PUBLIC

P344 'Project TERRE implementation into GB market arrangements'

Business Requirements

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Design Authority
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ELEXON

Document history

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01/03/2017	0.3	Elliott Hall, John Lucas	Justin Andrews	Additional detail added to requirements
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Approvals

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01/03/2017	1.0	Justin Andrews	ELEXON Head of Design Authority	Approved document
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1. INTRODUCTION

1.1 Purpose of document

This document contains ELEXON's current Business Requirements for Balancing and Settlement Code (BSC) Modification P344 'Project TERRE implementation into GB market arrangements'.

The purpose of this document is to formally catalogue the Business Requirements that ELEXON has drafted pursuant to the P344 Workgroup's solution as of its 28th meeting on 22 March 2018. This solution was devised over a period of twenty eight meetings between October 2016 and March 2018. The Business Requirements document is subject to approval by the Head of Design Authority at ELEXON.

This document forms the basis on which:

i) ELEXON agrees the Business Requirements for P344;

ii) ELEXON communicates the Business Requirements to the BSC Service Providers for High-level Impact Assessment;

iii) ELEXON maintains any changes to the Business Requirements; and

iv) ELEXON's Design Authority approves the Solution Requirements (required for design, testing, implementation and post-implementation review)

A Glossary of Terms is included as an Appendix A to this document. A Formula Map illustrating the required Settlement calculations are provided as separate attachments to this document.

Square brackets have been used to identify any aspects of a requirement that are likely to be subject to change, due to uncertainty around TSO and central TERRE requirements that National Grid is still finalising with European TSOs and the central TERRE programme.

1.2 Background

P344 seeks to align the BSC with the European Balancing Project TERRE (Trans-European Replacement Reserves Exchange) requirements. Project TERRE is an advanced implementation project that forms part of the implementation of the European Electricity Balancing Guideline (EB GL). Project TERRE aims to harmonise the Transmission System Operator (TSO) despatch of Replacement Reserve (RR) across several TSO areas. (Great Britain, France, Spain, Portugal, Italy, Switzerland, Romania, Poland, Hungary and Bulgaria (Greece, Czech Republic and Norway are currently observers). It will do this by introducing a common TERRE product, which will be similar to current GB products such as BSC Bid-Offers or Short Term Operating Reserve (STOR) submissions. This Modification will allow the implementation of the project at GB national level and ensure GB compliance with the European Electricity Balancing Guideline (EB GL).

National Grid, as the GB TSO, raised Modification P344 on 1 June 2016, with a view that the Modification should be implemented at the time the central TERRE product commences its parallel run phase and hence in advance of the formal go live window for the product. Parallel running is currently scheduled to commence in Q3 2019 calendar year, with formal go live for balancing using the TERRE product expected to be October 2019. However it is not clear what the full arrangements for the parallel running phase may be, whether these timescales will be met by the central TERRE project. Should there be any material technical amendments or alterations to delivery timescales from a central TERRE project perspective, there will likely be impacts upon implementation timescales for P344.

Prior to P344, Issue 60 'Interfaces between the European Balancing Project TERRE and the current GB market arrangements' looked into determining a potential route to solution. However, Issue 60 was closed as no firm conclusions could be reached, and it was expected that the BSC Modifications process would provide a clearer structure for a Workgroup to devise a solution.

1.3 Scope

Under the current P344 solution, TERRE is expected to run alongside the existing Balancing Mechanism (BM). As such, the following areas are within the scope of P344:

- BM Units can submit bids into both the TERRE and BM markets;
- RR bids are accepted by a central TERRE algorithm (to meet both cross-border and GB needs); and
- BM Bid-Offer Acceptances (BOAs) are made by National Grid (to meet GB needs left unsatisfied by TERRE).

1.3.1 Scope of the P344 Alternative solution

The P344 Alternative solution differs from the P344 Proposed solution only in that:

- The MSID Pair data provided by the Virtual Lead Party should not specify for each composite MSID whether the Customer has consented to the Supplier receiving MSID delivered volume data;
- The MSID Pair data provided by the Lead Party of a Primary BM unit should not specify for each composite MSID whether the Customer has consented to the Supplier receiving MSID delivered volume data; and
- No Customer consent is required for SVAA to provide Secondary Half Hourly Delivered (non-losses) volumes and Secondary Half Hourly Delivered (losses) volumes to Suppliers for the Metering Systems for which they are responsible

1.4 References

Date	Version	Author	Title
Various	Various	ELEXON	See the ELEXON website for a full list of the change documentation for P344: https://www.elexon.co.uk/mod-proposal/p344/
2 November 2017	v29.0	ELEXON	BSC Section Q: Balancing Mechanism Activities https://www.elexon.co.uk/wp-content/uploads/2017/11/Section_Q_v29.0.pdf
1 April 2018	v26.0	ELEXON	BSC Section T: Settlement and Trading Charges https://www.elexon.co.uk/wp-content/uploads/2018/03/Section_T_v26.0.pdf
1 April 2018	v37.0	ELEXON	BSC Section V: Reporting https://www.elexon.co.uk/wp-content/uploads/2018/03/Section_V_v37.0.pdf
23 February 2012	V17.0	ELEXON	BSC Communication Requirement Document https://www.elexon.co.uk/wp-content/uploads/2011/10/communication_requirements_document_v17.0.pdf

2. BUSINESS REQUIREMENTS

Due to the breadth of P344, this document has been structured into subject areas. A consolidated table of Business Requirements (BR) is provided in Appendix B.

2.1 Facilitating aggregators/customers

The EB GL requires that TSO's facilitate demand response participation in TERRE, including independent aggregation facilities and energy storage. Ofgem defines Independent Aggregators[1] as parties who bundle changes in consumer's loads or distributed generation output for sale in organised markets and who do not simultaneously supply the customer with energy.

The P344 Workgroup interprets this as requiring changes to settlement to facilitate 'Independent Aggregators' (as a new type of BSC Party) so that Independent Aggregators/customers can participate in TERRE independent of the existing Supplier Volume Allocation (SVA) Metering System to Supplier arrangements.

The P344 Workgroup has therefore concluded that a new participation capacity termed 'Virtual Lead Party' is necessary. Independent Aggregators/customers would register as a BSC Party with this capacity, but would not be classified as a Trading Party (unless they voluntarily apply to hold Energy Accounts).

BR1	
Independent Aggregators/customers shall be able to register as a BSC Party under a new 'Virtual Lead Party' participation capacity.	
1.1	A BSC Party shall be able to register with the Central Registration Agent (CRA) (as part of its Party Registration Data) that it intends to act in the participation capacity of Virtual Lead Party (and the associated registration effective dates).
1.2	A BSC Party shall be required to demonstrate the ability to perform the activities and obligations under the BSC before it can be registered by the CRA in the participation capacity of Virtual Lead Party. To do so a BSC Party shall be obliged to meet the Qualification Requirements, assessed through the Party Qualification Process, in order to establish: (a) the ability to perform their activities and obligations under the Code; (b) the ability of systems and processes used by such persons to support the aforementioned functions, activities and obligations under the code.
1.3	A BSC Party shall be required to demonstrate that has the use of, and maintains, a Party System in compliance with the BSC Communication Requirements Document before it can be registered by the CRA in the participation capacity of Virtual Lead Party.

[1] See 'Ofgem's views on the design of arrangements to accommodate independent aggregators in energy markets' open letter dated 24 July 2017

	To do so a BSC Party shall submit to, and submit its Party System to, CVA Qualification testing, in compliance with BSC Communication Requirements Document and BSC Procedure CVA Qualification Testing for Parties and Party Agents (BSCP70), in order to establish that: (a) the Party System is compatible with the relevant Communication Medium; (b) the Party is capable of sending and receiving BSC Communications
1.4	For a BSC Party that registers solely with the Virtual Lead Party participation capacity (unless that BSC Party has voluntarily applied to hold Energy Accounts), CRA shall: a) not allocate that BSC Party Energy Accounts, and; b) allocate that BSC Party a Virtual Balancing Account. Such a BSC Party will therefore not be a Trading Party and will not be able to be subject to Energy Contract Volume Notifications (ECVNs) or Metered Volume Reallocation Notifications (MVRNs).
1.5	CRA shall allocate Energy Accounts to a BSC Party that is: a) registering/has registered solely with the Virtual Lead Party participation capacity and voluntarily applies to hold Energy Accounts; or b) registering/has registered with the Virtual Lead Party participation capacity and is also registering with another participation capacity that requires it to hold Energy Accounts (pursuant to BSC Section A1.4.1). Such a BSC Party will therefore be a Trading Party and will be able to be subject to ECVNs and be the Subsidiary Party in a MVRN.
1.6	CRA shall remove Energy Accounts and allocate a Virtual Balancing Account to a BSC Party that: a) is not required to hold Energy Accounts under one of its participation capacities; and b) registers to have its Energy Accounts removed. This removal can only happen if no future dated ECVN or MVRN is in force, in respect of which the Party is a Contract Trading Party and the Party has terminated all ECVNA Authorisations and MVRNA Authorisations made under its authority.
1.7	With effect from the P344 Implementation Date, the Base Monthly Charge will be payable by each BSC Party, with the exception of Virtual Lead Parties that do not hold Energy Accounts.
1.8	A BSC Party that has registered solely with the Virtual Lead Party participation capacity (and not as a Trading Party, Licensed Distribution System Operator or Transmission Company) will be required to pay a Base Virtual Lead Party Monthly Charge (instead of the Base Monthly Charge). The level of the Base Virtual Lead Party Monthly Charge will be set by the BSC Panel from time to time, and published on the BSC Website.
1.9	A BSC Party that has registered solely with the Virtual Lead Party participation capacity (and not as a

	Trading Party, Licensed Distribution System Operator or Transmission Company) will not have Funding Shares (Main, SVA General or Default) calculated and so will not be liable for any BSC cost recovery via the Funding Share allocation method. Such a BSC Party will still be liable for BSC Specified Charges as per BSC Section D.

BSC Parties with this Virtual Lead Party participation capacity would then be able to register Secondary BM Units, a new type of BM Unit. This will allow the association of SVA Metering System Numbers that an Independent Aggregator is bringing together in a Secondary BM Unit for the purposes of participating in TERRE or the BM. If a Virtual Lead Party was handling SVA Metering System Numbers across multiple Grid Supply Point (GSP) Group Ids, it would have to register a Secondary BM Unit for each GSP Group Id (similar to Supplier Additional BM Units currently). In the remainder of this document the term 'BM Unit' includes Secondary BM Units (unless otherwise stated).

BR2	
BSC Parties with the 'Virtual Lead Party' Party participation capacity shall be able to register 'Secondary BM Units'.	
2.1	Virtual Lead Parties shall be able to register Secondary BM Units (i.e. BM Units with a BM Unit Type of 'V') by submitting BM Unit registration data to CRA.
2.2	Registration data for Secondary BM Units will include the following data items: • BM Unit Identifier • BM Unit Name • BM Unit Type • Party Identifier • Effective From Date • Effective To Date • GSP Group Id • FPN Flag • National Grid Name • Production/Consumption Status The following data items are not relevant to (and cannot be provided for) a Secondary BM Unit: • Generation Capacity and Demand Capacity • CALF-related data items (WDCALF, NWDCALF, WDBMCAIC, NWDBMCAIC, WDBMCAEC, NWDBMCAEC) • Exempt Export Flag
2.3	A Secondary BM Unit shall not be treated as a Supplier BM Unit (e.g. Secondary BM Unit details are not to be published in Market Domain Data, and the Additional BM Unit Monthly Charge shall not be payable).

2.4	The CRA shall be required to notify daily to the SVAA in accordance with BSCP15 (to be amended) details of the Secondary BM Units registered by each Virtual Lead Party;
2.5	A Secondary BM Unit shall not be treated as a CVA BM Unit (e.g. the Central Data Collection Agent (CDCA) will not be required to calculate BM Unit Metered Volumes for Secondary BM Units, and the CVA BM Unit Monthly Charge shall not be payable).
2.6	It shall not be possible to submit Metered Volume Reallocation Notifications (MVRNs) in relation to Secondary BM Units.
2.7	A Secondary BM Unit cannot be in a Trading Unit however, for the purposes of determining the relevant Transmission Loss Multiplier (TLM_{ij}), the Trading Unit Delivery Mode of the Base Trading Unit shall be used based on the GSP Group Id of that Secondary BM Unit.
2.8	The Lead Party of a Secondary BM Unit (who holds a Secondary BM Unit for all or part of a month) will be required to pay a Secondary BM Unit Monthly Charge. The CRA shall provide the relevant information (this will require a change to the CRA-I035 data file) to allow the BSC FSS to accrue the appropriate charges. The level of the Secondary BM Unit Monthly Charge will be set by the BSC Panel from time to time, and published on the BSC Website.

Virtual Lead Parties will be able to communicate to the Supplier Volume Allocation Agent (SVAA)[2] the SVA Metering System Numbers to be associated to a given Secondary BM Unit on a given Settlement Date in the form of MSID Pairs. A 'MSID Pair' means one Import Metering System and, where applicable, one Export Metering System situated at a single Boundary Point for the purposes of the providing Replacement Reserve (RR) or Balancing Mechanism (BM) Services. To clarify a MSID Pair must contain a SVA Import Metering System but does not always have to have to contain a SVA Export Metering System. A SVA Metering System can only be registered in one MSID Pair at any given time.

