

## Phase

Initial Written Assessment

Definition Procedure

Assessment Procedure

Report Phase

Implementation

## P349 'Facilitating Embedded Generation Triad Avoidance Standstill'

This Modification seeks to facilitate the delivery of Connection Use of System Code Modification Proposal 264. The implementation of CMP264 requires both SVA and CVA metered data for New Embedded Generators to be provided to the Transmission Company to allow it to calculate Transmission Charges in accordance with CMP264.

This Assessment Procedure Consultation for P349 closes:

**5pm on Monday 13 March 2017**

The Workgroup may not be able to consider late responses.



The Workgroup initially recommends **approval** of P349

This Modification is expected to impact:

- Suppliers
- Half Hourly Data Aggregators
- ELEXON
- Supplier Volume Allocation Agent (SVAA)
- Transmission Company



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## About This Document

The purpose of this second P349 Assessment Procedure Consultation is to invite Balancing and Settlement Code (BSC) Parties and other interested parties to provide their views on the merits of P349. The P349 Workgroup will then discuss the consultation responses, before making a recommendation to the BSC Panel at its meeting on 13 April 2017 on whether or not to approve P349.

There are five parts to this document:

- This is the main document. It provides details of the solution, impacts, costs, benefits, drawbacks and proposed implementation approach. It also summarises the Workgroup's key views on the areas set by the Panel in its Terms of Reference, and contains details of the Workgroup's membership and full Terms of Reference.
- Attachment A contains the draft redlined changes to the BSC for the P349 proposed solution (Option 3).
- Attachment B contains the full responses to the first Assessment Procedure Consultation.
- Attachment C contains the specific questions on which the Workgroup seeks your views. Please use this form to provide your response to these questions, and to record any further views or comments you wish the Workgroup to consider.

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## Why Change?

Connection Use of System Code (CUSC) Modification Proposal (CMP) [264 'Embedded Generation Triad Avoidance Standstill'](#) seeks to limit the detriment of a continued lack of level playing field between New Embedded Generators and other generation plant by suspending access to Triad avoidance for New Embedded Generators until Ofgem have completed its consideration of associated issues.

In order for the Transmission Company to calculate Transmission Network Use of System (TNUoS) charges in accordance with the prospective requirements of CMP264 a change is required to the BSC to enable ELEXON (as BSC Company (BSCCo)) to provide sufficient data to the Transmission Company. Therefore, if the Authority approves CMP264 a BSC Modification is required to enable the delivery of the CMP264 solution.

## Solution

This Modification seeks to facilitate the delivery of CMP264. The implementation of CMP264 requires both Supplier Volume Allocation (SVA) and Central Volume Allocation (CVA) metered data for New Embedded Generators to be provided to the Transmission Company to allow it to calculate Transmission Charges in accordance with CMP264.

## Impacts & Costs

This Modification will impact Suppliers, Half Hourly Data Aggregators (HHDAs) and the Transmission Company. It is also anticipated that changes may be required to the Supplier Volume Allocation Agent (SVAA) systems.

Details of the impacts and costs associated with this Modification will be considered by the Workgroup at its next meeting, along with responses to this Assessment Procedure Consultation.

## Implementation

P348 is targeted for implementation on 2 November 2017, as part of the November 2017 BSC Systems Release.

## Recommendation

The majority view of the Workgroup is that P349 does better facilitate Applicable BSC Objectives (a) and (c) compared to the baseline and initially recommends approval of P349.

## 2 Why Change?

### What are TNUoS Charges?

TNUoS charges are used to recover the cost of providing and maintaining shared (or potentially shared) electricity transmission assets (meaning assets that cannot be solely attributed to a single user).

TNUoS charges are recovered from all generation and demand users of the GB electricity transmission system as required under the CUSC. These charges vary by location, reflecting the costs that users impose on the transmission network to transport their electricity.

### What are embedded generation benefits?

Embedded generation is the production of electricity from power stations that are directly connected to a Distribution Network. The Distribution Network carries electricity from the Transmission Network and embedded generators to homes and businesses.

The main embedded benefits are available under other industry arrangements (e.g. TNUoS). However, the ability to secure these benefits depends on a combination of the CUSC arrangements and the trading options adopted by the Embedded Exemptible Generator under the BSC.

Further information on embedded generation benefits can be found in our [embedded generation guidance note](#).

### Related Modifications

#### CMP264

Scottish Power raised [CMP264 'Embedded Generation Triad Avoidance Standstill'](#).

CMP264 seeks to limit the detriment of a continued lack of level playing field between New Embedded Generators and other generation plant by suspending access to Triad avoidance for New Embedded Generators until Ofgem have completed its consideration of associated issues.

The suspension will be achieved by removing the netting of output from New Embedded Generators when calculating their demand volumes for use in the setting of tariffs for suppliers in the Transport and Tariff model and for actual billing. As the Supplier will no longer benefit from netting the output from these generators there will be no "Triad avoidance" to share with the embedded generator.

It was initially intended that the changes to the transmission charging methodology proposed by CMP264 would be temporary and that no enduring difference of treatment between new and existing generation will be created. However, Ofgem stated in its [open letter](#) published on 29 July 2016, that there will be no Significant Code Review (SCR) for this defect. This means that, should P349 be approved by the Authority it will be an enduring solution.

#### CMP265 & P348

EDF raised [P348 'Provision of gross BM Unit data for TNUoS charging'](#) on 1 July 2016.



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#### Exemptible Generation

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All power stations, including embedded generators, normally require a Generation Licence before they are allowed to produce and sell electricity on the wholesale market. However, they may, upon meeting certain criteria, qualify for a Class Exemption.

This removes the requirement to hold a licence.

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This Modification seeks to facilitate the implementation of [CMP265 'Gross charging of TNUoS for HH demand where embedded generation is in Capacity Market'](#). P348 will ensure that the Transmission Company receives the data it requires to calculate indicative and actual TNUoS charges based on the requirements introduced under CMP265.

CMP265 looks to amend the residual element of the TNUoS demand tariff to mitigate arbitrary and discriminatory embedded benefits currently available to exemptible generation connected within Distribution Systems.

The CMP265 Proposer contends that under the current Balancing and Settlement Code (BSC) and CUSC rules, generation that is licence exemptible and connected to a Distribution System reduces the aggregate net import demand or creates an export for the generator or supplier who registers the boundary flow. This reduction either:

- reduces the liability of the registering supplier to TNUoS charges, a benefit which can be shared with the generator; or
- if registered to a generator in its own right, can deliver a TNUoS charge credit benefit directly to the generator.

This is most strongly apparent for controllable embedded generators that run at peak times due to the structure of the TNUoS charge. These generators are most likely to secure the majority of the avoided residual charge. It is these controllable embedded generators that are also able to compete in the Capacity Market (CM) and run at similar times.

The defect under CMP265 therefore lies in this unwarranted distortion of CM tenders. The charging treatment of these generators is not reasonably reflecting transmission network costs and therefore fails against the objectives of the transmission charging methodology. The implication of this is that it distorts competition in generation. CMP265 therefore specifically focuses on Embedded Generator Capacity Provides.

## Joint Working Groups

In order to ensure that P348 and P349 are progressed efficiently we recommended to the Panel that both modifications be progressed to the same timetable and with the same Workgroup. Therefore, some of the information considered by the Workgroup in Section 6 of this document will relate to both Modifications.

## What is the issue?

In order for the Transmission Company to calculate TNUoS charges in accordance with the prospective requirements of CMP264 a change is required to the BSC to enable ELEXON (as BSCCo) to provide sufficient data to the Transmission Company.

Therefore, if the Authority approves CMP264 a BSC Modification is required to enable the delivery of the CMP264 solution.

## Proposed solution

EDF raised [P348 'Provision of gross BM Unit data for TNUoS charging'](#) on 1 July 2016. P348 seeks to facilitate the implementation of [CMP265](#). P348 will ensure that the Transmission Company receives the data it requires to calculate indicative and actual TNUoS charges based on the requirements introduced under CMP265.

ScottishPower raised [P349 'Facilitating Embedded Generation Triad Avoidance Standstill'](#) on 4 July 2016. P349 seeks to facilitate the delivery of CMP264. The implementation of CMP264 requires both SVA and CVA metered data for New Embedded Generators to be provided to the Transmission Company to allow it to calculate Transmission Charges in accordance with CMP264.

As such the original defects and proposed solutions described by P348 and P349 were specific to their corresponding CUSC modification proposal.

P348 originally sought to report Gross Demand and Gross Export specifically for sites considered to be Embedded Generation Capacity Mechanism Units, whereas P349 sought to report on Gross Export specifically from New Embedded Generators.

Over time the overall reporting requirements for the original CMP264 and CMP265 proposals and the subsequent Workgroup Alternative CUSC Modifications (WACMs) became more similar. Consequently the P348 and P349 Workgroup considered developing common solutions i.e. that were not specific to P348 or P349 but would facilitate any of the CUSC options.

In summary, the overall Settlement Data reporting requirements for the 43 CUSC options are:

- **Group 1** – facilitates CMP264 Original and CMP265 Original
  - 'Gross' Demand – i.e. Net sum of SVA HH settled Active Import and Grandfathered Embedded Export (see below)
  - Affected Embedded Export – i.e. SVA HH settled Active Export for specific Metering Systems defined in the CUSC as Affected Embedded Export
- **Group 2** – facilitates CMP264 WACMs 1-11 and CMP265 WACMs 1-11
  - Gross Demand – i.e. Gross sum of all SVA HH settled Active Import
  - Embedded Export – i.e. Gross sum of all SVA HH settled Active Export
- **Group 3** - facilitates CMP264 WACMs 12-23 and CMP265 WACMs 12-18
  - Gross Demand – as above
  - Affected Embedded Export – as above
  - Grandfathered Embedded Export – i.e. SVA HH settled Active Export for specific Metering Systems defined in the CUSC as Grandfathered Embedded Export

For the avoidance of doubt, the categories of Grandfathered Export and Affected Export are mutually exclusive and exhaustive (with respect to total Embedded Export).



### Related EGCMU Metering System

A Related EGCMU Metering System is a HH Metering System that measures imported volumes and is intrinsic to the operation of a EGCMU

### Metered consumption and losses

A Supplier's Metering System Metered Consumption ( $SMMC_{Zakj}$ ) is defined in BSC Section S Annex S-2 3.3.2.

