

## Issue 89 'Ensuring Demand Control Event (DCE) procedures remain fit for purpose'



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**Contact****Craig Murray**

020 7380 4201

[Craig.murray@elexon.co.uk](mailto:Craig.murray@elexon.co.uk)

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### About This Document

This document is the Issue 89 Group's Report to the BSC Panel. Elexon will table this report at the Panel's meeting on 10 June 2021. It provides a summary of the Issue Group's discussions and recommendations.

# 1 Summary

Issue 89 was raised on 23 March 2020 with two main purposes: to review the first instance of the SAP being used to determine whether they are 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.

## Background

Settlement Adjustment Processes (SAPs - also known as the 'bottom-up' processes) introduced into the Balancing and Settlement Code (BSC) under [P305 'Electricity Balancing Significant Code Review Developments'](#) in November 2015 were operated for the first time following the [Demand Control Event \(DCE\) which occurred on 9 August 2019](#). Parties, Party Agents and Central Systems encountered difficulties on first use. Issue 89 was raised as a 'lessons learned' exercise to determine exactly what these difficulties were and how they could be resolved or mitigated for any future events.

The BSC Panel was also concerned that the benefits of operating the SAP may not always outweigh the costs of doing so. It raised [P397 'Assessing the costs and benefits of adjusting Parties' Imbalances following a demand disconnection'](#) to address these concerns. The Panel submitted P397 to Ofgem with a recommendation to approve on 24 January 2020. Ofgem subsequently sent P397 back to the Panel requesting further information on the costs of operating the SAPs to inform its decision, noting that this was not available when P397 was submitted to Ofgem.

Issue 89 was therefore also raised to act as a vehicle to gather cost information from impacted market participants. Using the data and recommendations from Issue 89, P397 was re-submitted to Ofgem with a recommendation to approve on 14 August 2020. Ofgem subsequently approved the Modification on 5 October 2020 and was implemented on 12 October 2020 as an ad hoc Release.

## Conclusions

The Issue Group agreed:

- Minor improvements to clarify the Code Subsidiary Documents should be taken forward in a Change Proposal within 12 months;
- A dedicated page on the BSC Website should be created to provide information and guidance on DCE processes and any current DCEs;
- A new guidance note should be developed as part of the Change Proposal described above and published on the standalone page of the BSC Website also described above; and
- Irrespective of the outcome of P397, no further amendments to the SAP should be made as the costs of any further amendments would outweigh the likely costs associated with running the SAPs. More generally, the Issue Group concluded that the costs associated with the SAPs are not seen as significant enough to justify the associated effort of further amendments.

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### What is a Demand Control Event?

If the National Electricity Transmission System Operator (NETSO) is unable to call on sufficient generation, or reduce demand, to meet the current demand on the Total 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 NETSO to instruct Licensed Distribution System Operators (LDSOs) to reduce demand on their distribution systems, through;

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

These DCEs are provided for in Grid Code OC6.

An LDSO typically may be required to reduce demand in blocks of approximately 5% of its total demand, and is required to respond to NETSO's instruction within five minutes of it being issued. It is usually left to the LDSO to determine how it achieves the instructed reduction by implementing a pre-determined plan agreed between NETSO and the LDSO, 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. The ALFDD process is delivered automatically based on pre-configured demand reduction patterns.

### What are the P305 processes?

Settlement Adjustment Processes were implemented as part of [P305 'Electricity Balancing Significant Code Review Developments'](#), a Modification that was raised to progress the outcomes of Ofgem's [Electricity Balancing Significant Code Review \(EBSCR\)](#). One of the EBSCR's key outcomes was the requirement to add Demand Control actions into the calculation of Imbalance prices, 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, the Imbalance Volume correction works as follows. Following a DCE that results in demand disconnection (not voltage reduction), the BSC requires that LDSOs, NETSO, Party Agents, BSC Agents, and Elexon work together to estimate the electricity that would have been Imported or Exported by disconnected customers. Metering System level estimates are aggregated to BMU level (i.e. BM Unit Allocated Demand Disconnection Volume (BMUADDV) and Period BM Unit Demand Disconnection Volume (QDD)) and are included in Trading Parties' Imbalance Volumes as though the DCE was the provision of a Balancing Service by the Trading Party. These are known as the Settlement Adjustment Processes.

A DCE is an urgent emergency action(s) taken by NETSO. However, it may cause Parties' Imbalance volumes to be longer than they might otherwise have been. This is because a DCE is not an action voluntarily taken by a Party and its customers. 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 Settlement Adjustment Processes were designed to ensure the accurate calculations of Parties' Imbalance volumes that reflect the actions they take (or had planned to take) voluntarily and so Trading Parties do not benefit or suffer from the effects of a DCE that is outside of their control.

More details of the Settlement adjustment processes can be found in the [P305 Final Modification Report](#).

### **P397 – Assessing the costs and benefits of adjusting Parties' Imbalances following a demand disconnection**

Following the DCE on 9 August 2019, the BSC Panel was concerned that it may not be efficient to run the SAP in all circumstances (i.e. the benefit would not outweigh the cost). It raised P397 in December 2019 to introduce a threshold where the SAP would not be run if the estimated costs of operating the SAPs were greater than the benefits<sup>1</sup>. This was sent to Ofgem for decision in January 2020 with a recommendation to approve.

Ofgem issued a Send Back Direction per Section F 2.7A 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 to enable them to make a robust decision. In its letter Ofgem requested further analysis to be conducted, which would set out:

- 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
- The cost of running the SAP following the DCE on 9 August 2019.

