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MP226

‘Incorporation of Category 3 Issue Resolution Proposals into the SEC – Batch 10’

Modification Report

Version 1.0

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Managed by



About this document

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

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This document also has one annex:

- **Annex A** 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 David Walsh from the Data Communications Company (DCC).

Issue Resolution Proposals (IRPs) identify and resolve issues in the Technical Specifications documents of the SEC. The Technical Specification Issue Resolution Subgroup (TSIRS) has determined all solutions and has requested these be progressed as a Modification Proposal for implementation into the SEC. Implementation of these IRPs will ensure Devices operate as they are intended.

The DCC has performed an assessment of these IRPs and consider them to be non-DCC System impacting and not requiring any DCC System testing. There is therefore no DCC costs expected for their implementation.

The modification will affect Suppliers, Other SEC Parties and the DCC. There will be no DCC costs. Costs will be limited to SECAS time and effort to implement the changes. This is a Self-Governance Modification and is targeting the November 2023 SEC Release.

2. Issue

What are the current arrangements?

IRPs identify issues within the SEC Technical Specification documents and put forward a solution to the identified problem. In the early stages of the Smart Metering Implementation Program (SMIP), the Department for Business, Energy and Industrial Strategy (BEIS) took the lead in developing the SEC Technical Specifications. As part of this, BEIS also took responsibility for receiving and responding to issues raised internally, by the DCC, and by other interested parties. Since its inception, several hundred issues have been raised in relation to Technical Specifications through the TSIRS. In some cases, these queries have been resolved by providing an explanation of the Specifications, whilst others have resulted in proposed amendments to the Specifications in the form of IRPs. The IRP solutions identified have been developed by the TSIRS.

What is the issue?

The individual IRP details for this modification can be found on the Smart Energy Code Administrator and Secretariat (SECAS) website link [here](#). These documents reflect the issue, background information and details of the solution that has been discussed and agreed at the TSIRS. They are an integral part of the SEC modification. The IRPs included in this proposal, listed below, require changes to the Great Britain Companion Specification (GBCS) and the Smart Metering Equipment Technical Specifications (SMETS) with initial key impacts identified below.

IRP660 'GBCS to identify endianness of firmware Version within CS09'

There is a possibility that the description of 'endianness' could be misinterpreted.

CRP655 'Processing for gas meters without a Valve'

Originally in SMETS2 (from Gas SMETS (GSMETS) v2.0) the requirements to Lock, Enable, Disable or Arm Supply, functionality that requires the presence of a Valve, applied only to Gas Smart Metering Equipment (GSME) installed at Domestic Premises. [SECMP0048 'Extension of SMETS gas Valve exemption to include Large Gas Meters installed at Domestic Premises'](#) extended the exemption to allow Large Gas meters (e.g., U16) installed at Domestic Premises to not require a Valve (from GSMETS v3.1). This was on the basis that no manufacturer had intended to produce such a GSME and yet Large Gas Meters were occasionally required in the domestic setting. The requirement for GSME other than Large Gas Meters installed at Domestic Premises, to have a Valve remains unchanged.

IRP657 '0x8F66 & 0x8F67 for future dated CS02g command'

There is an omission in GBCS table 16.2, rows 87 and 88.

IRP662 'CH Time indication when CH has lost sync with CSP time server v0_1'

Communication Hubs maintain time synchronisation with the Communications Service Provider (CSP) through Wide Area Network (WAN) connectivity. When WAN is lost with the CSP the Communications Hub will have two options. The first would be for the Communications Hub to reboot and reset its internal clock. The second option is it does not reboot and assumes the clock is valid and indicates this valid time in the HAN. Communications Hub current behaviour matches option two, although it is not currently supported by the GBCS.

IRP550 'GCS20r – Response when an error occurs'

The Report Event Configuration currently lacks the capability to indicate failed executions, posing a significant challenge to achieving optimal performance in GCS20r Response.

IRP604 'Query on IRP550 – Frame Control'

IRP550 adds an alternate response for GCS20r 'Read non-critical event and alert behaviours - GSME- Supplier' but the Frame Control for that response is not correct according to ZigBee.

