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MP128A

‘Gas Network Operators SMKI Requirements’

Modification Report

Version 0.5

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About this document

This document is a Modification Report. It currently sets out the background, issue, solution, impacts and progression timetable for this modification, along with any relevant discussions, views and conclusions. This document will be updated as this modification progresses.

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This document also has one annex:

- **Annex A** contains the business requirements for the solution.
- **Annex B** contains the Data Communications Company's (DCC's) Preliminary Impact Assessment response.
- **Annex C** contains the redlined changes to the Smart Energy Code (SEC) required to deliver the Proposed Solution.

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1. Summary

This proposal has been raised by Earl Richards from Cadent Gas.

There is a SEC obligation on all Network Parties (which includes Gas Networks and Gas Transporters, collectively known as Gas Network Parties (GNPs)) to become Smart Metering Key Infrastructure (SMKI) Subscribers.

GNPs are required by the SEC to place their SMKI Organisation Certificates in the SMKI Repository and to undertake SMKI & Repository Entry Process Tests (SREPT). However, GNPs are not obligated to be DCC Users. Several Gas Network Operators (GNOs) who do not wish to be DCC Users have experienced difficulty and disproportionate costs in obtaining SMKI Organisation Certificates and see no benefit to their organisations by being compelled to make their SMKI Organisation Certificate available in the SMKI Repository.

This modification has been split into two parts. [MP128A 'Gas Network Operators SMKI Requirements'](#) seeks to address the issue whereby when there is a change in organisation for the GNO on a Device, the incoming GNO will be unable to communicate with the Device if the previous GNO's Organisation Certificates are present. To provide a more robust solution, further reducing the risk of incorrect SMKI Organisation Certificates being present on a Device, changes are needed to the DCC Systems and Service Provider. It also is intended to update the DCC's Post Commissioning reporting to reflect that Suppliers are able to leave the Access Control Broker (ACB) Certificate in the GNO slot of a Gas Proxy Function (GPF).

The solution implemented under [MP128B 'Incorrect Gas Network Operator Certificates'](#) has amended the Post Commissioning obligations so that Suppliers can leave the ACB Certificate in the GNO slot of the GPF, unless a Certificate for a GNP that is a DCC User is available in the SMKI Repository. It has also made it optional instead of mandatory for GNOs to become Subscribers for SMKI Organisation Certificates. However, if a GNO does wish to become a Subscriber for Organisation Certificates they must also be a DCC User and, if they subsequently choose not to be a DCC User, they must arrange for their Organisation Certificate to be replaced by an ACB Certificate.

Large Suppliers, Small Suppliers, GNPs, and the DCC will be impacted by this modification. The change will require DCC Systems changes which are estimated to cost (up to Pre-integration Testing (PIT)) between £0-150,000 and have a lead time of three months. If approved, the changes will be implemented in the November 2022 SEC Release. This is a Self-Governance Modification.

2. Issue

What are the current arrangements?

SEC Section B 'Accession' (2.10) currently requires all Network Parties (which includes Gas Networks and Gas Transporters) to become SMKI Subscribers.

Suppliers have an obligation in SEC Appendix AC 'Inventory, Enrolment and Decommissioning Procedures' to place Supplier and Network Operator SMKI Certificates on Devices Post Commissioning of Smart Metering Equipment Technical Specifications (SMETS) 2+ Devices.

The original policy intent was to include an obligation on GNPs, to ensure that the relevant SMKI Organisation Certificates can be placed by Suppliers and held on Devices. This allows:

- a Supplier to know the correct Network Operator; and
- future changes of status should the GNP want to become a DCC User.

What is the issue?

The SEC does not require GNPs to become DCC Users. Several GNPs who do not wish to be DCC Users have experienced difficulty and disproportionate costs in obtaining SMKI Organisation Certificates and see no benefit to their organisations by being compelled to make their SMKI Organisation Certificate available in the SMKI Repository.

Once a Network Operator Certificate is placed on a Device, it can only be changed by the Network Operator for the given Certificate and only if the Network Operator is a DCC User. This is particularly relevant where National Grid transferred ownership to Cadent Gas. Now Cadent Gas, who aren't a DCC User, are the Network Operator for those Devices but National Grid still has its Certificate held in those Devices. This means that Cadent Gas has no access/communications with those Devices as it is not the registered Network Operator on the Certificate.

What is the impact this is having?

This obligation is incurring an unnecessary burden for GNPs where they feel there is no benefit in becoming a DCC User. If the current arrangements are not amended, the unnecessary costs and burden on Gas Networks will continue.