As outlined in Section F 2.7A, Elexon presented the Send Back Letter to the Panel and explained 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 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 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.

Using the information gathered as part of this Issue, P397 was re-submitted to Ofgem with a recommendation to approve on 14 August 2020. Ofgem subsequently approved the Modification on 5 October 2020 and was implemented on 12 October 2020 as an ad hoc Release.

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<sup>1</sup> The benefit of the SAPs is the volume of disconnected energy multiplied by the Imbalance Price for the affected Settlement Period(s). It represents the value of the disconnected energy which ought to be attributed to Suppliers.

### Request for Information and P397

In order to support the P397 send back request from Ofgem, 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 and responses

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).

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.

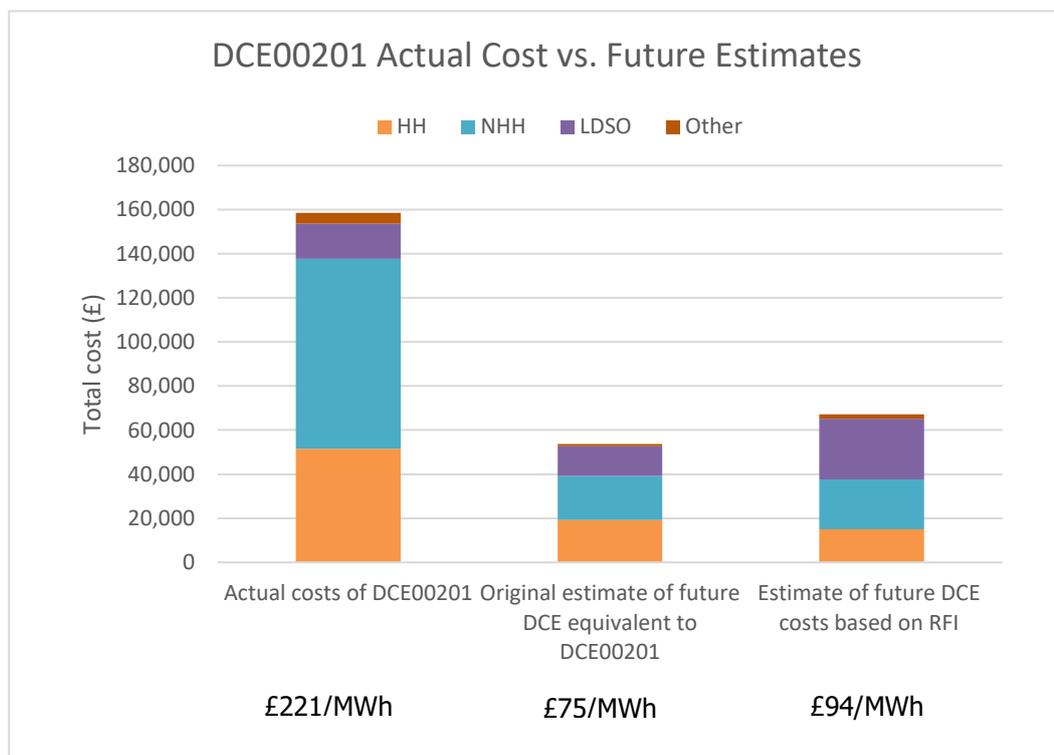
## Issues with the RFI submitted data

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 'MSIDs affected by Demand Control Event' 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.

## RFI Analysis

### 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 first 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.

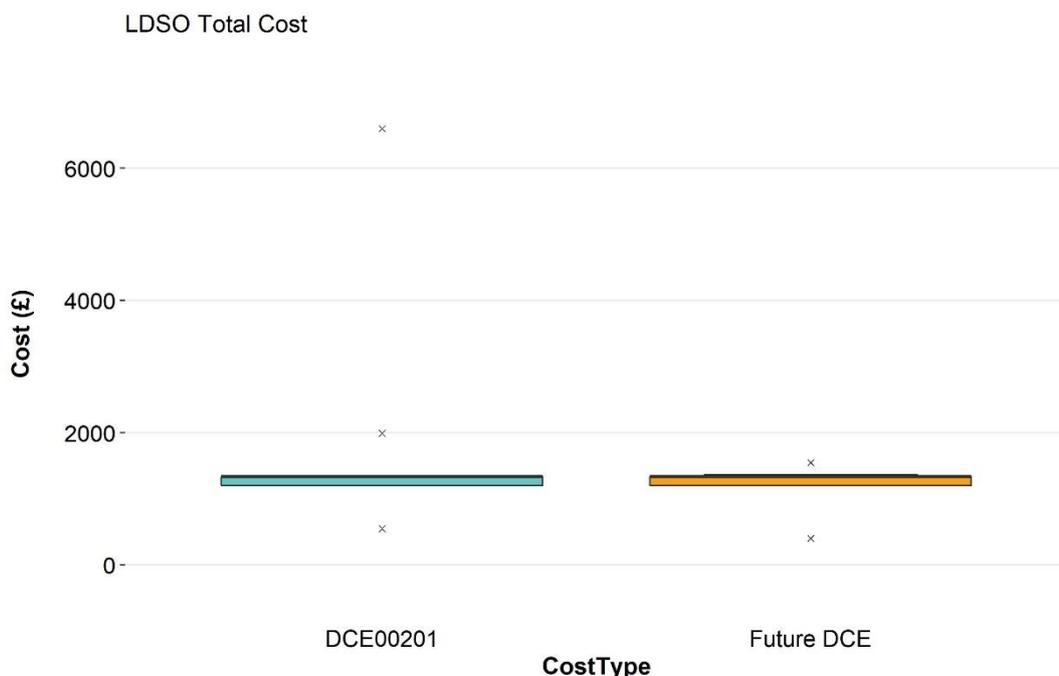
### LDSO costs

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 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<sup>2</sup> 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.