A Supplier's Metering System Metered Losses ( $SMML_{Zakj}$ ) is the Line Losses calculated for the corresponding SMMC. It is derived by multiplying SMMC by the relevant LLF ( $SMML_{Zakj} = SMMC_{Zakj} \times (LLF_{Lj} - 1)$ )

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In practice, the requirements in Group 1 can be achieved by delivering Group 3. That is, Gross Demand and Grandfathered Embedded Export can be combined to calculate 'Gross' Demand. National Grid confirmed that any solution under P348 and P349 should report Group 3.

Based on the reporting requirements described above, ELEXON and the P348 & P349 Workgroup developed the following BSC solution options:

- **Option 1** – Centralised DA (P348 Proposed Modification)
  - SVAA calculates values of Affected and Grandfathered Export Volumes by aggregating individual Metering System Metered Data sent to it by HHDA's. This approach would centralise the aggregation of metered data within a single BSC Agent. The centralised aggregation would be performed in parallel to the SVAA's existing Settlement function.
  - This option could satisfy all CUSC requirements described above
- **Option 2** – Simple SVAA (P348 Alternative Modification)
  - Certain CUSC proposals only require that the Transmission Company is sent gross HH embedded export and gross HH demand associated to individual Supplier BMUs. These values can be simply calculated using existing Settlement Data and processes.
  - This option would satisfy CUSC requirements in Group 2 above only – i.e. CMP264 WACMs 1-11 and CMP265 WACMs 1-11
- **Option 3** - Existing registration processes (P349 Proposed Modification)
  - Rather than create new parallel processes for SVAA to perform, this option introduces new Measurement Classes and Consumption Component Class (CCC) IDs so that existing registration and Settlement processes can be used to identify and aggregate existing Settlement Data to calculate values of Affected and Grandfathered Export Volumes.
  - This option could satisfy all CUSC requirements described.

So we can develop and assess all options, the Workgroup agreed that BSC Option 1 is the P348 Proposed Modification, BSC Option 2 is the P348 Alternative Modification and BSC Option 3 is the P349 Proposed Modification.

## Questions on the three options

Appendix 1 describes the three solutions in more detail, by outlining the specific business requirements for each option. The Workgroup invites views on the following questions related to these requirements.

### Interface from Supplier to SVAA under option 1

Option 1 requires that Suppliers provide the Supplier Volume Allocation Agent (SVAA) with details of which Export Metering Systems are affected and which are Grandfathered, and keep this information updated (see requirement 1.2 in Appendix 1). The Workgroup envisages that Suppliers will provide this to SVAA using a new data flow over the Data Transfer Network (DTN).

This raises the question of which Supplier should be responsible for updating SVAA on Change of Supplier. Should the losing Supplier be required to do so? Or can it be left to the new Supplier to provide updated information to SVAA?

It also raises the question of how SVAA should notify Suppliers of errors in the data (e.g. if the Supplier has provided data for a Metering System registered by another Supplier). Would a manual process for SVAA to notify the Supplier of the issue suffice, or would another DTN flow be required?

### **Potential CUSC impact of option 3**

On 20 December 2016, Ofgem approved CMP266 WACM 1, which allows elective Half Hourly customers in Measurement Classes 'F' and 'G' to be charged on a Non Half Hourly basis until 2020. Option 3 would split these Measurement Classes into two, by removing Affected Embedded Export Metering Systems into new Measurement Classes 'K' and 'L' respectively. This would potentially remove them from the scope of CMP266, which applies only to Measurement Classes 'F' and 'G', removing the benefits of CMP266 for these customers. To address this, it may be that a consequential CUSC Modification would be required to extend the CMP266 solution to Measurement Classes 'K' and 'L'.

### **Legal text**

The draft legal text changes to support the P349 proposed solution can be found in Attachment A.

#### **Assessment Consultation Question**

Do you agree that the draft legal text in Attachment A delivers the intention of the proposed solution (Option 3)?

[The Workgroup invites you to give your views using the response form in Attachment C.](#)

## 4 Impacts & Costs

### Estimated central implementation costs of P349

The P349 proposed solution will require changes to the SVAA systems in order for it to be delivered. Costs will therefore be incurred due to these system changes being developed and implemented.

ELEXON are currently impact assessing the P349 proposed and potential alternative solutions. ELEXON will present these costs to the Workgroup following the Assessment Consultation.

### Indicative industry costs of P349

This Modification is expected to impact Suppliers, the Transmission Company and HHDA's. However, the costs of these impacts are currently unknown. ELEXON therefore requests further information from the industry as part of this consultation to help determine the impacts and costs of implementing P349.

#### Assessment Consultation Questions

Will your organisation be impacted by the implementation of the P349 proposed solution?

Will your organisation incur any costs due to the implementation of the P349 proposed solution?

The Workgroup invites you to give your views using the response form in Attachment C.

### P348 and P349 impacts

#### Impact on BSC Parties and Party Agents

Party/Party Agent	Impact
Supplier	Under Option 1 and 3, new obligations will be placed on the Supplier to identify Metering Systems for sites (in accordance with requirements and definitions set out by CMP265). Suppliers may also have to instruct their Party Agents (under Option 1 only) which Metering Systems to collect, aggregate and report data for.
HHDA	Under Option 1, the HHDA may be instructed by the Supplier to report metered data for specific Metering Systems to the SVAA.

#### Impact on Transmission Company

We expect the Transmission Company to be impacted by the implementation of P348. Changes may be required to systems to allow the Transmission Company to receive the updated TUoS report under the proposed and metered data for individual Metering Systems under the potential alternative solution.

Impact on BSCCo	
Area of ELEXON	Impact
Configuration Management	Implement the proposed document changes to deliver P349.
Release Management	Implement the proposed system changes to deliver P349.

Impact on BSC Systems and process	
BSC System/Process	Impact
SVAA	The SVAA will only be impacted by the proposed solution. Under the proposed solution the SVAA will receive data from the HHDA that will need to be aggregated and incorporated into the P210 data flow (TNUoS Report). The data flow will need to be amended to allow for this data to be provided.

Impact on Code	
Code Section	Impact
Section S	Changes will be required to implement P349.
Section S Annex S-2	
Section V	
Section X Annex X-1	
Section X Annex X-1	

Impact on Code Subsidiary Documents
ELEXON are currently assessing which Code Subsidiary Documents (CSDs) are impacted by P349.

## 5 Implementation

### Recommended Implementation Date

We are proposing an implementation date for P348 and P349 of **2 November 2017** as part of the November 2017 BSC System Release. This will allow ELEXON to collect metered data and send those to National Grid to support it setting TNUoS Charges that will take effect from 1 April 2018 or that will be used to set charges from April 2019.

The Workgroup also considered two other options:

- Implementation on 1 April 2018 to align with expected 'effective from date' for CMP264/265; and
- Implementation on June 2018 or November 2018 BSC System Release to ensure BSC processes in place to allow data to be collected over winter 2018/19 to facilitate charges being set from April 2019.

### Assessment Consultation Question

Do you agree with the recommended Implementation Date for P349?

The Workgroup invites you to give your views using the response form in Attachment C.

### What is a New Embedded Generator?

ELEXON advised the Workgroup that any solution will require a clear definition of what sites/metering systems should be reported (i.e. what is a New Embedded Generator and NEG Site), what metered data should be collected and how it should be reported to the Transmission Company.

Based on discussions at the CMP264 and P349 Workgroup meetings, the Proposer has (for the time being) defined a NEG for the purposes of the BSC as any license exempt embedded generator that:

- has HH export metering system(s) registered in the SMRS or CMRS;
- has commenced exporting energy to the Distribution System; and
- is certified in accordance with Engineering Recommendation (EREC) 59 after a defined cut-off date (currently set by CMP265 as 30 June 2017).

ELEXON advised the Workgroup that the Transmission Company should already receive metered data for metering systems registered in CMRS (i.e. BMU data). Therefore the focus of P349 should be on metering systems registered in the SMRS.

Nevertheless, ELEXON confirmed that the P349 solution will explicitly reference both CVA and SVA metering systems.

### Cut-off date

Currently, the proposed definition of New Embedded Generator under CMP265 includes embedded generation units commissioned after 30 June 2017.

ELEXON advised the Workgroup that if this date changes under CMP265 it will need to be amended under P349 as well. The Workgroup noted this and agreed that the cut-off date under P349 will be aligned with CMP265.

### Should mixed sites be included under P348 and P349?

The CMP265 proposal does not state whether CMP265 covers embedded generation in the CM where there is mixed demand on site. A CM rule change would be required if gross generation data from the embedded CM-participating generation within these sites is needed, as such data is in most cases not BSC-accessible even via a BSC mod. Another member asked how these sites will be identified.

### Boundary point metering

In addition to considering the configuration and interaction of on-site demand and generation, the Workgroup also considered the configuration, interaction and visibility of different forms of on-site embedded generation.

In relation to P348, the Workgroup discussed the potential for there being both non-CM embedded generation and CM embedded generation on the same site. **A summary of the P348 discussions is below, with full details of these discussions set out in the P348 Assessment Consultation document.**

Two example sites were considered by the Workgroup in relation to P348:

- Example 1: A site with two generating units that are separately with individual Settlement meters.
- Example 2: A site with two generating units that share the same Settlement boundary meter but the CM generating unit is metered by an additional non-Settlement meter (below the boundary point) for CM purposes.

In both scenarios the specific activity of the CM generating unit can be isolated, either by the Settlement or non-Settlement meter. However, the Workgroup noted that access to non-Settlement metered data would not be possible through the BSC. A member considered whether suppliers could be obliged to request EMRS to inform it of non-Settlement export metered data. Another member noted that this may be an issue as the obligation assumes the Supplier will have some relationship with the site and therefore know whether there is a CM generator there or not. Furthermore, a change to the CM rules may be required to enable access for non-settlement metered CMUs. ELEXON noted that the process for making changes to the CM Rules is governed by Ofgem, that they are relatively new and unless a change is urgent, changes are considered as part of an annual cycle.

