**MP085 ‘Synchronisation of smart meter voltage measurement periods’**

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**Business requirements – version 0.3**

About this document

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

# Business requirements

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

| **Business Requirements** |
| --- |
| **Ref.** | **Requirement** |
| 1 | Electricity Smart Metering Equipment (ESME) to commence calculating the average Root Mean Square (RMS) voltage at 00:00 or 30:00 (whichever occurs first) of the first hour once the ESME has been first energised. |
| 2 | ESME to commence calculating the average RMS voltage at 00:00 or 30:00 (whichever occurs first) of the first hour after a command has been received to change the average RMS voltage measurement period. |
| 3 | ESME to continue to calculate the average RMS voltage at a frequency in accordance with the average RMS voltage measurement period, until a command is received to change the average RMS voltage measurement period.  |
| 4 | Average RMS voltage measurement period is to be a maximum duration of 1,800 seconds with alternative periods being factors of 1,800 seconds. |
| 5 | ESME to retain any existing entries in the Average RMS Voltage Profile Data Logrelating to the period before the ESME was energised or before a command to change the Average RMS Voltage Measurement Period has been received. |

# Considerations and assumptions

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

## Requirement 1: Electricity Smart Metering Equipment (ESME) to commence calculating the average Root Mean Square (RMS) voltage at 00:00 or 30:00 (whichever occurs first) of the first hour once the ESME has been energised.

Regimenting the average RMS voltage calculation to commence at 00 or 30 of the hour will enable Distribution Network Operators to access data which can be used to analyse/monitor the performance of distribution networks and identify any problems that may occur more efficiently as it will align with half hourly consumption data.

## Requirement 2: ESME to commence calculating the average RMS voltage at 00:00 or 30:00 (whichever occurs first) of the first hour after a command has been received to change the average RMS voltage measurement period.

Average RMS voltage calculations can be made across different measurement periods. It has been requested that when there is a command to change the measurement period, the ESME implements the new measurement period at 00 or 30 (whichever comes first) of the next hour after the receipt of the command.

## Requirement 3: ESME to continue to calculate the average RMS voltage at a frequency in accordance with the average RMS voltage measurement period, until a command is received to change the average RMS voltage measurement period.

In order to ensure continuity and consistency of the data, the ESME should continue to calculate the average RMS voltage readings based on the same average RMS voltage measurement period until it receives a command to do otherwise.

## Requirement 4: Average RMS voltage measurement period is be a maximum duration of 1,800 seconds with alternative periods being factors of 1,800 seconds.

In order to align average RMS voltage readings with half hourly consumption data, the default duration should be set to 1,800 seconds (30 minutes). Alternative periods will be configurable from a range of factors of 1,800. The full range of permissible average RMS voltage measurement periods can be found in the table below. This will allow more granular average RMS voltage data to be available to monitor and analyse network voltages in greater detail, where required, allowing for more efficient design and operation of distribution networks.

| Average RMS voltage measurement period |
| --- |
| Seconds | Minutes |
| 10 | 00:10 |
| 15 | 00:15 |
| 30 | 00:30 |
| 60 | 01:00 |
| 120 | 02:00 |
| 180 | 03:00 |
| 300 | 05:00 |
| 360 | 06:00 |
| 600 | 10:00 |
| 900 | 15:00 |
| 1,800 | 30:00 |

## Requirement 5: ESME to retain any existing entries in the Average RMS Voltage Profile Data Logrelating to the period before the ESME was energised or before a command to change the Average RMS Voltage Measurement Period has been received.

In order to ensure that all the potential 4320 entries are available to monitor and analyse network voltages allowing for more efficient design and operation of distribution networks.

# 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 |
| RMS | Root Mean Square |