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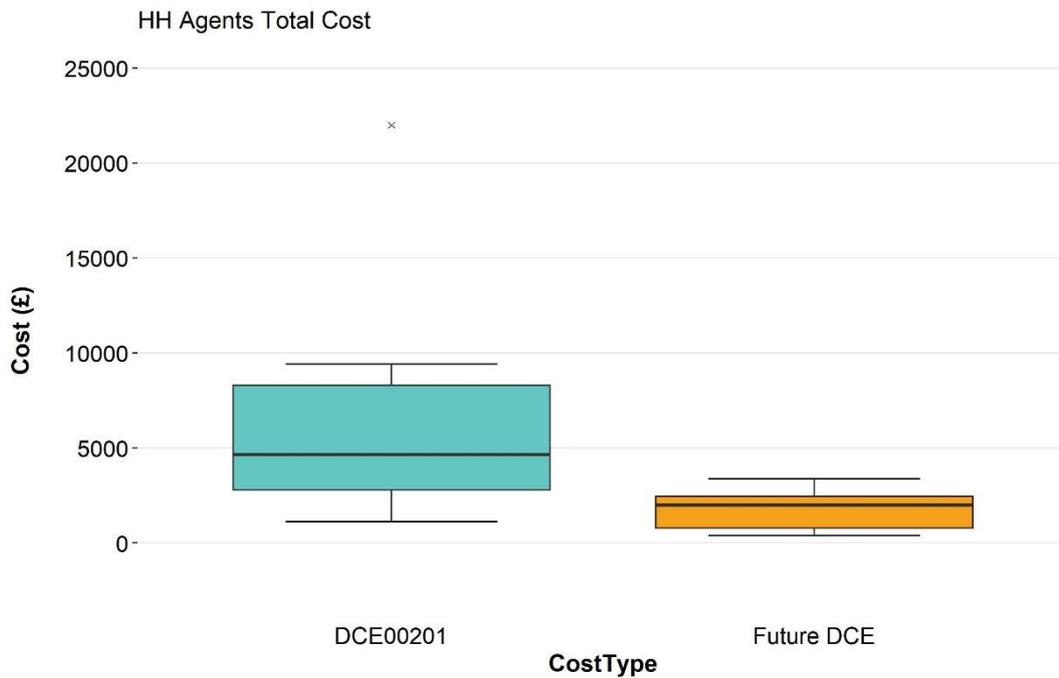
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<sup>2</sup> Note that where a HH Agent performs DA and DC roles they are treated as a single Agent



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 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.

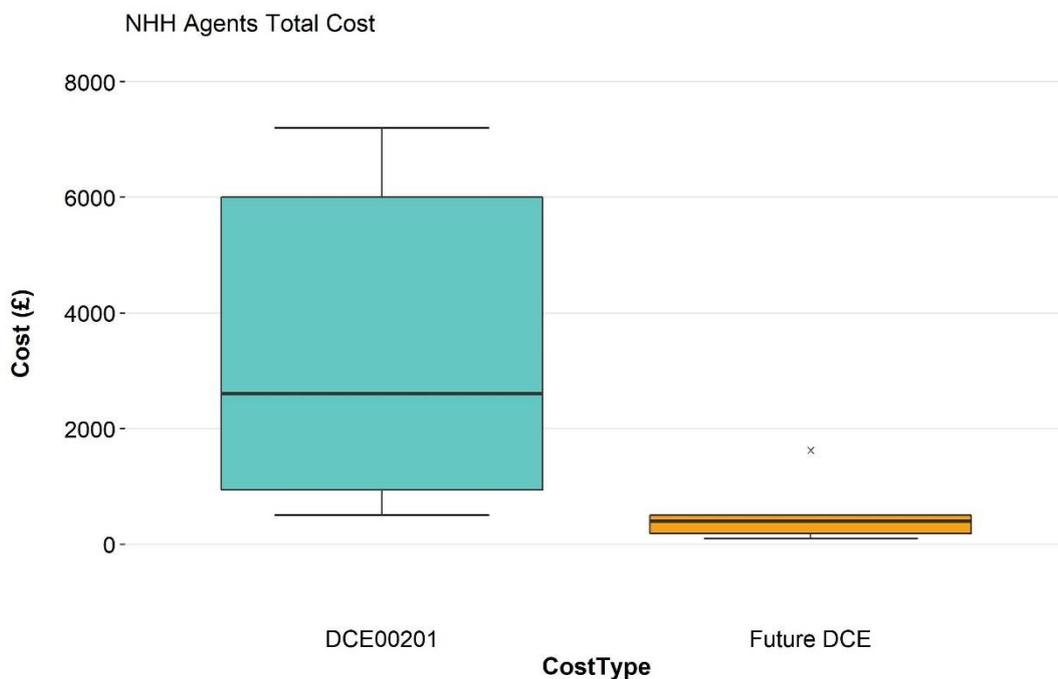
### NHH Agents costs

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.

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. 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.

With these discussions in mind, three possible solutions emerged:

- **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.

The Panel ultimately decided to adopt option 1, as described in the P397 Modification Report, but the three options are described in detail below.

## 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 **£93.99/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.

**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<sup>3</sup> 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<sup>4</sup>;
- 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<sup>5</sup>) 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

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<sup>3</sup> 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](#).

