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DP295

‘Amendment to SMETS1 Cache Solution’

Modification Report

Version 0.1

10 June 2025



About this document

This document is a Modification Report. It sets out the background, issue, solution, impacts, costs, implementation approach 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 Bradley Baker from the Data Communications Company (DCC).

As a result of increased Service Request (SR) volumes due to Market-Wide Half Hourly Settlement (MHHS), a Solution was implemented as part of [MP256 'SEC Alignment with DCC SMETS1 MHHS Capacity'](#) to cache Data from Smart Metering Technical Specifications (SMETS)1 Electrical Smart Metering Equipment (ESME)s from a 24-hour period and retain it for 25 hours to allow Suppliers to access this Data. Following discussions the DCC held with SMETS1 Service Providers (S1SPs) it has become apparent that this approach no longer aligns with User behaviour.

The DCC has analysed the Data, and it has become apparent that Users request 24 hours' worth of Data with varying start and end times. This could lead to gaps in the Data received by the User.

The proposer would like to extend the existing Data cache from 24 hours to 28 hours. The proposer believes that this change would allow the proportion of scheduled SRVs that could be serviced from the cache to increase from 6.38% (7,838,171 per month) to 69.68% (85,581,015 per month) The proposal would not change the existing 25 hour retention period.

This modification is targeted for Ad-hoc SEC Release. There are no costs associated with this modification outside that of The Smart Energy Code Administrator and Secretariat (SECAS) implementation costs. This modification is a Self-Governance modification.

2. Issue

What are the current arrangements?

[MP256 'SEC Alignment with DCC SMETS1 MHHS Capacity'](#) was implemented as part of the June 2024 SEC Release. It introduced text changes to SEC Appendix AM 'SMETS1 Supporting Requirements' to align the SEC with the SMETS1 S1SP Data cache solution that is currently in place.

The Data cache solution is intended to allow the DCC to support the increased MHHS-related SR volume to SMETS1 Devices and meet the associated direction by Ofgem under DCC Licence Condition 21 'Roles in relation to Core Industry Documents' and Balancing and Settlement Code (BSC) paragraph 12.12(1)(h), *'Each MHHS Participant shall comply with the Authority's directions from time to time relating to MHHS Implementation'*.

SMETS1 Data cache design

The SMETS1 Data cache applies to three Service Reference Variants (SRVs):

- SRV 4.6.1 – Read Active Import Profile Data
- SRV 4.8.1 – Retrieve Import Data Read Log
- SRV 4.8.3 – Read Export Profile Data

The design intent of the SMETS1 Data cache is summarised below:

- A scheduled SR of one of the in-scope SRVs (4.6.1, 4.8.1 and 4.8.3) will cause the cache to be populated with Data that is retrieved from the SMETS1 meter as well as returning a response to the User.

- Any subsequent SRV 4.6.1, 4.8.1 or 4.8.3 requests either scheduled, on-demand or future dated that can be responded to using Data from the cache will not require a request to the meter as cached Data will be used instead.
- Data is removed from the cache after a period aligned to the Data retention period (currently 25 hours).

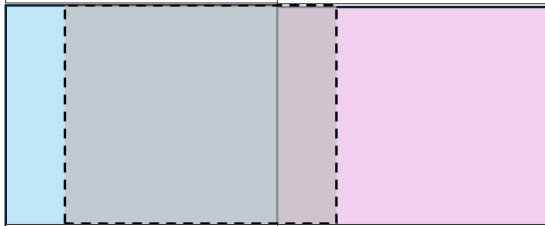
DCC analysis post-cache implementation

The current Data cache arrangements are that read Data will be stored for the previous day 00:00-00:00. Any data requested for this period will be retrieved from the cache.

If the data requested is for any part of the present day the data will be taken directly from the Device rather than from the Data cache. If Data was requested from 01:00 of the previous day until 01:00 of the current day this would be taken directly from the meter rather than the Data cache.

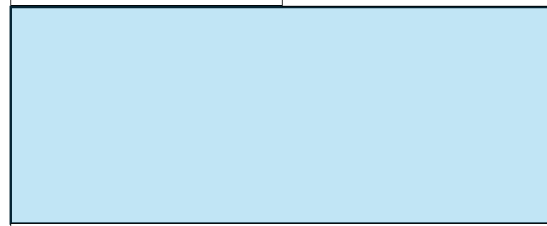
This instance results in the Data cache being underutilised and no reduction in system traffic.

Current Data cache arrangements

Previous day	Current day
00:00 - 00:00	00:00 - 00:00
	
Data retrieved from cache	Data retrieved from Device

Any data requested from the Previous day (blue) will be retrieved from the Data cache. Any data that is requested from the current day (pink) will be taken directly from the Device.

