



Department for
Business, Energy
& Industrial Strategy

SMART METERING IMPLEMENTATION PROGRAMME

Consultation on the enrolment of Secure
SMETS1 meters in the Data Communications
Company (DCC)

Closing date: 2 April 2019

March 2019



OGL

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Any enquiries regarding this publication should be sent to us at:

smartmetering@beis.gov.uk

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General information

Why we are consulting

This consultation seeks stakeholders' views on the proposal to require the Data Communications Company (DCC) to provide an interoperable smart meter service for the Secure SMETS1 meter set. There will be a further consultation on the remaining SMETS1 EDMI meter set once there is sufficiently mature information from existing and prospective service providers and the DCC.

Consultation details

Issued: 4 March 2019

Respond by: 2 April 2019

Enquiries to: smartmetering@beis.gov.uk

Smart Metering Implementation Programme,
Department for Business, Energy & Industrial Strategy,
2nd Floor, Spur1 Victoria Street,
London, SW1H 0ET.

Consultation reference: Consultation on the enrolment of Secure SMETS1 meters in the Data Communications Company (DCC).

Territorial extent:

This consultation applies to the gas and electricity markets in Great Britain. Responsibility for energy markets in Northern Ireland lies with the Northern Ireland Executive's Department for the Economy.

How to respond

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 by email to smartmetering@beis.gov.uk and hardcopy responses sent to the BEIS postal address will also be accepted.

Write to:

Smart Metering Implementation Programme,
Department for Business, Energy & Industrial Strategy,
2nd Floor, Spur1, Victoria Street,
London, SW1H 0ET.

A response form is available on the GOV.UK consultation page:
www.gov.uk/government/consultations/

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

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

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 [GOV.UK](#). The summary will include a list of names or organisations that responded, but not people's personal names, addresses or other contact details.

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.

Introduction

Smart Metering Implementation Programme

1. The development of a world-leading smart energy system delivering secure, cheap and clean energy is an important part of the Government's Industrial Strategy.¹ As our Clean Growth Strategy highlights, smart technologies and services will play a vital role in decarbonising the energy sector.² Smart meters are an essential upgrade to our energy infrastructure, enabling a smarter energy system and enabling energy consumers to be better informed and engaged.
2. The Government is committed to ensuring that smart meters will be offered to every home and small business in Great Britain by the end of 2020. The smart meter rollout will deliver a much needed digital transformation of our energy system. The rollout is not only an investment in our future; it will also support, for example, the delivery of tangible and immediate energy-saving benefits for households and small businesses across Great Britain. And it is an important foundation for the Government and Ofgem's Smart Systems and Flexibility Plan which was published in 2017.³ This Plan sets out a number of actions to deliver a smarter, more flexible energy system that supports innovation in new smart products and services and progress against these actions was published in 2018.
3. Energy suppliers are responsible, under standard conditions of electricity and gas supply licences ('supply licence conditions'),⁴ for taking all reasonable steps to roll out smart meters to all domestic and smaller business premises in Great Britain by the end of 2020. The Government's role includes providing the right framework against which energy suppliers can plan, and ensuring benefits are delivered to consumers.
4. The most recent Cost-Benefit Analysis of the Smart Meter roll-out was published in November 2016. This estimated the costs and benefits associated with the national roll-out of smart meters and identified a substantial net benefit from the Programme of £5.7 billion for the period to 2030.⁵ An updated Cost-Benefit Analysis will be published in Summer 2019.
5. The Smart Metering Implementation Programme will drive a number of key benefits including:
 - Contributing to the UK having a secure and resilient energy system.
 - Providing near real-time information on energy cost and usage encouraging consumers to reduce demand and enable faster switching between suppliers. This in turn will lead to a more dynamic and competitive retail energy market.

