Draft Modification Report

P397 'Assessing the costs and benefits of adjusting Parties; Imbalances following a demand disconnection'

This proposal seeks to require the BSC Panel to set rules that enable BSCCo to determine whether estimates of disconnected energy should be estimated and Imbalance Volumes adjusted following a demand disconnection Demand Control Event.



The BSC Panel initially recommends **approval** of P397

This Modification is expected to impact:

- Licensed Distribution System Operators (LDSOs);
- Half-Hourly Data Aggregators (HHDAs);
- Half-Hourly Data Collectors (HHDCs);
- Non Half-Hourly Data Aggregators (NHHDAs); and
- Non Half-Hourly Data Collectors (NHHDCs);
- Trading Parties;
- National Electricity Transmission System Operator (NETSO);
- Central Data Collection Agency; and
- The Balancing and Settlement Company.

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Phase

Initial Written Assessment

Definition Procedure

Assessment Procedure

Report Phase

Implementation

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Contents

1 Summary 3
2 Why Change? 5
3 Solution 8
4 Impacts & Costs 16
5 Implementation 19
6 Panel's Initial Discussions 20
7 Report Phase Consultation Responses 23
8 Panel's Discussions on the first Modification Report 26
9 Send Back Process 29
10 Recommendations 37
Appendix 1: Description of Solution Options 38
Appendix 2: Glossary & References 39

About This Document

This is the second P397 Draft Modification Report, which ELEXON will present to the Panel at its meeting on 9 July 2020. It includes consideration of Ofgem's P397 Send Back and responses received to the Report Phase Consultation on the Panel's initial recommendations to Ofgem. The Panel will consider all responses, and will agree a final recommendation to the Authority on whether the change should be made.

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.
- Attachment A contains the redlining for the original P397 solution.
- Attachment B contains the revised redlining for the Business Rules in line with Option 1.
- Attachment C contains the full responses received to the Panel's Report Phase Consultation.
- Attachment D contains the Send Back Direction issued by Ofgem and the Send Back Letter detailing how this would be addressed

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1 Summary

What's changed since the first Modification Report?

The first P397 Final Modification Report was sent to Ofgem on 24 January 2020. Ofgem issued a Send Back Direction for P397 on 3 March 2020. Ofgem requested further evidence and noted that this evidence was not previously available.

Issue 89 'Ensuring Demand Control Event (DCE) procedures remain fit for purpose' was raised in part to gather the requested evidence (and in part to review the Settlement Adjustment Processes (SAP)). The requested evidence has been gathered via a public Request for Information (RFI). The Issue 89 Workgroup has recommended that a change be made to the P397 solution – the revised solution. We recommend that the Panel approve the change to the P397 solution and re-consult.

Why Change?

Settlement Adjustment Processes (also known as the 'bottom-up' processes or Demand Disconnection Event (DDE) Obligations[1]) introduced into the Balancing and Settlement Code (BSC) under P305 'Electricity Balancing Significant Code Review Developments' in November 2015 may not be efficient to run in all circumstances, for example, when considering a Demand Control Event (DCE) that has minimal material impact on Settlement. This possibility was highlighted following the DCE which occurred on 9 August 2019.

Solution

P397 would introduce a mechanism through which BSCCo determines whether LDSOs, NETSO, certain Party Agents and BSC Agents, and BSCCo should carry out the SAP – the DCE assessment process. BSCCo would determine the nature of the DCE and, where necessary, determine and then compare the costs and value of the DCE in order to determine whether the value of carrying out the SAP outweigh the costs.

Issue 89 determined that there are three potential solutions for P397:

- **Option 1:** The original P397 solution (i.e. if the cost of the DCE is greater than the benefit, the SAP will not be run) updated using data and findings from the Request for Information (RFI);
- **Option 2**: Two-step process. The first step uses the same calculation as Option 1. If the cost of the DCE is less than the benefit it proceeds to step 2, a second calculation using more data specific to the DCE is used. This would produce a more representative cost figure, but incurs costs for LDSOs – if this is greater than the DCE benefit the SAP will be stopped; and
- **Option 3**: The same as Option 2 but skips the first calculation. Uses only the more specific data to generate a more representative figure. However, it would take longer and be more expensive and complex than Option 1.

What are the Settlement Adjustment Arocesses?

Settlement Adjustment Processes (SAP) are necessary to calculate Trading Parties' BM Unit Allocated Demand Disconnection Volume (BMUADDV) and Period BM Unit Demand Disconnection Volume (QDD). BMUADDV and QDD are included in the calculation of Trading Parties' Imbalance Volumes following a demand disconnection DCE to reflect the volumes of electricity that might have otherwise been Imported or Exported if there hadn't been a DCE.

[1] DDE Obligations is the defined term in the newly drafted Category 3 document 'Demand Disconnection Event Threshold Rules'

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It is ELEXON's view that **Option 1** is the most appropriate solution as it would provide certainty to industry at the earliest opportunity following a DCE whilst minimising costs and complexity.

Impacts & Costs

This Modification Proposal creates new obligations for the BSC Panel and BSCCo. In particular, BSCCo will be required to perform an assessment of each future DCE to determine whether SAP should be performed. ELEXON estimate that it will cost approximately £1,200 to operate the Option 1 and £2,000 to operate Options 2 and 3. Introducing the second step will therefore increase BSCCo costs by £800 and require impacted LDSOs to incur their DCE costs.

ELEXON also anticipate that it will cost approximately £2,400 to run the costs review process as described in the Business Rules (approximately 10 Working Days effort – this is unchanged in Options 2 and 3).

There are smaller impacts for LDSOs, HH and NHH Data Collectors and Aggregators and the CDCA, who will be required to wait to be notified whether to perform SAP under all options.

Trading Parties will not be required to do anything new or different by this proposal. However, this proposal will affect how Trading Parties Imbalance Volumes are calculated – i.e. only where the value of making adjustments exceeds the cost.

Implementation

This Modification is proposed to be implemented as a standalone BSC Release **5 Working Days (WD) following Authority approval.**

Recommendation

We recommend that the **P397 solution is amended** in line with the Issue 89 RFI outcomes and the Report Phase **Consultation is re-issued** to seek views on the revised solution.

Previous Panel recommendation

The **majority** of Panel Members believe P397 better facilitates Applicable BSC Objective (c) whilst they **unanimously** agreed that P397 does better facilitate Applicable BSC Objective (d). As such the Panel **unanimously** recommended **approval** of P397.

Further information on the Panel's recommendation and its views on the Applicable BSC Objectives can be found in Section 8 of this document.

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2 Why Change?

What is the issue?

The BSC Panel is concerned that the benefits of operating the processes introduced into the BSC under P305 in June 2015 may not always outweigh the costs. In particular, that certain demand disconnection DCEs may not always warrant the costs incurred by NETSO, BSC Parties, Party Agents and Central Agents to operate the SAP necessary to make the adjustments.

1,025,000 Metering Systems were without power for between 15 and 45 minutes over Settlement Periods 34-36 on 9 August 2019 during a DCE. A comprehensive report of what happened during the event can be found here.

NETSO sent a single Demand Control Instruction (DC00201) to inform BSCCo of the DCE on 9 August. Of the three Settlement Periods affected by the DCE, the System Prices in Settlement Periods 35 and 36 were adjusted from £64.75/MWh to £65/MWh, just £0.25/MWh, and Settlement Period 34 was unaffected at £64.50/MWh. As a result, the calculated 'benefit' of adjusting BSC Party Imbalance Charges was £46,348[2] as per the R1 Settlement Run, whereas the indicative costs to operate the SAP for the 9 August DCE, excluding BSCCo costs, is expected to be approximately £52,644[3].

What was the impact on Settlement?

There was relatively low material impact on System Prices due to the nature of the event. The DCE was determined to be an Automatic Low Frequency Demand Disconnection (ALFDD) DCE meaning any Demand Control action included in the System Price calculation is System Operator (SO) flagged. Ordinarily a Demand Control action is priced equal to the Value of Lost Load (£6000/MWh); however, where any balancing action is SO-flagged it is initially unpriced and may be re-priced equal to the most expensive unflagged balancing action (i.e. the Replacement Price).

However, on this occasion the Demand Control action was also Net Imbalance Volume (NIV) tagged before being repriced, meaning the action was removed from the Imbalance Price calculation in all affected Settlement Periods. Consequently, any System Price change during the DCE was due to a shift in Imbalance Volume rather than a Demand Control being a price setting action.

To summarise, this event was highly unusual and the anticipated fluctuations in the System Price did not materialise as the System Price Calculation ultimately excluded the Demand Control action from the final price calculation. For more information on electricity imbalance pricing, please refer to our guidance note on the subject.

Background

What is a Demand Control Event?

If National Electricity Transmission System Operator (NETSO) is unable to call upon sufficient generation, or reduce demand, to meet the current demand on the system, it can call upon Demand Control under Grid Code Section OC6 'Demand Control' as a last resort emergency instruction to manage the situation. This enables it to instruct Licensed

[2] Calculated by multiplying the total MWh by the System Price over the three impacted Settlement Periods
[3] Expected costs as of 24 January 2020

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Distribution System Operators (LDSOs) to reduce demand in their areas, either through initiating Voltage Reduction and/or disconnecting consumers through Demand Disconnection. An LDSO typically may be required to reduce demand in blocks of approximately 5% of its total demand, and is required to respond to NGESO's instruction within five minutes of it being issued. It is usually left to the LDSO to determine how it achieves the instructed reduction, which will often be through a combination of Demand Disconnection and voltage reduction. A DCE is the term given to the period when Demand Control is in effect.

Types of DCE

The BSC requires that NETSO sends details of three types of DCE to BSCCo. These are DCEs that NETSO may instruct and which are provided for in Grid Code OC6:

- Demand disconnection;
- Voltage reduction; and
- Automatic Low Frequency Demand Disconnection (ALFDD).

Each form of Demand Control may be used by NETSO to reduce the consumption of electricity on the system by disconnecting parts of the distribution systems, either manually or by automatic relays (when the frequency on the system drops below 49Hz), or by reducing the voltage on the system.

