

Issue 70 'Settlement of Secondary BM Units using metering at the asset'



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About This Document

This document is the Issue 70 Group's Report to the BSC Panel. ELEXON will table this report at the Panel's meeting on 11 October 2018.

There are three 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 document entitled 'Extending the P344 solution to allow Settlement of Secondary BM Units using metering at the asset' which was presented to the P344 Workgroup during the P344 Assessment Procedure.
- Attachment B contains the Issue 70 proposal form

Background

Flexitricity raised [Issue 70 'Settlement of Secondary Balancing Mechanism \(BM\) Units using metering at the asset'](#) 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'. 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 \(EBGL\)](#). 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 Cash flow Reallocation Cash flow (RCRC).
- Balancing-related activities broadly correspond to the role of "Balancing Services Party" (BSP) as defined in the EBGL. 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 BMU;
 - the payment of the bid and offer volumes to BSC parties; and
 - the recovery of the costs of balancing from the ESO.

However, although the P344 solution separates out the cash flows relating to these two roles, it does not do the same for the metering. It requires that metered data from the Supplier's Settlement Metering (located at the Boundary Point, and logically associated with Imbalance-related activities) should also be used to verify delivery of acceptances issued to the Secondary BM Unit (which is a Balancing-related activity). Completely separating the two roles would require a mechanism by which the VLP could install its own Settlement Metering, located at an appropriate place to measure the volume of balancing energy provided, which may be close to the Asset delivering the service. Such metering is sometimes referred to as 'Behind the Meter' or 'Behind the Settlement Meter', because it is installed within a customer site, behind the Settlement Meter installed by the Supplier at the Boundary Point meter (for purposes of Imbalance Settlement).

During the P344 Workgroup process, 'Behind the Meter' assets and energy flows were discussed with regard to two main points:



Secondary BM Unit

A new type of BM Unit, registered by a Party who uses it to deliver Replacement Reserve (RR) Acceptance and/or Bid Offer Acceptance (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 Supplier Volume Allocation (SVA) Metering Systems in a Secondary BM Unit must also be included in a Supplier BM Unit.



Electricity Balancing Guideline

The Electricity Balancing Guideline (EB GL) regulation lays down the rules for the integration of balancing markets in Europe, with the objectives of enhancing Europe's security of supply.

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- The location of the meters used for Settlement i.e. at the Asset level or at the Boundary point, and associated difficulties Parties may experience in providing accurate Final Physical Notifications (FPNs) when boundary metering is used for Settlement; and
- Ensuring payment for delivery corresponds to the service provided to the System.

The P344 Workgroup recognised that some VLPs would wish to aggregate balancing services delivered by assets that are located behind the Supplier's Settlement Meter. The P344 Workgroup was not opposed to this in principle, but recognised that it would introduce additional complexity into the solution, which could not be addressed as part of P344 without endangering the timescales for delivering Project TERRE. For instance, two sets of Metering Systems would need to be registered at each site in a Secondary BM Unit:

- For Balancing-related purposes, Metering System ID(s) (MSID) associated with Metering Equipment located close to the Assets delivering the Acceptances would need to be allocated to the Secondary BM Unit. In many cases there will already be "Operational Metering" installed, so (subject to it meeting appropriate Settlement Requirements) the VLP may be able to re-use this existing Metering Equipment for Settlement purposes (rather than having to install new Metering Equipment)
- For Imbalance-related purposes, it is still necessary to adjust the Imbalance positions of the Import Supplier (and Export Supplier if there is one) to remove the effect of any balancing actions delivered by the customer. For this reason the Boundary Point MSIDs would also need to be associated with the Secondary BM Unit in the Settlement process.

Issue 70 aims to look into whether data from existing Operational Metering (if installed), located behind the meter, can be used for Settlement purposes and if not, what additional metering and of which standard will need to be installed.

