



Department for  
Business, Energy  
& Industrial Strategy

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& Industrial Strategy  
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The Authority (Ofgem), the SEC Panel, SEC Parties, parties to the Balancing Settlement Code, parties to the Uniform Network Code and other interested parties

6<sup>th</sup> April 2020

Dear Colleague,

**SMART METERING IMPLEMENTATION PROGRAMME: CONSULTATION ON DCC'S PROVISION OF AN ENROLMENT SERVICE FOR EDM1 SMETS1 METERS; CHANGES TO DCC, ELECTRICITY AND GAS SUPPLY LICENCE CONDITIONS; AND CHANGES TO THE SMART ENERGY CODE, BALANCING AND SETTLEMENT CODE AND UNIFORM NETWORK CODE**

This consultation seeks stakeholders' views on whether the DCC should be required to provide an enrolment service for first generation (SMETS1) EDM1 smart meters, as well as proposed regulatory amendments on five separate topics related to the implementation of the Smart Metering Implementation Programme. These changes relate to the electricity and gas supply licences, the DCC licence, the Smart Energy Code (SEC), the Balancing and Settlement Code (BSC) and the Uniform Network Code (UNC).

More specifically, the five areas of regulatory change proposed are to:

- amend SEC security obligations on the DCC in relation to Telefonica as a SMETS1 Communications Service Provider (SMETS1 CSP);
- change the electricity and gas supply licences, DCC licence and the SEC to support standalone auxiliary proportional controllers (SAPCs) (and associated changes relating to sub-meters) within the smart metering arrangements;
- change the SEC, BSC, and UNC [and Independent Gas Transport Uniform Network Code (iGT UNC)] to support the inclusion of registration data identifiers with XML signing certificates;
- change the way that Explicit Charges for Alternative Home Area Network (Alt HAN) Equipment are set out in the SEC to ensure that the charging arrangements are consistent with stated BEIS policy; and
- make a minor correction to Section L3.18(b) of the SEC.

I welcome views on the proposals. The consultation closes on **11<sup>th</sup> May 2020 at 17:00**. The details on the proposals and how to respond are contained in the consultation document at Annex A.

Yours faithfully,



**Duncan Stone**

Deputy Director & Head of Delivery  
Smart Metering Implementation Programme

### **List of Annexes to this letter**

**Annex A** Consultation document

**Annex B** EDM1 SMETS1 meter enrolment cost benefit analysis

**Annex C** Proposed Legal Drafting (attached separately):

- Attachment 1 – Electricity Supply Licence Conditions 1 - Definitions (relates to Chapter 3 proposal)
- Attachment 2 – Electricity Supply Licence Condition 39 – Smart Metering System, Roll-out, Installation and Maintenance (relates to Chapter 3 proposal)
- Attachment 3 – Gas Supply Licence Conditions 1 – Definitions (relates to Chapter 3 proposal)
- Attachment 4 – Parts A, E, G of the DCC Licence (relates to Chapter 3 proposal)
- Attachment 5 – Section A of the SEC, Definitions (relates to Chapter 3 proposal)
- Attachment 6 – Sections F2, F11 of the SEC, Smart Metering System Requirements (relates to Chapter 3 proposal)
- Attachment 7 – Section G2 of the SEC, System Security: Obligations on the DCC (relates to Chapter 2 and 3 proposals)
- Attachment 8 – Section G7 of the SEC, Security Sub-Committee (relates to Chapter 3 proposal)
- Attachment 9 – Section K7 of the SEC, Charging Methodology (relates to Chapter 5 proposal).
- Attachment 10 – Section L3 of the SEC, Smart Metering Key Infrastructure (relates to Chapter 4 and Chapter 6 proposals)
- Attachment 11 – Section Z4 of the SEC, The Alt HAN Arrangements (relates to Chapter 5 proposal).

## **Annex A: Consultation document**

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## **General Information**

### **Why we are consulting**

This consultation seeks stakeholders' views on whether DCC should be required to provide an enrolment service for EDM1 SMETS1 meters, and on five separate proposals involving changes to the Smart Energy Code (SEC), Balancing and Settlement Code (BSC), Uniform Network Code (UNC), DCC Licence, and electricity and gas supply licences using the Secretary of State's Section 88 Energy Act 2008 powers.

### **Timing**

Responses to this consultation should be submitted **by 17:00 on 11 May 2020**.

### **Responding to the consultation**

Your response will be most useful if it is framed in direct response to the questions posed, by reference to our numbering, though further comments and evidence are also welcome.

Responses should be submitted to: **smartmetering@beis.gov.uk**

When responding, please state whether you are responding as an individual or representing the views of an organisation.

### **Confidentiality and data protection**

Information you provide in response to this consultation, including personal information, may be disclosed in accordance with UK legislation (the Freedom of Information Act 2000, the Data Protection Act 2018 and the Environmental Information Regulations 2004). If you want the information that you provide to be treated as confidential please tell us but be aware that we cannot guarantee confidentiality in all circumstances. An automatic confidentiality disclaimer generated by your IT system will not be regarded by us as a confidentiality request.

We will process your personal data in accordance with all applicable UK and EU data protection laws. See our [privacy policy](#).

We will summarise all responses and publish this summary on the SECAS website. The summary will include a list of names or organisations that responded, but not people's personal names, addresses or other contact details.

### **Territorial extent**

This consultation applies to the gas and electricity markets in Great Britain.

### **Quality assurance**

This consultation has been carried out in accordance with the government's [consultation principles](#).

If you have any complaints about the way this consultation has been conducted, please email: [beis.bru@beis.gov.uk](mailto:beis.bru@beis.gov.uk).

## Chapter 1: Consideration of the case for enrolment of the EDM1 SMETS1 meter cohort in the Data Communications Company (DCC) Network

### Background

1. Some energy suppliers have installed first-generation (SMETS1) smart meters for their customers. Like second-generation (SMETS2) smart meters, SMETS1 smart meters provide consumers with the benefits of accurate bills and near real-time energy consumption information. However, unlike SMETS2 smart meters which are fully interoperable from the point of installation, SMETS1 smart meters installed by energy suppliers that use their own data and communications systems are not always compatible with other energy suppliers' systems and may temporarily lose smart functionality should SMETS1 consumers change supplier. To address this, Government's long-standing policy ambition has been to enrol all substantive populations of SMETS1 meters into the national smart metering system managed by the Data and Communications Company (DCC).
2. In support of this policy ambition, the Government determined in October 2018<sup>1</sup> that:
  - Energy suppliers would be required to take all reasonable steps to enrol their 'eligible SMETS1 meters' in the DCC, within 12 months of the point at which they can be enrolled.<sup>2</sup>
  - Where an energy supplier acquires an eligible SMETS1 meter following change of energy supplier and the meter is not enrolled, the new energy supplier would be required to take all reasonable steps to enrol the meter within 12 months of acquiring the meter.
  - Energy suppliers would be required to take all reasonable steps to replace any SMETS1 meter which is not enrolled in the DCC with a SMETS2 meter by the end of 2020 (the 'replacement duty'). Following consultation, in March 2020 we confirmed our intention to amend the replacement duty such that energy suppliers would be required to take all reasonable steps to replace any unenrolled SMETS1 meter with a SMETS2 meter by the end of 2021.<sup>3</sup>
  - Once a SMETS1 meter has been enrolled in the DCC it may not be withdrawn and operated outside the DCC.

