



Department for
Business, Energy
& Industrial Strategy

SMART METERING IMPLEMENTATION PROGRAMME

Government response to the consultation on the
enrolment of SMETS1 meter cohorts with the
Data Communications Company

October 2018

The Government response can be found on GOV.UK:

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

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Any enquiries regarding this publication should be sent to us at smartmetering@beis.gov.uk.

General information

Purpose

Following consideration of responses provided to the consultation issued on 17th April 2018 and updated information from the DCC, this Government response explains its conclusions that require the Data Communications Company (DCC) to provide an interoperable smart meter service for SMETS1 meter cohorts consisting of Aclara, Honeywell Elster, Itron and Landis+Gyr (L&G) meters.

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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.

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Contents

| | | |
|----|--|----|
| 1. | Introduction _____ | 1 |
| 2. | Summary of issue under consideration _____ | 4 |
| 3. | Evidence to inform the Government response _____ | 7 |
| 4. | Government response _____ | 11 |
| 5. | Next steps _____ | 16 |
| | Annex: Cost Benefit Analysis _____ | 17 |

1. 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 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 last year.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.
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. The Government's role includes providing the right framework against which energy suppliers can plan, and ensuring benefits are delivered to consumers.
4. An updated 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 A further updated cost and benefit analysis will be published in 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 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.
 - Providing the foundation for a range of innovative energy services, which will enhance consumer choice and control.

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>

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 and the specification for second generation meters (SMETS2) that work with DCC was designated into regulations.
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 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 meter's reach their end of life.

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

Background to the DCC SMETS1 Enrolment & Adoption Programme

11. 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 (IEPFR) to BEIS, setting out a series of design options for the enrolment of SMETS1 meters into the DCC infrastructure. The options included two integration path approaches (IP), for how the DCC would technically communicate with SMETS1 meters, together with proposed security measures.
12. 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 cohort'), informed by the DCC's design work and a cost benefit analysis.⁸
13. In October 2017, the DCC adopted a plan for the delivery of a SMETS1 service which set out a three-phase approach to the provision of the service.⁹ This consultation deals with the cohorts identified for enrolment in the first two phases of this plan. Since the consultation was launched, DCC has announced that, following a competitive process, it will use existing service providers CGI and Trilliant for its SMETS1 Service in respect of the first two capability releases.¹⁰

⁸ Meter marques or meter cohorts are devices that comprise of a number of smart metering systems that are connected to a particular head end system.

⁹ https://www.smartdcc.co.uk/media/440317/20171016_SMETS_1_planning_conclusions.pdf

¹⁰ <https://www.smartdcc.co.uk/more/news/smets1-service-providers-for-ioc-and-for-moc-and-integration-path-announcement/>

2. Summary of issue under consideration

14. In April 2018, the Government consulted on a minded to position requiring the DCC to provide an interoperable smart meter service for four out of six SMETS1 meter cohorts representing around two thirds of the expected market. Insufficient information was available for consultation on the other two cohorts at that time. The minded to position would ensure the retention of smart functionality when a customer switches energy supplier. This would be achieved by:
- i. Making interoperability and smart benefits available quickly and reliably for all stakeholders.
 - ii. Doing so in a cost-effective manner, taking account of the impact on businesses and consumers.
 - iii. Ensuring an acceptable level of security for end to end smart metering system.
15. The consultation set out three criteria on which the position was based:
- i. Whether a societal benefit exists.
 - ii. Whether there is an acceptable level of security for the end to end smart metering system.
 - iii. Whether the delivery of the potential solutions in respect of the meter cohorts is technically feasible.
16. Based on these considerations, the consultation estimated a positive net societal benefit in the range of £210m to £320m under central assumptions. This range reflected, in particular, different design options (and commercial solutions) for integrating meters with DCC systems (i.e. the integration paths). The consultation explained the types of costs and benefits considered in reaching this range. For reasons of commercial confidentiality in respect of ongoing commercial negotiations, cost information relating to specific businesses or the design and development of DCC's service could not be disclosed.
17. The consultation set out that if the proposed DCC security architecture is implemented, SMETS1 meters could be enrolled with the DCC without a material increase in risk to the DCC total system, enrolled smart metering systems and/or user systems.
18. Following consideration of DCC's development of viable solution designs and the ability of service providers to implement these designs, the consultation concluded that the technical solution designs for the provision of a SMETS1 service for the four meter cohorts in question are sufficiently mature to be considered technically feasible.

19. For these reasons, the Government proposed to require DCC to provide a SMETS1 service for Aclara, Honeywell Elster, Itron and L+G SMETS1 meters. The consultation stated that relevant considerations would be taken into account before making a final decision. This would include responses to the consultation, further commercial developments during this time and updates to information provided by DCC, for example its costs. Views were invited on whether DCC should offer a SMETS1 service for the four meter cohorts in question and whether there were any additional factors that should be considered including additional costs and benefits to inform the Government decision.

