SEC
Smart Energy Code

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Smart Energy Code

MP172

‘Reduced CPA & CPL requirements for innovation and Device field trials’

Modification Report

Version 0.4

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About this document

This document is a draft Modification Report. It currently sets out the background, issue, solution, impacts 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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This document also has one annex:

- **Annex A** contains the business requirements for the solution.

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1. Summary

This proposal has been raised by Eric Taylor from SMETS Design Ltd.

Innovation in Smart Metering relies on field trials or live usage trials. These are used to see whether the product that has been developed is providing value to the consumer and is working or being used as expected. It also helps with refinement of a product based on real world feedback. Typically, these trials happen before manufacturers commit to the full costs of final volume product, the final detailed design and certifications.

Currently, the requirements of the Smart Energy Code (SEC) are designed around the mass deployment of Devices and offer no leeway to support Minimum Viable Product (MVP) trials on the live Data Communications Company (DCC) network. The biggest cost and risk blocker for the introduction of a new or modified Device type, or an innovative Device usage are the Commercial Product Assurance (CPA) arrangements.

The Proposer believes that this is preventing manufacturers from being able to invest confidently to bring innovative products to market. It is also impacting consumers where Devices have been rolled out on a mass scale with potential defects that could have been uncovered in a limited volume product trial on the live DCC network.

The Proposed Solution will be to request the Security Sub-Committee (SSC) to approve Devices for a trial in limited numbers and duration. The SSC will decide whether the security risk is acceptable to allow the trial.

2. Issue

What are the current arrangements?

Central Products List

The DCC uses the Central Products List (CPL) to manage the Devices it can communicate with. If a Device is not listed on the CPL, the DCC cannot add it to the Smart Metering Inventory (SMI) and therefore cannot communicate with it. Only once a Device has met the requirements set out in SEC Appendix Z ‘CPL Requirements Document’ can it be added to the CPL. The CPL is a list of Device Models that are either:

- Smart Metering Equipment Technical Specifications (SMETS) 2 Devices which have received all relevant Assurance Certificates; or
- SMETS1 Devices which have been notified by the DCC and have been included as entries on the SMETS1 Eligible Products Combination list.

Smart Metering Assurance Certificates

There are three types of Assurance Certificates, each issued by a different Assurance Certification Body. The technical specifications of each product relevant to that Physical Device Type determines which Assurance Certificates are required to add the Device to the CPL. These are Zigbee Alliance Certificates, Device Language Message Specification (DLMS) Certificates and CPA Certificates.

The Assurance Certification Body for the CPA scheme is the National Cyber Security Centre (NCSC).

What is the issue?

Innovation in Smart Metering (or in any technical or engineering domain) relies on the use of MVP in a field trial or live usage trial. These are used to show the value of the proposal or solution and refine the product and solution designs. Typically, this happens before manufacturers commit to the full costs of final volume product, the final detailed design, and full product certifications.

The biggest cost and risk factor for the introduction of a new Device Type or innovative Device usage are the CPA requirements. It can take approximately 12 months to complete the CPA Certification process. These requirements are designed around the mass deployment of Devices and offer no leeway to support limited MVP trials on the live DCC network.

This live trial facility has always been needed in SMETS2 Smart Metering but has never been provided in a way that is required for commercially driven innovation to occur. This is the normal way that progress is made in any technology, but the SEC arrangements (listed above) require the full investment of a complete final volume product before any field trial can be undertaken.

The Proposer believes that, as well as stifling innovation, this restriction has already caused cost and problems for the Smart Metering Implementation Plan (SMIP). Devices have been deployed at high volume in the live network with issues that normally would have been easily spotted during a limited volume live field trial. These are cases where Over-The-Air (OTA) updates have not been able to resolve these issues, where a combination of OTA and Device restarts have been required, or on-site visits. The Proposer believes that had there been the opportunity to trial, then final designs would not have been committed to prior to receiving this important design feedback from real world use.

The Proposer considers that there is no test environment which can simulate the real live usage of a Device on the live network with real Users and which meets the needs of commercially led innovation. The DCC Production Proving environment only shows that the system can work. It is not a real usage environment as it is in a controlled lab and the arrangements are too restrictive for commercially led innovation.

What is the impact this is having?

The Proposer believes the high threshold required to trial innovation on the live DCC network and prove the value of a new use cases based on the existing smart metering arrangements and the existing technical specifications is prohibiting industry-led innovation.

