SEC
Smart Energy Code

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MP187

‘Incorporation of Target Round Trip Times and Target Success Rates into the SEC’

Modification Report

Version 0.3

26 April 2022

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About this document

This document is a Modification Report. It currently sets out the background, issue, solution, impacts, costs, implementation approach and progression timetable for this modification, along with any relevant discussions, views and conclusions. This document will be updated as this modification progresses.

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1. Summary

This proposal has been raised by Katie Taaffe from the Data Communications Company (DCC).

As part of the Smart Energy Code (SEC) Modification MP122A 'Operational Metrics' solution (implemented as part of the February 2021 SEC Release), new Service Reference Variant (SRV) metrics reporting has been introduced. These reports, produced by the DCC Technical Operations Centre (TOC), measure the Round-Trip Times (RTTs) of messages but, in the absence of target RTTs, are then compared to the Target Response Times (TRTs) listed within the SEC.

This is resulting in a misleading view of the health of the Smart Metering system and, as a minimum, the DCC is keen to correct this by gaining industry agreement to baseline RTT targets within the SEC.

2. Issue

What are the current arrangements?

Target Response Times

TRTs are the target performance measures defined in SEC Appendix E 'DCC User Interface Services Schedule'. The TRTs are defined differently for Smart Metering Equipment Technical Specifications 1 (SMETS1) Devices and Smart Metering Equipment Technical Specifications 2+ (SMETS2+) Devices:

- **SMETS1 Devices** – starting from the DCC User Gateway and ending on provision of the Service Response to the User, but only counting the processing time between the DCC User Interface to the DCC SMETS1 Processing Systems (inclusive); and/or the DCC SMETS1 Processing Systems to the DCC User Interface (inclusive).
- **SMETS2+ Devices** – starting from the DCC User Gateway and ending on provision of the Service Response to the User, but only counting the processing time between the DCC User Interface to the Communications Hub (inclusive); and/or the Communications Hub to the DCC User Interface (inclusive).

TRTs set the expected performance for messages transiting the DCC networks and systems. They only measure performance within the DCC environment (DCC User Gateway to Communications Hub and reverse). They do not provide a holistic view of a message journey, as they do not measure the time spent on the Home Area Network (HAN).

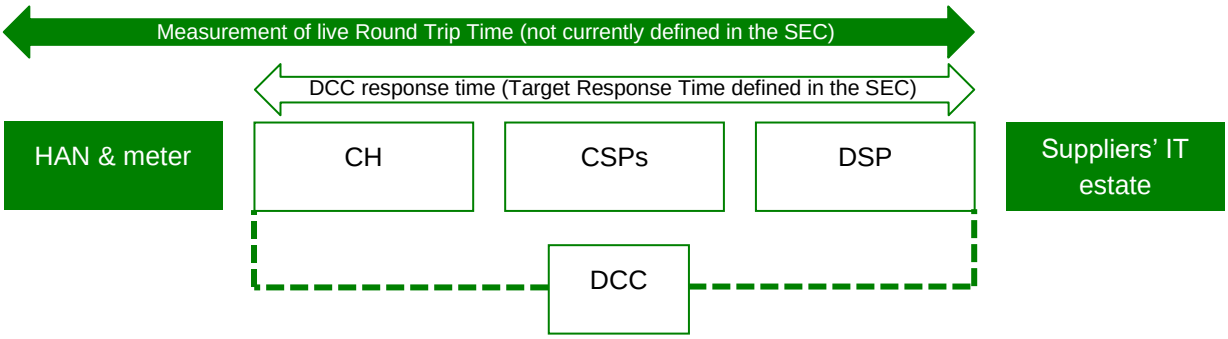
The DCC does not currently have the capability to measure TRTs at an individual SRV level and in real-time, as required by the MP122A legal text in Sections H13.1 and H13.1A. At present, the TRT reporting requirements are met using a combination or real-time and test messages.

Round Trip Times & Success Rates

RTTs are a performance measure that incorporate the end-to-end journey of a message. This includes HAN transfer and Device processing time. RTTs are currently measured by the DCC TOC following the implementation of MP122A. This has resulted in reporting RTTs and the Success Rates of a set of SRVs associated with different business processes. However, there are no existing targets

against which these measures can be compared. Furthermore, RTTs are not currently defined or included within the SEC.

Success Rates are a performance metric that measure the percentage of SRVs that were delivered, irrespective of the time taken. SEC Parties expressed interest in this metric during the DCC-led Operational Performance Regime (OPR) Working Group discussions and it was felt that if suitable targets could be developed, it may be a useful metric for Ofgem's new OPR.



