**MP102A ‘Power Outage Alerts triggered by an OTA firmware upgrade’**

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**Annex B**

**Legal text – version 1.0**

About this document

This document contains the redlined changes to the SEC that would be required to deliver this Modification Proposal.

These changes have been drafted against SEC Version 10.0.

This document contains the changes required to deliver the Proposed Solution.

Schedule 9 ‘Smart Metering Equipment Technical Specifications 2’ Version 4.2

## Amend Section 4.3 as follows:

**4.3 Physical requirements**

GSME shall as a minimum include the following components:

1. A Clock;
2. a Data Store;
3. a Gas Meter;
4. a HAN Interface;
5. a Random Number Generator;
6. a User Interface;
7. where installed at Domestic Premises and is not a Large Gas Meter, a Valve; and
8. where installed with a Communications Hub provided by the Data and Communications Company, a Communications Hub Physical Interface (this may comprise a Communications Hub Physical Interface forming part of ESME where present at the time of installation in the Premises).

The Communications Hub Physical Interface shall as a minimum include a physical interface that meets the requirements defined by the Data and Communications Company at the time of installation (pursuant to section H12 of the Smart Energy Code) and includes provision for a DC power supply to the Communications Hub.

The DC power to the Communications Hub shall be provided at all times during normal operation. Under all other operating conditions, except when the Supply is interrupted, any interruption to the DC power supply to the Communications Hub shall be kept under three minutes, ensuring no spurious Power Outage Alerts are generated.

GSME shall include a power source. GSME shall be capable of automatically resuming operation after loss of power in its operating state prior to such failure.

To the extent that it is mains powered, GSME shall be capable of performing the minimum functional, interface and data requirements set out in *Sections 4.4*, *4.5* and *4.6* respectively operating at a nominal voltage of 230VAC without consuming more than an average of 1 watt of electricity under normal operating conditions.

GSME shall:

1. permanently display the GSME Identifier (4.6.1.1) on the GSME; and
2. have a Secure Perimeter.

The HAN Interface of GSME shall be capable of joining a ZigBee SEP Smart Metering Home Area Network which:

1. operates within the 2400 – 2483.5 MHz harmonised frequency band or Sub GHz Bands; and
2. supports the Communications Links described in S*ections 4.5.1* and *4.5.3*.

On joining a ZigBee SEP Smart Metering Home Area Network GSME shall be capable of generating and sending an Alert to that effect via its HAN Interface.

GSME shall be designed taking all reasonable steps so as to prevent Unauthorised Physical Access and Unauthorised communications through its Secure Perimeter that could compromise the Confidentiality and / or Data Integrity of:

1. Personal Data;
2. Consumption data used for billing;
3. Security Credentials;
4. Random Number Generator;
5. Cryptographic Algorithms;
6. the Gas Meter; and
7. Firmware and data essential for ensuring its integrity,

stored or executing on GSME.

GSME shall be capable of detecting any attempt at Unauthorised Physical Access through its Secure Perimeter that could compromise such Confidentiality and / or Data Integrity and on such detection shall be capable of:

1. providing evidence of such an attempt through the use of tamper evident coatings or seals,

and where reasonably practicable:

1. generating an entry to that effect in the Security Log(4.6.5.17);
2. generating and sending an Alert to that effect via its HAN Interface; and
3. where the *Supply Tamper State(4.6.4.26)* is configured to require Locking, sending an Alert that the Supply is being disabled for this reason via its HAN Interface, and establishing a Locked state whereby the Supply is Disabled and can only be Armed in response to a Command to Arm the Supply (as described in *Section 4.5.3.7*).

When operating within Sub GHz Bands, the GSME shall:

1. be capable of supporting Frequency Agility; and
2. not exceed a transmit power of 25 mW.

