SEC
Smart Energy Code

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MP184

'Increase Smart capability of SMETS2 Twin Element ESME to support solar and storage use cases'

Modification Report

Version 0.3

24 May 2023

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Committed to clearer communication
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About this document

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

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1. Summary

This proposal has been raised by Tom Woolley of SMS PLC.

The Smart Technical Equipment Technical Specifications (SMETS) currently defines how a twin element Electricity Smart Metering Equipment (ESME) captures and records electricity consumption on a per element basis. These limitations set against SMETS2 Devices are restricting the ability to use twin element metering, for more innovative models. The intent of this proposal is to enable twin element meters to measure the exported energy on the secondary measurement element.

2. Issue

What are the current arrangements?

Currently, the SMETS2 defines how a twin element ESME captures and records electricity consumption on a per element basis. The twin element ESME measures and records the energy imported and exported on the primary measurement element, whereas the secondary measuring element records imported energy but is not mandated to record export active energy consumption.

To support greater energy efficiency and cost saving the Proposer would like to offer products and services that require export registers on the secondary element. This would enable the Smart Energy industry to support innovative products and services for management of battery storage and solar solutions, independently from the supply via the primary element.

What is the issue?

Currently, SMETS2 is fit for purpose when considering traditional requirements for twin element metering. The issue is the current specification is preventing innovations and alternative markets from using SMETS2 as a solution, due to the current limitations. By making these proposed changes, that will not require hardware changes to existing SMETS2 twin element meters in the market, SMETS2 and the DCC Ecosystem can be used more widely. To enable this innovation and use of SMETS2 for such products and services, this Draft Proposal is proposing: -

- Support for Active Export kilowatt-hour (kWh) register on the secondary element.
- Support for four Time of Use's (TOU) to support Active Export kWh on the secondary element.
- Support for an additional load profile channel specifically for the Active Export kWh on the secondary element.
- Support for an Export Meter Point Administration Number (MPAN) on the secondary element.

What does the Proposer want to achieve?

The Proposers organisation could install a solar system and battery at the Consumers premises at no cost to the Consumer. The Proposers organisation would then enter into a Power Purchasing Agreement (PPA) with the Consumers to sell them the electricity generated from the solar system behind-the-meter at a discounted rate.

In the case the Consumer defaults on the PPA, they are still able to consume electricity behind the meter. The Proposers organisation would also find it difficult to recover the solar system.

If MP184 was approved, the Proposer would install the solar system on the secondary element, with the customer paying the agreed PPA fee for their electricity. Generation would take place behind the meter, with export being recorded across the Export MPAN which sits across the primary element. Introducing an export register on the secondary element would mean all generation would be used as export and reduce the risk to the Proposer's organisation.

The Proposer cannot achieve this given the existing arrangements for twin element meters.

What is the impact this is having?

The current SMETS2 specification focuses on traditional twin element legacy installations and does not consider added value propositions. The current limitations on SMETS2 twin element restricts the industry in developing innovative ways in utilising the secondary element on twin element meters. These limitations prevent the industry from creating innovative products and offering cost effective tariffs to consumers.

Impact on consumers

Consumers are currently unable to receive payment for the exported energy from the secondary element if a twin element meter is on site.

3. Assessment of the proposal

Observations on the issue

Views of the Change Sub-Committee

SECAS presented the original version of the Draft Proposal to the Change Sub-Committee (CSC) at the September 2021 meeting. A CSC member suggested the issue as originally described was not reflective for what a Twin Element ESME does. The Proposer provided a background to the issue and clarified the use case and ask of the proposal and highlighted it is proposing for innovative products and services to be made available on the secondary measurement element.

A CSC member noted SECAS's view that this modification could work in parallel with MP152 'Consumption on Smart Polyphase Electricity Meters'. MP152 sought to address limitations and restrictions around polyphase meters and capture consumption of energy data via across the three phases instead of a combined data consumption. MP152 was withdrawn by the Proposer in November 2022 as they were unable to commit to the modification process.

Solution development

Impact on the In-Home Display (IHD)

During the Working Group meeting a member questioned if the IHD could display data per-element or cumulatively. The Proposer noted that the IHD can currently show import and export data and

therefore export data from the secondary element would be visible to the consumer. Other members noted that further investigation should take place into the existing technology and what would need to be developed for this information to be displayed. They also questioned the extent to which further functionality could be added to the IHD without impacting its performance.

How many MPAN's would be required?

This modification would require four MPAN's registered to one meter. A Working Group member noted that this would require substantial changes to existing processes, have cross-code impacts and would be an expensive alteration to the current arrangements. The Proposer acknowledged this, but highlighted that there are large costs associated with having two meters on site to allow Consumers to export energy on two circuits.

Implications of additional MPANs

At the Working Group and TABASC meetings members questioned what the implications of more than one import MPAN providing data to the DCC at once. They also queried if the additional MPAN would complicate the existing process within the DCC System. Additionally, members asked what would occur if the Import and Export Suppliers were different on each MPAN and what ramifications this could have for calculating export readings.

Use Cases

The TABASC provided extensive feedback about how the changes proposed in this modification would benefit SEC Parties, in particular the fact that an additional export MPAN needs to be applied to the secondary element. They also questioned why the Proposer considers existing metering arrangements to be insufficient. SECAS has worked with the Proposer to clarify that they wish to install a solar system on an Energy Consumers property, and protect themselves from risk of default as all generation would be used as export, rather than being used within the property.

Appendix 1: Progression timetable

Timetable	
Event/Action	**Date**
Modification discussed with TABASC	*1* Jun 2023
DCC Preliminary Assessment requested	*14 Jun 2023*
DCC Preliminary Assessment returned (expected)	*12 Jul 2023*
Discuss DCC Preliminary Assessment with the Working Group	*2 Aug 2023*
Refinement Consultation	*9 Aug 2023 – 31 Aug 2023*

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
ESME	Electricity Smart Metering Equipment
EV	Electric Vehicles
IHD	In-Home Display
kWh	Kilowatt-Hour
MPAN	Meter Point Administration Number
PPA	Power Purchase Agreement
RFI	Request for Information
SEC	Smart Energy Code
SMETS2	Smart Technical Equipment Technical Specifications 2
SVT	Standard Variable Tariff
TOU	Time of Use