A further Issue has been raised, [Issue 71](#), which seeks to examine the possibility of Physical Notifications for dispatch and Settlement being created via a baselining methodology. The baselining and asset metering issues are complementary, as Parties may opt to apply baselining at a site if the installation of Operational metering is prohibitive, or by allowing Operational Metering to be used for Settlement may allow users to submit more accurate Physical Notifications, negating the need to use a baseline.

Conclusions

The questions considered under Issue 70 can be found in section 3 within Table 1: A summary of questions considered under Issue 70. These were discussed by the Issue Group members on 11 July 2018 and the initial answers/proposals to these questions 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 material to consider the progression of a subsequent Modification; with members believing that a subsequent Modification should be raised. The Issue Group believed that the Modification could open up the market to new participants by removing barriers to entry.

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Issues 70 & 71 have arisen out of the work to create a P344 Solution. To fully understand the context of the issues it is necessary to first summarise the P344 solution. On 24 August 2018 the Authority approved [P344 'Project TERRE implementation into GB market arrangements'](#) for implementation on 28 February 2019 as part of the February 2019 BSC Release. The Authority approved the Proposed Modification (customer consent required for the sharing of Half Hourly (HH) delivered volumes with the customer's Supplier) on 24 August 2018.

P344 solution

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 Half Hourly SVA Metering Systems (within a single GSP 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 Physical Notifications (PNs) that reflect the anticipated Metered Volume of the portfolio of SVA Metering Systems (in the absence of any RR Acceptances or BOAs). Following Gate Closure PNs become Final Physical Notifications (FPNs);
- The BM Unit receives an RR Acceptance or BOA, to vary the aggregate output of the portfolio away from the FPN, in accordance with the instruction received from National Grid. If the aggregate metered output does not match the instruction, the Party may have to pay Energy Imbalance Charges and Non-Delivery Charges.

The proposed solution only allows "SVA Metering Systems" to be placed in a Secondary BM Unit. These are Metering Systems used to measure power flows to or from a Distribution System. As a result, both the Metered Volumes and the FPNs for a Secondary BM Unit are measured at the point of connection to the Distribution System (boundary).

It should be noted that Suppliers will also be able to participate using their Base or Additional BM Units and Generators using Embedded/CVA BM Units.

What's the Issue?

The P344 Workgroup acknowledged that this solution could potentially create barriers to participation for some customers, taking note of the following points:

- End-user sites are often complex, containing assets capable of participating in TERRE (and the BM) and other equipment which is inflexible or operates independently from participating assets;
- Given this complexity, the location of the meters most appropriate for Settlement may not be at the Boundary point, but at the individual participating assets;
- There are associated difficulties submitting a Physical Notification (PN) for the entire site (including assets outside of the service provider's control), with any error in the PN creating a risk of non-delivery Charges; and



Primary BM Unit

A term created by the P344 Workgroup to describe a BM Unit registered by a Party who is responsible for any Energy Imbalances it creates. This is the only type of BM Unit that the BSC currently recognises.



What is Replacement Reserve?

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



Supplier BM Unit

A specific type of Primary BM Unit, registered by a licensed electricity Supplier, into which SVA Metering Systems can be placed.

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- Where meters other than Boundary Point meters are used, it is nevertheless necessary to ensure auditability, so that payment for delivery corresponds to the service provided.



Virtual Lead Party

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

Looking at the requirement for the Virtual Lead Party (VLP) to construct FPNs that reflect the power flows at the boundary with the Distribution System; this may be problematic where the controllable asset delivering an acceptance shares a network connection with other uncontrollable assets (e.g. loads or generating units), as illustrated in Figure 1: A site with controllable and uncontrollable assets below.

