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MP230

‘Review the SLA for delivery and completion for SMETS1 firmware’

Modification Report

Version 1.0

22 May 2024

Corporate member of
Plain English Campaign
Committed to clearer
communication

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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 five annexes:

- **Annex A** contains the business requirements for the solution.
- **Annex B** contains the redlined changes to the Smart Energy Code (SEC) required to deliver the Proposed Solution.
- **Annex C** contains the full responses received to the first Refinement Consultation.
- **Annex D** contains information on how firmware requests would be prioritised.
- **Annex E** contains the full responses received to the second Refinement Consultation.

Contact

If you have any questions on this modification, please contact:

Mohammedanwar Sumro

020 3934 4506

mohammedanwar.sumro@gemserv.com

1. Summary

This proposal has been raised by Nick Rodgers from the Data Communications Company (DCC).

Firmware images for some Smart Metering Equipment Technical Specification (SMETS1) Devices are significantly larger than the 750kB that the DCC System has been designed to handle. These larger images need to be broken down to send in multiple images. The DCC system can process 12,000 of these images a day. The Smart Energy Code (SEC) currently states that the Target Response Time (TRT) for processing of firmware upgrades is five days, which cannot be achieved on a large scale with these larger firmware images without impacting the performance of the DCC System.

The Proposed Solution states that if a firmware image for a SMETS1 Device is larger than 750kB and the User wants to send a batch larger than 500 images per day, the User must contact the DCC through the DCC Service Desk to coordinate and agree on a delivery schedule. Once this delivery schedule is agreed, the five-day TRT will apply from the point of sending each batch.

This modification impacts all Suppliers as well as the DCC, with costs limited to Smart Energy Code Administrator and Secretariat (SECAS) implementation cost. This is a Self-Governance modification and is targeted for the November 2024 SEC Release.

2. Issue

What are the current arrangements?

The DCC Total System has a limit to the amount of large (>750kB) Smart Metering Equipment Technical Specification (SMETS1) firmware images that can be processed without causing a degradation of System performance meaning that if a significant volume of large firmware images need to be processed, they must be spread over several days. Where a firmware image for a SMETS1 Device is larger than 750kB, it is broken down into blocks for transmission across the network. The current TRT for the DCC to complete this process is five days end to end, and the TRT currently applies whether there is one Firmware image to process or many.

Some Electricity Smart Metering Equipment (ESMEs) have a very large firmware image, in excess of 750kB, that requires being broken down into multiple images. The current processing of these images is possible at maximum capacity of 12,000 images a day. Since no further SMETS1 Devices are being installed it was believed unlikely that the whole of this Device estate would require further firmware updates. However, there have been instances where firmware upgrades have been required, for instance with the introduction of the Energy Price Cap.

What is the issue?

There is an estimated 670,000 SMETS1 Devices with these particularly large images. This is approximately 5.8% of all SMETS1 Devices. These Devices have a lifespan of approximately 10-15 years, during which time they may require further firmware updates. Because of the especially large image size, the DCC System cannot process them within the TRT without risks to the day-to-day traffic on the System.

What is the impact this is having?

The DCC Services, as per its licence, are managed under the Price Control arrangements, which are overseen by Ofgem and measured by the Ofgem Operational Performance Regime (OPR). If the DCC fails to meet System performance, Ofgem may determine a reduction in the baseline margin that the DCC may retain for the Regulatory Year. In addition, it could impact other Users on the DCC System.

In addition, releasing a large number of these firmware images onto the DCC System at one time, especially during peak times, may result in a reduced service for all Users.

Impact on consumers

There are no impacts to consumers.

3. Solution

Proposed Solution

The solution clarifies that if a firmware image for a SMETS1 Device is larger than 750kB and the User wants to send a batch larger than 500 images per day, the User needs to contact the DCC through the DCC Service Desk to coordinate and agree on a delivery schedule. Once this is agreed, the five-day TRT will then apply on those batches.

Amendments to SEC Appendix E 'DCC User Interface Services Schedule' (UISS) will be required to implement this change. The redlined changes 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 will see their firmware images which are greater than 750kB and in batches larger than 500 images be processed within the five-day TRT. Suppliers may need to make changes to internal processes to include liaising with the DCC in advance of deployment in these circumstances.

The DCC will be able to process larger firmware images within the TRT. The DCC process will be impacted as they will be required to confirm a batch size from a DCC User if the required number of upgrades is greater than 500 images and images are greater than 750kB. The DCC have indicated that currently five Suppliers manage portfolios which have over 500 Devices which would encounter this issue.

SEC and subsidiary documents

The following parts of the SEC will be impacted:

- Appendix E 'DCC User Interface Services Schedule'

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

Consumers

This modification will not impact consumers.

Other industry Codes

This modification will not impact other Industry Codes.

Greenhouse gas emissions

This modification will not impact greenhouse gas emissions.

5. Costs

DCC costs

There are no DCC costs to implement this modification.

SECAS costs

The estimated SECAS implementation cost to implement this as a stand-alone modification is half a day of effort, amounting to approximately £300. 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

During the first Refinement Consultation four out of five respondents confirmed that their organisation will not incur any costs with the implementation of this modification. One respondent advised there will be an additional cost due to putting firmware into batches for 12,000 images per day.

During the second Refinement Consultation both respondents confirmed that their organisations will incur costs but anticipate them to be lower than £100,000. The costs stem from additional resources to implement the batching for any SMETS1 firmware deployment captured in this modification.

6. Implementation approach

Approved implementation approach

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

- **7 November 2024** (November 2024 SEC Release) if a decision to approve is received on or before 24 October 2024; or
- **27 February 2025** (February 2025 SEC Release) if a decision to approve is received after 24 October 2024 but on or before 13 February 2024

This is a text only change and the next SEC Release that it could be included in is the November 2024 SEC Release.