## Amend Section 5.4 as follows:

**5.4 Physical Requirements**

ESME shall as a minimum include the following components:

1. A Clock;
2. a Data Store;
3. an Electricity Meter containing one measuring element;
4. a HAN Interface;
5. a Load Switch;
6. a Random Number Generator;
7. a User Interface; and
8. where installed with a Communications Hub provided by the Data and Communications Company, a Communications Hub Physical Interface (this may comprise a Communications Hub Physical Interface forming part of GSME where present at the time of installation in the Premises).

The Communications Hub Physical Interface shall as a minimum include a physical interface that meets the requirements defined by the Data and Communications Company at the time of installation (pursuant to section H12 of the Smart Energy Code) and includes provision for a DC power supply to the Communications Hub.

The ESME shall supply the DC power to the Communications Hub at all times during normal operation. Under all other operating conditions, except when the Supply is interrupted, the ESME shall ensure that any interruption to the DC power supply to the Communications Hub is kept under three minutes, ensuring no spurious Power Outage Alerts are generated.

ESME shall be mains powered and be capable of performing the minimum functional, interface and data requirements set out in *Sections* *5.5*, *5.6* and *5.7* respectively operating at a nominal voltage of 230VAC without consuming more than an average of 4 watts of electricity under normal operating conditions.

ESME shall be capable of automatically resuming operation after a power failure in its operating state prior to such failure.

ESME shall:

1. permanently display the ESME Identifier(5.7.1.1) on the ESME; and
2. have a Secure Perimeter.

The HAN Interface of ESME shall be capable of joining a ZigBee SEP Smart Metering Home Area Network which:

1. operates within the 2400 – 2483.5 MHz harmonised frequency band; and
2. supports the Communications Links described in S*ections 5.6.1*, *5.6.3* and *5.6.4*.

On joining a ZigBee SEP Smart Metering Home Area Network ESME shall be capable of generating and sending an Alert to that effect via its HAN Interface.

ESME shall be designed taking all reasonable steps so as to prevent Unauthorised Physical Access and Unauthorised communications through its Secure Perimeter that could compromise the Confidentiality and / or Data Integrity of:

1. Personal Data;
2. Consumption data used for billing;
3. Security Credentials;
4. Random Number Generator;
5. Cryptographic Algorithms;
6. the Electricity Meter; and
7. Firmware and data essential for ensuring its integrity,

stored or executing on ESME.

ESME shall be capable of detecting any attempt at Unauthorised Physical Access through its Secure Perimeter that could compromise such Confidentiality and / or Data Integrity and on such detection shall be capable of:

1. providing evidence of such an attempt through the use of tamper evident coatings or seals,

and where reasonably practicable:

1. generating an entry to that effect in the Security Log(5.7.5.31);
2. generating and sending an Alert to that effect via its HAN Interface; and
3. where the *Supply Tamper State(5.7.4.44)* is configured to require Locking, sending an Alert that the Supply is being disabled for this reason via its HAN Interface, and establishing a Locked state whereby the Supply is Disabled and can only be Enabled or Armed in response to a Command to Arm the Supply (as described in *Section5.6.3.7*) or Enable the Supply (as described in *Section 5.6.3.12*).

## Amend Section 5.10 as follows:

**5.10 Physical Requirements**

*Physical Requirements(5.4)* in Part A shall not apply to ESME.

ESME shall as a minimum include the following components:

1. a Clock;
2. a Data Store;
3. an Electricity Meter containing two measuring elements;
4. a HAN Interface;
5. a Load Switch;
6. a Random Number Generator;
7. a User Interface; and
8. where installed with a Communications Hub provided by the Data and Communications Company, a Communications Hub Physical Interface (this may comprise a Communications Hub Physical Interface forming part of GSME where present at the time of installation in the Premises).

The Communications Hub Physical Interface shall as a minimum include a physical interface that meets the requirements defined by the Data and Communications Company at the time of installation (pursuant to section H12 of the Smart Energy Code) and includes provision for a DC power supply to the Communications Hub.

