

Stage 01: Initial Modification Report

What stage is this document in the process?

01	Initial Modification Report
02	Refinement Process
03	Report Phase
04	Final Modification Report

SECMP0024:

Enduring Approach to Communication Hub Firmware Management

This modification seeks to develop and implement an enduring solution for a supplier controlled release of firmware to Communication Hubs (CHs). The solution proposed is to develop and implement a CH firmware deployment and activation ‘safe launch’ plan supported by new DCC User Interface Specification (DUIS) Service Requests. This is necessary to ensure that supplier operations – necessary to maintain smart metering performance obligations – can be controlled, and that any impact from issues related to CH firmware upgrade and activation is minimised.

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The recommendation is that this Modification Proposal should:

- follow Path 2: Authority Determination; and
- be progressed through the Refinement Process.



Potential Impact on:

- Data and Communication Company (DCC) Systems, particularly DUIS
- Small and Large Supplier Parties
- User Systems



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About this document

This document is an Initial Modification Report. It enables the SEC Panel to consider how this Modification Proposal should be progressed through the Modification Process.

The Panel considered this at their meeting on 11th November 2016.

1. Summary

This section provides an overview of SECMP0024. For further details on the Modification Proposal, please refer to subsequent sections. Defined terms and acronyms used in this document are listed in the Glossary (Appendix A) of this document.

1.1 What is the issue?

The Proposer (E.ON Energy) considers that there is currently a significant risk that a Communication Hub (CH) firmware update with defects or interoperability issues could be deployed and activated to significant numbers of CHs. This could create a range of issues, including:

- a conflict caused by a programmed configuration change to a supplier's smart metering Device that is scheduled at the same time as a CH firmware update is deployed and activated by the Data and Communication Company (DCC);
- a supplier's scheduled firmware deployment to a smart metering Device occurs at the same time that the DCC is deploying a firmware to a CH; and

1.2 Proposed Solution

To mitigate these issues, the Proposer seeks to develop and implement an agreed "safe launch" process for the deployment and activation of a CH firmware upgrade. The Proposer has specified eight potential requirements that could form the basis of the safe launch process. For example, the DCC formally notify suppliers regarding the timing of firmware upgrades to CHs. These requirements are described in more detail in section 3.1 of this document.

1.3 Potential Impacts

The modification would implement a coordinated approach to CH firmware upgrades. This is expected to impact Small and Large Supplier Parties. The modification would require a new SR (or SRs) in the DUIS, which would impact DCC and User systems.

1.4 Proposed progression

The Proposer has requested that this modification be implemented as soon as possible.

SECAS proposes an initial target implementation date of November 2018. This target date is based on the high-level progression timetable in section 6 of this document. The timetable takes into account the associated SEC requirement that the modification go through the Refinement Process. This is due to the identified impacts on the DCC and User Systems, which meets the SEC Section D3.9(c) requirements for the Refinement Process to be followed.

SECAS and the Proposer propose that SECMP0024 is progressed as a Path 2: Authority-determined modification. This is because it would introduce additional responsibilities for the Panel, the DCC and Supplier Parties. The potential impact on the Panel may require changes to SEC Section C (Governance) or related provisions. SEC Section D2.6(d) requires that modifications that are likely to have a material effect on the arrangements set out in SEC Section C shall have the status of a Path 2 modification

2. What is the issue?

The Proposer notes that there is currently a significant risk that a CH firmware update that contains defects or interoperability issues could be deployed and activated to significant numbers of CHs, which could have an impact on activities being undertaken by the supplier. These issues include:

- A conflict caused by a supplier-initiated configuration change (e.g. a Change of Supplier (CoS) event, price change, or tariff change) to a smart metering Device that is scheduled at the same time as a CH firmware update is deployed and activated by the DCC;
- A supplier-scheduled firmware deployment to a smart metering Device that occurs at the same time that the DCC is deploying a firmware update to a CH;
- Historical consumption data being uploaded to supplier systems on behalf of the consumer at the same time CH firmware is being deployed by DCC, which may cause a problem with the historical data being displayed; and
- A poor consumer experience if a consumer is attempting to interface with the Smart Metering System (e.g. prepayment top-up) at the same time the DCC is deploying a CH firmware upgrade.

Furthermore, the Proposer notes that these issues could go undetected or be stumbled on at a later date. That would allow further tranches of defective firmware to be deployed and activated, further amplifying the problems outlined above.

3. Proposed Solution

3.1 What's the solution?

The Proposer seeks to develop an agreed “safe launch” process for the deployment and activation of a CH firmware upgrade. The process would recognise the severity and priority of each individual upgrade by using the following requirements.

