Smart Metering Implementation Programme

A Consultation on aspects of the implementation of Home Area Network solutions (868MHz legal drafting and approach to pairing devices locally) and on the operation and remit of the Technical Sub-Committee

Contents

General Information

Purpose of this consultation:

This consultation seeks views on regulatory drafting to implement the Government's conclusions on the 868MHz Home Area Network solution, on the operation and general scope of the Smart Energy Code Panel's Technical Sub-Committee, and on the implementation of local pairing of devices to the smart metering system.

Issued: 17 December 2015

Respond by: 25 February 2016

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Consultation reference: URN 15D/536 – A Consultation on aspects of the implementation of Home Area Network solutions (868MHz legal drafting and approach to pairing devices locally) and on the operation and remit of the Technical Sub-Committee

Territorial extent:

This consultation response 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 of Enterprise, Trade and Investment.

How to respond:

Your response will most useful it is framed in direct response to the questions posed, though further comments and evidence are also welcome.
Responses to this consultation should be sent to smartmetering@decc.gsi.gov.uk no later than 25 February 2016.

Additional copies:

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Confidentiality and data protection:

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(primarily the Freedom of Information Act 2000, the Data Protection Act 1998 and the Environmental Information Regulations 2004).

If you want information that you provide to be treated as confidential please say so clearly in writing when you send your response to the consultation. It would be helpful if you could explain to us why you regard the information you have provided as confidential. If we receive a request for disclosure of the information we will take full account of your explanation, but we cannot give an assurance that confidentiality can be maintained in all circumstances. An automatic confidentiality disclaimer generated by your IT system will not, of itself, be regarded by us as a confidentiality request.

We will summarise all responses and place this summary on the GOV.UK website. This 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 consultation process (as opposed to comments about the issues which are the subject of the consultation) please address them to:

DECC Consultation Co-ordinator
3 Whitehall Place
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Executive Summary and Introduction

Programme Introduction

Smart meters are the next generation of gas and electricity meters which will offer a range of intelligent functions and provide consumers with more accurate information, bringing an end to estimated billing. Smart meters will provide consumers with near-real time information on their energy consumption, so that consumers may control and manage their energy use, save money and reduce emissions.

Energy suppliers are required to take all reasonable steps to install smart meters in domestic premises and smart or advanced meters in smaller business premises, across GB by the end of 2020. A standard smart metering installation will generally include smart gas and electricity meters, an In Home Display (IHD) in domestic premises, and a communications hub.

These devices will communicate with each other via a Home Area Network (HAN), as defined by the Smart Metering Equipment Technical Specifications (SMETS). Suppliers are required to make consumption and tariff information available to the consumer via the HAN. This will allow consumers to see energy information on their IHD, but will also allow them to link a range of other smart devices, such as Consumer Access Devices (CADs), to the HAN.

The 2.4GHz ZigBee Smart Energy Profile HAN standard, which is specified in the second version of the SMETS (SMETS2) and the communications hub Technical Specifications (CHTS), is expected to be suitable for the communications links between all smart metering equipment in approximately 70% of GB premises, without the need for range extending equipment.

Given this, the Government previously concluded[1] that an additional wireless HAN solution (868MHz) should be specified for use in premises where the 2.4GHz HAN solution would not work. Decisions on the implementation of the 868MHz HAN solution are detailed within the 868MHz specific Government Response to the Consultation on 'Home Area Network (HAN) Solutions: Implementation of 868MHz and Alternative HAN solutions'[2]. We expect that the 868MHz HAN solution will be suitable for use in 96.5% of GB premises.

The Government has also previously concluded[3] that a local CAD pairing option should be available. This would offer consumers choice in the way devices are paired to the HAN, with local pairing offering an approach where the consumer could pair devices themselves without requiring input from a Data and Communications Company (DCC) User.