Consultation responses

20. The consultation closed on 24 May 2018 and we received a total of 31 written responses from the following organisations.

| Sector | Respondent | |
|---------------------------------------|---|-------------------------------------|
| Energy Suppliers | Bristol Energy | Centrica plc |
| | CNG Ltd | EDF Energy |
| | Engie Power Limited | E.ON |
| | First Utility Limited | Green Network Energy Ltd |
| | Npower | Octopus Energy |
| | Ovo Energy | Scottish Power |
| | SSE | Solarplicity |
| | Utilita Energy Limited | |
| | Consumer groups | Citizens Advice |
| Meter Operators/Meter Asset Providers | Calvin Capital | Smart Meter Assets |
| | National Grid Smart | Northern Powergrid Metering Limited |
| Trade Body | Energy UK | |
| | Community of Meter Asset Providers (CMAP) | |
| Distribution Network Operators | Electricity North West | SSEN |
| | SP Energy Networks | Northern Powergrid |

| | | |
|-------|----------------------------|-----------------------------------|
| | Western Power Distribution | |
| Other | Trilliant Networks | TMA Data Management Ltd |
| | WiFore Consultancy | Data Communications Company (DCC) |

21. During the consultation period bilateral meetings were held with a number of individual respondents following requests together with a forum with a number of energy suppliers organised by Energy UK in addition to engagement with stakeholders through the Technical and Business Design Group (TBDG) and the Smart Metering Delivery Group (SMDG).

3. Evidence to inform the Government response

Information from the DCC

22. To inform the Government's decision, DCC provided updated estimated costs for delivering the SMETS1 service for the four meter cohorts in a cost model following further discussions with its prospective and existing service providers. The DCC also provided an updated risk assessment and implementation plans for each capability release. This information took account of DCC's down selection of integration paths for the Aclara, Honeywell Elster, Itron and Landis+Gyr Meters.

Summary of responses to the consultation

Question 1: Do you agree that the DCC should offer SMETS1 Services for Aclara, Itron, Honeywell Elster and Landis+Gyr meters?

23. The majority of respondents (twenty respondents) agreed with the proposal. Six respondents disagreed, and five respondents did not respond to this question. Key points raised by one or more respondents included:

Scope

- a. That the benefits to energy suppliers and consumers from enrolling these meters in the DCC justify the approach taken with successful enrolment resulting in reduced costs and improved smart services for consumers.
- b. An interoperable smart meter service for the meter cohorts in question will help stimulate a more competitive market by empowering retail customers to switch energy suppliers more easily and allow suppliers to innovate. The provision of a DCC enrolment service to these cohorts will deliver these benefits far better than any continuation of individual SMSO hosted service offerings.
- c. That any decision should be made considering all six meter cohorts (i.e. including Secure and EDMI) together. It is not clear if progression at a later date for the remaining two cohorts would impact on the analysis and whether they can be treated in isolation as there would be societal benefits across the whole market rather than just the initial four cohorts. Assurances were requested over future inclusion of the remaining two cohorts with the DCC and that a CBA for all meter cohorts should be provided.
- d. That a cohort by cohort approach could give rise to market distortions. Energy suppliers going first might have more testing issues to resolve and suppliers

going later would have a longer window to prepare for enrolment and will potentially benefit from reduced churn. Another respondent argued that this approach would give rise to commercial uncertainty for the remaining cohorts.

Approach to the Cost Benefit Analysis (CBA)

- e. That the consultation and in particular the CBA lacks detail which means that it has been difficult or is not possible to respond to certain consultation questions. An independent review of the assumptions in the CBA was recommended by one respondent.

Other

- f. That DCC's service may not be delivered on time and/or within cost and this may impact on support for the proposal to enrol four out of six cohorts. A review of DCC's plan is recommended to minimise the potential for delays and increased costs.
- g. DCC's security enhancements should not be introduced as a prerequisite for enrolment because it could introduce delays and additional costs.

Question 2: Are there any other types of costs arising from enrolment of these SMETS1 meter cohorts that you believe should be considered?

Respondents were asked to provide quantitative and qualitative evidence to support their views.

24. Of the seventeen respondents who provided proposals for additional costs, only two respondents provided estimates to support assertions about costs incurred. Six respondents agreed with the types of costs proposed and eight did not respond to this question. Key points raised by one or more respondents included:

- a. The need to additionally account for Distribution Network Operator and third party costs eg adaptor changes, IT testing and business change to handle SMETS1 interaction via DCC. Network operators will need to identify differences between SMETS1 and SMETS2 in order to correctly interpret data returned from devices.
- b. Pre-configuration costs such as firmware upgrade costs may be incurred by energy suppliers.
- c. Some devices may not be able to enrol due to migration failures, which may result in a cost to suppliers.
- d. Testing costs incurred by suppliers would also need to account for:
 - a. Scope of testing likely to be wider than the path assumed by DCC.
 - b. Resolutions for testing will be harder to identify and take longer to implement.
 - c. Overall timescales for testing will ultimately be longer and hence cost more.

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- e. There are additional requirements relating to prepayment functionality incurred by energy suppliers. These relate to technical and business processes to handle top up and other transactions during migration, along with specific prepay customer service support both before and after enrolment.
 - f. That migration arrangements are currently insufficiently defined by the DCC that will result in additional cost to energy suppliers. As part of migration projects there will be activities involving data cleanse and validation, pre and post processing, iterative trial migrations and post migration support which will need to run for the duration of migration which will be much longer than the six months that was proposed in the consultation on maximising interoperability for consumers.¹¹
 - g. That customer support costs incurred by energy suppliers need to account for proactive and reactive communication costs for customers such as costs for contact centres to support migration and the enduring DCC SMETS1 service.