DCEs typically occur in emergency situations where available "backup" power has already been deployed, e.g. through the Balancing Mechanism, or where an event requires immediate action.

What are the P305 processes?

The SAP were implemented as part of P305 'Electricity Balancing Significant Code Review Developments', a Modification that was raised to progress the outcomes of the Electricity Balancing Significant Code Review (EBSCR). One of the key outcomes was the requirement for the introduction of Demand Control actions into the Imbalance price, priced at the Value of Lost Load (VoLL), and an Imbalance volume correction process to amend Trading Parties' Imbalance Volumes to account for such actions.

In short, following a DCE that results in demand disconnection, the BSC requires that certain Parties, Party Agents, BSC Agents, and ELEXON work together to estimate the electricity that would have been Imported or Exported by disconnected customers (i.e. BM Unit Allocated Demand Disconnection Volume (BMUADDV) and Period BM Unit Demand Disconnection Volume (QDD)) and ensures these are included in Trading Parties' Imbalance Volumes to reflect the effect of any demand disconnection (as though the DCE was the provision of a Balancing Service by the Trading Party). These are known as the Settlement Adjustment Processes (SAP).

A DCE is often an urgent emergency action(s) taken by NETSO when there are no other market-based actions available. However, it may cause Parties' Imbalance volumes to be longer than they might otherwise have been through no fault of their own. A longer Imbalance position multiplied by an abnormally high System Price driven by the effect of a DCE (e.g. close or equal to the VoLL, £6,000/MWh) could result in a significant payment to Parties or a considerable reduction in their Imbalance Charge had there not been a DCE. The SAP were designed to ensure the accurate calculations of Parties' Imbalance volumes

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so Trading Parties do not benefit or suffer from the effects of a DCE that is outside of their control.

More details of the SAP can be found in the P305 Final Modification Report.

Next Steps as of January 2020

Given this is the first use of the P305 SAP, ELEXON will raise an Issue Group to thoroughly consider the overall experience of operating the processes for the first time (including more detailed understanding of actual costs and any operational challenges encountered) once the DCE on 9 August has been fully processed. A more thorough, evidence-based review will enable industry to properly explore the issues and options, before making a recommendation to BSC Panel. The completion of the adjustment process is currently targeted at the final Settlement run (R3 of the impacted August 9 Settlement Periods i.e. March 2020).

The Panel is aware that BSCCo plans to raise an Issue to consider its concerns once it has received lessons from estimating BMUADDV and QDD following the DCE on 9 August 2019. However, the Panel believes that more urgent action is necessary in case there are further DCEs, in particular over the forthcoming winter and spring seasons, which may incur more costs than benefits for consumers.

At its meeting on 14 November 2019, the Panel challenged BSCCo to develop a Modification Proposal that it could adopt at its December 2019 Panel meeting. This is in the hope that a mechanism is in place as soon as practically possible in the event another low materiality DCE occurs, thus minimising unnecessary negative impacts on Parties, Party Agents and BSCCo.

Whilst ELEXON believes an Issue will enable a more thorough examination of the processes, ELEXON believe that this proposal will nevertheless positively impact Applicable BSC Objective (d). Therefore, ELEXON recommended that the Panel raise this Modification under Section F2.1.1(d)(i) at the Panel meeting on 12 December 2019. Whilst ELEXON have a preferred way forward and defining this proposal has been challenging (i.e. without a full understanding of the costs for performing the SAP), it is a pragmatic approach which should reduce costs by avoiding the operation of Settlement processes in certain circumstances where the perceived benefits do not outweigh the costs.

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3 Solution

Original Solution

The original P397 Solution seeks to introduce a mechanism wherein the Panel sets rules for BSCCo to use to determine whether relevant parties should operate the SAP or not, based on whether the value of doing so exceeds the associated costs.

The solution comprises the following core elements:

- BSC Panel establishes and maintains business rules – 'Demand Disconnection Event Threshold Rules' – which will set out:
    - The circumstances in which BSCCo should asses the costs and benefits of a DCE;
    - A method for assessing the costs and benefits of a DCE – including any specific calculations or parameters that BSCCo should follow or use in its assessment – whereby SAP should not be performed where the costs are equal to or greater than the value; and
    - Other criteria, timescales, parameters or calculations necessary to assess the DCE.
- New requirements on BSCCo to complete an assessment of each DCE in accordance with the BSC Panel's Rules and to notify BSC Parties, Party Agents and BSC Panel of its findings.

The specific process and calculations that BSCCo will follow are set out in detail in the Business Rules document and proposed redline changes to BSC Sections and BSCPs in Attachment A.

To summarise, the benefit of running the processes (i.e. 'DCE Value', £/MWh) is defined as the sum of the value of the disconnected volumes within each impacted Settlement Period (£) divided by the total amount of energy disconnected during the DCE being assessed (MWh). The DCE Value is derived for each DCE to be assessed. The DCE Value is then compared against a pre-determined estimated cost of running the process (i.e. 'DCE Cost', £/MWh) for all impacted parties. Following a DCE, BSCCo would follow the rules outlined in Attachment A to determine these values and therefore whether the costs are greater or equal to the value. In all cases, BSCCo must notify all BSC Parties, Party Agents and the BSC Panel of its conclusion.

DCE Value

The proposal proposes to calculate DCE Value using the following formula:

$$DCE_Value = \frac{\sum_j (SP_j \times DDE_Size_j)}{DDE_Size_{total}}$$

Where:

SP_j – is the System Price for a Settlement Period affected by demand disconnection or auto low frequency demand disconnection during the DCE

DDE_Size_j (MWh) – is the anticipated energy disconnected during a Settlement Period due to demand disconnection and derived from a DCI(s) sent by the NETSO to BSCCo for the DCE being assessed

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DDE_Size$_{total}$ (MWh) – is the total anticipated energy disconnected due to demand disconnection and derived from the DCI(s) sent by the NETSO to BSCCo for the DCE being assessed.

The calculation of DCE Value uses the actual System Price(s) from affected Settlement Period(s). This is because whether or not the DCE affects the calculation of the System Price, the DCE will affect Parties' Imbalance Volumes and those Parties may benefit or disbenefit by the amount of energy disconnected multiplied by the System Price irrespective of any DCE effect.

DC00201 affected three Settlement Periods. The corresponding System Prices and disconnected volumes are set out in Table 1 below. The total disconnected volume was 714MWh.

Settlement Period	System Price	DDE_Size$_j$
34	£64.50/MWh	93.1 MWh
35	£65/MWh	465.5 MWh
36	£65/MWh	155.2 MWh

Based on the System Prices and disconnection volumes, the DCE_Value for DC00201 is £64.91/MWh.

DCE Cost

$$DCE_Cost = \frac{HHA_Cost + LDSO_Cost + NHHA_Cost_{Cost} + NETSO_Cost + BSC_Agent_Cost + BSCCO_Cost}{DDE_Size'_{total}}$$

Where:

HHA_Cost (£) – the expected cost for all active HHDCs and HHDAs to carry out 'bottom-up' processes for a historical or indicative DCE.

LDSO_Cost (£) – the expected costs for all active LDSOs to carry out 'bottom-up' processes for a historical or indicative DCE.

NHHA_Cost (£) – the expected costs for all active NHHDCs and NHHDAs to carry out 'bottom-up' processes for a historical or indicative DCE.

NETSO_Cost (£) - the expected costs for NETSO to carry out 'bottom-up' processes for a historical or indicative DCE.

BSC_Agent_Cost (£) – the expected costs for BSC Agents to carry out 'bottom-up' processes for a historical or indicative DCE.

BSCCo_Cost (£) – the expected costs for BSCCo to carry out 'bottom-up' processes for a historical or indicative DCE.

DDE_Size'$_{total}$ (MWh) – the total volume of electricity anticipated to be disconnected as a consequence of demand disconnection or auto low frequency demand disconnection derived from a historical or indicative DCE.

The calculations of these costs are described in more detail in the attached draft Business Rules, found in Attachment A.

If this Modification were to be implemented based upon the calculations and costs gathered as part of the original submission of P397 to the Authority, DCE_Cost will be set equal to £75.13/MWh.

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Justification

The Proposer (the BSC Panel) believes its solution strikes a balance between being the straightforward to implement and operate, and reflecting the costs and values of different sized DCEs.

An option suggested during the Panel's discussion at its November meeting was for an overall cost threshold (£) to be set, against which the value of individual DCEs could be compared. Such an approach would rely on the assumption that all DCEs are broadly similar and don't vary based on the size of the event (whether in terms of disconnected energy or affected Metering Systems). ELEXON do not believe this is the case.

Depending on the circumstance, NETSO may instruct some or all LDSOs to shed load. Each LDSO may have different means of achieving the different levels of Demand Control requested by NETSO, these methods may change over time and, depending on the nature of the event, NETSO may require the use of different combinations of Demand Control instruction. In practice, the numbers of Metering Systems affected and volume of energy disconnected by a DCE is likely to vary from one DCE to the next.

Our understanding is that the underlying costs of the SAP are driven by identifying affected Metering Systems and then producing estimates of the Imports and Exports that have been disconnected. In simple terms it is the number of Metering Systems, not the volume of electricity disconnected, that affects the cost of operation. Furthermore, whilst NHH DCs and DAs rely on a largely automated solution meaning their costs are likely to be fairly fixed no matter the size of the DCE, our understanding is that HHDCs must use a method to individually estimate Imports or Exports for each disconnected HH Metering System. In order to reflect the number of disconnected Metering System Identifiers (MSIDs), or even the variability in HH cost, when determining the cost of a DCE would require LDSOs to identify the numbers (and types) of disconnected Metering Systems – i.e. the first stage of the Settlement adjustment processes, which might otherwise be avoided if a simpler solution (i.e. the proposed solution) were used.

Without more detailed investigation of LDSOs agreed processes for carrying out demand control the proposed solution assumes that the balance of disconnected HH:NHH Metering Systems stays the same regardless of the size (MWh) of the DCE.