A member was concerned that by not including embedded generation with non-BSC metering behind the boundary point there may be a loophole introduced. There could be an incentive for Capacity Providers to meter their embedded generation using non-Settlement metering behind the boundary point in order to avoid being reported through CMP265/P348 processes and therefore keep their TNUoS embedded benefits. However, as the metering is non-settlement in these instances it may not be possible to obtain data for these generators.

### Site evolution

The Workgroup considered how the evolution in a site's configuration and use might change its status. In particular, the Workgroup considered the following scenarios:

- Scenario 1: existing site is a demand customer only;
- Scenario 2: existing site is a mixture of demand and embedded generation but net import with export meter but never exported;
- Scenario 3: existing site is a mixture of demand and embedded generation but net import with export meter and exported pre cutoff; and
- Scenario 4: existing generation site, exported pre-cutoff but installation of additional capacity receives G59 certificate and new metering.

### How will sites exempt from embedded benefits be communicated under P348 and P349?

A member asked the Workgroup how the Supplier will communicate to their agents which Metering Systems they need to provide data for. ELEXON advised that this can be done a number of ways:

- Supplier sends a direct message from its agents outside of the DTC/DTN
- Introduce a new flag in SMRS and CMRS within registration data flows to allow Supplier (or DNO) to identify the Metering Systems effected by or reported on under this Modification
- Introduce new LLFC values to enable the Supplier (or DNO) to show which Metering Systems they need to report on

ELEXON advised that any solution with system impacts will have costs associated. However, the beauty of a more formal 'BSC Heavy' solution is that there is more transparency. Furthermore, things like system flags will remain and any new Supplier inheriting the site will be satisfied that the exclusion of embedded benefits was taken into account prior to registering with the customer.

A member advised that, given P348 and CMP265 are not seen to be enduring solutions it seems unnecessary to incur high costs when the Supplier has the option to communication with its Agents how it wishes.

## **How will metered data for EGCMU sites be collected, aggregated and reported under P348 and P349?**

The Workgroup considered the practical aspects of collecting, aggregating and reporting metered data to the Transmission Company for EGCMU's.

### **Aggregation and reporting of metered data**

The Workgroup considered a number of options for apportioning responsibility for aggregating and reporting metered data. In general these ranged from Suppliers taking full responsibility for collecting, aggregating and reporting metered data to the Transmission Company for all of their EGCMU sites directly through to Suppliers providing the raw Metering System metered data to the Transmission Company to process and aggregate. In between these extremes the Workgroup also considered Party Agents and BSC Agents (i.e. the SVAA) collecting, aggregating and reporting data to the Transmission Company on behalf of Suppliers.

A couple of Workgroup members noted that on the one hand if Suppliers are able to identify the sites/Metering Systems that should be reported under the P348 solution, and they have access to the data, then some Suppliers may prefer to collect, aggregate and report the data to the Transmission Company 'in-house'. Another member confirmed that Suppliers will have access to the metered data for Settlement meters. However, the Group also recognised that suppliers may need to collaborate to provide metered data for all Metering Systems belonging to the same site (e.g. where the exports and imports are registered with different suppliers).

The Workgroup also noted that if individual Metering System metered data were to be provided direct to the Transmission Company, the Transmission Company would need to process individual Metering System data. ELEXON pointed out that the Transmission Company doesn't ordinarily process individual Metering System metered data and would need direction (e.g. from Suppliers) to calculate net volumes and access to Line Loss Factor (LLF) values to ensure the correct calculation of line losses.

Whilst 'in house' reporting or empowering the Transmission Company to calculate volumes may limit the requirements in the BSC and need for Party and BSC Agent system changes,

a Workgroup member noted that it is likely that most Suppliers would use their Party Agents to collect and aggregate metered data as these are processes that these agents already fulfil.

The Workgroup concluded that the main proposal should be designed on the basis that Suppliers instruct their Party Agents to collect and aggregate metered data for relevant Metering Systems and that the SVAA should aggregate this data to Supplier BMU level so it can be reported to the Transmission Company.

In response to a member recommendation, the Workgroup also proposed that an alternative solution be prepared whereby Suppliers are obliged to ensure that individual Metering System metered data required under P348 is submitted by their DCs directly to the Transmission Company in the most efficient and effective way. The Transmission Company would then need to process the metered data for TNUOS charging purposes.

### **Identification of relevant Metering Systems**

A member asked the Workgroup how a Supplier will communicate to its agents which Metering Systems should be reported. ELEXON advised that this can be done a number of ways:

- Suppliers identify and maintain own records of relevant EGCMU Metering Systems and send instructions direct to its agents outside of the DTC/DTN
- Introduce a new flag in SMRS (and CMRS) and within registration data flows to allow Suppliers (or Distribution Network Operators (DNOs)) to identify relevant EGCMU Metering Systems
- Introduce new LLFC values to enable Suppliers (or DNOs) to identify relevant EGCMU Metering Systems

ELEXON noted that all solutions will require system changes with associated costs. The difference between the options is in terms of who manages the risks and costs of those changes. On the one hand avoiding changes to registration systems and the DTC may reduce central system costs but place a greater burden on individual parties and Party Agents to design and maintain their own solutions. On the other hand a more formal 'BSC Heavy' solution that introduced common processes and (Party, Party Agent and BSC) system changes may provide greater transparency, certainty and compatibility (e.g. in terms of sharing common information between Parties if an embedded generator changes supplier).

A member noted that P348 and CMP265 are intended to be interim solutions whilst Ofgem completes a detailed review of embedded benefits. Therefore they considered that it may be inappropriate to incur high central costs and rather allow each Supplier the option to manage how they discharge obligations to report metered data to the Transmission Company.

### **Third party involvement**

A member asked how having a third party involved may impact P348. They added that if the site is managed by a third party there is no Supplier to chase the customer for export data.

A member advised that a Supplier has a lot of regulatory reasons for obtaining the required data. However, a third party may not, which means ultimately we may not be able to determine whether to give triad benefits to the site.

Another member advised that, if you are not a CUSC party you do not get paid Triad directly by the Transmission Company so it is not an issue. However, if you are a CUSC party you will be paid directly, therefore if there is a CM and non-CM site in CVA there needs to be CUSC arrangements to ensure the 'lead party' supplies the required data to the Transmission Company.

ELEXON asked the Proposer to provide information on this discussion to the CMP265 Workgroup to ensure it is considered.

## **Should gross import and gross export data for all BM Units be provided to the Transmission Company?**

The BSC Panel requested that the P348 and P349 Workgroup consider whether gross import and gross export data for all BM Units be provided to the Transmission Company as part of P348 and P349.

ELEXON noted that it already reports gross import and export data to the Transmission Company for individual embedded generator BMUs. The Workgroup also noted its understanding of CMP264 and CMP265 that the Transmission Company plan to add volumes of exported energy to Suppliers' net demand (which is already reported by ELEXON in the P0210 TUOS Report). Therefore its understanding is that reporting gross import data for all BM Units will not help the Transmission Company in its calculation of TNUOS Charges should CMP264 or 265 be implemented.

The Workgroup agreed that P348 and P349 should only focus on reporting volumes of exported energy for EGCMUs.

## **How often should data be reported to the Transmission Company?**

ELEXON asked the Workgroup how often the required export data needed to be provided to the Transmission Company. We added that there are few different options, data could be reported for:

- every Settlement Period within the TRIAD period (1 November – last day in February);
- every Settlement Period in every day across the calendar year; or
- the Transmission Company identifies the impacted triad Settlement Periods and requests metered data for specific to these Settlement Periods only.

The Workgroup considered that it may be simpler and less costly to initially specify a solution that provided data all year round, rather than being switched on and off.

## 7 Workgroup's Discussion (*after first consultation*)

This section provides details of the P348 and P349 Workgroup's discussions following its first Assessment Procedure Consultation in August 2016. It also provides information on the changes made to the Proposed and potential Alternative Modifications set out under P348 and P349.

At the first meeting the Workgroup discussed different options to design a solution for P348 and P349. The Workgroup was initially keen to avoid an impact on Suppliers and Supplier Party Agents. The focus was on getting the central systems to collect metered data, aggregate the data and sharing the data with National Grid. By trying to develop the solution options the Workgroup concluded that these would have been too complicated, not only due to the definition of what the system should do but also due to the impact on Suppliers and Supplier Agents. Then, the Workgroup designed a generic solution for both P348 and P349 that could satisfy the 43 CUSC options.

The discussion is detailed below and it is the same for P348 and P349.

### Interactions between P348, P349 and P339

ELEXON advised the Workgroup that, since the August 2016 Assessment Consultation was issued, overlaps between P348, P349 and P339 have been identified by us and National Grid. P339, if approved, will introduce new CCC IDs to enable aggregation to MC level.

We noted that CMP266 (related to P339) seeks to charge smart Meter HH volumes at different rates between now and 2020 in order to remove barriers to elective HH Settlement. Therefore, if CMP266 is approved CMP264/265 (P348/349) will need to report its metered data in such a way that is compatible with CMP266. This means enabling National Grid to differentiate between meters that are elected to be settled HH and those that are not.

In order to enable this, P348 and P349 need to ensure that metered data is reported at the Measurement Class level. This will allow for HH metered data to be differentiated between different types of meter.

National Grid has also identified a requirement that ELEXON report all metered data by Measurement Class. P339 will support this reporting requirement because it introduces new CCCs. The Workgroup therefore concluded that P348/349 should introduce the CCCs that P339 proposes on the off chance that Ofgem does not approve P339 but does approve CMP266. However, P339 has since been approved, as the Self-Governance Appeal Window closed on 3 January 2017, removing the need for the P348/P349 legal text to introduce these CCCs.

### Alternative Modification (Option 2)

ELEXON explained that over the 43 CUSC options, 22 of them have relatively simple reporting requirements. That is rather than differentiating between different types of exports they will require only total gross export (i.e. the sum of all active exports only per Supplier). ELEXON suggested that Option 1 would be an inefficient way of meeting these simpler requirements. Therefore, ELEXON proposed a simpler Option 2 which aims to aggregate all exports meter data using existing Settlement processes and standing data.

The Workgroup considered Option 2, which will implement a simple 'SVAA only' solution. This SVAA only solution will satisfy the reporting requirements under scenario 3, i.e. reporting total gross demand and total gross export, and will likely be more efficient to implement than the 'centralised data aggregator' option, that satisfies scenarios 1 and 2. That is, SVAA already receives all necessary data to calculate gross demand and export based on the data reported to it by DAs for normal Settlement purposes. Therefore, we recommend that both the 'centralised data aggregator' and 'SVAA only' solutions be developed for Ofgem to consider.