¹ See: <https://www.gov.uk/government/topical-events/the-uks-industrial-strategy>

² See: <https://www.gov.uk/government/publications/clean-growth-strategy>

³ See: <https://www.gov.uk/government/publications/upgrading-our-energy-system-smart-systems-and-flexibility-plan>

⁴ See: <https://www.ofgem.gov.uk/licences-codes-and-standards/licences/licence-conditions>

⁵ See: <https://www.gov.uk/government/publications/smart-meter-roll-out-gb-cost-benefit-analysis>

- Providing the foundation for a range of innovative energy services, which will enhance consumer choice and control.

Background to SMETS1 policy

6. The roll-out of smart meters in Great Britain is being delivered in two stages – the Foundation Stage, which began in 2011, transitioning into the Main Installation Stage, which commenced in November 2016. This was the point when the national data and communications provider, the Data Communications Company (DCC), became operational.
7. A standard for the minimum common functionality of smart meters deployed during the Foundation Stage, known as SMETS1, was defined in 2012. This addressed the variability in the smart-type meters which some energy suppliers were already installing and helped ensure consumers received a consistent, minimum service offer. In allowing for SMETS1 meters to count towards energy suppliers' 2020 roll out targets, government sought to foster early consumer benefits of smart metering and provide industry with valuable experience to support the subsequent deployment of smart meters at scale.
8. A number of energy suppliers have been installing first-generation (SMETS1) smart meters for their customers, using their own data and communications systems to provide smart services. Like second-generation (SMETS2) meters, SMETS1 meters provide the benefits of accurate bills and near real-time energy consumption information. However, these SMETS1 meters currently operate via data and communications systems put in place by individual energy suppliers, as opposed to a single national data and communications infrastructure which is accessible to all suppliers. Consequently, consumers may lose smart services on switching to another energy supplier, depending on which energy supplier they are switching to and from.
9. Our overall aim is to ensure interoperability for SMETS1 meters so that smart functionality is retained when a customer switches energy supplier. Our long-standing policy has been for all significant populations of SMETS1 meters to eventually be operated via the DCC to deliver this objective.⁶
10. Enrolment of SMETS1 meters with the DCC would provide a number of benefits to consumers and the energy market, in particular:
 - Retention of smart services for consumers when they switch energy supplier.
 - Reduction of stranding risk for existing SMETS1 assets.⁷
 - A number of additional security controls core to the national data and communications service, such as Threshold Anomaly Detection, would be extended to these meters.

⁶ For example, a Programme update published in April 2012 confirmed that 'the Government has stated that all domestic Smart Metering Systems should be managed through the DCC and is keen to apply this principle, as far as possible, to meters installed in the Foundation Stage. See: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/68976/Smart_metering_programme_update_-_April_2012.pdf

⁷ Namely the risk of suppliers replacing their SMETS1 meters with SMETS2 meters before the SMETS1 meters reach their end of life.

- Efficiencies from rationalisation of smart metering interfaces and processes within energy supplier businesses.

SMETS1 policy

11. In April 2018, the Government consulted on options for ensuring DCC SMETS1 enrolment capability is used in a timely manner, with a view to ensuring consumers with SMETS1 meters can retain smart services whenever they switch energy supplier. Following consideration of stakeholder views, the Government issued its conclusions in October 2018, which were as follows:

- 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.⁸
- 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 (referred to as the "end-2020 backstop obligation").
- Once a SMETS1 meter has been enrolled in the DCC it may not be withdrawn and operated outside the DCC.

12. In line with procedure under section 89 of the Energy Act 2008, the final draft legal text were laid in Parliament in October 2018 and took effect in January 2019.⁹

13. The Government has also made amendments to the Smart Energy Code so that SMETS1 meters installed after a certain point - the SMETS1 end-date - will not count towards an energy supplier's obligation to take all reasonable steps to roll out smart meters to its customers by the end of 2020. In October 2018, the Government confirmed the SMETS1 end-date and the Advanced Meter Exception end-date as 5 December 2018 for meters operating in credit mode and 15 March 2019 for meters operating in prepayment mode.

