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SECMP0063 Initial Modification Report

About this document

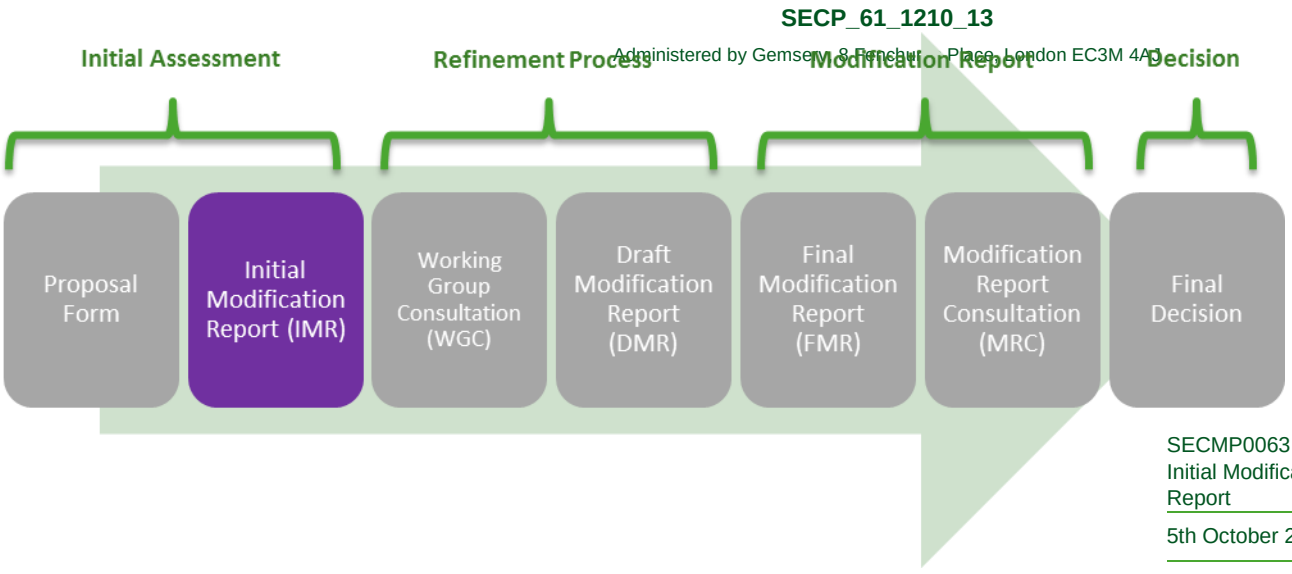
This Initial Modification Report (IMR) contains our initial assessment of SECMP0063 'Ensuring correct Network Operator Certificates are placed on Electricity Smart Meters'. It also provides information on the issue, the Proposer's solution, potential impacts, costs and proposed progression.

This document is submitted to the Smart Energy Code (SEC) Panel for consideration to determine whether this Modification Proposal should be progressed through the Modification Process.

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

- **AGREE** that this modification should be submitted into the Refinement Process to be assessed by a Working Group;
- **AGREE** the Working Group's Terms of Reference;
- **AGREE** the progression timetable set out in Section 6; and
- **AGREE** that SECMP0063 should be progressed as a Path 3: Self-Governance Modification Proposal.

Where are we in the process?



SEC
Smart Energy Code

Stage 01: Initial Modification Report

SECMP0063:

Ensuring correct Network Operator Certificates are placed on Electricity Smart Meters

What stage is this document in the process?

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

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Summary

This modification seeks to ensure that correct Network Operator SMKI Certificates are placed on Electricity Smart Meters during commissioning. Currently over 10% of Smart Meters have the wrong SMKI Certificate in the Network Operator slot of the Smart Meter, preventing the true Network Operator from communicating with the Smart Meter. The Proposed solution to this Modification Proposal can only be applied to Electricity Smart Meters.

Proposed Progression

This Modification Proposal is recommended to be:

P3

- progressed as a Path 3: Self-Governance Modification Proposal; and
- progressed through the refinement process for ten months.

10 Months

Potential Impacts

!

- Large and Small Supplier Parties
- Electricity and Gas Network Parties
- DCC Systems

Gemserv

Content

About this Document

This is an Initial Modification Report (IMR). This document contains details of the issue, solution, potential impacts and costs as well as the proposed progression for SECMP0063.

This document has one attachment:

- Attachment A contains the SECMP0063 Modification Proposal Form.