One Respondent supported the proposed implementation approach explaining it is a low cost and method of resolving the issue. Another responded mentioned that requiring Suppliers to do the batching may cause them difficulties and questioned whether or not the updates will still go through if not batched correctly. The DCC advise that batches do not have to be batched exactly in 500 but batches over 500 which include 750kB firmware updates must be dealt with by reaching out to the DCC Service Desk. The DCC stated there is a small risk that some requests may timeout but that the requests could be retried as a new batch afterwards.

7. Assessment of the proposal

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 (SMKI) Policy Management Authority (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	Input into solution options and impact on operational function and reporting
SSC	To confirm if emergency related firmware would be affected
SMKI PMA	No input

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Sub-Committee input	
TABASC	To review if a DCC System change is the most cost-effective way to resolve this issue alongside agreeing the upper limit of a firmware image.

Observations on the issue

Views of the Change Sub-Committee

A CSC member believed the impact this issue is currently having is that the DCC is unable to allow Users to roll out firmware in the volumes Users would like to be able to. They suggested that the DCC was stopping firmware from being rolled out as its systems couldn't handle the volume and size of the updates. They believed the issue was, in fact, that the DCC was not accepting firmware delivery requests from Suppliers, rather than the impact arising from the DCC missing the TRT. The DCC confirmed that they decided to not accept firmware delivery requests when they would breach the SLA due to the pressure on the DCC System and potential to degrade the service for all Users.

OPSG Discussion

OPSG Members noted that either increased capacity should be delivered to enable DCC to meet the TRT in any circumstance, or the TRT should be extended in these specific circumstances. The OPSG recommended both options be assessed in parallel to determine which would be the more effective to implement.

Views from TABASC

The likelihood of SMETS1 firmware image exceeding 750kB in the future was considered low. However, it was noted that certain situations, such as security updates, might require precedence and faster processing.

TABASC members agreed that a five-day TRT should be achievable if the number of updates is controlled, as the DCC aims to prevent flooding with large SMETS1 firmware updates.

Views from SSC

SECAS provided a verbal update to the SSC and advised that emergency related firmware updates are addressed in a different way from larger firmware updates. SECAS explained that an incident is raised and prioritised and that a safety test is conducted to ensure the Devices would not be impacted negatively and that the urgency is evaluated on priority level with the option to halt other firmware traffic to prioritise security related updates quicker.

Solution development

Should additional capacity be delivered?

The Proposer believes that the solution would need to ensure the process can be monitored for performance but not require large investment in infrastructure for an event that is infrequent.

During the first Refinement Consultation three out of five Suppliers believed the Proposed Solution may resolve issues recognised with TRT compliance and firmware processing however did highlight

that the Proposed Solution does not address the underlying issue of not being able to process all firmware updates within the set TRT.

The DCC has advised the infrastructure costs associated to be able to complete the firmware upgrades including these very large images within the current TRT will be several million pounds. Therefore, the intent of the modification is not to implement more capacity, but to help smooth the traffic peaks to prevent the DCC Systems being put under strain.

During the second Refinement Consultation both respondents confirmed that the solution put forward will resolve the identified issue. One respondent mentioned that it provides a very low cost solution. And another respondent mentioned the solution does resolve the issue however the solution gives adds difficulty for Suppliers as they will need to batch the larger firmware updates.

Extension or removal of the SLA?

The OPSG Chair suggested for images which the solution is proposing to be exempt from the current TRT, that there should be another TRT specific to those images. Concerns were expressed by one Large Supplier advising that if the DCC takes more than seven days to process Service Request Variant (SRV) 11.1 'Update Firmware' then it will fail. In turn, this means they would need to amend their process if images taking longer than seven days to process. SECAS advise that this should be discussed with the DCC Service Desk when agreeing a schedule.

In addition, SECAS and the Proposer are suggesting that the five-day TRT applies to each batch from the point it is released onto the DCC System. Respondents to the first Refinement Consultation highlighted the importance of meeting and maintaining TRT. This would mean that the current reporting will still reflect performance on the DCC System.

The Working Group agreed that any TRT extension should apply to as few scenarios as possible. The OPSG expressed concerns about the initial legal text (v0.1) being too broad, which meant that the DCC would have excessive flexibility and discretion. The original legal text proposed that the DCC will have the ability to decide when they can process all firmware images. The Proposed Solution was narrowed to specifically state that any Party wishing to upgrade SMETS1 firmware images over 750kB and in a batch size larger than 500 images should first contact the DCC Service Desk. Once a delivery schedule is agreed then the TRT will apply.

The TRT will continue to apply if firmware images which are over 750kB are batched in increments of 500 or less, per day.

Restriction applied to 'Update firmware or 'Activate firmware'?

A TABASC member emphasised that the threshold should apply in SEC Appendix E 'DCC User Interface Services Schedule' (UISS) for SRV 11.1 'Update Firmware' not to SRV11.3 'Activate Firmware' as specified in the legal text v0.1. SECAS investigated this and has confirmed that the legal text should be applied to SRV11.3. This is because in the case of SMETS1 the firmware image blocks are sent to the Dual Control Organisation (DCO) via SRV 11.1 and stored at the DCO until all the blocks have been received, this triggers the 11.1 Response to the Supplier. When the Supplier subsequently sends the SRV11.3 the firmware will be forwarded to the Device and activated. In SMETS1 the 'updating' of firmware is only triggered when the SRV11.3 is received.

Image size

A Large Supplier questioned the DCC on the rationale for agreeing to 750kB being the threshold, as it was understood originally that some SMETS1 firmware images would exceed 750kB. The DCC determined 750kB as there are a minority of firmware image sizes greater than 750kB for which the DCC is unable to meet the five-day TRT due to System concerns.

The DCC also advised that the firmware image sizes are a certain size now and there is a very low chance that the size will increase. It further believes that there is an increase in size it does not believe that it will not be a significant increase unless Meter Manufacturers add significant functionality to their SMETS1 meters. The DCC believes that the firmware size will remain close enough to the threshold that this modification still applies. The DCC has also said that given the SMETS1 meters are not being upgraded, there is no reason for a Meter Manufacturer to add features which would increase the file size.

