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MP147 'SMKI Full Extract'

Modification Report

Version 1.0

5 March 2021



About this document

This document is a Modification Report. It sets out the background, issue, solution, impacts, costs, implementation approach and progression timetable for this modification, along with any relevant discussions, views and conclusions.

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This document also has two annexes:

- **Annex A** contains the redlined changes to the Smart Energy Code (SEC) required to deliver the Proposed Solution.
- **Annex B** contains the responses received to the Refinement Consultation.

Contact

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1. Summary

This proposal was raised by Chun Chen on behalf of the Data Communications Company (DCC).

The full Smart Meter Key Infrastructure (SMKI) extract, which is run daily, is currently 16GB in size, and will only grow as Devices are added to the DCC ecosystem. Each day, the DCC provides a full SMKI extract. The full extract is now taking several hours for Parties to download, and more than 24 hours for the DCC to produce.

The Proposed Solution seeks to amend the obligation of file production from a daily to weekly basis with daily incremental updates.

This modification has an impact on the DCC. There are no costs to SEC Parties as a result of this change. This is a Self-Governance Modification and is targeted for implementation in the June 2021 SEC Release.

2. Issue

What are the current arrangements?

Currently the DCC provides a full SMKI extract as required by SEC Appendix O 'SMKI Repository Interface Design Specification', Section 2.3.3. This can be used by SEC Parties to reconcile their data and acts as a backup in the event that there is a problem with the SMKI Repository.

The full SMKI extract is a large file that is produced daily. In addition to the large SMKI extract file, there are daily incremental reports that inform SEC Parties on where Device certificates from the SMKI Repository Web Service interface belong. Generally, although the full SMKI extract is produced daily, this is only required for when a Party first commences the process, or in scenarios of disaster recovery. The daily incremental reports, which take a few minutes (per hundred thousand Devices) to download, enables the User to maintain a daily synchronised copy of the Certificates in the SMKI Repository.

What is the issue?

The full SMKI extract, which is run daily, is currently 16GB in size, and will only grow as Devices are added to the DCC ecosystem. This full extract is now taking several hours for Parties to download, and more than 24 hours for the DCC to produce.

What is the impact this is having?

The impact of not amending the frequency of the production of the report is the risk of the DCC not being able to meet its obligations in the current timescales to produce full extract for download and the time taken for Parties to download it.

Impact on consumers

There is no impact on consumers from this issue.

3. Solution

Proposed Solution

The Proposed Solution seeks to amend the reference in 'SEC Appendix O 'SMKI Repository Interface Design Specification' Section 2.3.3. so that the DCC is no longer obliged to produce the full SMKI extract daily. Instead, the obligation will be for the DCC to produce the extract on a weekly basis. This will be simpler for the DCC processes, reducing the time taken and effort required to produce the full SMKI extract.

In instances of failure, Parties will still be able to download the full SMKI extract file, for recovery. Once recovery is completed, Parties will be able to download the subsequent daily incremental reports to bring themselves fully up to date.

If not implemented the current arrangements may become untenable and create difficulty in the DCC's obligation to produce the full SMKI extract. It already takes more than 24 hours to produce and the file will become larger and require a longer time to produce as the number of Devices increases.

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

Other than the DCC, no SEC Parties are expected to be impacted by this change,

The one Refinement Consultation respondent (a Network Party) noted that there may be an impact to their organisation's systems.

DCC System

There is no impact on the DCC Systems.

SEC and subsidiary documents

The following parts of the SEC will be impacted:

- Appendix O 'SMKI Repository Interface Design Specification'

The changes to the SEC required to deliver the proposed solution can be found in Annex A.

Consumers

There is no impact on consumers from this modification.

Other industry Codes

There is no impact on other industry Codes from this modification.

Greenhouse gas emissions

There is no impact on greenhouse gas emissions from this modification.

5. Costs

DCC costs

There are no DCC costs to implement this change.

SECAS costs

The estimated Smart Energy Code Administrator and Secretariat (SECAS) implementation costs to implement this modification is one day of effort, amounting to approximately £600. The activities needed to be undertaken for this are:

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

SEC Party costs

There are no anticipated costs to SEC Parties. The sole Refinement Consultation respondent noted there may be a cost to their business due to system changes required.

6. Implementation approach

Agreed implementation approach

Panel agreed an implementation date of:

- **24 June 2021** (June 2021 SEC Release) if a decision to approve is received on or before 10 June 2021; or
- **4 November 2021** (November 2021 SEC Release) if a decision to approve is received after 10 June 2021 but on or before 21 October 2021.

This is a document only change and it has no impact on DCC Systems; it is simply amending the obligation on the DCC to provide the full SMKI extract from a daily to weekly basis. The Refinement Consultation respondent agreed with the implementation approach.

7. Assessment of the proposal

Observations on the issue

SECAS informed the Change Sub-Committee (CSC) that it had reached out to Parties for information on impacts and importance of the full SMKI extract for their business. No Parties specifically came forward to outline the impacts on their business. CSC members advised if there is an impact or consequence on SEC Parties, this can be address further in the Refinement Process.

