SEC
Smart Energy Code

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Smart Energy Code

DP162

‘SEC changes required to deliver MHHS’

Modification Report

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592

About this document

This document is a draft Modification Report. It currently sets out the background, issue, high-level solution requirements and progression timetable for this modification, along with any relevant discussions, views and conclusions. This document will be updated as this modification progresses.

Contents

1. Summary 3
2. Issue 3
3. Solution 4
4. Assessment of the proposal 5

Appendix 1: Progression timetable 7

Appendix 2: Glossary 8

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1. Summary

This proposal has been raised by Richard Vernon from the Data Communications Company (DCC).

As the smart metering rollout continues, there will be more and more premises with Electricity Smart Metering Equipment (ESME) installed capable of recording consumption in each half-hour period. Ofgem's Electricity Settlement Reform Significant Code Review (SCR) has concluded that settling all consumers on a half-hourly basis would bring net benefits of up to £4.5bn by 2045[1]. It has therefore concluded that Suppliers should be mandated to settle their customers on a half-hourly basis (if that consumer has not opted out). Delivering the full solution for market-wide half-hourly settlement (MHHS) will require changes to the Smart Energy Code (SEC) and to the DCC Systems. Ofgem has requested the DCC raise a SEC modification to progress and deliver these changes.

2. Issue

What are the current arrangements?

Generators and Suppliers trade electricity in the wholesale market for each half-hourly period in the run-up to the period of actual consumption. This is based on Suppliers' forecasts of how much energy its customers will consume. The actual amount of energy generated or consumed is then measured, along with any further actions taken by National Grid in real-time to keep the system balanced (the amount of generation at any given time matches the demand from consumers). Settlement reconciles any differences between the electricity a participant buys or sells, and the actual generation or demand realised. Any surplus or shortfall in a participant's position in each half-hour period is subsequently determined through the settlement process, and this difference is charged accordingly. These arrangements are governed and managed under the Balancing and Settlement Code (BSC).

The largest consumers, such as industrial sites, are already required to be settled on a 'half-hourly' basis, and have the metering already equipped to measure consumption in each half-hour period. Suppliers can also choose to settle consumers half-hourly through Ofgem's elective half-hourly settlement work. However, most smaller businesses and households continue to be settled on a 'non-half-hourly' basis. For these consumers, periodic meter reads are taken, usually at intervals of weeks or months. Profiles of average customer usage are then used to allocate the customer's consumption to the half-hourly periods between the meter reads. It is these estimates that are then used in settlement.

Smart Metering Equipment Technical Specification (SMETS) compliant ESME (both SMETS1 and SMETS2+) can record the amount of energy consumed or exported within every half hour period. This provides an opportunity to improve both the speed and the accuracy of settlement. This can also help to enable new products and services, for example in supporting the use of electric vehicles, heat pumps or making use of smart appliances. These can deliver positive outcomes for consumers through lower bills, reduced environmental impacts, enhanced security of supply and a better quality of service.

[1] Please see Ofgem's final business case and decision to implement market-wide half-hourly settlement for more details.

What is the issue?

As the smart metering rollout continues, there will be more and more premises with ESME capable of recording consumption in each half-hour period. Ofgem has considered whether the whole electricity market should be settled on a half-hourly basis, and in July 2017 it launched its Electricity Settlement Reform Significant Code Review.

Ofgem's analysis has predicted that settling all consumers on a half-hourly basis would bring net benefits of between £1.6bn and £4.5bn over the period 2021-2045. In April 2021, Ofgem published its final business case and decision to implement market-wide half-hourly settlement, confirming the decision to move forward with MHHS.

During the SCR, Ofgem has developed its target operating model (TOM) for how MHHS should be implemented. Changes to the SEC and to the DCC Systems will be required as part of the full solution. Most of the changes being made to the impacted Codes are being managed by the Code Change and Development Group (CCDG).

However, Ofgem has recognised that the changes required for the SEC and the DCC Systems are technical in nature and therefore should progress under the governance of a SEC modification. High level requirements will initially be defined by Ofgem and then refined via the SEC modification framework. This will allow proper scrutiny of the different options and costs by the SEC Panel, its Sub-Committees, and the wider industry. On 27 April 2021, Ofgem issued a request to the DCC to raise the SEC modification.

What is the impact this is having?

Implementing the full TOM for MHHS will require changes to the SEC and to the DCC Systems. Without these changes, the full MHHS solution cannot be delivered.

Impact on consumers

Ofgem has predicted that settling all consumers on a half-hourly basis would bring net consumer benefits of between £1.6bn and £4.5bn over the period 2021-2045. Ofgem considers that the full benefits will only be realised if all Suppliers are required to settle their consumers on a half-hourly basis[2].