ELEXON believes the simplest means of reflecting that different DCEs may have different overall costs is to determine a weighted cost measurement using the estimate of what NETSO anticipates will be disconnected that it reports in Demand Control Instructions to Balancing Mechanism Reporting Agent (BMRA).

ELEXON does not believe an appeals process is necessary. That is, the proposed Business Rules are intended to produce an assessment of value and cost that does not allow for judgement or subjectivity by BSCCo. Parties may encourage the Panel to change its rules if Parties believe the rules are inappropriate or do not properly reflect the costs and value of performing the SAP.

Issue Group

Issue 89 was raised on 23 March 2020, following the completion of the majority of the SAP for the 9 August DCE. As of June 2020, the Issue 89 Group has reviewed the specific operation of these rules as followed for DCE00201 and identified lessons learned from the process. In light of its lessons learnt, the Group has also considered improvements to the proposed P397 solution. The Group is still to review whether the overall approach of the

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current SAP and the circumstances in which they are used to determine whether they remain fit for purpose and if there should be any changes made to the overall SAP. However, the Group and ELEXON still believe that this Modification is pragmatic and delivers a timely interim mechanism to help minimise the costs associated with potentially inefficient processes.

Proposed amendments to the P397 solution

Following the Issue 89 Group's consideration of the RFI responses, three possible solutions emerged. The full rationale behind these solutions can be found in Section 9.

Option 1

Option 1 is the original solution to P397 as summarised in Section 3 with minor amendments to clarify the process and calculations based on the findings of the RFI (detailed in Section 9). The calculations clarify that all active LDSOs and Agents are assumed to be impacted by a DCE. This is because without information from LDSOs and Agents, at the point of assessment ELEXON will not know who has been affected and so it is safer to assume that the event affects everyone.

The costs of running a future DCE, (updated future-event costs) derived from the RFI, have also been incorporated in place of the estimated costs of DCE00201 which included one-off costs. The original proposal included a HH Agent cost based on a per-MSID underlying cost – this is no longer the case. The Business Rules have been amended whereby the HH Agent cost is calculated by multiplying the total number of active HH Agents by the average HH Agent cost. The same approach is taken to LDSOs and NHH Agents (i.e. all active LDSOs and NHH Agents are assumed to be impacted). These costs are a predetermined average derived from historical or indicative data, in this case the RFI issued as part of Issue 89, based on the Agents' and LDSOs' expected costs of performing the SAP once (i.e. for one Settlement Run). It would take approximately 1WD to perform the necessary calculations from the point the DCE information is received from the NETSO

If Option 1 is taken forward, upon implementation of this Modification DCE_Cost will be set equal to £95.67/MWh. Option 1 is described in detail in the Business Rules held in Attachment B.

Option 2

Option 2 includes an additional step that would provide a more specific cost assessment of a DCE in addition to running an initial assessment in accordance with the steps in Option 1. That is, where the DCE_Value is greater than the DCE_Cost in Option 1, Option 2 would then recalculate the DCE Cost by using a pre-determined per HH MSID cost and a list of disconnected HH MSIDs provided by LDSOs, and would refine the LDSO and NHH Agent costs by calculating a cost based on the numbers of affected NHH agents, rather than all LDSOs and NHH Agents. LDSO costs would not be included in this calculation, as at this point they have already been incurred and are therefore unavoidable.

The improved approach to estimating the HH Agent costs is based on responses to the Request for Information (RFI) and the Issue 89 Group's conclusion that HH Agent costs are correlated to the number of impacted MSIDs, whereas LDSO and NHH Agent costs are largely fixed per event but that a particular event may only affect a proportion of LDSOs and NHH Agents.

The updated process is summarised below.

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Step 1: as per Option 1 – i.e. compare the DCE value with the DCE cost using pre-determined costs and assumptions, and communicate the outcome of this initial assessment to all Parties, Party Agents, BSC Agents and the Panel.

Step 2: Where step 1 determines the DCE value is greater than the DCE cost, ELEXON will calculate the DCE-specific cost, otherwise the process ends and the SAP will not be run. To calculate the DCE_Specific_Cost:

- ELEXON notifies LDSOS to send P0238[4] data flows (MSIDs impacted by Demand Control Event) in accordance with the SAP as described in BSCP515;
- ELEXON uses the P0238 data to determine how many HH Metering Systems were impacted by the DCE being assessed[5];
- ELEXON calculates the HH Party Agent costs by multiplying the per HH Metering System cost (we propose this is set to the average future DCE cost derived from the RFI i.e. 3.23p/MSID, or as may be updated in future by Panel in accordance with the Business Rules[6]) by the number of HH Metering Systems reported in P0238s by LDSOs for the DCE being assessed;
- NHH Agents' costs will be calculated by multiplying the number of impacted Agents by the average value for NHH Agents determined by the RFI (i.e. £1,082 per NHH Agent, or as may be updated in future by Panel in accordance with the Business Rules);
- Sum the above costs, including ELEXON's, NETSO's and BSC Agent's pre-determined costs (i.e. as per Option 1) and determine the DCE_Specific_Cost. If this is less than the DCE Value the SAP will be run, otherwise the SAP will not be run.
- As per Option 1, BSCCo will notify all Parties, Party Agents, BSC Agents and the Panel of its conclusions.
- This amendment would require impacted LDSOs to incur their SAP costs (i.e. £979 per LDSO) for every DCE which passes step 1. As above, these costs will not be included as part of the DCE_Cost for the second step of the calculations. This is because the cost has already been sunk and is no longer avoidable, therefore it would be inefficient to include in a comparison of avoidable costs against potential benefits (where those benefits remain unchanged).
- ELEXON would also incur a small additional cost in determining the number off HH MSIDs and performing the additional DCE_Specific_Cost calculation (~£1,200).

[4] P0238 files are generated by LDSOs and detail the Metering Systems impacted by a Demand Control Event. Details include Demand Control Event details, MSIDs, and Profile Class. Further details can be found in the Supplier Volume Allocation (SVA) Data Catalogue Volume 1.

[5] Elexon is able to determine the number of HH MSIDs by cross-referencing the P0238 data against our systems

[6] Just like the overall DCE_Cost, the per HH MSID Cost will be a pre-determined value used for all future assessments but may be updated by Panel from time to time

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Option 2 example

Below is an example of how Option 2 would work in practice, using the expected costs of a future DCE with identical characteristics to DCE00201 (as detailed in Section 9)

For the first stage of the DCE check, average costs for each affected LDSO, NHH and HH Agent would be used. These are as follows:

- NHH Agent = £1,082 per Agent Market Participant Identifier (MPID)
- HH Agent = £1,151 per Agent MPID
- LDSO cost = £979 per LDSO MPID/Zone
- Other cost = £3,200 (ELEXON and Service Providers costs)

As this check takes place before any P0238 files have been created, we assume that all operating LDSOs, NHH and HH Agents will run the SAP. ELEXON would multiply the costs above by the number of operating Agents (14 LDSOs, 21 NHH and 13 HH Agents).

For a future DCE identical to DCE00201, the total cost would be **£68,291, or £95.67/MWh.** As the estimated DCE_Cost (£95.67/MWh) is higher than the DCE_Value (£64.91/MWh), for a future event identical to DCE201, the DCE process would **not** be run.

However, if the DCE_Cost in Stage 1 is less than the DCE_Value, we would undertake a further check. Again using the average future costs for each affected NHH and HH Agent from the RFI, but HH costs would be converted to a "per affected MSID" cost as the SAP is performed on a per site level, so this is more representative of the true cost. Note this methodology requires P0238 file(s) to be produced, as ELEXON will use these to calculate how many HH MSIDs were impacted. ELEXON will also use the P0238 to derive the actual number of affected HH and NHH Agents, and multiply these against the "per Agent" costs. The costs for Stage 2 were recalculated as follows:

- NHH Agent costs = £1,082 per Agent
- HH Agent costs = 3.23p per MSID
- Other cost = £2,000 (ELEXON and Service Providers costs).Note £1,200 reduction from step 1 due to those costs being associated with performing the checks associated with step 2. These costs are therefore sunk and should not be considered against the potential value of performing the SAP. The remaining costs of £2,000 are associated with the operation of the SAP.

Based on these assumptions, and multiplying these costs by the impacted HH MSIDs and NHH Agents (13 NHH Agents and 3,918 HH MSIDs), for a future DCE identical to DCE201 the total costs would be **£28,722 (or £40.24/MWh).**

The large discrepancy in costs between the two steps can be attributed to the method used to calculate LDSO costs and their inclusion or otherwise in the calculations. In step 1, all LDSOs (including independent LDSOs) are assumed to be impacted. There are currently 28 active LDSOs, generating an estimated cost of £27,412 – 40% of the total estimated DCE_Cost figure of step 1. However, LDSO costs are excluded as part of step 2 because they have already been incurred and are therefore sunk, as explained above.

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Note the Stage 2 check will only be run if the Stage 1 check shows the DCE_Cost to be lower than the DCE_Value; if the DCE_Costs are higher than the DCE_Value, the Stage 2 check will not take place.

In this example the SAP would not be carried out as the DCE_Cost in the first step check is greater than the DCE_Value. In contrast, the step 2 check, which uses more specific inputs in the calculation, shows that the DCE_Cost is less than the DCE_Value, and therefore the SAP should have been carried out. However, in the two step solution this second calculation would not have been carried out, and therefore the SAP would not be run for a DCE where the costs are demonstrably lower than the benefits.

Further, it can be reasonably assumed that in the majority of events the second calculation will produce lower costs than the first. The first check assumes all LDSOs, HH and NHH Agents are impacted, whereas the second check uses the actual number of impacted LDSOs, HH and NHH Agents. This raises the question of the value in undertaking the second step check, and the possibility of further potentially anomalous outcomes – neither of which create the certainty and consistency that market participants require.