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[1] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/209841/smart_meters_equipment_technical_spec_2_consultation_response_part_1.pdf
[2] https://www.gov.uk/government/consultations/consultation-on-home-area-network-solutions
[3] https://www.gov.uk/government/consultations/smart-metering-implementation-programme-the-process-to-finalise-the-great-britain-companion-specification

Consultation Areas

This consultation seeks views on regulatory drafting to implement the Government's conclusions on the 868MHz HAN solution, on the operation and general scope of the Smart Energy Code (SEC) Panel's Technical Sub-Committee (the 'TSC') and on the implementation of local pairing of CADs to the smart metering system.

Firstly, there are questions on new legal drafting covering conclusions on the 868MHz HAN solution, with proposed changes to the SEC (in particular the operation of the TSC) and changes to supplier licences (Section 1).

Secondly, we propose a mechanism for local CAD pairing. This differs to the approach that was previously envisaged[4] as it has not been possible to implement the necessary changes to the ZigBee standard. The new approach that we propose does not rely on changes to the ZigBee standard (Section 2).

Finally, we are consulting on proposed changes to the SEC which would amend the scope of the TSC to include consideration of business design issues. This will involve developing a reference business architecture document and considering business architecture issues as part of any modification proposals (Section 3).

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[4] See reference in footnote 3

1. Legal Drafting Associated with the 868MHz HAN Solution Conclusions

Description of the Issue

1. In the Government Response to the Consultation on Home Area Network Solutions: Implementation of 868MHz[5], we noted that we would consult on the regulatory drafting to implement the following conclusions:

   - Energy suppliers will be required, by amended Electricity and Gas Supply Standard Licence Conditions, to utilise the 2.4GHz HAN solution to link the communications hub to the IHD, in preference to the 868MHz solution, where technically practicable.

   - The SEC will be amended to require the SEC Panel to periodically review the effectiveness of the HAN provisions (including evaluating whether the requirements continue to meet the SEC objectives).

2. This section focusses on the proposed regulatory drafting for these conclusions.

3. We also confirmed in the Government Response that we would amend the SMETS, CHTS and GBCS to implement the following conclusions:

   - The Data and Communications Company (DCC) will be required to provide a dual band (2.4GHz and 868MHz) communications hub alongside a single band 2.4GHz communications hub.

   - The smart electricity meter must always be capable of using the 2.4GHz HAN solution.

   - Dual band communications hubs must be capable of supporting four high bandwidth links on the 868MHz frequency (i.e. frequent communication over the HAN of 10 seconds or better). These links can be used to connect IHDs, CADs, Pre-Payment Devices etc., at the consumer's discretion.

   - The 868MHz HAN solution must operate at low power (up to 25mW). We will not permit a high power solution.

4. The SMETS, CHTS and GBCS are managed by the Technical and Business Design Group, under the Programme's Transitional governance approach. The required amendments to the SMETS, CHTS and GBCS will therefore be proposed and agreed through the Transitional governance framework and are not considered further in this consultation.

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[5] Government Response on Home Area Network Solutions: Implementation of 868MHz. December 2015. Available at: https://www.gov.uk/government/consultations/consultation-on-home-area-network-solutions

Changes to the Supply Standard Licence Conditions

5. The 868MHz bandwidth is limited and so steps have to be taken to protect the bandwidth and ensure that it is used only when really necessary; for example, as identified in paragraph 3, we have required that the smart electricity meter must always be capable of using 2.4GHz to avoid the proliferation of 868MHz electricity meters. In addition we concluded that we would require suppliers to utilise the 2.4GHz solution to connect the IHD to the communications hub, in preference to the 868MHz solution, where it was technically practicable to do so.

6. The proposed draft amendments to the gas and electricity standard supply licence conditions are set out below and in full in Annex A. In summary, we would require suppliers to install a 2.4GHz capable IHD and to connect the IHD to the communications hub using the 2.4GHz frequency, where it is possible (i.e. without the use of additional equipment). Suppliers would also be required to take into account the requirements of the Smart Metering Installation Code of Practice (SMICOP) when deciding which devices to install.

