

EXTENDING THE P344 SOLUTION TO ALLOW SETTLEMENT OF SECONDARY BM UNITS USING METERING AT THE ASSET

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Purpose of paper For Information / Discussion

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Summary This paper outlines a potential enhancement to the P344 solution that would allow a generating unit or other controllable asset within a Secondary BM Unit to be metered and settled using settlement-quality metering installed close to the controllable asset, rather than metering at the Boundary Point. This would potentially open participation in TERRE (and the Balancing Mechanism or BM) to a broader customer base. If the P344 Workgroup supports the proposal we would recommend raising it as a separate Modification Proposal, to be implemented at the same time as (or shortly after) P344.

1. Explanation of the Issue

1.1 The P344 Workgroup has [recently consulted](#) on proposals that would allow 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 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);
- 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. If the aggregate metered output does not match the instruction, the party may have to pay Energy Imbalance Charges and Non-Delivery Charges.

1.2 The proposal consulted on 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

BM Unit Terminology Explained

- **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.
- **Supplier BM Unit:** a specific type of Primary BM Unit, registered by a licensed electricity Supplier, into which SVA Metering Systems can be placed.
- **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.
- **Virtual Lead Party:** a BSC Party who is able to register Secondary BM Units. This could be a customer, independent aggregator or electricity Supplier.

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and the FPNs for a Secondary BM Unit are measured at the point of connection to the Distribution System.

- 1.3 This requirement for the Virtual Lead Party (VLP) to construct FPNs that reflect the power flows at the boundary with the Distribution System 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:

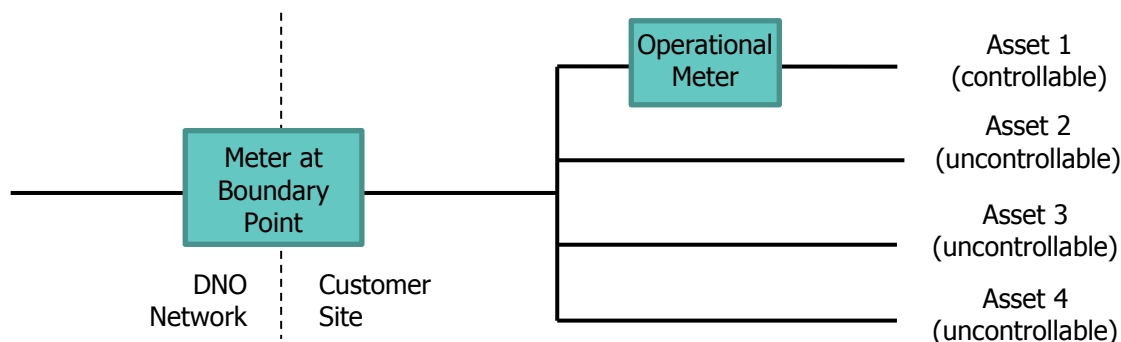


Figure 1 – A Site with Controllable and Uncontrollable Assets

- 1.4 A site such as this would typically have two different sets of Metering Equipment, as illustrated in Figure 1:
- A Meter (and other associated Metering Equipment) located at the point of connection to the Distribution System (the “**Boundary Point**”). This Metering Equipment forms the SVA Metering System, and is sometimes referred to as “**Settlement metering**” (because data from it is used in Settlement). The BSC places the responsibility to install this Metering Equipment on the site’s electricity Supplier(s);
 - A Meter (and other associated Metering Equipment) installed close to the controllable asset, for the purpose of verifying that it responds to instructions correctly. Such metering is not currently required by the BSC, and data from it would not usually¹ be used in Settlement. For this reason it is sometimes referred to as “**non-Settlement metering**” or “**behind the meter**”. Such metering may be required for some sites by the Grid Code or by an ancillary services contract (and in this context it is defined as “Operational Metering”).
- 1.5 Because Virtual Lead Parties are required to submit FPNs 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 errors in the FPN, and hence Energy Imbalance Charges and Non-Delivery Charges for the VLP (even when asset 1 correctly delivered the required acceptance volume).
- 1.6 The potential solution to this problem is to allow the Secondary BM Unit to be settled using 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. It might still be used to provide additional assurance that the Secondary BM Unit is delivering acceptances correctly, as described in paragraph 2.3 below.