Question 3: Are there any other types of benefits arising from the enrolment of these SMETS1 meter cohorts that you believe should be considered?

Respondents were asked to provide quantitative and qualitative evidence to support their views.

25. There were ten respondents who provided proposals for additional benefits, fourteen respondents who agreed with the benefits proposed and seven respondents who did not address this question. There were no estimates provided. Key points raised by one or more respondents included:

- a. SMETS1 meter enrolment could improve public and media perceptions of the Smart Programme.
- b. Enrolment will enable issues related to security to be managed more efficiently and effectively.
- c. Enrolment into DCC creates a single point of responsibility for maintenance of devices, as well as management of incidents.
- d. Customers should receive a more consistent experience than they do under the current SMSO arrangements. While all SMETS1 meters should support the same services, not all SMSO's provide the same level of access to this functionality which can lead to inconsistent consumer experience of smart metering.
- e. Provides easier and more cost-effective access to the full set of current SMETS1 services, as well as new and innovative services that might be delivered using SMETS1 devices.
- f. There are potential cost savings for energy suppliers from rationalising SMETS1 and SMETS2 systems.

¹¹ <https://www.gov.uk/government/consultations/maximising-interoperability-for-first-generation-smets1-smart-meters>

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- g. Possible debt reduction created by enabling mode change and prepayment capability for all SMETS1 meters. Currently only about 32%-40% of SMETS1 meters with prepayment capability can operate in prepayment mode due to limitations in SMSO services or supplier interfaces.
 - h. Asset stranding could be reduced on an equitable basis and would broadly fall in line with investor expectations.

Question 4: Are there any other factors arising from the enrolment of these SMETS1 meter cohorts that you believe should be considered?

Respondents were asked to provide quantitative and qualitative evidence to support their views.

26. There were twenty-one respondents who provided suggestions of additional factors, four who believed there were no other factors to be considered and six that provided no response. Key points raised by one or more respondents included:

Scope

- a. It should be stated policy not just to consult on remaining cohorts but that they may be enrolled ahead of the initial four cohorts where it is shown that the risk is lower (and should not be delayed if the first four cohorts are delayed).

Approach to the Cost Benefit Analysis (CBA)

- b. That the CBA approach needs to be considered against a 'do nothing' approach and a 'reuse SMSO services' approach.
- c. Alternative options should be considered that benefit consumers such as enrolling/adopting on "CoS Gain/Loss", enrolling/adopting where loss of smart functionality is proven as well as supporting and facilitating the development and use of an iSMSO platform.¹²

Customer Experience

- d. Question 1 cannot be answered unless the customer impact of migration is understood. There has been no clear guidance on what this may be or what consistent messages industry may want to communicate. The customer experience needs to be factored into decision making.

Other

- e. That delivery of DCC's SMETS1 plan is not achievable or realistic for energy suppliers who will not be ready to engage with the DCC and this creates additional risks to the programme. This impact needs to be factored into the CBA.

¹² Some SMSO providers have developed a technical integration between platforms, which (subject to commercials) would allow a supplier operating SMETS1 meters through one SMSO to access and operate SMETS1 meters it has gained but are managed via the other SMSO provider.

4. Government response

Scope

27. Having considered the consultation responses received and the additional information from the DCC, the Government remains of the view that DCC should be required to provide a SMETS1 service in respect of Aclara, Honeywell Elster, Itron and L+G meter cohorts.
28. Delivering timely interoperable solutions and smart benefits reliably for all stakeholders in a cost-effective manner that takes into account impacts on businesses and consumers, whilst ensuring a proportionate level of security for the end to end smart metering system, remains the Government's objective. For these reasons, we continue to believe in the value to consumers of having interoperability solutions sooner rather than waiting for a decision on whether the least progressed meter cohorts should be offered enrolment. Delaying a decision until all six meter cohorts are ready for assessment could impede timely delivery of DCC's service for the first four meter cohorts, which represent around two thirds of the expected market. This would be detrimental to consumers.
29. The Cost Benefit Analysis (CBA) supports a separate decision for the first four meter cohorts from the remaining two because costs and benefits to society are broadly attributable to the enrolment of those meter cohorts, consistent with the HMT's Green Book.¹³ This means that even if sufficient information from Secure and EDMI were available, it would not have changed the Government's decision to require DCC to offer enrolment for the first four meter cohorts in question. We intend to consult on the case for enrolling Secure and EDMI meters once there is sufficiently mature information from existing and prospective service providers and the DCC.
30. Government does not consider, for the reasons set out below, that material distortions would arise from meter types being migrated when ready (rather than to the timescale of the least progressed meter type). Some respondents argued that a supplier's meter cohort going later would benefit from having a longer window to prepare for enrolment whereas others argued it would create commercial uncertainty for the remaining cohorts.
31. The Government notes that the point at which a supplier itself realises the benefits of DCC enrolment is a function of when it is ready to use the DCC SMETS1 service, which may well be at different points for different suppliers, depending on their own

¹³ <https://www.gov.uk/government/publications/the-green-book-appraisal-and-evaluation-in-central-government>

project plans. This means that it is not clear that suppliers who have the vast majority of their SMETS1 meters in an earlier DCC operating capacity will have a definite advantage, or that those enrolling meters in later operating capacities will face a disadvantage. Based on current DCC plans, there is also a relatively short time difference between operating capacities and migration windows which means that any impact from timing differences that may arise are unlikely to be material.