TABASC members agreed that 750kB was deemed a suitable threshold.

Batch size

A TABASC member suggested that the TRT could stay at five days if batch sizes are reasonable, there was a preference for defining batch sizes, this approach would help set clear expectations and avoid overloading the DCC's Service Desk. The DCC can manage up to 12,000 firmware images larger than 750kB each day. A Large Supplier expressed that there is a lack of clarity on whether the limit of 12,000 SMETS1 firmware deployments where the file size exceeds 750kB a day is across all Suppliers or if a limit is to be imposed for each Supplier.

This issue was discussed with the Working Group, after the initial Refinement Consultation. The updated solution being that DCC Users who wish to send firmware images in batches that are larger than 500 which include firmware images over 750kB would need to contact the DCC Service Desk. This amendment to the batch size will allow DCC Users to act within DCC's capacity of handling larger firmware images which is 12,000 larger firmware images a day without the need of an infrastructure upgrade which would include a very large cost.

SECAS highlighted the DCC capacity stated, is across all Suppliers and that this modification formalises a process which is already being carried out by Suppliers and the DCC. The Proposer advised the limit of batches larger than 500 images which have images over 750kB are there to ensure the success rates of all other SRVs are not affected. They noted that the larger firmware image traffic is managed as well as the scheduled daily traffic using any spare capacity as this is to ensure the DCC can stay within infrastructure limits and licensing limits.

The DCC has subsequently confirmed that batches of images greater than 750kB and 500 images would require the responsible Party to contact the DCC Service Desk to come to an agreement on how to batch the requests.

Frequency of batches

One Large Supplier had questioned how far apart batches must be in time and how frequently can they be sent. The DCC have responded advising a User can send batches daily.

Prioritisation

A concern was raised by a TABASC member regarding the DCC's use of a first-come, first-served approach to batching, which could potentially result in unequal service provision for Users. It's important to note that the DCC is bound by its license to ensure fairness and equity in service delivery, making it their responsibility to uphold these standards.

Another Large Supplier questioned how the DCC propose to handle deployments across multiple Suppliers and asset variants. The DCC has responded saying it will handle all firmware deployments as currently unless the firmware image is greater than 750kB and is batched in increments larger than 500 images.

A TABASC member mentioned the possibility of the User sending all their firmware updates to the DCC so that the DCC can separate them into batches for sending across the network. The TABASC believed that the batching should remain within the Supplier's remit.

The DCC advised they will arrange a delivery schedule with the first user as the DCC will be operating within operating limits. For instances where a delivery schedule has been agreed with the first User and an incoming second User reaches out the DCC via the DCC Service Desk will manage the schedules either by reaching out to the first User to inform them of their schedule being altered or finding a suitable window for the second Users firmware images to be delivered. An SSC member highlighted that this is the only SRV which includes a process where a DCC User must contact the DCC Service Desk. The SSC member suggested including legal text in the solution to state if the request is emergency or security related, to follow the security protocols. However, SECAS believe incorporating such legal text in this SRV would require it to be introduced against every SRV which adds unnecessary complexity.

Impact on Enrolment and Adoption

A Large Supplier had questioned on how the DCC would handle Suppliers still having to complete SMETS1 Enrolment and Adoption (E&A) due to there being an increased need for firmware upgrades to those assets post enrolment and that it may impact on thresholds. The DCC responded advising there is no impact on thresholds as any post enrolment updates would be handled in the same way as the updates specified in the modification.

OPSG Reporting

The OPSG Chair raised the idea of introducing additional reporting in light of the modification. This suggestion was based on the need to ensure comprehensive oversight and monitoring of where a firmware image might exceed 750kB. It was proposed that more reporting mechanisms could help track and manage these specific situations.

However, the Proposer highlighted that additional reporting may not be necessary. It stated that the existing structure already includes a five-day TRT that governs the transmission of firmware images. This TRT essentially imposes a time limit on the DCC for completing the processing of firmware images.

Given the presence of the five-day TRT, the Proposer believed that the established reporting mechanisms would sufficiently address any concerns regarding the management and progress tracking of firmware images. The Proposer believed that the existing TRT, combined with the process set out in the modification, was adequate for ensuring the efficient processing of images without the need for additional reporting.

One Large Supplier highlighted that [MP242 'Change to Operational Metrics to Measure on Success'](#) is currently being discussed and that it suggests removing TRT/Round Trip Time (RRT) as a mechanism for success. They advise the legal wording will need to be reconsidered if and when MP242 is adopted and TRT's are discarded.

8. Case for change

Business case

Approving this modification will address the current issue in processing large SMETS1 firmware images. The Proposed Solution will allow the DCC to manage the updating of a minority of firmware images which are very large which if released onto the DCC Systems in large volumes would cause a degradation of System performance for all Users. Without the modification, the DCC would need to spend significant amounts of money on additional infrastructure to meet the TRTs which is not deemed cost effective.

Views against the General SEC Objectives

Proposer's views

The Proposer believes that this modification supports general SEC objective (b)¹ by enabling the DCC to meet its TRT.

Industry views

First Refinement Consultation

Four out of five respondents had said this modification would facilitate General SEC Objective (b). One Large Supplier also believed this modification would facilitate General SEC Objectives (a)², (c)³ and (g)⁴.

Second Refinement Consultation

One responded had said this modification would facilitate General SEC Objective (b). The other respondent believed this modification would facilitate General SEC Objective (a).

¹ To enable the Data Communications Company to comply at all times with the General Objectives of the Data Communications Company (as defined in the Data Communications Company Licence), and to efficiently discharge the other obligations imposed upon it by the Data Communications Company Licence;

² To facilitate the efficient provision, installation, and operation, as well as interoperability, of Smart Metering Systems at Energy Consumers' premises within Great Britain.

³ To 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.

⁴ To facilitate the efficient and transparent administration and implementation of this code.

