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SECMP0025 Draft Modification Report

About this document

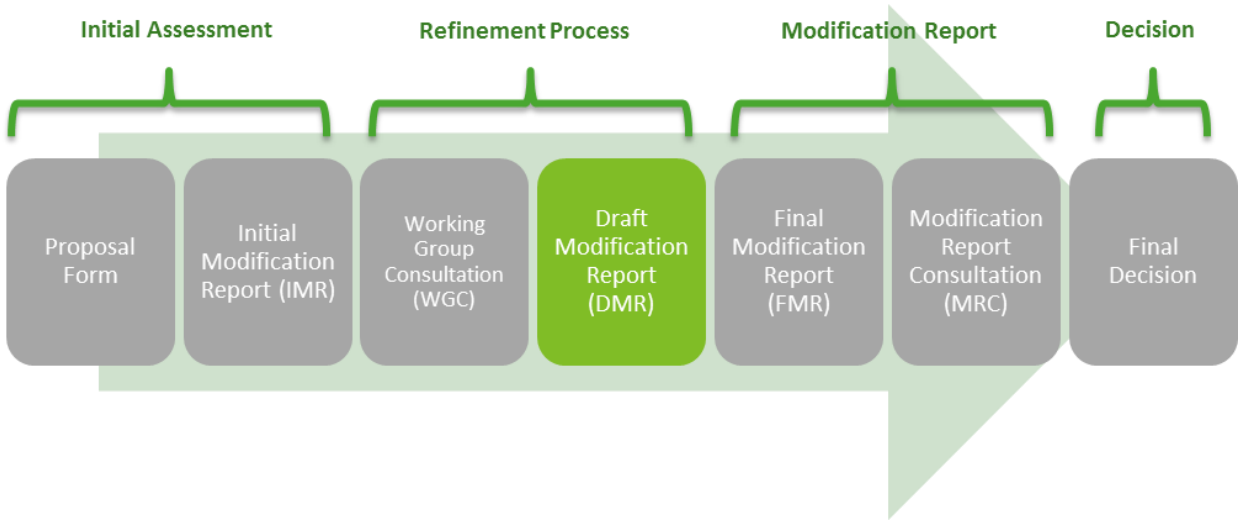
This Draft Modification Report (DMR) provides detailed information on the issue, solution(s), impacts, costs and Working Group discussions and conclusion on SECMP0025 'Electricity Network Party Access to Load Switching Information'.

This report is submitted to the Smart Energy Code (SEC) Panel for consideration to ensure that due process has been followed and determine whether to issue the modification for Modification Report Consultation (MRC)

As part of this document the Panel will be invited to:

- **AGREE** that SECMP0025 is a Path 2 Modification Proposal;
- **AGREE** that the draft legal text delivers the intention of the modification;
- **AGREE** with the recommended implementation approach; and
- **AGREE** that this modification be submitted to Modification Report Consultation.

Where are we in the process?



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Stage 02: Draft Modification Report

What stage is this document in the process?

01	Initial Assessment
02	Refinement Process
03	Modification Report
▶ 04	Decision

SECMP0025:

Electricity Network Party Access to Load Switching Information

SECAS Contact:

Name:

Nikki Olomo

Number:

020 7081 3095

Email:

SEC.Change@gemserv.com

Summary

This proposal seeks to enable Electricity Network Parties (ENPs) to have access to information from the Smart Metering System relating to load switching carried out by Smart Meters or Smart Meter connected Devices. It also proposes that the Smart Metering System informs Electricity Network Parties when changes are made to existing load switching regimes.

Working Group View

✓

- The initial unanimous view of the Working Group (WG) is that SECMP0025 should be approved.

Impacts

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- Electricity Distributors (Electricity Network Parties)
- The Data and Communications Company (DCC)
- DCC Central Systems and Party interfacing systems

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About this Document

This document is a Draft Modification Report (DMR). This document provides detailed information on the issue, solution, impacts, costs and Working Group discussions and conclusion on SECMP0025.