32. The Government believes that adopting an alternative approach of delaying the go/no decision until a decision can be taken in respect of all cohorts would not be in the interests of consumers, as this could delay the delivery of the benefits of enrolment for around two thirds of the expected meter population. Our analysis shows the quantum of benefits from enrolment are greater if the four meter cohorts in question are enrolled sooner. Our intention is for the consultation on the remaining two meter cohorts to happen as soon as possible in order to remove any uncertainty. We would urge all stakeholders to facilitate commercial and technical design discussions so that stable evidence can enable the timely launch of the consultation regarding Secure and EDMI SMETS1 meter cohorts.

Cost Benefit Analysis

Approach

33. Whilst the Government recognises that the description of the consultation stage CBA necessarily provided a high-level consideration of the case for enrolment, we remain of the view that sufficient information was given to consult on whether the right costs and benefits had been included. Respondents were also provided the opportunity to share estimates of costs and benefits. We now consider commercial negotiations between the relevant service providers and the DCC to be sufficiently progressed (with commercial agreements signed in most cases), such that some additional information can be disclosed. This was already the case at a meeting organised by Energy UK on 10 May 2018, where suppliers were provided with further information relating to the CBA. A description of the CBA, which has been updated to take into account consultation responses and further evidence from the DCC, can be found in the Annex.

34. In order to ensure that DCC's cost model and its assumptions used for Government analysis are robust, the DCC requested an independent assessor to scrutinise its model and approach. Additionally, the Government has established assurance processes to ensure its own assumptions are robust and in accordance with the HMT's Green Book. The Green Book provides approved guidance and methods on appraisal and evaluation when conducting cost benefit analysis and helps the development of transparent, objective and evidence-based advice for decision making to ensure consistency across Government. We therefore do not consider that further independent assessment of the Government's analysis is necessary.

35. Respondents also proposed alternative options to the do-nothing option. Under the do-nothing option, no DCC SMETS1 enrolment takes place and most consumers who switch energy suppliers either lose their smart services or have their SMETS1 meter replaced with another smart meter. We believe that assuming the current level of interoperability in the absence of policy intervention is a reasonable approach given the uncertainty around the cost, delivery and technical feasibility of alternative options. Alternative options to enrolment were considered in the separate consultation on Maximising Interoperability for SMETS1 smart meters, which proposed that suppliers should be required to enrol SMETS1 meters with the DCC on which a Government response has now been issued.

Analysis update

36. Following consideration of consultation responses and updated information from the DCC, an updated cost benefit analysis is set out in the Annex. This reflects additional costs and benefits raised by stakeholders in their responses, monetised where possible. Overall, the CBA continues to support a decision requiring DCC to offer enrolment services to the SMETS1 meter cohorts in question, with enrolment of those SMETS1 meters with the DCC now estimated to provide an overall net benefit to Great Britain of £171m. The net benefit is based on prudent assumptions and whilst lower than the NPV range presented in consultation, is considered resilient to both residual design uncertainty and any credible delivery milestone changes.

Customer experience

37. In response to concerns about the impact of migration on consumers the Government expects a smooth transition when migrating SMETS1 installations into DCC's systems so there is no adverse impact on the consumer. DCC is continuing to work with suppliers to design a migration process which achieves this.

38. The SMETS1 enrolment project is being carefully managed to ensure that it happens seamlessly for consumers. Without proactive communications most consumers who have never lost their smart services should be unaware their meter has been remotely enrolled into the DCC. Others will have their meters woken up and their smart meter services available to them again. In both instances, consumer understanding of SMETS1 enrolment and what it means should be important to supporting consumer confidence in the smart meter rollout and potentially for encouraging further consumer engagement with the energy market.

39. A number of suppliers have told us that they expect to issue communications to consumers around the SMETS1 enrolment window and we agree that all suppliers should develop customer communication plans. The Government will engage with industry to understand these plans and consider whether they go far enough to optimise the process from a consumer perspective and benefits of the programme in the round.

Security

40. Updates to the Security Architecture and associated Risk Assessment provided by DCC continue to show that an acceptable level of security can be achieved to enable SMETS1 meters to be enrolled in DCC without a material increase in risk to the DCC total system, enrolled smart metering systems and/or user systems.
41. After consideration of comments from the SEC Panel's Security Sub Committee (SSC), the DCC has successfully baselined its security architecture and risk assessment for Initial Operating Capability (IOC). The DCC are continuing to update versions of the security architecture and risk assessments for Middle Operating Capability (MOC), which will also be subject to review from SSC before baselining. Additionally, the SSC will review the initial scope of the DCC's Competent Independent Organisation (CIO) Assessment, which will assure the security work that DCC is undertaking, before making a recommendation on its acceptability to the SEC Panel.
42. One consultation response stated that DCC's security enhancements should not be introduced as a prerequisite for enrolment because it could introduce delays and additional costs. Security is a top priority for smart metering and engagement is ongoing between DCC and its stakeholders on the approach to migration so that security controls are implemented at the most appropriate point during the enrolment process to ensure there is no material increase in risk to DCC's total system, enrolled smart metering and user systems.