The Proposer believes this absence of commercially driven innovation will affect the DCC's ability to meet its second enduring General Objective[1], as set out in the DCC's Licence, and find ways to re-use the smart metering systems for anything other than dual fuel metering. This denies the DCC the ability to offer other revenue generating services based on such commercially driven innovation which might reduce the overall costs to DCC Users.

[1] The Second Enduring General Objective of the Licensee is to carry on the Mandatory Business in the manner that is most likely to facilitate: (a) effective competition between persons engaged in, or in Commercial Activities connected with, the Supply of Energy under the Principal Energy Legislation; (b) such innovation in the design and operation of Energy Networks as will best contribute to the delivery of a secure and sustainable Supply of Energy under the Principal Energy Legislation; and (c) the reduction (by virtue of benefits arising from the provision of Value Added Services) of the charges payable for Mandatory Business Services.

Manufacturers are incurring higher costs as they must develop their product to a higher threshold to evaluate their Devices in the field. There is then potential to spend again prior to mass deployment to resolve something which could have easily been spotted if normal Good Industry Practice was used as described above. This also risks reputational damage to the Device Manufacturer, the Device operator and the SMIP, which could have been avoided if a limited volume MVP live field trial were undertaken.

Impact on consumers

The continued mass deployment of Devices without live field trials can lead to Devices containing issues that could have easily been spotted with this type of test. This negatively impacts the consumer by giving them a poor experience of the Devices at the start of volume deployment, as well as the inconvenience of possibly having multiple site visits.

3. Solution

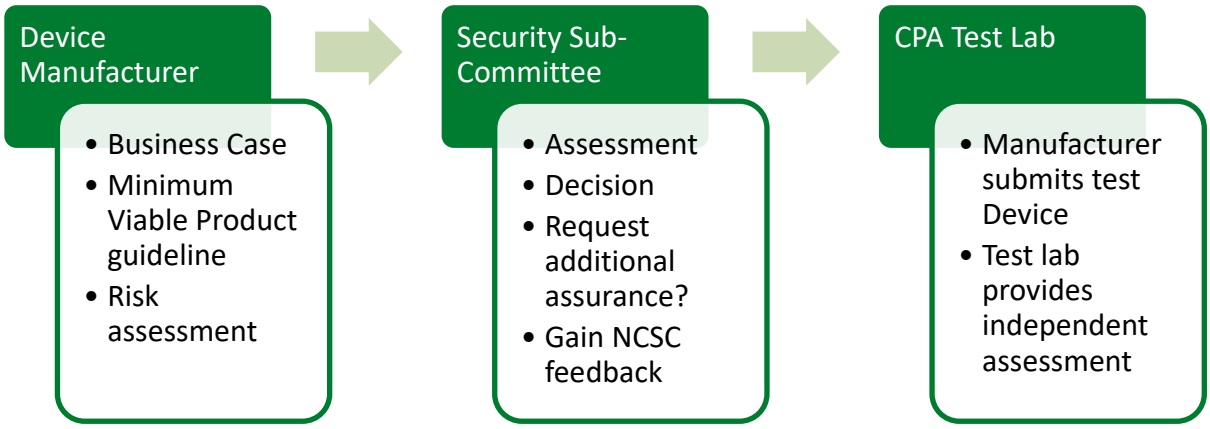
The Proposed Solution will allow Device Manufacturers to request the SSC to allow trial Devices in limited numbers onto the live DCC network without passing through CPA Certification, where that would otherwise be a requirement.

The SSC would assess whether they had the necessary assurance that the security risk from the small number of Devices was sufficiently low to allow the trial to proceed.

If the SSC is satisfied with the application, a “Trial” CPA certificate reference would be provided. The Device Manufacturer would then use this CPA certificate reference in the CPL submission sent to the Smart Energy Code Administrator and Secretariat (SECAS). If approved then Devices could be added to the CPL, with detail on existing fields to highlight it as a trial Device, but without affecting the format of the CPL to ensure no impact on DCC systems.

If the SSC requires further assurance, the Device Manufacturer would need to make a trial Device available to a CPA Test Laboratory to carry out an independent risk assessment. That would then be passed to the SSC to accompany the Device Manufacturer’s application and enable the SSC to decide. If necessary, the SSC will seek guidance from the NCSC to assist them.

The DCC will provide reporting to the SSC to confirm trial Devices that are in the field.



4. Assessment of the proposal

Observations on the issue

Change Sub-Committee

Change Sub-Committee (CSC) members noted that any increase in security risk would likely not be supported by industry. It advised that the SSC and the NCSC must be fully engaged with the development of the modification.