Background to the DCC Enrolment & Adoption Programme

14. In March 2015 the Government directed the DCC to assess the feasibility of options for enrolling SMETS1 meters in its system. This process concluded in May 2017 when the DCC submitted the final version of its Initial Enrolment Project Feasibility Report

⁸ '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 of 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.

⁹ 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>

(IEPFR) to the Department for Business, Energy and Industrial Strategy (BEIS), setting out a series of design options for the enrolment of SMETS1 meters into the DCC infrastructure.

15. In June 2017, the Government wrote to the DCC to provide guidance on narrowing and advancing its enrolment design options. The letter also stated that BEIS would ultimately decide on whether to proceed to enrolment and, if so, in respect of which meter marques (henceforth referred to as a 'SMETS1 meter set'), informed by the DCC's design work and a cost-benefit analysis.¹⁰
16. The DCC published a consultation in November 2018 on SMETS1 delivery that proposed amending milestones for its three phases of enrolment service delivery. Following consideration of the consultation responses, the DCC concluded in its response published 13 February 2019, that subject to a "go" decision from the Secretary of State, Secure would be positioned in the second phase for service delivery commencing end September 2019 (Middle Operating Capability or "MOC") with EDMI placed in the final phase for service delivery, beginning 12 December 2019 (Final Operating Capability or "FOC").¹¹

Requiring DCC to provide SMETS1 services

17. In October 2018, the Government confirmed it would implement its April 2018 consultation proposal that would require DCC to provide SMETS1 services to four out of six SMETS1 meter sets, representing around two thirds of the meter population, in order to ensure interoperability for consumers. The four meter groups consisted of Aclara, Honeywell Elster, Landis+Gyr and Itron. In the Government Response, we stated our intention to consult on the remaining SMETS1 meter sets once sufficient information is available from further engagement between existing and prospective service providers and the DCC.¹²
18. Following provision of sufficient evidence from the DCC, its service provider and suppliers, we are now in a position to consult on whether DCC should provide a SMETS1 service in respect of SMETS1 Secure meters, representing the vast majority of the remaining third of the meter population.
19. We have not had sufficient information from DCC and its service providers to consult on the case for enrolling the smallest meter set, EDMI, which represent less than 1% of the remaining meters to be enrolled.¹³ Once sufficient cost, technical and security information is received, the Government intends to consult on whether DCC should be required to offer SMETS1 services for the EDMI meter set as soon as possible thereafter.

Sources

20. In order to inform our proposals in this consultation, the DCC provided BEIS with a cost model which set out firm and projected costs for providing SMETS1 services in respect

¹⁰ Meter marques or meter cohorts or meter sets are devices that comprise of a number of smart metering systems that are connected to a particular head end system.

¹¹ <https://www.smartdcc.co.uk/media/3057/smets1-lc13-revised-plan.pdf>

¹² <https://www.gov.uk/government/consultations/enrolment-of-smets1-meter-cohorts-with-the-data-communications-company>

¹³ Source: DCC data provided in DCC's cost model.

of the Secure meter set. The cost model has been informed by DCC's engagement with its service provider and other parts of industry. A number of energy suppliers have provided information to BEIS on supplier costs and benefits involved in enrolling the SMETS1 Secure meter set, principally as part of the previous consultation.¹⁴

Stakeholders are invited to provide their estimates for costs and benefits in response to the questions in this consultation which will be treated in accordance with the confidentiality and data protection statement provided at the beginning of this document.

21. Other sources of information provided to BEIS include a DCC report on its delivery confidence for the Secure meter set on the basis of information currently available as well as other technical considerations. The DCC also provided BEIS with security analysis relating to DCC's proposed SMETS1 security architecture (including a risk assessment report) in order to inform the Government's assessment of security risk and costs. The DCC's report has been informed by engagement between DCC and its service providers. The views of the SEC Panel Security Sub Committee on security issues has also been taken account.