7. Where 2.4GHz cannot be used, the 868MHz or Alternative HAN solutions may be utilised.

Legal Text

Summary of New Provision	
Proposed amendments to Supply Standard Licence Conditions for: Electricity and Gas	Condition 40.1 (Electricity)/ 34.1 (Gas): Provision of an In-Home Display: • Amended to require that energy suppliers provide a 2.4GHz IHD unless it is technically impracticable for the IHD to connect to the communications hub using the 2.4GHz frequency. • Technically impracticable in this instance is defined as where the connection cannot be made without the installation of additional equipment or the relocation of any part of the Smart Metering System at the premises. • The drafting is repeated in conditions 40.4 (Electricity) and 34.4 (Gas) Condition 49.4(d) (Electricity)/ 43.4(d) (Gas) Smart Metering System — Operational Requirement • Where a 2.4GHz IHD is installed, the energy supplier should take all reasonable steps to connect the IHD to the communications hub using this frequency.
Definitions	Amendments to the definition of HAN to reflect that more than one frequency can be used to create the HAN where a dual band communications hub is installed

Consultation Question

868MHz on the mandated IHD	
Q1	Do you agree with the legal drafting of the proposed amendment to the electricity and gas supply standard licence conditions? Please provide a rationale for your views.

Changes to the Smart Energy Code

8. The HAN is an important element of GB smart metering as it provides the means for consumers to receive timely information about their energy use. While the Government currently has a leading role in selecting the HAN standards to be utilised in GB smart metering, we consider that responsibility for monitoring and oversight of the HAN arrangements should ultimately rest with the TSC.

9. The proposed legal drafting for the SEC to give effect to this position is set out in full in Annex B.

10. The drafting requires the TSC to periodically review the efficacy of the HAN arrangements and make recommendations for changes based on their understanding of HAN deployment and performance (utilising information from SEC Parties). Where changes in the regulatory framework are considered appropriate, including to better achieve the SEC objectives, the TSC will be required to make recommendations to the SEC Panel and Ofgem; the usual SEC modification process would have to be followed for any changes to the SEC to be made. SEC parties will be required to respond to reasonable requests by the TSC for information to support their role.

Legal Text

Summary of New Provision	
Amendment to the SEC – Section F1	Amendments to F1.4(g): • The TSC will be required to keep the HAN arrangements under consideration and where necessary make recommendations to the SEC Panel and Ofgem on changes that are needed to the regulatory framework in order to better achieve the SEC objectives. Amendments to F1.6: • SEC parties will be required to provide information requested by the TSC to help inform the role above.

Consultation Question

Monitoring and oversight of HAN solutions	
Q2	Do you agree with the legal drafting of the proposed amendment to the SEC? Please provide a rationale for your views.

Timing

11. We are seeking views on the proposed legal drafting set out in Annexes A and B. Subject to consideration of the responses to this consultation we anticipate introducing these changes into the regulatory framework in mid-2016.

2. Consultation on Local CAD Pairing Approach

Description of the Issue

12. For domestic consumers a standard smart metering installation will generally include gas and electricity smart meters, an IHD and a communications hub. These devices communicate with each other via a HAN. The HAN also enables other devices, for example, appliances, bridging devices, thermostats etc., to be connected to, and to access consumption and tariff information from the meters. Such devices are collectively known as CADs.

13. CADs can be connected ('paired') to the HAN remotely for a consumer through the DCC (this can be done by an energy supplier or other organisation that is a DCC User). Remote CAD pairing will be implemented for DCC Live (Annex C provides an overview of the method for remote CAD pairing). Various stakeholders including several CAD manufacturers and other data service providers have indicated that they are intending to provide a remote pairing service as part of their CAD offering.

14. In addition the Government's policy is for consumers to be able to locally pair CADs to the HAN themselves, providing an alternative to reliance on an energy supplier or on other DCC Users. This consultation focuses on the proposed implementation of local CAD pairing, its timing and retrospective application to installed devices.

15. The provision of local pairing functionality will ensure consumers and service providers have a range of options available to them to pair devices, allowing personalisation and customisation to individual needs. For example local CAD pairing is expected to be popular with installers of home automation and heating systems who do not wish to become DCC Users as it allows an installer to pair device as part of the installation process in the consumer's premises.

Local CAD Pairing – Original Proposition

16. Technical requirements for the provision of local CAD pairing are not included in current versions of the SMETS, CHTS and GBCS. This is because the originally envisaged method of local CAD pairing could not be implemented until changes had been made to the current version of the ZigBee Smart Energy Profile (the communications protocol used by the HAN).

