Solution Design and Legal Text: SECMP0004 – Inclusion of Device Serial Number data item in the DCC Smart Metering Inventory

Context and Business Requirements

This section provides the context to this Modification Proposal and summarises the key business requirements for it, as currently clarified and refined by the Working Group.

Context

SEC H5.5 requires that the DCC establishes and maintains the Smart Metering Inventory (SMI) in accordance with the Inventory Enrolment and Withdrawal Procedures. The SMI is defined in the SEC as a DCC managed electronic database of Devices which records (as a minimum) the following information in respect of each Device:

a) Physical Device Type – which is a combination of DeviceType and ESMEVariant in the DCC User Interface Specification (DUIS);

b) Device ID – which is Entity Identifier in the GBCS, and GSME Identifier, ESME Identifier etc. in the Smart Metering Equipment Technical Specifications (SMETS);

c) Device Model – which is a combination of Manufacturer ID, model, hardware version and firmware version (Note that no firmware version is needed for Type 2 Devices);

d) for Devices other than Type 2 Devices, SMI Status, and the date from which that status has applied;

e) for Devices other than Type 2 Devices, its SMI Status history;

f) where a Smart Meter has been installed, the related MPAN or MPRN and the Communications Hub Function with which that Smart Meter is associated; and

g) where a Device (other than a Smart Meter or a Communications Hub Function) has been installed, the Smart Meter or Gas Proxy Function with which that Device is associated.

Any DCC User can request that a Device is listed in the SMI, provided that in the case of Type 1 Devices, the Device's Model is already listed in the Certified Products List (CPL). This is set out in the Inventory Enrolment and Withdrawal Procedures. To add a Device to the SMI, a DCC User needs to send a 'Device Pre-notification' Service Request via the DCC User Interface as per the DUIS.

The Inventory Enrolment and Withdrawal Procedures require that Responsible Suppliers monitor the accuracy of information in the SMI. Updates to the information held in the SMI are made by sending an 'Update Inventory' Service Request to the DCC via the DCC User Interface as per the DUIS.

The DUIS states that where a Device has an SMI status of 'Pending' only the User who added the Device to the SMI may either update the details of that Device or delete that Device from the SMI. For Devices with SMI statuses other than 'Pending', only the Responsible Supplier may amend the information held on the SMI relating to that Device.

There are two ways to search the SMI: 1) via the appropriate service and search function on the Self Service Interface (SSI) and 2) by sending a 'Read Inventory' Service Request to the DCC over the DCC User Interface as per the DUIS.

The SMI can be searched with reference to any of the following:

a) Device ID;

b) MPAN or MPRN;

c) post code and premises number or name; or

d) UPRN.

A DCC User is also able run a set of standard pre-defined and parameterised reports on the SSI.

Testing

The Working Group collectively agreed that the DCC should provide Testing Services to support the implementation of this Modification Proposal.

DCC should also be required to undertake testing of the DCC Total Systems to support the implementation of this Modification Proposal.

The Working Group also agreed that testing of SECMP0004 should be optional for Users, although it is expected that at least two large suppliers will take part in testing.

Per additional SEC requirements designated by the Secretary of State, which came into effect in February 2017 (issued for consultation in 2016), this document provides high level business requirements for Testing Services. This is to assist the DCC preparation of a revised DCC Impact Assessment that includes the cost of testing of SECMP0004. In line with the new SEC requirements, we ask the DCC to prepare an analysis of any required testing of the DCC Total System, and the DCC view on the scope, phases, timetable and testing participants of testing for SECMP0004.