Option 3

Option 3 simply proposes using Step 2 described in Option 2 – so does not perform the step 1 initial assessment. This Option avoids a situation similar to the example described above for Option 2 whilst generating the most specific costs to determine whether or not to carry out the SAP.

This Option provides the most specific costs in regards to a DCE. However, similar to Option 2 (where both steps are followed) it would take 7WD from the point the NETSO notifies BMRA of the end of the DCE to be able to inform industry whether or not to proceed with the SAP. This is because BSCCo requires P0238 data from affected LDSOs before it can perform the assessment. It is also more expensive than Option 1 as LDSOs would be required to incur their DCE costs in every event (thereby reducing the benefit from not running the SAP – LDSO costs account for about one third of SAP costs), and ELEXON would incur a small additional cost as well.

Recommendation

Following the Workgroup ELEXON discussed these Options internally and shared these discussions with the Workgroup. ELEXON was concerned that Option 2 would generate uncertainty and that Option 3 may take too long to operate compared to Option 1. The table in Appendix 1 describes these Options, along with the benefits and drawbacks of each. It was ELEXON's view that Option 1 is the preferable solution as it would provide certainty to industry at the earliest opportunity in the event of a DCE, which is one of the aims of P397. It is also the most efficient and would also prevent operational costs for LDSOs in advance of having confirmation that the DCE will be run. At the time of writing, all Issue Group Members who responded to this communication support ELEXON's approach (3 of the 10 attendees at the second meeting for Issue 89).

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Legal text and redlining

Please note that we have included the redlining for the original P397 solution (Attachment A) and the revised redlining for the recommended Option 1 only (Attachment B). Should the Panel decide to adopt an alternative Option we will include the revised legal text and redlining as appropriate.

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4 Impacts & Costs

This Modification's greatest impact is on the BSC Panel and BSCCo, as it introduces new requirements on each. The BSC Panel will be required to establish and maintain new business rules that govern how an assessment of the costs and benefits of a DCE should be completed. The BSCCo will be required to perform this assessment following a DCE in accordance with the Panel's business rules.

This Modification is expected to have a small impact on certain BSC Parties, Party Agents and BSC Agents because depending on BSCCo's assessment of costs and benefits, as they may be instructed not to progress the P305 SAP.

Trading Parties may experience a small impact by the implementation of the Modification. That is, whereas the BSC currently requires that Trading Parties' Imbalances Volumes are always adjusted by the estimation of BMUADDV and QDD, this Modification will mean that BMUADDV and QDD is only estimated in certain circumstances.

Estimated central implementation costs

ELEXON's costs to implement this Modification will be approximately £3,840 due to the development of new internal processes, updating guidance documents, and updating the BSC Website:

- 4 Working Days effort to implement new internal processes and documents: and
- 5.5 Working Days to implement document changes to the BSC and Code Subsidiary Documents.

The costs for ELEXON to operate each option are:

- Option 1 - the original DCE assessment: approximately £800;
- Option 2 – option 1 + another step: approximately £2000 (£800 to run the first step, and an additional £1,200 if the second step is run);
- Option 3 revised DCE assessment processes: approximately £1,200

It will cost approximately £2,400 for ELEXON to run the Panel's Business Rules Review process as described in the Business Rules (approximately 10 Working Days effort), regardless of the Option.

Impact on BSC Parties and Party Agents	
Party/Party Agent	Potential Impact
LDSO	May be instructed not to operate SAP after a DCE, saving time and money. If Options 2 or 3 are implemented, each LDSO would incur a cost of approximately £979 (set at the average cost determined by the RFI). Trading Parties may or may not have their imbalances adjusted as a result of P397.
HHDA	
NHHDC	
HHDC	
NHHDA	
Trading Parties	

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Impact on BSC Parties and Party Agents	
Party/Party Agent	Potential Impact
CDCA	May be instructed not to operate SAP after a DCE

Impact on NETSO
The NETSO may be instructed not to send details about Metering Systems providing balancing services during the disconnection event

Impact on BSCCo	
Area of ELEXON	Potential Impact
Market Operations	As the team responsible for running the SAP, they will need to update their Local working Instruction (LWI), guidance documents, the BSC Website and may need to answer ad hoc queries about the process.

Impact on BSC Settlement Risks
A positive impact on the following Risks as the participants in question may well process less data, therefore lowering the Risk of error manifestation. Risk 008 'Processing of [SVA] Metered Data', Risk 009 'Data Aggregated Processes – Metered Data', Risk 021 'Retrieval and processing of [CVA] Metered data'

Impact on Code	
Code Section	Potential Impact
Section R – Collection and Aggregation of Meter Data from CVA Metering Systems	Include new requirements to ensure SAP are only operated where the requirements described in the new Category 3 document are met.
Section S – Supplier Volume Allocation	

Impact on Code Subsidiary Documents	
CSD	Potential Impact
BSCP03 – Data Estimation and Substitution for Central Volume Allocation	Consequential changes to reflect the requirement to wait for instruction from BSCCo before operating the SAP
BSCP502 – Half Hourly Data Collection for SVA Metering Systems Registered in SMRS	
BSCP503 – Half Hourly Data Aggregation for SVA Metering Systems Registered in SMRS	
BSCP504 – Non Half Hourly Data Collection for SVA Metering Systems Registered in SMRS	

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Impact on Code Subsidiary Documents	
CSD	Potential Impact
BSCP505 – Non Half Hourly Data Aggregation for SVA Metering Systems Registered in SMRS	
BSCP508 – Supplier Volume Allocation Agent	
BSCP515 – Licensed Distribution	
New Category 3 Document – Business Rules for Assessing Demand Control Event	Conception of the document will create new Business Rules within the BSC framework

Impact on a Significant Code Review (SCR) or other significant industry change projects
ELEXON requested SCR exemption for this proposal from any of Ofgem's open SCRs on 5 December 2019. Ofgem confirmed P397 is SCR exempt on 10 December 2019.

Impact on Consumers
No direct impact – If implemented this Modification proposal should ensure the operation of the 'bottom up' process is only in situations where the costs are greater than the benefits. This should ultimately reduce costs for Parties and therefore the costs to Consumers.

Impact on the Environment
No direct impact expected.

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5 Implementation

Implementation Date

At its meeting on 16 January 2020, the BSC Panel unanimously agreed an Implementation Date for P397 of **5WD following Authority approval**.

This ensures that this Modification is in place as quickly as possible, and the benefits of the processes can be enjoyed should a DCE occur before any further changes are introduced following a more thorough review of the DCE obligations by Issue 89.

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6 Panel's Initial Discussions

The request to raise this Modification was presented to the BSC Panel at its meeting on 12 December 2019 (Panel 297/06). The Panel agreed to raise this modification in accordance with Section F2.1.1(d)(i). It unanimously agreed with the proposed Implementation Date and legal text and initially agreed by majority:

- That P397 **should** be treated as a Self-Governance Modification;
- That P397 better facilitates Applicable BSC Objectives (c) and (d); and
- That P397 should be **approved**.

Revised Estimate of Costs

At the Panel meeting ELEXON provided a revised estimate of the cost to industry of operating the adjustment process as being approximately £50k rather than the £300K figure discussed in the September Panel meeting and quoted in the letter sent by the Panel to Ofgem in its request to pause the processes.

An Ofgem representative questioned whether ELEXON's revised estimate was a definitive view and queried why this had changed in the first place. ELEXON replied that the original figure was based on estimates provided by certain Agents and ELEXON and was an early understanding of costs, and in itself was not definitive. Further, the revised figure follows ELEXON's efforts at untangling the expected running costs from those incurred from the teething problems associated with running the processes for the first time.

The new estimate is also not definitive and the figures set out in this proposal are ELEXON's current best understanding after some market participants shared indicative costs for the processes. The processes for the August 9 DCE have not yet been completed so no definitive values are available; the figure is likely to change once the DCE process is completed in early 2020. ELEXON commented that the view was never presented as the definitive view at the time of either the estimated costs or the consequential impacts highlighted by the Panel member. They explained that, on further instruction from the Panel to prepare a Modification Proposal, closer inspection had been undertaken which revealed an amount lower than the £300K initially considered by the Panel. They again noted that as the DCE process had not yet finished, this was subject to change.

A Member added that the identified costs only included the central aspects of running the processes (i.e. the costs to Party Agents, LDSOs etc.) and did not consider the consequential costs to wider industry (i.e. the costs of running internal administrative processes such as rebilling to account for adjustments in imbalance charges). Another Member noted that the proposal did not provide any analysis of the effects on different parties or types of party or how the proposal might operate in different scenarios. ELEXON was unable to seek these assessments as the timeline was incredibly tight to develop the P397 solution, collect evidence, and further, definitive answers to these questions require that adjustments for the August DCE are calculated.

The Chair noted that the Panel had discussed the £300k figure at its meeting in September 2019. In its original discussions, ELEXON highlighted that energy costs for the DCE were currently understood to be ~£30k and that the cost of estimating data could be much greater, though the effects are varied and full details of the event were not yet understood. One Member questioned when costs that are more reliable might become

What are the Applicable BSC Objectives?

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

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

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

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

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

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

(g) Compliance with the Transmission Losses Principle

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available. ELEXON responded that this would be after the completion of the DCE Process, which is expected to be by the R3 Run scheduled in mid-March 2020.

Justification for Status

An Ofgem representative challenged the drive for justifying this Modification as straight to Report Phase, given that another DCE would be unlikely to occur. He stated that it may be beneficial to wait until the conclusion of the DCE process to learn lessons from it. A Panel Member commented that no one had predicted that August's DCE would have occurred when it did and clarified that the desire for quick action came about via a desire to protect customers who could be adversely affected should another one occur. The 9 August 2019 DCE was unusual as it was not a result of a failure of the market to balance energy – Parties had no influence over what occurred. Demand was reduced due to several unlikely events happening in rapid succession, causing the system frequency to drop to dangerous levels. Furthermore, because the event was SO-flagged, the financial materiality in prices and in imbalance charges was modest compared to indicative costs of performing the SAP. The Member added that they felt the Panel has an obligation to Parties, and consequently to protect customers.