Additionally, obligating Suppliers to place GNP Organisation Certificates on Devices increases the risk of GNPs being unable to exchange those Certificates if the previous GNP failed to remove its Certificates before a change in organisation.

Impact on consumers

This issue does not impact consumers.

3. Solution

Proposed Solution

Based on current arrangements, there are no grounds for a GNP having a mandatory obligation to place their SMKI Organisation Certificates in the SMKI Repository. Therefore, the solution seeks to provide optionality to GNPs to place their Organisation Certificate in the SMKI Repository. During discussions with the Working Group and the Security Sub-Committee (SSC) it was agreed that flexibility must be provided as there may be GNPs who do wish to become DCC Users either now or in the future. However, there is a possibility that, GNPs may be required to become DCC Users in the future.

The solution seeks to amend the obligation on Suppliers in SEC Appendix AC to make the requirement to place the GNO Certificate on a Device optional. Also, to clarify that, where a SMKI Organisation Certificate for a GNP that is a DCC User exists, then the Supplier should put it onto the Device Post Commissioning. Where there is no GNP Organisation Certificate available in the SMKI Repository, the Supplier shall leave the ACB Certificate in the Device.

The solution also adds an obligation for GNPs to submit a Certificate Revocation Request and to not subscribe to any further Organisation Certificates if it no longer intends to be a DCC User.

4. Impacts

This section summarises the impacts that would arise from the implementation of this modification.

SEC Parties

SEC Party Categories impacted			
✓	Large Suppliers	✓	Small Suppliers
	Electricity Network Operators	✓	Gas Network Operators
	Other SEC Parties		DCC

GNPs are impacted as it would be optional instead of mandatory for them to become SMKI Subscribers. Also, if a GNP intends to cease being a DCC User, it will need to submit a Certificate Revocation Request to remove its Certificates and must not subscribe to any further Organisation Certificates.

Suppliers will also be impacted as the solution clarifies the Post Commissioning obligations for when there is and is not GNP Organisations Certificates available in the SMKI Repository. Where they are not, Suppliers will be permitted to leave the ACB Certificate in the GNP slot of the GPF.

DCC System

The DCC System will be impacted by this modification, as changes to the Data Service Provider's (DSP's) processing of certain over-the-air messages are required. See the subsection below titled 'Revoking GNP Organisation Certificates' for full details.

SEC and subsidiary documents

The following parts of the SEC will be impacted:

- Section L 'Subscriber Obligations'
- Appendix B 'Organisation Certificate Policy'
- Appendix AC 'Inventory, Enrolment and Decommissioning Procedures'

Consumers

There are no impacts to Consumers from this Modification.

Other industry Codes

There are no impacts to other industry Codes from this Modification.

Greenhouse gas emissions

There are no impacts on Greenhouse gas emissions from this Modification.

5. Costs

DCC costs

The estimated DCC implementation costs to implement this modification is between £0 and £150,000. The breakdown of these costs are as follows:

Breakdown of DCC implementation costs	
Activity	Cost
Design, Build and Pre-Integration Testing (PIT)	£0 - £150,000
Systems Integration Testing (SIT)	TBC
User Integration Testing (UIT)	TBC
Implement to Live	TBC
Application Support	TBC

Costs to implement are subject to change, depending on the results of the DCC's Full Impact Assessment. More information can be found in the DCC Preliminary Assessment response in Annex B.

SECAS costs

The estimated Smart Energy Code Administrator and Secretariat (SECAS) implementation cost to implement this as a stand-alone modification is one days of effort, amounting to approximately £600. This cost will be reassessed when combining this modification in a scheduled SEC Release. The activities needed to be undertaken for this are:

- Updating the SEC and releasing the new version to the industry.

6. Implementation approach

Recommended implementation approach

The SECAS is recommending an implementation date of:

- **November 2022** (November 2022 SEC Release) if a decision to approve is received on or before August 2022; or
- **June 2023** (June 2023 SEC Release) if a decision to approve is received after August 2022 but on or before March 2023.

Recommended implementation dates are subject to change, depending on the results of the DCC's Full Impact Assessment.

7. Assessment of the proposal

Observations on the issue

The Change Sub-Committee (CSC) members agreed the issue was clearly defined. A CSC member had concerns on how the change would affect Suppliers moving forward. SECAS has confirmed that Suppliers will be required to ensure they place the Gas Network Organisation Certificates on Devices where a SMKI Certificate exists and a ACB Certificate where no Gas Network Organisation Certificate exists.