The Security Sub-Committee (SSC) members also agreed that the issue was clear. An SSC member queried, if no SEC Parties use the full SMKI extract, whether the production and download process remains necessary.

Solution development

The Technical Architecture and Business Architecture Sub-Committee (TABASC) Chair advised during a SMKI Policy Management Authority (PMA) meeting¹ that the full SMKI extract is necessary for recovery of data in instances of catastrophic failure. This justified the need for the full SMKI extract to be produced regularly, however it was agreed that a weekly extract with seven daily incremental updates would be acceptable.

A Working Group member recommended the full SMKI extract should be broken down by Party for the purpose of improving the efficiency of the process. The DCC responded advising this has been previously discussed as each Party is only interested in Devices that relate to them. However, this requires more work and possibly System changes and would require a separate modification.

¹ SECPMA_75_1711

Support for Change

The SMKI PMA advised SECAS that the full SMKI extract cannot be removed altogether as it is needed for recovery purposes, but it can be changed from daily to weekly with seven daily incremental updates.

The Working Group supported the solution.

The Refinement Consultation received one response from a Network Party. The respondent agreed with the Proposed Solution on the basis of the availability of the daily SMKI download, noting their business will be able to remain up to date. They added that their business would only use the full SMKI extract in disaster recovery scenarios, where partial or full data loss occurred.

Views against the General SEC Objectives

Proposer's views

The Proposer believes this modification will better facilitate SEC Objective (b)² as it will reduce the amount of time spent producing the full SMKI extract.

Industry views

The Refinement Consultation respondent agreed with the Proposer that this Modification better facilitates SEC Objective (b) as it further enables the DCC to comply with their license.

Views against the consumer areas

Improved safety and reliability

This modification has a positive impact on improved reliability of consumer information. By reducing the time taken for the DCC to produce the full SMKI extract, and for Parties to download the extract, this will improve the reliability of SEC Parties managing their Smart Metering Systems.

Lower bills than would otherwise be the case

This modification will have no effect on consumers' bills.

Reduced environmental damage

This modification will have no effect on environmental damage.

² Enable the Data Communications Company to comply at all times with the General Objectives of the Data Communications Company (as defined in the Data Communications Company Licence), and to efficiently discharge the other obligations imposed upon it by the Data Communications Company Licence.

Improved quality of service

This modification will improve quality of service by reducing the file size of the full SMKI extract to reduce time and effort for the DCC to produce it and reduce time for DCC Users to download it.

Benefits for society as a whole

This modification will ensure there is an appropriate back up for the SMKI Repository but is not overly burdensome for the DCC and for DCC Users downloading the information.

Appendix 1: Progression timetable

This Modification Report will now be presented to Panel for approval to progress to the Report Phase. Following the Modification Report Consultation, it will then be presented to Change Board for vote under Self-Governance.

Timetable	
Event/Action	Date
Draft Proposal raised	23 Oct 2020
Presented to CSC for comment and recommendation	27 Oct 2020
Modification discussed with SSC	27 Oct 2020
Panel converts Draft Proposal to Modification Proposal	13 Nov 2020
Solution development with the Proposer	w/c 16 Nov 2020
Modification discussed with SMKI PMA	17 Nov 2020
Modification discussed with Working Group	6 Jan 2021
Refinement Consultation	25 Jan – 12 Feb 2021
Modification Report approved by Panel	12 Mar 2021
Modification Report Consultation	15 Mar 2021 – 2 Apr 2021
Change Board Vote	14 Apr 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
CSC	Change Sub-Committee
DCC	Data Communications Company
SEC	Smart Energy Code

Glossary	
Acronym	Full term
SECAS	Smart Energy Code Administrator and Secretariat
SMKI	Smart Meter Key Infrastructure
SMKI PMA	SMKI Policy Management Authority
SSC	Security Sub-Committee
TABASC	Technical Architecture and Business Architecture Sub-Committee

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Annex A

Legal text – version 1.0

About this document

This document contains the redlined changes to the SEC that would be required to deliver this Modification Proposal.

Appendix O 'SMKI Repository Interface Design Specification'

These changes have been redlined against Appendix O version 2.0

Amend Section 2.3.3 as follows:

2.3.3 Retrieval of SMKI Repository content

The DCC shall ensure that the SMKI Repository SFTP interface enables DCC Gateway Connection users' systems to download the following files that are lodged in the SMKI Repository, where they have successfully established a connection to the SFTP Interface:

- a) a file in .gz format and having a name of form *SMKIKR_FULL_YYYY-MM-DD.xml.gz*, updated weekly by the time set out in the SMKI Repository User Guide, containing:
 - i. an XML file which complies with the SMKI Repository Web Service interface schema as set out in Annex B of this document, having a name of the form *SMKIKR_FULL_YYYY-MM-DD.xml* and which contains Certificates, comprising OCA Certificates, DCA Certificates, Organisation Certificates, Device Certificates and with a status of 'In-Use'.
- b) seven files in .gz format and having names of the form *SMKIKR_DELT_YYYY-MM-DD.xml.gz*, updated daily, each of which contains:
 - i. an XML file which complies with the SMKI Repository Web Service interface schema as set out in Annex B of this document, having a name of the form *SMKIKR_DELT_YYYY-MM-DD.xml* and which contains Certificates comprising OCA Certificates, DCA Certificates, Organisation Certificates, and Device Certificates Issued and lodged in the SMKI Repository during the preceding twenty four hours or whose Certificate status has change. This will enable the user to maintain a daily synchronised copy of the Certificates in the SMKI Repository. Each of the daily files will be available for 7 days from publication and shall then be removed by the DCC from the SMKI Repository.
- c) a file with extension 'gz' that is the latest Organisation ARL;
- d) a file with extension 'gz' that is the latest Organisation CRL;
- e) a file in .gz format, updated as necessary, containing the base set of Organisation Certificates and OCA Certificates required to populate Device anchor slots prior to installation for the North Region; and
- f) a file in .gz format, updated as necessary, containing the base set of Organisation Certificates and OCA Certificates required to populate Device anchor slots prior to installation for the Central Region and South Region.

The DCC shall ensure that SFTP files holding Certificates will be made available in .gz format, with all versions of .gz being supported. Each .gz file will contain a single XML file which complies with the XML schema as set out in Annex B, containing individual Certificates, represented as Base64 encoded strings.

The DCC shall ensure that the Organisation Certificates and OCA Certificates contained within the two Device anchor slot Certificate files shall be the same, other than the Organisation Certificates required to populate the WAN provider Device anchor slot.

The DCC shall lodge a document in the SMKI Repository, which sets out details of which of the base set of Organisation Certificates and OCA Certificates may be placed in specific Device anchor slots.

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Annex B

Refinement Consultation responses

About this document

This document contains the full collated responses received to the MP147 Refinement Consultation.

Question 1: Does your organisation use the full SMKI extract and how frequently?

Question 1			
Respondent	Category	Response	Rationale
Scottish and Southern Electricity Networks	Network Party	Yes	As we would only use the 'SMKI Full' in disaster recovery scenarios whereby we have partial or full data loss, this is not something we use in any regular frequency.

Question 2: Do you agree with the solution put forward?

Question 2			
Respondent	Category	Response	Rationale
Scottish and Southern Electricity Networks	Network Party	Yes	Due to the availability of the daily SMKI Delta, we will be able to ensure we can remain up to date by using these alongside a SMKI Full load if this modification is approved.

Question 3: Will there be any impact on your organisation to implement MP147?

Question 3			
Respondent	Category	Response	Rationale
Scottish and Southern Electricity Networks	Network Party	Yes	As our systems use the most recent SMKI file date regardless of the Full or Delta file used. We would need to implement system changes for our adapter to retrieve delta files after the Full or there would be gaps within the data after the generation of the Full file.

Question 4: Will your organisation incur any costs in implementing MP147?

Question 4			
Respondent	Category	Response	Rationale
Scottish and Southern Electricity Networks	Network Party	Potential	Noting the impacts highlighted in question 3, due to the DCC only changes required within this Modification, this has resulted in a short implementation timeframe. Due to IT changes required, this may not leave enough time for SSEN to implement required changes if the 24th June 2021 date is met.

Question 5: Do you believe that MP147 would better facilitate the General SEC Objectives?

Question 5			
Respondent	Category	Response	Rationale
Scottish and Southern Electricity Networks	Network Party	Yes	SSEN agree that this will support SEC Objective (b) - Enable the Data Communications Company to comply at all times with the General Objectives of the Data Communications Company as described in this consultation.

Question 6: Noting the costs and benefits of this modification, do you believe MP147 should be approved?

Question 6			
Respondent	Category	Response	Rationale
Scottish and Southern Electricity Networks	Network Party	Yes	As documented in the consultation, there will be no costs to SEC Parties. We further note and assume that the £600 one day of effort cost to update the SEC and releasing the new version to the industry will be absorbed by the DCC or SECAS.

Question 7: How long from the point of approval would your organisation need to implement MP147?

Question 7			
Respondent	Category	Response	Rationale
Scottish and Southern Electricity Networks	Network Party	Unknown	At this point, we are unsure at this point how long implementation would take.

Question 8: Do you agree with the proposed implementation approach?

Question 8			
Respondent	Category	Response	Rationale
Scottish and Southern Electricity Networks	Network Party	Yes	We agree with the recommended implementation approach as detailed in the consultation. We also note the concerns of the earliest implementation date within question 4.

Question 9: Do you agree that the legal text will deliver MP147?

Question 9			
Respondent	Category	Response	Rationale
Scottish and Southern Electricity Networks	Network Party	Yes	We agree that the legal text change delivers the required change for MP147

Question 10: Do you believe there will be any impacts on or benefits to consumers if MP147 is implemented?

Question 10			
Respondent	Category	Response	Rationale
Scottish and Southern Electricity Networks	Network Party	No	-

Question 11: Please provide any further comments you may have.

Question 11		
Respondent	Category	Comments
Scottish and Southern Electricity Networks	Network Party	-