One Member stated that they agreed with the principle of working to avoid wasting Parties' money but that, in future, the Panel should consider more closely their role in raising Modifications of this type. The Member argued that this Modification would seek to overturn a solution introduced to deliver the requirements of the EBSCR. They were concerned that the P397 was being pushed through hastily without more thorough consideration of the original P305 and EBSCR decisions and the costs/impacts of the DCE process and the proposed change. However, another Member highlighted that this Modification would in fact improve upon the solution delivered under P305 by making it more efficient; the processes would remain and be operated where they would benefit the industry and consumers. Furthermore, the solution would be reviewed in a future BSC Issue.

Several Members emphasised the need for a pragmatic solution to be delivered in a timely manner. They emphasised that, with customers' money at risk, some mitigation must proceed.

The National Grid representative warned against the unintended effects of pushing such a Modification through without definitive values or thorough consideration, particularly in light of the volume of change currently facing the industry.

Another Member replied that they could not imagine what unintended consequences could occur, given that the Modification solution was low impact and enabled a more flexible process that would consider materiality before running an expensive process.

What are the Self-Governance criteria?

A proposal that, if implemented:

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

Panel views against the Applicable BSC Objectives

The Panel unanimously agreed that the Implementation of P397 would positively impact Applicable BSC Objective (d) as this could potentially enable the industry to forego running a potentially inefficient process unnecessarily. The P305 adjustment process would not be performed in situations where the cost of running the process is expected to exceed the perceived benefits. This should reduce the overall cost to deliver the BSC by focusing only on those situations expected to deliver a net benefit.

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The majority of the Panel also agreed that P397 would better facilitate Applicable BSC Objective (c) as it would mean money is only spent running the adjustment processes when the cost of doing so is lower than the perceived benefits of running the adjustment processes.

Progression route

The Panel were split as to whether to proceed directly to the Report Phase. One half did want to proceed directly to the Report Phase, whilst the other half wanted to submit P397 into the Assessment Procedure. As per the BSC Section B 4.4.4, the Panel Chair made the casting vote, and decided to vote in favour of the recommendation. Therefore, the majority of the Panel decided to proceed directly to the Report Phase.

Those that wanted to go straight to the Report Phase wanted to do so on the basis that it was important to progress P397 quickly, to mitigate the risk of unnecessary cost, should another disconnection event occur. They believed that the P397 solution had been adequately developed and was flexible enough to choose whether to run the adjustment processes or not. Further, were P397 to be approved, the 'Demand Disconnection Event Threshold Rules' can be amended in the future, for example following the Issue that will be raise to review the DCE processes. Those that wanted to go to the Assessment Procedure wanted to do so because they believed more robust analysis should be given to the solution.

Panel views on Self-Governance

The Panel was equally split as to whether P397 should be progressed as a Self-Governance Modification Proposal. A Member argued that this is a significant change and should have at least one Workgroup meeting to consider it before submitting to Ofgem. The Panel heard that, whilst P397 may positively impact BSC Applicable Objective (c), the impact on competition would be immaterial by design.

The Chair cast their deciding vote in favour of the recommendation given to treat P397 as a Self-Governance Modification Proposal. ELEXON commented that Ofgem still has the power to request P397 be sent for Authority decision.

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7 Report Phase Consultation Responses

This section summarises the responses to the Panel's Report Phase Consultation on its initial recommendations. The Report Phase Consultation was issued on 16 December 2019, with responses invited by 08 January 2020. You can find the full responses in Attachment C.

Summary of P397 Report Phase Consultation Responses				
Question	Yes	No	Neutral/ No Comment	Other
Do you agree with the Panel's initial majority recommendation that P397 should be approved?	**9**	**0**	**0**	**0**
Do you agree with the Panel that the redlined changes to the BSC deliver the intent of P397?	**7**	**1**	**1**	**0**
Do you agree with the Panel that the redlined changes to the Code Subsidiary Documents deliver the intention of P397, including the new subsidiary document 'Demand Disconnection Event Threshold Rules'?	**7**	**1**	**1**	**0**
Will P397 impact your organisation?	**7**	**2**	**0**	**0**
Will your organisation incur any costs in implementing P397?	**2**	**7**	**0**	**0**
Do you agree with the Panel's recommended Implementation Date?	**9**	**0**	**0**	**0**
Do you agree with the Panel's initial view that P397 should be treated as a Self-Governance Modification?	**9**	**0**	**0**	**0**
Do you have any further comments on P397?	**0**	**9**	**-**	**-**

Nine responses were received to the Report Phase Consultation. Where material comments were made, we contacted the relevant respondents to discuss.

Respondents represented three Suppliers, three Distributors and five Supplier Agents.

Views on the Panel's recommendation to approve P397

All respondents agreed with the Panel's majority recommendation the P397 better facilitates BSC Objectives (c) and (d) and so should be approved. One respondent highlighted that all parties are more stretched than ever, and the requirement to take actions for a largely non-material event is not helpful.

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Views on redlined changes to the BSC

The majority of respondents agreed that the proposed redlined changes deliver the intent of P397. However, one respondent noted that there was an inconsistency in respect of the response times for the LDSO to send the P0238 data flow to BSCCo, with some BSCPs saying 5WDs and others saying 4WDs.

ELEXON amended the redlining accordingly, though it is worth noting that the original BSCPs referred to 4WDs. This was a mistake from the implementation of P305 and so it would have been inappropriate to maintain an erroneous and inconsistent requirement.

Views on redlined changes to the Code Subsidiary Documents

As above, the majority of respondents agreed that the redlining delivered the intent of P397. One respondent recommended explicitly highlighting the steps parties need to take (including where those obligations can be found) following instruction from ELEXON after a DCE. We discussed this with the respondent and amended the document accordingly.

Views on impacts to respondent's organisations

A majority of respondents said that their organisations would be impacted by P397. Two respondents noted that this impact would be positive, where they expect to save costs in the long-term in the form of avoiding performing nugatory processes. Others highlighted that there would be minor impacts where their organisations would have to modify processes.

Views on costs incurred by respondent's organisations

A majority of respondents noted that their organisations would not incur any costs in implementing P397. The two respondents that said costs would be incurred both stated these would be due to changes in their processes.

One respondent highlighted that, rather than a cost, there would be a potential saving in the event that the processes are not required to be operated.

Views on the Panel's recommended Implementation Date

All respondents unanimously agreed with the Panel's recommended implementation date. One respondent highlighted that P397 introduces a process which stands to reduce costs to industry parties and, ultimately, customers, therefore they support the Panel's recommendation of implementation as soon as practicable.

Views on Self-Governance

All the respondents agreed with the Panel's initial view that P397 should be treated as Self-Governance as they felt it meets the Self-Governance criteria.

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Further comments

No respondents had any further comments beyond those made in earlier responses. However, NETSO provided an informal response in which it confirmed P397 would have minimal direct impact on its operations as it would still be required to carry out the necessary processes. It did note that it would seem sensible for BSCCo not to run the SAP if it determined a future event had a minimal material impact on Settlement.

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8 Panel's Discussions on the first Modification Report

The first Draft Modification Report for P397 was presented to the BSC Panel at its meeting on 16 January 2020 (Panel 298/05).

Context of EBSCR and P305

Following the discussions at the December Panel meeting, ELEXON sought to provide more background to the origins of the adjustment processes and whether a materiality threshold was considered at the time the EBSCR and P305 were being developed. This research found no clear evidence in either of the final papers to indicate that a materiality threshold (or similar) was the case.

Notably, the decision paper for the EBSCR explicitly stated: "*Suppliers' Imbalance volumes should be corrected even if the Demand Control action is subject to flagging and tagging*". This suggests that the P397 proposal to introduce a mechanism for determining whether to adjust Imbalance volumes or not may be at odds with the original intent of the adjustment process as the Authority clearly expected it to be run in all circumstances.

ELEXON noted that market conditions had changed significantly since the EBSCR was approved. ELEXON went on to note that due to the increased proportion of distributed, intermittent generation in the energy mix it could be argued that there is now a greater risk of Demand Control actions as a result of system operation rather than system balancing, which was more of a concern at the time the EBSCR was concluded. The 9 August DCE was an example of such a system operation event, though notably under highly unusual circumstances.

Panel members appreciated better understanding the origins of the process.

Self-Governance

An Ofgem representative provided the view that P397 does not meet the Self-Governance criteria, specifically Self-Governance criterion (a) (iv)[7]. They reasoned there was unclear evidence of whether there would be a significant material impact on the SAP following a DCE. As such there is a possibility that P397 could have a material effect on the management of market or network emergencies. They went on to highlight that the lack of evidence also means it is difficult to determine whether the proposed solution does not have a disproportionate impact on some Parties over others, impacting Self-Governance criterion (b). However they underlined Ofgem's recognition of the issue and support the industry's exploration of potential Options to resolve it.

A member challenged Ofgem's rationale, arguing that the solution applies only to the adjustment of final imbalance positions after the fact and therefore does not have a material impact on security of supply. Ofgem explained that security of supply is not its main concern, rather the material impact on the management of market or network emergencies.

[7] See information box on page 16 for the full BSC Self-Governance criteria

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Interim vs. enduring solution

A member questioned whether P397 was intended as an enduring or interim solution. A Panel member noted that the proposal was intended to be a short-term solution, pending the outcome of an Issue Group. As such, they asked why a sunset-clause had not been included in the proposed legal text. ELEXON explained that this was considered during the development of the solution and highlighted its firm commitment to raising an Issue Group to consider the outcomes and lessons learned of the end-to-end SAP. The Issue Group will reconsider the merits of P397 to determine whether this solution is still appropriate as an enduring solution.

ELEXON highlighted that the inclusion of a sunset-clause carried a risk that the P397 provisions expire before the conclusions of the forthcoming Issue Group can be implemented. Under this scenario, there would be a further interim period without the P397 provisions, which is what this Modification seeks to address and hence it would be contrary to the intention of the Modification to include a sunset clause. ELEXON added that sunset-clauses are not legal drafting best-practice for ELEXON as a further Code Modification would be required to remove the provisions.