1. In advance of any firmware deployment to the CH (but no later than when a new CH Device Model is added to the Certified Products List (CPL) because of a associated firmware upgrade), the DCC will formally notify suppliers regarding a firmware upgrade to CH. This notification should include:
 - The CH Device Model, type and version subject to the firmware upgrade;
 - Information nominally included in the release note for the relevant version of firmware to be deployed;
 - The severity of the upgrade – i.e. critical, high, medium or low;
 - The priority of the upgrade – i.e. immediate, high, medium or low; and
 - Timescales for deployment – dates by which the firmware deployment and activation needs to be deployed.
2. The ability for a supplier to identify the number of affected CH requiring firmware upgrades across its smart metering portfolio.
3. The ability for the supplier to provide lists to the DCC of affected CHs (e.g. from pre-selected “friendly” customers) via a new non-Device Service Request (SR), under the proposed “safe launch” process for initial deployment. This SR would have the following requirements:
 - The proposed new SR should enable the supplier to include up to a specified number of Device IDs, for example 50,000. This is intended to allow suppliers to monitor performance of Smart Metering Systems (where the firmware upgrade has been targeted) as the CH firmware is deployed and activated.
 - If the DCC receives the proposed new SR within a predetermined number of Working Days from the initial notification, then the firmware shall only be deployed to CHs whose Device IDs have been specified within the SR.
 - If the DCC does not receive the proposed new SR within the agreed timescale, the DCC shall deploy the firmware as per its deployment plan.
4. A mechanism for the DCC and suppliers to provide and share results of each CH firmware upgrades specified in the SR (within an agreed Service Level Agreement (SLA)). This will allow the DCC and suppliers to validate whether the new CH firmware has produced any issues or not.
5. Development and deployment of a formal communication from the DCC when:
 - a “safe launch” gate has been achieved and progressed to the next deployment level; or
 - a “safe launch” gate has not been achieved, and a description of the failure mechanism and mitigating actions proposed by DCC.

6. Providing information to suppliers on CH firmware deployment and activation for each subsequent tranche of mass deployed CH firmware once the “safe launch” has successfully completed. This could be by:
- reports being provided to a ‘responsible forum’ (e.g. the SEC Panel) after a predetermined number of days from receiving the communication from the DCC; or
 - if it is agreed that the firmware should continue to be deployed, the supplier could choose to continue to notify the DCC of which CH should be upgraded using the new SR noted above.

Providing suppliers with the opportunity to defer a CH firmware upgrade if deployment and activation could compromise a supplier’s ability to conform to regulatory obligations. For example, if a Device could no longer transmit Half Hourly data. If it is believed that the firmware should not be deployed, a report setting out any material vulnerabilities with the firmware and providing a justification for why the firmware should not be deployed could be presented to the responsible forum.

7. Providing suppliers with an “emergency stop/pause” process should a major issue be encountered. A major issue could be, for example, if the Devices forming part of the Smart Metering Systems are not interoperable with the DCC System and cannot respond to commands. In the case of a supplier encountering such issue, it should be reported to the DCC and the responsible forum immediately. The DCC should pause the deployment until the responsible forum directs the DCC to continue.

The Proposer recognises that an emergency CH firmware upgrade may be required to be deployed and activated. It is proposed that this should be included in the “safe launch” process. This would provide certainty on the approach to be used by the DCC, the role of suppliers, and the mechanisms to be used to mitigate the risks in such an emergency situation.

The Proposer acknowledges the DCC responsibility (and recognised by existing Data Service Provider (DSP)/DCC services and commercial framework) for deployment and activation of CH firmware. The Proposer does not suggest that this responsibility is transferred to suppliers. The modification is intended to enhance the firmware deployment and activation process to mitigate the identified risks set out in section 2, to the benefit of the DCC, suppliers, and ultimately consumers.

3.2 Requested Implementation Date

The Proposer has requested that the modification be implemented as soon as possible. An indicative implementation date, based around the progression timetable and certain assumptions on the DCC implementation timescales, is provided in section 6.

3.3 Views against SEC Objectives

The table below highlights the Proposer’s view on how this modification would better facilitate the achievement of the SEC Objectives.