Business Requirements

Business Requirements relating to the maintenance of the SMI

1. The SMI to be modified to include an additional data item for Device Serial Number against ESME and GSME.
2. Users would add a Device Serial Number against new ESME or GSME when they submit a 'Device Pre-Notification' Service Request to add it to the SMI. As such, the 'Device Pre-Notification' Service Request (SRV12.2) would need to be amended to add a Device Serial Number data item, which would be a mandatory field for ESME and GSME.
3. Device Serial Number for ESME and GSME would have between 1 and 14 alphanumeric characters.
4. On receipt of such Service Request where Device Type is either ESME or GSME, the DCC would check whether the Device Serial Number field has been populated with between 1 and 14 alphanumeric characters. If this field is not populated with between 1 and 14 alphanumeric characters for ESME or GSME, the DCC would reject this Service Request.
5. If a User used a previous version of the 'Device Pre-Notification' Service Request (SRV12.2) to pre-notify ESME or GSME, the DCC would set the Device Serial Number field against that ESME or GSME to 'UKN". To ensure that the SMI is up-to-date, Users would have an obligation to ensure that MAP ID is populated when ESME and GSME are pre-notified, and that any previously pre-notified ESME and GSME have the Device Serial Number recorded against them by a certain date. That date would be determined by the Panel.
6. Any ESME or GSME pre-notified to the SMI prior to the implementation of SECMP0004, the Device Serial Number field against that ESME or GSME would be set to "UKN".
7. For Device Types other than ESME and GSME, the Device Serial Number data item in the new version of 'Device Pre-Notification' Service Request must not be populated. If the Device Serial Number field is populated in the new version, the DCC would reject the Service Request.
8. As Device Serial Number would not be relied upon for any DCC processing, no validation over and above the standard XML Schema validation of this data item would be required.

9. Other Service Requests supporting the maintenance of the SMI, such as 'Update Inventory' (SRV 8.4) and 'Read Inventory' (SRV 8.2) would need to be updated to enable updating of Device Serial Number information in the SMI:
    a. A new version of the 'Update Inventory' Service Request would need to include a Device Serial Number data item. If this data item is populated for ESME or GSME, upon DCC receipt of this new version of the Service Request, the DCC would check whether it has been populated with between 1 and 14 alphanumeric characters and whether Device Type is ESME or GSME.
    b. If this data item is populated for Device Types other than ESME and GSME, the DCC would reject the Service Request.
    c. There would be no change to a 'Read Inventory' Service Request, however a Device Serial Number data item would need to added to a new version of the Service Response.
10. No changes to access control rights for the above Service Requests are proposed.

Business requirements relating to the SSI

11. On the SSI, Device Serial Number would need to be added to display inventory data for ESME and GSME. Device Serial Number would be a search criterion in the SSI search function.
12. Some of the pre-defined reports to extract information from the SSI would need to be amended to include a Device Serial Number field. They are:
    - RSMI_001 Installation Status Smart Meter Report
    - RSMI_002 Smart Metering Devices Status and Firmware Report
    - RSMI_003 Smart Metering Devices Status and Model Report
    - RSMI_004 Communications Hub with No Attached Devices Report
    - RSMI_005 Scheduled Service Requests Report
    - RSMI_007 Device Certificate Report

Business Requirements relating to forecasting and demand management

13. ESME and GSME added to the SMI prior to the implementation of this Modification Proposal would not have the Device Serial Number field populated. Users would use the new version of the 'Update Inventory' Service Request (SRV 8.4) to back fill the Device Serial Number for each ESME and GSME.
14. Five working days after Release of this Modification Proposal:
    a. Where ESME or GSME has the status of "pending" in the SMI, the User that submitted a 'Device Pre-notification' Service Request in respect of ESME and GSME
    b. Where ESME or GSME has the status of "whitelisted", 'installed not commissioned" or "commissioned", the Responsible Supplier for ESME or GSME

would notify the DCC of the number of GSME and ESME without the Device Serial Number in the SMI ("User Backfilling Requirement").

15. The DCC would create a new report on the SSI to enable each relevant User to determine their User Backfilling Requirement.
16. Five working days after the receipt of the User Backfilling Requirement notification, the DCC would confirm the following to each User:
    a. User's Daily Backfilling Limit
    b. Backfilling Start Date and Time

17. The DCC would calculate each User's Daily Backfilling Limit using the following formula:

User's Daily Backfilling Limit = (User's Backfilling Requirement / Sum of all Users' Backfilling Requirements) * DCC Daily Backfilling Limit

18. Every month, the DCC will provide a report to the Panel setting out each User's progress against the Backfilling Requirement as a percentage of their Backfilling Requirement.