Technical feasibility

43. The consultation set out the Government's view that there was confidence in the technical feasibility of the potential solution. No responses were received from the consultation to change this view. Since consultation, DCC has undertaken work to further improve the maturity of the requirements that underpin confidence in technical feasibility including: consulting on the Transition and Migration Approach Document (TMAD); baselining the amendments to the Self Service Interface specification and the Incident Management Policy; confirming with Users that Unique Transaction Reference Number (UTRN) proposals for go live are adequate; and engaging with suppliers about device specific issues and behaviours. With regard to the TMAD, the design for migration has been further developed, with significant stakeholder input, and the latest version will be subject to consultation shortly.

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44. DCC has also consulted on refinements to its design (as captured within DUIS, MMC, SRPD and IEWP)¹⁴ to incorporate learning from the development phase and we are expecting DCC to baseline its conclusions with TBDG shortly.
45. Additionally, DCC has completed the initial development and integration testing of the IOC solution. The nature of the issues identified relate to the implementation of specific service requests, as opposed to interfaces between components of the design, indicating that whilst there may be specific code issues to deal with, the fundamental technical design remains feasible.
46. Similarly, we have considered device issues identified during development of the IOC solution, which relate to aspects of the end to end functionality that are not capable of being implemented on certain devices. We have concluded that device issues identified to date do not impact on the Government's decision to proceed with the enrolment of SMETS1 meter cohorts in the DCC.
47. We consider that good progress by DCC has also been made developing designs for the MOC solution, including designs to support firmware upgrades for cryptographic implementation required to L+G meters and Trilliant Communications Hubs to support the DCO (Dual Control Organisation) and from this work the Government remains of the view that the MOC solution is technically feasible.

Conclusion

48. In light of the positive net societal benefit, security and technical considerations, the Government has concluded that it will require DCC to provide a SMETS1 service for the four meter cohorts in question namely Aclara, Honeywell Elster, Itron and L&G to ensure the retention of smart functionality when a customer switches energy supplier.

¹⁴ The DCC User Interface Specification (DUIS) sets out the technical details of the DCC User Interface, which is the means by which users interact with Devices. Communications from Devices are received by the user via the DCC User Interface, in a format as set out in the Great Britain Companion Specification (GBCS). The Message Mapping Catalogue (MMC) specifies the translation of data created by Devices in GBCS format, into a format that is standardised and interpretable (the "MMC Output Format"). The Service Request Processing Document (SRPD) sets out service request processing and the Inventory, Enrolment and Withdrawal Procedure (IEWP) sets out requirements that DCC establish and maintains a smart metering inventory as well as enrolment and withdrawal procedures. These were the subject of a consultation on SEC subsidiary documents in Nov 2017.

5. Next steps

49. Changes to the SEC that provide the majority of the enabling provisions required for DCC to provide a SMETS1 service were made effective on the 18th July 2018 and further enabling provisions will be the subject of a consultation in due course. We intend to use existing powers to designate changes to SEC Subsidiary Documents to implement the remaining SEC changes required to support the delivery of a DCC SMETS1 Service and have now designated the SEC Variation Testing Approach Document (SVTAD) for SMETS1 Services.¹⁵ These changes include:

- a) Provisions in the SEC Variation Testing Approach Document (SVTAD) that require the DCC to select device models for testing which enable the enrolment of the SMETS1 smart metering systems that are in scope for enrolment as soon as reasonably practicable;¹⁶ and
- b) A requirement for DCC to subsequently add those device models to an “Eligible Product Combinations list” once relevant testing has successfully completed.

50. Once a Device Model Combination is included on that Eligible Product Combination list, the smart metering systems that comprise devices of that Device Model Combination can be migrated to the DCC. This would be subject to those Device Models having been added to the Central Products List and the Secretary of State having approved the addition of the Device Model Combinations to the Eligible Product Combinations list.

51. The Government's intention is to consult on the enrolment of Secure and EDM1 meters once sufficient information is available from further engagement between existing and prospective service providers and the DCC. We encourage all relevant parties to facilitate this engagement swiftly to enable the consultation to commence.

¹⁵ The SVTAD was designated on 18 September 2018 and can be found at:

<https://smartenergycodecompany.co.uk/latest-news/sec-variation-testing-approach-document-svtad-smets1/>

¹⁶ The SVTAD defines the SMETS1 Smart Metering Systems in scope for enrolment as those which, once enrolled, would comprise SMETS1 Meters for which the Secretary of State has concluded that DCC should be required to provide SMETS1 Services (or, if such conclusions have not yet been reached, those for which the Secretary of State is consulting on as being minded to require DCC to provide SMETS1 Services).