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<sup>1</sup> Government Response to the consultation on maximising interoperability for first generation SMETS1 smart meters published in October 2018: <https://www.gov.uk/government/consultations/maximising-interoperability-for-first-generation-smets1-smart-meters>

<sup>2</sup> 'Eligible for enrolment' is determined with reference to the point in time at which device models are added to the Eligible Product Combination (EPC) list (or are capable of being added but for the application of an existing firmware upgrade(s)). The EPC list sets out device model combinations in relation to which DCC has proven through testing its ability to process service requests. A SMETS1 device model combination is typically an electricity meter, gas meter, communications hub and in-home display.

<sup>3</sup> Government response to consultation on code and licence changes published 26 March 2020: <https://smartenergycodecompany.co.uk/latest-news/beis-government-response-to-consultation-on-code-and-licence-changes/>

3. In late 2018 and early 2019, the Government concluded that DCC should be required to provide an enrolment service to meter sets representing over 99% of the SMETS1 market. These meter sets were Aclara, Honeywell Elster, Landis+Gyr, Itron and Secure.<sup>4</sup> The decision on whether DCC should be required to stand up an enrolment service for these meter sets took into account the following criteria:
  - I. Whether a net societal benefit exists.
  - II. Whether there is an acceptable level of security for the end to end smart metering system.<sup>5</sup>
  - III. Whether the delivery of the potential solutions in respect of the meter set is technically feasible.
4. EDM1 SMETS1 meters are electricity-only meters and represent less than 0.5% of the installed SMETS1 meter population. This consultation considers the final SMETS1 meter set, EDM1, against the same criteria as previous meter set decisions.
5. In order to inform this consultation on whether DCC should be required to enrol the EDM1 SMETS1 meter, DCC provided Government a report on the feasibility of enrolling the EDM1 meter set. This includes an assessment of its delivery confidence for achieving successful enrolment, accounting for commercial maturity. An assessment of the technical and security feasibility of the meter set was also provided by DCC that includes a report from Critical Software (CSW) about the technical feasibility of operating key Service Requests on the meters. A cost model based on evidence gathered to date has been provided by DCC to inform the Department's cost-benefit analysis.
6. In September 2019, the Smart Metering Programme published an updated Cost-Benefit Analysis for the Programme<sup>6</sup>. This included an allowance for enrolment, which means that the costs and benefits of enrolment – which are modelled here separately for the EDM1 meter set – are not new. A significant amount of the costs associated with enrolment are equivalent to SMETS1 data and communication costs currently borne by energy suppliers. Specific analysis on the costs and benefits for enrolling the EDM1 SMETS1 meter set has been undertaken in order to inform the consultation proposal based on the latest available information. Some information has not been published as this would result in the disclosure of commercially sensitive information.

## Proposal

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<sup>4</sup> Government Response to the consultation on the enrolment of SMETS1 meter cohorts published in October 2018: <https://www.gov.uk/government/consultations/enrolment-of-smets1-meter-cohorts-with-the-data-communications-company>

Government Response to the consultation on the enrolment of Secure SMETS1 meters published in May 2019:

<https://www.gov.uk/government/consultations/enrolment-of-secure-smets1-meters-in-the-data-communications-company-dcc>

<sup>5</sup> The end to end smart metering system refers to DCC's total system, enrolled smart metering systems and/or user systems.

<sup>6</sup> Smart Meter Rollout: Cost Benefit Analysis 2019: <https://www.gov.uk/government/publications/smart-meter-roll-out-cost-benefit-analysis-2019>

7. Government is proposing that the DCC should not be required to provide SMETS1 services for EDMl SMETS1 meters.

## **Rationale**

### Technical Feasibility

8. It is understood from the evidence provided to us by DCC that EDMl Ltd will not directly support a SMETS1 enrolment service, and instead intends to focus its business on supporting the implementation of SMETS2 meters to ensure commercial alignment with its objectives. The Government is minded to agree with DCC that without this specific technical support it is highly unlikely that an enrolment service that delivers an acceptable levels of security could now ever be successfully developed and implemented.
9. From the technical work DCC had been able to undertake without EDMl Ltd technical insight, it is apparent that there are a number of areas where this support is necessary to understand the scope of changes required for a solution to be developed. There is also some uncertainty on whether the devices are capable of taking on the firmware updates which would be needed to place them in an enrolment-ready state.

### Security

10. Given the gaps in information available about the security arrangement for EDMl SMETS1 devices the feasibility of the Smart Metering System Operator (SMSO) function being able to be adopted by an existing SMETS1 Service Provider and aligned with Section G of the SEC, or the CSPs alignment with Section G, DCC has not been able to provide a security risk assessment for the EDMl smart meter set.
11. Similarly, DCC is unable to provide a risk position as to the security of the EDMl SMETS1 meter set once enrolled in DCC total systems. The DCC states that concerns currently exist which would need to be remediated prior to enrolment but has not been provided with visibility as to the feasibility of achieving this, which without EDMl Ltd support for SMETS1 meters is considered by DCC as unlikely to be possible.

### Cost Effectiveness to Society

12. Based on current information, enrolling the EDMl meter set is estimated to provide a negative Net Present Value (NPV) within the range of -£19 to -£24 million under central assumptions. This means that attempting to enrol EDMl meters is estimated to lead to higher net costs to society than the counterfactual.
13. In the counterfactual, existing obligations such as the replacement duty (where energy suppliers would be required to take all reasonable steps to replace EDMl SMETS1 meters with SMETS2 meters by the end of 2021) would apply to ensure consumers benefit from interoperable smart meters. Annex B provides an analysis of the costs and benefits of enrolling EDMl SMETS1 meters in DCC's national communications network.



14. The assessment of the NPV for enrolling the EDMl meter set is based on BEIS' consideration of the following costs and benefits. The following benefits are quantified:

- Avoiding the cost of premature replacements of EDMl meters.
- Ensuring the availability of smart services and benefits from meters that would otherwise temporarily run in traditional mode in the absence of enrolment.
- Avoiding the associated inconvenience to consumers of the additional installation visit associated with premature meter replacement.
- Avoiding Smart Meter System Operator (SMSO) and Foundation Communication Service Provider (FCSP) costs paid directly by energy suppliers for EDMl meters.

15. Enrolment is expected to provide benefits that are not quantified. These benefits include:

- Enrolled meter sets included within the end-to-end risk assessment and security architecture which the SEC Panel Security Sub Committee is responsible for maintaining, thereby ensuring a holistic view of risks and controls across all aspects of the architecture.
- In addition to the security controls that SMETS1 meters have in place, SMETS1 meters would be able to capitalise on alerting and monitoring systems provided by DCC which would provide timely insight into identifying and mitigating potential issues or threats.
- Enrolment into DCC creates a single point of contact for service management incidents that involve device communications.
- Expected cost savings to energy suppliers from rationalising SMETS1 and SMETS2 systems.

16. The benefits are assessed against the following costs:

- Testing and migration costs incurred by energy suppliers that have installed EDMl meters to support the enrolment of these meters.
- Energy supplier costs arising from firmware upgrades to pre-configure EDMl devices for enrolment.
- DCC costs associated with the build, test and operational costs of the EDMl enrolment solution.
- The potential reduction in network benefits when compared to the counterfactual where EDMl meters are replaced with SMETS2 meters more quickly, as networks can access a broader suite of functionality on SMETS2 meters.
- There is assumed to be a temporary loss of benefits from energy savings and carbon and air quality benefits with EDMl meters as they were not installed with IHDs. In the enrolment scenario, we assume IHDs are installed by the end of 2021 and these benefits are restored. In the counterfactual, when EDMl meters are replaced with SMETS2 meters by the end of 2021, these benefits are assumed to be restored as an IHD would be expected to be installed at the same time as the SMETS2 meter.