CH – Communications Hub, CSP – Communications Service Provider, DSP – Data Service Provider, IT – Information Technology

What is the issue?

As part of the MP122A solution (implemented as part of the February 2021 SEC Release), new SRV metrics reporting has been introduced. These reports measure RTTs but are then compared to the TRTs listed within the SEC. The DCC has advised, through the OPR Working Group[1], that to report on TRTs in real-time and at an SRV level would cost around £3.5m-£5m. OPR Working Group members were unsupportive of this approach.

For DCC-only performance metrics there are the TRTs as defined in SEC Appendix E and adopted into contracts with the DCC's Service Providers. However, to create (non financial) incentives against SEC Party metrics, target RTTs and target Success Rates are required. The DCC has raised this SEC Modification to develop and define these targets, and thus incorporate them into current reporting.

What is the impact this is having?

Impact on Ofgem's New OPR

The DCC's original objective was to define RTT and SR targets with the intention that these could be picked-up by Ofgem for the new OPR. However, it has become clear that to use RTTs and SRs as the basis on which to incentivise the DCC would be unreasonable and unworkable. This is because the DCC is not in complete control of all elements of the Round Trip of an SRV. However, it remains of upmost importance to Ofgem that the smart meter industry is supportive of the metrics and methodology that are used to monitor and report the health of the Smart Meter ecosystem. The Proposer considers that a SEC Modification is the best and most rigorous way to progress new targets for RTTs and Success Rates. There is also the added benefit that end-to-end SEC Party

[1] opr-systems-performance-recommendations-to-ofgem-final.pdf (smartdcc.co.uk)

metrics is a first step towards collaboration across the industry which may lead to improvements in the experience for end consumers.

Impact on consumers

SEC Party metrics cannot be improved without a shared responsibility between the DCC and SEC Parties to collaborate and work together to improve the end-to-end performance. Therefore, if SEC Party metrics are incorporated into the SEC, along with appropriate targets, it is hoped that the end consumers will see the benefits of any improvement in performance.

Impact on DCC and SEC Parties

The DCC is currently reporting SRV performance in an Annex to the Performance Measurement Report (PMR). The TOC data used in this Annex primarily measures RTTs. However, at present there are no target RTTs against which to compare. As an interim, the RTTs in the Annex are compared to the relevant TRTs, to give a rating of performance. The Proposer considers this is resulting in an unnecessarily harsh and misleading view of the health of the Smart Metering system, which impacts both the DCC and SEC Parties who read the reports. As a minimum, the DCC is keen to correct this by gaining industry agreement to define target RTTs.

Discussions in the OPR Working Group and other forums have highlighted that, due to the physics of certain parts of the DCC network, some large messages are struggling to achieve the original TRTs set out in the SEC. This is a connected and important issue but will be separated out and discussed via another modification or workstream. The Proposer intends that this modification focuses solely on determining and introducing the appropriate RTT targets and reporting into the SEC and will not consider how the DCC will then meet these targets.

3. Solution

Proposed Solution

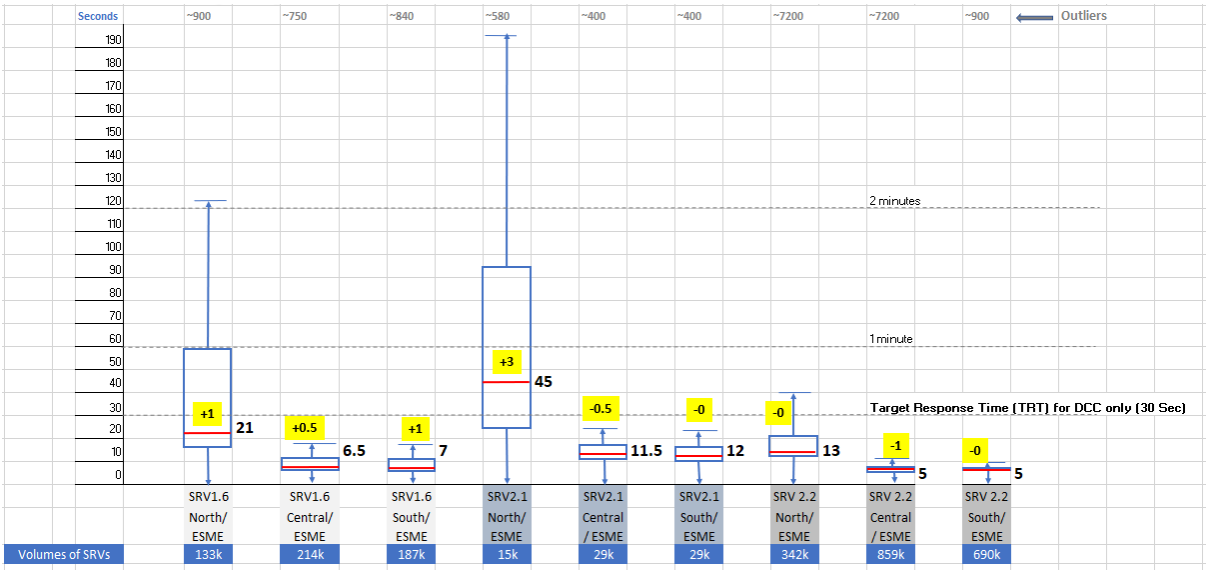
The DCC has used five months' worth of data to set baseline RTTs for each SRV within each business process. Following support from the Working Group, the data is currently displayed using box-whisker diagrams.