Business Requirements relating to testing

19. The DCC will provide Testing Services to support the implementation of SECMP0004 to assess the interoperability of User Systems with DCC Systems. Examples of SECMP0004 User testing scenarios are provided in Appendix A. The Proposed changes to Section D10, will provide supporting SEC provisions for the expected testing information and documentation, subsequently provided below.
20. The DCC will provide an analysis including supporting assumptions and rationale, of any testing required to the DCC Total System.
21. The DCC will prepare a report setting out the scope, phases, timetable, testing participants, any assumptions and rationale in relation to SECMP0004 testing.
22. The testing environment that the DCC provides as part of Testing Services will be open to all User Roles and multiple Users within each User Role to ensure that any User wishing to test SECMP0004 is able to do so. This environment should be made available for a minimum of 15 working days, depending on the impact of the change. The DCC must provide the costs and assumptions associated with providing this testing service, including whether the testing costs are based on a set number of users utilising the testing service, i.e. up to 10 Users, noting that at least two large Suppliers may test the functionality. This is to ensure it operates correctly before it is put into the End-to-End and Production environments.
23. The interfaces in scope of Testing Services will include: the DCC User Interface and the Self-Service Interface.
24. The objective of testing as part of Testing Services will be to:
    a. For the DCC User Interface:
        i. SRV 12.2 – notify the DCC of the DSN for a Device ID
        ii. SRV 8.4 – update DSN for a Device ID which is a Meter, update DSN to a Device ID which is not a Meter
        iii. SRV 8.2 – ensure that DSN is returned in Service Response
    b. For the Self-Service Interface:
        i. Users able to search for DSN in SSI
        ii. SSI Users able to return SSI Report displaying DSN
25. The acceptance criteria for testing as part of Testing Services will be:
    a. For the DCC User Interface:
        i. SRV 12.2 - the DCC received Service Request, Users received Service Response
        ii. SRV 8.4 - the DCC received Service Request, Users received Service Response
        iii. SRV 8.2 - the DCC received Service Request, Users received Service Response
    b. For the Self-Service Interface:
        i. User able to locate device
        ii. Users able to view DSN in SSI report RSMI_001

Legal Text

This section details the required changes to the regulatory framework that are proposed to implement the requirements for this Modification Proposal. Where changes to the regulatory framework are made, they are highlighted in red text. For clarity, deletion is shown by strike through and addition is shown by underlining.

All the tracked SEC changes have been based against the content in Smart Energy Code (version 5.6)

SEC Section A – Definitions

Smart Metering Inventory means an electronic database of Devices which records (as a minimum) the following information in respect of each Device:

(a) its Device Type;

(b) its Device ID;

(c) its Device Model (provided that no firmware version is needed for Type 2 Devices);

(d) for Devices other than Type 2 Devices, its SMI Status, and the date from which that status has applied;

(e) for Devices other than Type 2 Devices, its SMI Status history;

(f) where it is a Smart Meter which has been installed, the related MPAN or MPRN and the Communications Hub Function with which that Smart Meter is associated; ~~and~~

(g) where it is a Device (other than a Smart Meter or a Communications Hub Function), the Smart Meter or Gas Proxy Function with which that Device is associated~~.~~; and

(h) where it is a Smart Meter, its related Device Serial Number.

Device Serial Number means an identification number issued by a manufacturer accepted by the DCC.

SEC Release means any approved Modification Proposal to be implemented in the SEC and/or SEC Subsidiary Document(s) that requires Release Management by the DCC or Users as set out in Section D10.7, and is consequently undertaken in accordance with the Panel Release Management Policy

Release Implementation Document has the mean given to that expression in Section D10.11

SEC Section D – Implementation

D10.10 To support the Panel in discharging the activities set out in Section D10.2, the Panel shall develop and publish a "Release Implementation Document" for each SEC Release in accordance with the Panel Release Management Policy. The DCC shall be required to undertake the implementation and testing activities as set out in the relevant Release Implementation Document once approved by the Panel.

D10.11 The Panel shall ensure that each Release Implementation Document:

(a) Defines the content of a SEC Release;

(b) Defines the timescales associated with implementing the content of a SEC Release, including timescales for the commencement and completion of DCC and User testing phases;

(c) Defines the testing that will be undertaken by the DCC for the SEC Release;

(i) To help define the DCC testing, the DCC, on request of the Panel, shall produce a document setting out the testing approach to meet requirements of each approved Modification Proposal within each SEC Release;

(d) Defines the required level of User testing and how the DCC shall support Users to test the changes that make up each SEC Release; and

(e) Defines the SEC Release acceptance criteria that shall be agreed by the Panel in accordance with the Release Management Policy.