The Frame Control is defined as "Profile-wide; not manufacturer specific; server-client; allow default response;" but the direction should be changed from "server-client" to "client-server". This is because the GSME is the client in the Device Management cluster and the response is sent from the client to the server.

IRP663 'Include Update Load Controller Security Credentials Command'

The intention following the introduction of the Standalone Auxiliary Proportional Controller (SAPC) Device, is where a Device supports the processing of Remote Party Messages, that Device, is to also allow for execution of an Update Load Controller Security Credentials Remote Party Command.

IRP664 'Resolving Max Credit and Max Meter Balance Threshold ambiguity'

GBCS Section 14.1 defines the Maximum Credit Threshold and the Maximum Meter Balance Threshold, stating in both cases that the “value shall be interpreted by the Device in Currency Units”, with the Currency Units defined as GB Pounds (or EU Euro). However, the DCC User Interface Specification (DUIS) specifies values should be to 1000th of a pence / cent, leading to ambiguity with what the actual associated value should be. A survey of meter manufacturers found the majority of Electricity Smart Metering Equipment (ESME) and Gas Smart Metering Equipment (GSME) represent the associated value in 1000th pence / cent, however, some represent the associated value in whole pounds / euros.

What is the impact this is having?

These IRPs address discrepancies within the Technical Specifications that require correcting, or additional clarification. They have caused confusion amongst some SEC Parties and may continue to do so if not amended. Therefore, the TSIRS has discussed these issues and agreed that improvements are required to the Technical Specifications to address this.

Impact on consumers

The Proposed Solution is to incorporate these IRPs into the SEC to add clarity and consistency to the Technical Specification. These changes have been discussed and approved by the TSIRS as part of the closure of each IRP. A summary of the solutions to the current issues has been set out in the table below.

Solutions of the IRPs/CRP included in this modification				
IRP Ref	Impacted Technical Specification	Impacted Users	Devices Impacted	IRP Solution
IRP660	GBCS v4.x	None	None	Correct references and add an example
CRP655	GSMETS v4.x	Suppliers DCC	GSME	Remove ambiguity as to requirements for Large Gas Meters without a Valve
IRP657	GBCS v4.x	None	None	Correct omission
IRP662	GBCS V4.x	None	None	Update text to reflect Communications Hub current behaviour is allowed
IRP550	GBCS v4.x	None	None	Update text to reflect the correct Frame Control for the GCS20r response to ensure interoperability between ZigBee Devices
IRP604	GBCS v4.x	None	None	Correct the message template to align to the ZSE requirements
IRP663	GBCS v4.x	None	None	Correct omission
IRP664	GBCS v4.x	None	ESME GSME	To clarify the attributes are to be 1000 th pence/cent

3. Solution

Proposed Solution

IRP660 'GBCS to identify endianness of firmware Version within CS09'

This change proposes to make clarifications in the GBCS Sections for the Commands and Alerts associated with the OTA header and other aspects of Firmware handling to reflect that Big Endianness should exceptionally be used in this context despite ZigBee suggesting Little Endianness.

Also, given that endianness is often misunderstood¹, this IRP proposes to make additional Informational text improvements to Informative Sections of GBCS to improve the clarity of numerical and octet string formatting.

CRP655 'Processing for gas meters without a Valve'

This CRP is intended to establish the agreed behaviour from GSME that do not have a Valve to Enable or Disable the flow of gas to Premises.

IRP657 '0x8F66 & 0x8F67 for future dated CS02g command'

The 0x8F66 and 0x8F67 Alerts should also be sent to the Load Controller in case of Future-dated CS02g commands with message code 0x0125, i.e. Load Controller By Load Controller.

IRP662 'CH Time indication when CH has lost sync with CSP time server v0_1'

Currently a Communication Hub does not reboot and assumes its clock is correct so displays that to the other Devices. GBCS section 9.1.3 will be updated to align with this Communication Hub behaviour when it has lost sync with the CSP.

IRP550 'GCS20r – Response when an error occurs'

Errors cannot be signalled via the ZigBee Smart Energy (ZSE) Report Event Configuration command which is currently required as the only option in the GCS20r Response. However, errors could occur in Device processing and so the GCS20r Response needs to allow for such situations.

In common with other Use Cases where this situation applies, the proposed change is to allow the GCS20r Response to contain a ZigBee Default Response (as an Alternate Response) to signal any failures.