Virtual Lead Parties will be able to retrospectively submit amendments so that erroneous associations can be later remedied, and this will feed into the next Settlement Run. There will be a formal process governing submissions and amendments defined in a BSC Procedure.

[2] The Workgroup has proposed that SVAA holds the register of which SVA Metering System Numbers are allocated to each Secondary BM Unit, and to aggregate metered data received for those SVA Metering System Numbers from HHDAs. The reason for choosing SVAA (rather than SAA or a new agent role) is that SVAA already receives data from HHDAs. This does not necessarily imply that we need the functionality to be incorporated into the existing SVAA system (and we would welcome opinions on whether SVAA in in fact the correct agent role).

BR3	
The Lead Party of a Secondary BM Unit shall be required to notify the SVAA of which SVA MSID Pairs should be treated (for purposes of settling Replacement Reserve (RR) or Balancing Mechanism (BM) Acceptances) as belonging to that Secondary BM Unit.	
3.1	The Lead Party of a Secondary BM Unit that offer BM or RR Services will be obligated to provide the following MSID Pair information (for each MSID Pair in the Secondary BM Unit) and to provide an update when any subsequent details change: • The Secondary BM Unit Id • The GSP Group Id; • The 13-digit MSID (analogous to MPAN Core under the Master Registration Agreement) of the Import Metering System • The 13-digit MSID (analogous to MPAN Core under the Master Registration Agreement) of the associated Export Metering System (where applicable) • The associated Effective From Settlement Date • The associated Effective To Settlement Date • A Import Metering System Customer Consent Flag • A Import Metering System Customer Consent Flag Effective From Settlement Date • A Import Metering System Customer Consent Flag Effective To Settlement Date • A Export Metering System Customer Consent Flag • A Export Metering System Customer Consent Flag Effective From Settlement Date • A Export Metering System Customer Consent Flag Effective To Settlement Date The Customer Consent Flag indicates whether the customer has consented to their Supplier being provided Half Hourly delivered volumes (please see BR6) by SVAA on BM or RR Services delivered through that SVA Metering System Number Note only half hourly metered MSIDs may be allocated to a Secondary BM Unit.
3.2	When SVAA receives new registration data from the Lead Party of a BM Unit, it will validate that the GSP Group Id provided for the SVA Metering System Number matches that of the BM Unit to which it is being assigned. Exceptions are to be reported to the Lead Party
3.3	The Lead Party of a Secondary BM Unit shall be able to retrospectively submit amendments to records in the register and these will be picked up in the next Settlement Run for Settlement Dates affected.

The Supplier Volume Allocation Agent (SVAA) shall maintain a register, to be known as the "**SVA Metering System Balancing Services Register**", of which SVA Metering System Numbers belong to each BM Unit that offer BM or RR Services; the associated Supplier for each of the SVA Metering System Numbers identified in a MSID Pair; and the associated effective dates. A SVA Metering system can only be associated with one BM Unit that offers BM or RR Services at any given time.

The process will include controls to ensure that the same SVA Metering System is not able to provide BM or RR Services through two BM Units at the same time. In order to support this, Suppliers as the Lead Party of

Primary BM Units will be required to notify Settlement of any SVA Metering System Numbers they are using to provide BM or RR Services.

BR4	
The Supplier Volume Allocation Agent (SVAA) shall maintain a register of which SVA Metering System Numbers belong to each BM Unit for purposes of providing BM or RR Services. This register will be known as the "**SVA Metering System Balancing Services Register**"	
4.1	When SVAA receives new MSID Pair registration data from the Lead Party of a Secondary BM Unit, it will identify the relevant Supplier Id and HHDA [by making a manual enquiry on the ECOES system, or other source agreed by the Panel] for both the Import Metering System and (where applicable) the Export Metering System. The SVAA system must be able to store the standing data for both individual SVA Metering Systems. The details to be stored include: • MSID number • GSP Group Id • Supplier Id • Supplier_MSID Effective From Date • Supplier_MSID Effective to Date • HHDA Id • HHDA_Supplier Effective From Date • HHDA_Supplier Effective To Date
4.2	To ensure that no SVA Metering System is able to provide BM or RR Services through two BM Units at the same time the Lead Party of a Primary BM Unit that provides BM or RR Services will be obligated to provide the following information of any MSID Pairs contained in that BM Unit and to provide updates of said information when any subsequent details change: • The Primary BM Unit Id • The GSP Group Id; • The 13-digit MSID (analogous to MPAN Core under the Master Registration Agreement) of the Import Metering System • The 13-digit MSID (analogous to MPAN Core under the Master Registration Agreement) of the associated Export Metering System (where applicable) • The associated Effective From Settlement Date • The associated Effective To Settlement Date • A Import Metering System Customer Consent Flag • A Import Metering System Customer Consent Flag Effective From Settlement Date • A Import Metering System Customer Consent Flag Effective To Settlement Date • A Export Metering System Customer Consent Flag • A Export Metering System Customer Consent Flag Effective From Settlement Date • A Export Metering System Customer Consent Flag Effective To Settlement Date

4.3	If the SVA Metering System to be registered is already registered to another Secondary BM Unit or Supplier BM Unit that offers BM or RR Services on the "**SVA Metering System Balancing Services Register**" then the SVAA shall action the registration and inform the losing Lead Party that the SVA Metering System is no longer registered to their BM Unit Upon being informed of a loss of registration from a Primary BM Unit it is the responsibility of the Lead Party of that Primary BM Unit to ensure that the notified SVA Metering System is not subsequently used for any BM or RR Services activity.

Half Hourly Data Aggregators[3] (HHDAs) will be required to submit Half Hourly (HH) metered volume data for SVA Metering System Numbers associated with Secondary BM Units to settlement. Settlement would use this data and the registration data to calculate an aggregated volume for each Secondary BM Unit, in order to facilitate settlement of RR Activations. This is a similar process to the one by which HHDAs submit metered data for Metering Systems in Capacity Market Units (CM Units) to the Electricity Market Reform (EMR) settlement process.

BR5	
Half Hourly Data Aggregators shall be required to submit Half Hourly metered volume data for SVA Metering System Numbers in Secondary BM Units to Settlement.	
5.1	Upon a SVA Metering System Number being associated as belonging to a Secondary BM Unit in SVAA, SVAA shall inform the appointed HHDA. The HHDA shall validate the data submitted to it by the SVAA and confirm or reject the allocation by notice to the SVAA.
5.2	As part of each SVA Run, each HHDA shall produce and send to SVAA a data file containing the Half Hourly metered data that was included in SVA for each relevant Metering System (a relevant Metering System being one which SVAA has informed the HHDA as belonging to a Secondary BM Unit). Data items required for each relevant SVA Metering System Number are as follows: • The 13-digit MSID (analogous to MPAN Core under the Master Registration Agreement) • Supplier Id • Primary BM Unit Id • GSP Group Id • Consumption Component Class Id • Metered Consumption in kWh (per Settlement Period) • Line Loss Factor Class Id • Settlement Date • Settlement Run

[3] Non Half Hourly Data Aggregators are not able to submit data, as participation in TERRE requires half hourly settlement metering to verify deliver.

5.3	SVAA shall be required to resolve instances where there is a failure or delay in receiving required data from the HHDA and shall: • Contact the responsible HHDA upon non-delivery to request the subsequent forwarding of the required data set • If all attempts to acquire the missing data are unsuccessful then the SVAA will, where possible, derive data from the previous Settlement Run for that Settlement Day. If no previous Settlement Run exists then no data is entered into that Settlement Run
5.4	The SVAA shall adjust Half Hourly metered data for Line Losses using the Line Loss Factor Class provided by the HHDA for each Half Hourly SVA Metering System Number.
5.5	Upon adjustment of the for Line Losses the SVAA shall provide the Lead Party of a Secondary BM Unit the relevant Half Hourly Metered Volumes for each metering system registered to that Secondary BM Unit as per the "SVA Metering System Balancing Services Register". The SVAA shall be able to provide this data in a .csv format
5.6	The SVAA shall adjust Half Hourly metered data for GSP Group Correction using the GSP Group Correction Factor and GSP Group Correction Scaling Weight calculated by the SVAA for each Half Hourly SVA Metering System Number.
5.7	As part of each SVA Run, SVAA shall aggregate the Line Loss and GSP Group Correction Factor adjusted metered data received from HHDAs to calculate Secondary BM Unit Demand Volume ($VBMUDV_{ij}$) in MWh for each Secondary BM Unit, and report the data to the Settlement Administration Agent (SAA).
5.8	HHDAs must not disclose to the Supplier which MSIDs they have been requested to provide disaggregated metered data for (but may disclose the number of such MSIDs).

Virtual Lead Parties (VLPs) will be required to submit Half Hourly (HH) delivered volume data for SVA MSID Pairs associated with Secondary BM Units to the SVAA. The SVAA will use the delivered volume data and the metered volume data received from the HHDA to allocate the delivered volume to individual MSIDs within Secondary BM Units, in order to facilitate settlement of RR Activations.

BR6	
The Lead Party of a Secondary BM Unit shall be required to submit Half Hourly Delivered Volumes for each MSID Pair notified to Settlement.	
6.1	The Lead Party of a Secondary BM Unit to which an RR Activation was issued shall provide to SVAA [by SD + 1 WD] a data file identifying the delivered MWh volumes for each SVA MSID Pair associated with the Secondary BM Unit that was instructed to deliver RR Activation. This is to be known as MSID Pair Delivered Volume (MPDV) and the required data items are as follows:

	• The 13-digit MSID (analogous to MPAN Core under the Master Registration Agreement) of the Import Metering System • The 13-digit MSID (analogous to MPAN Core under the Master Registration Agreement) of the associated Export Metering System (where applicable) • Settlement Date • Settlement Period • Delivered volume (in MWh, where a positive value represents an increase in output and a negative volume represents a decrease in output) The Lead Party of a Secondary BM Unit to which an RR Activation was issued shall be able to provide an updated data file to SVAA [prior to subsequent Settlement Run] to identify more accurate delivered MWh volumes for each SVA Metering System that was instructed to deliver RR Activation.
6.2	The SVAA shall be required to resolve instances where there is a failure or delay in receiving required data from the Lead Party of Secondary BM unit and shall: • Contact the responsible Party upon non-delivery to request the subsequent forwarding of the missing data set • If all attempts to acquire the missing data are unsuccessful then the SVAA will [deem zeroes] for that Settlement Run To enable the SVAA to identify when Half Hourly Delivered Volumes are expected the SVAA shall load and store an internal data flow from the SAA detailing for each Settlement Day where the SAA has processed Replacement Reserve Activation Data for a Secondary BM Unit.
6.3	The SVAA shall validate that SVA Metering System Numbers included in the data received from Lead Parties of Secondary BM Units are included (on that Settlement Date) in a Secondary BM Unit for which the Lead Party is responsible (and report an exception if not).

BR7	
A new process will be required for SVAA (using the data from BR6 above) to allocate MSID Pair Delivered Volumes between the SVA Metering Systems in the relevant MSID Pair to create the Metering System Delivered Volume ($QVMD_{Kj}$)	
7.1	SVAA will use the disaggregated kWh metered data (prior to adjustment for line losses and GSP Group Correction Factor) provided by HHDAs to allocate the MSID Pair Delivered Volume to the component MSIDs in that MSID Pair for each Settlement Period, creating the Metering System Delivered Volume ($QVMD_{Kj}$) The steps of this process are as follows: 1. For each MSID Pair, start by allocating the MSID Pair Delivered Volume to the Export MSID for a positive value (or to the Import MSID for a negative value), subject to the constraint that the magnitude of the MSID Pair Delivered Volume that can be allocated is capped by the magnitude of the half hourly metered data.

	For example, if the MSID Pair Delivered Volume is -1.3 MWh, and the Import MSID has a HH metered consumption of 800 kWh, the volume allocated to the Import MSID will be -0.8 MWh. 2. Allocate any remaining MSID Pair Delivered Volume to the other MSID in the MSID Pair (i.e. the Import MSID for a positive value, or the Export MSID for a negative value). In the example above, the remaining -0.5 MWh of MSID Pair Delivered Volume would be allocated to the Export MSID (recognising that the MSID Pair Delivered Volume must have reduced the site Export). 3. As a result the Metering System Delivered Volume will be -0.8MWh for the Import MSID and -0.5MWh for the Export MSID. In the special case of an MSID Pair that does not include an Export MSID this process, all of the MSID Pair Delivered Volume will be allocated to the Import MSID. If a MSID Pair Delivered Volume cannot be allocated in full to the component MSIDs using this process, the SVAA System will report an exception. The SVAA operator will then report this exception to BSCCo and the Virtual Lead Party, as an exception indicates that the MSID Delivered Volume is inconsistent with the Settlement metered data, suggesting that the MSID Delivered Volume has been reported incorrectly). If the Virtual Lead Party review identifies that the exception was caused by the MSID Pair Delivered Volume being incorrect, the Virtual Lead Party will submit a corrected MSID Delivered Volume to the SVAA[4].
7.2	The SVAA shall adjust the allocated Half Hourly Delivered Volumes for Line Losses using the Line Loss Factor Class provided by the HHDA for each Half Hourly SVA Metering System Number.
7.3	Upon adjustment of the allocated Half Hourly Delivered Volumes for Line Losses the SVAA will be required to check the Customer Consent Flag status of each MSID on the "**SVA Metering System Balancing Services Register**". Where the Customer Consent Flag has been marked as TRUE the SVAA shall provide the relevant Supplier with both the Secondary Half Hourly Delivered (non-losses) volumes and the Secondary Half Hourly Delivered (losses) volumes for that MSID.
7.4	The SVAA shall adjust the allocated Half Hourly Delivered Volumes for GSP Group Correction using the GSP Group Correction Factor calculated by the SVAA for each Half Hourly SVA Metering System Number (and the CCC allocated to the metered data for that SVA Metering System Number by the HHDA).
7.5	As part of each Settlement Run, SVAA shall aggregate the Line Loss and GSP Group Correction Factor adjusted Secondary BM Unit Supplier Delivered Volume ($VBMUSDV_{i2\,j\,i}$) for each Secondary BM Unit 'i2' and Supplier Primary BM Unit 'i' for each Settlement Period, and report it to the SAA for subsequent use in settlement (see BR23).