This document has three attachments:

- Attachment A contains the draft legal text changes to support this modification;
- Attachment B contains the Solution Design Specification; and
- Attachment C contains the responses received to the Working Group Consultation (WGC).

The Smart Energy Code (SEC) Panel will consider this report at its meeting on 13th July 2018 to ensure that due process has been followed and determine whether to issue the modification for Modification Report Consultation (MRC).

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1. Summary

What is the issue?

New technology changes including: new types of heating systems; charging of electric vehicles; and major increases in customer connected micro generation, have resulted in ENPs facing new load management challenges on their networks. A further level of uncertainty is brought about by ENPs not having oversight of how individual suppliers will develop their customer offerings, e.g. new Times Of Use (TOU) tariffs.

What is the Proposed Solution?

The Proposer (SSEN) suggests ENPs need access to Auxiliary Load Control Switch (ALCS) and HAN-Connected Auxiliary Load Control Switches (HCALCS) information. This information would enable ENPs to become more responsive as electricity networks become more complex.

This modification proposes three changes to the SEC:

- ENPs would gain access to SR6.13 “Read Event Or Security Log” (more specifically ALCS/HCALCS event logs);
- ENPs would gain access to SR7.7 “Read Auxiliary Load Switch Data”; and
- ENPs would receive new Alert(s) (either DCC generated or device generated).

Impacts

Party

Large Supplier Parties		Small Supplier Parties	
Electricity Network Parties	X	Gas Network Parties	
Other SEC Parties			

System

DCC Systems	X	Party interfacing systems	X
Smart Metering Systems		Communication Hubs	
Other systems			

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Implementation Costs

The total estimated implementation cost to deliver SECMP0025 is approximately **£387,209**. This total cost consists of:

- **£1,200**[1] in SEC Administration effort; and
- **£386,009** in DCC effort.

Implementation Date

The Working Group recommends an implementation date of:

- 7th November 2019, if a decision to approve is received by 5th October 2018.

Working Group's views

The WG believes **unanimously** that SECMP0025 does better facilitate the SEC Objectives. The WG therefore believes that this Modification Proposal should be **approved**

[1] SEC day effort based on a blended rate of £600 per day.

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2. What is the issue?

Background

Over time ENPs have developed in-depth knowledge of customer load switching patterns and their impacts on the distribution network. This knowledge has proven to be critical particularly in designated Load Managed Areas and in areas dominated by off peak or Economy 7 load switching meters. By understanding customer load switching patterns from legacy meters, ENPs have developed their distribution systems in an economic way by investing in network reinforcement or using alternative solutions to manage load on their networks.

What is the issue?

New technology changes including: new types of heating systems; charging of electric vehicles; and major increases in customer connected micro generation, have resulted in ENPs facing new load management challenges on their networks.

Smart Metering Systems are installed at locations where load is controlled directly through the metering system. Suppliers can change load switching regimes on smart metering systems through Auxiliary Load Control Switches (ALCS) or Hand Connected Auxiliary Load Control Switches (HCALCS) without informing ENPs. ENPs experience a further level of uncertainty by not having oversight of how individual suppliers will develop their customer offerings, e.g. new Time Of Use tariffs.

Whilst this may be appropriate in most instances, there are locations where additional controls are required. Amendments to Schedule 8 'Demand Control' of the Distribution Connection and Use of System Agreement (DCUSA) have updated the rules associated with demand control and the avoidance of coincidence of load. This modification draws upon the comprehensive benefit case established by EA Technologies on behalf of SSEN in support of the changes made to DCUSA Schedule 8 'Demand Control'. ENPs need to have visibility of customer load switching to ensure a prudent and informed management of electricity networks. They need to gain access to the live information relating to load switching regimes sent through service requests and alerts.