Proposers views against the SEC Objectives

General SEC Objective	Proposer's views
<p>a) To facilitate the efficient provision, installation, and operation, as well as interoperability, of Smart Metering Systems at Energy Consumers' premises within Great Britain.</p>	<p>The Smart Metering Implementation Programme (SMIP) relies on the coordinated involvement of many different parties. The provision of a CH firmware upgrade framework that is coordinated, controlled and transparent to the relevant parties will facilitate the efficient provision, installation, and operation and interoperability of Smart Metering Systems at Energy Consumers' premises within Great Britain.</p> <p>This proposal would reduce the risk of CH firmware updates causing issues with supplier installations of metering equipment in terms of both financial measurements and customer experience (within the premises and in billing/settlements).</p> <p>The ability of a supplier to provide input into the scheduling of CH firmware updates would:</p> <ol style="list-style-type: none"> 1. Reduce the risk of large scale corrective action and remediation following inappropriate deployment and activation of firmware to significant numbers of CHs; 2. Reduce the risk of impact to consumers through issues related to CH firmware performance issues; 3. Reduce the risk of large scale interoperability issues; 4. Allow DCC and suppliers to monitor and provide feedback on successes and failures; 5. Reduce financial expenditure on meter technician visits to resolve interoperability issues; 6. Assist the journey to technical excellence in the SMIP program; and 7. Reduce the risk of reputational damage to the SMIP. <p>Customers would benefit from:</p> <ul style="list-style-type: none"> • A more reliable customer journey with minimal disruption caused by meter technician visits to resolve interoperability issues; and • Increased customer confidence in the SMIP program.
<p>b) To enable the DCC to comply at all times with the General Objectives of the DCC (as defined in the DCC Licence), and to efficiently discharge the other obligations imposed upon it by the DCC Licence.</p>	<p>The DCC licence conditions state the following:</p> <p><i>5.4 The Interim General Objective of the Licensee is to contribute (taking all reasonable steps for that purpose) to the achievement of a full, timely, efficient, economical, and secure Completion of Implementation in accordance with such requirements as may be imposed on the Licensee under or by virtue of Parts D to F of Condition 13.</i></p> <p><i>5.5 For the purposes of paragraph 5.4, the Interim General Objective includes a duty:</i></p> <p><i>(a) to co-ordinate the activities, systems, and procedures of SEC Parties and, if applicable, SECCo Ltd in such manner and to such extent as may be necessary with respect to the requirements to which that paragraph refers;</i></p> <p><i>5.9 The First Enduring General Objective of the Licensee is to carry on the Mandatory Business in the manner that is most likely to ensure the development, operation, and maintenance of an efficient, economical, co-ordinated, and secure system for the provision of Mandatory Business Services under the Smart Energy Code.</i></p>

Proposers views against the SEC Objectives

General SEC Objective	Proposer's views
	<p>Based on the above three paragraphs, the ability to co-operate, agree schedules and monitor firmware updates to CH under a "safe launch" process is necessary to improve the efficiency and timeliness of the smart meter rollout and its operation. This will reduce the likelihood of issues relating to interoperability of CH firmware updates, and thus the likelihood of asset replacements or other subsequent firmware updates being required.</p>

4. Potential Impacts

The following section sets out the initial assessment of the likely impacts from SECMP0024. Additional impacts may be identified by the Working Group during the Refinement Process.

Potential Impacts of SECMP0024	
Smart Energy Code Parties	
Suppliers	A coordinated approach to CH firmware upgrades would impact on small and large suppliers.
Networks	No impact currently identified.
DCC	A coordinated approach to CH firmware upgrades would impact on the DCC and its CSPs.
Other	No impact currently identified.
Systems	
DCC Systems	New SR (or SRs) would need to be defined in DUIS. The new SR(s) would allow a supplier to request DCC to deploy/activate firmware to a target list of CHs. The results of that deployment would be provided back to the requesting supplier.
User Systems	A new SR(s) would be needed, which would impact User Systems.
Smart Metering Systems	No impact currently identified.
Other	
SEC and Subsidiary Documents	
SEC Sections	Amendments to the DUIS will be required.
Subsidiary Documents	Associated changes to other SEC documentation may be required to support the modification.
Other Industry Codes and Documents	
No impact.	
Greenhouse gas emissions	
The Proposer believes that the modification has the potential to decrease greenhouse gas emissions if visits by meter technicians to customer properties can be avoided (as a result of a coordinated industry approach to CH firmware upgrades).	

5. Proposed Progression

5.1 Modification Path

SECAS and the Proposer propose that SECMP0024 is progressed as a Path 2: Authority-determined modification. This is because it would introduce additional responsibilities for the Panel, the DCC and Supplier Parties. The potential impact on the Panel may require changes to SEC Section C (Governance) or related provisions. SEC Section D2.6(d) requires that modifications that are likely to have a material effect on the arrangements set out in SEC Section C shall have the status of a Path 2 modification.

5.2 Progression Timetable

The Proposer has requested that this modification be implemented as soon as possible.

The modification must go through the Refinement Process pursuant to SEC Section D3.9(c). This is due to it requiring changes to DCC and User Systems. In addition, there are a number of areas and procedural detail that need to be refined and impact assessed by the DCC to help develop the modification.

5.3 Working Group

SECAS recommends that this modification be allocated to Working Group 4. This modification is about CHs and Working Group 4's focus is CHs and devices, so the existing members (supplemented by other members interested in assisting with the development) have the necessary experience and expertise to refine the modification.

