

Smart Energy Code (SEC) Modification Proposal (MP) 207: Allowing Registered Supplier Agents to Maintain Meter Firmware

Decision	The Authority ¹ has determined to reject ² this modification ³
Target audience	Data and Communications Company (DCC), SEC Panel, Parties to the SEC and other interested parties
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Implementation date:	N/A

Background

The Smart Metering Systems governed by the Smart Energy Code (SEC),⁴ stipulate specific procedures for firmware management.⁵ Firmware updates are essential to ensure that Smart Meters operate correctly and maintain security and functionality. The deployment and activation of firmware is controlled through a series of Data User Interface Specification (DUIS) commands, including Service Reference Variant (SRV) 11.1 'Update Firmware', SRV 11.3 'Activate Firmware' and SRV11.4 'Update (Prepayment Meter Interface Device) PPMID Firmware'.

Suppliers are responsible for the end-to-end management of firmware for their remit of Smart Meters, including deciding when and how to update firmware, ensuring compatibility and validating updates. Currently, suppliers can outsource the installation and maintenance of Smart Meters to Meter Operators (MOPs) and Meter Asset Managers (MAMs) as Registered Supplier Agents (RSAs).

The deployment and activation of firmware (SRV 11.1, SRV 11.3 and SRV11.4) are critical commands requiring stringent security measures. It relies on Trust Anchor Cells (TACs), which

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 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.

³ 'Change' and 'modification' are used interchangeably in this document.

⁴ A full list of acronyms can be found in Appendix 1.

⁵ Capitalised terms in this letter are defined in [Smart Energy Code Section A – Interpretations and Definitions](#).

are secure storage units that manage cryptographic keys to ensure the confidentiality, integrity and authentication of communications within the Smart Metering System. TACs are not currently available to RSAs. This limitation ensures that only suppliers who are subject to rigorous security protocols can deploy and activate firmware.

The modification proposal

SECMP207 was raised by SMS Plc (the “Proposer”) on 10 May 2022 and seeks to amend Appendices E – DCC User Interface Services Schedule and AD – DCC User Interface Specification of the SEC.⁶ The modification originally aimed to allow RSAs to remotely manage Smart Meter firmware, by sending SRV11.1 ‘Update Firmware’, SRV 11.3 ‘Activate Firmware’ and SRV11.4 ‘Update PPMID Firmware’. Due to the issues outlined below the aim has changed to only allow RSAs to manage SRV11.1 ‘Update Firmware’. The Proposer believes that, for suppliers, coordinating firmware updates is complex and resource intensive, which the Proposer suggests can be particularly challenging for smaller suppliers. The Proposer noted that this modification seeks to provide a solution for ‘three million meters’ cited in a National Audit Office report that are believed to be not operating in smart mode.⁷

SEC Change Board⁸ recommendation

At the SEC Change Board meeting on 2 July 2024 a majority of the Change Board considered that SECMP207 would not better facilitate the SEC Objectives, and the Change Board therefore did not recommend its approval. Change Board members cited a lack of business or benefits case, and considered that the solution does not solve the problem identified. Change Board members acknowledged the challenges with Smart Meters not operating in smart mode and that there are in some cases problems with firmware, but stated that the issues are wider ranging and cannot be resolved through firmware updates alone. Change Board members highlighted that even when SRVs are sent, these do not always result in updated firmware and can result in further errors to firmware versions which can compound the problem. We note

⁶ SEC Appendices [E – DCC User Interface Services Schedule](#) and AD – DCC User Interface Specification.

⁷ [Update on the rollout of smart meters \(nao.org.uk\)](#)

⁸ The SEC Panel and Change Board are established and constituted pursuant to and in accordance with DCC Licence 22.25(a).

that one Other SEC Party member and the consumer representative on the SEC Change Board chose to abstain.

Our decision

We have considered the issues raised by SECMP207 and the Final Modification Report (FMR) submitted to us on 3 July 2024. We have considered and taken into account the votes of the SEC Change Board on the modification proposal. We have also had regard to our principal objective and statutory duties.⁹ We have concluded that implementation of the modification proposal will not better facilitate the achievement of the SEC Objectives,¹⁰ therefore decided that SECMP207 should not be made.