Proposed Data cache arrangements

Previous day	Current day
00:00 - 00:00	00:00 - 03:00
	
Data retrieved from cache	

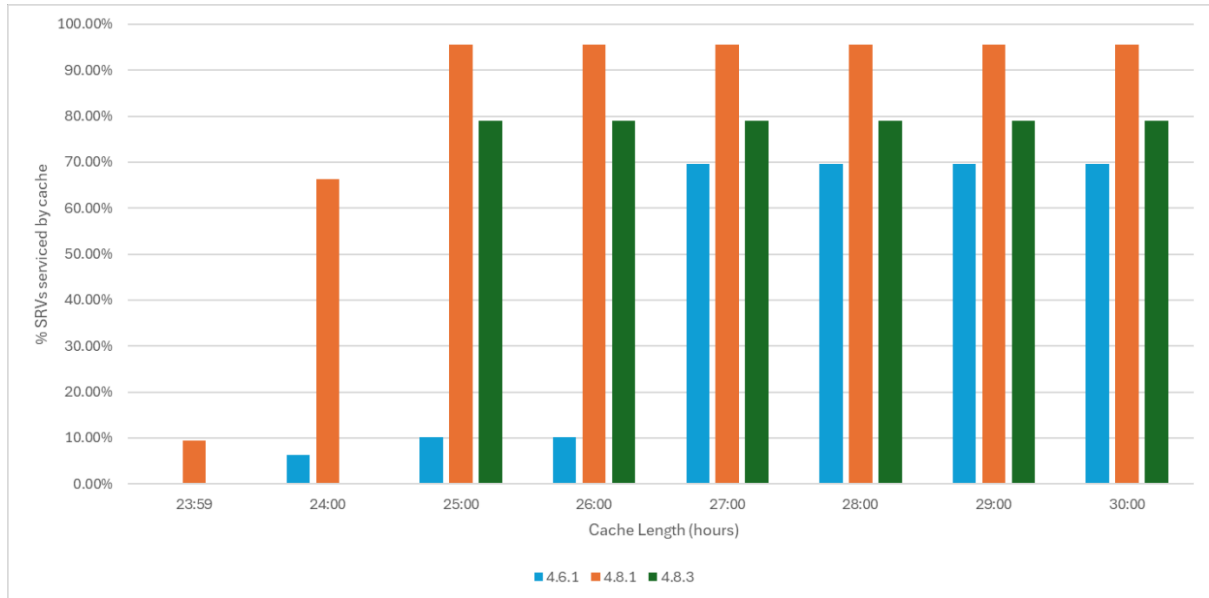
Currently any Data requested that forms part of the current day (shaded) will also be taken directly from the Device. Analysis of User behaviour has shown that a significant amount of data is requested up to 03:00 on the current day.

The DCC has carried out analysis of scheduled SRV Data to understand the Data windows being requested on the current production system for scheduled SRVs. This analysis gives details of the read windows for all scheduled SRVs run in December 2024 across all SMETS1 S1SPs. Analysis showed that a large proportion of the current scheduled SRVs' read windows requested Data from the current day and as such could not be serviced from the cache. Moving the end time to include a proportion of the current day would increase the potential for scheduled SRVs to be serviced from the cache.

The analysis showed that for SRV 4.6.1 'RetrieveImportDailyReadLog', moving the end time from 00:00 of the current day to 03:00 of the current day (27-hour cache length as opposed to 24) would allow the proportion of scheduled SRVs that could be serviced from the cache to increase from 6.38% (7,838,171 per month) to 69.68% (85,581,015 per month) (based on the Data available). This leads to

DCC's proposal of increasing the length of the cache for all SRVs (4.6.1, 4.8.1 and 4.8.3) to 27 hours to include up to 03:00 of the current day.

There are no changes to how long the Data is retained which remains at 25 hours.



The above graph shows from the DCC's analysis that there is a significant increase in the volume of Data being retrieved after 24 hours and that this peaks at 27 hours.

How does this proposal differ from DP278 'MHHS SMETS1 Cache Solution Amendment'?

[DP278 'MHHS SMETS1 Cache Solution Amendment'](#) was withdrawn by the DCC 22 January 2025 due to the solution not being endorsed by the Security Sub-Committee (SSC) or Smart Metering Key Infrastructure Policy Management Authority (SMKI PMA). DP278 proposed to extend the Data held within the cache from 24 hours to 72 hours (144 half-hour reads). The SSC and SMKI PMA deemed that this extension in Data stored in the cache posed a greater security risk.

This proposal is to increase the window an additional three hours and has the Data analysis to show this will be of benefit. This proposal has already been discussed at the Security Sub-Committee (SSC) and Privacy Sub-Committee (PSC), and neither group had an issue with the proposal however a PSC member questioned the accuracy of the Data analysis. This concern was resolved following a follow up call with the DCC.

What is the issue?

The Proposer believes that the analysis shows that the cache is not currently being utilised to its full potential. This will result in an increase in traffic across DCC Systems once MHHS goes live, which could be partly reduced if the volume of Data held in the cache was extended by three hours.

What is the impact this is having?

The full impact will not be felt until MHHS Go-Live, however the analysis carried out by DCC has shown that the SMETS1 cache is not being fully utilised under its current configuration and therefore the Proposer believes that the benefits are not being realised.