17. In line with HM Treasury's Green Book guidance, which recommends focusing on the additional costs and benefits of each decision when appraising projects, core costs to deliver an enrolment service which is not specific to the EDMl enrolment set have been accounted for in the enrolment decision document published in October 2018 and are not considered again in this consultation.
18. At present, we do not believe there would be any specific significant adverse impacts on vulnerable consumers from the proposal not to enrol EDMl meters. The replacement duty means all reasonable steps should be taken to ensure benefits of SMETS2 meters are made available to all consumers with EDMl meters, irrespective of their individual circumstances.<sup>7</sup>
19. We recognise that this proposal may have implications for existing contractual arrangements between energy suppliers that installed or use EDMl meters and other industry parties. Our current view is that any potentially negative impacts on individual industry parties are outweighed by the wider public policy benefits of our proposed approach set out in this consultation.

## Conclusion

20. As it stands, we have no confidence that an EDMl SMETS1 enrolment service is technically achievable or that it would meet the security criterion. Nor is it considered likely that any further technical or security design work by DCC (potentially with a contracted third party) could be successful without EDMl Ltd support. It is also clear that allowing more time for development work in which DCC and we now have low confidence in a positive outcome would also increase the costs consumers have to bear for a solution which already appears uneconomic as it fails the net societal benefit criterion comprehensively in the analysis summarised in Annex B. In bringing this consultation forward now we are seeking to remove uncertainty for industry, minimise further sunk costs and to ensure there is sufficient time for industry to prepare for the replacement duty should the case remain against the enrolment of EDMl SMETS1 meters on the conclusion of this consultation.

In providing your consultation response, please provide quantitative evidence where possible.

## **Consultation Questions**

- |    |   |
|----|---|
| 1. | Do you agree that the DCC should not be required to offer SMETS1 services for the EDMl meter set?                                     |
| 2. | Are there any other costs additional to those included in the cost benefit analysis in annex B that you believe should be considered? |

<sup>7</sup> Distributional analysis regarding the impact from smart metering on groups with protected characteristics can be found in the 2019 Cost Benefit Analysis.  
<https://www.gov.uk/government/publications/smart-meter-roll-out-cost-benefit-analysis-2019>

3. Are there any other benefits additional to those included in the cost benefit analysis which you believe should be considered?
  4. Are there any other factors or impacts that we should consider in arriving at our conclusion?
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## **Chapter 2: SEC amendments to obligations on the DCC in relation to Telefonica as a SMETS1 Communications Service Provider (CSP)**

### **Background**

21. Telefonica is a SMETS1 Communications Service Provider (SMETS1 CSP) meaning it provides the communications for a subset of SMETS1 meters by relaying messages between meters, DCC Users and the DCC.
22. It should be noted that the Telefonica SMETS1 CSP service is separate and in no way related to the SMETS2 CSP service that Telefonica provides.
23. The DCC has adopted legacy CSP contracts from Smart Meter System Operators (SMSOs) that are not fully consistent with all aspects of the SEC's obligations. For Telefonica, the inconsistency relates specifically to Section G2.11, the notification of Major Security Incidents:

*The DCC shall, on the occurrence of a Major Security Incident in relation to the DCC Total System, promptly notify the Panel and the Security Sub-Committee.*

24. Given the distributed nature of the Telefonica SMETS1 CSP solution and the complex relationships between the various operating companies that comprise the Telefonica service, Telefonica is not able to agree to requirements to promptly notify the DCC of a major security incident.

### **Rationale**

25. Given the commodity nature of the Telefonica SMETS1 CSP Service that the DCC has procured and the limitations of being able to agree substantive changes to it, BEIS proposes to amend the wording in the SEC to reflect what has been agreed between the two parties whilst still aligning to the original policy intent of ensuring that the SEC Panel and SSC are notified in the event of a Major Security Incident involving the DCC Total System.
26. It should be noted that changes to Section G of the SEC were required for the IOC SMETS1 CSP for similar commercial limitations.

## Proposed amendments

27. BEIS proposes amending SEC Section G2.11

From:

*The DCC shall, on the occurrence of a Major Security Incident in relation to the DCC Total System, **promptly notify** the Panel and the Security Sub-Committee.*

To:

*The DCC shall, on the occurrence of a Major Security Incident in relation to the DCC Total System:*

- a) promptly notify the Panel and Security Sub-Committee (unless paragraph (b) applies); or*
- b) where the Major Security Incident relates to that part of the DCC Total System which consists of any parts of the SMETS1 CSP System in respect of which Telefonica UK Limited is the DCC Service Provider, notify the Panel and the Security Sub-Committee **as soon as is reasonably practicable**.*

### Consultation Questions

- |    |   |
|----|---|
| 5. | Do you agree with BEIS' proposal to amend security obligations in relation to Telefonica UK Limited in its capacity as a SMETS1 CSP?  |
| 6. | Do you agree with the proposed formulation of wording which sees "promptly" replaced with "as soon as is reasonably practicable" in the case of a Major Security Incident to the SMETS1 CSP system where Telefonica UK Limited is the DCC Service Provider? |

### **Chapter 3: Licence and SEC amendments to support standalone auxiliary proportional controllers (as well as associated changes relating to sub-meters) within the smart meter arrangements.**

#### **Background**

28. In August 2019, BEIS published a consultation on its proposal to add proportional load control functionality to the Smart Metering System (SMS). This change was to build on existing load control functionality provided by Auxiliary Load Control Switches (ALCs) and HAN Connected Auxiliary Load Control Switches (HCALCS) by enabling more precision and flexibility in the control of load for consumers. This new control functionality is being implemented through the designation of an additional Electricity Smart Metering Equipment (ESME) capability called Auxiliary Proportional Controller (APC) and an additional device called a Standalone Auxiliary Proportional Controller (SAPC). Unlike HCALCs and ALCs, which only provide binary levels of load control (on or off), SAPCs offer multiple levels of control.
29. The technical specifications for ESME APC functionality and SAPCs have been baselined at the Smart Metering Implementation Programmes (SMIP) Technical and Business Design Group (TBDG) and are planned to be incorporated into the SEC in November this year. In this consultation, we are proposing to make changes to the wider regulatory framework to prepare for the designation of these technical specifications. This includes modifying standard conditions of gas and electricity supply licences as well as the DCC licence and SEC<sup>8</sup>.
30. Unlike HCALCs, SAPCs are not joined to the ESME but only to the Communications Hub. This means that whilst HCALCs are necessarily linked to the same MPAN (Meter Point Administration Number) as the ESME, SAPCs do not have to be. MPANs are used as a security control on Change of Supplier (CoS) events. For a CoS event, this involves the incoming energy supplier submitting Service Requests to “take control” of the smart devices at the premises, replacing the old energy supplier’s security credentials. When processing these Service Requests, the DCC checks the registration data to confirm that the incoming energy supplier is to be associated with the relevant MPAN. Without the SAPC being associated with an MPAN that is shown as transferring to the incoming supplier in the Registration Data, it would not be possible for the SAPC to be transferred to that energy supplier on churn.

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<sup>8</sup> Please note that we have marked up the text for SAPCs against the existing Licence and SEC drafting. However, in January 2020, we consulted on changes to introduce device-specific technical specifications. We have not yet concluded on these proposals. However, if we do introduce the device-specific technical specification changes, this will affect the detailed nature of the legal drafting changes required to give effect to our proposals relating to SAPCs. Were we to do this, then SAPCs themselves would have their own technical specifications with their own Version numbers and the actual legal changes we would make would reflect the proposals included within this document amended slightly to fit also with the device-specific technical specifications changes.