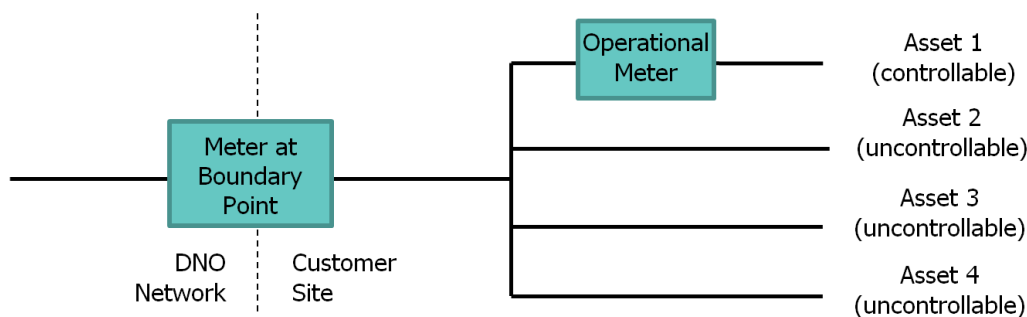


Figure 1: A site with controllable and uncontrollable assets

As VLPs are required to submit PNs that reflect power flows at the Boundary Point, the FPN 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 forecast the result would be the FPN does not reflect actual metered output, resulting in Energy Imbalance Charges and Non-Delivery Charges for the VLP (even when asset 1 correctly delivered the required acceptance volume).

The P344 Workgroup agreed that this proposal warranted further assessment, but did not believe this assessment could be performed within the scope and timescales 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

The potential solution to this defect is to allow the Secondary BM Unit to be settled using data received from a meter installed close to the controllable asset (rather than the Meter at the Boundary Point):

- The meter at the Boundary Point would still form an SVA Metering System, and metering data collected from it would still be used in Settlement of the Supplier BM Unit; but it would play no direct role in settlement of the Secondary BM Unit; metered data at the boundary could still be used as a validation tool for the Delivered Volumes (I.e. does the action affect the Total System).
- Settlement of the Secondary BM Unit would be based on a meter close to the controllable asset. This meter would therefore be "Settlement Metering" rather than "non-Settlement Metering", and would form a new type of Metering System recognised under the BSC (not an SVA Metering System). A new defined term would be required for this e.g. "**BSP Metering System**".

This approach would allow the VLP to submit a Physical Notification for the controllable asset only, thus reducing the risk that they will have to pay Energy Imbalance Charges and

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Non-Delivery Charges through not being able to accurately forecast the output of assets 2 to 4 as shown in figure 1.

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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 from the Modification Procedure, in that an Issue does not make a change to the BSC. The members were informed that the output of the Issue process is a final Issue Report prepared for the Panel. It was detailed to the Issue Group members that a BSC Party can take forward a Modification or Change Proposal at any point in the Issue process.

Non-BSC Parties can raise Modifications by applying to Ofgem to be designated for that purpose or seek a BSC Party who will raise a Modification on their behalf.

Issue 70 and 71 were discussed by a joint Issue Group on 11 July 2018.

Defining the Issue

The Issue Group were given an overview of the P344 discussions 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 P344 could potentially create barriers to participation for some VLP's.

The Issue Group noted that assets chosen to provide RR may not be truly independent of other assets located on a customer's site, which may affect boundary flows and therefore may lead to under/over payment of RR. For example, an asset operating to provide RR might cause other equipment on the site to change its consumption or generation, which would lead to incorrect measurement of the RR volume delivered. If the assets were truly independent then the Party should be paid based on the delivered volumes of the asset. If not independent then paying the Party based on just the metered volume at the asset may over reward.

The Issue Group discussed that uncontrollable or uncorrelated demand in another part of the same site but behind the same Boundary Point meter may make it difficult for independent aggregators to accurately forecast PNs if settled at the Boundary Point. This could lead to imbalance payments or non-delivery charges even when the participating assets delivered the RR volumes in line with instructed volumes. This situation is outlined in Figure 1: A site with controllable and uncontrollable assets (see section 2 above).

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 Attachment A 'Extending the P344 solution to allow Settlement of Secondary BM Units using metering at the asset'.

Questions considered under Issue 70

What standard of metering should asset metering follow?

Independence of assets – does the service affect the system?

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Questions considered under Issue 70
How should losses be treated?
Is there interaction with P363/4?
What will be the requirements on allocated Data Collectors and Meter Operator Agents?
Can current data flows be utilized for information exchange or new ones to be created?
How will MSIDs for the new asset meters be allocated and recorded?
What Performance Assurance framework needs to be in place?

