Impact on Code	
Code Section	Potential Impact
Annex X-1 'General Glossary'	
Annex X-2 'Technical Glossary'	

Impact on Code Subsidiary Documents	
CSD	Potential Impact
BSCP15 'BM Unit Registration'	Changes will likely be required to allow Parties to use a Baseline Methodology to calculate PNs for Settlement.
BSCP20 'Registration of Metering Systems for Central Volume Allocation'	
BSCP27 'Technical Assurance of Half Hourly Metering Systems for Settlement Purposes'	
BSCP31 'Registration of Trading Units'	
BSCP75 'Registration of Meter Aggregation Rules for Volume Allocation Units'	
BSCP534 'PARMS Techniques'	
BSCP535 'Technical Assurance'	
SAA Service Description	
SAA User Requirements Specification	

Impact on other Configurable Items	
Configurable Item	Potential Impact
Baseline Methodology Statement	A new Configurable Item will be created to contain the Baseline Methodology(ies)

Impact on Core Industry Documents and other documents	
Document	Potential Impact
Ancillary Services Agreements	No impact identified. However P376 will enable greater participation in TERRE and other Balancing Services
Connection and Use of System Code	No impact identified
Data Transfer Services Agreement	
Distribution Code	
Distribution Connection and Use of System Agreement	

© ELEXON Limited 2018

Impact on Core Industry Documents and other documents	
Document	Potential Impact
Grid Code	No direct impact. However NETSO may also raise a modification to allow Baseline Methodologies to be used for dispatch.
Master Registration Agreement	No impact identified
Supplemental Agreements	
System Operator-Transmission Owner Code	
Transmission Licence	
Use of Interconnector Agreement	

Impact on a Significant Code Review (SCR) or other significant industry change projects
Both ELEXON and the Proposer do not believe this Modification impacts any on-going SCR, and ELEXON submitted P376 to the Authority to request SCR exemption on 5 December 2018.

Impact on Consumers
Consumers will be better able to participate in the BM and TERRE as P376 will remove barriers to entry relating to the ability to submit an accurate PN. As a result of a greater range of Balancing Services, the cost of balancing the system is likely to be reduced for end consumers.

Impact on the Environment
No impact on the environment is envisaged as the Modification will not affect the day to day operation of Balancing and Settlement.

Other Impacts	
Item impacted	Potential Impact
None identified	N/A

© ELEXON Limited 2018

6 Recommendations

The Panel is invited to:

- **AGREE** that P376 progresses to the Assessment Procedure;
- **AGREE** the proposed Assessment Procedure timetable;
- **AGREE** the proposed membership for the P376 Workgroup; and
- **AGREE** the Workgroup's Terms of Reference.

© ELEXON Limited 2018

Appendix 1: Use of FPNs in Settlement

Data Submission by Lead Party

Lead Parties are required to ensure that Dynamic Data Set items for a relevant BM Unit are sent to NETSO in accordance with the Grid Code. The data in the Dynamic Data Set includes the following data: Run-Up and Run-Down Rates; Notice to Deviate from Zero; Notice to Deliver Offers and Bids; Minimum Zero and Non-Zero Times; Maximum Delivery Volume and associated Maximum Delivery Period, and Stable Export and Import Limits. This data may be changed by the Lead Party as is provided for in the Grid Code. To the extent required in the Grid Code, Lead Parties are required to submit Maximum Export and Import Limits in relation to a relevant BM Unit to NETSO. Again this data may be changed in accordance with the Grid Code.

Grid Code defined terms

These terms are defined under the Grid Code. You can find the definitions in the General Glossary.

Final Physical Notification Data

Where relevant (i.e. if the BM Unit is above a certain de-minimis size , or participates in the BM), the Lead Party is required to submit PN Data for that BM Unit in accordance with the Grid Code. The FPN Data is the PN Data prevailing at Gate Closure. The data submitted to NETSO for each Settlement Period must be such that the FPN Data comprises one or more pairs of 'from' and 'to' MW levels and associated times. As a minimum, there must be a 'from' time and level at the start of the Settlement Period and a 'to' time and level at the end of the Settlement Period. Exports are expressed as positive numbers and imports as negative numbers.

To participate in TERRE it is necessary to submit a FPN. This currently relates to the Boundary Meter. The FPN is the same for dispatch and Settlement.