One CSC member highlighted that the DCC has a test network, and they believe this could be utilised with Devices that are installed in the field already. Upon further investigation this was found not to be the case and the Devices are not installed at consumer premises.

Finally, the CSC felt that the business case will need more development before the modification is progressed to decision.

Security Sub-Committee

The SSC was presented with the issue. Members agreed that this was an area that should be explored further and noted that a lack of innovation within Devices was a growing concern.

One member highlighted that any solution should ensure that situations of Change of Supplier should be accounted for. They also noted there must be a mechanism for removal or upgrade of the Device once any limited numbers trial was finished.

The SSC noted that there are currently limited Device field trials ongoing in conjunction with the Department for Business, Energy & Industrial Strategy (BEIS).

Views of a SEC Party

One Other SEC Party provided feedback on the initial Draft Proposal. It acknowledged that whilst CPA Certification causes some innovation to go at a slightly slower pace it disagreed that this had prevented bringing new products to market. In the current climate of cyber security issues, it believes the current CPA arrangements provides a vital layer of protection to the SMIP.

The Proposer agrees that the Security Characteristics are vital but believes there should be an option to have the Device verified independently, likely through the SSC, in this specific circumstance. This would help to reduce costs and timescales for Device development and promote innovation within the industry.

Working Group

Working Group members noted that they were supportive of the principle of the change, but that it must be counterbalanced against the security implications of not having CPA Certification.

Solution development

The CSC highlighted that any solution must be developed in consultation with Other SEC Parties to ensure that any solution is developed that works for a wide audience. To achieve this the Proposer chose to develop the initial business requirements for the modification with the Working Group. The modification has also been discussed with the Technical Architecture and Business Architecture Sub-Committee (TABASC) and the SSC.

Who is eligible to submit a Device for a trial part?

To add in a security control as to who is eligible to submit a Device for a trial, the Proposer suggested that only Device Manufacturers that already have a CPA certified product would be eligible. They noted that part of the CPA certification involves the company demonstrating that it has the quality, security, and engineering processes and systems in place to ensure that secure development can take place. A Working Group member disagreed, saying that a company is not approved by CPA as they can produce one Device that is compliant but another that they produce may not be.

The DCC suggested it may be more appropriate to make the requirement specific to the Device type that the Manufacturer wishes to put through a trial, not just any SMETS 2 Device. They stated that the development of a new Device type for that manufacturer would have an increased likelihood of defect than if they had produced that Device type before.

The Proposer commented that placing that limitation would stifle the innovation of a Device Manufacturer who wished to develop a new Device type to their business.

Limitations of the trial

Previous BEIS trials have been limited in terms of duration and quantity of Devices. These have previously been limited to a 12-month period and 100 Devices. The Proposer noted that experience from these trials showed that 12 months was too short to obtain the data required to validate the Device and suggested 18 months would be more appropriate.

A Working Group member suggested that the requirement could be left ambiguous, allowing different Device types to have different trial numbers. This would allow the SSC or BEIS to make final decisions that could consider a wider range of variables that may be subject to change over time.

The SSC agreed that the trial should be limited in terms of duration and quantity and have left the specifics undefined in their suggested process. The SSC also noted that any trial must be about proving technology and not used as a shortcut testing route to live.

What does the Device Manufacturer need to do?

The primary goal of the modification is to remove the requirement of CPA certification for trial Devices, so all other certifications would still be required. Great Britain Companion Specification (GBCS) and SMETS both follow a self-certifying methodology and evidence of this would be expected to be provided to the SSC.

The SSC's formal position includes a requirement for the Device Manufacturer to provide supporting MVP guideline, a Use Case with business rationale i.e., what the trial is trying to achieve and a risk assessment. All trials are expected to have been previously tested (with evidence provided) with DCC systems prior to submission of the MVP, Use Case and business rationale.

A Working Group member suggested that the Distribution Network Operator (DNO) would need to be informed of any trial Devices on the live network as the Devices would need DNO and Supplier Smart Metering Key Infrastructure (SMKI) Certificates added. They added that the post-Commissioning obligations would also need to be met. The Proposer agreed that all existing SEC obligations would need to be met, except for the CPA Certification.

End of the trial

DCC Users operating these trial Devices must have processes in place to enable trial Devices to be removed, or to have the firmware updated to a CPA certified version. These processes should account for situations where the consumer chooses to change Supplier during the trial. The SEC states the requirements for Devices whereby CPA Certification has expired to be upgraded and as part of this modification the SEC must be updated to state that these trial Devices will follow the same processes.