Further, a Drafting Note was left in the description of the Event Configuration Payload field, which is to be removed as part of this IRP.

¹ An Octet String has no concept of endianness, as it is a string of octets. Each octet in the Octet String also has no concept of endianness, as endianness concerns representation of a number of more than one most / least significant bytes (e.g., an unsigned integer 256 or greater).

A number may need to be represented as a sequence of octets (i.e., bytes) in a message payload. When representing a number as a sequence of octets, it is endianness that determines, which significant byte goes first, i.e., with Big endian the most significant byte goes first, and with Little endian the least significant byte goes first.

IRP604 'Query on IRP550 – Frame Control'

The proposed change is to correct the GCS20r Message Template (by amending GBCS Table 20), to align to the ZSE requirements as to the use of the bits in the Frame Control field.

IRP663 'Include Update Load Controller Security Credentials Command'

This change will add 'Update Load Controller Security Credentials Command' to the other Commands within the exception where a Device supports the processing of Remote Party Messages.

IRP664 'Resolving Max Credit and Max Meter Balance Threshold ambiguity'

This proposal aims to clarify the wording and align it with the processing used in DUIS and the DCC. It will specify that the attributes should be represented in 1000th of a pence or cent instead of whole pounds or euros, as most Devices are configured to receive values in this format.

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

Breakdown of Other SEC Party types impacted			
	Shared Resource Providers		Meter Installers
✓	Device Manufacturers		Flexibility Providers

Although Suppliers are not directly affected by the modification, they will be impacted by the clarifications and confirmation of Device behaviours.

Device Manufacturers will benefit from the additional clarifications delivered into the next version of the GBCS.

Although there are no DCC System changes, the DCC will be impacted by an uplift to the specifications.

DCC System

The DCC has identified these IRPs as 'Category 3' and therefore do not have any impacts on the DCC Systems or require any testing.

SEC and subsidiary documents

The following parts of the SEC will be impacted:

- Schedule 8 'Great Britain Companion Specification' (GBCS)
- Schedule 9 'Smart Metering Equipment Technical Specifications' (SMETS)
- Schedule 11 'Technical Specification Applicability Tables' (TSAT)

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

Technical specification versions

These changes will be applied to the next Sub-Version of the following Technical Specification series at the time the modification is implemented:

- GBCS v4.x
- GSMETS

These changes will also be applied to any new Principal Versions of these documents that subsequently become effective on or before the implementation date.

Devices

Devices impacted			
✓	Electricity Smart Metering Equipment	✓	Gas Smart Metering Equipment
✓	Communications Hubs		Gas Proxy Functions
✓	In-Home Displays		Prepayment Meter Interface Devices
✓	Standalone Auxiliary Proportional Controllers		Home Area Network Connected Auxiliary Load Control Switches
	Consumer Access Devices		Alternative Home Area Network Devices

Consumers

There will be no impact to consumers from this modification.

Other industry Codes

No other industry Codes are impacted by this proposal.

Greenhouse gas emissions

This proposal will have no effects on greenhouse gas emissions.

5. Costs

DCC costs

There is no impact on the DCC system so there will be no DCC costs to implement this modification.

SECAS costs

The estimated SECAS implementation cost to implement this as a standalone modification is one day 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.

SEC Party costs

It is not expected that SEC Parties will incur specific costs from this modification, however there would be costs incurred from an uplift to a new version of the Technical Specification, as all with all uplifts.

6. Implementation approach

Approved implementation approach

The Change Sub-Committee (CSC) has agreed an implementation date of:

- **2 November 2023** (November 2023 SEC Release) if a decision to approve is received on or before 24 May 2023.
- **29 February 2024** (February 2024 SEC Release) if a decision to approve is received after 24 May 2023 but on or before 15 February 2024.

As these are document only changes and do not affect Device behaviour SECAS recommends that they are targeted for the earliest possible SEC Release. The Technical Specifications are only updated once per year, therefore if a decision is not received in time for implementation to November 2023, then the fallback Release is currently expected to be February 2024.