22. The previous Smart Metering Implementation Programme Impact Assessments and the latest programme-wide Cost Benefit Analysis published in November 2016 made an allowance for enrolment, such that the cost and benefits for enrolment which are modelled separately for the analysis summarised below are not new and provision is made within the programme-wide Cost Benefit Analysis. In particular, a significant amount of the costs associated with enrolment are equivalent to SMETS1 data and communication costs currently borne by energy suppliers. We have undertaken a specific analysis on the costs and benefits of enrolment of the Secure SMETS1 meter set to inform this consultation, based on the latest available information.

23. For this consultation, we have set out factors considered in the cost-benefit analysis and the high level cost-benefit analysis range. The details of DCC's cost model and Government's related cost-benefit analysis have not been disclosed as this would result in the disclosure of commercially sensitive information.

Content of this consultation

24. This consultation considers whether there is a business case for enrolling the Secure meter set in the DCC. This business case is based on cost-benefit analysis and consideration of security and the technical feasibility of enrolment for this meter set.

The Proposal

25. The government's long-standing policy for ensuring interoperability for consumers is for all significant populations of SMETS1 meters to be operated via the national data and communications provider, DCC. This will be achieved by the underlying objectives:

- To make interoperability and smart benefits available quickly and reliably for all stakeholders;

¹⁴ <https://www.gov.uk/government/consultations/enrolment-of-smets1-meter-cohorts-with-the-data-communications-company>

- To do so in a cost-effective manner, taking account of the impact on businesses and consumers; and with
- An acceptable level of security for the end to end smart metering system.

26. In order to judge whether DCC should provide a SMETS1 service to Secure meters, the following criteria have been applied:

- Whether a net societal benefit exists.
- Whether there is an acceptable level of security for the end to end smart metering system.¹⁵
- Whether the delivery of a potential solution in respect of the meter type in question is technically feasible.

27. In order to assess the net societal benefit, the analysis compares two options:

- An Enrolment option, in which SMETS1 meters are enrolled in the DCC. In this option, SMETS1 meters become interoperable within 12 months of the point that the capability for enrolment goes live. All 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.
- A Do Nothing option, where no DCC enrolment takes place and most consumers who switch energy supplier either lose smart services or have their SMETS1 meter replaced with another smart meter. This analysis differs to that which was undertaken for the first four meter sets, to reflect the introduction into the regulatory framework of the SMETS1 end 2020 backstop obligation.

28. The assessment on security is based on information provided by DCC and the expert views of the SEC Panel Security Sub Committee (SSC) who are responsible for the management of the end-to-end security architecture.

29. The assessment on technical feasibility is based on consideration of the degree of confidence in the ability of the DCC to provide a technical solution that enables DCC, suppliers and other DCC Users to access the functionality on devices that it needs in order to enrol and provide a SMETS1 smart service to consumers.

Assessment

Societal cost-benefit analysis

30. Based on current information, enrolling the Secure meter set is estimated to provide a positive Net Present Value (NPV) to Great Britain of £346m under central assumptions, which supports the case for requiring DCC to provide a SMETS1 service for the Secure meter set. The NPV remains positive under scenarios with longer delivery timescales or

¹⁵ End to end smart metering system includes DCC's total system, enrolled smart metering systems and/or users' systems.

higher interoperability levels in the counterfactual and is therefore resilient to these changes.

31. The estimate for the NPV is not directly comparable to the NPV for the previous four meter sets, largely due to the introduction of the end 2020 backstop obligation described in paragraph 11. However, without the end 2020 backstop obligation in place, the NPV for enrolling the Secure meter set would remain positive at £103m.