17. These changes to the protocol would have facilitated a pairing method whereby once the CAD was switched on it would provide a MAC[6] number for display on the electricity meter, the consumer would then confirm using the meter interface buttons that the number displayed on the electricity meter matched that supplied with the CAD. Once the MAC number was confirmed the CAD would pair to the smart meter. The intention was that

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[6] This is the Media Access Control (MAC) number the unique identifier of the CAD's network interface – see annex C for more information

changes to SMETS, CHTS and GBCS would be made once the updated ZigBee protocol was available.

18. However, the ZigBee Alliance (ZA) has now indicated that it cannot support these changes as it would create difficulties in protecting the functionality in deployments that do not have the same (non-ZigBee) security measures as GB. A number of alternative options have therefore been considered to implement local CAD pairing.

Alternative Options Considered

Option 1: Do not implement local CAD pairing

19. Under this option the programme would take no further action to amend the technical specifications to support local CAD pairing. This would mean that a consumer would not be able to pair a CAD locally, but CADs could still be paired remotely by the energy supplier or another DCC User.

20. We are of the view that it is important for consumers to have choice in this area and we are therefore minded to reject this option and continue to pursue approaches to deliver a local CAD pairing solution.

Option 2: Implementing local CAD pairing through GB specific CADs

21. This option would deliver the originally proposed functionality, but without relying on changes to ZigBee Smart Energy Profile. Instead it would involve creating new GB-specific functionality for CADs described in the SMETS, CHTS and GBCS that would deliver the pairing process described in paragraph 17.

22. However, we consider that a number of complications would arise from this approach. CADs would have to be compliant with the specific GB requirements as well as ZigBee Smart Energy Profile. Therefore, CAD manufacturers would have to make variant products for GB, which could lead to a fragmented marketplace and limited choice of products for GB consumers. Any GB specific functionality for CADs would also likely need to be notified under the European Technical Standards and Regulations Directive. The resulting CAD market fragmentation could be confusing for customers, with only certain CADs working in GB.

23. The implementation of this approach would also be the most time consuming of the options considered (due to complexity, testing and regulatory requirements). On balance we therefore do not propose pursuing this option.

Option 3: Implementing local CAD pairing through the existing ZigBee standard

24. This option would use the existing ZigBee Smart Energy Profile to implement local pairing. Under this option, to pair a device locally, the consumer would have to enter a pairing code on the electricity meter. This code would be between 20 and 44 numeric digits, which are the allowable lengths set out in ZigBee Smart Energy Profile. It is expected that CAD providers are likely to opt for the longer code, as this is generally used now, and is considered the most secure. However, because local pairing only allows access to *read* information from meters we do not consider it necessary, for security reasons, to restrict devices to only use the longer code, recognising that this flexibility may bring some consumer benefits.

25. We recognise that the proposed method involves the consumer entering a relatively lengthy code into the smart meter. However, any form of local CAD pairing will involve interaction

with the meter and, while there is more information to be entered than originally envisaged, this will only have to be completed the first time a CAD is paired to the HAN (it does not have to be repeated on loss of power, change of communications hub, etc.). Some changes to SMETS, CHTS and GBCS will be required to support this approach (see Annex D), but these are no more significant than those which would have been required to support the originally envisaged approach. This approach also means that consumers will be able to use any ZigBee Smart Energy Profile certified CAD, ensuring availability of a wider range of CADs for consumers to choose from.

26. On balance we consider this approach retains the advantages of local CAD pairing and facilitates maximum choice for consumers and CAD providers and we propose implementing this option (**Option 3**).

Timing

27. The Government is committed to introducing local CAD pairing as soon as possible after DCC Live. Subject to responses to this consultation it is intended that changes to SMETS, CHTS and GBCS will be introduced into the legal framework mid-2016. To provide sufficient lead-in time for device manufacturers and to align with the DCC's release strategy, we would expect local CAD Pairing to be available on devices in the second half of 2017. Annex D provides an outline of the changes anticipated for SMETS, CHTS and GBCS to implement local CAD pairing.

