



# **SMETS1 Consultation on changes related to PPMIDs and CHs**

**DCC consultation on changes to the SEC relating to  
SMETS1 PPMIDs and the memory size limitation on  
Communications Hubs**

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# 1. Introduction and Context

A number of energy suppliers have installed first generation smart devices (known as SMETS1 devices) in consumers' premises across Great Britain. SMETS1 devices installed by one energy supplier, however, are not always interoperable with and supported by the systems used by another supplier. The Data Communications Company (DCC) has developed a plan and designed a solution for the incorporation of such devices into its national network. It provides important shared benefits for industry and consumers and the ability for SMETS1 consumers to maintain their smart services following a decision to switch suppliers.

In this consultation, DCC is consulting on issues relating to the migration and operation of SMETS1 PPMIDs on the DCC System.

## 2. Bilingual Prepayment Meter Interface Device (PPMIDs)

The Smart Energy Code (SEC) currently differentiates between SMETS1 and SMETS2+ devices and is drafted in such a manner that a device can be either SMETS1 or SMETS2+, but not both.

DCC has established that some models of PPMID can work as both a SMETS1 device and a SMETS2+ device, which we also refer to, in this consultation, as a "bilingual device". The definitions in the SEC currently do not make provision for bilingual devices, for example, the current SEC definition of "SMETS2+ Device" is "means a Device that is not a SMETS1 Device" and hence a particular type of PPMID cannot be both a SMETS1 PPMID and a SMETS2+ PPMID.

DCC has designed its Systems on the premise that the devices are exclusively either SMETS1 or SMETS2+ devices. Where a device is capable of being used for both SMETS1 and SMETS2+ purposes, DCC is unable to identify which version of SMETS should be used by the DCC when communicating with these devices and results in DCC being unable to determine whether to construct a command in GBCS (for SMETS2+) or forward the Countersigned Service Request to the SMETS1 Service Provider (S1SP) (for SMETS1).

In summary, the regulations do not currently permit devices to be both SMETS1 and SMETS2+ and DCC Systems are unable to process commands to any device type that is both SMETS1 and SMETS2+.

DCC has assessed the problem and considers that an enduring solution is capable of being delivered to deal with this issue. This would require both SEC changes and changes to DCC Systems. DCC could develop the DCC System changes and Regulatory changes (if required) that would be required for an enduring process. DCC has initiated this process and has established that a preliminary cost estimate indicates costs in the region of £600,000. DCC is still considering a possible date of implementation, but anticipates that this will be alongside the November 2022 SEC Release. DCC could implement these changes sooner as a stand-alone Release, however this will, in all likelihood, increase the associated costs.

The changes that DCC would make to the DCC System would result in PPMIDs being able to be commissioned to either a SMETS1 or a SMETS2+ Installation, irrespective of how they were pre-notified to DCC.

As the changes to the DCC Systems to enable differentiation between a Device Model that can be used for either SMETS1 or SMETS2+ purposes will take time to deliver (should such a change be supported), DCC is proposing a tactical solution that will allow a Supplier Party to use a bilingual

PPMID device in either a SMETS1 or a SMETS2+ installation. This involves a Supplier creating a distinct entry in the Central Products List (CPL) for both the SMETS1 entry and the SMETS2+ entry with a differentiating firmware version. This will enable SMETS1 and SMETS2+ entries to be separately identifiable. The manner in which this will be achieved is by changing the actual firmware version for the SMETS1 PPMID as an additional, distinct entry in the CPL, which means that the CPL entry for SMETS1 will not reflect the actual firmware version that is in operation on the device.

Prior to commissioning devices into the DCC System, Suppliers provide a pre-notification Service Request to DCC with appropriate CPL details. To enable the proposed tactical solution to work, a device will need to be notified to DCC as either a SMETS1 or a SMETS2+ device at this point, with the result that the specific PPMID will be restricted to use only as the pre-notified SMETS version.

Where a PPMID has already been migrated onto the DCC System a pre-notification will have been made by the Supplier or Commissioning Party. For the Commissioning Party submission, DCC will pre-notify using the SMETS1 CPL entry. For the Supplier Commissioning, the Supplier will also have to make sure the pre-notification Service Request uses the SMETS1 CPL entry.