In terms of the BSC Objectives, such Option 2 could be seen as being better than the baseline and the Proposed Modification should Ofgem approve a WACM that requires its implementation. Furthermore, submitting both solutions to Ofgem for decision is the most efficient and pragmatic approach for allowing the CUSC Modification (whichever is approved) to be implemented.

### **P349 proposed Option 3**

The Workgroup discussed the existing options and decided not to rely on existing Settlement processes. The Workgroup rallied behind a third option whereby we use existing Settlement processes to collect and aggregate metered data to calculate affected and grandfathered exports.

The Workgroup considered the implications of implementing Option 1, noting its complexity and potential associated costs. As a consequence the Workgroup reconsidered whether a solution that used existing Settlement processes would be more efficient. That is existing Settlement processes are already designed to collect and aggregate meter data and could be adapted to aggregate export meter data to the level required for CMP264 and CMP265.

The Workgroup considered the need to resolve exactly what level of aggregation we will need to report to National Grid, i.e. reported at Supplier BM Unit or Measurement Class level.

ELEXON added that, depending on Option 1 or 2, export will be one value or split between embedded and grandfathered Export. The Workgroup discussed the possibility for the DAs to send HH data in loss adjusted values at aggregated Supplier level. One Workgroup member noted that to do so the HHDAs will have to break their system as currently they are taking data from the DCs and aggregating the data, applying losses and sending the data to the central system. In order to make this as simple as possible, the member suggested putting an obligation on Suppliers to send the data and then have a new function to apply losses. This way the correct data will end up in the central systems.

The Workgroup member also specified that the CCC will not be used for the type of identified system. It will need another measurement class. If there is no grandfathering there is no need to send the data in separate flows.

Another Workgroup member noted that Option 3 would definitely work but it would kick back into the registration process. ELEXON noted that this route was initially discussed. One solution requires identification and differentiation between sites that do and do not have Capacity Market agreements. Under this option the DAs will need to collect metered data specifically for these export metering systems separately from other export metering systems. ELEXON also advised that non-Settlement CM metering systems are outside the scope of the change and would not be incorporated.

A Workgroup member noted that we could take out the HH export MPANs from the current process and put them in the new process. As long as HHDA systems are updated to recognise the new exports they would aggregate the data under the new CCCs and this would all go into the central systems and TNUoS.

The new Suppliers will need to know that this MPAN falls under the proposed solution.

ELEXON noted that we have developed a solution which avoids making changes to MDD, Supplier and Supplier Agent systems. In trying to avoid that we are introducing new parallel processes. One Workgroup member was not convinced that the proposed solution requires changes to systems. In fact, Suppliers will need to utilise existing flows, a few more rows of measurement class and CCC IDs.

The member added that although the grandfathering options are not causing issues, they are not the best way of achieving the Modification defect.



### Initial views against the Applicable BSC Objectives

The Workgroup has provided its initial views against the Applicable BSC Objectives. Details of the Proposer and Workgroups views can be found in the table below.

**The majority view of the Workgroup is that P349 does better facilitate Applicable BSC Objectives (a) and (c) compared to the baseline and initially recommends approval of P349.**

Please note that the Workgroup’s views against the Applicable BSC Objectives are the same for both the proposed and potential alternative solutions. Following their consideration of Assessment Procedure Consultation responses, the Workgroup will agree whether:

- the proposed solution is better than the baseline;
- the potential alternative solution is better than the baseline; and
- the potential alternative solution is better than the proposed.

#### What are the Applicable BSC Objectives?

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

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

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

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

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

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

Does P349 better facilitate the Applicable BSC Objectives?		
Obj	Proposer’s Views	Other Workgroup Members’ Views <sup>1</sup>
(a)	<ul style="list-style-type: none"> <li>• <b>Yes</b> – The efficient discharge by the Transmission Company of the obligations imposed upon it by the Transmission Licence</li> <li>• The proposed Modification will enable the processes and information flows required to deliver CMP264 in an efficient, economic and co-ordinated manner.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Yes (majority)</b> - agree with Proposer.</li> <li>• <b>Neutral (minority)</b> - not enough evidence at this time so show that this Modification will better facilitate the Applicable BSC Objectives better than the baseline.</li> </ul>
(b)	<ul style="list-style-type: none"> <li>• <b>Neutral</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Neutral</b></li> </ul>
(c)	<ul style="list-style-type: none"> <li>• <b>Yes</b> – The existence of large non-cost reflective Triad avoidance values is likely to distort investment decisions in a CM context (in particular) by favouring small generation units over large ones that may be more efficient. This could cause more efficient investments which do not benefit from Triad avoidance to be abandoned or deferred while less effective ones, which do so benefit, go ahead. This would increase total system costs, which is likely to lead to higher costs for consumers. Cost reflective</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Yes (majority)</b> – agree with Proposer.</li> <li>• <b>Neutral (minority)</b> - not enough evidence at this time so show that this Modification will better facilitate the Applicable BSC Objectives better than the baseline.</li> </ul>

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<sup>1</sup> Shows the different views expressed by the other Workgroup members – not all members necessarily agree with all of these views.

Does P349 better facilitate the Applicable BSC Objectives?

Obj	Proposer's Views	Other Workgroup Members' Views <sup>1</sup>
	charges would lead to better investment decisions in a CM context (in particular) and lower costs for consumers.	
<b>(d)</b>	• <b>Neutral</b>	• <b>Neutral</b>
<b>(e)</b>	• <b>Neutral</b>	• <b>Neutral</b>
<b>(f)</b>	• <b>Neutral</b>	• <b>Neutral</b> ( <i>unanimous</i> ) – agree with Proposer.

## Appendix 1: Business Requirements

### Overall Business Requirements

There are three options for making changes to the BSC that between them will facilitate all CMP264 and 265 options. All BSC options must fulfil the following common Overall Business Requirements.

#### OBR 1

Use Settlement Data because it is subject to robust validation, assurance and governance.

#### OBR 2

Derive and report data to the Transmission Company in accordance with CMP264 and CMP265. Specifically for one of the following groups of data items:

2.1	<p>Group 1 – CMP264 Original and WACMs 12-23, and CMP265 Original and WACMs 12-18</p> <ul style="list-style-type: none"><li>• Gross Demand – i.e. SVA HH settled Active Import per Settlement Period, Supplier BMU and MC</li><li>• Affected Embedded Export – i.e. SVA HH settled Active Export for specific Metering Systems defined in the CUSC as Affected Embedded Export - per Settlement Period, Supplier BMU and MC</li><li>• Grandfathered Embedded Export – i.e. SVA HH settled Active Export for specific Metering Systems defined in the CUSC as Grandfathered Embedded Export</li></ul>
2.2	<p>Group 2 – CMP264 WACMs 1-11 and CMP265 WACMs 1-11</p> <ul style="list-style-type: none"><li>• Gross Demand – i.e. SVA HH settled Active Import per Settlement Period, Supplier BMU and MC</li><li>• Embedded Export – i.e. SVA HH settled Active Export for all exporting Metering Systems - per Settlement Period, Supplier BMU and MC</li></ul>

#### OBR 3

Ensure compatibility with CMP266

3.1	<p>Ensure the data reported to National Grid facilitates implementation of CMP266 WACM1 (approved by Ofgem on 20 December 2016), which allows Domestic and Whole Current-metered elective Half Hourly sites to be settled as Non Half Hourly until 2020.</p>
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#### OBR 4

Ensure all new data items listed in OBR 2 are based on loss adjusted and GSP Group corrected Settlement Data

#### OBR 5

Aggregate all new data items in OBR 2 by Supplier BMU, Settlement Day, Settlement Period and Measurement Class

#### OBR 6

Report all new data items to the Transmission Company using an amended version of the existing P0210 TUoS Report

#### OBR 7

Report all new data items to the Transmission Company in accordance with existing latency and frequency requirements for the P0210, i.e. SD+14 and four days before each reconciliation run, in accordance with BSCP508

#### OBR 8

Where possible use BSC validation processes to ensure that volumes calculated for P348/P349 purposes are aggregated consistently with volumes for Settlement purposes.

## Assumptions

- Suppliers responsible for determining whether Metering Systems are 'Affected' or 'Grandfathered' and ensuring metered data reported
- Frequency and Latency facilitates existing Aggregation and P0210 reporting timescales
  - Although NG only require data twice a year – to set and to levy charges
- BSC Assurance only applies to existing calculations and reporting of data for Settlement purposes
  - I.e. not the identification of relevant Metering Systems or additional/new calculations for non-Settlement purposes
- HHDAs and the SVAA will perform equivalent levels of validation as for normal Settlement processes, i.e. checking that metered data is not duplicated
- LDSOs will not differentiate between Affected and Grandfathered Metering Systems for DUOS purposes.
- SVAA will report new MCs in the same way as their equivalent MCs. That is, MC 'K' and 'L' will be reported as though they are MC 'F' and 'G'.

## Preferences

- National Grid
  - SVAA aggregates metered data from individual meters
  - SVAA reports volumes to NG using amended P0210 flow
  - BSC Assurance framework applies to all aspects of reporting new data items, i.e. identification of Metering Systems, and accurate collection, aggregation and reporting of data
- Workgroup
  - Use new dataflows for reporting between Supplier, Party Agents and BSC Agent to minimise impact to existing processes
  - Use a centralised DA function to minimise impacts on individual HHDAs' systems and processes

## P348 Proposed Modification - Specific Requirements – Option 1 'Centralised DA'<sup>2</sup>

Requirement 1.1		OBR Mapping
Each Supplier must report metered data to SVAA for each of its HH exporting Metering Systems.		OBR 1, 2, 3, 5 and 8
1.1.1	Each Supplier (through its HHDA(s)) will report Half Hourly metered data and associated line losses to SVAA for each HH Exporting Metering System it is the Registrant for.	
1.1.2	Half Hourly metered data should be reported by the HHDA after being allocated to a Consumption Component Class. This is the data item defined by the existing BSC legal text as: <ul style="list-style-type: none"> <li>Allocated Supplier's Metering System Metered Consumption (ASMMC<sub>HZaNLKj</sub>) for those HHDA's who report data to SVAA by Supplier and GSP Group – see Annex S-2 3.5.9; or</li> <li>Allocated BM Unit's Metering System Metered Consumption (ABMMMC<sub>iaNLKj</sub>) for those HHDA's who report data to SVAA by Supplier BM Unit – see Annex S-2 3.6.2</li> </ul>	
1.1.3	The associated line losses are derived by multiplying the half hourly metered data by (LLF-1), where LLF is the relevant Line Loss Factor.	