Under the current arrangements, ENPs are not advised when changes to smart meter-controlled load switching regimes are made by suppliers. Further, current SEC provisions do not permit ENPs to:

- Receive Service Request (SR) 6.13 "Read Event Or Security Log"; or
- Access SR 7.7 "Read Auxiliary Load Switch Data".

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Access to information relating to the operation of ALCS / HCALCS and their associated switching regimes will enable ENPs to maintain the benefits of established network management arrangements and develop new innovative solutions to assist with the planning operation and management of their distribution networks. For example, ENPs are currently unable to identify opportunities where Demand-Side Response (DSR) could be an economic alternative to traditional reinforcement.

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3. Proposed Solution

Solution

The Proposer, supported by the other ENPs, has proposed the following:

- That the User role of Electricity Distributor is granted access to SR 6.13 “Read Event Or Security Log” in order to read ALCS / HCALCS event logs (and so the existing GBCS Use Case, ECS35f “Read ALCS Event Log” is replaced with an equivalent Use Case that adds such Electricity Distributor access).
- That the User role of Electricity Distributor is granted access to SR 7.7 “Read Auxiliary Load Switch Data” in order to read ALCS Data. From a Device perspective, this would be treated as a ‘Supplementary Party’ read and so would not require changes to the ECS61a “Read HC ALCS and ALCS Data from ESME” Use Case.
- Creation of a new DCC Alert to be sent to the ENP following an update to the ALCS / HCALCS calendar on the ESME. This new Alert would either come from the ESME triggered by such a change, or it would be triggered within the DCC, based on the DCC receiving a successful Response from the ESME to Use Case ECS46c “Set HC ALCS and ALCS configuration in ESME (excluding labels)”.

SECMP0025 would also require the following changes to GBCS:

- Changes to the Chapter 20 Mapping Table, i.e. to the SMETS required objects to allow Electricity Distributor access to the ECS35f related objects;
- Replacement of GBCS Use Case ECS35f “Read ALCS Event Log” with an equivalent one to additionally allow Electricity Distributor access; and
- Additions to Table 16.2 to reflect the additional Device Alert (subject to a new Device Alert be used).

The following changes will be required to DUIS.

- SR 6.13 will need to be amended to allow Electricity Distributor access, and a corresponding change to use the replacement ECS35f Use Case. Note this would entail removal of error code E061304, which applies in this SR if ‘LogToRead’ = ‘ALCS Event’.
- SR 7.7 will need to be amended to allow it to be accessed by the User Role of Electricity Network.
- If a DCC Alert is to be used, that Alert will need to be added to DUIS.

Changes may also be required to the Message Mapping Catalogue (MMC) to reflect the replacement Use Case and, if used, the Device Alert.

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Draft legal text

The proposed legal text changes are provided in Attachment B. Changes will be made to the following:

- SEC Schedule 8 - GB Companion Specification (GBCS) Versions 2.0, 2.1 and 3.1.
- SEC Appendix AD - DCC User Interface Specification (DUIS) Version 2.0.
- SEC Appendix AF - Message Mapping Catalogue Version 2.0.

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4. Impacts

The following section sets out the impacts associated with the implementation of SECMP0025.

SEC Party impacts

Large Supplier Parties	X	Small Supplier Parties	
Electricity Network Parties	X	Gas Network Parties	
Other SEC Parties			

ENPs will be impacted as they will need the capability to process data from the following:

- SR 6.13 (more specifically, ALCS / HCALCS event logs)
- SR 7.7 “Read ALCS data”
- New Alerts (either DCC-generated or device-generated)

Respondents to the Working Group Consultation (WGC) indicated costs associated with the implementation of this modification. One respondent advised that their cost to implement this modification would be between £20,000 and £30,000. The majority of this cost is system development and testing in relation to the new Service Request Variants that they would have access to and the new DCC Alerts that would be received. Other respondents noted costs would be incurred from investing in an IT system to make sense of the Service Request Variant responses and alerts, as well as ensuring that devices are compliant with the new versions of SMETS and GBCS that the new functionality is included in but were unable to provide estimated numbers for this.