The Panel will consider this IMR at its meeting on 12 October 2018 and determine how this modification should be progressed through the Modification Process.

1. Summary

What is the issue?

To maintain the security of the GB Smart Meter Network, a SMKI (Smart Metering Key Infrastructure) Certificate must be in placed on a Smart Meter during its commissioning. However, the incorrect Certificate is placed on the meter in approximately 10% of cases, preventing the true Network Operator from communicating with the Smart Meter. The SMKI Repository does not display the name of the Organisation which owns the Certificate making rectification of Certificates applied in error a labour-intensive manual process.

What is the Proposed Solution?

UK Power Network's solution is only applicable for Electricity Smart Meters and seeks to place an obligation on the DCC to validate the Electricity Network Operator Certificate, that the Supplier Party applies to place on the Smart Meter, against the first two digits of the Meter Point Administration Number (MPAN) core, which identifies the Electricity Network Operator.

Potential impacts

Party

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

System

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

Potential implementation costs

We believe that the cost to implement SECMP0063 will be made up of SEC and DCC time and effort as well as DCC system changes. The full impacts and total estimated cost to deliver this modification will be determined as part of the Working Group's assessment.

Proposed progression

We and the Proposer recommend this Modification Proposal is:

- Progressed as a Path 3: Self-Governance Modification Proposal; and
- Progressed through the Refinement Process for ten months.

2. What is the issue?

Background

What is SMKI?

SMKI is a Public Key Infrastructure (PKI) specific to DCC-based Smart Metering and is used where Organisations and Devices such as Smart Meters and Communications Hubs communicate with each other to ensure security.

It works on the basis of generating private keys that must be stored securely, and public keys that are published and available to anyone who is authorised to view them. These are generated as a pair, with SMKI putting the public key into a Certificate, which is then signed by the SMKI Issuing Certificate Authority so it can be trusted as genuine. Devices and Organisations sign messages with their private keys which allows a Device to know which Organisation to accept commands from, and the Organisation to validate the communications from a Device using their public key.

What is the issue?

SMKI Certificates are put on Smart Meters to ensure they communicate information securely and to the correct Organisations. The Proposer has identified that the incorrect Certificate is placed on the meter in approximately 10% of cases, preventing the true Network Operator from communicating with the Smart Meter. However, the SMKI Repository does not display the name of the Organisation which owns the Certificate. This creates manual effort for the Organisation whose Certificate is in the slot to issue an Update Certificate Command. Significant effort also goes into communicating, logging, tracking and resolving these issues.

With multiple Network Operators and Supplier Parties, there will be a significant amount of effort required to track and manage the issues to resolution if the underlying issue is not resolved before installation volumes increase. In areas where the meter installation rate increases, a 10% error rate will mean volumes in the thousands or tens of thousands per month which will be unmanageable using manual methods.

3. Solution

Proposed solution

UK Power Network's proposed solution is only applicable for Electricity Smart Meters. The MPAN core or unique identifier is composed of thirteen digits, of which the first two map to the Network Operator for the MPAN.

The DCC has access to MPANs as well as SMKI Certificates. The DCC can therefore validate the command that the Supplier Party issues to the meter, to place the Network Operator Certificate on the Electricity Smart Meter. Where the DCC knows which MPAN is assigned to the Electricity Smart Meter, they can verify that the Certificate being placed in the Network Operator slot is for the Network Operator associated with that MPAN. Should the MPAN be unknown, DCC systems can revert to default functionality and trust that the Supplier Party is updating to the correct Certificate. The DCC already validate the Service Request which is used to update the Certificates for a range of other invalid scenarios and thus there is precedent for this method.

SEC Appendix AC 'Inventory, Enrolment and Withdrawal Procedures' would need to be adjusted to make clear that the DCC will validate the Network Operator Certificate to be installed by the Supplier Party against the MPAN. SEC Appendix AD 'DCC User Interface Specification Version' would also need to be adjusted to make clear that an error code will be sent to the Supplier Party where the Network Operator Certificate to be installed by the Supplier Party does not match with the MPAN value.

Views against the General SEC Objectives

The Proposer believes that this Modification Proposal better facilitates General SEC Objectives (a), (f) and (g).

- **Objective (a)**[1]: Without this change Smart Metering Systems will not be operating correctly, and nor will it be efficient given the increased workload to fix issues. Additionally, it has become clear that there is a chance that Gas Transporter Certificates could be placed on Electricity Smart Metering Equipment. This could lead to the situation whereby the Smart Meter would need to be replaced, which is not an efficient operation of Smart Meters.
- **Objective (f)**[2]: This will improve the protection of data and security of systems, as in the current situation more Organisations have access to Smart Meters which are not associated with them.