The SMKI Policy Management Authority (PMA) agreed that the GNP obligations were initially included in the SEC as future proofing, but the benefits expected may no longer be realised. Furthermore, another member outlined there could be increased risks if GNPs are required to have Certificates on Gas Smart Metering Equipment (GSME), as GNPs are unable to update Certificates if the Device moves to another Network Operator after the sale of a Gas Network business, for example. This would result in the incoming organisation fulfilling the role of the Gas Network Operator being unable to communicate with the Device.

The SSC agreed with the SMKI PMA that the obligation was put in place initially as future proofing. They were supportive of making the requirement optional rather than mandatory.

Solution development

Post Commissioning obligations

The initial solution from the Proposer was to change the obligation placed in SEC Section X1.11. However, following advice from the SMKI PMA, the solution was developed into focusing on SEC Appendix AC. The solution seeks to amend the obligation on Suppliers in Appendix AC to clarify that, where a SMKI Organisation Certificate for a Gas Network Operator or Gas Transporter exists, then they should put it onto the Device post Commissioning and where no Network Organisation Certificate exists the Supplier should use the ACB Certificate.

As part of its Preliminary Assessment, the DCC agreed that its Post Commissioning reporting would require updating to reflect that Suppliers are allowed to leave the ACB Certificate in the GNO slot of a GPF. More details can be found in Annex B.

Revoking GNP Organisation Certificates

Business requirement 2 places a requirement on GNPs that are DCC Users that intend to cease being a DCC User. Where this is the case, the GNP shall replace its Organisation Certificates on the Devices with an ACB Certificate prior to ceasing to be a DCC User.

SECAS noted in essence, this is trying to prevent the issue that arose with National Grid and Cadent Gas occurring again in the future. National Grid had not removed their Certificate before they had ceased to become an organisation and therefore no other Network Party can communicate with those Devices nor can they change the Certificates.

A Network Party agreed with the intent of the requirement but questioned whether it is possible for GNPs to exchange their Certificates for ACB Certificates. It reported that two years ago when it was experiencing problems with its Certificates, it worked with the DCC to try and test sending ACB Certificates to a Device. This was unsuccessful and the DCC never confirmed if it should be possible. A Supplier also experienced the same issue in User Integration Testing (UIT) when it was unsuccessful in using SR6.15.1 'Update security credentials (Known Remote Party (KRP))' to exchange GNO Certificates for ACB Certificates. The Supplier suggested it could have been because they were using a Supplier Role and not a Network Operator Role.

The Supplier also advised that it would be more useful to Suppliers if they could exchange Network Operator Certificates for ABC Certificates in order to re-install them in different Network Operator areas. However, this was not investigated further as the Technical Architecture and Business Architecture Sub-Committee (TABASC) representative for the SSC advised it would be contrary to the security model.

SECAS later discussed the business requirement at a requirements workshop attended by several Parties, including the DCC, DSP, Chairs of the SSC and the TABASC, and representative from the Department for Business, Energy and Industrial Strategy (BEIS). The DSP confirmed that this should be possible for a GNP to exchange its Certificate for an ACB Certificate in the GPF. It confirmed that there is nothing in the GB Companion Specification (GBCS) nor the DCC User Interface Specification (DUIS) that prohibits this. However, it was agreed that it should be tested within a System Integrations Testing (SIT) environment.

It was noted that even if the GNP replaces its Certificate with an ACB, the Organisation Certificate still needs to be revoked from the SMKI Repository. It was confirmed that the SMKI PMA can revoke Certificates and that doing so gives the Organisation Certificate a status of 'revoked'.

An additional requirement was subsequently agreed to the effect of "A GNP shall submit a Certificate Revocation Request and shall not subscribe to any further Organisation Certificates if it no longer intends to be a DCC User". The SSC/SMKI PMA Chair advised that SEC Appendix B 'Organisation Certificate Policy', section 4.9.1 (A) 'Circumstances for Revocation' would require an update to reflect the new requirement. This would be an additional third sub-bullet (iii) to ensure a Subscriber requests to revoke its Certificates if it no longer intends to be a DCC User.

With regards to Business Requirement 2, the DCC's Preliminary Impact Assessment concluded that to replace the GNO Certificate held within the Network Operator Trust Anchor Cell of a GPF Device, the GNO will need to send Service Reference Variant (SRV) 6.15.1 'Update Security Credentials (KRP)' with an ACB Certificate as the replacement Certificate. This is currently supported by the DCC

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Total System and therefore no changes are required to the DSP solution to meet this aspect of the requirement.

GBCS also supports this scenario for the CS02b 'Update Security Credentials' Command on the GPF. However, in this scenario where an ACB certificate has been placed on a GPF by a departing GNO, then any subsequent SRV 6.21 'Request Handover of DCC Controlled Device (Update Supplier Certificates)' request to place a new GNO certificate on that Device at any point in the future will need to pass Device anti-replay checks for the Network Operator Trust Anchor Cell.