Requirement 1.2		OBR Mapping
Registrants of HH exporting Metering Systems must identify and notify the SVAA of Metering Systems that are Affected Embedded Export Metering Systems <sup>3</sup> and Grandfathered Embedded Export Metering Systems <sup>4</sup> .		OBR 2 and 5
1.2.1	Depending on the CMP264 or 265 solution that is approved, an 'Affected Embedded Export Metering System' is either: <ul style="list-style-type: none"> <li>a HH Metering System that measures exported volumes that the CUSC considers to be 'Affected Embedded Exports'<sup>5</sup>; or</li> <li>a HH Metering System that measures exported volumes that the CUSC considers to be 'Embedded Exports'<sup>6</sup>.</li> </ul>	
1.2.2	Depending on the CMP264 or 265 solution that is approved, a 'Grandfathered Embedded Export Metering System' is either <ul style="list-style-type: none"> <li>a HH Metering System that measures exported volumes that the CUSC considers to be 'Grandfathered Embedded Exports'<sup>7</sup>; or</li> <li>a HH Metering System that is not an 'Affected Embedded Export Metering System'<sup>8</sup>.</li> </ul>	

<sup>2</sup> This option only applies to CMP264 Original and WACMs 12-23 and CMP265 Original and WACMs 12-18. CMP264 WACMs 1-11 and CMP265 WACMs 1-11 are covered by Option 2 below.

<sup>3</sup> For ease of reference, we have used the term Affected Metering Systems.

<sup>4</sup> For ease of reference, we have used the term Grandfathered Metering Systems.

<sup>5</sup> CMP264 WACMs 12-23 or CMP265 WACMs 12-18

<sup>6</sup> CMP264 Original Proposal or CMP265 Original

<sup>7</sup> See footnote 5

<sup>8</sup> See footnote 6

Requirement 1.2		OBR Mapping
1.2.3	Registrants of HH exporting Metering Systems must identify (upon implementation of this Modification and following the subsequent registration of any HH export Metering System) which Metering Systems are Affected Metering Systems and which are Grandfathered Metering Systems.	
1.2.4	Registrants of HH exporting Metering Systems must notify the SVAA of the HH exporting Metering System IDs (i.e. MSIDs) that belong to Affected Metering Systems or Grandfathered Metering Systems.	
1.2.5	<p>For each MSID it reports, the Registrant must provide the following details to SVAA (via the new Dxxxx dataflow):</p> <ul style="list-style-type: none"> <li>• MSID</li> <li>• Supplier ID</li> <li>• BMU ID</li> <li>• Supplier's Registration Effective from date</li> <li>• Supplier's Registration Effective to date</li> <li>• Affected/Grandfathered classification</li> <li>• Affected/Grandfathered classification - Effective from date</li> <li>• Affected/Grandfathered classification - Effective to date</li> </ul> <p>Supplier's Registration Effective from date is the date the Supplier last became the registrant for the MSID</p> <p>The Classification Effective from date is either the date the MSID is first registered by the Supplier in SMRS or the date the Supplier identifies a change to the MSID's classification.</p> <p>The Effective to date is either the date the MSID ceases to be either an Affected or Grandfathered Metering System is deregistered by the Supplier).</p>	
1.2.6	If, following notification to SVAA, an Affected Metering System becomes a Grandfathered Metering System or vice versa, the Registrant must notify the SVAA of the change and the effective from date of the change.	
1.2.7	<p>If, following notification to SVAA, a Registrant of an Affected Metering System or Grandfathered Metering System disconnects or becomes aware that such a Metering System has been or will be disconnected:</p> <ul style="list-style-type: none"> <li>• converts the Metering System to a NHH system (i.e. by Change of Measurement Class); or</li> <li>• re-registers the Metering System in CMRS</li> </ul> <p>the Registrant must provide details of the MSID and the Effective to Date (i.e. the date on which the Metering System was/will be disconnected, converted or re-registered).</p>	

Requirement 1.2		OBR Mapping
1.2.8	The Registrant of an Affected Metering System or Grandfathered Metering System must send any notification to the SVAA within five working days of the Registrant registering such a Metering System or becoming aware of a change in its status (per 1.2.4, 1.2.6 and 1.2.7).	
1.2.9	Registrants must use the new SVA Data Catalogue flow 'Dxxxx' to notify the SVAA of its Metering Systems.	

Requirement 1.3		OBR Mapping
SVAA must be able to receive notifications (including updates and corrections) and maintain details of all HH Exporting Metering Systems from Suppliers, via a new DTC flow		

Requirement 1.4		OBR Mapping
HHDAs must report metered data and associated line losses for all HH exporting Metering Systems to SVAA.		OBR 1, 2, 3, 5 and 8
1.4.1	Following normal checks and defaulting rules in accordance with BSCP503, HHDAs must send successfully validated 'Allocated Supplier's Metering System Metered Consumption' or 'Allocated BM Unit's Metering System Metered Consumption' values for all Settlement Periods for all Settlement Days to SVAA for each HH exporting Metering System it is appointed to in accordance with timescales for providing HH Aggregation Files as set out in BSCP01.	
1.4.2	Requirement 1.4.1 also applies to any HH exporting Metering Systems that is the subject of a Shared SVA Meter Arrangement.	
1.4.3	Based on validated 'Allocated Supplier's Metering System Metered Consumption' or 'Allocated BM Unit's Metering System Metered Consumption', HHDAs must calculate the associated line losses for every Settlement Period and Settlement Day for each HH exporting Metering System that it is appointed to.	
1.4.4	Requirement 1.4.3 also applies to Metering Systems subject to Shared SVA Meter Arrangements.	
1.4.5	HHDAs must send 'Supplier's Metering System Metered Losses' to SVAA for all Settlement Periods and Settlement Days for each HH exporting Metering System in accordance with timescales for providing HH Aggregation Files as set out in BSCP01.	
1.4.6	HHDAs must send validated 'Allocated Supplier's Metering System Metered Consumption' or 'Allocated BM Unit's Metering System Metered Consumption' (and associated line losses) to SVAA in a new DTC flow 'Dyyyy', the structure of which will be based on the D0357. HHDAs must report corresponding CCC IDs for each consumption and line loss value.	

Requirement 1.5		OBR Mapping
SVAA must calculate Period BMU Gross HH Demand		OBR 1, 2, 3, 4 and 5
1.5.1	'Period BMU Gross HH Demand' is the sum of all HH settled Active Import Corrected Components (CORC) per Settlement Day, Settlement Period, Supplier BMU and Measurement Class.	
1.5.2	'Period BMU Gross HH Demand' for each relevant Measurement Class should be derived by summing the CORC for the relevant CCC IDs (i.e. those related to Half Hourly Active Import). Currently the relevant CCC IDs are as follows (although these should not be hard-coded into systems): <ul style="list-style-type: none"> <li>• Measurement Class C – CCC IDs 1, 3, 4, 9, 11, 12</li> <li>• Measurement Class D - CCC IDs 2, 5, 10, 13 –</li> <li>• Measurement Class E - CCC IDs 23, 25, 26, 28, 30, 31</li> <li>• Measurement Class F - CCC IDs 42, 43, 44, 45, 46, 47</li> <li>• Measurement Class G - CCC IDs 54, 55, 56, 57, 58, 59 –</li> </ul>	

Requirement 1.6		OBR Mapping
SVAA must calculate Period BMU Affected Embedded HH Export		OBR 1, 2, 3, 4 and 5
1.6.1	'Period BMU Affected Embedded HH Export' is the sum of all GSP Group corrected and loss adjusted HH settled Active Exports for Affected Metering Systems per Settlement Day, Settlement Period, Supplier BMU and Measurement Class, i.e. the sum of HH AE CCC ID CORCs based on metered data for Affected Metering Systems.	
1.6.2	SVAA must be able to calculate equivalent values of $C_{ij}$ , $CLOSS_{ij}$ and $CORC_{ij}$ for Affected Metering Systems only, using the metered data provided by HHDAs using the new Dyyyy (see Requirement 1.4) and with reference to the SVAA's register of Affected and Grandfathered Metering Systems (see Requirement 1.3).	

Requirement 1.7		OBR Mapping
SVAA must calculate Period BMU Grandfathered Embedded HH Export		OBR 1, 2, 3, 4 and 5
1.7.1	'Period BMU Grandfathered Embedded HH Export' is the sum of all GSP Group corrected and loss adjusted HH settled Active Exports for Grandfathered Metering Systems per Settlement Day, Settlement Period, Supplier BMU and Measurement Class, i.e. the sum of HH AE CCC ID CORCs based on metered data for Grandfathered Metering Systems..	
1.7.2	SVAA must be able to calculate equivalent values of $C_{ij}$ , $CLOSS_{ij}$ and $CORC_{ij}$ for Grandfathered Metering Systems only, using the metered data provided by HHDAs using the new Dyyyy (see Requirement 1.4) and with reference to the SVAA's register of Affected and Grandfathered Metering Systems (see Requirement 1.3).	