The box-whisker diagrams display the following metrics for each SRV, set out by CSP region and fuel type:

- Maximum (100th percentile) (this will display any outlier SRV RTTs)
- Modified maximum (99th percentile)
- Upper quartile (75th percentile)
- Median (50th percentile)
- Lower quartile (25th percentile)
- Minimum (1st percentile)

- Variation of the median average from the baseline average (highlighted in yellow)
- Volume of the SRV sent within that given month

An example of how these diagrams look can be found below (ESME prepayment SRVs):



This reporting will be for information only, and will be presented to SEC Parties via the Operations Group (OPSG). It is intended that the box-whisker diagrams will be used to help set RTT targets. If the targets can be set, then the existing summary tables in MP122A reports may be modified to reflect the RTT targets, rather than TRT targets. The Performance Indicators Document is available via the DCC SharePoint, along with the DCC Response Code Document (see below for when this is used).

In terms of amendments to the SEC, definitions for 'Round Trip Time' and 'Success Rate' will be implemented into SEC Section A 'Definitions and Interpretation':

- **Round Trip Time:** means the total time taken for a User to be provided with a Service Response: starting at the start of the applicable measurement period described in Section H3.14(a)-(f) (Target Response Times); and ending on the provision of the Service Response to the DCC User Gateway. For clarity: this includes the time spent in the Smart Metering System (including SRV retry time) and any additional, relevant HAN, or Device, processing and transmission time; and applies to Service Responses in respect of both SMETS1 Devices and SMETS2+ Devices.
- **Success:** A Service Reference Variant shall be considered to have been successfully processed, when it has been sent to the DCC, and an associated response code [as defined in the DCC Response Code Document], indicating success or failure to execute the requested action, has been sent to the User Interface.

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

The DCC already has the capability to measure RTTs, however it will now be expected to report on monthly RTT performance compared to agreed baseline figures. The DCC will provide updates to SEC Parties on RTT performance for each of the business processes via the OPSG. Any remedial actions identified will also require OPSG approval. The reports will also be available via the DCC SharePoint.

DCC System

This modification will have no impact on DCC Systems.

SEC and subsidiary documents

The following parts of the SEC will be impacted:

- Section A 'Definitions and Interpretation'

The changes to the SEC required to deliver the proposed solution can be found in Annex A. The additional reporting will be captured within the DCC Performance Indicators Document which is a Code required document.

Consumers

Visibility of the end-to-end performance of Alerts, including time spent on the HAN will provide insight to Device Manufacturers. The data may be used to identify areas where Device performance can be improved, resulting in better SRV performance. This will be of benefit to the consumer.

Other industry Codes

This modification will have no impact on other industry Codes.

Greenhouse gas emissions

This modification will have no impact on greenhouse gas emissions.

5. Costs

DCC costs

Any change to the existing reports will incur costs, though these are anticipated to be minor.

SECAS costs

The estimated SECAS implementation cost to implement this as a stand-alone 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

This modification will not incur any SEC Party costs.

6. Implementation approach

Recommended implementation approach

SECAS is recommending an implementation date of:

- **29 June 2023** (June 2023 SEC Release) if a decision to approve is received on or before 29 December 2022; or
- **29 February 2024** (February 2024 SEC Release) if a decision to approve is received after 29 December 2022 but on or before 29 August 2023.

DCC has advised that it will require six months in order to implement the RTT reporting. It is the intention that the SEC legal text changes are implemented at the same time the reporting is functional. Therefore, the earliest release this modification can be implemented in is the June 2023 SEC Release. If however the Change Board decision takes place after 29 December 2022, the modification will be implemented as part of the February 2024 SEC Release.