Table 1: A summary of questions considered under Issue 70



Codes of Practice (CoP)

Codes of Practice (CoPs) detail the technical requirements for Metering Systems.

When Metering Equipment is first registered in Settlement, it must comply with the requirements which are set out in the relevant Code of Practice in place at that time

Standard of metering

The first point of discussion was asking the question what types of meter encompass operational metering and whether these were of a certain standard already (e.g. BSC Codes of Practices ([CoPs](#))). The Issue Group were in agreement that where asset metering is being used for Settlement purposes (as proposed by Issue 70) rather than just operational purposes it would have to meet an appropriate metering standard across the board, creating a preventative assurance technique in relation to these assets, similar to as there is with existing Settlement Metering.

An Issue Group member believed that the operational standards for asset Meters should be applicable across a range of power ratings, as aggregators draw their portfolio from a range of assets of varying size. ELEXON detailed that the BSC CoPs, define operational standards for meters from MWh down to a few kilowatt hours (kWhs). Attendees believed it would be useful to find out what standards of operational meters are being used currently for other Balancing Services offered by National Grid such as Non BM STOR. This could be drawn out in any future Modification analysis.

The discussion turned to the accuracy of the meters utilised, which the Issue Group agreed should be of the same order of accuracy as that of the Settlement Meters at the boundary. An attendee suggested that there should not be a requirement for the Meter to be standalone as for some assets the metering would form part of the asset. This may cause problems when testing the meter.

An example of using an integrated meter would be in an Electric Vehicle (EV) charging point, where an integrated meter would be much more cost effective than adding a standalone meter. An integrated meter would still have to meet the same operational standards as other asset meters. It was highlighted that any metering and standards utilised should be proportionate to the size of the asset. For example a 2% error margin for a 20MW asset is far more problematic to the NETSO; than a 2% error margin on a 1MW asset. It was noted that when aggregating assets you also aggregated the error margins.

The Issue Group suggested that the metering standards and arrangements for the Capacity Market, Contracts for Difference and the various Balancing Services should be looked at. An extract from a [guidance document](#) on the Capacity Market metering solutions and the governing document which contains the given meter requirements can be found in Table 2: Approved Metering Configuration Solutions Governing Documents, below.

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Approved Metering Configuration Solution		Governing Document
Settlement Metering (Balancing Mechanism Unit (BMU) and Supplier)		Codes of Practice (CoPs) ¹
Bespoke		Schedule 7 of the CM Rules ²
Balancing Services	Short Term Operating Reserve (STOR)	Short Term Operating Reserve (STOR)
	Frequency Control by Demand Management (FCDM)	Dispatch Procedure v1.3
	Firm Frequency Response (FFR)	Frequency Control by Demand Response

Table 2: Approved Metering Configuration Solutions Governing Documents

The Issue Group held a general consensus that there should be different levels of requirement based on the rating of circuits or generating equipment being metered. This is in line with the approach taken in the current CoPs. This opens up the opportunity to have more flexible arrangements whereby, for example, instead of installing a half hourly meter, a power meter could be installed and linked to a data collection outstation that could create 30 minute Settlement data; also giving an instantaneous indication to the System Operator.

ELEXON researched into the current Capacity Market Arrangements and suggested that a similar document to [Schedule 7](#) (for non-Settlement Metering), which is part of the Capacity Market Rules and sets a minimum criteria for accuracy, dependant on rating of circuit. It also includes the requirements for data format, commissioning etc. Another option for a document setting out the operating standards for asset meters could be a hybrid of the BSC CoPs and SO Balancing Services Agreements, as we need a solution that satisfies the data needs for both ELEXON and National Grid.

In summary, the Issues Group proposes that a set of minimum standards should be developed for any Metering Equipment used to measure delivery of acceptances in TERRE or the Balancing Mechanism (“BSP Metering”). In order to ensure the requirements are proportionate, the metering standards may vary depending on the capacity of the circuits being metered. These standards should be based on the existing CoPs (developed for purposes of Imbalance Settlement).