<sup>4</sup> Elexon is able to determine the number of HH MSIDs by cross-referencing the P0238 data against our systems

<sup>5</sup> 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

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).

## 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** (note this is a higher value than option 1 as it includes an additional cost of £1,200 for Elexon to carry out the second step). 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:

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- NHH Agent costs = £1,082 per Agent
- HH Agent costs = £3.23 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.

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.

## Issue Group 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 was 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. The Issue Group members who responded to this communication supported Elexon's approach (4 of the 10 attendees at the second meeting for Issue 89). The Panel ultimately adopted this solution, which was subsequently approved by Ofgem

## Lessons Learned

The Issue Group considered the experience of carrying out the SAP for the first time since P305 was implemented and following DCE00201. They considered how best to ensure any mistakes were not repeated in future and to identify any improvements.

## Central Systems and Party Agents' systems

During the SAP for DCE00201, it was found that some systems did not operate as expected. This led to delays and issues with submission of data files by Parties, and required updates/patches to systems:

- NHH Data Loader issue: Only 999 rows of data from the P0238 were loaded before the loader began to overwrite data. SVAA spotted this issue when loading the P0238. Elexon worked with its service provider to create a temporary scripted solution, followed by a patch for NHH DAs to apply to their systems. This allowed the P0238 to load into EAC/AA. At that point it was agreed that a single consolidated file would be created to reduce risk of some files being missed and not loaded;
- D0377 'Disconnection Purchase Matrix Data File' format issue: D0377 files were created by the NHHDA system with formatting issues. For example, the SVA Data Catalogue does not match SVAA Technical Specifications (e.g. Profile Class is included in the Data Catalogue but not in the Technical Specification; it was agreed that Profile Class is not required). Elexon worked with its service provider to create a patch to correct this. NHH DAs applied this patch to their systems and regenerated D0377 files for DCE00201;
- Elexon made all NHH DAs aware that these patches (for the P0238 and D0377) needed to be applied to ensure systems correctly loaded and created SAP data files, and published these patches on the [NHHDA Software](#) page of the Elexon Portal; and
- Some Party Agents' DTN Gateways were not configured to send D0377 and D0378 data flows. Consequently files were sent to Elexon via email, and manually loaded by our service provider. Party Agents have since updated their systems and

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DTN Gateways so these flows are now accepted and sent across the DTN. Manual loading of flows should not be required going forward, but this capability will be kept as a 'workaround'.

Issue Group Members agreed that these were all the issues experienced when trying to produce, send and load the files and the solutions described above mean no ongoing issues are expected.

## Code Subsidiary Documents

Members highlighted that during the SAP for DCE00201, industry participants found some documentation to be unclear or contradictory. For example, participants felt the meaning of and treatment of an 'affected MSID' was unclear in the BSC and BSCPs. That is, it was unclear to LDSOs which MSIDs they should report in the P0238 and for how long they should report the MSIDs as being disconnected. Regarding the second point, the Issue Group noted that different MSIDs were disconnected for different periods of time during DCE00201, some were disconnected for a shorter period and some a longer period of time than NETSO's DCI for DCE00201. Members noted that all disconnected MSIDs should be included in the P0238 because it would be too difficult to produce lists of individually affected MSIDs per Party Agent, and that the P0238 would need to be continuously updated as Party Agents are Appointed/De-Appointed. The downside of this approach is that it results in larger file sizes, which can be difficult to load into the relevant systems.

Elexon clarified that an affected MSID should be any MSID that an LDSO disconnects due to a DCE and that the period of disconnection should match the length of the DCE as reported by NETSO in its DCI(s), regardless of the actual period of disconnection. For example, even if an MSID was only disconnected for five minutes in a DCE that impacted six Settlement Periods, it should be treated as if it was disconnected for all six Settlement Periods.

However, a Member noted that a consequence of this meaning would be that estimated disconnection volumes will not accurately reflect the actual disconnection volumes. This is because there is a difference between the actual periods of disconnection and the periods reported in DCIs sent by the NETSO. Members discussed the possibility of incorporating specific MSID volume impacts into the SAP that would be necessary to identify and report individual MSID disconnection periods and to calculate individual MSID disconnection volumes using these specific disconnection periods. They considered that targeted analysis would be needed to identify and compare the overall costs and benefits of a more specific calculation versus a more general approach (i.e. as is currently the case and which does not work out the specific effect of the DCE on each impacted MSID). This would require the assistance of LDSOs impacted by DCE00201. A Member noted that including a requirement to accurately determine the impact of a DCE on individual MSIDs would incur both implementation costs and increased operational costs, in addition to the costs associated with the analysis. Members agreed that the costs of investigating and potentially implementing such a change are not proportional or justified as these events are incredibly rare. The group recognised that whilst the current approach may not produce the most accurate calculation of disconnection volumes the alternative would be a more complex, time consuming and likely more costly solution. Based on the group's consideration of the likely operation of the solution and the effort to test it, they decided not to carry out further assessment.

In another example, [BSCP502 'Half Hourly Data Collection for SVA Metering Systems registered in SMRS'](#) states that if P0238 files are received from different MPIDs for the

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same DCE the existing data should be overwritten. This is incorrect, as the new data should be appended to the existing data.

In addition to inconsistencies within the BSCPs, some file formats also appeared to be unclear or include/exclude required information. For example, the SVA Data Catalogue does not match SVAA Technical Specifications (e.g. Profile Class is included in the Data Catalogue but not in the Technical Specification; it was agreed that Profile Class is not required).