[4] As this is a manual process the expectation is that this will be over a number of Working Days.

2.2 Currency conversion

The P344 Workgroup advocates GBP-EUR conversion being undertaken centrally by National Grid, for which the Balancing Mechanism Reporting Agent (BMRA) will procure and published a day-ahead exchange rate for use by National Grid. The actual calculation methodology is yet to be determined but will be done under a transparent process.

BR8	
The Balancing Mechanism Reporting Agent (BMRA) shall procure and publish a day-ahead GBP-EUR exchange rate under a transparent process.	
8.1	The BSC Panel shall (from time to time) agree which financial service provider(s) should be used to obtain exchange rate data for use in settlement.
8.2	At an agreed time each calendar day, BMRA shall acquire the latest GBP-EUR exchange rate from the agreed financial services provider(s), and record the average value as the Settlement Exchange Rate for use on the following Settlement Day.
8.3	The BMRA shall be required to resolve instances where there is a failure or delay in receiving required data from the appointed financial services provider and shall: • Contact the responsible Party upon non-delivery to request the subsequent forwarding of the missing data set • If all attempts to acquire the missing data are unsuccessful then the BMRA will default to the value provided and/or determined for the previous Settlement Day
8.4	By [16:00] each calendar day, BMRA shall publish the Settlement Exchange Rate for the following Settlement Day on BMRS.

2.3 TSO interface

Project TERRE will require various new data to be exchanged between Balancing Service Providers (BSPs), National Grid, the central TERRE system and the Balancing Mechanism Reporting Agent (BMRA) / Settlement Administration Agent (SAA). BSC Settlement will need to be able to receive the following new data from National Grid (some of which originated with the central TERRE system):

- BSP TERRE bid data (volume/price/physical and dynamic data);
- TERRE GB clearing price (£/MWh);
- Volume of GB need met (MWh);
- RR Activation data; and
- RR Instruction data

BR9	
Settlement systems shall receive, validate and process new TERRE-specific data from National Grid.	
9.1	Once per hour (approximately 45 minutes before the hour starts) National Grid shall send to BMRA) and SAA details of all RR Bids submitted by GB parties for that RR Auction Period. Data items include: • Party Id • BM Unit Id • Associated TSO • Market balance area • Divisible [A01 Yes / A02 No] • Linking Bid Id (where applicable) • Multipart Bid Id (where applicable) • Exclusive Bid Id (where applicable) • Flow Direction [A01 = UP / A02 = Down] • Incremental size (where applicable) [i.e. Divisible A01] • Minimum quantity (MW); • Maximum quantity (MW); • Bid Resolution [PT60M / PT30M / PT15M] • Position • Price (£/MWh); • Status [A06 Available / A28 unshared / A11 Restricted] BSP RR Bid submission requirements (including data items and formats) are to be detailed in a Grid Code governed document called 'TERRE Validation and Consistency Rules'. The P334 solution will place obligations for BSPs to be compliance with this document.
9.2	National Grid will include data for Secondary BM Units (where it has been submitted) in the existing interfaces for: • Final Physical Notifications (FPNs); • Dynamic Data Set; • Bid Offer Data; and • BOAs.
9.3	Once per hour (approximately 30 minutes before the hour starts) National Grid shall send to BMRA and SAA the Replacement Reserve Auction Result Data which shall compromise at least the following data sets: (a) Replacement Reserve Activation Data for each Replacement Reserve Auction Period; • BM Unit Id • Flow Direction [A01 = UP / A02 = Down] • Activated Quantity (MW Level) • Bid Resolution [PT60M / PT30M / PT15M]

	• Position • Activation Price (i.e. TERRE Clearing Price) (b) GB Need Met Data for each Replacement Reserve Auction Period; • Flow Direction [A01 = UP / A02 = Down] • Activated Quantity (MW Level) • Activation Price (i.e. TERRE Clearing Price) (c) Interconnector Schedule Data for each Interconnector for each Replacement Reserve Auction Period. • Interconnector Id • Flow Direction [A01 = UP / A02 = Down] • Activated Quantity (MW Level)
9.4	It is recognised that Replacement Reserve Activation Data, GB Need Met Data and Interconnector Schedule Data derived from data submitted or determined under the Grid Code (and received by the SAA from the Transmission Company) will contain values with an associated Position and Replacement Reserve Auction Period Resolution Type whereas the equivalent data required for the purposes of settlement contain Quarter Hour values. Therefore SAA shall convert such data received from the National Grid into the required Quarter Hour format.
9.5	The BOA interface will be amended so that it can be used to provide details of RR Instructions (issued in relation to one or more RR Activations) as well as Bid Offer Acceptances. The RR Instruction shall have similar data content to a BOA i.e. it will consist of one or more Acceptance Volume Pairs, each with: • a 'From' MW level and an associated 'From' time; • a 'To' MW level and an associated 'To' time; • a flag stating whether that Acceptance is relating to an RR Activation, and • all other relevant BOA acceptance data
9.6	Once per day the SAA shall create a Quarter Hour RR Activation report detailing where the SAA has processed Replacement Reserve Activation Data for a Secondary BM Unit. This data is to be created and sent to the SVAA daily (please see BR 6.2).
9.7	The Panel shall be given the right to suspend the right of a BSC Party to submit RR Bids where they have become a 'Defaulting Party' due to the occurrence of a Default as per BSC Section H.

2.4 RR Activation Settlement

The central TERRE system will inform National Grid of BSP bids that have been accepted through RR Activations and National Grid will forward this information to settlement The SAA will interpret this information and create activation data for each 15 min within the TERRE Auction Period hour. The settlement of these RR Activations (blocks) will be handled under a new process whereby settlement systems multiply the RR Activation Level (for a

given quarter-hour) with the Replacement Reserve Activation Price (i.e. TERRE GB clearing price) for that quarter-hour, per BM Unit. Settlement systems will then sum the RR Cashflow for each quarter-hour within a day to get the Daily Party RR Cashflow.

BR10	
SAA shall calculate the Quarter Hour RR Cashflow (CCR_{iJ}) for each BM Unit for each quarter-hour.	
10.1	SAA shall calculate Quarter-Hour RR Activation Volume ($RRAV_{iJ}$) as the Quarter Hour RR Activated Quantity (per the TERRE auction results) multiplied by 0.25. $RRAV_{iJ}$ = Quarter Hour RR Activated Quantity * 0.25
10.2	SAA shall calculate Quarter-hour RR Cashflow (CCR_{iJ}) as Quarter-Hour RR Activation Volume ($RRAV^{J}_{iJ}$) multiplied the Replacement Reserve Activation Price ($RRAP_J$) $CCR_{iJ} = RRAV_{iJ} * RRAP_J$

The Daily Party RR Cashflow (CRR_p) will be a new Trading Charge. It will be included on Trading Charge Advice Notes that are sent to BSC Parties participating in TERRE.

BR11	
Daily Party RR Cashflow (CRR_p) shall be a new Trading Charge, included on Trading Charge Advice Notes that are sent to Parties participating in TERRE.	
11.1	SAA shall shall calculate Period RR BM Unit Cashflow (CRR_{ij}) as the summation of Quarter-hour RR Cashflow (CCR_{iJ}) across all quarter-hours J falling within a given Settlement Period per BM Unit. $CRR_{ij} = \Sigma_J CCR_{iJ}$ Where Σ_J is the sum over all Quarter-hours within Settlement Period j
11.1	SAA shall calculate Daily Party RR Cashflow (CRR_p) as the summation of Period RR BM Unit Cashflow (CCR_{iJ}) across all BM Units i for which that Party is the Lead Party and across all Settlement Periods j falling within a given Settlement Date. $CRR_p = \Sigma_j \Sigma_{i \in p} CRR_{ij}$ Where Σ_J is the sum over all Settlement Periods and $\Sigma_{i \in p}$ is the sum of all BM Units for which Party p is the Lead Party in that day
11.2	SAA shall send Daily Party RR Cashflow (CRR_p) to FAA alongside the other Trading Charges.

11.3	FAA shall include Daily Party RR Cashflow (CRR_p) on invoices and Advice Notes to Trading Parties and BSC Parties with the Virtual Lead Party participation capacity.

Upon receiving the RR Activation 'blocks' from the central TERRE system, National Grid will interpret the data and intend to issue an appropriate RR Instructions to the BSP directing them to deliver the RR Activation. However a number of scenarios have been identified where issuing the RR Instruction won't be in the best interest of the GB system. In those instances National Grid has indicated they will not issue a RR Instruction.

Therefore to facilitate accurate Settlement the SAA will construct an RR Schedule for use in settlement to account for the instances where a RR Instruction is not received. These RR Schedules are treated by settlement systems just like any other instruction (i.e. setting a new baseline), except that they do not create Accepted Volumes that are payable.

The RR Schedule will respect the TERRE Standard Product shape and align with TSO RR Dispatch Principles (as defined by National Grid) including:

- Where a RR Activation is deemed to be feasible;
    - RR Schedule will respect submitted Dynamic Data Set parameters
    - The full MW delivery will be achieved between 0-5 mins into the 15min RR Auction Period
    - There will be a minimum duration of full MW delivery of the RR Activation of 5 mins
    - Run-Up Rates and Run-Down Rates < 10 min TERRE Standard Product Ramp rates will be dispatched symmetrical to the 15 min TERRE Auction Period boundary
- Where the RR Activation is **not** deemed to be feasible;
    - RR Schedule will not respect submitted Dynamic Data Set parameters
    - The full MW delivery will be achieved between 5 mins into the 15min RR Auction Period
    - There will be a duration of full MW delivery of the RR Activation of 5 mins
    - Run-Up Rates and Run-Down Rates will be determined as the maximum feasible rate

BR12	
SAA shall create an RR Schedule for each set of RR Activations received in regards to a TERRE Auction Period.	
12.1	SAA shall deem RR Schedule based upon RR Activation Data and the Dynamic Data Set received from national Grid as per BR 9. Upon receipt SAA shall create **RR Schedule Product Point Variables** ($qRRS^k_{ijt}$) for each RRA^J received

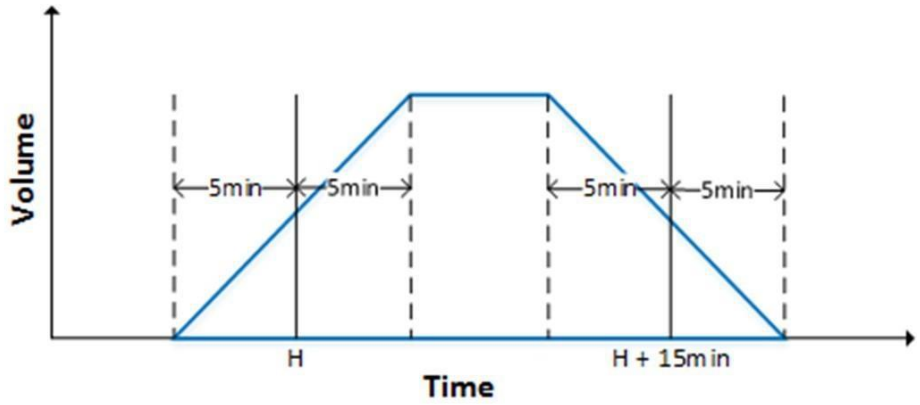
	Point variable pairs shall be deemed for each RR Activation detailing: • Ramping Period start time (t) point variable • Ramping Period end time (t) point variable (i.e. Full MW Delivery start time) • Deactivation Period start time (t) point variable (where appropriate) • Deactivation Period end time (t) point variable (where appropriate) Note: • $qRRS^{J}_{ijt}$ will have the same format and structure as other BSC point variables as per BSC X-2 4.4 • the RR Schedule shall be (where possible) consistent with Dynamic Data Set parameters by taking into account Run-Up Rates and Run-Down Rates as defined in the Grid Code and as submitted by Parties • the RR Schedule Methodology will be contained within the Replacement Reserve Schedule Methodology Document

Because RR Activations are paid under a separate mechanism (see BR10), the volumes relating to RR Schedules are not paid at Bid Prices or Offer Prices per Bid-Offer Pair. SAA will need to calculate RR Schedule Volumes (i.e. have equivalent calculations to those for Period Accepted Offer Volume and Period Accepted Bid Volume). This will ensure that the volumes for RR Activations and BOAs do not mix, which could result in a BSP being paid twice (once via RR Cashflow and again via BM Cashflow).