Balancing Mechanism Bid Offer Submission

Where FPN Data is established for a BM Unit, the Lead Party may submit one or more Bid-Offer Pairs in relation to a Settlement Period. These must be submitted by Gate Closure to NETSO. Each Bid-Offer Pair must comprise:

- a 'from' MW level at the start of the Settlement Period and a 'to' MW level at the end of the Settlement Period (which must be the same as the 'from' level); and
- an Offer Price and a Bid Price (which cannot be greater than the Offer Price) and a Bid-Offer Pair Number.

Determination of Accepted Bid-Offer Volume

The quantity of each Bid-Offer Pair that a particular Acceptance is determined to have 'accepted' at any instant in time is called the Accepted Bid-Offer Volume. Because of the way in which the BM operates, (i.e. because it is firm for NETSO and once an Acceptance has created an Accepted Bid-Offer Volume, it cannot be undone except by creating a further Accepted Bid-Offer Volume) the Accepted Bid Offer Volume for each Acceptance must be determined sequentially based on the time at which each Acceptance was issued (the Bid Offer Acceptance Time). Each Acceptance is processed in turn, starting with the Acceptance with the earliest Acceptance time.

© ELEXON Limited 2018

The Period FPN represents the MWh of energy that the BM Unit would have imported or exported in the Settlement Period had its operation followed its FPN within the Settlement Period.

The Period Expected Metered Volume is the sum of the Period FPN and the Period BM Unit Balancing Services Volume for a BM Unit in a particular Settlement Period. This represents the energy that the BM Unit would have imported or exported in the Settlement Period had its operation followed its FPN adjusted for Accepted Bids, Offers and Applicable Balancing Services within that Settlement Period.

Non-Delivery Rule and Calculations

BSC Section T details how Non-Delivery Volumes are calculated as follows:

> 4.8.1 In respect of each Settlement Period, for each BM Unit, the Period BM Unit Non-Delivered Offer Volume will be determined as follows: QNDOij = Min{Max{**QMEi**j – QMij, 0},$\sum$ nQAOn ij} where $\sum$ n represents the sum over all Bid-Offer Pair Numbers for the Accepted Offer Volumes for the BM Unit.
>
> 4.8.2 In respect of each Settlement Period, for each BM Unit, the Period BM Unit Non-Delivered Bid Volume will be determined as follows: QNDBij = Max{Min{**QMEi**j – QMij, 0},$\sum$ nQABn ij} where $\sum$ n represents the sum over all Bid-Offer Pair Numbers for the Accepted Bid Volumes for the BM Unit.
>
> 4.3.3 In respect of each Settlement Period, for each BM Unit, the Period Expected Metered Volume will be determined as follows: **QMEij** = **FPNij** + QBSij

The FPN therefore determines the Expected Meter Volumes which feeds into the calculation of Non Delivered Volumes. If QME less QM (BM Unit Metered Volume) does not equal zero then the Party responsible for the BM Unit will be charged $\mathrm{SBP} \times \mathrm{QNDO}$.

If the FPN does not reflect actual metered volumes at the point of measurement the VLP will incur charges, even if volumes delivered were as expected. The inverse may happen where a VLP may not incur non delivery charges even if delivery according to Instructions was not fully achieved.

© ELEXON Limited 2018

Appendix 1: Glossary & References

Acronyms

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

Acronym	
Acronym	Definition
BRP	Balance Responsible Party
BSC	Balancing and Settlement Code
BSCCo	Balancing and Settlement Code Company
BSCP	Balancing and Settlement Code Procedure
CHP	Combined Head and Power
CSD	Code Subsidiary Document
EMR	Electricity Market Reform
ESO	Electricity System Operator
FPN	Final Physical Notification
IWA	Initial Written Assessment
MWh	Megawatt Hour
NETSO	National Electricity System Operator
PARMS	Performance Assurance Reporting and Monitoring System
RCRC	Residual Cashflow Reallocation Cashflow
SAA	Settlement Administration Agent
SCR	Significant Code Review
TERRE	Trans European Replacement Reserve 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
3	Issue 71 page of the ELEXON website	https://www.elexon.co.uk/smg-issue/issue-71/
3	P344 page of the ELEXON website	https://www.elexon.co.uk/mod-proposal/p344
3	P376 page of the ELEXON website	https://www.elexon.co.uk/mod-proposal/p376
7	P375 page of the ELEXON website.	https://www.elexon.co.uk/mod-proposal/p375

© ELEXON Limited 2018

External Links		
Page(s)	Description	URL
16	Grid Code Glossary	https://www.nationalgrid.com/sites/default/files/documents/8589935310-Complete Grid Code.pdf

© ELEXON Limited 2018