Requirement 1.8		OBR Mapping
SVAA must validate metered data		OBR 8
1.8.1	<p>SVAA must perform the following checks:</p> <ul style="list-style-type: none"> <li>For every Settlement Period, check that it has received metered data for all Affected and Grandfathered Metering Systems notified to it by Suppliers;</li> <li>For every Settlement Period and Supplier BMU, check that the sum of all related Affected and Grandfathered Exports equals the sum of all HH export Corrected Components.</li> </ul>	
1.8.2	<p>SVAA must produce exception reports in the following circumstances:</p> <ul style="list-style-type: none"> <li>Where SVAA does not receive metered data when it is expecting it for a particular Metering System and Settlement Period, report exception to HHDA and registered Supplier.</li> <li>Where SVAA receives metered data for MSIDs it has no record of or for a Settlement day that is after the most recent ETD for that MSID, report exception to HHDA and Supplier identified in Dyyyy from HHDA.</li> <li>Where SVAA receives metered data for the same MSID, Settlement Day and Settlement Period but from different DAs, report exception to HHDA and all Suppliers included in HHDA's conflicting messages</li> <li>Where SVAA receives metered data for an MSID but the SVAA's record of the related Supplier does not match the Supplier reported in the HHDA's Dyyyy, report exception to HHDA and both Suppliers</li> <li>Where sum of a Supplier BMU's Affected and Grandfathered Exports does not equal sum of all HH export Corrected Components for that Supplier BMU for a particular SP report exception to the Transmission Company and the Supplier.</li> </ul>	

Requirement 1.8		OBR Mapping
1.8.3	<p>SVAA must use the following default rules:</p> <ul style="list-style-type: none"> <li>Where SVAA does not receive metered data when it is expecting it for a particular Metering System and Settlement Period, use/calculate a default value calculated using rules equivalent to those in BSCP503.</li> <li>Treat metered data for MSIDs it has no record of as though the MSID were an Affected Embedded Export Metering System registered to the Supplier reported in the HHDA's message.</li> <li>Where SVAA receives Metered data or Losses for the same MSID and Settlement Period from different DAs, accept most recently received data</li> <li>Reject Metered data or Losses where the MSID and Supplier in the HHDA's message do not match the SVAA's record of MSID and Supplier</li> </ul>	
1.8.4	<p>SVAA will use a new DTC data flow, Daaaa, the structure of which will be based on the D0235, to report exceptions to Suppliers and a new SVA Data Catalogue flow, Paaaa, to report exceptions to the Transmission Company.</p>	
1.8.5	<p>If a Supplier provides updated data, the SVAA must be able to update its records and update calculations as part of the next scheduled Settlement Run. Nb errors in the calculation of values that are not strictly for Settlement Purposes will not be the subject of a Settlement Error and treated as such.</p>	

Requirement 1.9		OBR Mapping
	<p>SVAA must report 'Period BMU Gross HH Demand', 'Period BMU Affected Embedded HH Export' and 'Period BMU Grandfathered Embedded HH Export' values to the Transmission Company.</p>	OBR 1, 2, 3, 4 and 5
1.9.1	<p>SVAA must report 'Period BMU Gross HH Demand', 'Period BMU Affected Embedded HH Export' and 'Period BMU Grandfathered Embedded HH Export' values and continue to report using the TUoS Report in accordance with existing timescales.</p>	

## P348 Alternative Modification - Specific Requirements – Option 2 'simple SVAA'<sup>9</sup>

Requirement 2.1		OBR Mapping
SVAA must calculate Period BMU Gross HH Demand		OBR 1, 2, 3, 4 and 5
2.1.1	'Period BMU Gross HH Demand' is the sum of all HH settled Active Import Corrected Components (CORC) per Settlement Day, Settlement Period, Supplier BMU and Measurement Class.	
2.1.2	'Period BMU Gross HH Demand' for each relevant Measurement Class should be derived by summing the CORC for the relevant CCC IDs (i.e. those related to Half Hourly Active Import). Currently the relevant CCC IDs are as follows (although these should not be hard-coded into systems): <ul style="list-style-type: none"> <li>• Measurement Class C – CCC IDs 1, 3, 4, 9, 11, 12</li> <li>• Measurement Class D – CCC IDs 2, 5, 10, 13</li> <li>• Measurement Class E – CCC IDs 23, 25, 26, 28, 30, 31</li> <li>• Measurement Class F – CCC IDs 42, 43, 44, 45, 46, 47</li> <li>• Measurement Class G – CCC IDs 54, 55, 56, 57, 58, 59</li> </ul>	

Requirement 2.2		OBR Mapping
SVAA must calculate Period BMU Gross HH Embedded Export		OBR 1, 2, 3, 4 and 5
2.2.1	'Period BMU Gross HH Embedded Export' is the sum of all HH settled Active Export Corrected Components (CORC) per Settlement Day, Settlement Period, Supplier BMU and Measurement Class.	
2.2.2	'Period BMU Gross HH Embedded Export' for each relevant Measurement Class should be derived by summing the CORC for the relevant CCC IDs (i.e. those related to Half Hourly Active Export). Currently the relevant CCC IDs are as follows (although these should not be hard-coded into systems): <ul style="list-style-type: none"> <li>• Measurement Class C – CCC IDs 6, 7, 8, 14, 15, 16</li> <li>• Measurement Class E – CCC IDs 36, 37, 38, 39, 40, 41</li> <li>• Measurement Class F – CCC IDs 48, 49, 50, 51, 52, 53</li> <li>• Measurement Class G – CCC IDs 60, 61, 62, 63, 64, 65</li> </ul>	

Requirement 2.3		OBR Mapping
SVAA must report 'Period BMU Gross HH Demand' and 'Period BMU Gross HH Embedded Export' values to the Transmission Company.		OBR 1, 2, 3, 4 and 5
2.3.1	SVAA must report 'Period BMU Gross HH Demand' and 'Period BMU Gross HH Embedded Export' values and continue to report the TUoS Report in accordance with existing timescales.	

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<sup>9</sup> This option only applies to CMP264 WACMs 1-11 and CMP265 WACMs 1-11. CMP264 Original and WACMs 12-23 and CMP265 and WACMs 12-18 are covered by Option 1 above and Option 3 below.

## P349 Proposed Modification - Specific Requirements – Option 3 'Existing registration processes'<sup>10</sup>

Requirement 3.1	OBR Mapping
Suppliers must assign and maintain the correct Measurement Class for all existing and future HH export Metering Systems	
3.1.1 Registrants of HH exporting Metering Systems must identify (upon implementation of this Modification and following the subsequent registration of any HH export Metering System) which Metering Systems are Affected Embedded Export Metering Systems and which are Grandfathered Embedded Export Metering Systems.	
3.1.2 Suppliers must assign Affected Embedded Export Metering Systems to new Measurement Classes 'H', 'J', 'K' and 'L' – see requirement 3.2.1 below.	
3.1.3 Suppliers must assign Grandfathered Embedded Export Metering Systems to Measurement Classes 'C', 'E', 'F' and 'G'.	
3.1.4 Depending on the CMP264 or CMP265 solution that is approved, an 'Affected Embedded Export Metering System' is either: <ul style="list-style-type: none"> <li>• a HH Metering System that measures exported volumes that the CUSC considers to be 'Affected Embedded Exports'<sup>11</sup>; or</li> <li>• a HH Metering System that measures exported volumes that the CUSC considers to be 'Embedded Exports'<sup>12</sup>.</li> </ul>	
3.1.5 Depending on the CMP264 or CMP265 solution that is approved, a 'Grandfathered Embedded Export Metering System' is either <ul style="list-style-type: none"> <li>• a HH Metering System that measures exported volumes that the CUSC considers to be 'Grandfathered Embedded Exports'<sup>13</sup>; or</li> <li>• a HH Metering System that is not an 'Affected Embedded Export Metering System'<sup>14</sup>.</li> </ul>	

<sup>10</sup> This option only applies to CMP264 Original and WACMs 12-23 and CMP265 and WACMs 12-18. CMP264 WACMs 1-11 and CMP265 WACMs 1-11 are covered by Option 2 above.

<sup>11</sup> CMP264 WACMs 12-23 or CMP265 WACMs 12-18

<sup>12</sup> CMP264 Original Proposal or CMP265 Original

<sup>13</sup> See footnote 5

<sup>14</sup> See footnote 6

Requirement 3.2		OBR Mapping
The BSC must introduce new Measurement Classes 'H', 'J', 'K' and 'L'.		
3.2.1	<p>The BSC will be modified to introduce the following new Measurement Classes:</p> <ul style="list-style-type: none"> <li>'H' – Half Hourly Metering Equipment at above 100kW Premises (export only)</li> <li>'J' – Half Hourly Metering Equipment at below 100kW Premises with current transformer (export only)</li> <li>'K' – Half Hourly Metering Equipment at below 100kW Premises with current transformer or whole current, and at Domestic Premises (export only)</li> <li>'L' – Half Hourly Metering Equipment at below 100kW Premises with whole current and not at Domestic Premises (export only)</li> </ul>	
3.2.2	These new Measurement Classes should only be used in relation to export Metering Systems that are Affected Embedded Export Metering Systems	

Requirement 3.3		OBR Mapping
The BSC must introduce the new CCC Ids for Measurement Classes 'H', 'J', 'K' and 'L'.		
3.3.1	The BSC will be modified to introduce new CCC Ids and describe their relationship to the existing Measurement Classes. See the proposed legal text for option 3.	
3.3.2	The new CCCs will be entered into Market Domain Data for use by participants.	
3.3.3	HHDAs and SVAA will need to be able to process the new CCC Ids within their systems.	

Requirement 3.4		OBR Mapping
HH Active Export metered data must be submitted into Settlement using the new or existing CCC Ids as applicable.		
3.4.1	HHDAs will need to be able to allocate Metering System Identifications (MSIDs) to the new CCC Ids	
3.4.2	HHDAs must be able to submit data to the SVAA, should they be appointed to a Metering System that is registered to Measurement Classes 'C', 'E', 'F', 'G', 'H', 'J', 'K' or 'L', using the D0040 and D0298 data flows.	
3.4.3	The SVAA must be able to receive the D0040 and D0298 data flows with additional rows reflecting the new CCC Ids	

Requirement 3.5		OBR Mapping
The SVAA must aggregate data for Measurement Classes 'H', 'J', 'K' and 'L', processing the amended D0040 and D0298 data flows into the existing D0030 and D0314 data flows.		
3.5.1	The SVAA must report HH Aggregated data on the D0030 and D0314 data flows against Profile Class (PC) "0".	
3.5.2	The SVAA must include the HH export data for the CCC Ids and Measurement Classes in the existing D0030 and D0314 data flows, with no changes made to the structure of the flows.	
3.5.3	When compiling the D0030 and D0314, SVAA must apply existing rules for reporting HH data for MCs F and G to CCC IDs for new MCs 'K' and 'L', i.e. volumes associated to MC 'K' should be included with those for MC 'F' and volumes associated to MC 'L' should be included with those for MC 'G'.	