For this to be possible, the DSP will need to be aware of the Originator Counter that was used by the GNO when it submitted the SRV 6.15.1 that placed the ACB Certificate on the Device.

The northbound processing of SRV 6.15.1 will therefore be amended such that when the DCC Total System detects that the Security Credentials of a GNO in a GPF has been successfully replaced with the ACB Security Credentials, the Originator Counter of the message will be recorded.

Southbound processing of SRV 6.21 will then also be amended to ensure that the Originator Counter generated by the DCC Total System is greater than the recorded number, thus ensuring that the command will be accepted by the Device.

If this tracking of the Originator Counter is not carried out by the DSP then the DSP will be unable to create a command that passes Device anti-replay checks and it will no longer be possible to put a valid GNO Certificate on that Device at any point in the future.

Support for Change

All five respondents to the Refinement Consultation were GNPs. All respondents noted that the change would have no or very minor impacts or cost on their business. They believed that the Proposed Solution should be approved and would promote efficiency.

Business Case for Change

Advantages to implementing this change

- In the event of a Gas Network Organisation being sold, the Certificates held on Devices will no longer become obsolete with no way to change them except a site visit and possibly replacement of the Device.

Disadvantages of implementing this change

- Some GNOs may have to update their internal processes to ensure they comply with the changes.

Views against the General SEC Objectives

Proposer's views

The Proposer believes this Modification better facilitates SEC Objective (d)¹ by providing optionality for GNPs to not undergo the SREPT, which the Proposer believes would be more cost-efficient.

Industry views

The Refinement Consultation respondents also agreed that this better facilitated SEC Objective (d).

One respondent also believed this modification better facilitated SEC Objective (g)² as this change will remove unnecessary costs and obligations.

Views against the consumer areas

Improved safety and reliability

The Modification Proposal is neutral against this consumer benefit area.

Lower bills than would otherwise be the case

The Modification Proposal is neutral against this consumer benefit area.

Reduced environmental damage

The Modification Proposal is neutral against this consumer benefit area.

Improved quality of service

The Modification Proposal is neutral against this consumer benefit area.

Benefits for society as a whole

The Modification Proposal is neutral against this consumer benefit area.

¹ To facilitate effective competition between persons engaged in, or in commercial activities connected with, the supply of energy.

² To facilitate the efficient and transparent administration and implementation of this Code.

Appendix 1: Progression timetable

Following return of the assessment this proposal will be presented to the Working Group and the Panel Sub-Committees before a Refinement Consultation is issued.

Timetable	
Event/Action	Date
Draft Proposal raised	11 May 2020
Presented to CSC for initial comment	26 May 2020
Panel converts Draft Proposal to Modification Proposal	19 Jun 2020
Solution Development with Proposer	21 Jun 2020
Modification discussed at SMKI PMA	21 Jul 2020
Modification discussed at SSC	22 Jul 2020
Modification discussed at Working Group	5 Aug 2020
Refinement Consultation	17 Aug – 7 Sep 2020
Modification discussed at SMKI PMA	18 May 2021
Modification discussed at Working Group	2 Jun 2021
Modification discussed at TABASC	3 Jun 2021
Preliminary Impact Assessment requested	6 Jul 2021
Preliminary Impact Assessment returned	10 Aug 2021
Modification discussed at Working Group	1 Sep 2021
Modification discussed at SMKI PMA	8 Sep 2021
Impact Assessment costs approved by Change Board	13 Dec 2021
Full Impact Assessment requested	15 Dec 2021

Appendix 2: Glossary

This table lists all the acronyms used in this document and the full term they are an abbreviation for.

Glossary	
Acronym	Full term
ACB	Access Control Broker
BEIS	Department for Business, Energy and Industrial Strategy
CSC	Change Sub-Committee
DCC	Data Communications Company
DSP	Data Services Provider
DUIS	DCC User Interface Specification
GBCS	GB Companion Specification
GNP	Gas Network Party
GPF	Gas Proxy Function

Glossary	
Acronym	Full term
GSME	Gas Smart Metering Equipment
KRP	Known Remote Party
SEC	Smart Energy Code
SECAS	Smart Energy Code Administrator and Secretariat
SMETS	Smart Metering Equipment Technical Specifications
SSC	Security Sub-Committee
SMKI	Smart Metering Key Infrastructure
SMKI PMA	Smart Metering Key Infrastructure Policy Management Authority
SREPT	SMKI & Repository Entry Process Tests
SRV	Service Reference Variant
TABASC	Technical Architecture and Business Architecture Sub-Committee