D10.12 The Panel shall approve the Release Implementation Document and any subsequent amendments. The Release Implementation Document cannot be further updated after the periods of notice defined in the Panel Release Management Policy (in accordance with Section D10.8(d)).

D10.13 Any Party that wishes to appeal the Panel approval of the Release Implementation Document, may do so within 10 Working Days following the publication of the decision to approve. Any appeal referred to the Authority, must specify the reasons for the appeal. The Authority shall determine what action to take with the appeal (which determination shall, without prejudice to section 173 of the Energy Act 2004, be final and binding for the purposes of this Code).

SEC Section H3 – DCC User Interface

Managing Demand for DCC User Interface Services related to Modification Implementation

H3.29 Where the implementation of a Modification Proposal requires a User to submit Service Requests requesting that the DCC updates the Smart Metering Inventory:

(a) within five Working Days from the Modification Proposal Release, the User shall provide the DCC with a report that sets out the aggregate number of Service Requests that User would be required to send to comply with its obligation ("User Backfilling Requirement"); and

(b) the Panel shall determine the date by which the Smart Metering Inventory shall be updated.

H3.30 By no later than five Working Days after receiving the notification from the User, the DCC shall notify each User of:

(a) The number of Service Requests to be sent by the User each day from the start date ("User Daily Limit");

(b) The start date from which the DCC shall start processing the Service Requests – the start date is to be determined by the DCC; and

(c) The time during which the User shall send the Service Requests – the time is to be determined by the DCC.

H3.31 The DCC shall calculate each User's Daily Limit in accordance with the following formula:

User Daily Limit = (User Backfilling Requirement / Aggregate total of all Users Backfilling Requirements) * DCC Daily Backfilling Limit

"User Daily Limit" has the meaning in H3.30(a) and by calculated by the DCC pursuant to this H3.31

"User Backfilling Requirement" has the meaning in H3.29(a)

"DCC Daily Backfilling Limit" means the aggregate number of Service Request that DCC is capable of processing in given day. This number shall be determined by the DCC

H3.32 By no later than the 10th Working Day following the end of each month, the DCC shall provide a report to the Panel that sets out the aggregate number of Service Requests sent by each User during that month as a percentage of that User Backfilling Requirement.

H3.33 The Panel shall publish the reports provided to it pursuant to Section H3.32 on the Website.

SEC Appendix AC - Inventory, Enrolment and Withdrawal Procedures (Version AC 1.1)

2.6A Any User requesting to add a Gas Smart Meter or Electricity Smart Meter to the Smart Metering Inventory shall also add its Device Serial Number.

SEC Appendix AD - DCC User Interface Specification (Version AD 1.0)

3.8.91.4 Specific Data Items in the Response

To table 214 add:

Data Item	Description / Values	Type	Mandatory	Default	Units
DeviceSerialNumber	The serial number of the Device, as used by the manufacturer (Only applicable to ESME and GSME) A value of 'Unknown' indicates that the Device was Pre-Notified using DUIS Schema Version prior to 2.x	sr:DeviveSerialNumber (Restriction of xs:string (minLength = 1 maxLength = 14))	Device Type= ESME and GSME: Yes Otherwise: N/A	None	N/A

3.8.93.2 Specific Data Items for this Request

To table 218 add:

Data Item	Description / Values	Type	Mandatory	Default	Units
UpdateDeviceSerialNumber	The serial number of the Device, as used by the manufacturer (Only applicable to ESME and GSME) This data item is free text and is not validated by the DCC.	sr:DeviceSerialNumber (Restriction of xs:string (minLength = 1 maxLength = 14))	One and only one of these items must be set	None	N/A

3.8.93.3 Specific Validation for this Request

To table add:

Response Code	Response Code Description
E080416	Device Serial Number is not applicable to the Device Type

3.8.93.4 Additional DCC System Processing

To the end of this section add:

5) Update Device Serial Number associated with the Device within the Smart Metering Inventory

a) The functionality of the Service Request allows an Eligible User to update the Device's Serial Number.

b) This functionality is available to the following Eligible User Roles

- a. If the Device Status is 'Pending'.
  - i. All the Eligible User Roles associated with this Service Request.
  - ii. Only the DCC Service User who Pre-notified the Device details may update its Serial Number.
- b. If the Device Status is not 'Pending'.
  - i. User Roles EIS and GIS
  - ii. Only the Responsible Supplier may update the Device's Serial Number

c) This functionality is only applicable to ESME and GSME devices.