Additional Considerations

28. In our considerations of the approach to local CAD pairing the following additional considerations have been raised during discussions with stakeholders on which we are seeking views.

Upgrading equipment to implement local CAD pairing

29. Our assumption is that local CAD pairing could be implemented on existing smart metering devices (electricity meters and communications hubs) through firmware updates. We assume that new hardware would not be required as, for example, we would not expect the firmware size to change significantly as a result of the addition of local CAD pairing functionality. Therefore, we assume that it should be relatively straightforward to add local CAD pairing to new electricity meters and communications hubs as they are manufactured and furthermore that it should be possible to upgrade installed SMETS2 meters and communications hubs through an over the air firmware upgrade to add the new local CAD pairing functionality. We would welcome comments on these assumptions.

30. Our understanding from previous consultation responses on this subject, and latest indications from manufacturers, is that there are not likely to be significant cost or timescale implications associated with the proposed method for implementing local CAD pairing, we would welcome stakeholders' further views on this.

31. Based on these assumptions, we propose to require (through changes to SMETS, CHTS and GBCS) that:

- From mid-2017 all newly installed SMETS2 electricity meters and DCC communications hubs should be capable of supporting local CAD pairing; and

- All installed SMETS2 electricity meters and DCC communications hubs should be upgraded to be capable of supporting local CAD pairing.

Privacy PIN

32. The local CAD pairing functionality will be protected by the Privacy PIN that can be implemented on SMETS2 meters to protect sensitive data and functions accessible via the user interface of meters. This protection is likely to be particularly useful where the meter is located in a shared space. The decision to utilise PIN protection rests with the consumer.

33. Some stakeholders have expressed concern that the Privacy PIN protection will not be used as often as it should be – as the consumer may decide not to set a Privacy PIN – and that many consumers will set generic PINs (for example, 1234). This could allow others to pair a device to a consumer's HAN without the immediate knowledge of the consumer thus giving them access to personal energy consumption data.

34. We would welcome views on whether regulatory or other approaches would be appropriate to encourage appropriate use of the Privacy PIN.

Consultation Questions

Local CAD Pairing	
Q3	In light of the changes to approach outlined, do you agree that local CAD pairing should still be implemented? Please provide a rationale for your views.
Q4	Do you agree with the proposed approach for the implementation of local CAD pairing (Option 3)? Please provide a rationale for your views.
Q5	Do you agree with the proposed timing for the implementation of local CAD pairing (second half 2017)? Please provide a rationale for your views.
Q6	Do you agree that the proposed approach for the implementation of local CAD pairing (Option 3) can be provided by a firmware upgrade? Please provide evidence to support your answer.
Q7	Do you agree that suppliers and the DCC should be required to implement local CAD pairing (Option 3) on installed SMETS2 electricity meters and DCC communications hubs? Please provide evidence to support your answer.
Q8	Do you agree with our assessment that the implementation of local CAD pairing will not have a significant impact on costs or timescales? Please provide evidence to support your answer.
Q9	Do you think additional intervention is required with respect to Privacy PIN protection use either generally, or specifically in relation to local CAD pairing? How might this be achieved? Please provide a rationale for your response.

3. Changes to the Scope of the SEC Panel's Technical Sub-Committee

Description of the Issue

35. Section F1 of the SEC requires the SEC Panel to establish a TSC. The duties of the TSC require it to undertake various functions in relation to the end-to-end technical architecture of the smart metering system. We are now proposing amending the scope of this sub-committee to include requirements in relation to the business architecture.

36. In developing the technical, commercial and regulatory provisions for smart metering we considered how Users would interact with the system and their business process architecture (business systems).

37. The Programme created a Target Operating Model and Business Process Maps to reflect its understanding of how a range of business processes would operate. Elements of these were then reflected in the requirements for the system as set out in the SEC. However, these documents have not been maintained and there are no specific requirements within the SEC to ensure that business process requirements are reviewed or impacts on them taken into account in decision making processes, for example where modifications to the SEC are considered by the Panel.