[1] Facilitate the efficient provision, installation, and operation, as well as interoperability, of Smart Metering Systems at Energy Consumers' premises within Great Britain.
[2] Ensure the protection of Data and the security of Data and Systems in the operation of this Code.

- **Objective (g)**[3]: This also facilitates the compliance with this code by Suppliers as SEC Appendix AC 5.2(a) requires the Responsible Supplier to ensure that the Device Security Credentials are those of the appropriate Network Operator.

For the avoidance of doubt, the Proposer believes that this modification is neutral against remaining General SEC Objectives.

[3] Facilitate the efficient and transparent administration and implementation of this Code.

4. Potential Impacts

The following section sets out the initial assessment of likely impacts and costs should SECMP0063 be approved and implemented. Additional impacts may be identified by the Working Group as part of the Refinement Process.

SEC Party impacts

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

Supplier Party impacts

This modification is expected to impact all Electricity Supplier Parties as they will receive a notification when they attempt to place an incorrect Network Operator Certificate on an Electricity Smart Meter.

Network Party impacts

This modification is expected to impact Electricity Network Parties as it should significantly reduce or eliminate the number of Electricity Smart Meters with the incorrect Network Operator Certificates installed.

Central System impacts

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

This modification is expected to impact DCC Systems as an additional requirement will need to be put on DCC Systems that validates the Network Operator Certificate Suppliers Parties want to place on an Electricity Smart Meter against the first two digits of an MPAN.

Testing

Some testing will be required by the DCC to ensure that when a Supplier Party submits a Service Request to install an invalid Certificate, an appropriate error code is generated, and valid Service Requests are processed correctly.

SEC and Subsidiary Document impacts

SEC Appendix AC 'Inventory, Enrolment and Withdrawal Procedures' and SEC Appendix AD 'DCC User Interface Specification' will be impacted by this modification.

Impacts on other industry codes

There are no other codes anticipated to be impacted as a result of this modification.

Greenhouse Gas Emission impacts

This modification will not have an impact on Greenhouse Gas Emissions.

5. Potential Costs

Potential implementation costs

The cost to implement SECMP0063 is expected to include the following:

- SEC Administration time and effort for:
    - making the necessary amendments to the SEC;
    - releasing a new version of the SEC to SEC Parties; and
    - publishing this on the SEC website.

- DCC time and effort for:
    - developing the necessary changes to the DCC Systems – the specific areas impacted will be determined during the Refinement Process;
    - pre-integration, system integration and user testing; and
    - implementation to live.

The estimated costs and effort will be determined as part of the Working Group's assessment and development of the modification.

6. Proposed Progression

Modification Path

We and the Proposer recommend that SECMP0063 be progressed as a Path 3: Self-Governance Modification Proposal as this modification is not due to a Significant Code Review, nor does it have a material effect on the areas described for Path 2, nor is it a typo or minor inconsistency.

Proposed progression

We recommend the following progression timetable for Panel consideration.

Activity	Date
Modification Proposal raised	02 Oct 18
IMR presented to Panel	12 Oct 18
Working Group meeting	W/B 22 Oct 18 or 29 Oct 18
Working Group meeting (if required)	W/B 19 Nov 18 or 26 Nov 18
Preliminary Assessment	Dec 18 – Feb 19
Working Group meeting	W/B 11 Feb 19
Working Group Consultation	01 Mar 19 – 22 Mar 19
Impact Assessment	Apr 19 – Jul 19
Working Group meeting (if required)	W/B 22 Jul 19
Panel reviews Modification Report	09 Aug 19
Modification Report Consultation	12 Aug 19 – 02 Sep 19
Change Board vote	Sep 19

Refinement length

We recommend that this modification is submitted to the Refinement Process for ten months to allow for assessment by a Working Group. This ten-month timeframe will allow for:

- a full Working Group assessment to take place (we anticipate two to three Working Group meetings);

- one 15 Working Day industry consultation to be issued and reviewed; and
- a full DCC Assessment to be undertaken, approximately two months for Preliminary Assessment and three months for Impact Assessment.

For a more detailed progression plan please see Appendix 1.

Working Group

Membership

We recommend that the SECMP0063 Working Group be made up of individuals with expertise in SMKI and the process of placing Network Operator Certificates on Smart Meters during commissioning, as well as any other interested parties.