5.4 Working Group Terms of Reference

A complete Terms of Reference for this Working Group can be found in Attachment A.

5.5 Indicative Progression Timetable

The following is a high level indicative progression timetable. The detail in this plan is subject to change. Changes to the overall timetable, however, are subject to a Panel review.

Note that the project plan has been drafted on the basis of the minimum expected turnaround time for the DCC's PAs and IAs. However, due to the DCC's resource constraints noted in DCC's letter to the Panel dated 6th July 2016, the time required for DCC PAs/IAs may need to be extended. Any such revisions timescale impacts would be notified to the Panel accordingly. SECAS continues to work with the DCC to determine more accurate expected turnaround times for DCC PAs/IAs.

Modification Timetable	
Activity	Date
Modification Proposal raised	27 th October 2016
IMR considered by Panel	11 th November 2016
Working Group meetings Indicative activities: <ul style="list-style-type: none"> • Initial considerations • Legal drafting • Sub-Committee feedback • Alternative(s) identified • Impact Assessments • Detailed evaluation 	November 2016 – April 2017
Working Group Consultation	April/May 2017
Final Working Group meeting Indicative Activities: <ul style="list-style-type: none"> • Consultation response summary • Working Group deliverables met • Assessment for Modification Report 	May 2017
Panel reviews draft Modification Report	June 2017
Modification Report Consultation	June/July 2017
Change Board vote	July 2017
Modification Decision by the Authority (Path 2)	August 2017
Implementation	November 2018 (first scheduled release assuming a minimum 12-month implementation lead time from the DCC).

6. SEC Panel Decisions

The SEC Panel:

- **AGREED** for SECMP0024 to progress to the Refinement Process;
- **AGREED** the progression path (Path 2 – Authority Determined), that the modification should be refined by Working Group 4, and the progression timetable in section 5.5; and
- **AGREED** the Working Group Terms of Reference.

7. Further Information

For further information, please see the [Modification Register page](#) of the SEC website, or contact SECAS at secas@gemserv.com.

Appendix A – Glossary and References

Glossary		
Acronym	Term	Plain English Summary
CH	Communication Hub	
CoS	Change of Supplier	
	DCC Systems	<p>Means the Systems used by the DCC and/or the DCC Service Providers in relation to the Services and/or this Code (Section A1, SEC Stage 3.0).</p> <p>The Proposer may wish to consider anticipated impacts on the DCC Licensee's enterprise systems (e.g. billing) or the Data Service Provider or Communications Service Providers.</p>
DSP	Data Service Provider	
DUIS	DCC User Interface Specifications	The document sets out mechanisms, formats, protocols, and other technical details necessary for Users to send and receive communications to and from the DCC
	Greenhouse Gas Emission	Means emissions of Greenhouse Gases, as defined in section 92 of the Climate Change Act 2008 (Section A1, SEC Stage 3.0).
	Path Type	<p>Means the Modification Path to be followed in respect of a Modification Proposal. The type of Path will depend upon the nature of the variation proposed in the Modification Proposal (D2.1, SEC Stage 3.0). The four Modification Paths under the SEC are:</p> <ul style="list-style-type: none"> • Path 1 Modifications: Authority-led (Section D2.4/D2.5, SEC Stage 3.0) • Path 2 Modifications: Authority Determination (Section D2.6, SEC Stage 3.0) • Path 3 Modifications: Self-Governance (Section D2.7, SEC Stage 3.0) • Path 4 Modifications: Fast-Track Modifications (Section D2.8, SEC Stage 3.0)
	Smart Metering Systems	<p>Means a system installed at premises for the purposes of the Supply of Energy to the premises that, on the date it is installed, as a minimum;</p> <p>(a) consists of the apparatus identified in;</p> <p>(b) has the functional capability specified by; and</p> <p>(c) compiles with the other requirements of,</p> <p>the Smart Metering Equipment Technical Specification that is applicable at the date (Section A1, SEC Stage 3.0).</p> <p>In summary, this includes:</p> <ul style="list-style-type: none"> • Gas Smart Metering Equipment; • Electricity Smart Metering Equipment; • In Home Display; • Prepayment Interface Device; and • HAN Connected Auxiliary Load Control Switch.
SR	Service Request	A command issued by a DCC User to a device or the DCC.
	User Systems	<p>Means, in respect of each User (DCC User), the Systems of that User (including, where relevant, those of its supplier Nominated Agent) used in relation to the Services and/or Smart Metering Systems (Section A1, SEC Stage 3.0).</p> <p>The Proposer may wish to consider suppliers; Network Operators; Registration Data Providers; Other DCC Users (e.g. Authorised Third Parties / Switching Sites); supplier Nominated Agents.</p>