Views against the consumer areas

Improved safety and reliability

The modification will have no impact on safety or reliability.

Lower bills than would otherwise be the case

This modification will have no impact on consumer bills.

Reduced environmental damage

This modification will have no impact on reduced environmental damage.

Improved quality of service

This modification will have no impact on quality of service.

Benefits for society as a whole

The modification will have no impact on society as a whole.

Final conclusions

The Working Group expressed support for the solution to exempt very large firmware images from the TRT but also of having a specific set of circumstances for when the TRT will begin which applies to the exceptions. Members of the TABASC have agreed 750kB to be the image size threshold after being provided the rationale.

The OPSG had initially expressed that it believed the need for an infrastructure upgrade was necessary but subsequently agreed that it would not be a cost-effective solution, as the issue only applies to SMETS1 which is being phased out. There are no DCC costs and only a minimal SECAS cost to implement.

Appendix 1: Progression timetable

Timetable	
Event/Action	Date
Draft Proposal raised	9 Feb 2023
Presented to CSC for initial comment	21 Feb 2023
CSC converts Draft Proposal to Modification Proposal	21 Mar 2023
Modification discussed with Working Group	3 Apr 2023
Modification discussed with OPSG	9 May 2023
Modification discussed with TABASC	5 Oct 2023

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Timetable	
Event/Action	Date
Modification discussed with Working Group	1 Nov 2023
First Refinement Consultation	25 Oct 2023 – 15 Nov 2023
Modification discussed with Working Group	7 Feb 2024
Second Refinement Consultation	27 Mar 2024 – 19 Apr 2024
Modification discussed with SSC	8 May 2024
Modification Report approved by CSC	21 May 2024
Modification Report Consultation	22 May 2024 – 13 Jun 2024
Change Board Vote	26 Jun 2024

Italics denote future events that may 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
DCC	Data Communications Company
DCO	Dual Control Organisation
ESME	Electricity Smart Metering Equipment
E&A	Enrolment and Adoption
OPR	Operational Performance Regime
OPSG	Operations Group
RTT	Round Trip Time
S1SP	SMETS 1 Service Providers
SEC	Smart Energy Code
SECAS	The Smart Energy Code Administrator and Secretariat
SMETS	Smart Metering Equipment Technical Specifications
SMKI PMA	Smart Metering Key Infrastructure Policy Management Authority
SRV	Service Request Variant
SSC	Security Sub-Committee
TABASC	Technical Architecture and Business Architecture Sub-Committee
TRT	Target Response Time
UISS	User Interface Services Schedule

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MP230 ‘Review the SLA for delivery and completion for SMETS1 firmware’

Annex A

Business requirements – version 0.2

About this document

This document contains the business requirements that support the solution(s) for this Modification Proposal. It sets out the requirements along with any assumptions and considerations. The Data Communications Company (DCC) will use this information to provide an assessment of the requirements that help shape the complete solution.

1. Business requirements

This section contains the functional business requirements. Based on these requirements a full solution will be developed.

Business Requirements	
Ref.	Requirement
1	The DCC must not be penalised for not delivering very large Smart Metering Equipment Technical Specification (SMETS)1 firmware within five working days in scenarios where they determine they cannot achieve this without causing System performance degradation.
2	Suppliers must initiate contact with the DCC through the DCC Service Desk when intending to send firmware images larger than 750kB when batched in increments greater than 12,000 images.

2. Considerations and assumptions

This section contains the considerations and assumptions for each business requirement.

2.1 General

This solution will be applied to SMETS1 Devices only. SMETS 1 firmware updates must be processed by both the SMETS1 Service Provider (S1SP) and the Dual Control Organisation (DCO). Some firmware images for specific SMETS1 Devices are significantly larger than others, and these images may need to be broken down to send in multiple images. As currently sized, the DCC system cannot process the required updates to the entire Device portfolio. The SEC currently states that the Service Level Agreement (SLA) for processing of firmware upgrades is five days, which cannot be achieved on a large scale with these larger firmware images.

This issue has been discussed at the OPSG. The OPSG asked the DCC to investigate the costs of additional infrastructure to resolve the issue. The DCC has since confirmed that amending the DCC Total Systems to support such a situation would not be cost effective due to the expected rarity of this issue arising compared with the anticipated costs.

2.2 Requirement 1: The DCC must not be penalised for not delivering very large SMETS1 firmware within five working days in scenarios where they determine they cannot achieve this without causing System performance degradation.

The DCC Operation Performance Regime (OPR) incentivises the DCC to drive better performance. If DCC do not meet the SLA for SMETS1 firmware image delivery, Ofgem may choose to reduce the baseline margin that would be available to the DCC. The DCC cannot meet this SLA in a rare circumstance without considerable investment in infrastructure that would not be required at any other time.

2.3 Requirement 2: Suppliers must initiate contact with the DCC through the DCC Service Desk when intending to send firmware images larger than 750kB when batched in increments greater than 12,000 images.

Suppliers must initiate contact with the DCC through the DCC Service Desk when intending to send firmware images larger than 750kB and when batched in increments greater than 12,000 images. The communication should include details about the image size and the number of images. The agreed upon schedule should be communicated clearly, outlining specific timelines for each batch.

2.4

3. 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 Communications Company
DCO	Dual Control Organisation
OPR	Operation Performance Regime
OPSG	Operations Group
PMR	Performance Measurement Report
S1SP	SMETS1 Service Provider
SEC	Smart Energy Code
SLA	Service Level Agreement
SMETS1	Smart Metering Equipment Technical Specification

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MP230 ‘Review the SLA for delivery and completion for SMETS1 firmware’

Annex B

Legal text – version 0.4

About this document

This document contains the redlined changes to the SEC that would be required to deliver this Modification Proposal.

Appendix E ‘DCC User Interface Services Schedule’ (UISS)

These changes have been redlined against Section E version 1.0.