32. In forming our assessment of the NPV (or net benefit case) for enrolling the Secure meter set, we considered a number of costs and benefits which are discussed in more detail in the Annex. In summary, the quantified benefits of an Enrolment option are categorised as the following:

- Avoiding the cost of premature replacements of SMETS1 meters.
- Avoiding the associated inconvenience to consumers of the additional installation visit associated with premature meter replacement.
- Ensuring availability of smart services and benefits from meters that would otherwise temporarily run in dumb mode in the absence of enrolment.
- Avoiding Smart Meter System Operator (SMSO) and Foundation Communication Service Provider (FCSP) costs paid directly by suppliers for SMETS1 meters.¹⁶

33. Enrolment is expected to provide a number of additional benefits that are not quantified. These include:

- Enrolled meter sets would be 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 number of security controls that SMETS1 meters already have in place, SMETS1 meters would be able to capitalise on alerting and monitoring systems provided by the 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.
- There are expected cost savings to energy suppliers from rationalising SMETS1 and SMETS2 systems.

34. Against this, quantified costs of an Enrolment option have been applied. Quantified costs are composed of meter set level costs (costs that are directly attributable to a particular meter set/would not be incurred if DCC did not provide a service in respect of that meter set) and core costs. Meter set level costs include:

- Costs such as testing and migration costs incurred by suppliers who have installed SMETS1 Secure meters to support the enrolment of these meters.

- Supplier costs arising from firmware upgrades to pre-configure SMETS1 devices for enrolment.
- DCC costs associated with build, test and operational costs of the SMETS1 enrolment solution.
- The potential reduction in network benefits, when compared to the counterfactual where SMETS1 are replaced with SMETS2 meters more quickly, as networks can access a broader suite of functionality on SMETS2 meters.

35. If Secure is attributed its share of core costs for enrolment, the NPV for Secure would continue to provide an overall net benefit. However, 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 have been accounted for in the previous decision document published in October 2018 and are not included again in this consultation.¹⁷

36. In order to account for uncertainties and cost contingencies, optimism bias (OB) has been applied to account for any uncertainties around the DCC costs of enrolment and the remaining uncertainties around supplier costs such as migration and testing costs.

37. The cost-benefit analysis can be found in the *Annex*.

Security

38. Having reviewed security documentation provided by the DCC, the Government is minded to support DCC's findings that if the security architecture for Secure meters is implemented as proposed then an acceptable level of security can be achieved. This would enable SMETS1 meters to be enrolled without a material increase in risk to the DCC total system, enrolled smart metering system and/or user system. Additionally, the SEC Panel Security Sub Committee (SSC) are considering DCC's updated Security Architecture and Risk Assessment and have provided feedback which includes requests for additional clarifications in certain areas. It is our understanding that the DCC will incorporate SSC feedback into its updates of the Security Architecture and Risk Assessment. Independent assurance of the implementation of security controls will be provided by a Competent Independent Organisation (CIO) as part of the design, build and test phase for the Secure meter set.

Technical feasibility

39. The DCC's progress towards development of solution designs, as well as the ability of service providers to implement these designs, have been considered in order to inform the Government's confidence in the technical feasibility of the proposed enrolment solution.

40. The SEC Subsidiary Documents that set out the over-arching design of the DCC SMETS1 solution has been baselined through the Programme transitional governance arrangements. DCC has incorporated this design baseline as requirements for its enduring service and based on these considerations, we have sufficient confidence that

¹⁷ HM Treasury Green Book <https://www.gov.uk/government/publications/the-green-book-appraisal-and-evaluation-in-central-government>

DCC has included the appropriate functional and non-functional solution provision into its contractual arrangements with Secure.

