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MP165 ‘ESME Voltage Accuracy’

June 2022 Working Group – meeting summary

Attendees

Attendee	Organisation
Ali Beard	SECAS
Joey Manners	SECAS
Bradley Baker	SECAS
Kev Duddy	SECAS
Rainer Lischetzki	SECAS
David Walsh	DCC
Emma Johnson	British Gas
Alex Hurcombe	EDF Energy
Julie Geary	E.ON
Martin Bell	EUA
Kevin McIntyre	Geo
Carmen Strickland	Horizon
Alastair Cobb	Landis+Gyr
Nick Winfield	Landis+Gyr
Ralph Baxter	Octopus Energy
Jamie Flaherty	Ofgem
Mafs Rahman	Scottish Power
Audrey Smith-Keary	SSE - OVO
Karen Jacks	Vantage Meters
Luke Brady	Vantage Meters
Matthew Alexander	SSEN
Kelly Kinsman	WPD

Overview

The Smart Energy Code Administrator and Secretariat (SECAS) provided an overview of the issue identified and a summary of the request for information (RFI) responses.

Issue

- Currently there is no mandated level of accuracy for voltage measurements from Electricity Smart Metering Equipment (ESME)

- The British Electrotechnical and Allied Manufacturers' Association (BEAMA) has confirmed an 'indicative voltage accuracy' that an Electricity Network Party could assume is $\pm 1\%$
- No requirement for a meter Manufacturer to share the results of any voltage measurement accuracy testing that it may carry out for each of their products
- It would be beneficial for Electricity Network Parties to access accurate voltage measurements with a known degree of accuracy

Request for information responses

- Two responses.
- A Manufacturer has indicated a typical accuracy of Root Mean Square (RMS) voltage is $\pm 0.5\%$ and Max $\pm 1\%$.
- Calculation of voltage measurements are done theoretically and proved through simulation. The voltage is calibrated for each meter during manufacturing and derived parameters (ie active/reactive energy) are verified as part of product testing. Individual parameters (eg voltage) are verified during design phase on a number of samples (part of pilot & production meters).
- Devices are also tested against the Measuring Instruments Directive (MID) and IEC 62053-21 electricity metering standard.
- Suppliers purchase ESME that are built to the latest version of the Smart Metering Equipment Technical Specifications (SMETS).

Working Group Discussion

Voltage accuracy

A Device Manufacturer representative (NW) commented that SMETS contains no requirement for ESME to measure voltage and there is no level of accuracy captured within the document. They also advised that if a minimum level of accuracy is captured, whether in or outside the SEC, Devices that do not meet the standard will have to be replaced. This is due to accuracy being hardware dependent. SECAS reiterated to the Working Group that the modification is not looking to enforce a set level of accuracy, but to state what current Device accuracy is. This is to replace assumptions of voltage accuracy with known levels.

Location of Device accuracy levels

SECAS (JM) queried whether the voltage accuracy level should be captured in the SMETS which has been initially proposed. A Device Manufacturer representative (AC) agreed that the SMETS was the wrong document and advised that it may sit outside of the SEC. They also commented that the MID is a European standard and so the UK energy industry will not be able to amend the document. They advised that there is a UK equivalent titled the 'Measurements Instruments Regulations (MIR)'.

The Energy and Utilities Alliance (EUA) Chair (MB) showed concern with amending SMETS as it would set a precedent and advised that it should not be placed in that document because it is unclear where it should be placed. MB and AC agreed that the MIR is the most suitable document.

A Large Supplier representative (RB) commented that the SMETS delivers compliance and interoperability. They added that including additional requirements will increase the number of non-complaint Devices. They summarised stating that if the smart ecosystem can work with the current set of Devices, the accuracy levels should be suitable.

Current assumed accuracy

A Large Supplier representative (MR) commented that the assumed accuracy of $\pm 1\%$, which equates to approximately five volts is a relatively low figure (equivalent to that of a battery). SECAS commented that this may be the case, however if Device Manufacturers can confirm that Devices are accurate to within 1%, there would be no need for further assumption. The purpose of this modification is to know the level of voltage accuracy Devices provide.

Next Steps

The following actions were recorded from the meeting:

- SECAS will approach Device Manufacturers to understand their Devices' RMS voltage accuracies.
- SECAS will investigate the MIR document to see if this is where any requirement should be placed.