Amend Appendix E ‘DCC User Interface Services Schedule’ (UISS) as follows:

Service Reference	Service Reference Variant	Description	Eligible Users	SMETS2+Target Response Time	SMETS1 Target Response Time	Non-Device Services	Notes
11.3	11.3	Activate Firmware	Import Supplier, Gas Supplier	30 seconds	5 days	✓	<u>In respect of SMETS1 Devices where:</u> <u>a) a firmware image exceeds 750kB; and</u> <u>b) the User wishes to send more than 500 images per day;</u> <u>The User must contact the DCC via the DCC Service Desk to agree a schedule for delivery.</u> <u>The Target Response Time will only apply once the delivery schedule is agreed.</u>

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MP230 ‘Review the SLA of SMETS1 firmware’ Annex C Refinement Consultation responses

About this document

This document contains the full non-confidential collated responses received to the MP230 Refinement Consultation.

Question 1: Do you agree that the solution put forward will effectively resolve the identified issue?

Question 1				
Respondent	Category	Response	Rationale	SECAS Response
OVO	Large Supplier	Yes	The issue being that the processing cannot be complete within the SLA, however this does not benefit us as Suppliers will be told when they can send bulk firmware. There will be no change in processing large volumes of firmware OTAs for SMETS1 E&A.	-
EDF	Large Supplier	Yes	This solution appears to solve the issue of large firmware image size preventing the processing from taking place within 5 days. However, address the underlying issue of not being able to process them within a reasonable timescale at scale.	-
Octopus Energy	Large Supplier	Yes	The change being proposed is a minor one and allows for clearer defined processes for SMETS1 firmware upgrades.	-
E.ON	Large Supplier	No	See rationale in Question 4	-
British Gas	Large Supplier	No	Simply removing the 5 day SLA for larger firmware image updates is not sufficient. There needs to be a SLA of some sort for these larger images, even if it is 10-15 days for example.	Once a Supplier has contacted the DCC Service Desk and agreed the submission arrangement with the DCC, the SLA will remain 5 days from the point of submission of each batch.

Question 2: Do you agree that the legal text will deliver MP230?

Question 2				
Respondent	Category	Response	Rationale	SECAS Response
OVO	Large Supplier	-	-	-
EDF	Large Supplier	Yes	The legal text appears to make the necessary changes to deliver the proposed.	-
Octopus Energy	Large Supplier	Yes	The legal text appropriately delivers an exemption on SLA for FW images over 750kB sent in batches of 12,000 or more, as highlighted by MP230.	-
E.ON	Large Supplier	No	-	-
British Gas	Large Supplier	No	The proposed legal text doesn't seem to match the "Proposed Solution" (on page 3 of the modification report). The "Proposed Solution" in the modification report says that the TRT wouldn't apply when a firmware image exceeds 750kB. But the proposed legal text says the firmware image has to exceed 750kB AND be in a batch of >12k for the TRT not to apply. Also, the batch >12k statement only says "more than 12,000 images at a time". How far apart must batches be in time? For example, is it OK for a User to send 11,500 images on Day 1, and then a further 11,500 each on Days 2 & 3. What about if the User sent 11,500 at 9am on Day 1, and then a further 11,500 at 9.30am?	The legal text and Proposed Solution section of the modification now align and advise that the 5 day SLA will remain if the batch size is pre agreed with the DCC. The DCC have confirmed post Refinement Consultation that a Supplier must notify the DCC Service Desk if they intend to send firmware images over of 750kB batched in increments of greater than 500 per day. This is due to the maximum threshold per day of processing larger firmware images is 12,000 images. So for the example that you provide 'a User to send 11,500 images on Day 1, and

Question 2				
Respondent	Category	Response	Rationale	SECAS Response
				then a further 11,500 each on Days 2 & 3.' This is not permissible. 'the User sent 11,500 at 9am on Day 1, and then a further 11,500 at 9.30am' in this instance the User must contact the DCC Service Desk to agree on a batch size when a batch size is larger than 500 images and include images larger than 750kB.

Question 3: Do you agree with the proposed implementation approach?

Question 3				
Respondent	Category	Response	Rationale	SECAS Response
OVO	Large Supplier	Yes	This seems to be the only option that we have.	-
EDF	Large Supplier	Yes	The timeframes for implementation are reasonable.	-
Octopus Energy	Large Supplier	Yes	The suggestion of still being able to meet the obligation of 5-day TRT when the batch size is under 12,000 is welcomed and the removal of the TRT for larger batches allows DCC to remain within its service agreements.	-
E.ON	Large Supplier	No	See rational in Question 4.	-
British Gas	Large Supplier	No	See comments above.	-

Question 4: Do you agree that the proposed solution, which involves setting a specific circumstance to extend the processing time for large firmware images, will effectively resolve the identified issue?

Question 4				
Respondent	Category	Response	Rationale	SECAS Response
OVO	Large Supplier	Yes	Again, being that the issue identified is around not reaching SLA's, however the overall issue is still there, in terms of the image size being too large. We must stress that we do not wish to encourage DCC to not attempt to meet the current SLA as it stands by supporting this modification, but we understand that if that is not possible then the SEC should be amended.	-
EDF	Large Supplier	Yes	As mentioned in response to Question 1 – Yes, it will prevent the issue failing due to the size being too great to process in 5 days. It does not address the underlying issue of being unable to process the size of updates required within 5 days. Given this modification is to address SMETS1 firmware updates, this will hopefully be an issue that diminishes over time and will act as a workaround for as long as one is required.	-
Octopus Energy	Large Supplier	Yes	The issue identified is that DCC cannot guarantee to meet the 5-day timeframe for large firmware images in large batches. The proposal to allow a specific.	-