For the FOC cohort, the firmware version is read directly from the device and is not transformed by the S1SP, so when a Supplier reads the firmware from a PPMID that is mapped to a SMETS1 CPL entry, the resultant response will contain the actual executing firmware on the device and may not correspond to the CPL entry that aligns to that device.

DCC understands that this tactical solution creates logistical complications for Suppliers and could result in attempts to join PPMIDs to the incorrect installations, the result of which would be that the PPMID cannot be the target of any Service Requests. The tactical solution that DCC is proposing will not result in any changes to the DCC System.

DCC would welcome views from Industry as to whether the enduring change should be developed and consulted upon further by the DCC with an associated implementation date, considering timeline and anticipated costs. DCC would also like feedback from Industry as to whether they support SEC changes required to enable the proposed tactical solution to be used in the interim.

## 2.1. Proposed Changes to Appendix AM – S1SR

DCC is proposing a tactical solution which will allow the DMCs that include a bilingual PPMID to operate on the DCC System. This tactical solution is the short-term approach described above and will require changes to the S1SR.

The devices affected are set out in Annex D, Annex E and Annex F of the S1SR.

Drafting Reference	Description
18.63(d) 18.65(e)	Where a firmware command is targeted at a PPMID, the resulting outcome will be uncertain due to the issues identified in this consultation.
18.64(c)	For FOC, the response to a Read Firmware Service Request may not match the SMETS1 CPL entry.

## 2.2. Proposed Changes to the CPL Requirements Document

DCC is proposing changes to Appendix Z – CPL Requirements Document to provide for the details that should be included in the CPL relating to PPMIDs, for both SMETS1 and SMETS2+ Device Models.

## 2.3. Proposed Changes to the main body SEC

DCC considers that the changes to the CPL requirements document requires consequential main body SEC changes in order to enable the operation of bilingual PPMIDs in the DCC System.

The current definition of **SMETS2+ Device** in Section A of the SEC is:

*"means a Device which is not a SMETS1 Device"*

DCC is proposing a change to this definition as follows:

*"means a Device that:*

*(a) consists of the components or other apparatus identified in; and*

*(b) as a minimum, has the functional capability specified by and complies with the other requirements of*

*a Relevant Technical Specification (and, where applicable, the part(s) of the Relevant Technical Specification relevant to the Physical Device Type in question) in a Version of the Relevant Technical Specification which was within its Installation Validity Period on the date on which the Device was installed and which has (or had) a Principal Version that is 2 or higher."*

A new term, Relevant Technical Specification, which means:

- (a) in relation to an Electricity Smart Meter, Gas Smart Meter, HAN Connected Auxiliary Load Control Switch, IHD, Pre-Payment Meter Interface Device, or Standalone Auxiliary Proportional Controller, the ESMSTS, GSMETS, HCALCSTS, IHDTs, PPMIDTS or SAPCTS respectively;
- (b) in relation to a Communications Hub Function, the CHTS (but excluding those provisions that are described as applying only to "Gas Proxy Functions"); or
- (c) in relation to a Gas Proxy Function, the CHTS (but only those provisions that are described as applying to "Gas Proxy Functions").

A further new term, Non-EPCL Device Model as follows:

*"means a Device Model that appears on the Central Products List, but that does not appear within at least one entry on the SMETS1 Eligible Product Combinations List."*

The current definition of **SMETS2+ Device Model** is:

*"means a Device Model which is not a SMETS1 Device Model."*

To support the tactical solution, DCC is proposing a change to this definition to align it with the definition of SMETS1 Device Model as follows:

*"means the Device Model of a Device which complies with the requirements of SMETS2+ (or which, in combination with other Devices, complies with the requirements of SMETS2+)."*

DCC is further proposing to amend the definition of Device Model to include the following:

*"(a)subject to sub-paragraph (b), in respect of a Communications Hub or a Device (other than a Communications Hub Function or a Gas Proxy Function), the Manufacturer, the model, the hardware version and the firmware version of the Communications Hub or Device or,*

*(b)in relation to a PPMID that is capable of forming part of either a SMETS1 Smart Metering System, or a SMETS2+ Smart Metering System, insofar as it relates to the PPMID forming part of a SMETS1 Smart Metering System; the Manufacturer of the PPMID, its model, its hardware version and its firmware version that is different to the firmware version of the PPMID that forms part of a SMETS2+ Smart Metering System."*

DCC is further proposing changes to facilitate the interpretation of the SEC relating to bilingual PPMIDs by including the following in Section A of the SEC:

*"A2.13 Where a Device of a particular type is capable of forming part of both a SMETS1 Smart Metering System and a SMETS2+ Smart Metering System, then:*

*(a) where that Device is Associated with a SMETS2+ Communications Hub Function, the Device shall, for all purposes of the SEC, be treated as being a SMETS2+ Device; and*

*(b) where that Device forms part of a SMETS1 Smart Metering System, the Device shall, for all purposes of the SEC, be treated as being a SMETS1 Device."*

<b>PPMIDs Q1</b>	Do you have any comments on the tactical solution proposed by DCC to enable the migration of bilingual PPMIDs? Please could you provide detailed comments on the impact to you.
<b>PPMIDs Q2</b>	Do you consider that an enduring solution should be developed and further consulted upon by the DCC under BEIS transitional governance to enable operation of bilingual PPMIDs on the DCC System?
<b>PPMIDs Q3</b>	Do you consider that should a Party wish to pursue an enduring solution, it should be raised by them as a Modification Proposal under Section D of the SEC? Please provide details of your preferred outcome?
<b>PPMIDs Q4</b>	If an enduring solution is developed, do you think it should be done using BEIS transitional governance or a modification proposal under Section D of the SEC and how do you think an enduring approach would be best implemented? Please provide a rationale for your views.

**PPMIDs Q5**

Do you have any comments on the proposed SEC changes? Please provide rationale for your views.

### 3. Size limitation for Firmware

DUIS does not place any limits on the size of a firmware upgrade image that may be sent to a SMETS1 device. However, all devices will have limits on the amount of storage that is available for a firmware image; due to no value being present in the SMETS1 specification, this will vary from one Device Model to another. This is of particular relevance to a Communications Hub as firmware images are first transferred to the hub before being passed to the target device. As a result, where a firmware image is too large for the Communications Hub, it will not be possible to upgrade the firmware on any device on the HAN. DCC is of the opinion that Industry should work with manufacturers to ensure that firmware images are in line with the size of files that Communications Hubs handle.

DCC is proposing a change to the S1SR to make provision for the potential failure of any firmware upgrade request targeted at a PPMID due to these size limitations.

Drafting Reference	Description
18.63(d) 18.65(e)	Due to size limitations or Communications Hub metadata requirements it is unlikely that a firmware upgrade command that is targeted at a PPMID will be successful.
Annex E and F	The Devices affected by the various S1SR clauses are set out.

**PPMIDs Q6**

Do you have any comments on the proposed changes to the S1SR? Please provide rationale for your views.

### 4. Secure Third-Party PPMIDs

Secure does not currently hold any details of third-party Devices that are attached to Secure Installations. As set out in the TMAD consulted on for Secure<sup>1</sup>, when Secure Installations are migrated, any attached third-party Device is not migrated into the DCC System. Post migration a third-party Device can be added to the DCC Inventory using the relevant SRV commands. As the

<sup>1</sup> [DCC consultation on TMAD for Secure | Smart DCC at Section 2.5](#)

devices are added after migration, Secure does not support the upgrade of firmware to third party devices. DCC would like to establish from Suppliers whether DCC should develop a solution that would allow for the upgrade of firmware to third-party Devices that are attached to Secure Installation. A preliminary assessment of the costs to implement a change to the Secure S1SP is that it will cost in the region of £300,000 if it is delivered alongside the November 2022 SEC Release. It could be delivered in around 9 months as a standalone release, but this would require additional testing costs.

DCC is proposing changes to the S1SR that any attempt to upgrade the firmware of a third-party Device that is attached to a Secure Installation will fail.