BR13	
SAA shall process RR Schedules similar to (and processed in a similar way to) any other BOA, except that: • An RR Schedule shall be deemed to have been accepted equal to the time of the BEGCT of the Replacement Reserve Auction rather than when the RR Schedule was actually created (i.e. it will be treated as if its Acceptance Number was between the last BOA issued before that point, and the first BOA issued after that point); and • Settlements systems shall calculate RR Schedule Volumes, separate to Accepted Bid/Offer Volumes (so the volumes will not be included in QAO^{kn}_{ij} or QAB^{kn}_{ij}, and will therefore not attract Bid Offer Payments).	
13.1	For the calculation for $qAO^{kn}_{ij}(t)$ and $qAB^{kn}_{ij}(t)$, the RR Schedule shall be treated as if it were a BOA and shall be calculated exactly the same as the current arrangements. The calculation required from SAA and BMRA is therefore as follows: • Convert the spot times in the RR Schedule to an Acceptance Volume $qA^{k}_{ij}(t)$ for the RR Schedule, in accordance with the existing provisions of BSC section T3.4 • Calculate the Bid-Offer Upper Range $BOUR^{n}_{ij}(t)$ and Bid-Offer Lower Range $BOLR^{n}_{ij}(t)$ for each Bid Offer Number n, in accordance with the existing BSC provisions of T3.4A, T3.4B and T3.5 • Determine the Accepted Bid-Offer Volume $qABO^{kn}_{ij}(t)$, in accordance with the existing BSC

	provisions of T3.6 Determine the Accepted Offer Volume $qAO^{kn}_{ij}(t)$ and Accepted Bid Volume $qAB^{kn}_{ij}(t)$, in accordance with the existing BSC provisions of T3.7
13.2	SAA and BMRA shall treat any RR Schedule received for BM Unit as if it were a BOA, with Acceptance Time equal to the time of the BEGCT of the Replacement Reserve Auction (i.e. it will be treated as if its Acceptance Number was between the last BOA issued before that point, and the first BOA issued after that point). In particular, SAA and BMRA shall calculate the Accepted Offer Volume $qAO^{kn}_{ij}(t)$ and Accepted Bid Volume $qAO^{kn}_{ij}(t)$ as they would for a BOA, and the RR Schedule therefore sets the baseline against which volumes are measured for any subsequent RRI or BOA.
13.3	For each RR Schedule, SAA and BMRA shall determine a Period RR Accepted Offer Volume ($RRAO^{kn}_{ij}$) by integrating values of Accepted Offer Volume $qAO^{kn}_{ij}(t)$. Note that this calculation is exactly analogous to the calculation of Period Accepted Offer Volume (QAO^{kn}_{ij}) for BOAs.
13.4	For each RR Schedule, SAA and BMRA shall determine a Period RR Accepted Bid Volume ($RRAB^{kn}_{ij}$) by integrating values of Accepted Bid Volume $qAB^{kn}_{ij}(t)$. Note that this calculation is exactly analogous to the calculation of Period Accepted Bid Volume (QAB^{kn}_{ij}) for BOAs.
13.5	In respect of each Settlement Period, for each BM Unit, the total MWh volume of Offers accepted for all acceptances flagged as relating to a RR Schedule shall be the Period RR Total Accepted Offer Volume and shall be established as follows: $RRAO^{n}_{ij} = \Sigma^{k} RRAO^{kn}_{ij}$ Where Σ^{k} represents the sum over all Acceptances within the Settlement Period
13.6	In respect of each Settlement Period, for each BM Unit, the total MWh volume of Bids accepted for all acceptances flagged as relating to a RR Schedule shall be Period RR Total Accepted Bid Volume and shall be established as follows: $RRAB^{n}_{ij} = \Sigma^{k} RRAB^{kn}_{ij}$ Where Σ^{k} represents the sum over all Acceptances within the Settlement Period

Under the P344 solution, an RR Activation will represent the theoretical volume of a Quarter Hour RR Activation 'block'. However, the physical delivery (i.e. RR Schedule) of the RR Activation will have volumes delivered outside of the 15 minute period. Project TERRE has stated that RR Activations should be incentivized to physically deliver as close as possible to the XB ex-change schedule and has defined a TERRE Standard Product Shape to represent the desired delivery of a RR Activation. For clarification the TERRE Standard Product has been defined as below:



RR Activations are to be treated exactly as BOAs for Non-delivery purposes and to calculate Non-delivery Charges Settlement needs to be able to associate a price to all volumes delivered through TERRE. As the physical delivery volumes will not match the theoretical 'block' RR Activation Volumes the Non-Delivery calculation becomes compromised. Settlement will therefore use the RR Activations to derive the 'Deemed Standard Product Shape' (for that Quarter Hour RR Activation) and calculate 'Deemed Standard Product Offer / Bid Volumes' for use in the non-delivery calculation.

BR14	
SAA shall calculate **Period Deemed Standard Product Offer Volumes** ($DSPO^{J}_{ij}$) and **Period Deemed Standard Product Bid Volumes** ($DSPB^{J}_{ij}$)	

14.1	SAA and BMRA shall receive RR Activation data from national Grid as per BR 7.3. Upon receipt SAA shall:
	• Assign the quarter hour variable 'J' to each Quarter Hour RR Activation (RRA^{J}) in the RR Auction Period
	• For each Quarter Hour RR Activation (RRA^{J}) create **Deemed Standard Product Point Variables** ($qDSP^{J}_{ijt}$)
	  • For concurrent Quarter Hour RR Activations the previous RR Activation (RRA^{J-1}) shall act as the baseline when creating the Deemed Standard Product Variables for RRA^{J}. Where no previous Quarter-hour Replacement Reserve Acceptance exists then the baseline shall be set to zero
	  • To clarify the Deemed Standard Product Shape and associated volumes will exist outside of the Quarter Hour "J" the RR Activation relates to and by therefore by extension over multiple Settlement Periods.
	  • Note $qDSP^{J}_{ijt}$ will have the same format and structure as other BSC point variables as per BSC X-2 4.4
	• Establish **Deemed Standard Product Shape** ($qDSP^{J}_{ij}(t)$) by linear interpretation of $qDSP^{J}_{ijt}$
	• Determine **Deemed Standard Product Volume** ($qDSPV^{J}_{ij}(t)$)

	• Where $qDSPV^{J}_{ij}(t) = qDSP^{J}_{ij}(t) - qDSP^{J-1}_{ij}(t)$ • Determine **Deemed Standard Product Offer Volume** ($qDSPO^{J}_{ij}(t)$) • Where $qDSPO^{J}_{ij}(t)) = \max(qDSPV^{J}_{ij}(t), 0)$ • Determine **Deemed Standard Product Bid Volume** ($qDSPB^{J}_{ij}(t)$) • Where $qDSPB^{J}_{ij}(t)) = \min(qDSPV^{J}_{ij}(t), 0)$ • Determine **Period Deemed Standard Product Offer Volume** ($DSPO^{J}_{ij}$) and Period **Deemed Standard Product Bid Volume** ($DSPB^{J}_{ij}$) • Established by integrating Deemed Standard Product Offer Volumes and Seemed Standard Product Bid Volumes

It is assumed that the RR Schedule will be consistent with the Deemed Standard Product Shape. In the majority of cases the MWh volume associated with an RR Schedule will differ from the Deemed Standard Product Shape. This is because the RRS will take in account BM Unit ramping capabilities whilst the Deemed Standard Product Shape does not.

The SAA will calculate the MWh difference between the RR Schedule shape and the Standard Product Shape. This is to align the P344 solution with the European Electricity Balancing Guideline (EB GL) which introduced the concept of a Balancing Energy Deviation Volumes (the deviation from the standard shape as a result of the BM Unit's declared ramping rates).

BR15	
SAA shall calculate the volume difference between the RR Schedule and the Deemed Standard Product Shape.	
15.1	SAA shall calculate the **Total Period Deemed Standard Product Offer Volume** ($TDSPO_{ij}$) • Where $TDSPO_{ij} = \sum^{J} DSPO^{J}_{ij}$ SAA shall calculate the **Total Period Deemed Standard Product Bid Volume** ($TDSPB^{J}_{ij}$) • Where $TDSPB_{ij} = \sum^{J} DSPB^{J}_{ij}$
15.2	The Replacement Reserve Instructed Offer Deviation Volume (IOD_{ij}) shall be represent the difference between the RR Instructed Offer Volumes and the Deemed Standard Product Offer Volumes • $IOD_{ij} = \sum^{n} RRAO^{n}_{ij} - TDSPO_{ij}$

	The Replacement Reserve Instructed Bid Deviation Volume (IBD_{ij}) shall be represent the difference between the RR Instructed Bid Volumes and the Deemed Standard Product Bid Volumes • $IBD_{ij} = \Sigma^{n} RRAB^{n}_{ij} - TDSPB_{ij}$

The ENTSO-E Public consultation document for the design of the TERRE (Trans European Replacement Reserves Exchange) RR Harmonized Balancing Area released in June 2017 introduced a new concept of Balancing Energy Deviation Price (BEDP) to incentivise delivery of the TERRE Standard Product Shape. At the time of writing the final product requirements are unknown but the Workgroup thought that the P344 solution should enable the calculation of such a cashflow to align with future European incentive harmonisation. Therefore the functionality to calculate a cashflow based on the deviation of the RR Schedule from the TERRE Standard Shape (i.e. the Balancing Energy Deviation Volume) has been included but with the BEDP currently set to zero. Should the BEDP need to be changed in the future a BSC Modification can be raised to address this.

BR16	
SAA shall calculate the Replacement Reserve Period Instruction Deviation Cashflow (CDR_{ii})	
16.1	SAA shall calculate the Replacement Reserve Period Instructed Offer Deviation Cashflow (CDO_{ij}) where: $CDO_{ij} = IOD_{ij} * BEDP_{j}$ In respect of each Settlement Period, the Balancing Energy Deviation Price ($BEDP_{j}$) shall be an amount equal to zero.
16.2	SAA shall calculate the Replacement Reserve Period Instructed Bid Deviation Cashflow (CDB_{ij}) where: $CDB_{ij} = IBD_{ij} * BEDP_{j}$ In respect of each Settlement Period, the Balancing Energy Deviation Price ($BEDP_{j}$) shall be an amount equal to zero.
16.3	In respect of each Settlement Period, for each BM Unit, the total payment in respect of the BM Unit as a result of deviation from the TERRE Standard Product Shape in the Settlement Period shall be the Replacement Reserve Period Instruction Deviation Cashflow and shall be determined as follows: $CDR_{ii} = CDO_{ii} + CDB_{ii}$

The Daily Party RR Instruction Deviation Cashflow (CDR_{p}) will be a new Trading Charge. It will be included on Trading Charge Advice Notes that are sent to BSC Parties participating in TERRE.

BR17	
Daily Party RR Instruction Deviation Cashflow (CDR_p) shall be a new Trading Charge, included on Trading Charge Advice Notes that are sent to Parties participating in TERRE.	
17.1	In respect of each Settlement Day, for each Party p, the Party RR Instruction Deviation Cashflow shall be determined as: $CDR_p = \sum_j \sum_{i\ p} CDR_{ij}$ where $\sum_j$ is the sum over all Settlement Periods and $\sum_{i\ p}$ is the sum of all BM Units for which Party p is the Lead Party.
17.2	SAA shall send Daily Party RR Instruction Deviation Cashflow (CDR_p) to FAA alongside the other Trading Charges.
17.3	FAA shall include Daily Party RR Instruction Deviation Cashflow (CDR_p) on invoices and Advice Notes to Trading Parties and BSC Parties with the Virtual Lead Party participation capacity.

Because TERRE relies on BSP-TSO settlement, RR Cashflows will need to feed into the calculation of payment between settlement and National Grid (i.e. System Operator BM Cashflow). This will be renamed System Operator Cashflow, to reflect the fact that it does not only relate to the BM.

SAA will calculate a total of RR Cashflows across all quarter-hours and BM Units and this will feed into System Operator Cashflow. This also facilitates the principle that settlement calculations should net to zero on a daily basis.

BR18	
Total System RR Cashflow shall be included in the calculation of System Operator Cashflow and the Total System Residual Cashflow for each Settlement Period.	
18.1	SAA shall calculate Total System RR Cashflow ($TCRR_j$) as the summation of Period RR BM Unit Cashflow (CRR_{ij}) and the Period Replacement Reserve Instruction Deviation Cashflow (CDR_{ij}) across all BM Units i for Settlement Period j.
18.2	SAA shall add Total System RR Cashflow ($TCRR_j$) to Total System BM Cashflow ($TCBM_j$) in the calculation of System Operator Cashflow (CSO_j), renamed from System Operator Cashflow ($CSOBM_j$), as follows: $CSO_j = (TCBM_j + TCRR_j) - TCND_j$
18.3	Therefore the Daily System Operator Cashflow (CSO), renamed from System Operator BM Cashflow (CSOBM) shall be determined as follows: $CSO = \sum_j CSO_j$

18.4	SAA shall include the Total System RR Cashflow ($TCRR_j$) when calculating the Total System Residual Cashflow (TRC_j) as follows: $TRC_j = TCII_j + CSO_j + TCND_j – TCBM_j - TCRR_j + TCEI_j$

2.5 RR Instruction Settlement

National Grid will also forward to settlement, data on any instructions that it issues to BM Units (e.g. BOAs under the existing BM arrangements, or instructions relating to RR Activations). The P344 solution will not calculate Accepted Bid-Offer Volumes ($qABO^{kn}_{ij}(t)$) for RR Instructions as these volumes are already accounted for in the RR Schedule. The RR Instruction is intended to act as a baseline for subsequent acceptances and so will re-use the existing a**ccepted volume** methodology used for the BM. This is in order to minimise cost and complexity and align calculations for both TERRE and the BM.