The ESME shall supply the DC power to the Communications Hub at all times during normal operation. Under all other operating conditions, except when the Supply is interrupted, the ESME shall ensure that any interruption to the DC power supply to the Communications Hub is kept under three minutes, ensuring no spurious Power Outage Alerts are generated.

ESME shall be mains powered and be capable of performing the minimum functional, interface and data requirements set out in *Sections 5.11*, *5.12* and *5.13* respectively operating at a nominal voltage of 230VAC without consuming more than an average of 4 watts of electricity under normal operating conditions.

ESME shall be capable of automatically resuming operation after a power failure in its operating state prior to such failure.

ESME shall:

1. permanently display the ESME Identifier(5.7.1.1) on the ESME; and
2. have a Secure Perimeter.

The HAN Interface of ESME shall be capable of joining a ZigBee SEP Smart Metering Home Area Network which:

1. operates within the 2400 – 2483.5 MHz harmonised frequency band; and
2. supports the Communications Links described in *Sections 5.6.3*, *5.6.4*, *5.12.1* and *5.12.2*.

On joining a ZigBee SEP Smart Metering Home Area Network ESME shall be capable of generating and sending an Alert to that effect via its HAN Interface.

ESME shall be designed taking all reasonable steps so as to prevent Unauthorised Physical Access and Unauthorised communications through its Secure Perimeter that could compromise the Confidentiality and / or Data Integrity of:

1. Personal Data;
2. Consumption data used for billing;
3. Security Credentials;
4. Random Number Generator;
5. Cryptographic Algorithms;
6. the Electricity Meter; and
7. Firmware and data essential for ensuring its integrity,

stored or executing on ESME.

ESME shall be capable of detecting any attempt at Unauthorised Physical Access through its Secure Perimeter that could compromise such Confidentiality and / or Data Integrity and on such detection shall be capable of:

1. providing evidence of such an attempt through the use of tamper evident coatings or seals,

and where reasonably practicable:

1. generating an entry to that effect in the Security Log(5.7.5.31);
2. generating and sending an Alert to that effect via its HAN Interface; and
3. where the *Supply Tamper State(5.7.4.44)* is configured to require Locking, sending an Alert that the Supply is being disabled for this reason via its HAN Interface, and establishing a Locked state whereby the Supply is Disabled and can only be Enabled or Armed in response to a Command to Arm the Supply (as described in *Section* *5.6.3.7*) or Enable the Supply (as described in *Section* *5.6.3.12*), and setting the *Supply State [INFO](5.7.5.32)* to Locked.

## Amend Section 5.16 as follows:

**5.16 Physical Requirements**

*Physical Requirements(5.4)* in Part A shall not apply to ESME.

ESME shall as a minimum include the following components:

1. a Clock;
2. a Data Store;
3. an Electricity Meter containing three measuring elements;
4. a HAN Interface;
5. a Load Switch;
6. a Random Number Generator;
7. a User Interface; and
8. where installed with a Communications Hub provided by the Data and Communications Company, a Communications Hub Physical Interface (this may comprise a Communications Hub Physical Interface forming part of GSME where present at the time of installation in the Premises).

The Communications Hub Physical Interface shall as a minimum include a physical interface that meets the requirements defined by the Data and Communications Company at the time of installation (pursuant to section H12 of the Smart Energy Code) and includes provision for a DC power supply to the Communications Hub.

The ESME shall supply the DC power to the Communications Hub at all times during normal operation. Under all other operating conditions, except when all connected phases of the Supply are interrupted, the ESME shall ensure that any interruption to the DC power supply to the Communications Hub is kept under three minutes, ensuring no spurious Power Outage Alerts are generated.

ESME shall be mains powered and be capable of performing the minimum functional, interface and data requirements set out in *Sections* *5.17*, *5.18* and *5.23* respectively operating at a nominal voltage of 230VAC without consuming more than an average of 7 watts of electricity under normal operating conditions.

ESME shall be capable of automatically resuming operation after a power failure in its operating state prior to such failure.