Central System impacts

DCC Systems	X	Party interfacing systems	X
Smart Metering Systems		Communication Hubs	
Other systems			

SECMP0025 will have primary impacts on the Data Service Provider (DSP) Systems specifically for Service Request processing. SECMP0025 will also impact Party interfacing systems, specifically for ENPs as they will need capability both

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resource and system wise to process the newly incoming data form Service Request 6.13 and 7.7.

Testing

SECMP0025 will require Pre-Integration Testing (PIT), Systems Integration Testing (SIT) and User Integration Testing (UIT).

SEC and Subsidiary Document impacts

SECMP0025 will impact both SEC Schedule 8 'GB Companion Specification (GBCS) Versions 2.0, 2.1 and 3.1' and SEC Appendix AD 'DCC User Interface Specification (DUIS) Version 2.0'. Use Case 'ECS35g' and Message Code '0x00FD' would need to be added to both documents. Use Case 'ECS35f' and Message Code '0x00BA' would need to be discontinued and blanked out in Table 20 of the GBCS to prevent future accidental use.

Impacts on other industry codes

There are no impacts anticipated on any other Codes.

Greenhouse Gas Emission impacts

There are no Greenhouse Gas Emission impacts anticipated.

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5. Costs

Estimated Implementation costs

The total estimated implementation cost to delivery SECMP0025 is approximately **£387,209.**

SEC costs

The estimated SEC implementation cost is detailed in the table below:

SECAS implementation costs		
Implementation Activity	**Effort (man days)**	**Cost**
Application of approved changes to the SEC. Publication of new version of the SEC on the SEC Website and issuing this to SEC Parties. Review and updated any impacted SEC guidance materials.	Two	£1,200[2]

DCC costs

The total estimated DCC implementation cost is **£386,009** and includes Design, Build and Pre-Integration Testing (PIT). The majority of these costs represent labour costs. Please note System Integration Testing (SIT), User Testing (UT) and Implementation to Live are not included in the implementation costs outlined in the Impact Assessment response.

[2] SEC man day effort based on a blended rate of £600 per day.

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6. Implementation

Recommended implementation date

The Working Group recommends an implementation date of:

- 7th November 2019, if a decision to approve is made by 5th October 2018; or
- 25th June 2020 if a decision is received after 5th October 2018 but on or before 24th May 2019.

DCC has noted it requires a 13-month lead time for this modification from the point of approval, meaning the November 2019 SEC Release is the earliest release SECMP0025 can be targeted for. In accordance with the Panel's Release Management Policy, modifications that impact the DCC Systems will only be targeted for a June or November SEC Release.

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7. Working Group Discussions

Working Group's discussions

Discussion of business requirements and the PA

The Working Group identified the discrepancies in the DCC Preliminary Assessment (PA) and the business requirements outlined in the Solution Design Specification (SDS) which were addressed.

To meet Business Requirement 3[3] in the SDS, in the DCC PA identified two potential events that could also trigger such a DCC Alert, both relating only to the case where the Supplier had chosen to future date an ALCS configuration change:

- The DCC receiving a Future Dated Device Alert 0x8F66 relating to the successful update of the AuxiliaryLoadControlSwitchesCalendar; and
- The DCC receiving a Future Dated Device Alert 0x8F66relating to the successful update of the AuxiliaryLoadControlSwitchesCalendar(SpecialDays)

The WG noted that it would be useful to receive DCC Alert 0x8F66 relating to the successful update of the Auxiliary Load Control Switches Calendar.

SECAS noted that the DCC PA had not included the specific requirement for the DCC to act as a Supplier for Electricity Distributors (EDs) to be able to test SECMP0025's functionality. The DCC agreed that this functionality would add a significant cost to the estimate presented in the PA for SECMP0025. DCC noted that this testing functionality does not currently exist and would need to be built as a bespoke solution.