3.8.113.2 Specific Data Items for this Request

To table 248 add (the following row between the "DeviceType" and "SMETSCHTSVersion" data items):

Data Item	Description / Allowable values	Type	Mandatory	Default	Units

UpdateDeviceSerialNumber	The serial number of the Device, as used by the manufacturer (Only applicable to ESME and GSME) This data item is free text and is not validated by the DCC.	sr:DeviceSerialNumber (Restriction of xs:string (minLength = 1 maxLength = 14))	Device Type = ESME and GSME: Yes Otherwise: N/A	None	N/A

SEC Appendix AH - Self-Service Interface Specification (version AH 1.0)

1.9.1 DCC defined access

The DCC shall provide to User Personnel of each User access to each Interface Transaction that the User is eligible to access as set out in Section H8.16 or, where not specified in Section H8.16, as set out in this clause 1.9. Such access shall either be full or conditional, where:

- 'Full' means that the User can access data and use all functions associated with the specific Interface Transaction; and

- 'Conditional' means that a User's entitlement to access data and use all functions associated with the specific Interface Transaction is based on the access rules for conditional access set out below.

The DCC shall provide full access for the following Interface Transactions for any User:

- UC_Login_001 - Log In as set out in clause 1.10.2
- UC_Inventory_001- Smart Metering Inventory as set out in Section H8.16(a)
- UC_CSPCoverage_001 - SM WAN network coverage as set out in Section H8.16(f)
- UC_CSPOMS_001 - Access to the Order Management System as set out in Section H8.16(e)
- UC_KnowledgeManagement_001- Knowledge Management in accordance with Section H8.16(g)
- UC_Schedule_001- Forward schedule of change in accordance with Section H8.16(g)
- UC_ServiceDashboard_001- DCC Service Status in accordance with Section H8.16(g)
- UC_ServiceAlerts_001 - DCC Service Alerts in accordance with Section H8.16(g)
- UC_FAQ_001 - FAQs in accordance with Section H8.16(g)
- UC_Manuals_001 - DCC User Manuals in accordance with Section H8.16(g)
- UC_ServiceCatalogue_001 - Service Catalogue Publication and Call Off
- UC_RaiseSMI_001 - Raise Incidents in accordance with the Incident Management Policy
- UC_Search_001- Search as set out in clause 1.10.21
- UC_Profile_001 - User profile information as set out in clause 1.10.21

The DCC shall provide conditional access on the following basis in relation to the following Interface Transactions and shall not provide access other than on the basis set out below:

- UC_ServiceAudit_001 - Service audit trails for which access shall be granted as set out in Section H8.16(b).

- UC_HubStatus_001 - Communications Hub availability and diagnostics, for which access shall be granted to the Responsible Supplier, the Network Party or Registered Supplier Agent for any Smart Metering System of which the Communications Hub Function in question forms a part.
- UC_Reports_001 – Access to the following reports, available to any User and pertaining to that User:
  - Installation Status Smart Meter Report
  - Smart Metering Devices Status and Firmware Report
  - Smart Metering Devices Status and Model Report
  - Communications Hub with No Attached Devices Report
  - Scheduled Service Requests Report
  - Quarantined Requests Report
  - Monthly Transaction Report
  - Smart Metering Device Transaction Report
  - Firmware Activations Service Request Report
  - Load Balance Report
  - SMI Backfilling Report

  The DCC shall ensure that documentation relating to the format and content of such reports shall be provided to Users via secured electronic means, as and when produced or updated.

- UC_ViewSMI_001, UC_UpdateSMI_001 - View and Update Service Management Incidents for which access shall be granted as set out in Section H9.
- UC_OrgManager_001 – User Account management for User Personnel of Users using the DCC Identity Provider Service, for which access shall be granted to Administration Users.
- UC_ProblemManagement_001 - Problem Management for which access shall be granted in accordance with Section H9.