Members also noted that their responsibilities were not immediately clear as they are spread across numerous BSCPs and CSDs and different documents sometimes described participant's roles and/or responsibilities differently. The Group agreed that:

- A guidance note specifically related to DCEs should be created and published on the BSC Website; and
- The clarifications detailed in Appendix 2 should be incorporated, alongside a review of the DCE requirements across the Code Subsidiary Documents (CSDs) to increase clarity of the DCE SAP for market participants.

## End to End Testing

Issue Group Members pointed out that full end-to-end testing had never been completed for the SAP as part of the implementation of P305. This likely contributed to many of the errors encountered in carrying out the processes for the first time. Members discussed the merits of performing end-to-end testing in future.

Members heard that, although the inaugural performance of the SAP could be considered as a full end-to-end test, this was not performed with the standardised controls and feedback associated with standard testing. Additionally, some requirements were relaxed for the sake of pragmatism, allowing impacted parties to submit their data in time for relevant Settlement Runs. The Group considered:

- Conducting a one-off test;
- Conducting periodic tests; or
- Conducting no further testing.

Members did not believe a one-off test would have much value, believing that a full E2E testing would be time consuming and costly and that the recent running of the SAPs may well have already fulfilled this purpose.

They noted that systems change a lot in five years, and staff turnover/movement is also likely to be significant in that time. Therefore the Issue Group considered the value of performing scheduled testing either annually or biannually, rather than relying on a single one-off test. Again, Members noted that testing would take a considerable amount of time and resource. On the assumption that DCEs are infrequent events (less than once every five years) the Issue Group believed the cost of regular testing would likely outweigh the benefits of doing the testing.

The Group concluded that no further testing should be mandated but that other recommendations to do with providing guidance and clarifying the processes, described elsewhere in this report, would help to ensure that staff and systems remain up to date.

The Group noted that failure to follow the SAP presents a risk to Settlement and considered that the ongoing nature of the BSC's Performance Assurance Framework should also provide a means of monitoring Parties' abilities to follow the SAP and where necessary deploying mitigating or corrective actions. As such the Group agreed that the PAB should consider how best to monitor the SAP as part of the PAF.

## Communications

Members highlighted that the communications around the SAP were not always clear. Currently, the only requirement for BSCCo in relation to communicating a DCE is to publish the action on the Balancing Mechanism Reporting Service (BMRS). In accordance with the BSC and BSCPs, BMRA is required to publish details of the Demand Control Instructions sent to it by NETSO. Whilst not required to do so, BSCCo published Elexon Circulars in relation to DCE009. However, Members felt that these were not delivered in a sufficiently timely manner. It was explained that the speed at which initial communications were issued was related to the nature of the DCE itself. Elexon was unable to circulate the both necessary information (DCIs) and supplementary information (Elexon Circulars) to industry without first receiving it from the NETSO and that NETSO only sent DCIs and confirmed the DCE several days after the event.

As per BSC Section Q 6.9, NETSO is required to send Demand Control Instructions within 15 minutes of a DCE commencing or ending. However, as the DCE was classified as ALFDD, the NETSO was not able to deliver this as it did not have the information to hand itself. The NETSO representative explained that in a 'typical' DCE, the NETSO would determine the load to be disconnected, by which LDSOs and when, and it could then deliver that information to Elexon in a timely manner. However, as the demand was disconnected automatically it was not immediately clear how much load, let alone which MSIDs were impacted and for how long. As the control room's priority was on restoring the system, this information took longer than prescribed to determine and deliver. The Group noted that BSC Section Q6.9 allows for this risk (Q6.9.1 - '...times by which the NETSO is to send data to the BMRA are target times, which the NETSO is expected to meet unless abnormal circumstances prevent it from doing so.').

Members also noted that there was not a clear single point of contact within Elexon to contact in relation to the SAP. Further, there was not a DCE contact list for Elexon, so it was not clear who or how best to contact dedicated staff/teams within the impacted Parties and Party Agents.

Due to the system and process issues encountered in following the SAP, Elexon needed to work with LDSOs and Party Agents to find solutions as they arose. This meant Elexon, LDSOs and Party Agents deviated from the prescribed processes and implemented solutions or workarounds, sometimes at short notice, for the sake of pragmatism (e.g. in relaxing the requirements of file formats). The lack of consistent updates meant that it was not always clear where certain rules were relaxed and how any deviations applied to some or all Parties and Party Agents. Members recognised that Elexon sought to be pragmatic but at times this was at the cost of consistency and may not have always been fair.

The Group concluded that the following improvements should be made, and where appropriate captured in Code Subsidiary Documents:

- Within 1WD of receiving a DCE Instruction from NETSO and publishing it on BMRS, Elexon will

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- Send details of DCEs to all Category A Authorised Persons
- Publish details of the DCE, e.g. in an Elexon Circular
- Where SAP must be followed for a DCE, Elexon will liaise with impacted LDSOs and Party Agents to establish points of contact for ensuring direct communications with those involved in the process.
  - These contact details will be discarded following the completion of SAP and refreshed for each future DCE.
- Elexon will endeavour to ensure that in future we communicate as consistently and publicly as possible to ensure that all Parties and Party Agents are treated as fairly as possible.
- Elexon should establish a dedicated page on the Elexon website for describing how Demand Control Events are treated under the BSC, publish guidance on BSC requirements and processes for Parties and Party Agents, and publish details of ongoing and past events.