Annex: Cost Benefit Analysis

- 1 This annex provides detail on the costs and benefits of enrolling Aclara, Honeywell Elster, Itron and Landys+Gyr SMETS1 meters into the DCC. The analysis compares the costs and benefits of enrolment relative to a Do Nothing option. In this option, no DCC enrolment takes place and most SMETS1 customers who switch supplier either lose smart services or have their SMETS1 meter replaced with another smart meter.
- 2 The enrolment of SMETS1 meters with the DCC will provide a number of benefits to consumers and the energy industry. Notably, it secures interoperability of devices and so retains consumer smart services and consumer engagement with the energy market. It also leverages operational cost savings through a centralised service.
- 3 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 evidence supporting 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 for them 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 for reference.
- 4 The assessment attributes the cost to develop the core functionality to support enrolment of all (six) meter cohorts to the four cohorts which are the subject of this decision document. This approach is in line with HMT Green Book guidance, which recommends focussing on the additional costs and benefits of each decision when appraising projects. However, we would expect the two cohorts that will be the subject of a future consultation to provide an overall net benefit whilst supporting their fair share of the core costs of enrolment. This would mutually improve the business case for this specific decision.
- 5 The previous Smart Metering Implementation Programme Impact Assessments and the latest programme-wide cost-benefit analysis published in November 2016 made an allowance for the costs of enrolment. A significant amount of the costs associated with enrolment are equivalent to SMETS1 data and communications costs currently borne by energy suppliers and are therefore not new costs to the programme. We have undertaken a specific analysis on the costs and benefits of enrolment to inform this consultation, based on the latest available information, and are committed to publishing an update of the programme wide cost-benefit analysis in 2019.
- 6 All figures stated in this annex are present values that have been discounted to 2016 using the HMT Green Book social discount rate and are expressed in 2011 prices,

unless otherwise stated. Some totals may not equal the sum of the individual cost and benefits due to rounding.

Costs

DCC costs to design, build, test and operate the SMETS1 enrolment solution

- 7 DCC will incur costs to design, build, test and operate a SMETS1 enrolment service for the Aclara, Honeywell Elster, Itron and L+G meters.
- 8 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. This includes:
 - a. DCC internal costs to deliver the SMETS1 Enrolment & Adoption programme.
 - b. External service provider costs, such as the costs of system integration, alterations to the Data Service Provider system and some costs of the Dual Control Organisation (DCO).
- 9 Other costs will only be incurred when a specific cohort is enrolled. This includes:
 - a. The cost to design, build, test and operate the solution for a specific cohort, taking into account the changes required to the existing Smart Meter System Operator (SMSO) architecture to support enrolment.
 - b. The ongoing costs of SMETS1 Foundation Communication Service Providers (FCSPs).
 - c. The cost of security enhancements, including systems hardening, SEC section G compliance and cohort specific costs to support the DCO.
- 10 To inform the Government Response, DCC provided an updated cost model with estimates for each of the cost categories above. For many external service provider costs, the estimates were based on signed contracts between the DCC and its service providers. Where contractual negotiations had not been concluded, the DCC provided estimates drawing on industry benchmarks and early evidence provided by service providers. For reasons of commercial confidentiality, the full breakdown of DCC costs by different categories have not been disclosed.
- 11 Some of the costs incurred by the DCC will not be additional to the costs incurred in the Do Nothing option. This includes:
 - a. The cost of security enhancements in the form of system hardening that energy suppliers and SMSOs would be expected to incur in the Do Nothing option in order to address recommendations made in security reviews.
 - b. The costs incurred to develop the SMETS1 service to date that are already sunk.
 - c. The ongoing costs of communication services provided by FCSPs and operational costs paid to SMSOs.

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- 12 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. For FCSP and SMSO costs, the analysis takes into account the reductions in costs the DCC has negotiated relative to the current charges energy suppliers pay to these providers. At the same time, the analysis reflects that there would be fewer SMETS1 meters over time in the Do Nothing option due to most being replaced when a customer switches supplier. When a SMETS1 meter is replaced with a SMETS2 meter it is expected that the FCSP and SMSO costs for that meter would no longer be incurred.
- 13 The cost estimates provided by DCC for the consultation document were based on an earlier forecast of the number of SMETS1 meters forecast to be installed and the costs have therefore been adjusted to reflect the latest forecast of SMETS1 meter installations, which have been updated to reflect, for example, the revised SMETS1 end date.
- 14 With DCC securing enduring service provider contracts and making integration path decisions, there is now a greater level of certainty around the estimated costs of enrolment. 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 HMT 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. The amount of optimism bias has not been provided in this annex to avoid prejudicing ongoing and future SMETS1 commercial negotiations.
- 15 The total cost to design, build, test and operate the core functionality to enable enrolment is estimated to be £134m. In addition, the cost to provide an enrolment service specifically for Aclara, Honeywell Elster, Itron and L+G meters is £327m, meaning the overall cost of enrolling the four cohorts under consideration is £461m. Around £244m would be incurred in the Do Nothing option for existing SMSO and FCSP services such that the additional costs of the DCC providing an enrolment service is £217m.

Energy supplier costs

- 16 Energy suppliers that have installed Aclara, Honeywell Elster, Itron and L+G SMETS1 meters will incur additional costs to support SMETS1 enrolment. Following consideration of responses, this includes:
- a. 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.