31. To prepare for the designation of the technical specifications for ESMEs with APC functionality and SAPCs, and to provide regulatory clarity for CoS events, BEIS proposes generally to treat SAPCs like HCALCs in the SEC and licence conditions (whilst taking account of the technical differences in the way that the two devices work by making some additional provisions). BEIS proposes that SAPCs, where installed, must be associated with an MPAN that is associated with the premises in which it is installed, and that the incoming energy supplier must take over the SAPC on a CoS event. Arrangements for CoS to energy suppliers who chose not to support APCs are set out in previous consultations on this issue<sup>9</sup>.
32. We propose to extend the scope of the drafting to also cover “Additional ESMEs” within the premises i.e. additional ESMEs at a premises that are joined to the HAN but which are not used to determine the flow of electricity into the entirety of the premises. This could be, for example, because they are being used to measure and/or control the flow of electricity over a sub-circuit within the premises.
33. We are proposing that for both SAPCs and Additional ESMEs, where installed, the Responsible Supplier must ensure that:
- The Devices are Commissioned within DCC Systems (so that they are associated with an MPAN).
  - They are associated with an MPAN that relates to the supply of energy at the premises in which they are installed (so that they can transfer to the incoming supplier on churn).
  - The security credentials on the device are those of the Responsible Supplier for the premises (so that the incoming Responsible Supplier must take over the devices).<sup>10</sup>
34. We have also reviewed the application of Installation and Maintenance Validity Periods (I/MVPs) for HCALCS. The use of HCALCS is currently only constrained by the version of SMETS to which the device complies having a current MVP. We believe it necessary to constrain SAPCs to be installed to meet a SMETS Version with a current IVP and to subsequently be maintained to meet a Version of SMETS with a current MVP. This is to ensure new installations that control energy make use of devices complying with the latest specifications, while allowing existing installations to be maintained to older specifications. We are therefore proposing to adopt a consistent approach across HCALCs and SAPCs by changing the licence so

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<sup>9</sup> <https://smartenergycodecompany.co.uk/latest-news/beis-response-to-consultation-on-proportional-load-control-and-associated-smets-drafting-new-consultation-on-gbcs-and-chts-drafting/>

<sup>10</sup> We note that energy suppliers who do not support proportional load control can still put their security credentials on the device on CoS.

that HCALCS also meet a Version of SMETS with a current IVP when installed.

35. It may be desirable in the future for a party different from the main energy supplier to the premises to control an SAPC. For example, for charging an electric vehicle. If wider regulatory changes to enable this were to be made in the future, we would expect the arrangements proposed in this consultation to be reviewed.

## **Rationale**

36. The anticipated inclusion of ESMEs with APC functionality and SAPCs within the technical specifications in November has led BEIS to consider making amendments to electricity and gas supply licences, the DCC licence, as well as the SEC to ensure the energy supplier controlling an SAPC is the licensed supplier for the relevant premises. The alternative is to do nothing. This would mean that the supplier of energy for a premises might not be capable of taking control over SAPCs at premises on churn and that a supplier who was no longer the supplier of electricity at a premises could continue to retain control over an SAPC on churn.
37. In addition, this consultation provides an opportunity to review the treatment of auxiliary load control devices from a regulatory standpoint and to update the regulatory treatment of HCALCS to constrain the installation of older devices.

## **The proposed amendments**

38. BEIS proposes to make amendments to:

- The Electricity and Gas Supply Licences.
- Sections A – Definitions and Interpretations, F – Smart Metering System Requirements (F2 Central Products List, F11 ALCS, HCALCS, SAPC Labels List), and G – Security (System Security: G2 Obligations on the DCC, G7 Security sub-Committee) of the SEC.
- The DCC Licence (Chapter 1: Condition 1: Definitions for the Condition of this Licence [Part A – Definitions arranged in alphabetical order], Appendix A Adoption of Energy Supplier Contracts: Condition 17. Requirements for the Provision of Services [Part E – Terms for provision of the Communications Hubs Service], and Chapter 6: Condition 22: The Smart Energy Code [Part G - Incorporations of Documents in the Smart Energy Code.]



## Consultation Questions

7. Do you agree that SAPCs and Additional ESMEs should be Commissioned within DCC Systems (so that they are associated with an MPAN)?
8. Do you agree that the MPAN should relate to the supply of energy at the premises in which they are installed (so that they can transfer to the incoming energy supplier on churn)?
9. Do you agree that the security credentials on SAPCs and secondary ESMEs are those of the Responsible Supplier for the premises (so that the Responsible Supplier is the one that has control over the devices)?
10. Do you agree that installed SAPCs and HCALCs should meet a SMETS Version with a current Installation Validity Period (IVP) and to subsequently be maintained to meet a Version of SMETS with a current MVP?
11. Do you agree that installed HCALCS should meet a SMETS Version with a current Installation Validity Period (IVP) on install and subsequently be maintained to meet a Version of SMETS with a current MVP?

## **Chapter 4: Matters relating to inclusion of registration data identifiers within XML certificates**

### **Background**

39. In January 2020, BEIS consulted upon proposals to introduce a new type of Organisation Certificate for Users – an “Extensible Market Language (XML) Signing Certificate.” BEIS’s conclusions on this issue are still outstanding. Respondents were broadly supportive.
40. We also note that the SEC Panel is progressing proposals to protect consumers (particularly pre-payment consumers) in the event of a Supplier of Last Resort (SOLR) being appointed to take over from a failing supplier. Whilst these initiatives are still under discussion, we recognise that some of the provisions we are proposing to introduce, such as requiring Organisation Certificates to be revoked when a SEC Party ceases to be an Eligible Subscriber (e.g. because its licence has been revoked), would potentially need to be subsequently modified to accommodate the SEC Panel’s initiatives on SOLR.
41. BEIS’s principal reason for introducing the new type of Certificate is to support additional processes that will be associated with the implementation of Enduring Change of Supplier (ECoS) arrangements. BEIS is proposing that one of the fields in the XML Signing Certificates may be populated with Registration Data identifiers of energy suppliers. This would allow for the establishment of a cryptographically assured relationship between a Registration Data identifier and a single supplier Party. This relationship would then be relied upon when the DCC carries out checks as part of processing Service Requests associated with change of supplier events under the ECoS arrangements.
42. Our proposal is to introduce these new certificate types and allow for them to be populated with the Registration Data identifiers so that if the Security Sub Committee (SSC) or the SMKI Policy Management Authority (SMKI PMA) wished to progress further SEC changes to require enforcement of key separation (to prevent XML being signed with keys that are also used to sign Commands), they could do so against the backdrop of our having introduced certificates that will be capable of continuing to be used once the ECoS reforms have been introduced and hence would not need to be subsequently replaced. We have discussed this approach with the SMKI PMA and they are supportive.
43. Our original intent had been to deal with the detail of the population of the certificates with Registration Data identifiers in SEC subsidiary documents. However, on further consideration, we think that additional main body SEC changes are needed to support the arrangements. In this consultation we are also inviting views on the proposed changes to affected SEC subsidiary documents and these further main

body changes. We also think there is a benefit in consultees being able to see all the proposed changes in a single package.

44. We wish to continue with the introduction of XML Signing Certificates as per our January consultation. In support of these arrangements we have set out changes to:

- The Organisation Certificate Policy (SEC Appendix B);
- The SMKI Registration Authority Policies and Procedures (SEC Appendix D); and
- The SMKI Interface Design Specification (SEC Appendix M).

45. The changes to the Organisation Certificate Policy permit the relevant field in an XML Signing Certificate issued to an energy supplier to include Registration Data identifiers. The changes to the SMKI RAPP explain what checks the Registration Authority must apply to Certificate Signing Requests (CSRs) for XML Signing Certificates from energy suppliers. Where an energy supplier seeks to be Issued with Certificate containing Registration Data identifiers, the checks would include whether the identifier is associated with that energy supplier in the Party Details and that there is no other in-use XML Signing Certificate that associates a different energy supplier with that identifier. The changes to the SMKI Interface Specification set out the revised detail of how the relevant CSRs should be constructed.

