

Modification proposal:	Smart Energy Code (SEC) Modification Proposal (MP) 0007 – Firmware updates to IHDs and PPMIDs		
Decision:	The Authority ¹ determines that this modification ² should be made ³		
Target audience:	Data and Communications Company (DCC), SEC Panel, Parties to the SEC and other interested parties		
Date of publication:	27 October 2020	Implementation date:	04 November 2021

Background to the modification proposal

Supplier Parties are responsible for the procurement, installation and maintenance of Smart Metering Equipment in consumers' premises. Firmware updates are used to keep these Devices up to date, and are most efficiently delivered remotely via Over-The-Air (OTA) firmware updates where no physical visit is needed by the supplier. Currently OTA firmware updates can only be made via the DCC to Communications Hubs, Electricity Smart Metering Equipment (ESME) and Gas Smart Metering Equipment (GSME).

There is currently a lack of capability to deliver OTA firmware updates via the DCC for other mandated Home Area Network (HAN) Devices, specifically In-Home Displays (IHDs), Prepayment Meter Interface Devices (PPMIDs) and HAN Connected Auxiliary Load Control Switches (HCALCSs). Updating firmware on these devices therefore requires a visit to the consumer premises and/or replacement of a device. If a firmware update is required but not delivered, devices could lose their capability to communicate or become a security risk.

The modification proposal

SECMP0007 was raised by E.ON (the Proposer) on 1 March 2016. The modification proposes to introduce two OTA firmware update methods - one for PPMIDs and another for HCALCS⁴, these are:

OTA method for PPMIDS

A ZigBee⁵ OTA delivery mechanism will be used to deliver firmware images to PPMIDs. This method will introduce the combined distribution and activation of the firmware updates into a single new Service Request (SR). The PPMID will manage and distribute the notification to the Service User upon activation of the firmware.

OTA method for HCALCSs

The HCALCS will utilise the existing OTA firmware update procedure used by ESME and GSME. This requires a distinct separation between the distribution and activation of the

¹ References to the "Authority", "Ofgem", "we" and "our" are used interchangeably in this document. The Authority refers to GEMA, the Gas and Electricity Markets Authority. The Office of Gas and Electricity Markets (Ofgem) supports GEMA in its day to day work. This decision is made by or on behalf of GEMA.

² 'Change' and 'modification' are used interchangeably in this document.

³ This document is notice of the reasons for this decision as required by section 49A of the Electricity Act 1989 and by section 38A of the Gas Act 1986.

⁴ The Working Group has removed IHDs from the scope of the solution

⁵ ZigBee is an IEEE 802.15.4-based specification for a suite of communication protocols used to create personal area networks with small, low-power digital radios, designed for small scale projects which need wireless connection.

firmware image. This will be achieved by re-using existing SRs 11.1 'Update Firmware' and 11.3 'Activate Firmware' respectively.

SEC Change Board⁶ recommendation

At the SEC Change Board meeting on 23 September 2020, a majority of the Change Board considered that SECMP0007 would better facilitate the SEC Objectives and the Change Board therefore recommended its approval.

Our decision

We have considered the issues raised by the proposal and the Final Modification Report (FMR) submitted to us on 24 September 2020. We have considered and taken into account the votes of the SEC Change Board on the proposal, which is attached to the Change Report. We have concluded that:

- implementation of the modification proposal will better facilitate the achievement of the SEC Objectives;⁷ and
- directing that the change is approved is consistent with the Authority's principal objective and statutory duties.⁸

Reasons for our decision

We consider this modification proposal will better facilitate SEC Objectives (a), (c), (d) and (f) and have a neutral impact on the other Objectives.

The first General SEC Objective (a) is to facilitate the efficient provision, installation, and operation, as well as interoperability, of Smart Metering Systems at Energy Consumers' premises within Great Britain.

We agree with the Proposer's assertion that SECMP0007 will better facilitate this Objective. The Proposed Solution allows key parts of the smart metering infrastructure to be updated in a robust and controlled manner with the latest versions of firmware, without the need for a site visit or replacement of equipment. In our view, this allows Suppliers to both avoid unnecessary costs and deliver updates more swiftly, which will support the ongoing efficient operation and interoperability of these devices. We consider these benefits will outweigh the associated implementation costs identified in the FMR.

The third General SEC Objective (c) is to facilitate Energy Consumers' management of their use of Energy through the provision to them of appropriate information by means of Smart Metering Systems.

The delivery of OTA firmware updates will ensure that consumers have the most up to date firmware on their devices, protecting smart functionality and the ability to display information. This will have a corresponding positive effect on consumer experience, as they will be able to engage with the up to date information in order to manage their energy usage. We consider that being able to better manage their energy consumption

⁶ The SEC Panel and Change Board are established and constituted pursuant to and in accordance with DCC Licence 22.25(a).

⁷ The Objectives in accordance with DCC Licence 22.10-22.17

⁸ The Authority's statutory duties are wider than matters that the Panel must take into consideration and are detailed mainly in the Electricity Act 1989 as amended and the Gas Act 1986 as amended.

contributes to a continued positive consumer experience with their devices, and ultimately with the Smart Meter Implementation Programme (SMIP).

The fourth General SEC Objective (d) is to facilitate effective competition between persons engaged in, or in Commercial Activities connected with, the Supply of Energy under the Principal Energy Legislation.

We consider that SECMP0007 will also better facilitate SEC Objective (d) by allowing Suppliers to use a consistent process for updating firmware on PPMIDs and HCALCSs. Our view is that this consistent approach to OTA firmware updates will ensure that all applicable equipment functions and delivers a consistent output from suppliers and ultimately to consumers which will facilitate competition between parties.

The sixth General SEC Objective (f) is to ensure the protection of data and the security of data and systems in the operation of the SEC.

We also view SEC Objective (f) as being better facilitated as it will utilise OTA firmware updates to mitigate against potential security vulnerabilities on PPMIDs or HCALCSs. The solution would provide a quicker, more practicable process to address security vulnerabilities in PPMIDs. Our view is that this is a considerable improvement to the current functionality and that the implementation of this solution will correspondingly better facilitate this Objective.

Other Issues

We note the continued concerns from SEC Parties regarding the level of costs being quoted by the DCC for progressing and implementing, not only SECMP0007, but SEC modifications more generally. There are questions being raised about whether the costs offer value for money, and why the business cases and disaggregation of costs for modifications cannot be made more robust and transparent. We are supportive of all measures which provide SEC Parties with more confidence and urge the DCC and SEC Panel to continue to work together to ensure that from early stages onwards SEC parties are provided with the information they need to be able to fully understand and assess the business case for change.

Our view is that SECMP0007 will enable crucial functionality for suppliers to carry out OTA upgrades, including addressing security risks by providing updates, which will both reduce the need for physical site visits and enable swifter delivery. The costs to the industry as a whole to maintain the current system through device replacement are prohibitively high compared to the costs to implement OTA capability via SECMP0007. We urge the DCC to strive for efficiencies during implementation, as this modification represents value not only to the supplier through reduced costs, but also significant value to consumers in terms of their experience and interactions with SMIP and the management of their personal energy usage.

Decision notice

In accordance with standard licence condition 23 of the Smart Meter Communication licence, the Authority hereby determines that modification proposal SECMP0007 'Firmware updates to IHDs and PPMIDs' be made.

Jacqui Russell

Head of Metering and Market Operations

Signed on behalf of the Authority and authorised for that purpose