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SECMP0015

‘GPF timestamp for reading instantaneous Gas values’

Modification Report

Version 0.6

About this document

This document is the Modification Report for SECMP0015 'GPF timestamp for reading instantaneous Gas values'. It provides detailed information on the background, issue, solution, costs, impacts and implementation approach. It also summarises the discussions that have been held and the conclusions reached with respect to this Modification Proposal.

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This document also has three annexes:

- **Annex A** contains the business requirements for the proposed solution.
- **Annex B** contains the redlined changes to the Smart Energy Code (SEC) required to deliver the proposed solution.
- **Annex C** contains the full Data Communications Company (DCC) Impact Assessment response.

1. Summary

A Gas Smart Metering Equipment (GSME) continuously updates its Consumption Register to reflect the volume of gas passing through its measuring element, which continuously updates the Meter Balance. GSMEs are designed to power on every 30 minutes to save battery life, and when powered on the GSME reports instantaneous reads to the Gas Proxy Function (GPF). The GPF keeps a copy of what is reported so that these copied values can be read from the GPF directly rather than from the GSME itself, again saving GSME battery life.

Normally these periodic updates happen every 30 minutes but sometimes they happen less frequently. However, there is currently no way of knowing the date or time of the last instantaneous value, meaning the information could be misleading. This could have an impact on a Supplier's interactions with a customer and could also provide an out-of-date picture of consumption and meter balance to customers via In Home Displays (IHDs) or Pre-Payment Interface Devices (PPMIDs), without it being obvious that the position is out-of-date. A discrepancy between the real position and a Supplier's perception could also have a detrimental impact on aspects such as billing and direct debits (which will be of concern for Pre-Payment customers).

The proposed solution is to allow Remote Parties and Devices reading the instantaneous values from the GPF to know the time on the GSME's Clock when those values were provided. Similarly, IHDs and PPMIDs will also be able to determine (and display) the time of the last update.

The modification will impact Supplier Parties and Gas Network Parties. The modification will impact DCC Systems, Party Interfacing Systems, Smart Metering Systems and Communication Hubs. The total estimated implementation cost to deliver SECMP0015 is approximately £571,000 (up to the end of Pre-Integration Testing (PIT)). The Working Group is currently recommending an implementation date of the June 2020 SEC Release.

2. Background

Background

A GSME continuously updates its Consumption Register to reflect the volume of gas passing through its measuring element, which continuously updates the Meter Balance.

Consumption Register changes can:

- cause values in other registers to change continuously, depending on Tariff settings, specifically registers in the Tariff Block Counter Matrix and the Tariff Time Of Use (TOU) Register Matrix; and
- when in Pre-Payment mode, cause changes in the Emergency Credit Balance.

These are referred to in this document as 'instantaneous' values.

GSMEs are designed to power on every 30 minutes to save battery life. When powered on the GSME reports instantaneous values to the GPF. The GPF keeps a copy of what is reported so that these copied values can be read from the GPF directly.

What is the issue?

The values read from the GPF will be from a time in the past. Normally these periodic updates happen every 30 minutes but sometimes they happen less frequently (e.g. due to local radio interference on the Home Area Network (HAN)).

There is currently no way of knowing the date and time of the last instantaneous value provided by the GSME. This may lead to discrepancies between the information held by Remote Parties and the true position displayed on GSMEs. The information could be misleading, especially if there has been no update from the GSME for an extended period. Similarly, IHDs and PPMIDs may display an 'old' instantaneous value to the consumer, with no way for the consumer to determine that the data is not current.

This could lead to various issues such as:

- underestimating a customer's direct debit payments, if these are based on a 'historical' instantaneous value;
- underestimating a customer's bill; and
- customer queries if there is a discrepancy between;
    - the real position known to the GSME and the Supplier's view gained by querying the GPF;
    - the values seen by the customer on the GSME and the Supplier's view; or
    - the values seen by the customer on the GSME and the IHD or PPMID.

This discrepancy would be of concern for Pre-Payment customers, as customers and Suppliers would need to be informed as quickly and reliably as possible of the meter balance.

SECMP0015 was raised by E.ON on 31 May 2016 to resolve this issue.