46. The additional changes that we are proposing to make to the SEC are provisions that allow disputes over whether a particular supplier “owns” a Registration Data identifier to be resolved. Under normal circumstances, we would not expect any such disputes to arise and if an identifier were wrongly associated with a particular energy supplier, we would expect that energy supplier to seek a revocation of the relevant certificate. However, it is possible that disputes could arise over the allocations and we propose that these would be determined by the SEC Panel with a right of appeal to the Authority. We are also proposing changes to the BSC and the UNC to require relevant bodies under those codes to support the SEC Panel in any necessary investigation.

## **Rationale**

47. Ultimately, BEIS will need to make these changes to support the ECoS arrangements. However, we propose to introduce the new XML signing certificate early to give energy suppliers the opportunity to use them in advance of the ECoS arrangements taking effect. Introducing these additional fields will ensure that Certificates issued now will continue to be fit for purpose when the ECoS reforms are introduced. Moreover, introducing the changes now gives time for any issues over ownership of registration data identifiers by energy suppliers to be resolved.

## The proposed amendments

48. We are proposing changes to Section L of the SEC (Smart Metering Key Infrastructure and DCC Key Infrastructure). Specifically, we are proposing to include drafting on *Unique Identifiers* to reflect the policy intent stated above. This can be seen at paragraphs L3.25-L3.33. The proposed definition of a *Unique Identifier* can be seen at paragraph L3.34(e).

49. The change that we are proposing to the BSC is to modify paragraph 3.1.2 of Section B of the Code to include a new sub-paragraph “(o)” as follows:

*“3.1.2 Without prejudice to paragraph 3.1.1, the powers, functions and responsibilities of the Panel shall include the following:*

*...*

*(o) providing to the Smart Energy Code Panel such information, support and assistance as it may reasonably request for the purposes of exercising its function of making a determination under either Section L3.29 or Section L.3.30 of the Smart Energy Code, and providing to the Authority such information, support and assistance as it may reasonably request for the purposes of exercising its function of deciding any appeal brought under Section L3.33 of the Smart Energy Code.”*

50. The change that we are proposing to the UNC is to add a new paragraph 6.2.3 to the UNC General Terms Section D, as follows:

*“6.2.3 The CDSP shall provide to the Smart Energy Code Panel such information, support and assistance as it may reasonably request for the purposes of exercising its function of making a determination under either Section L3.29 or Section L.3.30 of the Smart Energy Code, and shall provide to the Authority such information, support and assistance as it may reasonably request for the purposes of exercising its function of deciding any appeal brought under Section L3.33 of the Smart Energy Code.”*

51. We are specifically inviting views from those involved in the management and operation of the BSC and UNC as to whether the above proposed changes are the most appropriate changes to give effect to our desired policy in this area – i.e. that the support and assistance would be given to the SEC Panel or Ofgem regarding allocation of registration data identifiers to suppliers in the (unlikely) event that such assistance was needed.

## Consultation Questions

12.	Do you agree that XML certificate types should be populated with Registration Data identifiers?
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|-----|---|
| 13. | Do you agree that any disputes that arise over Registration Data identifiers should be determined by SEC Panel with right of appeal to the Authority? |
| 14. | Do you agree with the proposed SEC changes and the changes to SEC subsidiary documents as set out above?  |
| 15. | Do you agree with the proposed changes to the BSC and UNC?  |
-

## Chapter 5: Changes to Alt HAN charging arrangements

### Background

52. On 17 December 2015, BEIS consulted upon the delivery model and regulatory requirements for Alt HAN<sup>11</sup>. Alt HAN is the generic name given to the solution that provides an alternative Home Area Network (HAN) in premises that cannot be effectively served by a standard HAN. In the consultation document and the subsequent Government conclusions<sup>12</sup>, the Government set out its policy for how Alt HAN charges should be structured, stating that Explicit Charges for Alt HAN should be levied on energy suppliers once the Alt HAN Equipment has been installed in the premises, irrespective of whether or not a Smart Metering System has been installed at the premises.
53. Through discussions with the Alternative HAN Company (Alt HAN Co)<sup>13</sup>, it has come to our attention that the SEC drafting does not fully reflect this policy and that the SEC could be clearer in setting out how the policy should be applied. As mentioned, BEIS's policy for both Point-to-Point Alt HAN Equipment and Shared Solution Alt HAN Equipment is that energy suppliers should pay for Alt HAN costs from the date that the equipment is installed, irrespective of whether there is a Smart Metering System installed in the premises at the time of Alt HAN installation. In addition, all MPANs and MPRN within a premises where Alt HAN Equipment is installed should typically incur an Explicit Charge. However, the current SEC drafting is that charges are only made when a Smart Metering System is installed in the premises and associated with the relevant MPAN or MPRN.
54. We are proposing to make amendments to Section K of the SEC to clarify how Explicit Charges relating to Alt HAN should be incurred, i.e. that the charges should apply from the date of installation of the Alt HAN equipment, irrespective of whether a Smart Metering Systems has been installed, to all MPANs and MPRNs within a premises. We are also proposing changes to Section Z of the SEC to clarify the information that must be provided to DCC to support its levying of the Alt HAN related charges under the SEC. There is an in-train SEC modification (DP114) that, depending on whether it is approved and its timing, could slightly alter the detail of the legal changes that we would make.

### Rationale

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<sup>11</sup>[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/486339/Consultation\\_on\\_Alternative\\_HAN\\_Solutions.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/486339/Consultation_on_Alternative_HAN_Solutions.pdf)

<sup>12</sup>[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/519048/Alt\\_HAN\\_Response\\_27\\_April\\_2016.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/519048/Alt_HAN_Response_27_April_2016.pdf)

<sup>13</sup> <https://www.althanco.com/>

55. The proposed changes would update the SEC to reflect the original policy intent.

### **The proposed amendments**

56. We are proposing to make amendments to Section K7 of the SEC – Determining Explicit Charges (paragraphs t, u, and v) and Section Z4 of the SEC – Alt HAN Costs and Budgets (paragraphs Z4.16 (b), Z4.23 (a), (b), Z4.24 (a), (b), (c), Z4.25 (a), (b), (c), Z4.30 (a), (b), (c), Z3.31 (a), and Z4.36 (a) and (b)).

### **Consultation Questions**

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| 16. | Do you agree with our proposed amendments to Sections K and Z of the SEC to clarify how Explicit Charges relating to Alt HAN should be made? |
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## Chapter 6: Minor Correction to Section L3.18(b) of the SEC

### Background

57. There is an error in the table in Section L3.18(b) which we propose to correct. In the row relating to “s1SPxmlSigning”, the DCC Live Systems paragraph that is referred to should read “(h)” instead of “(g)”.

### Rationale

58. We have identified an error and therefore wish to correct it.

### The proposed amendments

59. We propose to amend “(g)” to “(h)” in the row relating to “s1SPxmlSigning” in the table in Section L3.18(b) of the SEC.