41. We understand that Secure has been developing its solution in accordance with the SEC subsidiary documents and that there has been significant interaction between DCC and Secure on design requirements. DCC has not reported to BEIS that there are any material issues arising that would impact the technical feasibility of the solution. Whilst amendments to the baseline design documents may arise from the development and testing phase, it is not thought that these amendments will be significant given the solution is well established and forms the basis of the enduring service which is the subject of contract signature between Secure and DCC. We also understand that the contract which will govern the enduring arrangements includes change management procedures that, in the event of any amendment, will provide the means for accommodating any change to the baseline design documents. For these reasons, the Government considers that it has sufficient confidence in the technical feasibility of the proposed technical solution design for the provision of a SMETS1 service for Secure.

Government's proposed approach

42. In line with delivering the Government objective to enrol all significant populations of SMETS1 meters with the DCC to ensure interoperability for the consumer, the Government is minded to require the DCC to provide SMETS1 services to the Secure meter set, which represents the vast majority of the remaining population of SMETS1 meters to be enrolled. This minded to position is on the basis of a positive net benefit to Great Britain, security and technical assessment.
43. We will take into account all relevant considerations before making a final decision, including responses to this consultation, any resulting updates to the DCC's cost model as well as relevant technical and security information.

Consultation questions

44. Do you agree that the DCC should offer SMETS1 services to the Secure meter set? Please provide quantitative and qualitative evidence to support your views.
45. Are there any other non-core costs additional to those included in the cost-benefit analysis in this document that arise from the enrolment of the SMETS1 Secure meter set which you believe should be considered? Please provide quantitative and qualitative evidence to support your views.
46. Are there any other benefits additional to those included in the cost-benefit analysis in this document that arise from enrolment of the SMETS1 Secure meter set which you believe should be considered? Please provide quantitative and qualitative evidence to support your views.
47. Are there any other factors that we should consider in arriving at our conclusion? Please provide quantitative and qualitative evidence to support your views.

Implementation

48. Subject to the Secretary of State deciding to require the DCC to offer a SMETS1 service to the Secure meter set, the DCC is expected to offer a SMETS1 service by the end of September 2019.
49. In DCC's SMETS1 delivery plan, DCC expects to undertake testing for Secure meters in phases which are planned to commence in April 2019.¹⁸ Once all relevant testing is successfully concluded, we expect DCC to add Secure SMETS1 device model combinations¹⁹ to the Eligible Product Combinations list ("EPC") after an approval to do so as a result of a BEIS "go live" confirmation.²⁰ Adding device model combinations to the EPC triggers the 12 month enrolment obligation on energy suppliers to take all reasonable steps to enrol smart metering systems comprising that device model combination. The "go live" confirmation is intended to ensure that the 12 month enrolment obligation only takes effect from the point when the DCC's service is ready. Suppliers are required to schedule the enrolment of their 'active' meters, whereas DCC will schedule when 'dormant' meters (those which have changed supplier and stopped providing smart services) get enrolled. Where there are any unenrolled SMETS1 meters, energy suppliers are required to take all reasonable steps to replace these with a SMETS2 meter by the end of 2020.

Next steps

50. Stakeholders and other interested parties are invited to provide their views on the Government's proposed approach and, more specifically, the questions set out in this consultation by 29 March 2019.
51. The Government's response to the consultation will be published following an analysis of consultation responses and on the basis of any updated cost, technical and security information provided by the DCC together with any further relevant considerations.

¹⁸ In the DCC revised plan published 13 February 2019, it has indicated that it expects Early Integration Testing (EIT) to run during April 2019 with System Integration Testing (SIT) to run from May to July 2019 and Transition to Operation (TTO) to conclude in September 2019.

¹⁹ A SMETS1 device model combination is typically an electricity meter, gas meter, communications hub and in home display.

²⁰ We have set out a proposed set of criteria (known as the Live Services Criteria) that will need to be met before we can confirm the addition of a device model combination to the EPC. These criteria include successful completion of testing (including regression and security testing) of DCC's service in respect of the relevant SMETS1 device model combination alongside criteria related to wider operational maturity such as the readiness and scalability of the DCC's migration and service management capabilities.