Requirement 3.6		OBR Mapping
SVAA must calculate Period BMU Gross HH Demand		
3.6.1	'Period BMU Gross HH Demand' is the sum of all HH settled Active Import Corrected Components (CORC) per Settlement Day, Settlement Period, Supplier BMU and Measurement Class.	
3.6.2	'Period BMU Gross HH Demand' for each relevant Measurement Class should be derived by summing the CORC for the CCC IDs as specified below: <ul style="list-style-type: none"> <li>• Measurement Class C – CCC IDs 1, 3, 4, 9, 11, 12</li> <li>• Measurement Class D – CCC IDs 2, 5, 10, 13</li> <li>• Measurement Class E – CCC IDs 23, 25, 26, 28, 30, 31</li> <li>• Measurement Class F – CCC IDs 42, 43, 44, 45, 46, 47</li> <li>• Measurement Class G – CCC IDs 54, 55, 56, 57, 58, 59</li> </ul>	

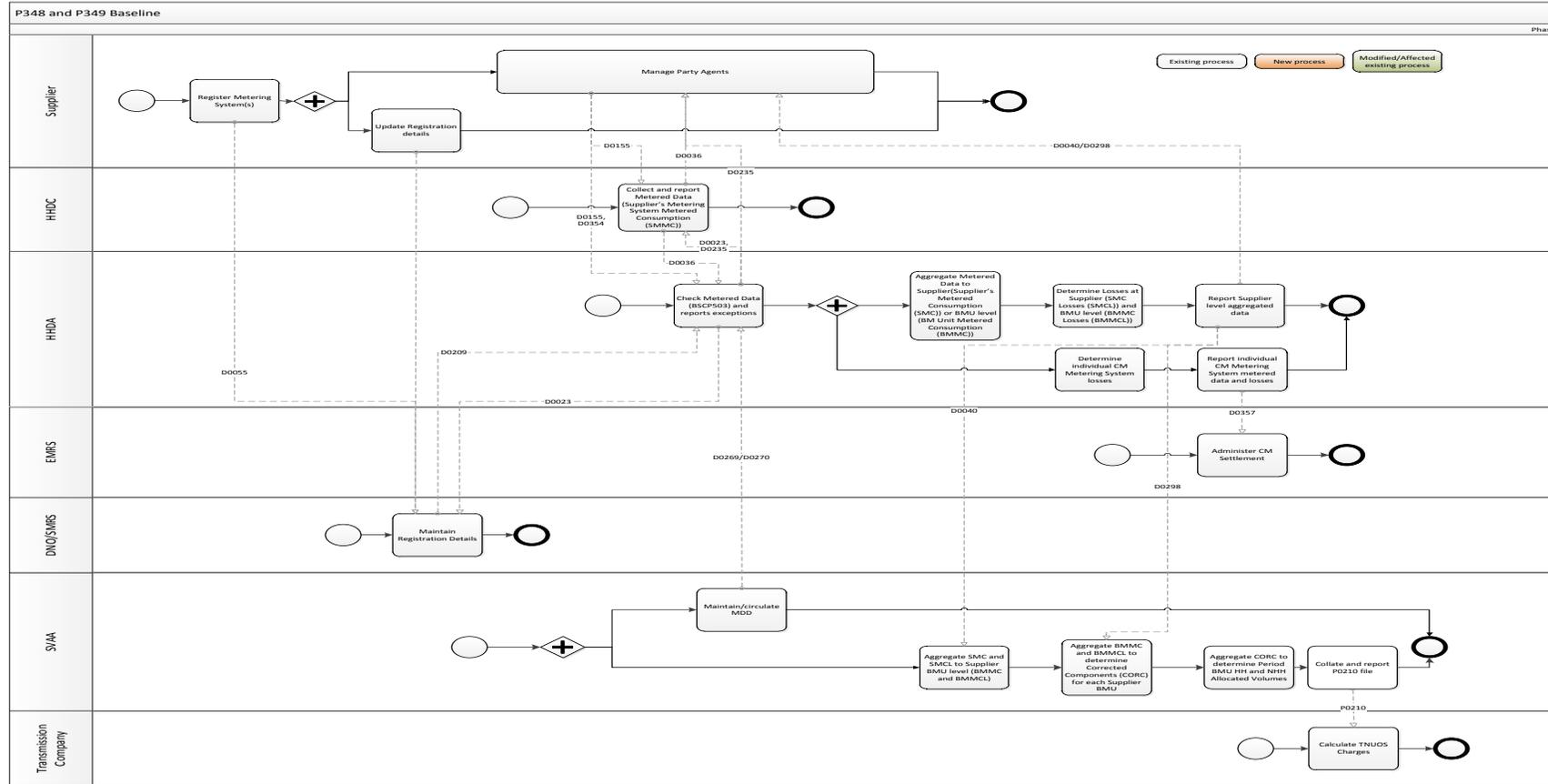
Requirement 3.7		OBR Mapping
SVAA must calculate Period BMU Affected Embedded HH Export		
3.7.1	'Period BMU Affected Embedded HH Export' is the sum of all HH settled Active Export Corrected Components (CORC) for Affected Metering Systems per Settlement Day, Settlement Period, Supplier BMU and Measurement Class.	
3.7.2	'Period BMU Affected Embedded HH Export' for each relevant Measurement Class should be derived by summing the CORC for the relevant CCC IDs (i.e. those related to Half Hourly Active Export). Initially the relevant CCC Ids are as follows (although these should not be hard-coded into systems): <ul style="list-style-type: none"> <li>• Measurement Class H – CCC IDs 66, 67, 68, 69, 70, 71</li> <li>• Measurement Class J – CCC IDs 72, 73, 74, 75, 76, 77</li> <li>• Measurement Class K – CCC IDs 78, 79, 80, 81, 82, 83</li> <li>• Measurement Class L – CCC IDs 84, 85, 86, 87, 88, 89</li> </ul>	

Requirement 3.8		OBR Mapping
SVAA must calculate Period BMU Grandfathered Embedded HH Export		
3.8.1	'Period BMU Grandfathered Embedded HH Export' is the sum of all HH settled Active Export Corrected Components (CORC) for Grandfathered Metering Systems per Settlement Day, Settlement Period, Supplier BMU and Measurement Class.	
3.8.2	'Period BMU Grandfathered Embedded HH Export' for each relevant Measurement Class should be derived by summing the CORC for the relevant CCC IDs (i.e. those related to Half Hourly Active Export). Initially the relevant CCC IDs are as follows (although these should not be hard-coded into systems): <ul style="list-style-type: none"> <li>• Measurement Class C – CCC IDs 6, 7, 8, 14, 15, 16</li> <li>• Measurement Class E – CCC IDs 36, 37, 38, 39, 40, 41</li> <li>• Measurement Class F – CCC IDs 48, 49, 50, 51, 52, 53</li> <li>• Measurement Class G – CCC IDs 60, 61, 62, 63, 64, 65</li> </ul>	

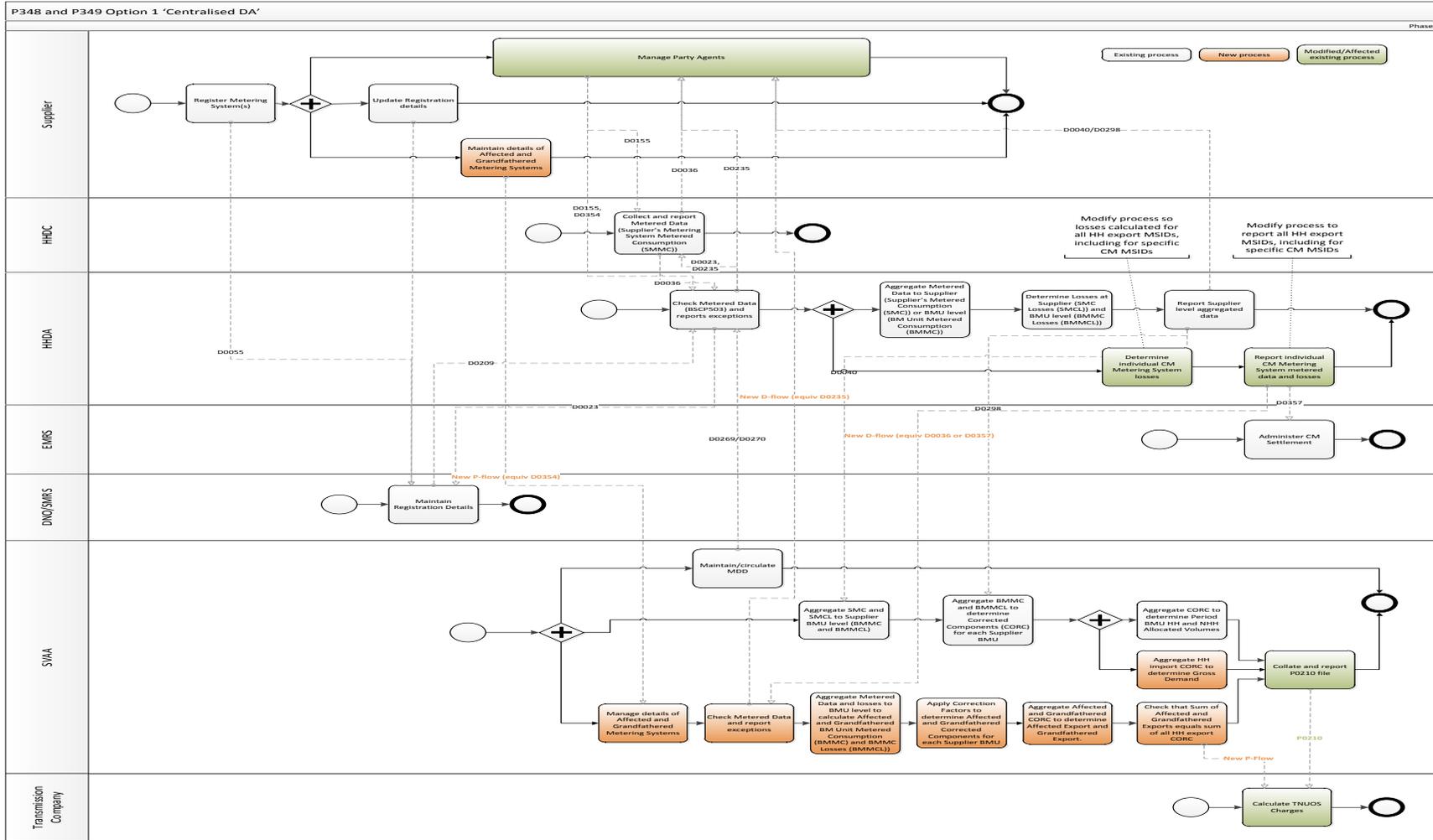
Requirement 3.9		OBR Mapping
SVAA must report 'Period BMU Gross HH Demand', 'Period BMU Affected Embedded HH Export' and 'Period BMU Grandfathered Embedded HH Export' values to the Transmission Company.		OBR 1, 2, 3, 4 and 5
3.9.1	SVAA must report 'Period BMU Gross HH Demand', 'Period BMU Affected Embedded HH Export' and 'Period BMU Grandfathered Embedded HH Export' values and continue to report using the TUoS Report in accordance with existing timescales.	