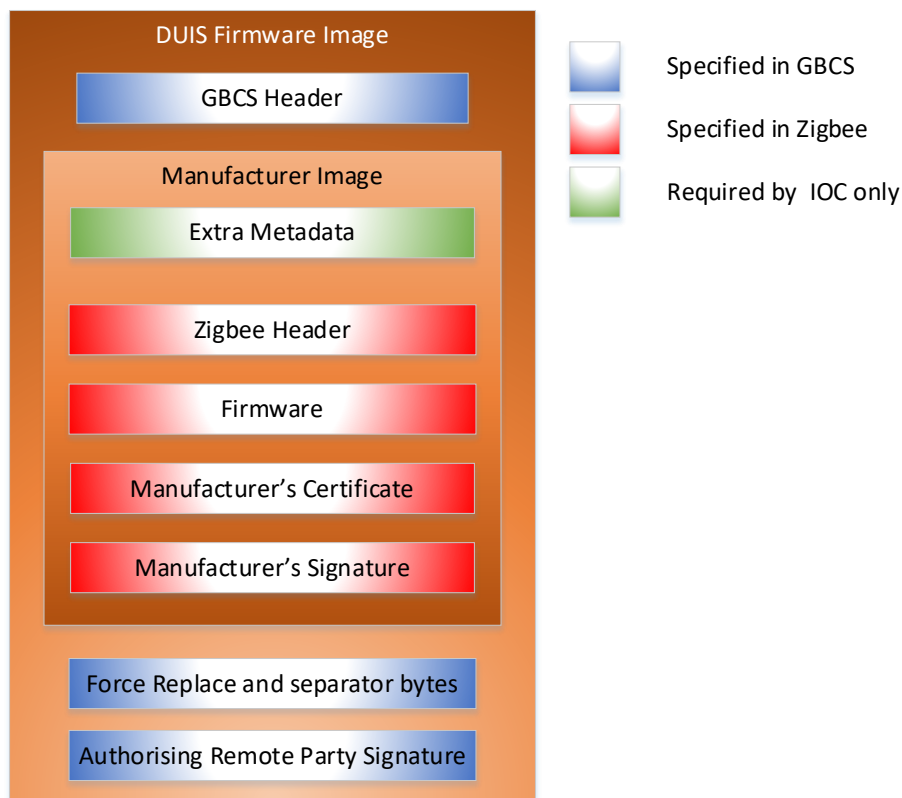
Drafting Reference	Description
18.63(c) 18.64(b)	The S1SP does not currently support firmware upgrades to non-Secure PPMIDs and therefore any attempt to upgrade or read the firmware of a non-Secure device will result in a failure.
Annex D	The Devices affected by the various S1SR clauses are set out.

PPMIDs Q7	Should DCC progress a change to the Secure S1SP to support the upgrade of firmware to third party PPMIDs? If so, would you like it to form part of the November 2022 SEC Release or be done in a shorter timeframe with an increased cost due to testing?
PPMIDs Q8	Do you have any comments on the proposed changes to the S1SR? Please provide rationale for your views.