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- b. 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.
 - c. System decommissioning costs to close down legacy SMETS1 services.
 - d. The cost of firmware upgrades to pre-configure SMETS1 devices for the DCO where necessary.
 - e. The cost of replacing meters that fail on migration.
 - f. Additional requirements relating to prepayment functionality, to handle top up and other transactions during migration along with specific prepay customer support before and after migration.
- 17 The costs of IT systems changes, testing and migration, and system close down were estimated at the consultation stage 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. This was scaled to cover all suppliers enrolling Aclara, Honeywell Elster, Itron and L+G SMETS1. The additional information provided in consultation responses did not suggest these estimates needed to be revised.
- 18 The cost of firmware upgrades has been estimated by multiplying the number of firmware upgrades needed to pre-configure SMETS1 devices for enrolment by the cost per firmware upgrade. The cost of a firmware upgrade has been estimated by suppliers to be between £0.5m to £1m. This includes the costs to the manufacturer to develop the firmware and to the supplier to implement the upgrade. It has been assumed that each supplier enrolling Aclara, Honeywell Elster, Itron and L+G SMETS1 meters would implement one additional firmware upgrade per device, as our understanding is that suppliers would seek to limit the amount of times they need undertake this activity.
- 19 Meters that fail on migration would need to be replaced by the energy supplier by the end of 2020 for a supplier to comply with their Operational Licence Condition and for those installations to count towards their installation targets. This would result in additional costs to replace these meters with a SMETS2 meter, which would reduce the total benefits enrolment provides by reducing the cost of replacing meters before the end of their useful life. The cost of meter failures have therefore been accounted for in the benefits from avoided meter replacements.
- 20 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. This includes:
- a. 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.

- b. Business changes to ensure customer service operations can support the various meter types their customers have.

- 21 The cost of IT and business changes to operate gained SMETS1 meters via the DCC were also estimated at the consultation stage 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. The additional information provided in consultation responses did not suggest these estimates needed to be revised.
- 22 The consultation responses identified several other costs, although did not provide 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 total costs to energy suppliers of enrolling Aclara, Honeywell Elster, Itron and L+G meters is estimated to be £108m. This comprises £56m for IT and business changes for suppliers that have installed Aclara, Honeywell Elster, Itron and L+G meters, and £52m for suppliers to operate gained SMETS1 meters via the DCC. The cost of migration failures 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.

Distribution network operator (DNO) and third party costs

- 24 Having considered relevant responses, it is likely 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. The consultation responses did not provide quantitative information for these costs, however one respondent did suggest this would involve a six month project. Based on evidence from similar projects, our expectation is this would be expected to cost around £0.5m to £1m (current prices, undiscounted).
- 25 While only one respondent identified this as a potential cost, we have taken a conservative approach and applied it across all six DNO groups. In addition, we have included a provision for the potential costs to third parties as well that may need to incur additional costs to distinguish between SMETS1 and SMETS2 devices. Once scaled and adjusted to a present value, this equates to a total cost of £8m.

Benefits

Avoided meter replacements and retention of smart services

- 26 In the absence of DCC enrolment, most SMETS1 customers that switch energy supplier will temporarily lose smart services. These meters would need to be replaced with another smart meter by the end of 2020 for energy suppliers to comply with their Operational Licence Condition. DCC enrolment would avoid the loss of benefits and additional costs of meter replacements by ensuring all SMETS1 meters are interoperable when a customer switches supplier.
- 27 The number of SMETS1 customers that lose smart services and have their meter replaced in the Do Nothing option has been estimated by combining assumptions on the number of customers that switch supplier each year and the interoperability of those meters. Customers are assumed to switch supplier at a rate of 16% per annum, but around a third of customers do not switch supplier over the course of the SMETS1 meter lifetime. The assumed annual switching rate is in line with the latest switching statistics and the assumption adopted by Ofgem in their Switching Programme Impact Assessment (IA).
- 28 The proportion of meters for which smart services are retained when a customer switches supplier is based on the current level of interoperability of Aclara, Honeywell Elster & Itron meters reported to BEIS by energy suppliers. Some consultation respondents suggested we should consider alternative scenarios for the Do Nothing option. While we have considered alternative scenarios in the absence of policy intervention, we believe assuming that the current level of interoperability is maintained is a reasonable approach given the uncertainty and complexity around the cost, delivery and technical feasibility of alternative options.
- 29 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 CBA. This 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. The underlying assumptions for each of these is provided in Section 1 of Part II of the 2016 CBA technical annex. The costs of financing meter equipment and installations have been annuitised over the lifetime of the meter and uplifted for optimism bias as described in the 2016 CBA.
- 30 Responses to the consultation noted that there are likely to be some SMETS1 meters that fail on migration and would need to be replaced under the DCC enrolment option. This would result in additional costs which would reduce the total benefits enrolment provides from avoiding the cost of replacing SMETS1 meters when most customers switch supplier. The updated analysis assumes 2% of meters fail on migration. This percentage is based on an estimate formed using supplier data of those sites where existing SMETS1 wide area network quality may not be sufficiently robust for

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

- 31 Benefits are assumed only to be realised once enrolment capability has been provided and the SMETS1 meters have been migrated to the DCC system. The central analysis assumes DCC meets the milestones set out in the LC13 plan as at June 2018, with Initial Operating Capability (IOC) going live at the end of November 2018 and Middle Operating Capability (MOC) going live at the end of March 2019. These dates are extended as part of the sensitivity analysis described below. Additionally, energy suppliers are assumed to enrol meters at a constant rate and complete their migration 12 months after IOC and MOC respectively.