## Case for Further Change

The Issue Group heard the case for more fundamental changes to the SAP, beyond the 'tightening up' of the existing processes. Members were asked to consider whether the circumstances for making adjustments to Parties' Imbalances following a DCE remain fit for purpose, as well as whether the current rules take account of disconnected activities on the Distribution Networks, in particular distributed generation.

## Embedded Generation

The Issue Group considered that the nature of DCEs has changed. The original expectation of the circumstances around a DCE was that there would be a shortage of generation capacity. However, Electricity Market Reform (EMR) arrangements (i.e. Capacity Market and Contracts for Difference) have ensured security of capacity. These arrangements also helped facilitate the growth of distributed generation across GB. As a result of these developments, the NETSO's focus is changing from energy balancing to system management. In simple terms this means that the growth of intermittent, distributed generation means that the NETSO is less concerned with ensuring that there is enough generation to meet demand. NETSO is instead focusing more on most efficiently utilising the generation available across the system, managing system operation and quality, and ensuring that there is not too much generation.

Members noted that whilst the NETSO aimed to disconnect 5% of demand during DCE00201, it only achieved 3.4% demand disconnection volumes. This was in large part due to the disconnection of embedded generation that is now widespread across distribution networks. Members considered the best way to address this issue. The NETSO representative highlighted that the Energy Emergencies Executive Committee (E3C) Power Disruption Implementation Group (PDIG) is considering the ALFDD scheme, including its applications and administration by LDSOs. One action to come out of the PDIG is to make ALFDD DCEs more discriminatory to ensure less distributed generation is disconnected in any future DCEs. Members noted that the group is not public, however the NETSO representative highlighted that it has wide representation from across industry (e.g. Electricity Networks Association, LDSOs, NETSO etc). Such a change would likely be

progressed under the Grid Code to modify the provisions therein related to Demand Control.

The Group also considered whether there was a case for better reflecting the impacts of distributed generation, and disconnecting distributed generation, on Supplier's metered positions and the calculation of System Prices. The Group noted that the processes, and therefore this Issue, are focused on the estimation of disconnected demand not disconnected distributed generation.

The general conclusion of the Issue Group was that there is not enough information to determine the scale and effect of embedded generation on demand disconnection values and this requires further research<sup>6</sup> and coordination between industry codes before developing solutions.

### **Types of DCE - SO Flagged DCIs**

All Demand Control actions contribute towards the calculation of the Imbalance Price, despite whether or not they are flagged as System Operation (SO) actions. SO Flagged actions are repriced at the next most expensive action, on the basis that the action may not otherwise have been taken and therefore the price not reflective of the overall cost of balancing the system<sup>7</sup>.

The Issue Group considered whether SO Flagged DCIs should feature in the imbalance price stack and whether they should be considered in the calculation of DCE adjustments to metered positions. The conclusion was that despite the validity of the price, the volume still contributes to the imbalance position and to the magnitude of a DCE adjustment. The additional cost of processing these actions in the System Price calculation is negligible, and therefore there is value in processing SO Flagged DCIs in the same way as non-SO flagged DCIs.

### **Materiality**

One argument to look at fundamental change to the SAP would be the materiality of a DCE. However, Members noted that the outcomes of the RFI demonstrate that the costs of the SAP may not be as significant as initially thought. The overall costs for performing the SAP for DCE00201 were ~£38k, and P397 presents a pragmatic solution to ensure the SAP would not be run where it is not efficient to do so.

### **NHH Adjustment**

The Issue Group considered whether there is value in continuing to adjust AAs and estimate NHH disconnection volumes. Elexon explained that P305 showed that the benefit from adjusting Annualised Advances (AAs) may be modest, especially when considering that profiling is not an accurate reflection of actual use. Members noted that the rollout of advanced and smart Meters means that the proportion of NHH volume share is shrinking, however NHH Metered volumes still account for 50-60% of SVA daily Metered volumes. Members also noted that costs associated with the NHH SAP are largely sunk (EAC/AA software is already installed, so once list of NHH MSIDs are loaded the software largely automates the process) and that the average cost per NHH Party Agent MPID is only

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<sup>6</sup> [Grid Code Modification GC0147 further considers arrangements for the 'Last resort disconnection of Embedded Generation – enduring solution'](#) and may result in consequential BSC changes.

<sup>7</sup> Please see our [Imbalance Pricing Guidance document](#) for more information on the rules, calculations and processes employed to calculate System Prices.

£1,082 per DCE. Also, that making a change to remove the requirement to make NHH adjustments may result in costs that outweigh the benefits. Therefore, the group concluded that whilst the benefits may be marginal and diminishing, the costs to change may outweigh the benefits of leaving the processes alone.

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## 4 Conclusions

The workgroup considered the overall DCE process and determined that the current SAPs are generally fit for purpose. This is on the basis that DCEs are rare occurrences, and the cost of significantly amending the process was unlikely to result in sufficiently improved accuracy to be worth the investment. Despite this, a number of minor (and low cost) amendments were suggested to improve the process.

### Proposed amendments to the P397 solution

Following the Issue 89 Group's consideration of the RFI responses, three possible solutions emerged. The Panel adopted option 1 at its meeting on 9 July 2020 and was subsequently approved by Ofgem and implemented on 12 October 2020 as an ad hoc Release. Full details of all three options can be found on pages 10-15 of this report.

Option 1 was the original solution to P397 with minor amendments to clarify the process and calculations based on the findings of the RFI. 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.

### Process Improvements

Elexon agreed to take forward the following minor process improvements in a separate Change Proposal within 12 months.