3. Solution

MHHS TOM – SEC requirements

During the SCR, Ofgem has developed its TOM for how the full MHHS solution should be delivered. The SEC and the DCC Systems changes will need to deliver the requirements set out in the TOM. This modification will cover all the SEC changes required to deliver the MHHS solution, not just those impacting the DCC Systems.

[2] Domestic consumers can opt out of sharing their import half-hourly data for settlement purposes. In this case, the Supplier would settle these consumers using either their daily or monthly consumption and an appropriate load shape to estimate their half-hourly consumption.

Based on the TOM and following initial discussions with the Technical Architecture and Business Architecture Sub-Committee (TABASC), the solution under the SEC and the DCC Systems is expected to cover:

- The introduction of a new User Role for Parties carrying out the Meter Data Retrieval (MDR) service.
- Defining the relevant Service Requests the new User Role will have access to and the associated Target Response Times (TRTs) and testing scenarios.
- The associated security and data privacy arrangements that will apply to the new User Role.
- The User Entry Process requirements for the new User Role.

The full business requirements, the solution to deliver these, and the assessment of the impacts, costs and lead times to deliver the agreed solution will be developed and assessed as part of the Refinement Process. The Smart Energy Code Administrator and Secretariat (SECAS) and the DCC will work closely with Ofgem and Elexon to ensure the SEC changes meet the requirements of the full MHHS solution.

4. Assessment of the proposal

Observations on the issue

Due to the extensive discussions that had taken place on the issue under the SCR, the Development Stage was kept short. Each relevant Sub-Committee was consulted to provide any initial comments on the modification before it was advanced to the Refinement Process.

Change Sub-Committee

The Change Sub-Committee (CSC) was supportive of progressing the modification to the Refinement Process quickly. A member noted it is highly important that the Refinement Process accounts for the large amount of work that has been done by the CCDG.

One member believed that some inaccurate assumptions have been made under the SCR on how smart metering works. The Working Group will need to be careful that the smart metering arrangements are not adversely impacted in trying to incorporate half-hourly settlement. They felt that MHHS has been primarily looked at from a settlement perspective and has focused mainly on obtaining data from Devices, as opposed to thinking about how Devices operate. This was considered out of scope of the CCDG work so this will require SEC Parties to define this in the end-to-end solution. Another member highlighted previous issues caused where only high-level detail had been provided under a modification and stressed that more detail around the solution will be needed to support Parties.

SECAS acknowledged that whilst it will strive to meet Ofgem's overall timetable, this should not come at the expense of making sure the smart metering arrangements are not compromised. If any major issues or concerns are identified as part of the Refinement Process, SECAS will raise these with Ofgem and Elexon as a priority, to assess how these affect the wider solution and timetable. The DCC also noted it has engaged with its Service Providers and is aware of the issues raised. It is using all possible resources to fully prepare for this change.

Operations Group

The Operations Group (OPSG) highlighted that the modelling and design assumptions within the DCC's solution will need to account for current performance. The DCC acknowledged that projections and assumptions over capacity will be crucial to avoid repeating past issues.

The OPSG queried at what stage it would see how the solution will operate and elements such as traffic patterns and use of the updated provisions. SECAS noted this should be developed and understood as the Refinement Process progresses. The OPSG also encouraged the DCC to test the solution using live Devices rather than emulators, as it has done with other recent changes, as this will reduce costs. The DCC will determine this when the modification is approved, and expects that a mix of established Devices and emulators for Devices not available at the time of testing will be used.

Technical Architecture and Business Architecture Sub-Committee

The TABASC noted the expected requirement for a new MDR User Role. A member queried what the difference between this and the Supplier User Role was. Another member clarified that the Meter Data Retrieval Agent (MDRA) role was planned to be competitive and so an MDR User may not always be a Supplier.

The TABASC queried how this solution would be implemented in the DCC User Interface Specification (DUIS), for example through new Service Requests, and how it would be identified whether a Service Request had been sent by a Supplier or an MDR User. It also asked whether Suppliers should be able to request this data from ESME every half hour if they wanted. The TABASC requested these questions be examined as part of the modification. The initial business requirements propose that the existing Service Requests are re-used, with no new Service Requests expected. Any limit on the frequency of data retrieval will also be established as the modification progresses.

One member noted that while SMETS meters can record the consumption in each half-hour period, they considered they had not been designed to be half-hourly meters and would always be treated as non-half-hourly. They echoed previous comments that the end-to-end solution needed to look at the impact of MHHS across the wider smart metering arrangements and ensure that the changes do not have a negative impact on these.