Question 4				
Respondent	Category	Response	Rationale	SECAS Response
			circumstance (over 12,000 devices in a batch and FW image size over 750kB) whereby DCC will not be held to 5 days seems reasonable. This is effectively confirming what we already do in legal text/documentation.	
E.ON	Large Supplier	No	The proposal is not clear whether the proposed limit of 12,000 SMETS1 firmware deployments where the file size exceeds 750KB a day, is across all suppliers or if a limit is to be imposed for each supplier. If this is the limit which applies across all suppliers it would create a significant impact on firmware campaigns particularly where the supplier has a significantly large SMETS1 fleet that requires an upgrade. The DCC have stated that there are around 600k SMETS1 devices that have a large firmware file. E.ON has a significant number of SMETS1 devices which have a large firmware file It is likely other suppliers will have significant volumes of SMETS1 assets that require an upgrade whose file size image will exceed 750k. How have the DCC arrived at these numbers? When the systems were built to support activities such as firmware deployments, it would have been known that some SMETS1 firmware images would exceed 750k. Why was the file size requirement not factored in?	The DCC have confirmed that it can handle a combined total of 12,000 firmware images at 750kB per day from Suppliers. (If one Supplier submits a batch of 12,000 then other Suppliers cannot) The DCC arrived at 750kB as there is one Device Manufacturer who has a firmware image size greater than 750kB for which it is unable to meet the five day SLA. The DCC have advised that it only discovered the problem associated with very large firmware image sizes when SMETS1 Devices were migrated onto the DCC Network. The DCC had no prior knowledge of, or control of firmware image

Question 4				
Respondent	Category	Response	Rationale	SECAS Response
			With other suppliers still to complete SMETS1 E&A the increased need for firmware upgrades to those assets post enrolment may also have an impact on thresholds. How will these be handled by the DCC?	sized, as this is purely down to the Meter Manufacturer. The DCC have confirmed there is no impact on thresholds and any post enrolment would be handled in the same way as the updates specified in the modification report. Meaning any Parties intending to send large firmware images over 750kB in size who intend to send more than 500 firmware updates should contact the DCC to arrange the schedule for the updates. The DCC will be able to handle firmware upgrades via the DCC Service Desk.
British Gas	Large Supplier	No	We understand the rationale, but we still have concerns – see answers to Questions 1 and 2 above.	-

Question 5: Will there be any impact on your organisation to implement MP230?

Question 5				
Respondent	Category	Response	Rationale	SECAS Response
OVO	Large Supplier	No	As this modification is not addressing the root cause.	-
EDF	Large Supplier	Yes	As part of our current process for firmware updates, we send the 11.1 download request 7 days before we send the 11.3 activate firmware SR. If the DCC takes more than 7 days to process the 11.1 then we will send the activates too early and they will fail. We would therefore need to amend our process in the event in image takes longer than 7 days to process.	The SLA will remain at 5 days from the point an agreed batch is submitted to the DCC.
Octopus Energy	Large Supplier	No	MP230 will have no impact on our organisation.	-
E.ON	Large Supplier	Yes	If the 12,000 limit is imposed across all suppliers, the impact on any SMETS1 firmware deployment whose files exceed the 750k would be significant as any critical upgrade would take considerably longer to complete and prolong the customer impact. This would occur, not only at the initial rollout, but also once mass OTA has been completed, as any retries would also be delayed. Having the proposed set limit would mean that all suppliers would potentially need to agree on a daily limit for any deployments between themselves, potentially creating unnecessary impact to the customer base.	The DCC have confirmed that it can handle a combined total of 12,000 firmware images at 750kB from all Suppliers per day.

Question 5				
Respondent	Category	Response	Rationale	SECAS Response
			How does the DCC propose to handle deployments across multiple suppliers (DCC Users) and asset variants? E.ON may have SMETS1 deployments to multiple asset variants at the same time, all of which are critical updates.	
British Gas	Large Supplier	Yes	If the solution involves us discussing with DCC in advance of any large firmware rollout, then we will need to change some processes slightly.	-

Question 6: Will your organisation incur any costs in implementing MP230?

Question 6				
Respondent	Category	Response	Rationale	SECAS Response
OVO	Large Supplier	No costs	-	-
EDF	Large Supplier	No costs	There are no meaningful costs associated with implementing this change	-
Octopus Energy	Large Supplier	No	This raises no changes to us as a supplier so there is no cost involved from our perspective	-
E.ON	Large Supplier	No	The solution proposed by the DCC to limit the number of SMETS1 firmware deployments where the file size is over 750K to 12,000 per day would have a significant impact on E.ON's ability to deploy firmware to its customer base, especially at times when we must upgrade our customer base as quickly as possible with a critical update or fix a security issue. There needs to be the ability to support larger deployments without having to constantly contact the DCC and ask for more bandwidth. What happens if all Suppliers were to roll out large sized file SMETS1 firmware upgrades at the same time?	Proposed solution is the most cost-effective outcome. The DCC have confirmed they can follow the new procedure set out in the modification to manage SMETS1 firmware upgrades as efficiently as possible. The DCC have confirmed that Suppliers intending to send over 500 firmware images over 750kB must contact the DCC Service Desk to arrange the schedule for the updates.
British Gas	Large Supplier	n/a	There will be an additional cost to us to put firmware into batches of <12,000.	-

Question 7: How long from the point of approval would your organisation need to implement MP230?

Question 7				
Respondent	Category	Response	Rationale	SECAS Response
OVO	Large Supplier	Immediately	-	-
EDF	Large Supplier	N/A	We would implement the changes to our process (as mentioned in Question 5) as a part of the first firmware update to be impacted.	-
Octopus Energy	Large Supplier	No time	The formal proposal of MP230 matches the activity we as a supplier have already been conducting with DCC to conduct larger SMETS1 firmware.	-
E.ON	Large Supplier	Not known	-	-
British Gas	Large Supplier	n/a	n/a	-

Question 8: Do you believe MP230 would better facilitate the General SEC Objectives?