3. Solution

Proposed Solution

This modification aims to allow Remote Parties and Devices reading the instantaneous values from the GPF to know the time on the GSME's Clock when those values were provided. Specifically, it looks to ensure that:

- The GSME is to provide the GPF with a date-time stamp value whenever the GSME provides its instantaneous values;
- The GPF is to update its copy of this date-time stamp whenever it updates its copy of the GSME's instantaneous values;
- The GPF is to make available its copy of the GSME date-time stamp to Devices on the HAN;
- When the GPF creates a Response that contains these instantaneous values, for example:
    - Use Case GCS13a 'Read GSME Consumption Register'
    - Use Case GCS13b 'Read GSME Block Counters'
    - Use Case GCS13c 'Read GSME Register (TOU)'
    - Use Case GCS14 'Read GSME Prepayment Register(s)'; and
    - Use Case GCS60 'Read Meter Balance for GSME'

  these will use the copy of the GSME date-time stamp to populate the date-time field in the Response it generates, and mark GSME as the source of that date-time stamp in the Response;
- Where a GSME does not support providing its date-time stamp value when it provides its instantaneous values the GPF will populate the date-time field in the Response using the time of reading and mark the GPF as the source of that date-time stamp in the time status of the Response; and
- Parse and Correlate will decode the time status in Responses as GSME- or GPF-sourced and whether the date-time is (1) reliable, (2) unreliable or (3) invalid.

Legal text

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

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

Suppliers and Network Operators

All Supplier parties and Gas Network Operators that use the relevant Service Requests to read the instantaneous values will be impacted by this modification and its proposed solution to read the GPF to identify the time on the appropriate GSME.

Other SEC Parties

This modification will have an impact on Other SEC Parties, like Device manufacturers who will need to be made aware of any changes made in this modification's solution. Manufacturers will be asked to provide details on how this solution will affect them through this modification's Working Group Consultation.

DCC System

Communications Hub software will need be updated to populate Responses to Use Cases GCS13a, GCS13b, GCS13c, GCS14 or GCS60 with a date-time stamp received from the GSME or generated by the GPF. They will also construct message headers such that Users can determine the source of the date-time stamp (as either the GSME or GPF) and whether the date-time stamp is reliable, unreliable or invalid.

Parse and Correlate will be updated to decode the date-time stamp to identify the source (GSME or GPF) and whether it is reliable, unreliable or invalid, and present this information to the User. Message Mapping Catalogue (MMC) schema will need to be updated to allow Parse and Correlate to implement this change.

Additionally, DCC User Gateway Interface Design Specification (DUGIDS) and Great Britain Companion Specification (GBCS) Integration Testing For Industry will be amended to reflect these changes to Communications Hub and MMC changes.

The DCC User Interface Specification (DUIS) and the Data Services Provider (DSP) system remain unchanged.

The full impacts on DCC Systems and DCC's proposed testing approach can be found in the DCC Impact Assessment response in Annex C.

SEC and subsidiary documents

The following parts of the SEC will be impacted:

- Schedule 8 ‘GB Companion Specification’
- Schedule 9 ‘SME Technical Specification 2’
- Schedule 10 ‘CH Technical Specifications’
- Schedule 11 ‘TS Applicability Tables’

Other industry Codes

No impacts anticipated on other industry codes.

Greenhouse gas emissions

There are no impacts on Greenhouse Gas Emissions anticipated.

5. Costs

DCC costs

The estimated DCC implementation costs to implement this modification is £570,730 (up to the end of PIT). The breakdown of these costs are as follows:

Breakdown of DCC implementation costs	
Activity	**Cost**
Design	£569,530
Build	
Pre-Integration Testing	
Systems Integration Testing, User Integration Testing and Implementation to Live	Not Specified

The DCC implementation costs associated with Systems Integration Testing, User Integration Testing and 'Implementation to Live' have not yet been provided. These will be requested and received once the Panel and the DCC have agreed the approach to take with these going forward and included in the final version of this report submitted for decision.

More information can be found in the DCC Impact Assessment response in Annex C.

SECAS costs

The estimated SECAS implementation costs to implement this modification is two days of effort, amounting to approximately £1,200. The activities needed to be undertaken for this are:

- Updating the SEC and releasing the new version to the industry.
- Review and update any impacted SEC guidance materials.

SEC Party costs

A view on Party costs will be sought as part of the Working Group Consultation.

6. Implementation approach

Recommended implementation approach

The Working Group is recommending an implementation date of:

- **25 June 2020** (June 2020 SEC Release) if a decision to approve is received on or before 25 July 2019; or
- **5 November 2020** (November 2020 SEC Release) if a decision to approve is received after 25 July 2019 but on or before 5 November 2019.

This is to enable the DCC sufficient time to design, build, test and implement the changes set out and for Remote Parties to make associated changes, should they wish to.

7. Discussions and development

How will the solution work?