Reasons for our decision

We consider this modification proposal will not better facilitate the first, third and fifth SEC Objectives and has a neutral or negative impact on the other applicable Objectives.

The first General SEC Objective 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 do not believe that the evidence provided has demonstrated the cited inefficiencies in the current arrangements would be reduced by the implementation of this modification. Following the discussions at the Change Board meeting on 2 July 2024, we understand that the Proposer believes that outsourcing firmware management to RSAs could lead to increased firmware health, better operation, and improved interoperability of Smart Metering Systems throughout Great Britain. We recognise the challenges small suppliers face as well as the importance of reducing the number of meters that are determined to be not operating in smart mode. In spite of these challenges, we do not believe the implementation of this modification would greatly benefit the smart metering arrangements.

⁹ 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.

¹⁰ The Objectives in accordance with DCC Licence 22.10-22.17

Outsourcing potential

In reaching our decision on SECMP207, we have identified the following issues and concerns relating to the efficient provision, installation, and operation of SMSs:

- **Partial solution:** The Security Sub-Committee believed that allowing RSAs to send SRV 11.3 and 11.4 was a security risk and stated that it would only support the solution if these were not included. The Proposer subsequently agreed to remove the SRV 11.3 and SRV 11.4 from the proposed solution. Therefore, the modification's current scope is limited to deploying firmware (SRV 11.1) without addressing the critical activation step (SRV 11.3). We have concerns that this partial approach does not resolve the entire firmware update process and will not significantly improve firmware health.
- **Risk of increased complexity:** We consider that allowing RSAs to manage firmware could introduce additional layers of complexity in the management process. The solution would not add efficiency as suppliers would still need to manage firmware activation and PPMID updates, requiring additional processes and coordination, potentially leading to miscommunication and errors. The majority of industry respondents to the consultation were unsupportive and listed fragmentation of the process and operational impacts as potential issues. One Large supplier noted that an RSA performing this role would add an unnecessary step. Another SEC Party shares our views that SECMP207 introduces unnecessary complexity and increases the likelihood of errors.
- **Security and accountability concerns:** We consider that delegating firmware updates to multiple parties increases the risk of security breaches, as more entities would have access to sensitive firmware management functionalities. We agree with the industry view that outsourcing can create confusion regarding responsibility for firmware failures, making it difficult to pinpoint who is accountable when issues arise. Although the FMR cites that the Proposer believes security considerations could be mitigated by contractual arrangements, we do not believe that is an appropriate setting for matters that could significantly affect the lives of consumers.

Firmware Health Improvement

The Proposer believes that RSAs having the ability to manage firmware updates will lead to increased firmware health, better operation, and improved interoperability of Smart Metering Systems. We disagree with the Proposers' views for the following reasons:

- **Persistent update issues:** The underlying issues causing firmware to be outdated or Smart Meters to stop communicating, such as update failures and concerns over further firmware issues, is unlikely to be resolved by changing who can send update commands as the commands will be sent in any case and without a centralised control it could be harder to monitor or troubleshoot issues.
- **Alternative solutions and current initiatives:** There are existing solutions and industry initiatives addressing firmware issues. For instance, the Technical Architecture and Business Architecture Sub-Committee (TABASC) have suggested alternative routes to address firmware issues without requiring a new modification.
- **Smart Meters not operating in smart mode:** The Proposer indicates that the approval of this modification would result in a reduction of the three million devices not operating in smart mode, as noted in the (National Audit Office) NAO report. We note that there is an industry group set up to combat this issue and consider that this working group should help facilitate resolutions to issues with non-communicating devices. We also consider the minimal impact of this modification on the number of non-communicating meters would not be balanced against the costs to consumers, as a considerable portion of these meters are SMETS1 devices, which would not benefit from this modification and there are multiple reasons for the non-communication including communication issues with the network, meters undergoing the process of changing suppliers, and installed meters yet to be commissioned.