Question 8				
Respondent	Category	Response	Rationale	SECAS Response
OVO	Large Supplier	Yes	B	-
EDF	Large Supplier	Yes	This will better allow for the operation of Smart Meters – via improved firmware adherence – In line with General SEC Objectives.	-
Octopus Energy	Large Supplier	Yes	We believe that MP230 will better facilitate objectives A,B,C,G	-
E.ON	Large Supplier	No	See rational previously given.	-
British Gas	Large Supplier	Yes	For the first time in my experience of SEC change, the modification paper doesn't actually state which of the General SEC Objectives would be benefitted by this change in the Proposers view. This seems strange. In my view, it would support General SEC Objective (a) – to facilitate the efficient provision, installation and operation as well as interoperability of smart metering systems at Energy Consumer's premises within Great Britain, and potentially also General SEC Objective (b) – to enable the DCC to comply at all times with its licence.	The Modification Report has been updated.

Question 9: Do you believe there will be any impacts on or benefits to consumers if MP230 is implemented?

Question 9				
Respondent	Category	Response	Rationale	SECAS Response
OVO	Large Supplier	Yes	The potential for longer SLAs will result in firmware taking longer for suppliers to process.	-
EDF	Large Supplier	No	The change should have no impact on customers of note. Firmware updates are primarily operation in nature and impact industry to a greater extent.	-
Octopus Energy	Large Supplier	No	MP230 appears to formalise what has already been enacted between DCC and suppliers. It will likely have limited to impact on customers.	-
E.ON	Large Supplier	Yes	See rationale in Questions 5 and 6.	-
British Gas	Large Supplier	n/a	n/a	-

Question 10: Noting the costs and benefits of this modification, do you believe MP230 should be approved?

Question 10				
Respondent	Category	Response	Rationale	SECAS Response
OVO	Large Supplier	Yes	Although there is not a beneficial change for Suppliers, we understand the need for compliance to be met. The cost is low and appreciate the cost to deliver a better solution would be far too costly but would like to stress that this is not addressing the overall issue. New SLA's will need to carefully be considered.	-
EDF	Large Supplier	Yes	We have no objections to the modification and agree with the rationale for its implementation.	-
Octopus Energy	Large Supplier	Yes	As there are minimal/no costs it should be implemented for greater clarity on SMETS1 firmware activity.	-
E.ON	Large Supplier	No	See rationale previously given.	-
British Gas	Large Supplier	No	Not in current format, although we agree that a solution is needed to ensure larger firmware images can be processed.	-

Question 11: Please provide any further comments you may have.

Question 11			
Respondent	Category	Comments	SECAS Response
OVO	Large Supplier	None	-
EDF	Large Supplier	None	-
Octopus Energy	Large Supplier	Whilst we agree that this modification is necessary and sensible, we would like to highlight that MP242 is currently being discussed and this suggests removing the TRT/RTT as a mechanism for success. MP230 mentions a TRT so the legal wording will need to be reconsidered if/when MP242 is adopted and TRT's are discarded.	This will be considered as part of MP242.
E.ON	Large Supplier	None	-
British Gas	Large Supplier	Would the SSC agree with a modification to remove the SLA for larger firmware updates, when these were of a security issue? Would the SSC agree with a modification to remove the SLA for larger firmware updates, when these were of a security nature? We don't like the general principle of changing the goal posts if DCC is unable to deliver as required under licence. However, we recognise that the size of some of these firmware updates may have been reasonably unexpected. It is unclear whether the issue is one of volume, not image size. If batches were kept low (below the 12k threshold) and current SLAs retained, are there options for Service Credits if that is not met.	If an urgent security update is needed, a different process will be employed. The DCC has confirmed the images are compressed. The Modification Report has now been amended to show the five day SLA is still to be applied.

Question 11			
Respondent	Category	Comments	SECAS Response
		Are manufacturers looking at compressing the image on future releases? This could have a lot of benefits – it's complex to send more than one image anyway, regardless of the DCC transmission aspect. A compressed lower single image size could help considerably. We agree that the option of talking to DCC first before doing such updates seems sensible and a workable potential option. If we sent in batches under 12k would the SLA still apply? (The Modification report seems to say no, but the Legal text says yes.) However, it may be hard to police this from a SEC Ops perspective, because DCC would have to do lots of different reporting by batch sizes (some of which would be in SLA, and some not). The comment on page 6 of the Modification Report that the DCC is potentially just rejecting any Firmware update requests that it thinks would breach SLA is really worrying if it is correct. This just seems wrong. Surely that would be an automatic fail of SLA anyway?	

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MP230 ‘Review the SLA for delivery and completion for SMETS1 firmware’

Annex D

Firmware processing prioritisation and capacity management – version 0.1

About this document

This document contains information applicable to the solution of this modification. It sets out the Data Communications Company (DCC) methodology of prioritising and managing larger firmware images for Smart Metering Equipment Technical Specification (SMETS1) Electricity Smart Metering Equipment (ESME).

1. Large SMETS1 Firmware updates

1.1 Expectation of update

Ofgem licensing conditions mandate that licensees maintain Smart Metering Systems to meet technical specifications within the Maintenance Validity Period. As there are no new versions of SMETS1 technical specifications, Service Users are not obliged to upgrade firmware. However, should defects become apparent that require a device firmware update, then Service Users can update these Devices.

The intent of the modification is to maintain the 5 day SLA for completing updates.

1.2 Process overview

The DCC system can handle a maximum of 12,000 larger SMETS1 firmware (>750kB) images a day.

In cases where a Service User identifies that they are in possession of 500 or more large firmware images which require upgrades, the firmware upgrade process begins with Service Users completing a SMETS1 bulk firmware approval form hosted by the DCC Service Desk. The Service User completes and submits the form. The DCC then specifies a schedule with the Service User that is suitable for the Service User and the DCC capacity.

1.3 Capacity management

Large SMETS1 firmware upgrades are scheduled within specific periods to optimise system performance and stay within infrastructure capacity limits. These constraints are in place to ensure that the success rates of Service Requests are not affected.