The solution assumes that in almost all cases National Grid will also forward instructions that it has issued to the BM Unit pursuant to satisfying the RR Activation. It also assumes that in almost all cases this instruction will match the RR Schedule and as such there will be no difference in volume.

Cases where there is a difference in volume between the RR Schedule and RR Instruction will be captured by the existing BM processes i.e. 'under delivery' against the RR Schedule will be subject to existing Non-Delivery rules and 'over delivery' against the RR Schedule will be taken into account in a Trading Party's Imbalance position (a Virtual Lead Party with a Virtual Balancing Account will not be adjusted).

BR19	
SAA shall process RR Instructions Acceptance Data exactly the same as any other BOA would, except that: • SAA shall **not** calculate Accepted Bid-Offer Volumes ($qABO^{kn}_{ij}(t)$) for RR Instructions. Therefore no Period Accepted Offer Volumes (QAO^{kn}_{ij}) or Period Accepted Bid Volumes (QAB^{kn}_{ij}) will be calculated and so will not attract Bid Offer Payments. • Instead SAA shall **only** calculate RR Instruction Acceptance Volumes ($qA^{k}_{ij}(t)$) to be used as a baseline for any subsequent Acceptance Data only.	
19.1	For the calculation for $qA^{k}_{ij}(t)$ the RR Instruction shall be treated as if it were a BOA and shall be calculated exactly the same as the current arrangements. The calculation required from SAA and BMRA is therefore as follows: • Convert the spot times in the RR Instruction to an Acceptance Volume $qA^{k}_{ij}(t)$ for the RR Schedule, in accordance with the existing provisions of BSC section T3.4

2.6 BOA Settlement

Due to the delay between the submission of a RR bid at BEGCT and receiving the RR Activations atH-30 there exists a possibility for the TSO to issue BOAs to a BM Unit that is then subsequently accepted for TERRE. Analysis of the scenarios that result from these circumstances has identified a particular instance where the BOA acceptance is not compatible with the RR Schedule i.e. settlement integrity is comprised. Therefore additional logic is required to identify and amend the acceptance data so the appropriate volumes are entered into settlement.

BR20	
SAA shall compare each Bid-Offer acceptance data received against previous acceptance data. If the previously accepted data relates to a RR Schedule and is of the same direction (i.e. offer/offer or bid/bid) and the Bid-Offer acceptance MW value is less than RR Activation MW value then Settlement shall **not** calculate Acceptance Volumes $qA^{k}_{ij}(t)$ for that time (t)	
20.1	For the purpose of establishing of Acceptance Volume $qA^{k}_{ij}(t)$ the SAA shall compare the Bid-Offer acceptance data against the previous Acceptance Volume $qA^{k-}_{ij}(t)$. Where the previous accepted Volume is flagged as relating to RR schedule then for each time (t) the SAA shall: • ascertain the Bid-Offer Acceptance Time • ascertain the Acceptance Volume MW value • ascertain the RR Activation Time of $qA^{k}_{ij}(t)$ that relates the RR Schedule Acceptance Volume • ascertain the RR Schedule MW value The SAA shall then test the following criteria: • whether the Bid-Offer Acceptance Time < RR Activation Time • whether the | Acceptance Volume MW value | < | RR Schedule MW value | Where both criteria are met SAA shall **not** calculate Acceptance Volumes ($qA^{k}_{ij}(t)$) for that time (t)

2.7 Non-Delivery

The P344 solution requires that Period RR Total Accepted Offer / Bid Volumes are included in the calculation of Non-Delivered Volumes. This will ensure that any BSP that do not provide the necessary accepted volumes can be settled appropriately.

Deemed Standard Product Volumes and RR Instructed Offer/Bid Deviation Volumes will be included in the existing Non-Delivery Charge calculation to ensure all RR Schedule volumes can be associated with a RR Activation price (where appropriate). The **Deemed Standard Product Volumes** and **RR Instructed Offer/Bid Deviation** will be priced at the GB TERRE clearing / bid price and Balancing Energy Deviation Price accordingly during the allocation of Non-Delivery Order Numbers (alongside any BOAs) to Non-Delivered Volumes process to ensure that there is no benefit in a BSP Non-Delivering on an RR Activation.

BR21	
SAA shall include Deemed Standard Product Offer / Bid Volumes with Replacement Reserve Instructed Offer / Bid Deviation Volumes in the existing Non-Delivery Charge calculations.	
21.1	SAA shall include a summation of Period RR Total Accepted Offer Volume ($RRAO^{n}_{ij}$) over all Bid-Offer Pair Numbers in the calculation of Period BM Unit Non-Delivered Offer Volume ($QNDO_{ij}$).
21.2	SAA shall include a summation of Period RR Total Accepted Bid Volume ($RRAB^{n}_{ij}$) over all Bid-Offer Pair Numbers in the calculation of Period BM Unit Non-Delivered Bid Volume ($QNDB_{ij}$).
21.3	SAA shall include the Deemed Standard Product Offer Volumes ($DSPO^{J}_{ij}$) and the Deemed Standard Product Bid Volumes ($DSPB^{J}_{ij}$) in the apportionment of Period Total BM Unit Non Delivered Offer Volume ($QNDO_{ij}$) and Period BM Unit Non Delivered Bid Volume ($QNDB_{ij}$) priced at the associated Quarter Hour Replacement Reserve Activation Price alongside any BOAs.
21.4	SAA shall include the Replacement Reserve Instructed Offer Deviation Volume (IOD_{ij}) and Replacement Reserve Instructed Bid Deviation Volume (IBD_{ij}) in the apportionment of Period Total BM Unit Non Delivered Offer Volume ($QNDO_{ij}$) and Period BM Unit Non Delivered Bid Volume ($QNDB_{ij}$) priced equal to zero, alongside any Deemed Standard Product Offer Volumes ($DSPO^{J}_{ij}$) and the Deemed Standard Product Bid Volumes ($DSPB^{J}_{ij}$) and BOAs.

2.8 Imbalance Settlement

P344 proposes that the calculation of imbalance prices and Net Imbalance Volume (NIV) should include all the physical actions taken on the GB system (by Interconnectors or GB BSPs), but only those taken to meet a GB need should be treated as priced.

The physical actions to be taken into account and considered are:

- The Volume of GB need met as declared by TERRE (VGB^{J}_{j})
- the sum of RR Schedule volume (i.e. GB BSP despatch); ($= \Sigma^{n}_{i} RRAO^{n}_{ij} + \Sigma^{n}_{i} RRAB^{n}_{ij}$)
- the sum of Interconnector volumes for each Interconnector scheduled by TERRE (VI^{J}_{j})

The central TERRE system will not state whether a given RR Activation is to meet a GB or foreign need, meaning that the SAA cannot isolate those taken for a foreign need and ensure they are unpriced. Therefore, P344 proposes that actions (volumes/prices) are calculated at an aggregate level for each quarter hour, however individual actions should still be visible on BMRS and have traceability to a given imbalance price.

The Workgroup agreed that unpriced actions relating to a given quarter-hour should be netted to minimise the introduction of unpriced actions that would be subject to repricing and could affect the final price.

Therefore, SAA will determine the following actions to be included in the imbalance price calculation:

- Volume of GB need met (as declared by TERRE) will enter the imbalance price calculation as an action with a price matching the TERRE GB clearing price;
- Settlement shall calculate an aggregated unpriced System Buy Action for any other physical action taken with volumes > 0
- Settlement shall calculate an aggregated unpriced System Sell Action for any other physical action taken with volumes < 0

BR22	
SAA shall include TERRE-specific actions in the calculation of the System Buy Price and System Sell Price.	
22.1	For both quarter-hours J falling within a given Settlement Period j, the Volumes of GB need met (VGB_J), shall enter the calculations of System Buy Price (SBP_j) and System Sell Price (SSP_j) for that Settlement Period, as an action priced at the Quarter Hour Replacement Reserve Activation Price (i.e. the TERRE GB clearing price) and shall be calculated as follows: $VGB^J = GB^J * 0.25$ Where GB^J represents the Quarter Hour RR Activated Quantity associated to the Quarter Hour GB Need Met for Quarter Hour 'J'
22.2	For both quarter hours J falling within a given Settlement Period j, SAA shall calculate an aggregated unpriced System Buy Action by subtracting the (positive) Volume of GB Need met from the (positive) physical actions delivered by Interconnectors and BM Units: $= \max((= \Sigma^n_i RRAO^n_{ij} + \Sigma^n_i RRAB^n_{ij}), 0) + \max(VI^J_j, 0) - \max(VGB^J_j, 0)$ Where VIJ represents the Quarter Hour Volume Interconnector Schedule to be determined from the Quarter Hour Interconnector Schedule (I^J) as below: $VI^J = I^J * 0.25$ Where I^J represents the Quarter Hour RR Activated Quantity associated to the Quarter Hour Interconnector Schedule for Quarter Hour 'J'
22.3	For both quarter hours J falling within a given Settlement Period j, SAA shall calculate an aggregated unpriced System Sell Action by subtracting the (negative) Volume of GB Need met from the (negative) physical actions delivered by Interconnectors and BM Units: $= \min((= \Sigma^n_i RRAO^n_{ij} + \Sigma^n_i RRAB^n_{ij}), 0) + \min(VI^J_j, 0) - \min(VGB^J_j, 0)$ Where VIJ represents the Quarter Hour Volume Interconnector Schedule to be determined from the Quarter Hour Interconnector Schedule (I^J) as below: $VI^J = I^J * 0.25$ Where I^J represents the Quarter Hour RR Activated Quantity associated to the Quarter Hour

	Interconnector Schedule for Quarter Hour 'J'
22.4	SAA hall include TERRE related volumes in the SBP Calculation: SBP = $\{\Sigma_i\Sigma^n\Sigma^k \{QAO^{kn}_{ij} * PO^n_{ij} * TLM_{ij}\} + \Sigma^m \{QBSAB^m_j * BSAP^m_j\} + \Sigma^t \{QSIV^t_j * STAP^t_j\} + \{\{QSDC_j + QBDC_j\} * VoLL\} + \Sigma^J \{VGB^J * QHRRAP^J\} + \{RRAUSB_j * 0\}$ / $\{\Sigma_i\Sigma^n\Sigma^k \{QAO^{kn}_{ij} * TLM_{ij}\} + \Sigma^m QBSAB^m_j + \Sigma^t QSIV^t_j + \Sigma_c QSDC_{cj} + \Sigma_c QBDC_{cj}\} + \{BPA_j\} + \Sigma^J \{VGB_j^J\} + \{RRAUSB_j\}$ where Σ_i represents the sum over all BM Units, Σ^n represents the sum over all accepted Offers in the Final Ranked Set of System Buy Actions, Σ^k represents the sum over all Acceptances within the Settlement Period, Σ^m represents the sum over all Balancing Services Adjustment Buy Actions in the Final Ranked Set of System Buy Actions, Σ^t represents the sum over all STOR Actions in the Final Ranked Set of System Buy Actions, and Σ_c represents the sum over all Demand Control Instructions in the Final Ranked Set of System Buy Actions; and Σ^J represents the sum overall Quarter Hour Volume GB Need Met in the Final Ranked Set of System Buy Actions
22.5	SAA hall include TERRE related volumes in the SSP Calculation: SSP = $\{\Sigma_i\Sigma^n\Sigma^k \{QAB^{kn}_{ij} * PB^n_{ij} * TLM_{ij}\} + \Sigma^m \{QBSAS^m_j * BSAP^m_j\} + \Sigma^J \{VGB^J * QHRRAP^J\} + \{RRAUSS_j * 0\}$ / $\{\Sigma_i\Sigma^n\Sigma^k \{QAB^{kn}_{ij} * TLM_{ij}\} + \Sigma^m QBSAS^m_j + \Sigma^t SPA^t_j + \Sigma^J \{VGB_j^J\} + \{RRAUSS_j\}$ where Σ_i represents the sum over all BM Units, Σ^n represents the sum over all accepted Offers in the Final Ranked Set of System Buy Actions, Σ^k represents the sum over all Acceptances within the Settlement Period, Σ^m represents the sum over all Balancing Services Adjustment Buy Actions in the Final Ranked Set of System Buy Actions, Σ^t represents the sum over all STOR Actions in the Final Ranked Set of System Buy Actions, and Σ_c represents the sum over all Demand Control Instructions in the Final Ranked Set of System Buy Actions; and Σ^J represents the sum overall Quarter Hour Volume GB Need Met in the Final Ranked Set of System Buy Actions
22.6	TERRE-specific actions shall be published on BMRS alongside existing actions (e.g. in the Buy Stack and Sell Stack tables on the Detailed System Prices page).