The DCC noted that the cost of testing would be drawn out in the Impact Assessment (IA). Specifically, the System Integration Testing (SIT) costs and the User Integration Testing (UIT) costs for the DCC operating as a Supplier in test environments would be drawn out as separate costs. This would allow EDs to make an informed decision on whether to progress the alternative 'friendly supplier' route.

The WG noted that a possible workaround to this would be for a "friendly supplier" to allow EDs to test the new functionality. The Proposer noted this comment and noted that EDs would initiate talks with Supplier Parties regarding possible testing of SECMP0025.

[3] "The DCC would create a new DCC Alert to notify the relevant ED whenever the DCC receives a successful Response from an Electricity Smart Metering Equipment (ESME) to change the ALCS configurations, which may include an ALCS Calendar change (so a successful Response to a 'ECS46c Set HC ALCS and ALCS configuration in ESME (excluding labels)' Command)".

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The DCC suggested adding a DCC Alert whenever an ALCS or HCALCS label changed. The Proposer and the Working Group noted that this may be beneficial depending on the additional DCC Cost. The WG therefore agreed to request this functionality as an option in DCC IA. The WG agreed as this would offer the industry sufficient information on whether to include this functionality into the final solution for SECMP0025.

Following the IA, the WG agreed to include this Alert as part of the solution.

Modification Path type

The WG considered the Path type for the modification. SECAS advised the WG that the modification could be progresses as a Path 3: Self-Governance modification because it does not have a material impact on consumers, competition, security of supply or any other criteria outlined in SEC Section D2.6.

It had been considered that if SECMP0025 remains a Path 2: Authority Determination modification, it would not make the June 2019 SEC Release and would have to be implemented as part of the November 2019 Release, due to the lead time required by the DCC to implement the changes. The DCC advised that, if the Panel agrees to change the progression path for SECMP0025 to Path 3, the modification could still be included in the June 2019 release. A WG member emphasized that the sooner this modification is implemented the sooner ALCS data backlog for ENPs can be back-filled.

The Working Group sought views regarding the Path Type in the Working Group Consultation (WGC). Respondents were mixed in their views as to whether SECMP0025 should remain a Path 2 Modification or switch to Path 3. However, further delays to the progression of SECMP0025 due to the Working Group wishing to put more work into building the benefits case meant the modification can't now be implemented until the November 2019 Release, irrespective of the Path type.

Consideration of the implementation costs

The WG discussed the costs outlined in the DCC's IA, noting that the total figure of £386,009 did not include costs associated with System Integration Testing (SIT), User Testing and Implementation to Live. The WG asked whether the DCC could provide a more detailed breakdown of the costs and when they will know the implementation and testing costs. The DCC advised that the costs presented in the IA only include their capital expenditure, development costs and initial testing. The costs incurred by Service Providers as part of implementation can only be derived at the end of the implementation phase. The DCC highlighted that the full final costs tend to be lower than the cost that is indicated in the IA as these are worst case

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scenario costs (assuming the modification will be implemented in isolation of anything else). Where a modification is implemented alongside other modifications or DCC changes with similar system impacts, the costs will be lower.

The WG suggested that the DCC insert a caveat to explain this in the costings section of IAs. The DCC agreed that this is something they can look at. The DCC also noted that work is being carried out to see how modifications can be clustered for implementation as a cost saving exercise. The biggest challenge that has been identified is, if a modification in a cluster cannot be progressed, how would the costs be reconciled.

SECAS asked the DCC whether a generalisation could be applied to costs in the future. For example, as part of the IA there could be two sets of costs, one showing the usual worst-case scenario and another showing what the cost may be should a modification be implemented with other modifications or DCC changes of a similar nature. The DCC advised that they will take this suggestion away and see what could be done, noting that applying a more generalised estimate may be possible.