A member explained that P397 was never intended to be a thorough, perfect solution. It provides industry with assurance in the interim before a full lessons learned process could be conducted after the SAP have been performed end-to-end. Ofgem was sympathetic with this view and highlighted its support of industry and the Panel proactively seeking to address challenges faced.

Recommendations

Following its last meeting where it considered the Initial Written Assessment, the Panel further considered the perspectives against Applicable BSC Objectives (c) and (d), and whether to progress P3976 as Self-Governance. The Panel reaffirmed its unanimous view that the solution better facilitates Applicable Objective (d). The Panel also agreed by majority that it better facilitates Applicable Objective (c), wherein one member remained neutral, reasoning that P397 has neither a positive or negative effect on competition.

In light of Ofgem guidance, the Panel considered that P397 may have an impact on Self-Governance criteria (a) (iv) and (b) and so unanimously voted to reject its progression as Self-Governance.

The Panel:

- By **MAJORITY AGREED** that P397 **DOES** better facilitate Applicable BSC Objective (c)
- **UNANIMOUSLY AGREED** that P397 **DOES** better facilitate Applicable BSC Objective (d)
- **UNANIMOUSLY REJECTED** the progression of P397 as a Self-Governance Modification;
- **UNANIMOUSLY AGREED** a recommendation that P397 should be **APPROVED**;
- **UNANIMOUSLY APPROVED** an Implementation Date for P397 of **5WD following Authority approval**;
- **UNANIMOUSLY APPROVED** the draft legal text in Attachment A;

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- **UNANIMOUSLY APPROVED** the draft redlined changes to the Code Subsidiary Documents in Attachment A;
- **UNANIMOUSLY APPROVED** the new 'Demand Disconnection Event Threshold Rules' document, Attachment A, as a new Category 3 Configurable Item owned by the Panel on the Baseline Statement; and
- **UNANIMOUSLY APPROVED** the P397 Modification Report.

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9 Send Back Process

Send Back Direction

Ofgem issued a Send Back Direction per Section F 2.7A (Attachment D) on 3 March 2020, citing its inability to approve or reject P397 based on the evidence provided. In its letter Ofgem acknowledged that the information provided was the fullest extent of what was available at the time of submission but that it was not sufficient for its purposes. In its letter Ofgem requested further analysis to be conducted, setting out:

1. Evidence gathered from the lessons learned exercise associated to the full set of costs for the SAP as well as the difference in costs for different Parties; and
2. The cost of running the SAP following the DCE on 9 August 2019.

As outlined in Section F 2.7A, ELEXON presented a Send Back Letter to the Panel (Attachment D) describing how it intended to address Ofgem's Direction. This detailed how it was planning to raise an Issue to act as a 'lessons learned' exercise for the SAP (as referenced by Ofgem in its letter) and that the analysis requested could be absorbed into its Terms of Reference, as the relevant industry expertise would be present. The Modification Report would then be amended and presented to the Panel at its meeting on 9 July 2020.

Issue 89 'Ensuring Demand Control Event (DCE) procedures remain fit for purpose' was subsequently raised on 23 March 2020 with two main purposes: to review the first instance of the SAP being used to determine whether they are still fit for purpose, and to finalise and issue a Request for Information (RFI) to industry to gather the data necessary to perform the analysis required by Ofgem for P397.

Request for Information

ELEXON presented a draft RFI to Issue 89 members at its meeting on 22 April 2020 where questions were finalised. The questions were centred on the costs of running the August 2019 DCE, and on the costs of an identical future event where any costs associated with initial 'teething problems' were excluded. The letter accompanying the RFI, and all other communications associated with its communication, made clear that the Issue Group was interested in responses from all Parties and Party Agents impacted by the DCE, both directly and indirectly (i.e. DAs, DCs, LDSOs, Suppliers and the NETSO). After approval by the Issue Group the RFI was issued for 15 WDs between 4 – 26 May 2020.

RFI communications

To ensure all relevant parties were aware of the RFI, it was communicated by:

- Email to the BSC Modifications distribution list;
- Email to SAP operational contacts;
- Utilising Operational Service Managers (OSMs) for all potentially impacted Parties and Agents;
- Publication in the ELEXON Newscast; and
- Publication on the ELEXON website (P397 webpage, Issue 89 webpage, BSC Modifications webpage).

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13 responses were received in total. Of these, responses were received from:

- 10 out of 11 affected LDSOs;
- 10 out of 11 affected HH DAs/DCs MPIDs; and
- 5 out of 13 affected NHH DAs/DCs MPIDs.

The responses covered:

- c.95% of LDSO reported disconnected Metering Systems;
- c.97% of reported disconnected HH Metering Systems; and
- c.20% of reported disconnected NHH Metering Systems.

Note that the NETSO responded informally, as it is involved in the SAP only briefly at the beginning of the process. No Suppliers responded to the RFI. Following the RFI we reached out to Suppliers via OSMs to understand the reasons for not responding. At the time of writing three Suppliers have replied, with two stating that they felt any impacts were immaterial, and one noting that they did not explicitly record (or attempt to quantify) any impacts resulting from DCE00201.

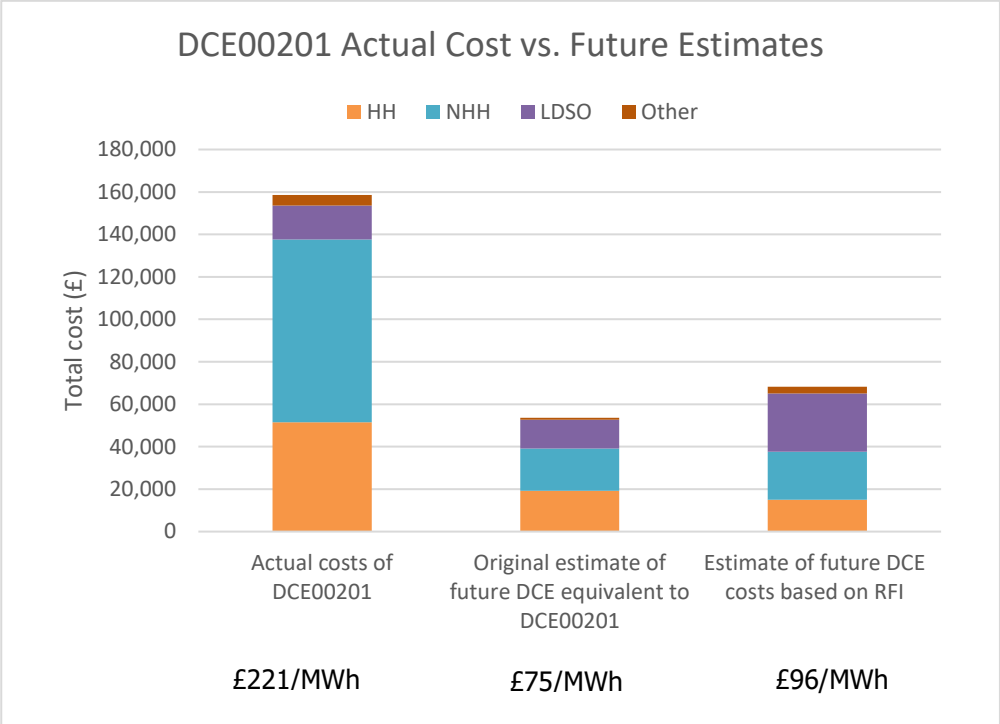
Issues with the submitted data

Despite the use of a standardised form, the detail in individual responses varied making direct comparisons between Agents difficult. Further, some responses combined HH and NHH costing, complicating analysis by Metering System. To mitigate this, ELEXON contacted some respondents to request clarification and additional detail where necessary, enabling a more robust analysis. Moreover, the data was standardised by assuming LDSOs, DCs and DAs would only need to submit and process data once, i.e. one set of P0238s and for one Settlement Run. This approach was supported by the Group as it felt it was fair and reasonable to assume all data should be validated and submitted accurately first time, especially having learnt lessons from DCE00201. It was noted that the SAP does allow data to be resubmitted if errors are found, or if the NETSO highlights certain MSIDs should be excluded if they were providing balancing services, but this is not expected to be the standard approach.

Most notably, the lack of responses from NHH Agents meant costs had to extrapolate from low numbers of responses to estimate overall NHH costs for running the SAP. However, a Member of Issue 89 highlighted that all NHH Agents used the same centrally-provided, automated system to perform NHH DC and DA functions, including the SAP, and, unlike HH Agents whose costs are more variable, NHH Agent costs are broadly fixed per Agent and per DCE. This meant that costs between NHH Agents would likely have a low variance and scaling these costs would likely not harm the analysis. As can be seen below, the data supports these assumptions. Further, ELEXON contacted a NHH Agent that did not respond formally but was responsible for a significant number of impacted Metering Systems. It confirmed that its costs for DCE00201 were in line with those reported by other Agents.

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Costs of DCE



As illustrated above, the total estimated cost to industry of performing the SAP for DCE00201 was £158k (£221/MWh). Total estimated costs for future DCEs on the same scale as DCE00201, where initial 'teething problems' are eliminated, were originally estimated to be £53,644 (£75.13/MWh). This was based on indicative cost estimates, as detailed in the firs P397 Modification Report. Based on RFI responses and the amended calculations in Option 1, this has been revised to £68,291(£95.67/MWh, or 43% of the estimated DCE00201 cost). In the graph above, "Other" covers any costs faced by ELEXON, NETSO and its Service Providers, even if zero.