The Issue Group acknowledged that the current CoPs were developed in the context of Boundary Point metering, and that in the longer term balancing services may be delivered by assets for which different metering or measurement solutions are more appropriate (e.g. electric vehicles or smart appliances within the home). However, the Issue Group believes that a solution based on existing CoPs is appropriate for now, and would not preclude further Modification Proposals to address subsequent technological innovation.

¹ <https://www.elexon.co.uk/bsc-and-codes/bsc-related-documents/codes-of-practice/>

² <https://www.ofgem.gov.uk/publications-and-updates/publication-consolidated-capacity-market-rules>

Metering Dispensations

Meter Dispensation rules were also discussed by the Issue Group for the use of meters that aren't on the CoP Compliance and Protocol Approval list or any subsequent governance document that is created for asset meters. This might arise, for example, where existing Operational Metering does not comply with the Codes of Practice, but is of a similar (or higher) accuracy standard, and the VLP does not believe it is appropriate that they should be required to install additional CoP-compliant Metering.

[BSCP601](#) covers Metering Protocol Approval and Compliance Testing' and where a Party has chosen to use a meter that isn't on the CoP Compliance and Protocol Approval list it was suggested that there should be a process in place to approve it for Secondary BM situations based on the required criteria. This would be developed during a subsequent Modification Workgroup procedure. The immediate presumption would be the expectation that any meter designed and manufactured would be compliant with International Electrotechnical Commission (IEC) standards, or Measurement Instruments Directive (MID).

Independence of Assets

The Issue Group discussed what it means for the assets delivering a balancing service (the "**BSP assets**") to be 'independent' of other assets. They agreed that balancing actions (i.e. variations in demand or generation) delivered by the BSP assets must not directly or indirectly cause other assets on the site to vary their output.

For example, suppose that a site contained two water pumps, and turning one off could cause the other to switch on (either because their control systems were directly linked, or because the reduction in water flow could cause the second pump to start). These two pumps would not be independent of each other, and it would not be acceptable to register one of the two as a BSP asset in a Secondary BM Unit (because any action it took would potentially be undone by the other). Both pumps, or neither would need to be included in the Secondary BM Unit.

One of the independent aggregators on the Issue Group stated that they (and presumably other aggregators) already have sophisticated processes for understanding the assets of customers they sign up, and these would ensure that assets used to deliver balancing service were independent of other demand and generation on site.

Impact on the Boundary Point

The Issue Group discussed whether balancing actions taken by independent BSP assets should be visible at the site Boundary Point. On any one occasion, the effect of a MWh delivered by a BSC asset may be obscured at the Boundary Point by an unrelated increase or decrease of output by other assets on the site. But, provided the assets are genuinely independent, the effect will have been to deliver a MWh to the system (compared to the counterfactual of no acceptance being issued). In principle it should be possible to use statistical methods to verify that the output of the other assets contributing to the Import or Export measured at the Boundary Point is independent of the output of the BSP assets.

The Issue Group highlighted that there would have to be a defined obligation on a participant to obtain evidence of asset independence during the registration process. There was debate whether this could be achieved through a site visit or by submission of single line diagrams, as is already done in the Capacity Market.

In summary, the Issue Group concluded that a defined obligation should be placed upon VLPs using asset metering (rather than relying on the Supplier's Boundary Point metering) to obtain evidence of asset independence (including line diagrams, where appropriate), and to retain these records for inspection as required for Performance Assurance purposes (e.g. by the Technical Assurance Agent).

Assurance

The Issue Group discussed what assurance techniques might be appropriate to verify that BSP assets are independent of others on the site (and hence payment for delivery corresponds to the service provided). One possibility is statistical analysis to identify any correlation between acceptances being issued to the BSP, and the output of other assets on the site (determined from the Boundary Point metering). The Issue Group identified a possible link to Issue 71 'Introduction of a baselining methodology as an alternative to Physical Notifications', in that any baselining technique introduced by Issue 71 could be used in the analysis.