RR Activation Volumes will need to feed into Period BM Unit Balancing Services Volume, which in turn feeds into the calculation of Non-Delivered Bid and Offer Volumes and also of Energy Imbalance Volumes.

In order to ensure that the registered Supplier of a given SVA Metering System Number in a Secondary BM Unit is not affected by that Secondary BM Unit's participation in TERRE, the Energy Imbalance Volume calculation will need to include balancing services volumes relating to that Secondary BM Unit's despatch.

BR23	
Settlement systems shall include RR Activation Volumes in the calculation of Energy Imbalance Volumes.	
23.1	SVAA shall calculate a Secondary BM Unit Supplier Delivered Volume ($VBMUSDV_{i2\,j\,i}$) for each Secondary BM Unit 'i2' and Supplier Primary BM Unit 'i' for each settlement period, and report it to the SAA for subsequent use in settlement
23.2	For each Supplier Primary BM Unit identified in the Secondary BM Unit Supplier Delivered Volume, the SAA shall calculate the Period Secondary BM Unit Supplier Delivered Proportion ($SP_{i2\,j\,i}$) as follows: $SP_{i2\,j\,i} = VBMUSDV_{i2\,j\,i} / \cdot \sum_i VBMUSDV_{i2\,j\,i}$ where $\sum_i$ represents the summation over all Suppliers Primary BM Units 'i'.
23.3	For each Secondary BM Unit, SAA shall calculate a Period Secondary BM Unit Delivered Volume (QSD_{ij}) by subtracting the Period BM Unit Non-Delivered Bid Volume ($QSND_{ij}$) from the Period BM Unit Balancing Services Volume (QBS_{ij}). $QSD_{ij} = QBS_{ij} - QSND_{ij}$
23.4	For each Secondary BM Unit 'i2' and Supplier Primary BM Unit 'i', SAA shall calculate a Period Secondary BM Unit Supplier Delivered Volume ($QSD_{i2\,j\,i}$) by multiplying Period Secondary BM Unit Balancing Service Volume (QSD_{i2j}) by the Period Secondary BM Unit Supplier Delivered Proportion ($SP_{i\,i2\,j}$). $QSD_{iji2} = (QSD_{i2j} * TLM_{ij}) * SP_{iji2}$
23.5	For each Supplier Primary BM Unit 'i', SAA shall calculate a Period Supplier Primary BM Unit Delivered Volume ($QBSD_{i\,j}$) as the summation of Period BM Unit Supplier Delivered ($QSD_{i\,i2\,j}$) across all Secondary BM Units. $QBSD_{ij} = \sum_{i2} QSD_{iji2}$
23.6	SAA shall not include Secondary BM Units when summating Period BM Unit Balancing Services Volume (QBS_{ii}) for the purposes of calculating Account Period Balancing Services Volume ($QABS_{ai}$).
23.7	Period RR Total Accepted Offer Volume ($RRAO^n_{ij}$) and Period RR Total Accepted Bid Volume ($RRAB^n_{ij}$) shall feed into the calculation of Period BM Unit Balancing Services Volume (QBS_{ij}). This will feed into the calculation of Period Expected Metered Volume (QME_{ij}) and allow SAA to calculate Period BM Unit Non-Delivered Offer Volume ($QNDO_{ij}$) and Period BM Unit Non-Delivered Bid Volume ($QNDB_{ij}$) for BM Units participating in TERRE.
23.8	For each Secondary BM Unit, SAA shall calculate a Period Secondary BM Unit Non-Delivered Volume ($QSND_{ij}$) using the Period BM Unit Balancing Services Volume (QBS_{ij}), Period BM Unit Non-Delivered Offer Volume ($QNDO_{ij}$) and Period BM Unit Non-Delivered Bid Volume ($QNDB_{ij}$).

	$QSND_{ij} = Max\{ Min(QBS_{ij}, QNDO_{ij}) , QNDB_{ij} \}$
23.9	SAA shall include Period Secondary BM Unit Non-Delivered Volume ($QSND_{ij}$) in the calculation of Account Period Balancing Service Volume ($QABS_{aj}$), summed across Secondary BM Units for which such Energy Account or Virtual Balancing Account is the corresponding Energy Account or Virtual Balancing account of the Lead Party. The Period Secondary BM Unit Non-Delivered Volume ($QSND_{ij}$) shall be multiplied by the relevant Transmission Loss Multiplier (TLM_{ij}) (please see BR2.7) when calculating the Account Period Balancing Service Volume ($QABS_{aj}$) For the avoidance of doubt the Period Secondary BM Unit Non-Delivered Volume ($QSND_{ij}$) inclusion in the calculation of Account Period Balancing Service Volume ($QABS_{aj}$) will result in Non-Delivered volumes from Secondary BM Units used to calculate an imbalance volume and subsequent associated cashflows via the Account Energy Imbalance Volume ($QAEI_{aj}$) calculation.
23.10	SAA shall include Period Supplier Delivered Volume ($QBSD_{i2\ j}$) in the calculation of Period BM Unit Balancing Services Volume (QBS_{ij}) for Suppliers BM Units.

2.9 Reporting

The P344 Workgroup agreed that new data under TERRE would be reported to BSC Parties via the existing SAA-I014 Settlement Report.

BR24	
The SAA-I014 Settlement Report shall contain new TERRE-specific data items.	
24.1	The SAA-I014 Settlement Report (sub-flows 1, 2 & 3) shall include a new Data Group and Data Item for the GBP-EUR exchange rate.
24.2	The SAA-I014 Settlement Report (sub-flows 1, 2 & 3) shall include new Data Groups and Data Items for the RR Activation Cashflows (Period and Daily)
24.3	The SAA-I014 Settlement Report (sub-flows 1, 2 & 3) shall include new Data Groups and Data Items for the RR Instruction Deviation Cashflows (Period and Daily)
24.4	The SAA-I014 Settlement Report (sub-flows 1, 2 & 3) shall include anew Data Group and Data Item for the Balancing Energy Deviation Price
24.5	The SAA-I014 Settlement Report (sub-flows 1, 2 & 3) shall include new Data Groups and Data Items for the Total System RR Cashflows (Period and Daily)

24.6	The SAA-I014 Settlement Report (sub-flows 1, 2 & 3) shall include Data Groups and Data Items related to BM Unit Metered Volumes for Secondary BM Units.
24.7	The SAA-I014 Settlement Report (sub-flows 1, 2 & 3) shall include a new Data Group and Data Items for TERRE bids
24.8	The SAA-I014 Settlement Report (sub-flows 1, 2 & 3) shall include a new Data Group and Data Items for RR Activations.
24.9	The SAA-I014 Settlement Report (sub-flows 1, 2 & 3) shall include new Data Groups and Data Items for RR Activation Volumes.
24.10	The SAA-I014 Settlement Report (sub-flows 1, 2 & 3) shall include new Data Groups and Data Items for Deemed Standard Product Volumes
24.11	The SAA-I014 Settlement Report (sub-flows 1, 2 & 3) shall include new Data Groups and Data Items for RR Instruction Deviation Volumes
24.12	The SAA-I014 Settlement Report (sub-flows 1, 2 & 3) shall include new Data Groups and Data Items relating to Secondary BM Unit Delivered Volumes.
24.13	The SAA-I014 Settlement Report (sub-flows 1, 2 & 3) shall include new Data Groups and Data Items for the Period Supplier BM Unit Delivered Volume (period and daily)

It was also agreed that a new sub-flow of the SAA-I014 Settlement Report should be created that contains only data that would be relevant to BSC Parties who have registered solely in the Virtual Lead Party Capacity. This would not include Energy Account-level data as these Parties will not hold Energy Accounts.

BR25	
There shall be a new SAA-I014 Settlement Report sub-flow tailored for BSC Parties who have registered solely in the Virtual Lead Party Capacity (i.e. have not elected to hold Energy Accounts).	
25.1	A new SAA-I014 Settlement Report (sub-flow 4) shall include a Data Group and Data Item for the GBP-EUR exchange rate.
25.2	A new SAA-I014 Settlement Report (sub-flow 4) shall include Data Groups and Data Items equivalent to the other sub-flows for Trading Charges relevant to an aggregator/customer, being RR Activation Cashflows, RR Instruction Deviation Cashflow, BM Unit Cashflows and Non-Delivery Charges.
25.3	A new SAA-I014 Settlement Report (sub-flow 4) shall include Data Groups and Data Items equivalent to the other sub-flows for System Period Data
25.4	A new SAA-I014 Settlement Report (sub-flow 4) shall include Data Groups and Data Items equivalent to the other sub-flows for BM Unit Metered Volumes, but for Secondary BM Units only.

25.5	A new SAA-I014 Settlement Report (sub-flow 4) shall include Data Groups and Data Items equivalent to the other sub-flows for Balancing Mechanism data.
25.6	A new SAA-I014 Settlement Report (sub-flow 4) shall include Data Groups and Data Items for TERRE bids and prices.
25.7	A new SAA-I014 Settlement Report (sub-flow 4) shall include Data Groups and Data Items for RR Activations.
25.8	A new SAA-I014 Settlement Report (sub-flow 4) shall include Data Groups and Data Items for other TERRE-specific data including TERRE GB clearing prices, volumes of GB need met and Interconnector volumes (as scheduled by TERRE).
25.9	The new SAA-I014 Settlement Report (sub-flow 4) shall be sent to BSC Parties who have registered solely in the Virtual Lead Party Capacity.

Virtual Lead Parties may need to receive settlement data in a different format to the NETA files.

BR26	
The new SAA-I014 Settlement Report sub-flow shall be made available to Virtual Lead Parties in .csv format.	
26.1	The new SAA-I014 Settlement Report sub-flow shall also be created in a .csv format.
26.2	The .csv file shall be made available for Virtual Lead Parties to download via FTP or webpage.

Disaggregated Secondary BM Unit and TERRE data will need to be published on BMRS upon receipt from National Grid. For Secondary BM Units this will include

BR27	
New TERRE-specific data shall be published to BMRS.	
27.1	Upon receipt from National Grid (see requirement 7.1), BMRA shall publish BSP TERRE bid data to BMRS. Data items include: • Party Id • BM Unit Id • Associated TSO • Market balance area • Divisible [A01 Yes / A02 No] • Linking Bid Id (where applicable) • Multipart Bid Id (where applicable) • Exclusive Bid Id (where applicable)

	• Flow Direction [A01 = UP / A02 = Down] • Incremental size (where applicable) [i.e. Divisible A01] • Minimum quantity (MW); • Maximum quantity (MW); • Bid Resolution [PT60M / PT30M / PT15M] • Position • Price (£/MWh); • Status [A06 Available / A28 unshared / A11 Restricted] TERRE bid data shall be published in compliance with EB GL Article 12: Publication of Information
27.2	BMRS shall publish aggregated information on TERRE bids which shall include • Total volume of offered bids • Total of activated TERRE bids • Total of unavailable bids
27.3	Upon receipt from National Grid (see requirement 7.2), BMRA shall publish Secondary BM Unit Physical, Dynamic and Bid/Offer data to BMRS. Data items include: • Final Physical Notifications (FPNs); • Dynamic Data Set • Bid Offer Data; and • BOAs
27.4	Once per hour (approximately 30 minutes before the hour starts) National Grid shall send to BMRA and SAA the Replacement Reserve Auction Result Data which shall compromise at least the following data sets: a) Replacement Reserve Activation Data for each Replacement Reserve Auction Period; • BM Unit Id • Flow Direction [A01 = UP / A02 = Down] • Activated Quantity (MW Level) • Bid Resolution [PT60M / PT30M / PT15M] • Position • Activation Price b) GB Need Met Data for each Replacement Reserve Auction Period; • Flow Direction [A01 = UP / A02 = Down] • Activated Quantity (MW Level) • Activation Price (i.e. TERRE Clearing Price) c) Interconnector Schedule Data for each Interconnector for each Replacement Reserve Auction Period. • Interconnector Id • Flow Direction [A01 = UP / A02 = Down] • Activated Quantity (MW Level)

27.5	Upon receipt from National Grid (see requirement 7.4), BMRA shall publish RR Instruction data to BMRS. The RR Instruction shall have similar data content to a BOA i.e. it will consist of one or more Acceptance Volume Pairs, each with: • a 'From' MW level and an associated 'From' time; • a 'To' MW level and an associated 'To' time; • a flag stating whether that Acceptance is relating to an RR Activation, and • all other relevant BOA acceptance data
27.6	Upon deeming (see requirement BR14), BMRA shall publish RR Schedule data to BMRS. The RR Schedule shall have similar data content to a BOA i.e. it will consist of one or more Acceptance Volume Pairs, each with: • a 'From' MW level and an associated 'From' time; • a 'To' MW level and an associated 'To' time; • a flag stating whether that Acceptance Data is relating to an RR Schedule, • and all other relevant associated Acceptance Data

The BMRA shall determine on an estimated basis for the purposes of enabling indicative values of such terms to be reported on the BMRS before all of the necessary data to calculate such term is available TERRE related data items

BR28	
New indicative TERRE-specific data shall be calculated by BMRS	
28.1	The BMRA shall calculate: (a) Indicative Period RR Total Accepted Bid Volume ($IRRAB^{n}_{ij}$); (b) Indicative Period RR Total Accepted Offer Volume ($IRRAO^{n}_{ij}$); (c) Indicative Period RR Accepted Bid Volume ($IRRAB^{kn}_{ij}$); and (d) Indicative Period RR Accepted Offer Volume ($IRRAO^{kn}_{ij}$) In accordance the rules in Section T (please see BR14)
28.2	The BMRA shall calculate: (a) the Indicative Net Imbalance Volume ($INIV_j$); (b) the Indicative System Buy Price ($ISBP_j$); and (c) the Indicative System Sell Price ($ISSP_j$) in accordance with the rules in Annex T-1 and BR22

28.2	The BMRA shall calculate: (a) the Indicative Quarter Hour RR Cashflow ($ICCR_{ij}$), and (b) the Indicative Period RR BM Unit Cashflow ($ICRR_{ij}$) in accordance with the rules in Section T3 and BR10

2.10 Credit

The BSC credit calculations will need to include Daily Party RR Cashflow and RR Instruction Deviation Cashflow, as these are new Trading Charge and all Trading Charges are included in the calculation of Actual Energy Indebtedness. For Secondary BM Units, the proposed settlement calculations mean that Daily Party RR Cashflow and Daily Party RR Instruction Deviation Cashflow arising from TERRE participation will be attributed to the Virtual Lead Party and not the registered Supplier/s.