### Code Subsidiary Documents

Elexon agreed to review and amend all relevant CSDs to ensure they were consistent and clear. Our current understanding of inconsistencies are described in Appendix 2. Elexon also agreed to draft a standalone guidance note related to the SAP and publish it on a dedicated webpage. As DCEs are relatively rare events, Members felt a single location of all relevant information would be invaluable in the case of a future vent given overall resource movement within and between organisations.

### End to End Testing

Members do not recommend testing at this stage on the assumption that these events are infrequent. They acknowledged that this recommendation may be revisited if DCEs become more frequent.

### Communications

The Group agreed the following proposals to improve Elexon's communications following a DCE, with the intention to make these requirements clear in the code subsidiary documents and guidance:

- Within 1WD of receiving a DCE Instruction from NETSO and publishing it on BMRS, Elexon will

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- Send details of DCEs to all Category A Authorised Persons
- Publish details of the DCE, e.g. in an Elexon Circular
- Where SAP must be followed for a DCE, Elexon will liaise with impacted LDSOs and Party Agents to establish points of contact for ensuring direct communications with those involved in the process.
  - These contact details will be discarded following the completion of SAP and refreshed for each future DCE.
- Elexon will endeavour to ensure that in future we communicate as consistently and publicly as possible to ensure that all Parties and Party Agents are treated as fairly as possible.
- Elexon should establish a dedicated page on the Elexon website for describing how Demand Control Events are treated under the BSC, publish guidance on BSC requirements and processes for Parties and Party Agents, and publish details of ongoing and past events.

## Case for Further Change

The Issue Group agreed that more fundamental change to the SAP are not necessary at this time as the materiality and frequency of DCEs are so low. Any costs associated with further analysis, implementation, or increased operational costs are therefore not justified. Furthermore, members agreed that P397 presented a pragmatic solution.

Members agreed to consider which forums are currently looking into active network managements by LDSOs and how distributed generation should be accounted for in Settlement. Based on the outcomes of these investigations, Elexon will consider whether to raise separate Issues to consider these points.

## Appendix 1: Description of P397 Solution Options

Option	Description	Time Required*	Cost of running checks	Benefits	Drawbacks
1	<ul style="list-style-type: none"> <li>Original P397 solution, updated using RFI data; if DCE_Cost is more than DCE_Value, SAP will NOT be run.</li> </ul>	1 WD	Minimal (£800)	<ul style="list-style-type: none"> <li>Decision made quickly</li> <li>Non-discriminatory amongst Parties</li> <li>Cheapest solution</li> <li>Based on cost data that better reflects industry's expected costs (as opposed to the original solution)</li> </ul>	<ul style="list-style-type: none"> <li>Least specific DCE_Costs</li> <li>Does not account for number of HH MSIDs impacted</li> </ul>
2	<ul style="list-style-type: none"> <li>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.</li> <li>If DCE_Cost is less than DCE_Value, second check is run based on P0238 files provided by LDSOs.</li> <li>If DCE_Cost calculated using second step methodology is less than DCE_Value, SAP will NOT be run – otherwise SAP will be run</li> </ul>	8WDs (1WD for step 1 check; 7WDs for step 2 check)	Maximum of c£27k, Will vary depending on LDSOs affected.	<ul style="list-style-type: none"> <li>More specific DCE_Costs</li> <li>Based on number of actual impacted LDSOs and Agents</li> <li>Based on actual number of HH MSIDs impacted</li> <li>Seeks to provide a swift solution based on Option 1 method</li> </ul>	<ul style="list-style-type: none"> <li>Adds complexity to decision</li> <li>Final decision could take 8 WDs</li> <li>More expensive than Option 1 due to LDSO costs</li> <li>Discriminatory to LDSOs as they have to produce P0238 files even if SAP not run.</li> <li>Results in perverse outcomes as described in the example in Section 3.</li> </ul>
3	<ul style="list-style-type: none"> <li>Initial calculation from Option 2 skipped; process begins with second step calculation</li> <li>Calculations based on P0238 files provided by LDSOs.</li> <li>If DCE_Cost calculated using second step methodology is less than DCE_Value, SAP will NOT be run – otherwise SAP will be run</li> </ul>	7WDs	Maximum of c£27k, Will vary depending on LDSOs affected.	<ul style="list-style-type: none"> <li>More specific DCE_Costs</li> <li>Based on number of actual impacted LDSOs and Agents</li> <li>Based on actual number of HH MSIDs impacted</li> <li>Save 1WD vs Option 2</li> <li>Avoids perverse costs of Option 2 but retains more specific costs</li> </ul>	<ul style="list-style-type: none"> <li>Adds complexity to decision</li> <li>Final decision could take 7 WDs</li> <li>More expensive than Option 1 due to LDSO costs</li> <li>Discriminatory to LDSOs as they have to produce P0238 files even if SAP not run.</li> </ul>

## Appendix 2: List of recommended SAP changes

Below is a table listing the known issues that occurred during the SAP of DCE00201 and the proposed solutions to be implemented by a Change Proposal. Please note that this list is not exhaustive; a thorough consistency review of the relevant BSCPs (BSCP03, BSCP502, BSCP503, BSCP504, BSCP505, BSCP508, BSCP515) will be undertaken as part of the Change Proposal.