7. Assessment of the proposal

Areas for assessment

Sub-Committee input

SECAS have engaged the Chairs from the Operations Group (OPSG), the Technical Architecture and Business Architecture Sub-Committee (TABASC), the Security Sub-Committee (SSC) and the Smart Metering Key Infrastructure Policy Management Authority (SMKI PMA) to confirm what input is required from these forums. SECAS believes the following Sub-Committees will need to provide the following input to this modification:

Sub-Committee input	
Sub-Committee	Input sought
OPSG	None
SMKI PMA	None
SSC	None
TABASC	To confirm solutions are appropriate

Observations on the issue

Are there impacts on Devices?

SECAS does not expect that these clarification and reference updates will impact current Device behaviour. Device Manufacturers were presented with these IRPs and agreed that November 2023 implementation would be suitable.

Solution development

The issues and the solutions have been discussed and agreed upon by the TSIRS. Although the TSIRS is a BEIS led group, various SEC Parties are represented. The TSIRS agreed the solutions and agreed they should be implemented into the SEC. Please note, no business case analysis is performed by the TSIRS.

IRPs 550 and 604 have been reraised from rejected modification [MP078 'Incorporation of multiple Issue Resolution Proposals into the SEC - Part 2'](#). The TSIRS has reassessed both IRPs and believe there is no costs associated with the changes. The CSC agreed that including these IRPs under this modification would be the most efficient way to take these forward.

8. Case for change

Business case

These are document only changes and there will be no DCC system changes or costs associated with the modification. As Device behaviour should not be impacted, it is not expected that SEC Parties will incur costs from this modification. Therefore, the costs will be limited to SECAS time and effort for implementation.

The benefit for the modification is that the Technical Specifications currently contain incorrect information and therefore SEC Parties will be provided with greater clarity from these improvements.

Views against the General SEC Objectives

Proposer's views

The Proposer believes that this modification will better facilitate SEC Objective (a)² as the implementation of the IRPs will reduce the risk of future operational issues arising.

Views against the consumer areas

Improved safety and reliability

This change is positive in this area as the clarity on Technical Specifications will ensure Devices operate as intended.

Lower bills than would otherwise be the case

This change is neutral in this area.

Reduced environmental damage

This change is neutral in this area.

Improved quality of service

This change is neutral in this area.

Benefits for society as a whole

This change is neutral in this area.

² Facilitate the efficient provision, installation, operation and interoperability of smart metering systems at energy consumers' premises within Great Britain

Final conclusions

The TSIRS, which encompasses many different SEC Parties, has discussed each issue and developed each solution and has recommended they be included within the SEC. The TABASC also agreed with this view.

The benefit for the modification is that the Technical Specifications currently contain incorrect information and therefore SEC Parties will be provided with greater clarity from these improvements.

These are document only changes and therefore there will be no DCC costs associated with the modification. As Device behaviour should not be impacted, it is not expected that SEC Parties will incur costs from this modification. Therefore, the costs will be limited to SECAS time and effort for implementation.

Appendix 1: Progression timetable

This modification has been presented to the CSC and has received approval to proceed directly to the Report Phase as a Self-Governance Modification. The modification will be issued for Modification Report Consultation and subsequently for Change Board vote under Self-Governance.

Timetable	
Event/Action	Date
Draft Proposal raised	10 Jan 2023
Presented to CSC for initial comment	17 Jan 2023
New IRPs added	28 Mar 2023
Modification discussed with TABASC	6 Apr 2023
CSC converts Draft Proposal to Modification Proposal	18 Apr 2023
Modification Report approved by CSC	18 Apr 2023
Modification Report Consultation	19 Apr – 12 May 2023
Change Board Vote	24 May 2023

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
BEIS	Department for Business, Energy and Industrial Strategy
CSP	Communication Service Provider
DCC	Data Communications Company
GBCS	Great Britain Companion Specification
SEC	Smart Energy Code

Glossary	
Acronym	Full term
SECAS	The Smart Energy Code Administrator and Secretariat
SMETS	Smart Metering and Technical Specification
SMKI PMA	Smart Metering Key Infrastructure Policy Management Authority
SSC	Security Sub-Committee
TABASC	Technical Architecture and Business Architecture Sub-Committee
TSIRS	Technical Specification Issue Resolution Subgroup
WAN	Wireless Area Network
ZSE	ZigBee Smart Energy