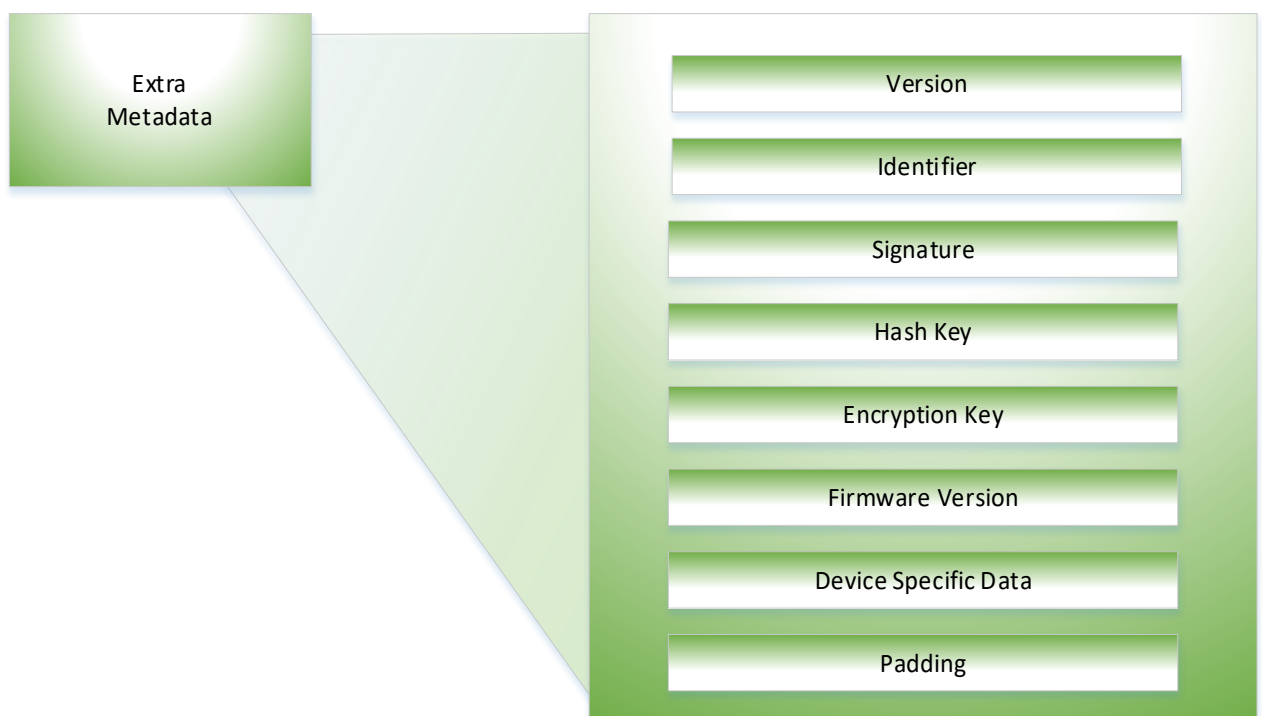
## 5. Meta Data Issue

The DUIS Firmware Image contains extra Metadata which is specific to the manufacturer of a Communications Hub as per the following diagram:





The extra Metadata is the following:



Different fields from the metadata are required to process firmware upgrades for all Devices joined to Communication Hubs provided by each of the Communications Hub manufacturers. As a result of the extra metadata, when a hash value is generated for a firmware image, the firmware image is locked to a specific Communications Hub manufacturer with the result that the firmware image is unworkable for Communications Hubs provided by other manufacturers.

As a result of this, a firmware upgrade of the PPMID will only succeed for one Communications Hub manufacturer and fail for all others. DCC has proposed changes to the S1SR to make provision for the potential failure of an attempt to upgrade the firmware.

To allow the same firmware image to be used to upgrade firmware on Devices that are joined to all IOC, MOC, FOC and SMETS2+ Communications Hubs, DCC is proposing to remove the need to populate this extra metadata from the image supplied as part of the DUIS Service Request and provide this metadata to the Communications Hub via a different route, automatically by the S1SP. Once DCC systems have been updated to provide the information currently in the metadata any such changes that are being made to the S1SR would no longer apply. At this point, DCC would consult on removing these provisions in the S1SR.

The associated costs for these changes, including testing, is approximately £1,300,000.

Drafting Reference	Description
18.63(d) 18.65(e)	Due to Communications Hub metadata requirements it is unlikely that a firmware upgrade command that is targeted at a PPMID will be successful.
Annex D,E and F	The Devices affected by the various S1SR clauses are set out.

PPMIDs Q9	Would you like DCC to progress these changes. If so, would you like it to form part of the November 2022 Release or be done in a shorter timeframe with an increased cost due to testing?
PPMIDs Q10	Do you have any comments on the proposed changes to the S1SR? Please provide rationale for your views.

## 6. Unsupported PPMIDs

Certain manufacturers no longer provide firmware images that would support the testing of the firmware upgrade functionality. For example, DCC has established that the Landis + Gyr P450 Pebble PPMID is a legacy device and therefore no longer supported in this manner.

As a result of this, should a firmware image become available relative to other devices (meters or Communication Hubs), the impact of a firmware upgrade on the PPMID will not have been tested by DCC and therefore results of any firmware upgrade attempt relative to the PPMID would be uncertain. We are proposing to update S1SR to document this as and when we are made aware of such instances.

Drafting Reference	Description
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18.63(d)	Due to PPMIDs no longer being supported, it is uncertain whether firmware upgrade command that is targeted at a PPMID will be successful.
18.65(e)	
Annex F	The Devices affected by the various S1SR clauses are set out.

#### PPMIDs Q11

Do you have any comments on the proposed changes to the S1SR? Please provide rationale for your views.

## 7. Next Steps

Following the closure of this consultation, DCC will consider respondents' views. Following such consideration, DCC will amend the changes that DCC has proposed in this consultation where appropriate. DCC will then submit an amended version of the S1SR (including DMVES changes) CPL Requirements document and the consequential main body SEC changes to BEIS that it considers suitable for re-designation into the SEC by the Secretary of State.

DCC is aiming to provide a report to the Department for Business, Energy and Industrial Strategy (BEIS) by no later than 03 September 2021, which report will contain DCC's consideration of the consultation and its responses as well as a version of the documents that DCC considers is appropriate to designate into the SEC.