Issue	Proposed Change
Profile Class field in D0377 documentation. The Profile Class field was contained within the SVA Data Catalogue but not the SVAA Technical Specifications. This resulted in inconsistencies in D0377 formatting.	The SVA Data Catalogues should be corrected by removing the Profile Class field.
Lack of definition of an affected MSID created confusion. Some metering systems were not disconnected for the entire duration of DCE00201, LDSOs questioned whether these should be included in the SAP.	Define an affected MSID in relevant BSCPs. An affected MSID should be any MSID that an LDSO disconnects due to a DCE and that the period of disconnection should match the length of the DCE as reported by NETSO in its DCI(s), regardless of the actual period of disconnection. For example, even if an MSID was only disconnected for five minutes in a DCE that impacted six Settlement Periods, it should be treated as if it was disconnected for all six Settlement Periods.
BSCP502 (page 77) states that a P0238 flow received from a different MPID but the same DCE ID will overwrite a previous P0238 with the same DCE ID.	BSCP502 should state that P0238 flows received from different MPIDs but the same DCE ID will append otherwise disconnected MSIDs contained within the original P0238 will be lost. See BSCP504 Page 140 for correct wording.
BSCP515 wording implies resubmission of P0238 flows is part of the SAP whereas BSC Modification P305 designed the process around a single correct submission of a P0238 file.	BSCP515 wording should be edited to state only one P0238 submission from LDSOs (i.e. no need to keep updating it). However, should there be an error in the original file, then LDSOs may create a new version which would need to be circulated.

## Appendix 3: Issue Group Membership

### Issue Group membership and attendance

Issue 89 Group Attendance				
Name	Organisation	22 April 2020	29 June 2020	26 Aug 2020
Lawrence Jones	Elexon ( <i>Chair</i> )			
Craig Murray	Elexon ( <i>Lead Analyst</i> )			
Nicholas Rubin	Elexon ( <i>Design Authority</i> )			
Angus Fairbairn	Elexon ( <i>Subject Matter Expert</i> )			
Lisa Waters	Waters Wye Associates			
Ian Hall	IMServ		x	
Clare Hannah	IMServ			
Tony Mason	Siemens		x	
Jonathan Purdy	UK Power Networks			
Khalid Saleh	SMS		x	
Andrew Colley	SSE			
Ryan Bassett	SMS			
Richard Price	NGESO			
Jacqui Barton	Western Power Distribution	x	x	
Chris Unsworth	Ofgem		x	x
Gillian Miller	Scottish Power		x	x
Chris Herzog	SSE			x
Rob Freeman	Siemens	x		x
Bill Reed	RWE		x	x

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## Appendix 4: Glossary & References

### Acronyms

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

Acronyms	
Acronym	Definition
AA	Annualised Advances
ALFDD	Automatic Low Frequency Demand Disconnection
BMRA	Balancing Mechanism Reporting Agent
BMRS	Balancing Mechanism Reporting Service
BMU	Balancing Mechanism Unit
BMUADDV	Balancing Mechanism Unit Allocated Demand Disconnection Volume
BSC	Balancing and Settlement Code
DA	Data Aggregator
DCE	Demand Control Event
DCI	Demand Control Imminent [Notification]
DTN	Data Transfer Network
EAC	Estimated Annual Consumption
EBSCR	Electricity Balancing Significant Code Review
EMR	Electricity Market Reform
HH	Half Hourly
LDSO	Licensed Distribution System Operator
MPID	Market Participant Identifier
MSID	Metering System Identifier
NETSO	National Electricity Transmission System Operator
NHH	Non Half Hourly
NHHDA	Non Half Hourly Data Aggregator
PAB	Performance Assurance Board
PAF	Performance Assurance Framework
PDIG	Power Distribution Implementation Group
QDD	Period BM Unit Demand Disconnection Volume
RFI	Request for Information
SAP	Settlement Adjustment Processes
SO	System Operation
SVAA	Supplier Volume Allocation Agent

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## DTC data flows and data items

DTC data flows and data items referenced in this document are listed in the table below.

DTC Data Flows and Data Items	
Number	Name
D0377	Disconnection Purchase Matrix Data File
D0378	BM Unit Aggregated Half Hour Demand Disconnection Data File

## External links

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

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

External Links		
Page(s)	Description	URL
2	P305 'Electricity Balancing Significant Code Review Developments'	<a href="https://www.elexon.co.uk/mod-proposal/p305/">https://www.elexon.co.uk/mod-proposal/p305/</a>
2	NGESO Report on 9 August 2019 Demand Control Event	<a href="https://www.nationalgrideso.com/document/152346/download">https://www.nationalgrideso.com/document/152346/download</a>
2	P397 'Assessing the costs and benefits of adjusting Parties' Imbalances following a demand disconnection	<a href="https://www.elexon.co.uk/mod-proposal/p397/">https://www.elexon.co.uk/mod-proposal/p397/</a>
3	Grid Code Section OC6 'Demand Control'	<a href="https://www.nationalgrideso.com/document/33866/download">https://www.nationalgrideso.com/document/33866/download</a>
3	Electricity Balancing Significant Code Review	<a href="https://www.ofgem.gov.uk/electricity/wholesale-market/market-efficiency-review-and-reform/electricity-balancing-significant-code-review">https://www.ofgem.gov.uk/electricity/wholesale-market/market-efficiency-review-and-reform/electricity-balancing-significant-code-review</a>
15	Elexon Portal 'NHHDA Software'	<a href="https://www.elexonportal.co.uk/nhhdasoftware">https://www.elexonportal.co.uk/nhhdasoftware</a>
16	BSCP502 'Half Hourly Data Collection for SVA Metering Systems Registered in SMRS'	<a href="https://www.elexon.co.uk/csd/bscp502-half-hourly-data-collection-for-sva-metering-systems-registered-in-smrs/">https://www.elexon.co.uk/csd/bscp502-half-hourly-data-collection-for-sva-metering-systems-registered-in-smrs/</a>

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