The third General SEC Objective 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.

While we recognise the importance of ensuring consumers having fully operational Smart Meters, we do not consider that accepting this modification will have a material impact on Smart Metering Systems due to:

- **Limited evidence of benefits:** The proposer suggests that the improved service delivery would reduce meter malfunction and improve billing accuracy. We found there to be limited evidence that this modification would directly benefit consumers, given that suppliers currently update firmware and there has been insufficient evidence provided to suggest there is a significant issue with the current system or that any supplier would utilise this service.
- **Accountability and security issues:** We agree with the Security Sub-Committee that responsibility of firmware management should not be split between parties. We consider that the potential for errors due to the complexities of two organisations being involved in different parts of firmware updates and activation could severely impact the effective management of Smart Metering Systems for consumers and could potentially add confusion around responsibility and liability for errors. Furthermore, we agree with the Change Sub-Committee that delegating firmware updates to multiple parties increases the risk of security breaches as more entities would have access to sensitive firmware management functionalities.

The fifth General SEC Objective is to facilitate such innovation in the design and operation of Energy Networks as will best contribute to the delivery of a secure and sustainable Supply of Energy under the Principal Energy Legislation.

While the Proposer has indicated that the adoption of this modification would aid innovation, we do not agree that the modification would contribute to innovation given the limited evidence provided. We believe due to the weight of the other reasons for rejection, additional evidence would not be sufficient to change our decision.

Additional comments

We share industry's concerns about the cost of implementing these changes relative to the benefits. We do not consider there to be a compelling business case for this change, especially given that the majority of industry feedback and Refinement Consultation responses indicate a lack of support. The implementation costs for this modification are an estimated £650,000, not including the DCC regression testing cost and supplier costs, which are cited per supplier to be between £100,000 to £500,000.

Normally a modification would be referred to the Change Board by the Working Group to decide whether to request a DCC impact assessment (IA) and, where such a referral is made, the Change Board will either accept the request or send it back with instructions detailing further work to be conducted before an IA can be carried out.¹¹ The Change Board here decided that there was no reason to pay the £15,000 for the IA due to the insurmountable issues with the modification and decided instead to refer the modification to us for a final decision.

As a result, we note that this modification has not been fully impact assessed. We have been advised by the Code Administrator that this is due to the lack of business case, agreeable solution, industry support and the high level of cost uncovered during the modification process. However, we do have the DCC Preliminary Assessment and, along with the rest of the evidence, we agree that a full DCC Impact Assessment would not influence our decision to reject this modification.

Despite this, we expect modifications to follow the established processes in SEC section D. In this instance we were able to reach a decision based on the unique nature of the modification.

Conclusion

In summary, the technical complexity of the area (and risk of increasing the complexity of the process), lack of industry support (including lack of signal that third parties would be used for this work), potential security and accountability issues, and minimal impact on the number of smart meters operating in traditional mode mean that we do consider the modification should be made. The lack of a clear business case and the existence of alternative solutions further weaken the justification for implementing this change.

Decision notice

In accordance with standard licence condition 23 of the Smart Meter Communication licence, the Authority hereby determines that modification proposal SECMP207: *'Allowing Registered Supplier Agents to Maintain Meter Firmware'* not be made.

¹¹ See D8.14A of the SEC.



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Signed on behalf of the Authority and authorised for that purpose

Appendix 1: Glossary of acronyms

DCC	Data Communications Company
DUIS	SEC Appendix AD 'DCC User Interface Specification'
IA	Impact Assessment
MAMs	Meter Asset Managers
MOPs	Meter Operators
NAO	National Audit Office
PPMID	Prepayment Meter Interface Device
PPMIDs	Prepayment Meter Interface Devices
RSA	Registered Supplier Agent
SEC	Smart Energy Code
SECAS	Smart Energy Code Administrator and Secretariat
SMETS	Smart Metering Equipment Technical Specification

SRV	Service Reference Variant
TABASC	Technical Architecture and Business Architecture Sub-Committee
TAC	Trust Anchor Cells