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DP184

**‘Increase Smart capability of
SMETS2 Twin Element ESME to
support solar and storage use
cases’**

Modification Report

Version 0.1

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Corporate member of
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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 from SMS PLC.

Twin element meters measure consumption of two separate circuits but Data Communications Company (DCC) Users are currently unable to gather energy consumption information from twin element meter equipment at an individual level. This limits the information, understanding and engagement of consumers with their energy consumption. The twin element meters only provide a profile consumption data as a combined value across the two terminals. Additionally, twin element meters which are primarily used for solar energy generation and grid energy are limited to the capability of importing energy consumption and not exporting energy consumption. These limitations are impacting the tariffs offered to those consumers who have twin element metering equipment as the cumulative consumption of both terminals is combined, rather than based on individual levels. These constraints are restricting future innovation purposes for twin element meters.

2. Issue

What are the current arrangements?

Currently, the Smart Metering Equipment Technical Specifications (SMETS) 2 defines how a twin element Electricity Smart Metering Equipment (ESME) should capture and record energy consumption on a per element basis. Twin element meters have two terminals in one meter: a primary element, and a secondary element for independent measurement of energy from two circuits. The meter is designed and intended for measuring solar energy and grid energy import/export to calculate net energy consumption. The meter readings of a twin element meter display readings including electricity usage and/or battery charge such as Electric Vehicle (EV) charging.

The twin element meters only provide a profile consumption data as a combined value across the two terminals. Therefore, the tariffs offered to those consumers who have twin element metering equipment is applied to the cumulative consumption of both terminals combined, rather than individual levels. Single element consumption data provides Suppliers the opportunity to offer innovative propositions which allow the customer to be billed at different rates for each phase/purpose.

What is the issue?

The Smart Energy Code (SEC) does not currently support functionality that would allow this individual phase data to be retrieved, where it is available. Currently, SMETS2 restricts the smart capabilities of the secondary element. The secondary element only supports importing of energy consumption and does not have the capabilities to support functionalities of exporting energy consumption. The current arrangements severely limit the opportunity to provide support to consumers around their energy efficiency choices which they could do if their consumption figures were provided at a more granular level.

What is the impact this is having?

This lack of individual phase data and the functionality of only importing of energy consumption limits the ability of Suppliers to innovate and develop products such as smarter tariffs that enable the customer to take greater benefit from smart meters. It is believed the SMETS2 specification is restricting the ability to use twin element Metering for more innovative models. As a result, part of the industry are looking for solutions outside of the SMETS to deliver their solution and/or product. These products include the ability to control load and the flexibility of storage to create a smarter energy grid.

Impact on consumers

Smart metering enables consumers to be more engaged in their energy consumption by informing them of their consumption behaviours, whilst encouraging them take action to support greater energy efficiency and cost saving. With the increase in EV charging and electrification of heating, twin element meters will become more prevalent in both non-domestic and domestic properties. In the specific application of supporting EV charging and heating, it is likely the meters will be used to charge separately for individual appliance consumption and understand consumption patterns to allow cost efficiency and energy efficiency savings. The Proposer also believes the SMETS is restricting the twin elements meter's ability to offer innovative approaches around smart offerings/tariffs

3. Assessment of the proposal

Observations on the issue

[DP152 'Consumption on Smart Polyphase Electricity Meters'](#) is looking 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. Similarly to this Draft Proposal, the issue under DP152 is around the limitations of offering tariffs to those consumers who have polyphase metering equipment where the cumulative consumption of all three phases is combined, rather than individual phase data. Although some electricity meters support the measurement of each phase, the SEC and DCC systems do not currently support functionality that would allow the individual phase data to be retrieved. Due to the similar nature of both modifications, this Draft Proposal and DP152 will be progressed parallel alongside each other to cover a more holistic view. One of the benefits in progressing this Draft Proposal is that it will allow SEC Parties the ability to understand balance across phases for multiphase customer, to identify and proactively work with customers to balance demand and reduce network losses and the ability to model down to phase for network planning.

To assist in developing the business case and to gauge the industry views on the need for DP152 a request for information (RFI) was issued out to the industry. The consensus was that there is a significant and increasing demand for polyphase meters and were unanimous in seeing a benefit in having the ability to read separate consumption data on each phase of those meters.

Appendix 1: Progression timetable

This Draft Proposal was raised on 20 September 2021. The Proposal will be taken to the Change Sub-Committee (CSC) for initial comment on 28 September 2021.

Due to the similar nature of the two modifications, SECAS believes that the assessment of the issue under DP152 will also be relevant to this modification. It therefore considers that this proposal should be converted to a Modification Proposal alongside DP152, and the two modifications progressed in parallel through the Refinement Process. SECAS will work with the Proposer and the DCC to develop the business requirements for this modification, before discussing these with the Working Group and Sub-Committees.

Timetable	
Event/Action	Date
Draft Proposal raised	20 Sep 2021
CSC converts Draft Proposal to Modification Proposal	28 Sep 2021
Business requirements developed with Proposer and DCC	Oct 2021
Modification discussed at Operations Group	28 Oct 2021
Modification discussed at Working Group	3 Nov 2021
Modification discussed with TABASC	4 Nov 2021
Modification discussed at SSC	24 Nov 2021
Modification discussed at Working Group	5 Jan 2022
Preliminary Impact Assessment requested	Jan 2022
Update provided to CSC	Feb 2022

Appendix 2: Glossary

This table lists all the acronyms used in this document and the full term they are an abbreviation for.

Glossary	
Acronym	Full term
DCC	Data Communications Company
ESME	Electricity Smart Metering Equipment
EV	Electric Vehicles
SEC	Smart Energy Code
SMETS2	Smart Technical Equipment Technical Specifications 2