Impact on consumers

There is no impact on consumers.

3. Solution

Proposed Solution

The Proposed Solution applies to SMETS1 Smart Metering Systems only.

The Proposed Solution is to enable the cache to store 24 hours plus an additional three hours up to 03:00AM of the current day. This will better facilitate Supplier behaviour as analysed since the original cache solution was implemented through SEC Modification MP256 on 27 June 2024. This amendment to the current solution will allow industry to further realise the benefits of the cache by reducing the amount of DCC System traffic required to support MHHS.

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
	DCC Other Users		MAPs/ MAMs

This modification will have a positive impact on Large and Small Suppliers who supply consumers whose premises are fitted with a SMETS1 ESME. This is due to the Half-Hourly consumption Data being retrieved from the cache, instead of the ESME.

DCC Systems

DCC System changes

This modification will have no impact on DCC Systems as the cache parameters are configurable across each SMETS1 cohort.

DCC System traffic

This modification will have a positive impact on DCC System traffic as the cache solution will be better utilised as evidenced by the DCC's analysis.

SEC and subsidiary documents

The following parts of the SEC will be impacted:

- Appendix AM 'SMETS1 Supporting Requirements'

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

This modification will not directly impact Devices, however the Proposed Solution will result in fewer requests being sent to the ESME (via the Communications Hub) to retrieve half-hourly Data.

Consumers

This modification will have no impact on consumers.

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

This modification has no associated DCC costs.

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

The Smart energy Code Administrator and Secretariat (SECAS) does not anticipate any SEC Party costs as a result of this modification.

6. Implementation approach

Recommended implementation approach

SECAS is recommending an implementation date of:

- Ad-hoc SEC Release

The Proposer has requested that this modification is implemented one Working Day after decision. This will ensure that the configuration change to the cache takes place in advance of MHHS Go-Live 22 October 2025.

7. Assessment of the proposal

Areas for assessment

Security Risks

The amended proposal to increase the amount of Data that is stored from 24 hours to 28¹ hours was presented to the Security Sub-Committee February 2025. The Data will continue to only be retained

¹ The 28 hours is actually 27 but needs to take into account the two annual changes in time (Greenwich Mean Time (GMT) to British Standard Time (BST) and vice versa).

for 25 hours. The Security Sub-Committee noted the update and approved the design proposal as having no material security impact.

Sub-Committee input

SECAS has engaged with 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	We do not believe this modification will have any OPSG impacts
SMDASC	We do not believe this modification will have any SMDASC impacts
SMKI PMA	We do not believe this modification will have any SMKI PMA impacts
SSC	Any security impacts from storing more Data.
TABASC	We do not believe this modification will have any TABASC impacts
TAG	We do not believe this modification will have any TAG impacts

8. Case for change

Business case

Approval of the modification

This modification will enable the existing SMETS1 Data cache to be used effectively and additionally reduce the amount of DCC System traffic required to support MHHS.

Views against the General SEC Objectives

Proposer's views

The Proposer believes that this modification better facilitates SEC Objectives (a), (b) and (c). This is due to the modification allowing the efficient operation of Smart Metering Systems, while allowing the DCC to meet its DCC Licence obligations, as well as facilitating Energy Consumers' management of their use of electricity by supporting MHHS.

Industry views

The Security Sub Committee could not see any issues arising from the implementation of this modification.

Views against the consumer areas

Improved safety and reliability

This modification will be neutral against safety and security for consumers.

Lower bills than would otherwise be the case

This modification will be neutral against this consumer benefit area.

Reduced environmental damage

This modification will be neutral against this consumer benefit area.

Improved quality of service

This modification has a positive impact on improving quality of service.

Benefits for society as a whole

This modification will be neutral against this consumer benefit area.

Appendix 1: Progression timetable

Timetable	
Event/Action	Date
<i>Draft Proposal raised</i>	4 June 2025
Presented to CSC for initial comment	17 June 2025
CSC converts Draft Proposal to modification Proposal	17 June 2025
Present to CSC to receive approval for Report Phase	17 June 2025
<i>Modification Report Consultation</i>	<i>25 June 2025 – 9 July 2025</i>
<i>Change Board Vote</i>	<i>23 July 2025</i>

Italics denote planned events that could be subject to change

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
CSC	Change Sub-Committee
BSC	Balancing and Settlement Code
BST	British Standard Time
DCC	Data Communications Company
ESME	Electricity Smart Metering Equipment
GMT	Greenwich Mean Time
MHHS	Market-wide Half Hourly Settlement
OPSG	Operations Group
PSC	Privacy Sub-Committee
S1SPs	SMETS1 Service Providers
SMETS1	Smart Metering Equipment Technical Specifications 1
SEC	Smart Energy Code
SECAS	Smart Energy Code Administrator and Secretariat
SR	Service Request
SRV	Service Reference Variant
SMKI PMA	Smart Metering Key Infrastructure Policy Management Authority
SSC	Security Sub-Committee
TABASC	Technical Architecture and Business Architecture Sub-Committee
TAG	Testing Assurance Group