38. In order to ensure that smart metering benefits are achieved, and to maintain the confidence of Users in the system, we propose extending the remit of the TSC to include broader oversight of the business architecture. We are proposing that the TSC should become the 'Technical Architecture and Business Architecture Sub-Committee' (TABASC) and to include new provisions in the SEC as summarised below with the proposed relevant legal drafting for the SEC set out at Annex B.

Changes to the Smart Energy Code

39. It is proposed that the TABASC should:

- Develop and maintain a Business Architecture Document. This will describe the processes that enable SEC parties to use DCC services and other functionality described across the Technical Specifications and it provides a wider business perspective to be available to the Panel.

- Provide the Panel, Change Board and Working Groups with Business Architecture advice in respect of Modifications Proposals and Disputes.

- At the request of the Panel to review and make recommendations to the Panel on the effectiveness of the Business Architecture. Such review to include any recommendations for action considered appropriate, although ultimately the Panel would decide on progressing any recommendations it received using the usual SEC modification process.

- Provide the Panel with support and advice in respect of any other matter which is concerned with the Business Architecture.

40. It will also be necessary to make changes to other sections of the SEC where reference is made to the TSC to change it to the new name.

Legal Text

Summary of New Provision	
Amendment to the SEC Section F1	Amendments to F1.2(a) • Includes membership with relevant business architecture expertise. Amendments to F1.4(a), (b) and (d) • Provides the Panel, Change Board and Working Groups with business architecture support and advice in respect of Modifications Proposals and Disputes on request. Amendments to F1.4(f) • Reviews (where directed to do so by the SEC Panel) the effectiveness of the Business Architecture and report to the Panel and Parties on the outcome of such review. • Report(s) to include any recommendations for action that the TABASC considers appropriate. Amendments to F1.4(i) • Develops and maintains a Business Architecture Document. Amendments to F1.4(j) • Provides the Panel with support and advice in respect of any other matter which is concerned with the Business Architecture.

Timing

41. We are seeking views on the proposed changes to the remit of the TSC and on the legal drafting set out in Annex B to implement these changes. Subject to consideration of the responses to this consultation we anticipate introducing the changes in mid-2016.

42. We consider that the first review of the business architecture should be after DCC Live. In advance the Panel has established the TSC and the Programme – through the Technical and Business Design Group – is supporting scoping and definitional work on the business architecture to support a smooth transition of this activity to TABASC.

Consultation Question

Changes to the Scope of the SEC Panel Technical Sub-Committee	
Q10	Do you agree with the proposed change to the remit of the Technical Sub-Committee (TSC) and the proposed amendments to the SEC set out at Annex B, such that the TSC will become the 'Technical and Business Architecture Sub-Committee' and encompass oversight of business architecture?

Annex A: Draft Supply Standard Licence Conditions

Provided as a separate document.

It should be noted that some of the drafting changes highlighted in the annex relate to provisions for Alternative HAN, which are the subject of a separate consultation[7]

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[7] https://www.gov.uk/government/consultations/consultation-on-alternative-home-area-network-han-solutions

Annex B: Proposed Changes to the Smart Energy Code
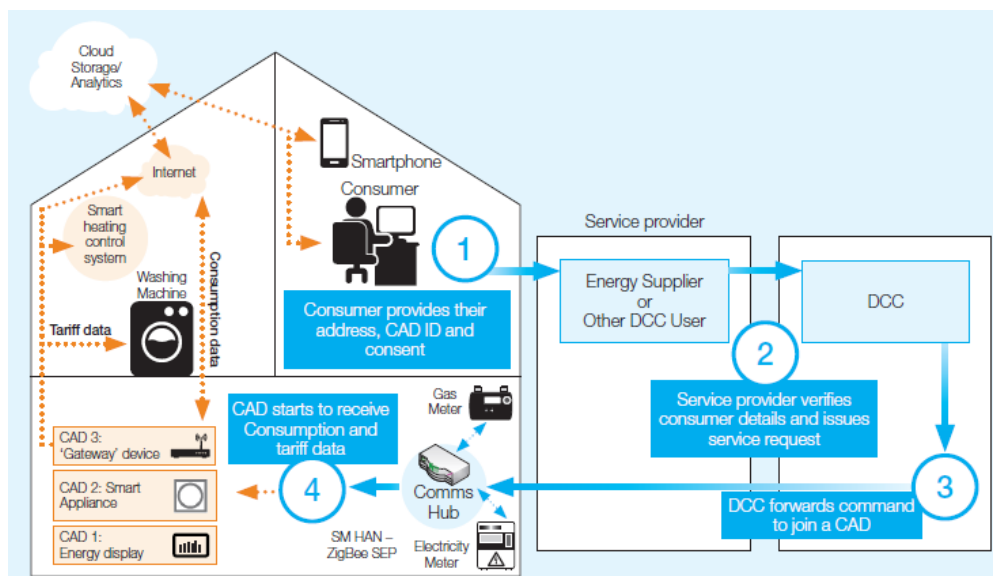
Provided as a separate document.