Other benefits

- 32 Enrolment is expected to provide a number of additional benefits on top of avoiding the cost of replacing meters and loss of smart services. This includes the following benefits identified in consultation responses under paragraph 25:
- a. SMETS1 meter enrolment could improve public and media perceptions of the Smart Programme.
 - b. Enrolment will enable issues related to security to be managed more efficiently and effectively.
 - c. Enrolment into DCC creates a single point of responsibility for maintenance of devices, as well as management of incidents.
 - d. Customers should receive a more consistent experience than they do under the current SMSO arrangements. While all SMETS1 meters should support the same services, not all SMSO's provide the same level of access to this functionality which can lead to inconsistent consumer experience of smart metering.
 - e. Provides easier and more cost-effective access to the full set of current SMETS1 services, as well as new and innovative services that might be delivered using SMETS1 devices.
 - f. There are potential cost savings for energy suppliers from rationalising SMETS1 and SMETS2 systems.
 - g. Possible debt reduction created by enabling mode change and prepayment capability for all SMETS1 meters. Currently only about 32%-40% of SMETS1 meters with prepayment capability can operate in prepayment mode due to limitations in SMSO services or supplier interfaces.
 - h. Asset stranding could be reduced on an equitable basis and would broadly fall in line with investor expectations.
- 33 In response to the consultation responses we have attempted to quantify some of these additional benefits. Specifically, we have quantified the benefits to consumers, from the avoided time and inconvenience from having their SMETS1 meter replaced early, and the reduction in security assessment costs from having fewer meter variants on which to carry out an assessment. These benefits have largely been offset by a reduction in network related benefits, which reflects the different functionality of

SMETS1 and SMETS2 meters, and the lower number of SMETS2 meters expected in the enrolment option due to avoided meter replacements. While we have not been able to quantify most of these other benefits, the non-quantified benefits contribute to the business case for enrolment.

- 34 The programme will be considering these additional benefit areas in further detail ahead of the publication of the updated programme-wide CBA in 2019 and where possible will reflect these benefits in the updated business case.

Results

- 35 Following consideration of consultation responses and updated information from the DCC, the updated cost benefit analysis as set out in this Annex continues to support a decision requiring DCC to offer enrolment services to Aclara, Honeywell Elster, Itron and L+G meters. Enrolment of these SMETS1 meters with the DCC is now estimated to provide an overall net benefit to Great Britain of £171m (see Table 1 below). The net benefit (or Net Present Value) is based on prudent assumptions and includes estimates to reflect potential uncertainties in costs about final design through optimism bias.

- 36 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.

Table 1: Summary of costs and benefits of enrolling Aclara, Honeywell Elster, Itron and L+G SMETS1 meters

| Cost or benefit category | £ (2011 prices, 2016 present values, central assumptions) |
|---|---|
| DCC costs to design, build, test and operate the enrolment solution | £217m |
| Energy supplier costs | £108m |
| DNO and third party costs | £8m |
| Total costs | £333m |
| Avoided meter replacements and loss of smart services | £501m |
| Other benefits | £2m |
| Total benefits | £503m |
| Net Present Value (NPV) | £171m |

37 In the consultation stage analysis the enrolment of Aclara, Honeywell Elster, Itron and L+G meters was estimated to provide a net benefit of £210m to £320m, with the range reflecting different integration path options. The net benefit of the integrate to SMSO pathway for all four meter cohorts was towards the lower end of this range at £232m. The decision to select this option was taken by DCC on the basis that an integrate to SMSO approach had a significantly higher delivery confidence than an integrate to meter approach.

38 Relative to the consultation stage analysis, the Net Present Value (NPV) has fallen from £232m to £171m. This is mainly the result of the inclusion of additional costs to energy suppliers and other industry participants to reflect the points raised in consultation responses (see Table 2 below).

Table 2: Summary of changes in the NPV since the consultation stage analysis

| | Change in NPV (+ve shows increase in net benefit) | End NPV |
|---|---|--------------|
| Starting NPV | | £232m |
| Inclusion of costs to energy suppliers for potential migration failures, firmware upgrades and application of optimism bias | -£51m | £181m |
| Inclusion of costs to DNOs and third parties | -£8m | £173m |
| Updated DCC costs | +£26m | £199m |
| Changes to assumptions on interoperability and security costs in the Do Nothing option | -£41m | £159m |
| Other changes, including the inclusion of avoided security assessment costs and changes to meter numbers | +£12m | £171m |
| End NPV | | £171m |

Sensitivity analysis

- 39 Sensitivity analysis has been conducted on the analysis to understand the impact of changes to different assumptions. This includes consideration of alternative delivery milestones being achieved. This shows that the business case for enrolling Aclara, Honeywell Elster, Itron and L+G meters would remain positive under more pessimistic scenarios around delivery timescales. The intention of the Government remains that interoperability should be achieved as soon as reasonably practicable and the assumptions within this annex are made on that basis.
- 40 The delivery of DCC's plan is overseen by the Implementation Managers Forum (IMF), which is attended by industry and chaired by the Department for Business, Energy and Industrial Strategy. Any potential change can be raised by an interested stakeholder via a formal change request through IMF and would be subject to consultation.



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