Terms of Reference

In order to assess the Modification Proposal fully, we are recommending that the Working Group consider the following specific questions in addition to the standard Working Group areas of assessment.

Q1: Is the method of validating MPAN numbers against Network Operator Certificates the only solution to this issue?

The Working Group should consider whether the proposed solution of validating Network Operator certificates against the first two digits of MPANs is the only possible solution to resolving the issue of Electricity Smart Meters having the wrong Network Operator Certificates loaded on them, or whether there are alternative options to resolve this issue.

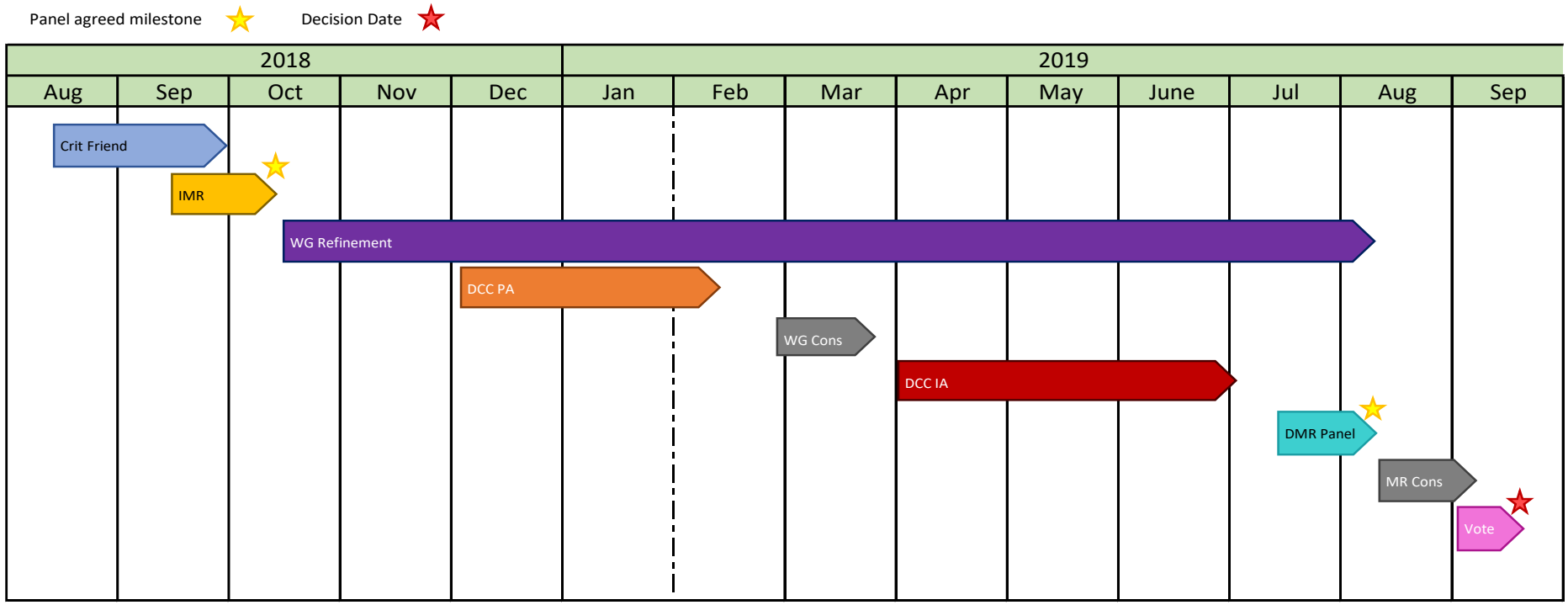
7. Recommendations

The Panel is invited to:

- **AGREE** that this modification should be submitted into the Refinement Process to be assessed by a Working Group;
- **AGREE** the Working Group Terms of Reference;
- **AGREE** the progression timetable set out in Section 6; and
- **AGREE** that SECMP0063 should be progressed as a Path 3: Self-Governance Modification Proposal.

Appendix 1: Detailed Progression Plan

Please note that the progression plan shown below is subject to change.



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Appendix 2: Glossary

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

Acronym	Defined Term
DCC	Data Communications Company
IMR	Initial Modification Report
MPAN	Meter Point Administration Number
PKI	Public Key Infrastructure
SEC	Smart Energy Code
SECAS	Smart Energy Code Administrator and Secretariat
SMKI	Smart Metering Key Infrastructure