# Appendix 2: Illustrative Process Diagrams

## Baseline process

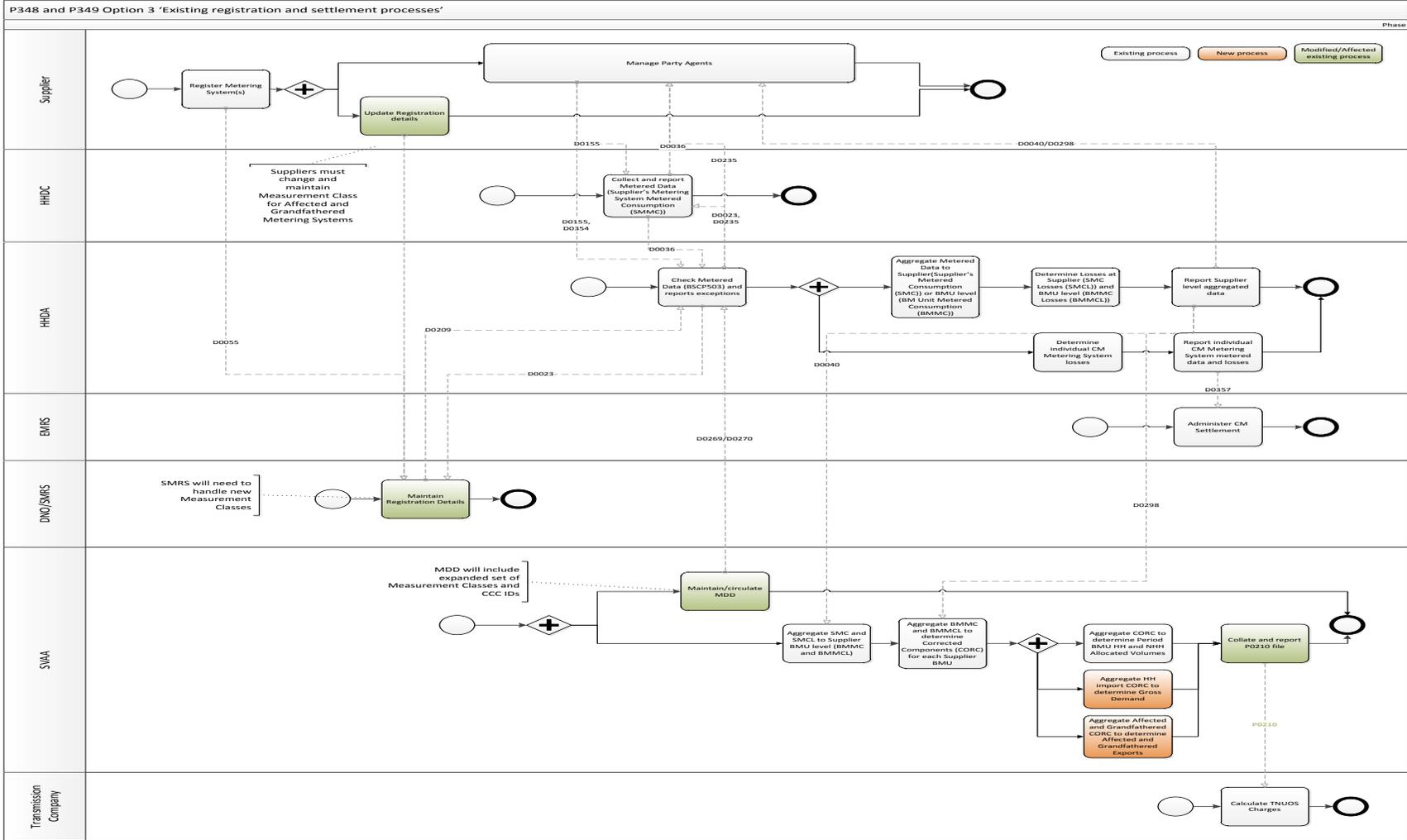


# Option 1 'Centralised DA'





# Option 3 'Existing registration and settlement processes'



### Workgroup's Terms of Reference

Specific areas set by the BSC Panel in the P349 Terms of Reference

What is the most efficient and effective way for HHDA's to send the required data to the Transmission Company?

What lessons can be learned from P260?

Should gross import and gross export data for all BM Units be provided to the Transmission Company?

What changes are needed to BSC documents, systems and processes to support P348 and what are the related costs and lead times?

Are there any Alternative Modifications?

Does P348 better facilitate the Applicable BSC Objectives compared with the current baseline?

### Assessment Procedure timetable

P348 Assessment Timetable

Event	Date
Panel submits P345 to Assessment Procedure	4 July 16
Workgroup Meeting 1	12 Jul 16
Industry Impact Assessment and Assessment Consultation	29 Jul 16 – 19 Aug 16
Workgroup Meeting 2	31 Aug 16
Workgroup Meeting 3	12 Oct 16
Workgroup Meeting 4	7 Dec 16
Workgroup Meeting 5	W/B 13 March
Second Impact Assessment and Assessment Consultation	20 Feb 17 – 13 March 17
Panel considers Workgroup's Assessment Report	13 Apr 17

## Workgroup membership and attendance

P348 Workgroup Attendance					
Name	Organisation	12 Jul 16	31 Aug 16	13 Oct 16	7 Dec 16
<b>Members</b>					
David Kemp	ELEXON ( <i>Chair</i> )	✓	✓	✗	✗
Talia Addy	ELEXON ( <i>Lead Analyst</i> )	✗	✓	✓	✓
<b>Natasha Ranatunga</b>	EDF Energy (P348 Proposer)	✗	✗	✗	✗
<b>Paul Mott</b>	EDF Energy (P348 Proposer Representative)	✓	✓	✓	✗
<b>Paul Carman</b>	ScottishPower (P349 Proposer)	✗	✗	✗	✗
<b>Stuart Noble</b>	ScottishPower (P349 Proposer Representative)	✓	✓	✗	✗
Andrew Colley	SSE	✗	✗	✓	✗
Lars Weber	Neas Energy Ltd.	✗	✓	✗	✗
Philip Russell	Independent	✓	✓	✓	✗
Ian Tanner	UK Power Reserve Ltd.	✓	✓	✓	✗
Bill Reed	RWE Supply & Trading GmH	✓	✓	✓	✗
Guy Philips	Uniper UK Limited	✓	✗	✗	✗
Leonida Bandura	E.ON UK Plc	✗	✗	✗	✗
<b>Attendees</b>					
Nick Rubin	ELEXON ( <i>Design Authority</i> )	✓	✓	✓	✓
Geoff Norman	ELEXON ( <i>Lead Lawyer</i> )	✓	✓	✓	✓
Dominic Green	Ofgem	✗	✗	✗	✗
Dena Barasi	Ofgem	✗	✗	✗	✗
Paul Wakeley	National Grid	✓	✗	✗	✗
Joseph Underwood	Drax Power	✗	✗	✗	✗

## Appendix 4: Glossary & References

### Acronyms

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

Acronyms	
Acronym	Definition
BSC	Balancing and Settlement Code
BSCCo	BSC Company
CCC	Consumption Component Class
CM	Capacity Market
CMP	CUSC Modification Proposal
CMRS	Central Meter Registration Agent
CMU	Capacity Market Unit
CUSC	Connection Use of System Code
CVA	Central Volume Allocation
DNO	Distribution Network Operators
EGCMU	Embedded Generation Capacity Market Unit
GPME	Gross Period Metered Export
HH	Half Hourly
HHDA	Half Hourly Data Aggregator
HHDC	Half Hourly Data Collector
LLF	Line Loss Factor
MSID	Metering System ID
SMMC	Supplier's Metering System Metered Consumption
SMML	Supplier's Metering System Metered Losses
SMRS	Supplier Meter Registration Agent
SVA	Supplier Volume Allocation
SVAA	Supplier Volume Allocation Agent
TNUoS	Transmission Network Use of System
TUoS	Transmission Use of System

### External links

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

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

External Links		
Page(s)	Description	URL
3,4,6	CMP265 webpage	<a href="http://www2.nationalgrid.com/UK/Industry-information/Electricity-codes/CUSC/Modifications/CMP265/">http://www2.nationalgrid.com/UK/Industry-information/Electricity-codes/CUSC/Modifications/CMP265/</a>
4	Embedded Generation Guidance Note	<a href="https://www.elexon.co.uk/wp-content/uploads/2016/01/Embedded_Generation_v7.0.pdf">https://www.elexon.co.uk/wp-content/uploads/2016/01/Embedded_Generation_v7.0.pdf</a>
5	P349 page of the ELEXON website	<a href="https://www.elexon.co.uk/mod-proposal/p349/">https://www.elexon.co.uk/mod-proposal/p349/</a>
5	CMP264 webpage	<a href="http://www2.nationalgrid.com/UK/Industry-information/Electricity-codes/CUSC/Modifications/CMP264/">http://www2.nationalgrid.com/UK/Industry-information/Electricity-codes/CUSC/Modifications/CMP264/</a>
6	P348 page of the ELEXON website	<a href="https://www.elexon.co.uk/mod-proposal/p348/">https://www.elexon.co.uk/mod-proposal/p348/</a>