This highlights that both Issues 70 and 71 are both complementary and both need to be delivered to create the optimum benefit to the System. This will lead to reduced balancing costs and would act as a method of ensuring errors are highlighted and potential fraudulent behaviour is deterred. Attendees also discussed the possibility of using Blockchain technology to verify the asset volumes, in addition to the potential inclusion of GPRS, to authenticate the location of the meter.

The Issue Group also discussed Performance Assurance more generally. The Issue Group agreed that a framework would need to be developed, taking into consideration any new Settlement Risk that could be introduced by the Issue 70 solution.

The Risk Evaluation Register would be updated to reflect any changes to Settlement Risks a result of Issue 70 changes. This would then drive changes to the Risk Operating Plan, which sets out what Performance Assurance Techniques (PATs) can and have been applied to each Settlement Risk identified in the Risk Evaluation Register and the estimated costs of implementing the techniques..

The Issue Group also believed that consideration of Trading Disputes would be needed. The initial view was that asset metering should be treated the same as Settlement Metering under the Trading Disputes process.

ELEXON notified the Issue Group that the Performance Assurance Framework (PAF) Review team will monitor the progress of this Issue and potential future Modification and provide input accordingly. However, the existing PAF and its techniques were believed to be sufficient to monitor and respond to Issue 70 changes. It is likely that Asset Metering would be subject to the BSC Audit.

Treatment of losses

It was deemed by the Issue Group attendees that losses for Asset Meters would be treated in a similar vein to how they are already dealt with for Settlement Meters. Once again referring to the requirement that payment for delivery volumes corresponds to the service provided.



Risk Evaluation Register (RER)

Sets out the risks, and the significance of each risk on Settlement and explains the annual process of review whereby existing risks are amended



Line Loss Factors (LLFs)

Line Loss Factors are multipliers which are used to scale energy consumed or generated to account for losses on the UK's Distribution Networks.

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ELEXON notified the members that Distribution Network Operators (DNOs) already publish Line Loss Factors (LLFs) for each voltage level, and these same LLF values are typically used by Independent Distribution Network Operators (IDNOs) operating in that area.

The same approach could be used for losses on customer sites, effectively treating losses on these private networks in the same way as losses on licensed IDNO networks. As LLFs are based on voltage levels, these LLFs would adjust for transformer losses on-site, but not for losses in lines or cables. The Issue Group acknowledged that this is consistent with the treatment of losses on IDNO networks (and that on small private networks transformer losses will be more significant than losses in lines or cables). It was further discussed that there could be a separate process apportioned for counting losses for non-standard sites.

It was thought that any registration process that was utilised would involve a participant specifying the voltage level of the MSID pair. This would be compared to the voltage of the relating Boundary Meter and appropriate loss factors could be applied. It would be inefficient to insist that assets within a BMU all have the same voltage, as this may create problems in achieving the minimum 1MW threshold for participation. The Issue Group favoured the use of the current arrangements i.e. having a Line Loss Factor registered at boundary point and a loss factor at the asset also. The LLF figures would be provided by the Distribution Network Operator (DNO) or IDNO via existing processes. ELEXON and the Issue Group noted that this is similar to the approach used in the Contract for Difference scheme.

Data Collection

The Issue Group outlined that there would need to be a process in place whereby a VLP appoints credited agents; similar to when Qualified Party Agents are appointed at the Boundary Point. A Qualified Meter Operator Agent (MOA) and Data Collector (DC) would have to be allocated; it was proposed that these would be BSC Qualified agents to align with the current processes. The option for the VLP to act as their own DC would be available; should they become qualified. In addition, the Issue Group advocated use of the Data Transfer Network (DTN) flows for sending the relevant data into Settlement (as this is the mechanism currently used by these agents).