ESME shall:

1. permanently display the ESME Identifier(5.7.1.1) on the ESME; and
2. have a Secure Perimeter.

The HAN Interface of ESME shall be capable of joining a ZigBee SEP Smart Metering Home Area Network which:

1. operates within the 2400 – 2483.5 MHz harmonised frequency band; and
2. supports the Communications Links described in *Sections* *5.6.1*, *5.6.3*, *5.6.4* and *5.18.1*.

On joining a ZigBee SEP Smart Metering Home Area Network ESME shall be capable of generating and sending an Alert to that effect via its HAN Interface.

ESME shall be designed taking all reasonable steps so as to prevent Unauthorised Physical Access and Unauthorised communications through its Secure Perimeter that could compromise the Confidentiality and / or Data Integrity of:

1. Personal Data;
2. Consumption data used for billing;
3. Security Credentials;
4. Random Number Generator;
5. Cryptographic Algorithms;
6. the Electricity Meter; and
7. Firmware and data essential for ensuring its integrity,

stored or executing on ESME.

ESME shall be capable of detecting any attempt at Unauthorised Physical Access through its Secure Perimeter that could compromise such Confidentiality and / or Data Integrity and on such detection shall be capable of:

1. providing evidence of such an attempt through the use of tamper evident coatings or seals,

and where reasonably practicable:

1. generating an entry to that effect in the Security Log(5.7.5.31);
2. generating and sending an Alert to that effect via its HAN Interface; and
3. where the *Supply Tamper State(5.7.4.44)* is configured to require Locking, sending an Alert that the Supply is being disabled for this reason via its HAN Interface, and establishing a Locked state whereby the Supply is Disabled and can only be Enabled or Armed in response to a Command to Arm the Supply (as described in *Section 5.6.3.7*) or Enable the Supply (as described in *Section 5.6.3.12*).

Housekeeping changes - Schedule 9 ‘Smart Metering Equipment Technical Specifications 2’ Version 4.2

## Amend bullet list in Section 4.5.3.20 as follows:

***4.5.3.20 Set Clock***

A Command to set the Clock date and time via its HAN Interface.

In executing the Command, GSME shall be capable of comparing the date and time specified in the Command with the Communications Hub Date and Time. Where the difference is:

1. within the tolerance specified in the Command GSME shall be capable of adjusting its date and time to the Communications Hub Date and Time and generating an entry to that effect in the Event Log(4.6.5.9); and
2. outside the tolerance specified in the Command GSME shall be capable of not adjusting its date and time and generating an entry to that effect in the Event Log(4.6.5.9).

GSME shall be capable of ensuring that any adjustments do not cause calendar-based events to be missed or future-dated Commands to be missed or repeated.

## Amend bullet list in Section 5.5.4.1 as follows:

ESME shall be capable of displaying the *Security Log(5.7.5.31)* on its User Interface following physical access through the Secure Perimeter of ESME.

ESME shall be capable of displaying Currency Units in GB Pounds and European Central Bank Euro.

***5.5.4.1 Presentation of information on the User Interface***

For each of the values currently stored in the *Active Import Register [INFO](5.7.5.3),* the *Active Export Register [INFO](5.7.5.2),* the *Tariff ToU Register Matrix [INFO](5.7.5.34),* and the *Tariff ToU Block Register Matrix(5.7.5.35),* ESME shall be capable of displaying a value calculated from the stored value by:

1. converting the stored value in to a decimal, integer number of kilowatt hours, rounding the stored value down to the nearest kilowatt hour;
2. discarding all except the five least significant decimal digits so produced; and
3. adding leading zeros (if necessary) so that there are exactly five decimal digits.

**5.5.5 Privacy PIN Protection**

ESME shall be capable of preventing the display on the User Interface of items annotated [PIN] in *Section* *5.5.4,* and preventing access on the User Interface to the Commands annotated [PIN] in *Section* *5.6.2*, except on successful execution of an *Allow Access to User Interface(5.6.2.3)* Command via the User Interface.