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8. Working Group's Conclusions

The WG's **unanimous** view is that SECMP0025 better facilitates General SEC Objective (e) and should be **approved**.

Benefits and drawbacks of SECMP0025

The Proposer and the WG have identified the following benefits and drawbacks related to SECMP0025:

Benefits

The Working Group has identified the following benefits:

- Network Operators will have access to more types of information from new Service Request Variants and Alerts from ALCS and HCALCS. This will enable them to monitor what is happening on low voltage networks more accurately, and ultimately make more informed decisions regarding network management and reinforcement. These data items will also be used alongside individual customers load behaviour to assess Networks incidence faults and asset condition.
- Access to this data will also give ENPs the evidence they need to help them develop other innovative solutions to assist with the planning, operation and maintenance of their networks. This will enable them to better protect the assets they are responsible for, and will ensure that the electricity supply is secure and sustainable.
- The ENPs are working on developing a Response Back Connectivity model which seeks to prevent grid overloading; having visibility of customer load switching data will better facilitate the development of this model.
- The implementation of this modification now will give ENPs a two-year lead time to use this information in preparation for the reinforcement of the network as a result of the deployment of Smart Meters.
- This modification will support the emerging Distribution System Operator (DSO) capability as part of an integral ability to shape the future energy sector.

One ENP estimated the costs of reinforcing a section of the network as approximately £200,000/km in rural areas, and higher in urban areas. Using these cost estimates, the Working Group concluded that avoiding the need to reinforce only a small section of the network would recoup the central costs of the modification. With the information that SECMP0025 will provide being used in the ways identified above, the ENP believed it was very reasonable that such a scheme, and its corresponding costs, could be avoided over the next few years.

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Drawbacks

The only drawback identified by the WG is that ENPs will need to carry out a data reconciliation exercise in their systems following its implementation so that ALCS information is up to date for all the Smart Metering Systems.

Views against the General SEC Objectives

Objective (e)[4]

The WG believes that SECMP0025 better facilitates SEC Objective (e), which is to facilitate such innovation in the design and operation of Energy Networks, as this solution will better contribute to the delivery of a secure and sustainable Supply of Energy.

The WG agreed with the Proposer's rationale that access to smart meter data associated with the operation ALCS / HCALCS will enable ENPs to develop innovative solutions to assist with the planning, operation and maintenance of their networks. This in turn will help them maintain and develop economical, efficient and coordinated systems of electricity distribution as required by their distribution licences.

For the avoidance of doubt, the WG believes that SECMP0025 is neutral against the other Objectives.

[4] Facilitate such innovation in the design and operation of Energy Networks (as defined in the DCC Licence) as will best contribute to the delivery of a secure and sustainable Supply of Energy

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9. Recommendations

The Panel is invited to:

- **AGREE** that SECMP0025 is a Path 2 Modification Proposal;
- **AGREE** that the draft legal text delivers the intention of the modification;
- **AGREE** with the recommended implementation approach; and
- **AGREE** that this modification be submitted to Modification Report Consultation.

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Appendix 1: Glossary

The table below provides definitions of the terms used in this document.

Acronym	Definition
ALCS	Auxiliary Load Control Switches
DCC	Data Communications Company
DCUSA	Distribution Connection and Use of System Agreement
DMR	Draft Modification Report
DSO	Distribution System Operator
DSR	Demand Side Response
DUIS	DCC User Interface Specification
ENP(s)	Electricity Network Parties
GBCS	Great Britain Companion Specification
HCALCS	Home Area Network Connected Auxiliary Load Control Switches
IA	Impact Assessment
MRC	Modification Report Consultation
PA	Preliminary Assessment
SEC	Smart Energy Code
SECAS	Smart Energy Code Administrator and Secretariat
SR	Service Request
TOU	Time Of Use
WD	Working Day
WG	Working Group
WGC	Working Group Consultation

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