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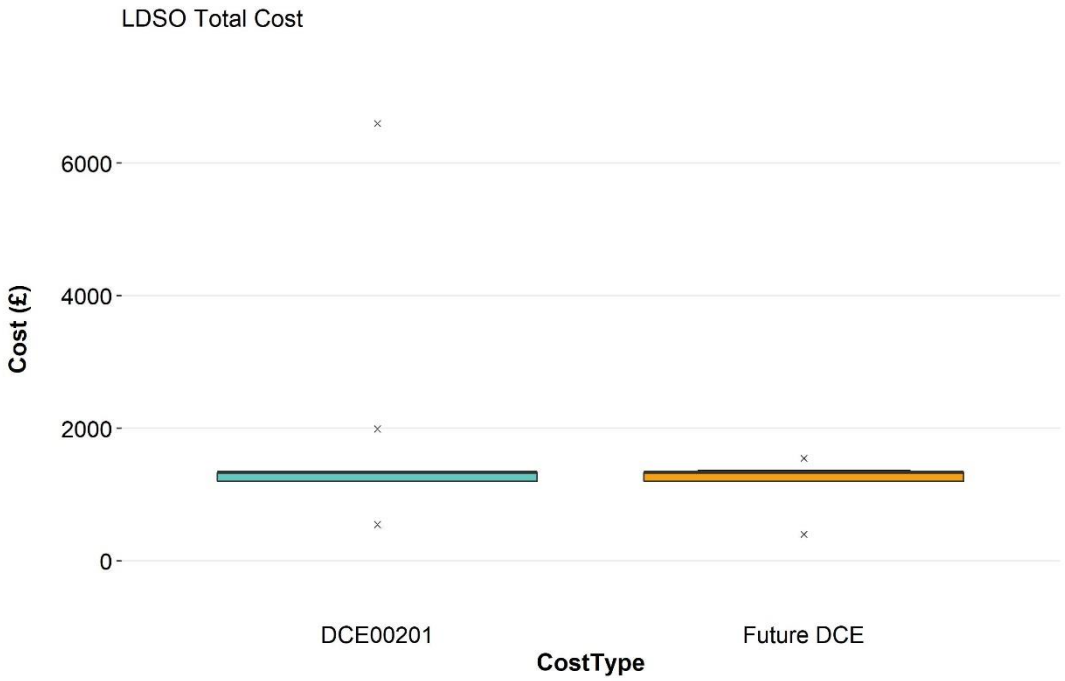
LDSO costs

DCE00201 costs for LDSOs from RFI responses were scaled up to a total cost of £15,893.

Future DCE costs for LDSOs from RFI responses were scaled up to a total cost of £10,769. By dividing this by the MPIDs affected during DCE00201 (11) the average cost for future events would be £979 per LDSO.

LDSOs saw large variation in costs for DCE00201. Total costs ranged from £550 to £6,600 per MPID/zone. A significant amount of this cost was due to different interpretations of the P0238 file requirements.

For future DCEs, the costs were more grouped. Total costs ranged from £400 to £1,550 per MSID/zone.



Based on the responses to the RFI, LDSOs do not appear to be significantly impacted by the number of impacted MSIDs within a DCE. The Issue Group decided that LDSO costs should be considered on a per-event and per-MPID basis (not per affected MSID). Considering the LDSO that submitted data pertaining to costs for three Settlement Runs rather than one, Issue Group Members discussed whether it is necessary for LDSOs to create multiple P0238 files in future DCEs. ELEXON noted that BSCP515 4.3.4 states:

> *"Where necessary, the LDSO should resend a P0238 where it is necessary to update the list of MSIDs related to a Demand Control Event. The LDSO should reuse the original Demand Control Event ID when sending an updated P0238".*

A Member pointed out that if the correct files were submitted the first time it would be unnecessary to incur further costs in future Settlement Runs by duplicating effort. ELEXON noted that P305 assumed the first P0238 submission would be correct and that the wording in BSCP515 was included to allow resubmission in an instance where errors were found. The Issue Group agreed that is a simple process to inform Settlement of which MSIDs are impacted, and Members representing LDSOs confirmed that they are able to validate this data prior to submission, granting further certainty. As such it was decided

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that LDSO costs for DCEs should be considered to involve only one submission of the P0238 files.

The Group believed that the costs LDSOs incur are relatively unaffected by the number of MSIDs as their processes are largely automated, as shown in the RFI data. The total costs of a DCE in terms of LDSOs would depend on the number of different companies and MPIDs impacted.

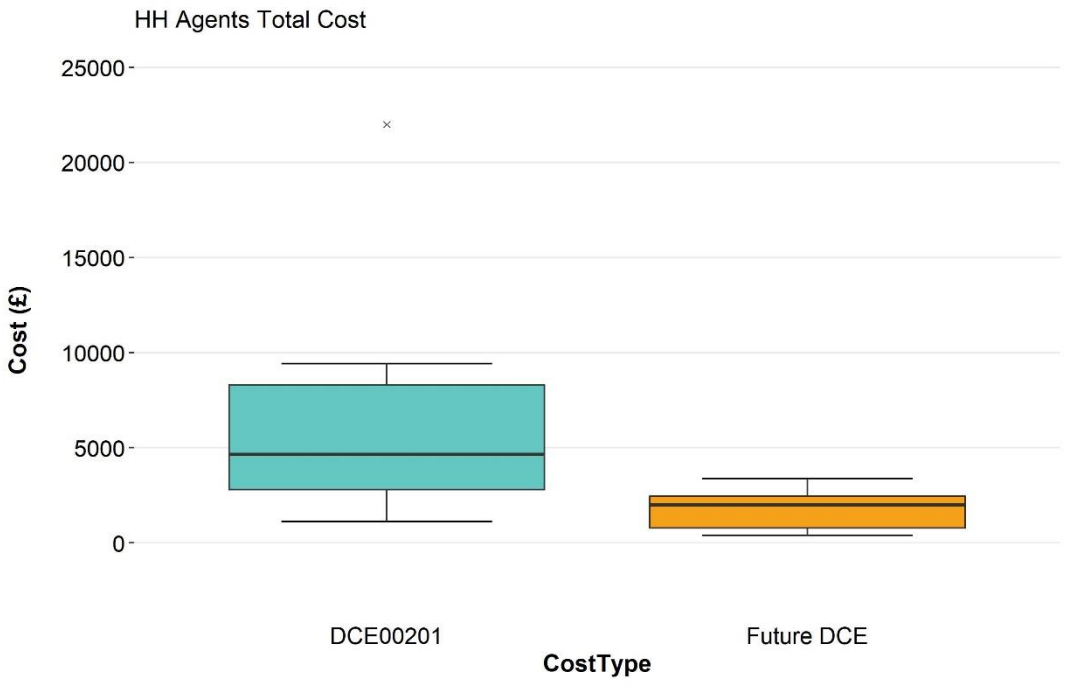
HH Agents costs

DCE00201 costs for HH from RFI responses were scaled up to a total cost of £51,500.

Future DCE costs per HH Agent were scaled up to a total cost of £12,658. By dividing this by the number of HH Agent MPIDs[8] affected during DCE00201 (11), the average cost per HH Agent MPID was £1,151.

As RFI responses from some Agents were not split by MPID, HH Agent total costs were grouped by company. For DCE00201, total costs ranged from £1,125 to £22,000. The large range in costs was due to differences in implementing IT systems to process and create data files. For example, one Agent noted large costs due to implementing IT changes themselves, whereas another Agent saw minimal costs as IT changes were handled as part of an existing third party contract.

For future DCEs, costs reduced across all HH Agents with total costs ranging from £400 to £3,400. These were more closely grouped than DCE00201 costs, as file formats have now been defined and IT systems implemented.



Members (including those employed by HH DC and DA Party Agents) believed the total costs of HH Agents vary in line with the number of impacted MSIDs. Members attributed

[8] Note that where a HH Agent performs DA and DC roles they are treated as a single Agent

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this to the fact HH sites are more MSID specific and typically require more manual interventions and validations (I.e. SAP require estimation of individual HH MSID disconnection volumes) than their NHH counterparts (which determine an aggregated estimate of disconnected volumes), which are batch processed. The Issue Group concluded that HH Agent costs should be considered on a per MSID basis.

To produce a HH Agent cost per affected MSID, we divided the total cost (£12,658) by the number of HH MSIDs affected (3,918) to a cost of £3.23 per MSID.

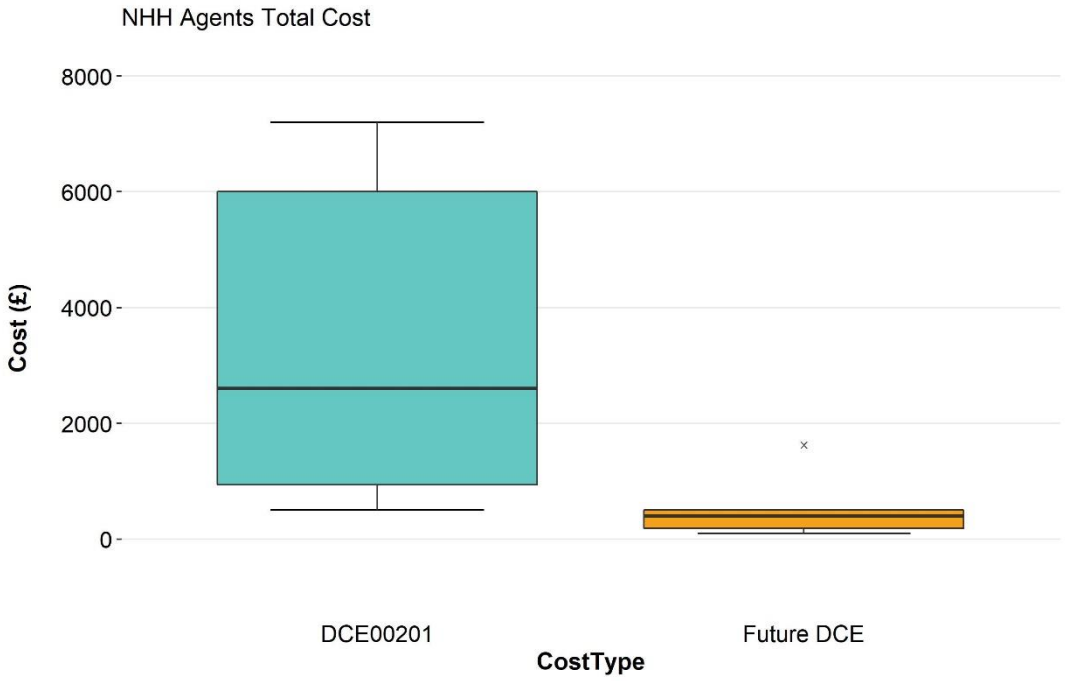
NHH Agents costs

DCE00201 costs for NHH Agents from RFI responses were scaled up to a total cost of £86,190.