Where a User is entitled to conditional access to more than one Interface Transaction, the DCC shall apply permissions such that any User Personnel can access any of those Interface Transactions that the User is eligible to access, subject to such User Personnel being entitled to such access on the basis of the Job Type Role(s) as further set out in 1.9.2.

To section 1.10.3 add:

Interface transaction name	UC_Inventory_001 (Main Flow)
Inputs	One or more of the following: - MPxN - _Device ID - Full postcode and property filter (inclusive of property name / number) - UPRN - Include Devices that have an SMI status that is not 'commissioned' (checkbox) - Device Serial Number
	If matches are found, a table of results is displayed, showing the following fields for each matching Device: - Device ID

Outputs	- Device Type - For installed Smart Meters, the related MPxN - For Smart Meters, the related Device Serial Number - For all Devices that are not Type 2 Devices, SMI Status - first line of address - UPRN - full postcode

Interface transaction name	UC_Inventory_002 (Ext. 1 – Specific Device Details View)
Inputs	One or more of the following: - MPxN - Device ID - Full postcode and property filter (inclusive of property name / number) - UPRN - Include Devices that have an SMI status that is not 'commissioned' (checkbox) - Device Serial Number
Outputs	If matches are found, a table of results is displayed, showing the following fields for each matching Device and associated Devices, where applicable to the Device Type: - Device ID - Manufacturer - Device Model - Device Type - For Electricity Smart Meters, the applicable ESME Variant - SMETS Version - For Communications Hubs, the WAN Technology Type - Firmware Version - For Communications Hubs, the CSP region in which the Device is or has been installed - MPxN - For Smart Meters, Device Serial Number - For all Devices that are not Type 2 Devices, SMI Status (including Status history) - first line of address - UPRN - full postcode Associated Devices and Devices with which that Device is Associated - Device ID - SMI Status - Description of Device

Appendix A – Examples of SECMP0004 – Inclusion of Device Serial Number data item in the Smart Metering Inventory – User Testing scenarios

These test scenarios will form part of the Release Implementation Document per the proposed revisions to SEC Section D10 as set out above.
The format of the test scenarios provided below are based on the format contained within SEC Appendix R; Common Test Scenarios Document.

Steps	Description	Objective	Actions	Acceptance Criteria
DCC User Interface Testing				
1	SR12.2 - Device Pre-notification	• Populate the DSN in the SMI	Complete the following Service Request to support population of the DSN to the SMI: • DUIS SR 12.2 – Device Pre-notification * (n) devices	• Acknowledgement received for all Service Requests sent
2	SR8.2 - Read Inventory	• Read the DSN from the SMI	Complete the following Service Request to read the DSN to the SMI: • DUIS SR 8.2 – Read Inventory * (n) devices	• Acknowledgement received for all Service Requests sent • Relevant Party receives a Service Response displaying DSN
3	SR8.4 - Update Inventory	• Update the DSN in the SMI	Complete the following Service Request to support population of the DSN to the SMI: • DUIS SR 8.4 – Device Pre-notification * (n) devices	• Acknowledgement received for all Service Requests sent
Self-Service Interface Testing				
1	SSI Search for DSN	• Users able to search for DSN in SSI	Users able to search for Device from SSI Smart Metering Inventory page	• User able to locate device
2	DSN SSI Report	• SSI Users able to return SSI Report displaying DSN	Users required to run new SSI report RSMI_001	• Users able to view DSN in SSI report RSMI_001

Appendix B – Acronyms

This section explains the acronyms used throughout this document. Definitions used in this document are consistent with those in the SEC and SEC Subsidiary Documents.

Acronym	Definition
CPL	Certified Products List
CSP	Communications Service Provider
DCC	Data and Communications Company
DUIS	DCC User Interface Specification
ESME	Electricity Smart Metering Equipment
GBCS	Great Britain Companion Specification
GSME	Gas Smart Metering Equipment
ID	Identifier
MPAN	Meter Point Administration Number
MPRN	Meter Point Reference Number
SEC	Smart Energy Code
SMETS	Smart Metering Equipment Technical Specification
SMI	Smart Metering Inventory
SRV	Service Request Variant
SSI	Self-Service Interface
UPRN	Unique Property Reference Number
WAN	Wide-Area Network