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Solution Design Specifications

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.

Impacts

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

Administered by Gemserv, 8 Fenchurch Place, London EC3M 4AJ

SEC
Smart Energy Code

Content

About this Document

This is the Solution Design Specification (SDS) document for SECMP0025, which contains the detailed

- Context;
- business requirements; and
- solution.

1. Context

This section sets out the context for SECMP0025.

Electricity Distributors (EDs (known as Distribution Network Operators (DNOs) under other electricity-focused industry codes) currently understand how customer load switching impacts their distribution networks. This is particularly critical in designated Load Managed Areas[1] and in areas dominated by off peak / Economy 7 load. This understanding has enabled EDs to develop their distribution systems in an economic way, investing in network reinforcement or using alternative solutions to manage load on their networks.

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

As Smart Metering Systems are installed at locations where load is controlled directly through the metering system itself (specifically through Auxiliary Load Control Switches or ALCS), suppliers will be able to change load switching regimes without reference to EDs. Whilst this may be appropriate in most instances, there are some locations where additional controls are required.

For EDs to continue to have visibility of customer load switching and to enable prudent and informed management and development of their networks, they need to be able to obtain information relating to load switching regimes that are managed via Smart Metering Systems.

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

- SR6.13 “Read Event Or Security Log” (more specifically, ALCS / HCALCS event logs); and
- SR7.7 “Read Auxiliary Load Switch Data”.

Having information relating to the operation of ALCS / HCALCS and their associated switching regimes will enable EDs to both 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.

[1] https://www.dcusa.co.uk/DCUSA%20Document%20Public%20Version/Schedule%208%20v8.5.pdf

2. Business Requirements

This section sets out the detailed business requirements for SECMP0025.

Business Requirements relating to accessing the ALCS Event Log through Service Request 6.13:

1. The User Role of Electricity Distributor (ED) is to be provided with access to the ALCS Event Log through SR6.13 “Read Event Or Security Log” for ESME built according to the Specifications where this Modification is in force [Note there is no requirement to retrospectively apply this to installed ESME, and so access via SR6.13 will not be possible for such previously installed ESME]. In turn, this requires that, in the Specifications where this Modification is in force, the GBCS Use Case, ECS35f “Read ALCS Event Log” is replaced with an equivalent Use Case that adds Electricity Distributor access.

Business Requirements relating to Electricity Distributor access to SR7.7 – Read Auxiliary Load Switch Data

2. The User Role of Electricity Distributor (ED) is to be provided access to SR 7.7 “Read Auxiliary Load Switch Data” in order to read ALCS Data. This is a DCC only change, and so will provide access to such data on all ESME, whether installed prior to this change or not.

Business Requirements relating to creating a new DCC Alert for Electricity Distributors

3. The DCC would create a new DCC Alert to notify the relevant Electricity Distributor (ED) whenever the DCC:
    a. receives a successful Response from an ESME to either:
        i. 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), or
        ii. change the ALCS labels (so a successful Response to a ‘ECS46a Set HC ALCS or ALCS Labels in ESME’ Command).
    b. Receives an Alert from an ESME meaning a future dated change to the Auxiliary Load Control Switches Calendar has successfully been made (so an Alert with Alert Code of 0x8F66 (meaning ‘Future – date HAN Interface Command Successfully Actioned’) containing the COSEM-ATTRIBUTE-DESCRIPTOR of 0x232800005E2C801A06 (meaning AuxiliaryLoadControlSwitchesCalendar))

4. The new Alert shall contain only the Device ID of the ESME on which the ALCS configurations had been changed.
5. The new DCC Alert to notify the relevant Electricity Distributor (ED) whenever the DCC receives a successful Response from an ESME to change the ALCS configurations shall be generated equally for all ESMEs recorded in the DCC database, including those deployed before this change.

Business Requirements relating to User Testing

6. (Optional) DCC should act as the supplier party during User Testing of the new functionality. Electricity Network Users would undertake Testing of the new functionality.

Note that (6) is marked optional and the DCC are to provide split out costings for each of those elements in their Impact Assessment.

3. Solution

This section details the required changes to SEC and wider documents that are proposed to implement the requirement for this SEC Modification. Please note that all numbering, messages codes, alert codes and so on are based on GBCS 2.0 Draft 4. *OR*

GBCS changes

To create the new Use Case to replace ECS35f, in Table 20 of GBCS:

1) In the 'Use Case Reference' tab, copy the row that contains 'ECS35f' in column C ('Use Case (DLMS/ASN.1)') to the end of the tab.
2) In that copied row in the 'Use Case Reference' tab:
    i) In column C ('Use Case (DLMS/ASN.1)') replace 'ECS35f' with 'ECS35g';
    ii) In column D ('Message Code') replace '0x00BA' with '0x00FD';
    iii) Set column M ('Access: Network Operator (NC)') to 'A'.
3) In the 'SMETS Required objects' tab, in all rows where column AH ('DLMS COSEM Read UC') contains 'ECS35f':
    a) copy the value in column Q ('Access: Supplier (C)') to column U ('Access: network Operator (C)')
    b) copy the value in column R ('Access: Supplier (NC)') to column V ('Access: network Operator (NC)')
    c) in column AH ('DLMS COSEM Read UC') replace 'ECS35f' with 'ECS35g'

To mark the old 'ECS35f' Use Case as unused and guard against accidental future re-use of either the message code or the use case tag, in the 'Use Case Reference' tab:

1) Set column A ('Use Case Name') to 'This row is not used';
2) Set column B ('DLMS/ASN.1 message Location (1= in html, TOC = in main GBCS, x = do not use Message Code or Use Case tag in columns D and C') to 'x';
3) To column C ('Use Case (DLMS/ASN.1)') and to column D ('Message Code') add a comment 'Unused since GBCS [**DN: last version at which ECS35f was used, so the last GBCS version prior to this change being implemented**]';
4) Clear columns E to AS inclusive.

This results in a revised Table 20 and replacement Use Case / Message Template for ECS35f:

SECMP0025 Use Cases DLMS.html

SECMP0025 Use Cases.html

GBCS Table 20.xlsx

DUIS and MMC changes

The solution requires changes to DUIS and MMC; these changes are detailed in the Draft Legal Text for SECMP0025.

Appendix 1: Glossary

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

Acronym	Definition
ALCS	Auxiliary Load Control Switch
DCC	Data Communications Company
ED	Electricity Distributor
ESME	Electricity Smart Metering Equipment
GBCS	Great Britain Companion Specification
HCALCS	HAN Controlled Auxiliary Load Control Switch