BR29	
Daily Party RR Cashflow and RR Instruction Deviation Cashflow shall be included in the calculation of Actual Energy Indebtedness.	
29.1	SAA shall include Daily Party RR Cashflow (CRR_p) and Daily Party RR Instruction Deviation Cashflow (CDR_p) when passing Trading Charges to ECVAA for the purposes of calculation Actual Energy Indebtedness (AEI_p).

Because Virtual Lead Parties are only responsible for providing Balancing Services volumes, it is inappropriate to calculate Credit Assessment Energy Indebtedness and Metered Energy Indebtedness for their Secondary BM Units. Furthermore, other Parties, such as Suppliers, who happen to be the Lead Party for Secondary BM Units should also not have Credit Assessment Credited Energy Volume or Metered Credit Assessment Credited Energy Volume calculated for those Secondary BM Units. This is because this would be double-accounting in the estimation of volume.

BR30	
Credit Assessment Energy Indebtedness and Metered Energy Indebtedness shall not be calculated for Secondary BM Units.	
30.1	ECVAA shall set the Credit Assessment Energy Indebtedness (CEI_{pj}) and Metered Energy Indebtedness (MEI_{pj}) for Virtual Lead Parties that hold Virtual Balancing Accounts equal to zero for each Settlement Period.
30.2	ECVAA shall not calculate Credit Assessment Credited Energy Volume ($CAQCE_{iaj}$) or Metered Credit Assessment Credited Energy Volume ($MAQCE_{iaj}$) for Secondary BM Units.

3. APPENDIX A - GLOSSARY OF TERMS

Term	Description
Acceptance Volume ($qA^k_{ij}(t)$)	BSC Section X-2: in MW, is the quantity determined in accordance with Section T3.4. It is a quantity of absolute MW for any spot time t obtained by interpolating between Point Acceptance Volumes, qA^k_{it}, derived from the Acceptance Volume Pairs submitted as part of Acceptance Data for BM Unit i.
Active Export (AE)	BSC Section K1.1.4(f): means a flow of Active Energy at any instant in time from any Plant or Apparatus (not comprising part of the Total System) of that Party to the Plant or Apparatus (comprising part of the Total System) of a Party.
Active Import (AI)	BSC Section K1.1.4(f): means a flow of Active Energy at any instant in time to any Plant or Apparatus (not comprising part of the Total System) of that Party from the Plant or Apparatus (comprising part of the Total System) of a Party.
Balancing & Settlement Code (BSC)	An industry code that various types of company involved in the generation, distribution or consumption of electricity must be a signatory to and abide as required by their Licence, which specifically concerns the Balancing and Settlement activity in Great Britain.
Balancing Mechanism (BM)	One of the tools National Grid uses to balance electricity supply and demand close to real time. Where National Grid predicts that there will be a discrepancy between the amount of electricity produced and that which will be in demand during a certain time period, they may accept a 'bid' or 'offer' to either increase or decrease generation (or consumption). The balancing mechanism is used to balance supply and demand in each half hour trading period of every day.
Balancing Mechanism Reporting Agent (BMRA)	BSC Section X-1: means the BSC Agent for Balancing Mechanism Reporting in accordance with Section E.
Balancing Mechanism Reporting Service (BMRS)	BSC Section X-1: means the service provided by the BMRA for Balancing Mechanism Reporting as described in Section V.
Balancing Service Provider (BSP)	A BSP in the European Electricity Market is a market participant providing Balancing Services to its associated TSO.
Base Monthly Charge	A monthly charge payable by each Party in accordance with BSC Section D Annex D-3.
Bid-Offer Acceptance (BOA)	Means an instructed deviation by a BM Unit from its baseline by National Grid, settled a Bid-Offer prices that are submitted by the Lead Party of that BM Unit.
Bid-Offer Lower Range ($BOLR^n_{ij}(t)$)	BSC Section X-2: means the Bid-Offer Lower Range is that data calculated for spot times t in Settlement Period j and BM Unit i, for a Bid-Offer Pair with a

	negative Bid-Offer Pair Number n. It is used to determine the operating range (in absolute MW) below FPN in which a particular Bid-Offer Pair applies.
Bid-Offer Upper Range ($BOUR^{n}_{ij}(t)$)	BSC Section X-2: means the Bid-Offer Upper Range is that data calculated for spot times t in Settlement Period j and BM Unit i, for a Bid-Offer Pair with a positive Bid-Offer Pair Number n. It is used to determine the operating range (in absolute MW) above FPN in which a particular Bid-Offer Pair applies.
BSC Agent	BSC Section X-1: for the purposes of providing the services specified (or as may be specified) in a BSC Service Description and as otherwise described in Section E.
BSCCo Charges	BSC Section D1.1.3: means amounts payable by **Parties** by way of **Specified BSC Charges** in accordance with paragraph 3.1 and any further charges in accordance with paragraph 3.3, and in respect of the recovery of **BSC Costs** pursuant to paragraph 4.2.
BSC Company (BSCCo)	BSC Section X-1: means ELEXON Limited (or any successor to that company acting in the capacity as **BSCCo**).
Central Data Collection agent (CDCA)	BSC Section X-1: means the BSC Agent for Central Data Collection in accordance with Section E.
Central Registration Agent (CRA)	BSC Section X-1: means the BSC Agent for Central Registration in accordance with Section E.
Central Volume Allocation (CVA)	BSC Section X-1: means the determination of quantities of Active Energy to be taken into account for the purposes of Settlement in respect of Volume Allocation Units.
Credit Assessment Load Factor (CALF)	BSC Section X-1: means a factor for the time being applicable in relation to a BM Unit in accordance with Section M1.5 and which shall include, as the context requires, Working Day Credit Assessment Load Factor and Non-Working Day Credit Assessment Load Factor.
Electricity Market Reform (EMR)	Electricity Market Reform is the government's programme to respond to energy issues facing the UK: 1. Decarbonising electricity supply; 2. Security of supply; and 3. Minimising the cost of energy to consumers
European Electricity Balancing Guideline (EB GL)	The Electricity Balancing Guidelines aim at providing a solid framework for the integration of national balancing markets and the achievement of the single European electricity balancing market. These Framework Guidelines focus on increasing cross-border competition in the balancing timeframe and on the overall efficiency of balancing the electricity system, while safeguarding the security of supply.

European Network Codes (ENCs)	These are a set of codes that apply to one or more parts of the energy sector in order to create a secure, competitive and low carbon market across Europe.
Final Physical Notification (FPN)	BSC Section X-2: means the final physical notification for BM Unit is the level of import or export (as the case may be) that the Party expects to import or export from BM Unit i, in Settlement Period j, in the absence of any Balancing Mechanism Acceptances from the System Operator. The value of $FPN_{ij}(t)$ is calculated for spot times t in Settlement Period by linear interpolation from the discrete values of Point FPN submitted.
Grid Supply Point (GSP)	BSC Section X-1: means a Systems Connection Point at which the Transmission System is connected to a Distribution System and includes an Offshore Transmission Connection Point; "Group of GSPs": means one or more Grid Supply Points for the time being.
Half Hourly (HH)	Relates to Half Hourly Metering Equipment, which is defined in BSC Section X-1 as Metering Equipment which provides measurements on a half hourly basis for Settlement purposes.
Half Hourly Data Aggregator (HHDA)	BSC Section X-1: means a Data Aggregator which carries out the aggregation of metering data received from Half Hourly Data Collectors.
Licensed Distribution System Operator (LDSO)	BSC Section X-1: means a Party which holds a Distribution Licence in respect of distribution activities in Great Britain, acting in that capacity.
Measurement Class	BSC Section X-2, Table X-6: A classification of Metering Systems which indicates how Consumption is measured.
Metered Volume Reallocation Notification (MVRN)	BSC Section X-1: means a notification of a Metered Volume Reallocation in relation to Settlement Periods in any Settlement Day(s).
Metering System	BSC Section X-1: means particular commissioned Metering Equipment, subject to and in accordance with Section K1.6.
Metering System Identifier (MSID)	BSC Section X-1: means a unique number relating to a Metering Point and which consists of the following: (i) a 2 digit number determined by reference to the Licensed Distribution System Operator; (ii) a 10 digit reference number provided by the relevant Licensed Distribution System Operator; (iii) a 1 digit check number provided by the relevant Licensed Distribution System Operator.
MSID Pair	Means one Import Half Hourly Metering System and, where applicable, one Export Half Hourly Metering System situated at a single Boundary Point for the purposes of measuring the provision of MSID Pair Delivered Volumes by the Virtual Lead Party

New Electricity Trading Arrangements (NETA)	NETA is the system of market trading arrangements under which electricity is traded in the GB wholesale electricity market since March 2001. The arrangements allowed Parties to trade off their imbalances close to real time.
Net Imbalance Volume (NIV)	BSC Section X-2: Has the meaning given to that term in paragraph 14.1 of Annex T-1.
Non-Delivery	Where a GB BSP has not delivered the additional (or reduction of) volume required by GB TSO instructions falling within a given Settlement. Determined by the comparison of BM Unit Metered Volume against Period Expected Metered Volume, as per BSC Sections T4.8.1 and T4.8.2.
Party	BSC Section X-1: means a person who is for the time being bound by the Code by virtue of being a party to the Framework Agreement;
Period BM Unit Total Accepted Bid Volume (QAB^{n}_{ij})	BSC Section X-2: The Period Accepted Offer Volume is the quantity of Offer n, accepted in respect of BM Unit i, in Settlement Period j, as a result of all Acceptances.
Period BM Unit Total Accepted Offer Volume (QAO^{n}_{ij})	BSC Section X-2: The Period Accepted Offer Volume is the quantity of Offer n, accepted in respect of BM Unit i, in Settlement Period j, as a result of all Acceptances.
Period Deemed Standard Product Offer Volume ($DSPO^{J}_{ij}$)	A volume calculated by the integration of Deemed Standard Product Offer Volume, relating to an RR Activation over all spot times in a given Settlement Period.
Period Deemed Standard Product Bid Volume ($DSPO^{J}_{ij}$)	A volume calculated by the integration of Deemed Standard Product Bid Volume, relating to an RR Activation over all spot times in a given Settlement Period.
Period RR Accepted Bid Volume ($RRAB^{kn}_{ij}$)	A volume calculated by the integration of Accepted Bid Volume, relating to RR Instructions over all spot times in a given Settlement Period.
Period Total RR Accepted Offer Volume ($RRAO^{kn}_{ij}$)	A volume calculated by the integration of Accepted Offer Volume, relating to RR Instructions over all spot times in a given Settlement Period.
Primary BM Unit	All current and existing BM Units are to be designated as Primary BM Units to distinguish them from the new Secondary BM Units.
Registrant	BSC Section X-1: means, in relation to a Metering System, the person for the time being registered in CMRS or (as the case may be) SMRS in respect of that Metering System pursuant to Section K.
Replacement Reserve (RR)	Replacement Reserve in the European Electricity Balancing means operating reserve used to restore the required level of operating reserves to be prepared for a further system imbalance.
RR Instructed Offer Deviation Volume (IOD_{ij})	Represents the difference between the RR Instructed Offer Volumes and the Deemed Standard Product Offer Volumes