The SSC Chair stated that the Proposed Solution must be explicit that the Device should be "fully" upgraded, meaning it must be fully CPA Certified or removed from the premise. This can be achieved either by physical Device exchange, or OTA firmware upgrade if the hardware variant has passed CPA Certification.

Managing Supplier churn

SECAS asked for feedback from the Working Group on how the process would manage Supplier churn and consumer contracts for premises to be included within any trial. The Working Group heard that with a previous BEIS trial for Home Area Network (HAN) Connected Auxiliary Load Control Switches (HCALCS) and Electric Vehicle (EV) Chargers, the Devices were not planned to be removed following the trial and had no specific project considerations of Supplier churn, other than the normal industry processes that protect consumers. The Proposer also highlighted that there have been over 2 million consumers affected by the Supplier of Last Resort (SoLR) process in the last few months and that possible churn in a trial of 100 Devices should relatively not even be considered an issue.

The Proposer noted that any trial would require a Supplier to sponsor the trial and they would provide a consumer base that was not likely to churn during the trial. Therefore, there is a very low element of risk and impact from this happening.

DCC System impacts

The Proposer's view is that if the CPL is left unaffected then there should be no change to functionality to the DCC System. During the Working Group, and the Requirements Workshop with the DCC Service Providers this view was challenged.

The DCC questioned the impact the Devices have on Technical Operation Centre (TOC) reporting and noted that issues with Devices would affect the DCC Operational Performance Regime (OPR) or internal processes. They suggested that consideration to how that would be managed, possibly with a system flag, would be required. The DCC highlighted that 100 Devices could be the difference between them passing/failing a Service Level Agreement (SLA) and highlighted that the "noisy meters" on the network are currently removed from these metrics.

The TABASC Chair noted that there is no change to business as usual and the smart metering architecture can accommodate the Modification. The DCC stated that further analysis would need to be carried out by them to agree there was no impact.

As part of the SSC's formal position, it has requested that reporting be provided on the trial Devices. The DCC has therefore been requested to provide a Preliminary Assessment which will confirm impacts on Systems.

Appendix 1: Progression timetable

SECAS has requested the DCC Preliminary Assessment.

Timetable	
Event/Action	**Date**
Draft Proposal raised	18 Jun 2021
Presented to CSC for initial comment	29 Jun 2021
Modification discussed with SSC	28 Jul 2021
CSC converts Draft Proposal to Modification Proposal	31 Aug 2021
Modification discussed with the Working Group	4 Oct 2021
Modification discussed with the Working Group	3 Nov 2021
Business requirements developed with the Proposer	Nov – Dec 2021
Business requirements discussed with SSC	12 Jan 2022
Business requirements discussed with TABASC	3 Feb 2022
SSC developed its formal position	Jan – Mar 2022
DCC Preliminary Assessment requested	26 Apr 2022
Modification discussed with the Working Group	6 Jul 2022
Refinement Consultation	Jul 2022
Refinement Consultation responses discussed with Working Group	Sep 2022
Impact Assessment	Oct – Nov 2022
Modification Report approved by CSC	Dec 2022
Modification Report Consultation	Jan 2023

Timetable	
Event/Action	**Date**
Change Board vote	Jan 2023

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**
BEIS	Department for Business, Energy and Industrial Strategy
CPA	Commercial Product Assurance
CPL	Central Products List
CSC	Change Sub-Committee
DCC	Data Communications Company
DLMS	Device Language Message Specification
DNO	Distribution Network Operator
EV	Electric Vehicle
GBCS	Great Britain Companion Specification
HAN	Home Area Network
HCALCS	HAN Connected Auxiliary Load Control Switch
MVP	Minimum Viable Product
NCSC	National Cyber Security Centre
OPR	Operational Performance Regime
OTA	Over-The-Air
SEC	Smart Energy Code
SECAS	Smart Energy Code Administrator and Secretariat
SLA	Service Level Agreements
SMETS	Smart Metering Equipment Technical Specifications
SMI	Smart Metering Inventory
SMIP	Smart Metering Implementation Plan
SMKI	Smart Metering Key Infrastructure
SoLR	Supplier of Last Resort
SSC	Security Sub-Committee
TABASC	Technical Architecture and Business Architecture Sub-Committee
TOC	Technical Operation Centre