Metering System Identifiers (MSIDs) and Meter Point Administration Numbers (MPANs)

In order for Agents and Parties to exchange information about BSP Metering Systems they will need to be allocated an identifier (equivalent to the MSIDs or MPANs already used for SVA Metering Systems). It would need to be established who would raise this MPAN and what format it would take in terms of length. It was envisaged by the Issue 70 Group members that it would follow the existing 13-digit format of an MPAN.

The Issue Group noted that these new identifiers would be similar to the 'pseudo MPANs' already used by some Data Collectors for customer meters, except that they would need to be held on a register available to all authorised parties (rather than being internal to the systems of one Agent). In order for this to happen, Meter Registration Agreement (MRA) Parties would need to agree that one of the 'Distributor Short Codes' that forms the first two digits of the MPAN should be allocated (wholly or partially) for BSP Metering Systems.

The MPAN should relate to a specific meter (or BSP Metering System). The Issue Group proposed that a 'change of VLP' process will be needed to handle the situation in which

the customer contracts with a new aggregator. This could be based on the existing change of Supplier process, although potentially simpler, as it would not be subject to the same regulatory requirements. For example, the existing Change of Supplier process ensures that a customer is not left with 'gaps' between Supplier registrations, whereas a customer is entitled to have 'gaps' in which it is not providing balancing services (and therefore has no VLP appointed).

The Issue Group highlighted that a central register would be needed to hold the MPAN data and this would be held by either:

- VLPs themselves;
- ELEXON; or
- A third party. There are various models for providing such a service e.g. VLPs could individually tender for the service they require, or specialist organisations (such as trade bodies) could provide the service for a particular asset class (possibly as part of a broader package of services to their members or customers).

It was discussed which method would be the most efficient and suitable but it was thought to be an issue which could be resolved in a future Modification Workgroup. The initial consensus appeared to be for ELEXON to maintain a register of 'asset meters' as it would be more efficient to include the registration processes in the BSC. This would additionally assist in achieving a more consolidated and less-fragmented market and future proof any solution, especially given the synergies with Settlement.

The discussion then turned to future arrangements and how to deal with moveable assets e.g. battery storage and how these would be registered. It was thought that the current connection provisions are not fit for purpose for the potential future smaller scale arrangements e.g. EVs. The suggestion was that each asset should have an asset identifier (ID) or serial number linked with a MSID, to help assist a MOA with fault finding, should there be an issue at a site. For example, it is very useful to understand the amount of times a battery has being discharged. The overall group consensus seemed to be that this asset registration issue would be very useful but was outside of scope for this Issue and subsequent Modification. This could be something created outside of the code arrangements.

Links with P363/364

Prior to the Issue 70 meeting, concern was raised that there could be overlap between Issue 70 and Modifications P363 'Simplifying the registration of new configurations of BM Units' and P364 'Clarifying requirements for registering and maintaining BM Units'. The concern related to the belief that market participants utilising asset metering for Settlement should be doing so under a further type of BM Unit i.e. not a Primary or Secondary BM Unit. A new type of BM Unit would therefore potentially fall under the scope of Modifications P363 and P364, which are dealing with registration of new configurations of BM Units. The term tertiary BM Unit was raised as a potential option but following discussion with the wider Issue Group it was deemed that this was unnecessary and asset metering would only be added to Secondary BM Units. It was subsequently agreed that there was no overlap with P363 and P364 and these Modifications would carry on as is.

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4 Conclusions

The questions considered under Issue 70 are can be found below, along with a summary of the Issue Group's initial proposals