RR Instructed Bid Deviation Volume (IBD_{ij})	Represent the difference between the RR Instructed Bid Volumes and the Deemed Standard Product Bid Volumes
RR Instruction	An RR Instruction is a MW profile instruction sent to a GB BSP settled like any other instruction (like under the BM).
Secondary BM Unit	The new BM Unit registered by Virtual Lead Parties that will be recognised under the proposed P344 solution arrangements.
Settlement Administration Agent (SAA)	BSC Section X-1: means the BSC Agent for Settlement Administration in accordance with Section E.
Settlement Day	BSC Section X-1: means the period from 00:00 hours to 24:00 hours on each day.
Settlement Period	BSC Section X-1: means a period of 30 minutes beginning on the hour or the half-hour and in accordance with paragraph 4.3 of Annex X-2.
Short Term Operating Reserve (STOR)	BSC Section X-1: means the balancing service procured by the Transmission Company as defined in the Procurement Guidelines.
Supplier	BSC Section X-1: means a **Party** which holds a Supply Licence and is responsible for Exports and/or Imports for which such **Party** is required, by virtue of Section K, to register one or more **SVA** Metering Systems.
Supplier Identifier (Id)	A four character identifier for a Supplier, or part of a Supplier business. A Trading Party – Supplier may have one or more Supplier Ids associated to it (e.g. Trading Party - Supplier 'BRITGAS' has Supplier Id 'BGAS' associated to it, among others). Synonymous with Market Participant Identifier (MPID).
Supplier Volume Allocation (SVA)	BSC Section X-1: means the determination of quantities of Active Energy to be taken into account for the purposes of Settlement in respect of **Supplier** BM Units.
Supplier Volume Allocation Agent (SVAA)	BSC Section X-1: means the **BSC Agent** for **Supplier Volume Allocation** in accordance with Section E
System Buy Price (SBP)	BSC Section X-2: means the price determined in accordance with Section T4.4.2.
System Sell Price (SSP)	BSC Section X-2: means the price determined in accordance with Section T4.4.3.
Trans-European Replacement Reserves Exchange (TERRE)	TERRE is a product that harmonises the despatch of RR across several TSO areas.
Trading Charges	BSC Section X-1: means the following kinds of charges: Daily **Party** Period BM Unit Cashflows, Daily **Party** BM Unit Period Non-Delivery Charges, Daily **Party** Energy Imbalance Cashflows, Daily **Party** Information Imbalance Charges, Daily **Party** Residual Settlement Cashflow, and Daily System Operator BM Cashflows (in each case as determined in accordance with Section T); and where the context requires includes Reconciliation Charges in accordance with Section N

Trading Charge Advice Note	A note to BSC Parties notifying them of their Trading charge position.
Trading Party	BSC Section X-1: means a **Party**, other than the Transmission Company, which holds Energy Accounts.
Virtual Lead Party	The Lead Party that will be responsible for Registering each Secondary BM Unit.

4. APPENDIX B – BUSINESS REQUIREMENTS TABLE

Area	Ref	Business Requirement
Facilitating aggregators/customers	BR1	Aggregators/customers shall be able to register as a BSC Party under a new 'Virtual Lead Party' participation capacity.
Facilitating aggregators/customers	BR2	BSC Parties with the 'Virtual Lead Party' participation capacity shall be able to register 'Secondary BM Units'.
Facilitating aggregators/customers	BR3	The Lead Party of a Secondary BM Unit shall be required to notify Settlement of which SVA MSID Pairs should be treated (for purposes of settling Balancing Services Acceptances) as belonging to that Secondary BM Unit. The SVAA System shall be able to receive, load and store the MSID Pairs received from the Lead Party of a Secondary BM Unit.
Facilitating aggregators/customers	BR4	The Supplier Volume Allocation Agent (SVAA) shall maintain a register of which SVA Metering System Numbers belong to each BM Unit for purposes of providing Balancing Services. This register will be known as the "**SVA Metering System Balancing Services Register**"
Facilitating aggregators/customers	BR5	Half Hourly Data Aggregators shall be required to submit Half Hourly metered volume data for SVA Metering System Numbers in Secondary BM Units to settlement.
Facilitating aggregators/customers	BR6	The Lead Party of a Secondary BM Unit shall be required to submit Half Hourly delivered volumes for each SVA MSID Pair notified to Settlement.
Facilitating aggregators/customers	BR7	A new process will be required for SVAA (using the data from BR6 above) to allocate MSID Pair Delivered Volumes between the SVA Metering Systems in the relevant MSID Pair to create the Secondary Metering System Delivered Volume ($QVMD_{Ki}$)

Currency conversion	BR8	BMRA shall procure and publish a day-ahead GBP-EUR exchange rate under a transparent process.
TSO interface	BR9	SAA & BMRA shall receive, validate and process new TERRE-specific data from National Grid.
RR Activation Settlement	BR10	SAA shall calculate the RR Cleared Cashflow (CCR_{iJ}) and the RR Bid Cashflow (CBR_{iJ}) for each BM Unit for each quarter-hour.
RR Activation Settlement	BR11	Daily Party RR Cashflow (CRR_p) shall be a new Trading Charge, included on Trading Charge Advice Notes that are sent to Parties participating in TERRE.
RR Activation Settlement	BR12	SAA shall create an RR Schedule for each set of RR Activations received in regards to a TERRE Auction Period.
RR Activation Settlement	BR13	SAA shall receive and process RR Instructions from National Grid. In practice an RR Instruction will be similar to (and processed in a similar way to) any other BOA, except that: • An RR Instruction shall be deemed to have been accepted equal to the time of the BEGCT of the Replacement Reserve Auction (rather than when the RR Instruction was actually issued); and • SAA shall calculate RR Instructed Volumes, separate to Accepted Bid/Offer Volumes (so the volumes will not be included in QAO^{kn}_{ij} or QAB^{kn}_{ij}, and will therefore not attract Bid Offer Payments).
RR Activation Settlement	BR14	SAA shall calculate Period Deemed Standard Product Offer Volumes ($DSPO^{J}_{ij}$) and Period Deemed Standard Product Bid Volumes ($DSPB^{J}_{ij}$)
RR Instruction Settlement	BR15	SAA shall receive and process RR Instructions from National Grid. In practice an RR Instruction will be indistinguishable from (and processed in the same way as) any other BOA. In the majority of cases the MWh volume associated with an RR Instruction will be zero (as the MW profile will match the associated RR Schedule).
RR Instruction Settlement	BR16	SAA shall calculate the difference between the RR Instruction received from National Grid and the Deemed Standard Product Shape
RR Instruction Settlement	BR17	SAA shall calculate the Replacement Reserve Period Instruction Deviation Cashflow (CDR_{ij})
RR Instruction Settlement	BR18	Daily Party RR Instruction Deviation Cashflow (CDR_p) shall be a new Trading Charge, included on Trading Charge Advice Notes that are sent to Parties participating in TERRE.

RR Instruction Settlement	BR19	Total System RR Cashflow shall be included in the calculation of System Operator Cashflow for each Settlement Period.
BOA Settlement	BR20	SAA shall compare each Bid-Offer acceptance data received against previous acceptance data. If the previously accepted data relates to a RR Schedule and is of the same direction (i.e. offer/offer or bid/bid) and the Bid-Offer acceptance MW value is less than RR Activation MW value then Settlements shall **not** calculate Acceptance Volumes $qA^{k}_{ii}(t)$ for that time (t)
Non-Delivery	BR21	SAA shall include RR Activations Deemed Standard Product Volumes with Replacement Reserve Instructed Offer Deviation Volumes (IBD_{ij}) and Replacement Reserve Instructed Bid Deviation Volumes (IBD_{ii}) in the existing Non-Delivery Charge calculations.
Imbalance settlement	BR22	SAA shall include TERRE-specific actions in the calculation of the System Buy Price and System Sell Price.
Imbalance settlement	BR23	SAA shall include RR Activation Volumes in the calculation of Energy Imbalance Volumes.
Reporting	BR24	The SAA-I014 Settlement Report shall contain new TERRE-specific data items.
Reporting	BR25	There shall be a new SAA-I014 Settlement Report sub-flow tailored for aggregators/customers.
Reporting	BR26	The new SAA-I014 Settlement Report sub-flow shall be made available to Virtual Lead Parties in .csv format.
Reporting	BR27	New TERRE-specific data shall be published to BMRS.
Reporting	BR28	New indicative TERRE-specific data shall be calculated by BMRS
Credit	BR29	Daily Party RR Cashflow shall be included in the calculation of Actual Energy Indebtedness.
Credit	BR30	Credit Assessment Energy Indebtedness and Metered Energy Indebtedness shall not be calculated for Secondary BM Units.

5. APPENDIX C – EXAMPLES OF HOW METERED DATA WILL BE USED TO ALLOCATE MSID PAIR DELIVERED VOLUMES TO THE CONSTITUENT MSIDS

This Appendix provides additional examples to illustrate the logic that will be used by SVAA to allocate MSID Pair Delivered Volumes to the constituent MSIDs using MSID-level HH metered data.

1) Signing convention for MSID delivered volumes:

A) Increased energy on the Transmission System

If the MSID Delivered Volume increased the energy on the **Transmission System**, the value submitted by the Virtual Lead Party should be signed positive ("+ve"). This indicates that the delivery site increased generation or reduced demand, leading to an increase in Export and/or a reduction in Import at the Settlement Meter. BR7.1 requires that SVAA allocate this to the Export MSID in the first instance (in recognition that some of the Export recorded on the Export MSID was a Balancing Service instructed by the TSO, for which the Export Supplier should not be held responsible). However, it does not make sense to allocate a MSID Delivered Volume that is larger (in magnitude) than the HH metered data, so any remaining volume will be allocated to the Import MSID.

Example 1 – where all of the MSID Delivered Volume can be allocated to the "preferred" MSID

MSID Pair Delivered Volume = +4 MWh

Export MSID metered volume ≥ 4 MWh

Import MSID metered volume immaterial

As the Export MSID metered volume is at least as big as the MSID Delivered Volume, all of the MSID Delivered Volume should be allocated to the Export MSID in the MSID Pair

SVAA will allocate +4 MWh to the Export MSID (i.e. increasing the magnitude)

SVAA will allocate 0 MWh to the Import MSID

Example 2 – where only part of the MSID Delivered Volume can be allocated to the "preferred" MSID

MSID Pair Delivered Volume = +4 MWh

Export MSID metered volume = 3 MWh

Import MSID metered volume = immaterial

As the Export MSID metered volume is less than the MSID Delivered Volume, only the value of the metered volume can be allocated to the Export MSID in the MSID Pair and the remainder allocated to the Import MSID in the MSID Pair (noting that this will reduce Demand)

SVAA will allocate +3 MWh to the Export MSID (i.e. increasing the magnitude)

SVAA will allocate +1 MWh to the Import MSID (i.e. decreasing the magnitude)

Example 3 – where none of the MSID Delivered Volume can be allocated to the "preferred" MSID

MSID Pair Delivered Volume = +4 MWh

Export MSID metered volume = 0 MWh

Import MSID metered volume = immaterial

As the Export MSID metered volume is zero (and therefore less than the MSID Delivered Volume), none of the metered volume can be allocated to the Export MSID in the MSID Pair and so the total amount should be allocated to the Import MSID in the MSID Pair (noting that this will reduce Demand)

SVAA will allocate 0 MWh to the Export MSID

SVAA will allocate -4 MWh to the Import MSID (i.e. decreasing the magnitude)

B) Reduced energy on the Transmission System

If the MSID Pair Delivered Volume reduced the energy on the **Transmission System**, the value submitted by the Virtual Lead Party should be signed negative ("-ve"). This indicates that the Balancing Service provided had reduced generation or increased demand, leading to an increase in Import and/or a reduction in Export at the Settlement Meter. BR7.1 requires that SVAA allocate this to the Import MSID in the MSID Pair in the first instance (in recognition that some of the Import recorded on the Import MSID was a Balancing Service instructed by the TSO, for which the Import Supplier should not be held responsible). However, it does not make sense to allocate a MSID Delivered Volume that is larger (in magnitude) than the HH metered data for the relevant component MSID, so any remaining volume will be allocated to the Export MSID.

Example 4 – where all of the MSID Delivered Volume can be allocated to the "preferred" MSID

MSID Pair Delivered Volume = -4 MWh

Import MSID metered volume ≤ -4 MWh

Export MSID metered volume immaterial

As the magnitude of the Import MSID metered volume is at least as big as the magnitude of the MSID Delivered Volume, all of the MSID Delivered Volume should be allocated to the Import MSID in the MSID Pair

SVAA will allocate -4 MWh to the Import MSID (i.e. increasing the magnitude)

SVAA will allocate 0 MWh to the Export MSID

Example 5 – where only part of the MSID Delivered Volume can be allocated to the "preferred" MSID

MSID Pair Delivered Volume = -4 MWh

Import MSID metered volume = -3 MWh (i.e. increasing the magnitude)

Export MSID metered volume = immaterial

As the magnitude of the Import MSID metered volume is less than the magnitude of the MSID Delivered Volume, only the value of the metered volume can be allocated to the Import MSID in the MSID Pair and the remainder allocated to the Export MSID in the MSID Pair (with a change of sign to indicate that Generation has been increased)

SVAA will allocate -3 MWh to the Import MSID (i.e. increasing the magnitude)

SVAA will allocate +1 MWh to the Export MSID (i.e. decreasing the magnitude)

Example 6 – where none of the MSID Delivered Volume can be allocated to the "preferred" MSID

MSID Pair Delivered Volume = -4 MWh

Import MSID metered volume = 0 MWh

Export MSID metered volume = immaterial

As the Import MSID metered volume is zero (and therefore less than the magnitude of the MSID Delivered Volume), none of the metered volume can be allocated to the Import MSID in the MSID Pair and so the total amount should be allocated to the Export MSID in the MSID Pair (with a change of sign to indicate that Demand has been reduced)

SVAA will allocate 0 MWh to the Import MSID

SVAA will allocate +4 MWh to the Export MSID (i.e. decreasing the magnitude)