7. Assessment of the proposal

Observations on the issue

Views of the TABASC Chair

During the Development Stage SECAS engaged with the Sub-Committee Chairs for initial comments and recommendations. The Technical Architecture and Business Architecture Sub-Committee (TABASC) Chair raised concerns regarding the need for additional data transfer (such as timestamps) that will be required to measure RTTs. This increased volume could negatively impact DCC Systems and subsequent smart metering architecture. The TABASC Chair requested that the Proposed Solution is presented to the TABASC when ready.

Solution development

Views of the Working Group

The DCC presented the proposed methodology for setting target RTTs, which is through box whisker diagrams. The DCC has initially trialled this methodology for the prepayment business process and showed the findings to the Working Group. Several Working Group members commented positively on the data shown, stating that it was a very good visualisation of the data. This methodology will be further developed for the remaining business processes. SECAS requested that additional information was to be provided on the whisker box diagrams such as the total number of SRVs in each category and the dates that the data was collected to ensure any incidents or unusual events could be identified and their effects on the data understood. This has now been incorporated into the Proposed Solution.

SECAS asked the Working Group whether 'time' and/or 'speed' need to be considered as part of the 'Success' definition. A Working Group member advised that to 'close the loop' within the DSP and within User systems, Parties need to know when the response is due to be received. They added that time must be included within the definition to allow Parties to be able to close off actions. After further solution development, the Proposer has advised that the DCC Response Code Document is where SRV time outs other related metrics are defined. As a result, Working Group members will be able to change or modify what constitutes a success or fail within this document.

8. Case for change

Business case

This modification will provide improved insight and further transparency into DCC performance and overall smart metering performance. This may inform future reporting developments and be considered by the Authority for inclusion into the OPR.

Views against the General SEC Objectives

Proposer's views

The Proposer believes that the modification will better facilitate SEC Objectives (a)[2] and (g)[3]. This is because the added reporting capability will aid the efficient operation of smart metering, while adding further transparency within the SEC.

Industry views

Industry views will be gathered through the Refinement Consultation.

Views against the consumer areas

Improved safety and reliability

The implementation of this modification will have a neutral impact on the safety and reliability of smart metering.

Lower bills than would otherwise be the case

The implementation of this modification will have a neutral impact on consumers' bills.

Reduced environmental damage

The implementation of this modification will have a neutral impact on reducing environmental damage.

Improved quality of service

Measuring RTT performance against indicative values will allow greater visibility for Device Manufacturers to identify areas where improvements may be able to be made. This has the potential to lead to further HAN orientated performance improvements.

Benefits for society as a whole

The implementation of this modification will have a neutral impact on benefits to society.

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

[3] Facilitate the efficient and transparent administration and implementation of the SEC.

Appendix 1: Progression timetable

SECAS will present the Proposed Solution to the Working Group, the TABASC and OPSG. Provided that each group or Sub-Committee approves of the Proposed Solution, SECAS will then issue the Refinement Consultation to gain further industry feedback.

Timetable	
Event/Action	**Date**
Draft Proposal raised	2 Nov 2021
Presented to SEC Sub-Committees for input	Nov 2021
Discussed with Sub-Committee Chairs at triage session	17 Nov 2021
CSC converts Draft Proposal to Modification Proposal	30 Nov 2021
Solution developed with the Proposer	Dec 2021 - Jan 2022
Modification discussed with the Working Group	2 Feb 2022
Further solution development	Feb – Mar 2022
Legal text developed with the Proposer	Apr 2022
Modification discussed with the Working Group	4 May 2022
Modification discussed with the TABASC	5 May 2022
Modification discussed with the OPSG	10 May 2022
Refinement Consultation	16 May – 6 Jun 2022
Refinement Consultation responses discussed with the Working Group	6 Jul 2022
Modification Report approved by CSC	19 Jul 2022
Modification Report Consultation	20 Jul – 10 Aug 2022
Change Board Vote	24 Aug 2022

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**
CH	Communications Hub
CSC	Change Sub-Committee
CSP	Communications Service Provider
DCC	Data Communications Company
DSP	Data Service Provider
HAN	Home Area Network
IT	Information Technology
OPR	Operational Performance Regime

Glossary	
Acronym	**Full term**
OPSG	Operations Group
PMR	Performance Measurement Report
RTT	Round Trip Time
SEC	Smart Energy Code
SECAS	Smart Energy Code Administrator and Secretariat
SMETS	Smart Metering Equipment Technical Specifications
SR	Service Reference
SRV	Service Reference Variant
TABASC	Technical Architecture and Business Architecture Sub-Committee
TOC	Technical Operations Centre
TRT	Target Response Time