### Consultation Questions

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| 17. | Do you agree with our proposed amendments to Section L3.18(b) to correct the typographical error relating to “s1SPxmlSigning”? |
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## Annex B: EDMl SMETS1 meter enrolment cost benefit analysis

### Cost-Benefit Analysis of enrolment

1. This annex provides an explanation of the costs and benefits of enrolling EDMl SMETS1 meters into the DCC network. The analysis assesses the costs and benefits of enrolment relative to a counterfactual option.
2. In the counterfactual option, meters are not enrolled into the DCC and some customers who switch energy supplier either lose their smart services or have their meter replaced. By the end of 2021, we assume that any unenrolled EDMl meters will have been replaced with a new SMETS2 meter to comply with the proposed end 2021 replacement duty. This is the same counterfactual as used for the consultation on the enrolment of Secure SMETS1 meters<sup>14</sup> but has been revised to reflect the amended SMETS1 replacement duty<sup>15</sup>.
3. In the enrolment option, meters are enrolled into the DCC. In this option, meters are assumed to become interoperable within 6 months of the point that the capability for enrolment goes live (assumed to be end of June 2021, on the basis of the current Joint Industry Plan). Suppliers would have 6 months to enrol before the replacement duty applies. This has a minimal impact on the cost benefit analysis. Most meters that have lost smart services on churn will regain smart services and become interoperable once these meters are enrolled. All meters that churn after enrolment are assumed to stay smart.
4. The enrolment of SMETS1 meters into the DCC network would provide a number of benefits to consumers and the energy industry. Notably, it would enable consumers to retain smart services on change of supplier and supports their engagement with the energy market. It also leverages operational cost savings for energy suppliers through a centralised service for operating all smart meters (i.e. DCC). A significant amount of the benefit of enrolment would occur from the avoided cost of meter replacements and the reduced time cost to consumers of having their smart meter replaced as well as benefiting from regaining smart services earlier compared to the counterfactual option.
5. As with the other SMETS1 meter sets, enrolment would lead to additional costs to the DCC to design, build, test and operate the enrolment solution, and to energy suppliers and other organisations to implement changes to support the solution. The methodology used to derive each cost and benefit area is provided in this annex. Where it has not been possible to quantify specific costs of enrolment, a provision has been made through the inclusion of optimism bias. This also captures residual uncertainty around costs. No equivalent provision has been made for benefits that have not been quantified but these have been described qualitatively and are material in the case for enrolment.

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<sup>14</sup> <https://www.gov.uk/government/consultations/enrolment-of-secure-smets1-meters-in-the-data-communications-company-dcc>

<sup>15</sup> Consultation response making licence and code changes published on 26 March 2020. In line with procedure under Section 89 of the Energy Act 2008, the final draft legal text was laid in Parliament on 26 March 2020: <https://smartenergycodecompany.co.uk/latest-news/beis-government-response-to-consultation-on-code-and-licence-changes/>

6. The costs to develop the core functionality to support enrolment were included as part of the decision for the first four meter sets, so they are not included in the assessment for EDMI (as also done with the Secure SMETS1 meters appraisal). This approach is in line with HM Treasury Green Book guidance, which recommends focussing on the additional costs and benefits of each decision when appraising projects.<sup>16</sup>
7. All figures presented in this annex are present values that have been discounted to 2016 using the HM Treasury Green Book social discount rate and are expressed in 2011 prices, unless otherwise stated. This is consistent with methodology for the previous assessments for the other meter sets.
8. The cost benefit analysis presented here is very similar to the one completed for Secure meters, with updated assumptions consistent with the 2019 Smart Meter Cost Benefit Analysis. Additionally, assumptions around the rate of switching, DCC costs, meter numbers, the replacement duty, assumed type of installations and the rate and point in time where meters are enrolled have been updated.

### DCC costs

9. DCC would incur costs to design, build, test and operate an enrolment service for EDMI meters.
10. Some costs form part of the core functionality required to deliver an enrolment service and would be expected to be incurred irrespective of the number and type of meters that are enrolled. These costs were included in the previous assessment for the first four meter sets and have not been re-applied. This includes:
  - Most of the DCC internal costs to deliver the SMETS1 Enrolment & Adoption programme.
  - Most external service provider costs, such as the costs of alterations to the Data Service Provider system and most costs of the Dual Control Organisation (DCO).
11. Other costs will only be incurred when a specific meter set is enrolled. This includes, in the case of EDMI meters, the cost to design, build, test and operate the solution, taking into account the changes required by the existing Smart Meter System Operator (SMSO) along with any new service providers to support a DCC service and the provision of an ongoing communications service.
12. To inform this assessment, DCC provided an updated cost model with estimates for each of the cost categories above.
13. Some of the costs incurred by the DCC will not be additional to the costs incurred in the counterfactual option. This includes:

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<sup>16</sup> HM Treasury Green Book <https://www.gov.uk/government/publications/the-green-book-appraisal-and-evaluation-in-central-government>

- The cost of security enhancements in the form of system hardening that energy suppliers and SMSOs would be expected to incur as part of ongoing security reviews.
  - Ongoing data and communication costs, which are currently paid to SMSOs by energy suppliers.
14. The analysis reflects that there would be fewer meters over time in the counterfactual option due to some being replaced when a customer switches energy supplier and any unenrolled meters being replaced with SMETS2 meters by the end of 2021 in line with the proposed licence obligation on energy suppliers to do so. When a SMETS1 meter is replaced with a SMETS2 meter it is expected that the ongoing SMSO costs for that meter would no longer be incurred.
15. To account for the remaining uncertainty, the DCC has included optimism bias on top of its estimated costs. This has been calculated separately for each cost category by combining information on the upper bound for optimism bias recommended in the HM Treasury Green Book supplementary guidance on optimism bias with information on the mitigation actions taken by DCC that would reduce the risk of cost escalation. An initial review has been conducted on the optimism bias provided by DCC – given the high level of uncertainty on the costs it is difficult to say whether this is adequate, but comparison with estimates provided for previous meter sets suggests this is a sensible indication of enrolment uncertainties.
16. DCC's specific costs for the enrolment of EDM1 meters are estimated to be in the range of £25-30 million.<sup>17</sup>

### Energy Supplier Costs

17. Energy suppliers operating EDM1 meters in smart mode will incur additional costs to enrol these active meters which include:
- IT system changes, including to metering, billing and Customer Relationship Management (CRM) systems, to support the operation of meters via the DCC as opposed to via an SMSO.
  - Testing and migration costs as part of the programme of work to enrol meters in the DCC to validate that the meters energy suppliers enrol will function as required.
  - System decommissioning costs to close down legacy services.
  - The cost of firmware upgrades.
  - The cost of replacing any meters that are cannot be enrolled.
18. The costs of IT systems changes, testing and migration, and system close down to enrol EDM1 meters mentioned above were estimated using information collected by

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<sup>17</sup> Our analysis uses a central estimate provided by DCC, broken down into the areas of cost that are expected to be incurred. However, a range is reported here and throughout this document because the exact figures cannot be disclosed for reasons of commercial sensitivity.

BEIS through an informal information request to a number of energy suppliers in 2018, prior to the specific consideration of costs relating to EDMl enrolment. Responses were received from five energy suppliers providing a range of cost estimates, reflecting the different approaches adopted by individual energy suppliers and the uncertainty around the activity and costs required to enrol meters in the DCC. The average cost across the five responses was used for each cost category. The Government response to the previous consultation on the first four meter sets allocated a portion of these costs to cover the energy suppliers that would be enrolling those meter sets. In this analysis for EDMl, the cost was scaled to cover the core costs to energy suppliers enrolling EDMl meters. Energy suppliers that have dormant EDMl meters will only incur these core energy supplier costs, with only energy suppliers with EDMl meters in smart mode incurring the EDMl-specific energy supplier costs described in paragraph 17 alongside the core costs.