The Working Group has considered in detail how the end-to-end solution will operate. This led to the set of detailed business requirements being developed (see Annex A) and the DCC's Impact Assessment (see Annex C) was based on these requirements.

The Working Group considered the impact on Remote Parties and other Devices on the HAN querying the GPF. This led to the consideration of the GBCS Use Cases Responses that should be amended as set out in the business requirements.

The Working Group also considered the interoperability considerations, determining behaviour when a Communications Hub that does support the change is paired with a GSME that does not support the change, and vice versa. A Working Group member suggested that an older Communications Hub should be able to support existing behaviour, such as recording the timestamp when it received the instantaneous read form the GSME. The Working Group agreed with this view and noted its importance to Pre-Payment consumers, specifically when dealing with emergency credit matters.

Are consumers positively or negatively impacted by the solution?

The Working Group was asked to consider the impacts that this modification's solution would have on consumers. Consumers will be positively affected by this modification as interactions with Suppliers will be based on information that the Supplier will know to be current, or otherwise. For example, decisions regarding customer bills or direct debit payments would not be subject to errors caused by believing that instantaneous consumption values are current, when in fact they are not. Consumers are expected to have fewer issues with Suppliers regarding direct debit and billing-related matters. These issues could currently arise because the cost of consumption would reflect the period over which the consumption was believed to have taken place. However, if a significantly out-of-date view of consumption were assumed to have taken place until the immediate period, it would 'deflate' the calculated rate of consumption by the customer.

Customers are expected to have fewer issues with information presented to them by IHDs and PPMIDs being out of line with the GSME's view of this data. These amendments are expected to especially beneficial to Pre-Payment customers, whose budgeting could be negatively impacted where they are presented unknowingly with out of date information.

Changes to the solution

The Working Group reviewed the original solution set out in the modification and minor revisions have been made during the process, for instance the expansion of the scope of the solution to include allowing the timestamp from GSME to be available on the HAN. However, it remains substantially as set out in the original Modification Proposal. In the absence of an alternative solution being developed it is the preferred approach.

The Working Group also considered whether the modification should remain an Authority Determined Modification or change to a Self-Governance Modification. The Working Group suggested this question should be included as part of the Working Group Consultation.

8. Conclusions

Benefits and drawbacks

The Proposer and the Working Group have identified the following benefits and drawbacks in implementing this modification:

Benefits

- Suppliers and customers will benefit by mitigating the risk of underestimating a customer's direct debit payments, if these are based on a 'historical' instantaneous value.
- Suppliers and customers will benefit by mitigating the risk of underestimating a customer's bill.
- Customer queries should reduce by avoiding 'invisible' discrepancies between:
  - the real position known to the GSME and the Supplier's view gained by querying the GPF;
  - the values seen by the customer on the GSME and the Supplier's view; or
  - the values seen by the customer on the GSME and the IHD or PPMID.

Drawbacks

- No drawbacks have been identified by the Working Group.

Proposer's rationale against the General SEC Objectives

Objective (a)[1]

The Proposer believes that SECMP0015 will better facilitate SEC Objective (a) by reducing billing, direct debit and other customer queries and reducing issues such as settlement imbalances.

Objective (c)[2]

The Proposer believes that SECMP0015 will better facilitate SEC Objective (c) by enabling Suppliers and customers to determine if information made available remotely or in the home is out of date.

Working Group members' views

The Working Group agreed unanimously that the modification better facilitates General SEC Objectives (a) and (c), and that the benefits this modification provides warrant its implementation.

[1] Facilitate the efficient provision, installation, and operation, as well as interoperability, of Smart Metering Systems at Energy Consumers' premises within Great Britain.

[2] Facilitate Energy Consumers' management of their use of electricity and gas through the provision to them of appropriate information by means of Smart Metering Systems.

Appendix 1: Glossary

This table lists all the acronyms used in this document and the full term they are an abbreviation for.

Glossary	
Acronym	**Full term**
DCC	Data and Communications Company
DMR	Draft Modification Report
DUGIDS	DCC User Gateway Interface Design Specification
DUIS	DCC User Interface Specification
GPF	Gas Proxy Function
GSME	Gas Smart Meter Equipment
IHD	In Home Display
MMC	Message Mapping Catalogue
MRC	Modification Report Consultation
PIT	Pre-Integration Testing
PPMID	Pre-Payment Meter Interface Device
SIT	Systems Integration Testing
SM HAN	Smart Metering Home Area Network
TOU	Time of Use
UIT	User Interface Testing

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