Summary of key initial proposals

Issue area	Initial proposal
Standard of metering	A set of minimum standards should be developed for any Metering Equipment used to measure delivery of acceptances in TERRE or the Balancing Mechanism ("BSP Metering"). In order to ensure the requirements are proportionate, the metering standards may vary depending on the capacity of the circuits being metered. These standards should be based on the existing CoPs.
Independence of assets	A defined obligation to be placed upon participants to obtain and retain proof of asset independence prior to registering the assets to the Secondary BM Unit. Records to be made available for inspection (including line diagrams, as already required for the Capacity Market) as required for Performance Assurance purposes (e.g. by the Technical Assurance Agent).
Treatment of losses	Relevant LLF applied based on voltage. LLFs provided by DNOs and IDNOs via existing BSC processes.
Data Collection	Data collection and meter operations will be done by BSC Qualified Data Collector and Meter Operator Agents.
MSIDs/MPANs	ELEXON will maintain a register of 'BSP Metering Systems' (asset meters) as it will be more efficient to include the registration processes in the BSC.
Data verification	Statistical analysis, potentially using a baselining methodology (Issue 71), could be used to verify that the output of assets not controlled by the VLP (as derived from the Settlement Boundary Meter) is independent of acceptances issues to the VLP. This will provide assurance that instructed volumes are genuinely being delivered to the System.
Performance Assurance	The PAF will need to consider what impact Issue 70 changes could have on Settlement Risks. PATs will need to be reviewed to understand how they respond to any new Settlement Risk introduced.

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Recommendation

The majority of the Issue Group believed that there was sufficient material from Issue Group discussions and benefits 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

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Issue Group membership and attendance

Issue 70 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)	✓
Cal Lynn	ELEXON (Change Management)	✓
Katie Wilkinson	ELEXON (Settlement Ops & Metering)	✓
Iain Nicoll	ELEXON (Settlement Ops & Metering)	✓
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	✗

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Appendix 2: Glossary & References

Acronyms

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

Acronyms	
Acronym	Definition
BMU	Balancing Mechanism Unit
BOA	Bid Offer Acceptance
BRP	Balance Responsible Party
BSC	Balancing and Settlement Code
BSCP	Balancing and Settlement Code Procedure
BSP	Balancing Service Provider
CfD	Contract for Difference
CoP	Codes of Practice
CVA	Central Volume Allocation
DNO	Distribution Network Operator
DTC	Data Transfer Catalogue
DTN	Data Transfer Network
EBGL	Electricity Balancing Guideline
EMRS	Electricity Market Reform Settlements
ESO	Electricity System Operator
EV	Electric Vehicles
FCDM	Frequency Control by Demand Management
FFR	Firm Frequency Response
FPN	Final Physical Notification
GPRS	General Packet Radio Service
GSP	Grid Supply Group
IDNO	Independent Distribution Network Operators
IEC	International Electrotechnical Commission
LLF	Line Loss Factors
MID	Measurement Instruments Directive
MOA	Meter Operator Agent
MPAN	Meter Point Administration Numbers
MRA	Meter Registration Agreement
MSID	Metering System Identifiers
MWh	Mega Watt hours
NETSO	National Electricity Transmission System Operator

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Acronyms	
Acronym	Definition
PAF	Performance Assurance Framework
PAT	Performance Assurance Technique
RCRC	Residual Cash flow Reallocation Cash flow
STOR	Short Term Operating Reserves
SVA	Supplier Volume Allocation
TERRE	Trans European Replacement Reserves Exchange
VLP	Virtual Lead Parties

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 70 page on the ELEXON website	https://www.elexon.co.uk/smg-issue/issue-70/
2	Modification P344 page on the ELEXON website	https://www.elexon.co.uk/mod-proposal/p344/
2	Issue 71 page on the ELEXON website	https://www.elexon.co.uk/smg-issue/issue-71/
2	Electricity Balancing Guidance document	https://electricity.network-codes.eu/network_codes/eb/
6	Codes of Practice page on the ELEXON website	https://www.elexon.co.uk/bsc-and-codes/bsc-related-documents/codes-of-practice/
7	Consolidated Capacity Market Rules document on the Ofgem website.	https://www.ofgem.gov.uk/publications-and-updates/publication-consolidated-capacity-market-rules
7	BSCPs page on the ELEXON website.	https://www.elexon.co.uk/bsc-and-codes/bsc-related-documents/bscps/?show=all
10	Modification P363 page on the ELEXON website	https://www.elexon.co.uk/mod-proposal/p363/
10	Modification P364 page on the ELEXON website	https://www.elexon.co.uk/mod-proposal/p364/

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