Other Sub-Committees

The Security Sub-Committee (SSC) and the Smart Metering Key Infrastructure (SMKI) Policy Management Authority (PMA) had no comments on the Draft Proposal. They both requested to be consulted on the security and privacy parts of the solution.

Requiring the DCC to comply with the MHHS implementation provisions in the BSC

During the Development Stage, Ofgem issued a consultation seeking to require the DCC to comply with the MHHS implementation provisions within the BSC. Sub-Committee members queried how the BSC would place obligations on the DCC and how the DCC would be obliged to comply with other Codes. The TABASC was also concerned how the impacts on the smart metering architecture from any BSC-led change impacting the DCC would be assessed.

BSC Section C12 will set out the high-level governance and co-operation requirements of the MHHS programme for MHHS Participants. The proposed new licence conditions would make the DCC a 'MHHS participant' and require it to comply with this BSC Section. These MHHS programme requirements are high level and are intended to sit alongside established Code governance and will not contain operational or detailed requirements. The content of BSC Section C12 is being consulted on as part of Ofgem's consultation on the MHHS implementation and governance arrangements. These changes will be examined for their potential impact on the SEC arrangements under this modification.

Appendix 1: Progression timetable

This Draft Proposal has been presented to the CSC and relevant Sub-Committees for assessment of the identified problem statement. The Panel will now be asked to convert this to a Modification Proposal and progress it to the Refinement Process.

To facilitate effective progression, SECAS and the DCC have begun developing the business requirements in parallel with the Development Stage discussions. These are being discussed with the DCC's Service Providers, Ofgem and Elexon. These will then be discussed and further developed with the Working Group and the Sub-Committees in July and August 2021 before being issued for Preliminary Assessment.

Ofgem is requesting that all changes for MHHS are in place by 1 April 2024. The November 2023 SEC Release is the last scheduled SEC Systems Release that these changes can be included in to meet this deadline. The DCC's initial assessment of the solution has estimated the total lead time at around 18 months. A final decision on this modification will be required no later than May 2022 to allow this modification to be included in this SEC Release. The timetable below has been developed to meet this decision date and will be kept under review as this modification progresses.

Timetable	
Event/Action	**Date**
Draft Proposal raised	7 May 2021
Presented to CSC for comment and recommendation	25 May 2021
Problem statement discussed with Sub-Committees	Early Jun 2021
Panel converts Draft Proposal to Modification Proposal	18 Jun 2021
Business requirements developed with DCC, Ofgem and Elexon	Jun 2021
Business requirements discussed with Working Group	7 Jul 2021
Business requirements discussed with Sub-Committees	Early Jul 2021
Business requirements updated for comments	Jul 2021
Updated business requirements agreed with Working Group	4 Aug 2021
Updated business requirements agreed with Sub-Committees	Early Aug 2021
Preliminary Assessment requested	16 Aug 2021
Preliminary Assessment returned	17 Sep 2021
Preliminary Assessment discussed with Working Group	6 Oct 2021
Preliminary Assessment discussed with Sub-Committees	Early Oct 2021

Timetable	
Event/Action	**Date**
Refinement Consultation	15 Oct 2021 – 5 Nov 2021
Impact Assessment costs approved by Change Board	24 Nov 2021
Impact Assessment requested	25 Nov 2021
Impact Assessment returned	28 Jan 2022
Impact Assessment discussed with Working Group	Feb/Mar 2022 *
Impact Assessment discussed with TABASC	Feb/Mar 2022 *
Modification Report approved by CSC	Mar 2022 *
Modification Report Consultation	Mar 2022 – Apr 2022 *
Change Board Vote	Apr 2022 *
Authority decision (anticipated date)	Late May 2022 *

** Meeting dates for 2022 have not yet been confirmed; more precise dates will be provided towards the end of 2021.*

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**
BSC	Balancing and Settlement Code
CCDG	Code Change and Development Group
CSC	Change Sub-Committee
DCC	Data Communications Company
ESME	Electricity Smart Metering Equipment
MDR	Meter Data Retrieval
MHHS	market-wide half-hourly settlement
OPSG	Operations Group
SCR	Significant Code Review
SEC	Smart Energy Code
SECAS	Smart Energy Code Administrator and Secretariat
SMETS	Smart Metering Equipment Technical Specification
SMKI PMA	Smart Metering Key Infrastructure Policy Management Authority
SSC	Security Sub-Committee
TABASC	Technical Architecture and Business Architecture Sub-Committee
TOM	target operating model
TRT	Target Response Time