Among approximately 50 Service Users, five Service Users currently have a portfolio with more than 500 Devices that could require larger firmware updates. In future, these numbers will fluctuate to a degree with more SMETS1 Devices being Enrolled to the DCC System, and some Devices being exchanged for SMETS2 Devices.

1.4 Sequential processing

Scenarios may occur where there is more than one Service User who wishes to agree a delivery schedule with the DCC Service Desk, although this historically has been rare. On the rare occasion where multiple Service Users with large populations requests a firmware update slot at the same time, then its usual for the Service User who requested the firmware to go first as they will have the image first and have completed testing first and so will be ready first. Subsequently if other Service Users put in requests in similar time frames the DCC will make the decision on batch sizes and order based on meter population, capacity utilisation and timing of requests.

1.5 Security related firmware updates

The DCC handles Emergency related firmware updates differently from larger firmware updates. For security updates, an incident is raised and prioritised. Prior to any updates, a safety test is carried out to ensure the Device would not be impacted negatively. The urgency of the update depends on the incident's priority level, with the option to halt other firmware traffic to prioritise security updates for swift processing.

Security-related firmware updates would be managed on a case by case basis depending on the severity and specifics of the incident.

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MP230 ‘Review the SLA of SMETS1 firmware’

Annex E

Second Refinement Consultation responses

About this document

This document contains the full collated responses received to the MP230 second Refinement Consultation.

Question 1: Do you agree that the solution put forward will resolve the identified issue?

Question 1			
Respondent	Category	Response	Rationale
E:ON	Large Supplier	Yes	It provides a very low cost solution which controls access to a limited resource
British Gas	Large Supplier	Yes	This does resolve the identified issue, but only with a solution that makes it difficult for suppliers

Question 2: Do you agree that the legal text will deliver MP230?

Question 2			
Respondent	Category	Response	Rationale
E:ON	Large Supplier	Yes	It details the manual flow control required to prevent overloading the DCC's SMETS1 firmware deployment environment
British Gas	Large Supplier	No	The legal text seems to be wrong, in several places, and doesn't align with the latest version of the modification report

Question 3: Do you agree with the proposed implementation approach?

Question 3				
Respondent	Category	Response	Rationale	SECAS Response
E:ON	Large Supplier	Yes	The approach is low cost and straightforward and will only be needed until circa early 2029 after which the associated meters are due to have been replaced with SMETS2 meters	-
British Gas	Large Supplier	No	Requiring the suppliers to do the batching is going to be difficult. We will do our best, but this will be a manual one-off piece of work, that may be difficult to coordinate. Can we have clarity on what happens if we don't manage to batch correctly? Will the updates still go through, but maybe take 2x the SLA? I doubt we will be able to exactly get 500 per batch, with the way our systems work. We are hoping the required volumes in our estate aren't going to be too extensive.	Batches do not have to be 500 exactly. The batches have to include over 500 large firmware updates over 750kB. If all updates are requested in one go, there is a small risk that some may timeout but these could be retried as a new batch afterwards.

Question 4: Will there be any impact on your organisation to implement MP230?

Question 4			
Respondent	Category	Response	Rationale
E:ON	Large Supplier	Yes	Additional resources to implement the staging/batching of any SMETS1 firmware deployment that is captured by the new proposal
British Gas	Large Supplier	Yes	See answer to question 3

Question 5: Will your organisation incur any costs in implementing MP230?

Question 5			
Respondent	Category	Response	Rationale
E:ON	Large Supplier	Less than £100k	Additional resources to implement the staging/batching of any SMETS1 firmware deployment that is captured by the new proposal
British Gas	Large Supplier	Less than £100k	No specific costs, but the requirement on us to do any batching (rather than be able to pass across an agreed – say – single batch of 1500, which we agree can be treated as received over 3 consecutive days) will be complex to manage

Question 6: How long from the point of approval would your organisation need to implement MP230?

Question 6			
Respondent	Category	Response	Rationale
E:ON	Large Supplier	It can be implemented immediately	EON has already been coordinating with the DCC on this topic for a considerable time
British Gas	Large Supplier	-	-

Question 7: Do you believe that MP230 would better facilitate the General SEC Objectives?

Question 7			
Respondent	Category	Response	Rationale
E:ON	Large Supplier	Yes	General SEC Objective (a) – to facilitate the efficient provision, installation and operation as well as interoperability of smart metering systems at Energy Consumers's premises within Great Britain
British Gas	Large Supplier	Yes	We agree it supports General SEC Objective (b)

Question 8: Do you believe there will be any impacts on or benefits to consumers if MP230 is implemented?

Question 8			
Respondent	Category	Response	Rationale
E:ON	Large Supplier	No	MP230 merely formalises what has already been happening and will have limited impact on customers
British Gas	Large Supplier	-	-

Question 9: Noting the costs and benefits of this modification, do you believe MP230 should be approved?

Question 9			
Respondent	Category	Response	Rationale
E:ON	Large Supplier	Yes	At very low cost, it ekes out the DCC resources for SMETS1 firmware deployments until the SMETS1 meters with large firmware images are replaced
British Gas	Large Supplier	Yes	We are not happy with it, but recognise it needs to be approved

Question 10: Please provide any further comments you may have.

Question 10			
Respondent	Category	Comments	SECAS Response
E.ON	Large Supplier	E.ON are aware that DCC is in the process of re-procuring specific SMETS1 services during 2024/25. Options to address DCC system constraints that impose the operational limit on firmware deployments should be considered during this procurement work. The DCC should not assume that SMETS1 systems should only scale downwards ahead of the SMETS1 end of life dates	Re-procurement is not at a stage where the DCC can assess the infrastructure. With a cloud based solution there may be some flex capability to enable short term capacity increases for firmware events but the type of solution hasn't yet been determined. Baseline traffic scaling is determined by the formal forecasts and are validated by observed actuals. Capacity scaling is then in response to these forecasts. Firmware timings and batch sizes are set with respect to the shapes and volume baseline traffic.
British Gas	Large Supplier	-	-