¹ Section 3 of this paper discusses “difference metering”, which does allow data from a meter installed close to the controllable asset to be used in Settlement.

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- 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). In some cases this could require the existing metering to be upgraded (if the operational metering currently installed did not meet settlement standards).
- 1.7 This approach would allow the VLP to submit a Physical Notification for the controllable asset only, removing the risk that they have to pay Energy Imbalance Charges and Non-Delivery Charges through not being able to accurately forecast the output of assets 2 to 4.
- 1.8 If this solution were to be adopted, the Meter close to the controllable asset would become a settlement meter (which currently it is not). This would potentially require it to be recognised in the BSC, and made subject to the same controls and Performance Assurance Framework as Boundary Point metering. Section 2 below summarises some of the advantages and disadvantages of allowing this, and section 4 below discusses the specific BSC changes that would be required to do so. Section 3 discusses an alternative approach of “difference metering” (which is already allowed under the BSC).

2. Pros and Cons of allowing Secondary BM Units to be settled using asset metering

- 2.1 The main advantage of allowing Secondary BM Units to be settled using non-Boundary Point metering (installed close to the controllable asset) is that it allow sites at which controllable and non-controllable assets share a network connection (such as that illustrated in Figure 1) to participate in TERRE (and the BM) without the VLP incurring the risk of additional charges that they cannot control. This will remove a barrier to participation by such sites, increasing competition in TERRE (and the BM), and ultimately reducing the costs of balancing that are passed on to consumers in Great Britain through Balancing Services Use of System (BSUoS).
- 2.2 The potential disadvantage of this approach is that it could increase the risk of the Transmission Company buying flexibility that isn’t actually real. For example, a VLP might register a Secondary BM Unit that includes asset 1 (a pumping station), in order to sell into TERRE reductions in that asset’s demand. But if the reality is that asset 2 increases its demand to compensate for any reduction in the output of asset 1, the response delivered by the BM Unit is not real (and will not help the Transmission Company balance the system).
- 2.3 It should be noted that this issue could still arise, even if the P344 solution remained restricted to Boundary Point metering only (e.g. if asset 1 and asset 2 were located on neighbouring premises, each with its own network connection, but asset 2 still responded to compensate for any reduction in the output of asset 1). However, it does seem likely that the risks are increased by allowing the use of non-Boundary Point metering. Potential solutions to this include:
- *Ex ante* assurance, at the point a Metering System is registered, to verify that the metered controllable assets are genuinely independent of other nearby assets; and
 - *Ex post* assurance, to verify that (on a statistical basis) actions taken by the controllable asset do have the expected effect on the Boundary Point Meter readings.

3. Could this problem be solved more simply by Difference Metering?

- 3.1 Subject to an appropriate Metering Dispensation being in place, the BSC already allows “difference metering” to be used to separate the controllable asset from all the other demand and generation on the site. In effect, the controllable asset is treated as if it had a separate network connection. This would allow metering near the asset to be included in a Secondary BM Unit, avoiding the need for the VLP to forecast the output of uncontrollable assets. But it means that (for purposes of Imbalance Settlement and network charging) there is no longer any netting of the controllable asset and the other assets on site. This is a particular

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disadvantage if the site has generation (or storage) as well as demand, because it prevents any licence exempt self-supply, or supply between parties on the site.

- 3.2 In summary, it would be possible to use difference metering to allow a controllable asset to participate in TERRE; but doing so would preclude any on-site trading (and is therefore likely to be an unattractive option in many cases).

4. Detail of the required BSC changes

- 4.1 The current P344 solution requires the delivery of Acceptances to be verified using Boundary Point metering, which is the responsibility of the Supplier, and is subject to a rigorous framework of controls to ensure the accuracy of metered data, including:

- A requirement for Meters and other Metering Equipment to comply with the relevant Code of Practice;
- A requirement for Suppliers to appoint Qualified Party Agents to maintain the Meters, and collect metered data from them; and
- A Performance Assurance Framework to provide other parties with assurance that the requirements are being complied with.