Annex: cost-benefit analysis

52. This annex provides an explanation of the costs and benefits of enrolling Secure SMETS1 meters into the DCC. The analysis assesses the costs and benefits of enrolment relative to a Do Nothing option.
53. In the Do Nothing option, SMETS1 meters are not enrolled in the DCC and some customers who switch energy supplier either lose their smart services or have their meter replaced. By the end of 2020, we assume that any unenrolled SMETS1 will have been replaced with a new SMETS2 meter to comply with the end 2020 backstop obligation. This is a change from the analysis completed for the other four meter sets, in the previous consultation, which assumed meters would only be replaced from 2021 if they stop operating as smart on subsequent change of supplier.
54. In the enrolment option, SMETS1 meters are enrolled in the DCC. In this option, SMETS1 meters become interoperable within 12 months of the point that the capability for enrolment goes live. All 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.
55. The enrolment of SMETS1 meters with the DCC will provide a number of benefits to consumers and the energy industry. Notably, it enables consumers to retain smart services on change of supplier and supports their engagement with the energy market. It also leverages operational cost savings through a centralised service.
56. At the same time, enrolment will 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.
57. The cost 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 Secure. 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.²¹
58. 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 overall programme-wide Cost-Benefit Analysis. The details of this cost benefit analysis have not been disclosed as it would result in the disclosure of commercially sensitive information.

²¹ HM Treasury Green Book <https://www.gov.uk/government/publications/the-green-book-appraisal-and-evaluation-in-central-government>

DCC costs

59. DCC will incur costs to design, build, test and operate a SMETS1 enrolment service for Secure meters.
60. Some costs form part of the core functionality required to deliver a SMETS1 service and will be incurred irrespective of the number 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).
61. Other costs will only be incurred when a specific meter set is enrolled. This includes, in the case of Secure SMETS1 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) to support a DCC SMETS1 service and the provision of an ongoing communications service.
62. To inform this consultation, DCC provided an updated cost model with estimates for each of the cost categories above. For reasons of commercial confidentiality, the full breakdown of DCC costs by different categories is not disclosed here.
63. Some of the costs incurred by the DCC will not be additional to the costs incurred in the Do Nothing option. This includes:
- 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.
 - The ongoing running costs paid to SMSOs by suppliers (which in the case of Secure includes communications services costs).
64. These costs have been removed from the cost of the enrolment option to provide an estimate of the additional costs of providing the SMETS1 service. The analysis reflects that there would be fewer SMETS1 meters over time in the Do Nothing option due to some being replaced when a customer switches supplier and any unenrolled SMETS1 meters being replaced with SMETS2 by the end of 2020 in line with the 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.
65. 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. BEIS has reviewed the estimates of optimism bias provided by DCC and has included them within this analysis.

Energy supplier costs

66. Energy suppliers that have installed Secure SMETS1 meters will incur additional costs to support SMETS1 enrolment. This includes:

- IT system changes, including to metering, billing and Customer Relationship Management (CRM) systems, to support the operation of SMETS1 meters via the DCC as opposed to via an SMSO.
- Testing and migration costs as part of the programme of work to enrol SMETS1 meters in the DCC to validate that the meters suppliers enrol will function as required.
- System decommissioning costs to close down legacy SMETS1 services.
- The cost of firmware upgrades.
- The cost of replacing any meters that are assumed to be non-compliant.

67. The costs of IT systems changes, testing and migration, and system close down were estimated using information collected by BEIS through an informal information request to a number of suppliers. Responses were received from five energy suppliers providing a range of cost estimates, reflecting the different approaches adopted by individual 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 suppliers that would be enrolling those meter sets. In this analysis for Secure, the cost was scaled to cover suppliers enrolling Secure SMETS1 meters.

68. The cost of firmware upgrades has been estimated by utilising the number of firmware upgrades needed to pre-configure Secure SMETS1 devices for enrolment and the cost to roll out the firmware images to relevant devices. The cost per firmware upgrade has been taken from current SMSO/Supplier contracts.