DCC has discussed the re-designation of the documents in this consultation with BEIS and it is proposed that, subject to timely receipt of DCC's report and copies of relevant stakeholder responses to this consultation, BEIS will re-designate the S1SR, CPL Requirements Document and Section A SEC changes on 10 September 2021 or as soon as reasonably practicable within one month thereafter.

In order to expedite the re-designation of the S1SR, CPL Requirements Document and SEC Section A changes, DCC is also seeking views on behalf of BEIS on the proposed date for re-designation of the S1SR, CPL Requirement Document and the making of SEC Section A changes, as well as the draft direction which is presented in Attachment 1 of this consultation document for stakeholder consideration.

#### PPMIDs Q12

Do you agree with the proposed re-designation date of 10 September 2021 (or, if necessary, as soon as reasonably practicable within one month thereafter) for the updates to the S1SR CPL Requirements Document and SEC Section A changes using draft notification at Attachment 1?

## 8. How to Respond

Please provide responses by 1600 on 20 August 2021 to DCC at [consultations@smartdcc.co.uk](mailto:consultations@smartdcc.co.uk).

Consultation responses may be published on our website [www.smartdcc.co.uk](http://www.smartdcc.co.uk). Please state clearly in writing whether you want all or any part, of your consultation to be treated as confidential. It would be helpful if you could explain to us why you regard the information you have provided as confidential. Please note that responses in their entirety (including any text marked confidential) may be made available to the Department for Business, Energy and Industrial Strategy (BEIS) and the Gas and Electricity Markets Authority (the Authority). Information provided to BEIS or the Authority, including personal information, may be subject to publication or disclosure in accordance with the access to information legislation (primarily the Freedom of Information Act 2000, the Data Protection Act 2018 and the Environmental Information Regulations 2004). If BEIS or the Authority receive a request for disclosure of the information we/they will take full account of your explanation (to the extent provided to them), but we/they cannot give an assurance that confidentiality can be maintained in all circumstances. An automatic confidentiality disclaimer generated by your IT system will not, of itself, be regarded by us as a confidentiality request.

If you have any questions about the consultation documents, please contact DCC via [consultations@smartdcc.co.uk](mailto:consultations@smartdcc.co.uk).

## **9. Attachments**

- Attachment 1: Draft Designation Text
- Attachment 2: SEC Appendix AM – SMETS1 Supporting Requirement
- Attachment 3: Section A – Definitions and Interpretation
- Attachment 4: Appendix Z – CPL Requirements Document
- Attachment 5: Response Template

# Attachment 1

This attachment contains the text that BEIS plans to use for direction of changes to the regulatory documents.

## **S1SR, CPL Requirements Document and Consequential Main Body SEC changes Draft Direction Text**

*This direction is made for the purposes of the smart meter communication licences granted under the Electricity Act 1989 and the Gas Act 1986 (such licences being the "DCC Licence") and the Smart Energy Code designated by the Secretary of State pursuant to the DCC Licence (such code being the "SEC").*

*Words and expressions used in this direction shall be interpreted in accordance with Section A (Definitions and Interpretation) of the SEC.*

*Pursuant to Condition 22 of the DCC Licence and Section X5 (Incorporation of Certain Documents into this Code) of the SEC, the Secretary of State directs that, with effect from [DD MM YYYY], the SMETS1 Supporting Requirements previously designated and incorporated into the SEC as Appendix AM and the CPL Requirements Document previously designated and incorporated into the SEC as Appendix Z, is hereby re-designated and incorporated in the form set out in Annex [XX] to this direction.*

*Pursuant to Condition 22.30(a) of the DCC Licence and Paragraph X5.6 of the SEC, the Secretary of State directs that in consequence of the redesignation of the CPL Requirements Document, with effect from [DD MM YYYY], Section A (Definitions and Interpretation) of the SEC is amended to add a definition of Relevant Technical Specification and to change the definition of Device Model, SMETS2+ Device and SMETS2+ Device Model as further set out in Annex [yy] to this direction.*

*For the avoidance of doubt such re-designation of the SMETS1 Supporting Requirements CPL Requirements Document and SEC Section A changes shall be without prejudice to anything done under the DCC Licence or the SEC on or after this document first being designated, or to the continuing effectiveness of anything done under this document prior to its re-designation (which shall have effect as if done under the re-designated document).*

*This direction is also being notified to the SEC Administrator.*