19. In addition, all energy suppliers needing to operate gained meters via the DCC will need to implement changes to their systems, resulting in additional costs. The costs of IT and business changes to operate gained meters via the DCC were also estimated at the consultation stage for the previous four meter sets using the responses to the informal information request described above. The average cost across the five responses was used for each cost category and the costs were scaled up to cover all suppliers in the retail energy market. These costs were fully accounted for in the first four meter sets so are not included in this assessment and we received no further information to suggest these were unreasonable. This includes:

- IT changes to support enduring operation of SMETS1 meters via the DCC. This includes changes to a DCC adaptor service provider to process SMETS1 content in DCC User Interface Specification (DUIS) and Message Mapping Catalogue (MMC) and other changes to the Change of Supplier (CoS) process to identify gained SMETS1 meters and process them appropriately.
- Business changes to ensure customer service operations can support the various meter types their customers have.

20. The cost of firmware upgrades mentioned above has been estimated by utilising the number of firmware upgrades needed to pre-configure EDMl devices for enrolment and the cost to roll out the firmware images to relevant devices.

21. This cost-benefit analysis uses prudent modelling assumptions in line with the HM Treasury Green Book. For instance, a prudent assumption of 2% has been made for devices that may fail upon migration and would require replacement to meet licence obligations. This does not reflect any certain expectation that this issue will arise; however, it has been included to reflect a potential risk. The 2% value is based on an analysis of communication performance and is consistent with our analysis for the enrolment of previous meter sets. It has been informed by the conversion rate of delivering firmware upgrades to make meters SMETS1-compliant, since any meter without a stable communications link would not be able to receive the firmware upgrade. In addition, we assume 1% of meters dilapidate each year in both the counterfactual and enrolment options.

22. Responses to the consultation on the first four meter sets identified several other cost categories, although respondents did not provide sufficient evidence that would enable these costs to be quantified. To account for these additional costs and given the uncertainty that remains around the migration and testing costs, an optimism bias uplift of 10% has been applied to all energy supplier costs.
23. The cost to energy suppliers of specifically enrolling EDM1 meters is estimated to be £1m (£0.8m unrounded). The cost of unenrolled devices at the start of migration has been accounted for through a reduction in the avoided costs of replacing meters with another smart meter which is explained in the benefits section below.

#### Network operator and third-party costs

24. In the previous consultation for the first four meter sets, it was identified that other parties that connect to the DCC will have to make changes to their systems to handle SMETS1 interaction via the DCC. In particular, network operators will need to identify differences between SMETS1 and SMETS2 devices in order to correctly interpret data returned from devices. As these costs, which are not expected to vary by meter type or number of meters enrolled, were accounted for in the previous consultation on the first four meter sets they are not applied again here.
25. A provision for the potential additional costs to third parties to distinguish between SMETS1 and SMETS2 devices has been made. These were also accounted for in the previous consultation on the first four meter sets and are not applied again here.
26. The initial outlay for Meter Asset Providers (MAPs) and the income they would have expected over the lifetime of the asset is not explicitly accounted for in this analysis because the outlay has already occurred. So, in both the enrolment and counterfactual scenarios, this cost is paid regardless. This analysis only looks at any costs that are additional. So, in this case we have only accounted for the additional cost from bringing forward the replacement of a meter in the counterfactual (i.e. the early replacement costs).

#### Total Costs

27. The total cost for enrolling EDM1 meters is estimated to be within the range of £26-31m. The majority of the costs for enrolment are from DCC costs, which total £25-30m once costs that are already sunk are excluded. There are £1m of supplier costs.

#### Benefits

28. Due to the proposed end 2021 replacement obligation, we assume that by the end of 2021 any unenrolled SMETS1 meters will be replaced with a new SMETS2 meter. The cost of replacing meters shown in this appraisal is the additional cost of replacing meters earlier than would be the case if they remained on the wall for their expected lifetime. EDM1 did not offer SMETS1 gas meters at the time of installations so only the electricity meter was replaced. For the purposes of this analysis, we

assume that the majority of premises in scope are dual fuel households with a traditional gas meter. The EDMl meter replacements for these households are likely to occur as part of a dual fuel installation so the cost of the installation will benefit from a dual fuel efficiency saving (i.e. the cost of replacing both meters at the same time is cheaper than changing each meter on two different visits). Half of the dual fuel efficiency saving has been allocated to the EDMl meter replacement in these households, which slightly reduces the cost of meter replacements. For modelling purposes, we have assumed that meter replacements would occur at the end of 2021. This is a prudent assumption because meters would realistically be replaced spread over time before the end of 2021, which would increase the cost of replacements in the counterfactual. Meters are assumed to be enrolled over a six-month window. DCC enrolment would avoid the loss of benefits where a meter loses smart services on change of supplier, and the additional costs of meter replacements.

29. In the absence of DCC enrolment, all customers with EDMl meters who switch energy supplier are assumed to lose smart services. The number of customers who lose smart services in the counterfactual option has been estimated by combining assumptions on the number of customers who switch energy supplier each year and the interoperability of those meters. Based on the latest Ofgem State of the Market report, customers are assumed to switch supplier at a rate of 20% per annum, and around a quarter of customers are assumed not to switch supplier over the course of the meter's lifetime so this analysis uses the overall market switching rate for its central estimate. This analysis only considers the EDMl meters remaining on the wall and which have not been replaced.
30. We assume that all customers who switch to a different energy supplier lose smart services on their EDMl meter as these meters are not interoperable because other energy suppliers are unable to run these meters in smart mode.
31. In the counterfactual, for consumers who lose smart services on switching before the proposed end 2021 replacement obligation applies, we have assumed that a small proportion have already had their meter replaced. The rate of replacement is based on data reported to BEIS by energy suppliers.
32. The avoided cost of replacing meters and value of retaining smart services have been monetised using values taken from the 2019 BEIS Smart Meter Cost-Benefit Analysis. The costs of financing meter equipment and installations have been annuitised over the lifetime of the meter and uplifted for optimism bias. The analysis draws on a range of evidence, including cost estimates provided by industry, academic studies, international comparisons and research commissioned by the Programme into the benefits of smart metering.
33. Benefits are assumed only to be realised once enrolment capability has been provided and the meters have been migrated to the DCC system. For the purposes of this analysis, we assume that DCC will release the capability for enrolment of

EDMI meters at the end of June 2021. Energy suppliers are assumed to enrol meters at a constant rate and complete their migration 6 months after the start of July 2021.

34. The analysis includes an estimate of the avoided time cost to consumers that enrolment provides, by avoiding the need for a meter to be replaced before the end of its lifetime. This has been calculated using relatively conservative assumptions on the time it takes for a consumer to arrange and be in for an installation and has been valued using the values of time in the Department for Transport's guidance on time valuation. This is the same method as was used in the analysis for the other meter sets and is consistent with the 2019 BEIS Smart Meter Cost-Benefit Analysis. Most of the EDMl meter replacements are assumed to occur at the same time as traditional gas meter replacement so this cost is likely to be minimised, however, it has been maintained in this analysis as a prudent assumption.
35. There is a reduction in benefit from enrolment caused by the fact that only SMETS2 meters gain from certain network benefits. Additionally, as EDMl meters were not installed with in-home displays (IHDs), these meters do not benefit from energy savings and carbon and air quality benefits until they have an IHD installed. Replacing these meters with SMETS2 meters would allow them to generate these benefits. However, we have assumed an IHD would have been installed for EDMl meters by the end of 2021. In the enrolment scenario fewer meters are assumed to be replaced by a SMETS2 meter as they are assumed to be enrolled and, therefore, do not need to be replaced. The network benefits, energy savings and carbon and air quality benefits per meter are consistent with the 2019 BEIS Smart Meter Cost-Benefit Analysis.
36. A number of additional benefits were identified during the consultation on Secure meters that we did not have enough information to quantify. These benefits also apply to the EDMl meter set and remain unquantified:
  - a. Facilitating competition through removing barriers to switching and encouraging customers to move supplier.
  - b. Creating a single point of responsibility for the end-to-end architecture and security for meters, and any changes to these. This will enable issues (especially those related to security) to be managed more effectively.
  - c. Creating a single point of responsibility for communication with devices and management of incidents associated with those devices.
  - d. Avoiding reputational damage to the Programme and consumers continuing to lose smart services on churn.
  - e. Preventing customer complaints (and associated costs to manage them) resulting from customers not being able to benefit from the smart metering customer experience.
  - f. Avoiding additional costs for Meter Operator Providers (MOPs) when they are needed to deliver the smart meter rollout.
  - g. Providing third-party access to data to enable innovation.

h. Additional security benefits.