69. In addition, all energy suppliers that wish to operate gained SMETS1 meters via the DCC will need to implement changes to their systems, resulting in additional costs. The cost of IT and business changes to operate gained SMETS1 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. 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.

70. This cost benefit analysis uses assumptions which are not an expectation of issues arising, but prudent modelling assumptions used to stress test the business case that is

in line with the 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. In addition, some SMETS1 meters are assumed to dilapidate each year in both the Do Nothing and enrolment option.

71. 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.
72. The cost to energy suppliers of specifically enrolling Secure meters is estimated to be £29m. This comprises IT and business changes for suppliers that have installed Secure meters. The cost of unenrolled devices at migration has been accounted for through a reduction in the avoided costs of replacing SMETS1 meters with another smart meter which is explained in the benefits section below.

Network operator and third-party costs

73. In the previous consultation, 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 were accounted for in the previous consultation on the four meter sets they are not applied again here.
74. A provision for the potential costs to third parties that may need to incur additional costs 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.

Benefits

75. In the absence of DCC enrolment, some SMETS1 customers who switch energy supplier will temporarily lose smart services. We assume that by the end of 2020 any unenrolled SMETS1 meters will be replaced with a new SMETS2 meter due to the end 2020 backstop obligation. DCC enrolment would avoid the loss of benefits where a SMETS1 meter loses smart services on change of supplier, and the additional costs of meter replacements.
76. The number of SMETS1 customers who lose smart services and have their meter replaced in the Do Nothing option has been estimated by combining assumptions on the number of customers who switch 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 18% per annum, and around a third of customers are assumed not to switch supplier over the course of the SMETS1 meter's lifetime.
77. The proportion of meters for which smart services are retained when a customer switches supplier is based on the current level of interoperability of Secure meters based on data reported to BEIS by energy suppliers. We have considered scenarios for higher interoperability in the counterfactual. However, in the absence of policy intervention, we believe that assuming that the current level of interoperability is maintained is a reasonable approach.

78. The avoided cost of replacing SMETS1 meters and value of retaining smart services have been monetised using values taken from the BEIS Smart Meter Rollout 2016 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 underlying assumptions for each of these are described in Section 1 of the technical annex (Part II) of the 2016 programme-wide Cost-Benefit Analysis. 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.
79. Benefits are assumed only to be realised once enrolment capability has been provided and the SMETS1 meters have been migrated to the DCC system. In DCC's SMETS1 delivery plan published on the 13 February 2019, DCC has confirmed that it will plan for a revised MOC service delivery, which applies to the Secure SMETS1 meter set, for the end of September 2019. Energy suppliers are assumed to enrol meters at a constant rate and complete their migration 12 months after end September 2019.
80. The impact of the enrolment option on pre-payment customers has also been considered and we believe it has no significant adverse impact, whilst securing the benefits accruing to all customers of enrolled smart meters. Under the SEC, there are formal mechanisms by which a supplier can request that DCC provide any additional non-core services that they wish to receive on a bilateral basis.

Results

81. The cost-benefit analysis produces an overall net benefit to Great Britain of £346m, which supports the case for requiring DCC to offer SMETS1 services to Secure meters. The net benefit (or Net Present Value) includes estimates to reflect potential uncertainties in costs about final design through application of optimism bias.
82. Benefits such as facilitating consumer switching between suppliers, third party access to data to enable innovation, and security enhancements remain unquantified but contribute to the overall business case for enrolment.
83. For comparability with the previous consultation, retaining the Do Nothing scenario presented in that consultation (where the end 2020 backstop obligation doesn't apply) the net present value would remain positive at £103m.
84. We have run sensitivity analysis with different scenarios around delivery timescales and levels of interoperability of Secure meters in the counterfactual. Under all these scenarios the Net Present Value remains positive.

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

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