Note: the proposed changes shown in this annex have been marked up against the most recent version of F1 (December 2015)

Annex C: Remote CAD Pairing Method

Remotely-initiated CAD pairing solutions will be supported at DCC Live, ensuring that consumers can begin to realise the benefits of CADs as early as possible. Remotely-initiated pairing can be undertaken by any DCC User without energy supplier intervention in the pairing process.

Remote pairing can be initiated by the consumer in the following ways:

- Consumer orders a CAD which is pre-paired by the CAD provider so that on receipt of CAD all the consumer has to do is turn it on

- Consumer uses website/app to provide Media Access Control (MAC)[8] address and install code to the energy supplier or other DCC User

- Consumer uses phone to provide MAC address and install code to energy supplier or other DCC User

- Consumer uses postal route to provide MAC address and install code to energy supplier or other DCC User

The Government believes that most consumers will pair devices by remote pairing. This method removes the need for direct consumer interaction with the Smart Meter, which has a limited interface and may be in an inaccessible location, and allows greater scope for organisations to support the consumer through the process.

In addition, recent stakeholder engagement has indicated that several CAD manufacturers or other data service providers are intending to provide a remote pairing service as part of their device support. This will allow them to ensure the installation of their devices goes smoothly, have a higher level of engagement with their customers, and potentially increase customer understanding of their devices. The Government believe this is just one way the market could potentially provide alternative options for remote pairing.

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[8] The unique identifier of the CAD's network interface

Annex D: Outline Changes to Technical Specifications to Implement Local CAD Pairing

The following changes to technical specifications are anticipated in order to implement the proposed local CAD pairing approach set out under Option 3 in Section 3 of this consultation. These changes would be implemented via TBDG, as per the Programme's transitional governance approach.

GBCS

The new messages/HAN interface commands would be detailed in GBCS and based on existing ZigBee commands. For example, the Install Code could be sent from the ESME to the comms hub in a TransferData command. This is a standard ZSE command that is protected by ZigBee APS security (which encrypts all device to device messages using Certicom's Zigbee Smart Energy certificates) so the Install Code would not be in the clear. GBCS would specify the data structure to be put in the TransferData command payload, such that the comms hub could figure out that this is a message for it (and not something the ESME is trying to send somewhere else like an Alert to its Supplier). In addition the comms hub would need to be able to pick out the CAD Install Code from the message. Similar message structures would be used for the other LCP HAN interface commands. This is similar to other ZSE device to device messages that are allowed in GBCS such as the PPMID commands to the ESME to add credit, activate emergency credit and enable supply. Device Based Access Control (DBAC) in GBCS would be modified to allow for these additional ZSE commands.

CHTS and SMETS

- New HAN interface commands sent by the electricity meter to the communications hub to:
    - put communications hub into pairing mode
    - send install code to communications hub

- New HAN interface commands sent by communications hub to the electricity meter to:
    - provide CAD MAC address for the electricity meter device log and for display on the electricity meter

- New HAN interface command sent by CAD to communications hub to:
    - provide CAD MAC address for communications hub

- New electricity meter functionality

- o User interface display – display MAC address
- o User interface command – command to select CAD to be paired
- o User interface command – command to enter the install code