37. The total benefits of enrolment are £7m. The majority of this benefit is derived from the avoided cost from having to replace meters. There is a small amount of benefit derived from avoiding the loss of smart services and reduced time cost to consumers from having meters replaced. There is a small amount of lost benefit from reduced network benefits, energy savings and carbon and air quality benefits from not replacing these meters.

## Results

38. Enrolment of EDMl meters with the DCC is estimated to provide an overall net disbenefit to Great Britain of £19-24m. This means the quantified cost-benefit analysis as set out in this annex in itself does not support a decision requiring DCC to offer enrolment services to EDMl meters. A breakdown of the costs and benefits are shown in table 2 below.

**Table 2: Detailed results of costs and benefits of enrolment (2011 prices, 2016 present values, central assumptions; note that figures are rounded)**

	£ (2011 Prices, 2016 present values, central assumptions)
DCC costs to design, build, test and operate the enrolment solution for EDMl	£25-30m
Energy Supplier costs	£1m
<b>Total costs</b>	<b>£26-31m</b>
Avoided meter replacements	£7m
Avoided loss of smart services	£0m
Loss in network benefits, energy savings, carbon and air quality benefits and avoided hassle	£-0m
<b>Total benefit</b>	<b>£7m</b>
<b>Net Present Value (NPV)</b>	<b>-£19-24m</b>

39. The NPV shows that, to achieve the desired outcome for all consumers to have a smart meter offering smart services, replacing EDMl SMETS1 meters with SMETS2 meters, as opposed to enrolling them, is the lower cost option. On a per-meter basis,



the cost of enrolment is substantially higher than the cost of installing a replacement meter.

- 40. The key cost affecting enrolment is the DCC costs to design, build, test and operate the enrolment solutions. Most of these costs are fixed regardless of the number of meters that are being enrolled.
- 41. As per Green Book guidance, only costs and benefits affected by decisions still to be made have been included. Therefore, the core DCC and supplier costs, that were included for the first four meter sets are not included here again as they are incurred regardless if EDM1 meters are enrolled.
- 42. The overall NPV is negative on quantified terms, and our view is that, even accounting for unquantified benefits, the analysis does not support enrolment of EDM1 SMETS1 meters.

### Sensitivity Analysis

- 43. The impact of assuming enrolment occurs over 12 months as opposed to 6 months reduces the NPV by £0.3m.
- 44. If only meters that are currently connected and potentially capable of enrolment are enrolled, the NPV reduces by £1m to -£20-25m.
- 45. We have run sensitivity analysis with different scenarios around delivery timescales. Under all these scenarios the Net Present Value remains negative.
- 46. The cost of meter replacement is the additional cost of replacement before the end of the meter's working life based on meters being replaced at the end of 2021. If meters were replaced at the end of 2020, it would increase the cost of replacement as meters are replaced an extra year earlier than the end of their working life. This adds £1m the cost of replacing these meters. This means the cost of replacement would be £8m and the NPV would be -£18-23m.

### Consumer Impacts

- 47. The impact of the enrolment option on customers has been considered. A full distributional analysis is available in the 2019 Smart Meter CBA<sup>18</sup>, but specifically, enrolling these meters ensures the benefits of smart metering are available to all, whilst avoiding another installation visit to potentially vulnerable customers.
- 48. Enrolling these meters avoids the potential reputational impact on the Smart Meter Programme of having to replace these meters.

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<sup>18</sup> Smart meter roll-out: cost-benefit analysis 2019 page 67  
<https://www.gov.uk/government/publications/smart-meter-roll-out-cost-benefit-analysis-2019>

## Cost-Benefit Analysis of replacement

49. The alternative to enrolment is the counterfactual in the analysis outlined above. This is where EDMl meters are replaced with SMETS2 meters by the end of 2021.
50. The cost-benefit analysis for enrolment described in this annex supports a decision requiring EDMl meters to be replaced over enrolling them. As outlined in the analysis for enrolment, replacement of meters as opposed to enrolling them into the DCC would lead to a reduced cost of £19-24m. The total cost of replacing all these meters by end-2021 has been estimated as £7m.
51. If meters are not enrolled, an energy supplier mentioned in their consultation response to the first four meter sets that they would not be able to rationalise their smart meter systems. The supplier will have to carry on paying for a SMETS1 SMSO service and for the SMETS2 DUIS service. This will lead to an additional cost of £0.1m compared to enrolling these meters. This cost is relatively small because these meters would need to be replaced by the end of 2021 to comply with the end 2021 replacement duty. Additionally, in the enrolment option, meters are expected to enrol between July 2021 and the end of 2021 so will be incurring (although slightly reduced) SMSO charges during the same time period.
52. Customers with EDMl meters would need to be re-engaged by the energy supplier earlier than the end of the meter's expected lifetime in order to arrange an installation visit to replace these meters with a new SMETS2 meter. This cost is included within the cost of replacing the meter early. Most of these customers have traditional gas meters so the supplier would need to re-engage with them at some point to replace this meter with a gas smart meter, however, this cost has been included as a prudent assumption.
53. Energy suppliers may incur contractual costs from replacing meters earlier such as premature replacement charges (PRC), while MAPs may suffer a loss of revenue. However, these costs are considered economic transfers as they transfer purchasing power from one group to another and do not involve the consumption of resources, which is consistent with Green Book guidance<sup>19</sup>.

## Consumer Impacts

54. The impact of replacing these meters on customers has also been considered and the reduced overall costs – which would be expected to translate to lower consumer bills – are judged to outweigh the additional time cost to consumers of replacement. The impact on accessibility, maximising understanding, protecting customers and the impact on prepayment customers has been considered in the 2019 Smart Meter

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<sup>19</sup> HM Treasury Green Book <https://www.gov.uk/government/publications/the-green-book-appraisal-and-evaluation-in-central-government>

CBA<sup>20</sup> for the rollout of smart meters. The replacement of EDML meters will have similar impacts on consumers as outlined in the 2019 Smart Meter CBA because the rollout of Smart Meters involves a similar replacement of existing meters.

### Sensitivity Analysis

55. The cost of meter replacement is the additional cost of replacement before the end of the meter's working life based on meters being replaced at the end of 2021. If meters were replaced at the end of 2020, it would increase the cost of replacement as meters are replaced an extra year earlier than the end of their working life. This adds £1m the cost of replacing these meters. This means the cost of replacement would be £8m.

### Environmental impact

56. The cost-benefit analysis presented in this annex takes account of the carbon and air quality impacts of device energy consumption and consumer energy savings.
57. On removing a meter, there is an assessment whether the meter can be re-used, recycled or disposed. The 2019 CBA estimates the cost to dispose meters that are replaced as £1 per meter. So, the cost to dispose of all EDML meters does not materially affect the relatively lower cost of replacement. There are regulations in place to reduce the amount of electronic waste – including metering equipment – going to landfill. Many parts of a meter (up to 100%) can be recycled.

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<sup>20</sup> Smart meter roll-out: cost-benefit analysis 2019 page 67  
<https://www.gov.uk/government/publications/smart-meter-roll-out-cost-benefit-analysis-2019>