Future DCE costs per NHH Agent were scaled up to a total cost of £14,065. By dividing this by the number of NHH Agent MPIDs affected during DCE00201 (13), the average cost per NHH Agent MPID was £1,082.

NHH Agent total costs were also grouped by company due to the nature of RFI responses. For DCE00201, total costs ranged from £500 to £7,200. RFI responses again accredited the larger range in costs with upgrading and patching of the existing IT system used by all NHH Agents.

For Future DCEs, NHH Agents saw significant reductions in total costs, with these costs now ranging from £100 to £1,625. This was due to IT systems having been upgraded/patched, meaning the creation of files for future DCEs is largely automated.



The Group believed, supported by RFI responses, the significant higher costs for DCE00201 compared to future events was caused by the initial teething troubles, such as data flows not being accepted by system gateways and system patches being required. Both these issues are expected to be resolved in the near future, and so should not impact any future DCEs.

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Upon considering the responses to the RFI, Issue Group Members concluded NHH Agents' costs were not significantly impacted by the number of impacted MSIDs within a DCE, and all Agents saw a reduction in costs moving forward. The Issue Group concluded that NHH Agent costs should be considered on a per event/per MPID basis, as NHH Agents costs are relatively unaffected by the number of MSIDs as their processes are largely automated. The total costs of a DCE in terms of NHH Agents would depend on the number of different companies and MPIDs impacted respectively, as is the case for LDSOs.

It is worth noting that our understanding of NHH costs are that they are not MSID-sensitive, however the upscaling relies on MSIDs. For example, the missing 80% of MSIDs might be served by just one Agent in which case the costs only increase by one additional Agent, which is 1/x of the costs provided by the other x Agents. 1/x of the Agents is not likely to be the same as the total cost of x Agents scaled up. It is not a perfect representation of costs, but under the circumstances (i.e. limited responses) it was the best way to extrapolate the total cost.

Consideration of the P397 solution

This disparity in the generation of costs for all calculations (i.e. between DCE00201, future_simple and future_refined costs) made Members question the calculations of DCE cost in the P397 solution, posing that a 'one size fits all' approach may not be appropriate. The original proposed P397 rules mean that the DCE costs are set in advance assuming all LDSOs and Agents are affected, and are not based on the event being assessed (or else ELEXON would have to consult impacted parties to help set the cost, which would not be practical in the time available).

The Members believed that if an additional step were included to calculate the HH per MSID cost and to determine LDSO and NHH Agent costs based only on those affected, a more specific cost could be calculated for the DCE being assessed. However, the additional step would require LDSOs to incur its SAP costs. An additional step would also extend the process by 7WD in addition to the 1WD required for the first step. 5WD would be required for LDSOs to send the P0238 file(s) to ELEXON, and ELEXON would take 2WD to process these files. However, the Group believed that the additional cost associated with running this step would likely be outweighed by the benefits of more specific costs and would ensure the SAP were only run where the DCE value outweighed the DCE costs.

To add this additional step, ELEXON would need to know the number of HH Metering Systems impacted by the DCE, and multiply the number of HH Metering Systems by a 'HH Metering System DCE Cost'. The Group discussed the best way of providing this to ELEXON. The Group considered asking the LDSOs to provide a new report or amending the existing DCE Report from LDSOs to ELEXON (P0238 'MSIDs affected by Demand Control Event'). Both of these approaches would require further impact assessment and implementation costs. The Group concluded that the existing P0238 report could be used by ELEXON to determine the number of HH MSIDs. ELEXON would do this by comparing MSIDs in the P0238 file(s) with data in our systems to ascertain their Profile Classes.

Full details of the solution Options can be found in Section 3.

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Solution Recommendations

ELEXON recommends that the Business Rules be amended in line with Option 1 (i.e. the original P397 solution updated with findings from the RFI), as described in Section 3.

If the Panel agrees to amend the P397 solution (in accordance with Section F 2.7A.7(c)), then we recommend that industry is consulted on the amended solution and the responses presented to the Panel at its meeting on 13 August 2020. This would delay the issuing of the Final Modification Report to Ofgem by one month.

Alternatively the Panel may decide to either:

- amend the P397 solution but not consult industry, in which case we will issue a revised Modification Report to Ofgem with revised redlining; or
- not make any changes to the P397 solution, in which case we will issue this revised Modification Report to Ofgem.

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10 Recommendations

We invite the Panel to:

- AGREE that the P397 solution should be amended to incorporate Option 1, in line with the Issue 89 Group recommendation;
- AGREE that P397:
    - **DOES** better facilitate Applicable BSC Objective (c);
    - **DOES** better facilitate Applicable BSC Objective (d);
- AGREE an initial recommendation that P397 should be **approved**;
- AGREE an initial Implementation Date of 5WD following Authority approval
- AGREE the BSC legal text;
- AGREE the Code Subsidiary Documents;
- AGREE the revised new 'Demand Disconnection Event Threshold Rules' document;
- AGREE to re-issue P397 for Report Phase Consultation;
- NOTE that ELEXON will issue the revised Draft Modification Report (including the revised draft BSC legal text) for a 12 Working Day Consultation and will present the results to the Panel at its meeting on 13 August 2020.

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Appendix 1: Description of Solution Options

Option	Description	Time Required*	Cost of running checks	Benefits	Drawbacks
1	• Original P397 solution, updated using RFI data; if DCE_Cost is more than DCE_Value, SAP will NOT be run.	1 WD	Minimal (<£500)	• Decision made quickly • Non-discriminatory amongst Parties • Cheapest solution • Based on cost data that better reflects industry's expected costs (as opposed to the original solution)	• Least specific DCE_Costs • Does not account for number of HH MSIDs impacted
2	• Amended solution as suggested by Issue 89 workgroup. Initial calculation same as Option 1; if DCE_Cost is more than DCE_Value, SAP will NOT be run. • If DCE_Cost is less than DCE_Value, second check is run based on P0238 files provided by LDSOs. • If DCE_Cost calculated using second step methodology is less than DCE_Value, SAP will NOT be run – otherwise SAP will be run	8WDs (1WD for step 1 check; 7WDs for step 2 check)	Maximum of c£27k, Will vary depending on LDSOs affected.	• More specific DCE_Costs • Based on number of actual impacted LDSOs and Agents • Based on actual number of HH MSIDs impacted • Seeks to provide a swift solution based on Option 1 method	• Adds complexity to decision • Final decision could take 8 WDs • More expensive than Option 1 due to LDSO costs • Discriminatory to LDSOs as they have to produce P0238 files even if SAP not run. • Results in perverse outcomes as described in the example in Section 3.
3	• Initial calculation from Option 2 skipped; process begins with second step calculation • Calculations based on P0238 files provided by LDSOs. • If DCE_Cost calculated using second step methodology is less than DCE_Value, SAP will NOT be run – otherwise SAP will be run	7WDs	Maximum of c£27k, Will vary depending on LDSOs affected.	• More specific DCE_Costs • Based on number of actual impacted LDSOs and Agents • Based on actual number of HH MSIDs impacted • Save 1WD vs Option 2 • Avoids perverse costs of Option 2 but retains more specific costs	• Adds complexity to decision • Final decision could take 7 WDs • More expensive than Option 1 due to LDSO costs • Discriminatory to LDSOs as they have to produce P0238 files even if SAP not run.

Appendix 2: Glossary & References

Acronyms

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

Acronym	
Acronym	Definition
ALFDD	Automatic Low Frequency Demand Disconnection
BMRA	Balancing Mechanism Reporting Agent
BMUADDV	BM Unit Allocated Demand Disconnection Volume
BSC	Balancing and Settlement Code
BSCCo	Balancing and Settlement Code Company
BSCP	Balancing and Settlement Code Procedure
CDCA	Central Data Collection Agency
DCE	Demand Control Event
EBSCR	Electricity Balancing Significant Code Review
HHDA	Half Hourly Data Aggregator
HHDC	Half Hourly Data Collector
IWA	Initial Written Assessment
MPID	Market Participant Identifier
MSID	Metering System Identifier
NETSO	National Electricity Transmission System Operator
NHHDA	Non Half Hourly Data Aggregator
NHHDC	Non Half Hourly Data Collector
NIV	Net Imbalance Volume
LDSO	Licensed Distribution System Operator
QDD	Period BM Unit Demand Disconnection Volume
RF	Final Settlement Run
SAP	Settlement Adjustment Processes
SO	System Operator
SVA	Supplier Volume Allocation
VoLL	Value of Lost Load
WD	Working Day

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.

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External Links		
Page(s)	Description	URL
3	P305	https://www.elexon.co.uk/mod-proposal/p305/
3	Technical Report on the events of 9 August 2019	https://www.nationalgrideso.com/document/152346/download
4	Imbalance Pricing Guidance Note	https://www.elexon.co.uk/documents/training-guidance/bsc-guidance-notes/imbalance-pricing/
4	Grid Code OC6	https://www.nationalgrideso.com/document/33866/download
5	Electricity Balancing Significant Code Review	https://www.ofgem.gov.uk/electricity/wholesale-market/market-efficiency-review-and-reform/electricity-balancing-significant-code-review
12	SVA Data Catalogue Volume 1	https://www.elexon.co.uk/documents/bsc-codes/business-definition-documents/sva-data-catalogue-volume-1-2/
15	BSC Panel meeting 297	https://www.elexon.co.uk/meeting/bsc-panel-297/
21	BSC Panel meeting 298	https://www.elexon.co.uk/meeting/bsc-panel-298/

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