- 4.2 In order to ensure a level playing field for all market participants, we propose that the above framework should be extended to include any non-Boundary Point metering used to settle Replacement Reserve or Bid Offer Acceptances. This would require a number of changes to the BSC and BSC Systems:

- **Extending the scope of Section L ('Metering')** to include Metering Equipment located within a customer site (i.e. behind the Boundary Point Meter) for purposes of determining the Metered Volume of a Secondary BM Unit. Responsibility for installing such Metering Equipment would lie with the VLP that registered the Secondary BM Unit, who would be required to meet existing Section L requirements (such as complying with the relevant Code of Practice, and ensuring that a Meter Operator Agent (MOA) maintains the Metering Equipment and keeps appropriate records). This Metering Equipment would form a new type of Metering System that is measuring power flows within a customer site (rather than at a Boundary Point).
- **Extending the scope of HHDC and MOA processes** so that VLPs can appoint a qualified MOA and Half Hourly Data Collector (HHDC) to maintain and collect metering data from their Metering Equipment. Requiring VLPs to appoint Qualified Party Agents should ensure that metered data collected from non-Boundary Point metering is of the same high quality as that collected from other Half Hourly Settlement metering.
- **New processes for allocating Metering System Ids (MSIDs)** to non-Boundary Point Metering Systems. Authoritative registers of MSIDs are important for allowing different parties to exchange information about Metering Systems. For Boundary Point metering it is the Licensed Distribution System Operators (LDSOs) who maintain these registers, but this will not be appropriate for metering that is not being used for the purpose of measuring flows at Boundary Points (because the LDSO will have no visibility of or interest in the power flows that are being measured). The task of allocating MSIDs could be performed by a BSC Agent (as it is in Central Volume Allocation), or could potentially be delegated to another body (e.g. a trade association could take on the allocation of MSIDs for the asset class that they represent). In order to minimise impact on HHDC and MOA systems it may be appropriate for the allocated MSIDs to take the form of 13-digit numbers (with the same structure as the MSIDs allocated by LDSOs). We understand that some Party Agents already use 13-digit codes of this type (colloquially referred to as 'Secondary MPANs') when collecting data from non-Settlement meters on customer sites (but such Secondary MPANs are currently internal to the Party Agent in question, rather than being

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maintained on a register accessible to other parties). The parties maintaining the registers could also be required to verify that the assets being metered are genuinely independent (see paragraph 2.3 above).

- **Extending the Performance Assurance Framework** (or appropriate parts of it) to non-Boundary Point metering. For example, it may be appropriate for such Metering Systems to be subject to assurance by the Technical Assurance Agent (TAA).
- **Extending the SVAA elements of the existing P344 solution** to cover the processing of metered data from non-Boundary Point metering. SVAA would therefore be aggregating two different types of metered data to form the Metered Volumes for Secondary BM Units:
 - Metered data for a new type of Metering System (measuring power flows within customer sites), sent to the SVAA directly by HHDCs; and
 - Metered data for SVA Metering Systems (measuring power flows at Boundary Points), received from Half Hourly Data Aggregators (HHDAAs).

5. Next Steps

- 5.1 We propose that the P344 Workgroup meeting on 21 February 2018 discuss whether this is a feasible approach to allowing participation in TERRE using non-Boundary Point metering; and, if so, whether they would support progressing it.
- 5.2 If the P344 Workgroup does support progressing this enhancement to the solution, we would recommend doing so in parallel with the P344 process (rather than trying to add new functionality into the P344 solution at this late stage, which would delay the completion of the P344 Assessment Procedure, and hence the Ofgem decision). A BSC Issue Group could meet in April to firm up the details of the solution, and consult industry on any issues identified, prior to raising a Modification Proposal. This Modification Proposal would reach Ofgem for a decision later than P344, but could 'catch up' with P344 during implementation, as it would not require the major system changes that P344 does.
- 5.3 This paper focuses on allowing non-Boundary metering of controllable assets for purposes of participating in TERRE (and the BM). However, once BSC processes were established that allowed Metering Systems to measure power flows within customer sites for Settlement purposes, it is likely that they could also be used for other purposes (such as settlement metering of on-site storage assets, for purposes of calculating network charges and final consumption levies).

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