Department for
Business, Energy
& Industrial Strategy

SMART METERING IMPLEMENTATION PROGRAMME

Government response to a consultation on local pairing of consumer devices to the home area network

February 2017

The original Consultation can be found on GOV.UK:
https://www.gov.uk/government/consultations/consultation-on-implementing-home-area-network-han-solutions-and-changes-to-technical-sub-committee-tsc

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

Contents

General information

Enquiries to:
Smart Metering Implementation Programme
Department for Business, Energy and Industrial Strategy
1st Floor, Area C
3 Whitehall Place, London
SW1A 2AW
Email: smartmetering@beis.gsi.gov.uk
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.

Additional copies:
You may make copies of this document without seeking permission. An electronic version can be found at: https://www.gov.uk/government/consultations/consultation-on-implementing-home-area-network-han-solutions-and-changes-to-technical-sub-committee-tsc.

Quality assurance:
This consultation response is published 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 were the subject of the consultation) please address them to: enquiries@beis.gov.uk

Government response to a consultation on local CAD pairing

Programme introduction

1. The government is committed to ensuring that every home and small business in the country is offered a smart meter by the end of 2020, delivered as cost effectively as possible. 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. The roll-out of smart meters is an important national modernisation programme that will bring major benefits to businesses and the nation as a whole. Smart meters will provide consumers with near-real time information on their energy consumption, so that consumers can control and manage their energy use, save money and reduce emissions.

2. 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 the smart meter Home Area Network (HAN), as defined by the Smart Metering Equipment Technical Specifications (SMETS).

'Pairing' consumer access devices

3. The HAN allows consumers to add additional devices, for example, appliances, bridging devices, thermostats etc., to access their energy consumption data and tariff information. Such devices are collectively referred to here as 'consumer access devices', or CADs.

4. With the consumer's permission, CADs can be connected ('paired') to the HAN remotely via their energy supplier or other organisation signed-up to use the new Data and Communications Company systems (DCC User). The DCC systems required to facilitate this 'remote' CAD pairing were made available at DCC Live. Various stakeholders, including several CAD manufacturers and other data service providers, have previously indicated to the Programme that they may offer a remote CAD pairing service as part of their CAD offering. Energy suppliers are also already obliged under their supply licences to pair CADs on request by their consumers.

December 2015 consultation on local CAD pairing

5. In December 2015 a possible alternative approach in addition to remote CAD pairing – local CAD pairing – was consulted on[1]. Local CAD pairing would enable consumers to pair a CAD themselves without needing to contact their energy supplier or another DCC User. At the

[1] Consultation on aspects of the implementation of Home Area Network (December 2015). For further background see also https://www.gov.uk/government/consultations/smart-metering-implementation-programme-the-process-to-finalise-the-great-britain-companion-specification

time it was considered by the Programme that this additional pairing approach could offer some benefits (choice and flexibility) to both consumers and service providers. However, a number of implementation constraints had already been identified[2] and, therefore, the Programme consulted on the following options:

> **Option 1:** Do not implement local CAD pairing – the Programme would take no further action to amend the technical specifications to support local CAD pairing. CADs could still be paired by remote CAD pairing.
> **Option 2:** Implement local CAD pairing through GB-specific CADs – delivering the originally proposed functionality, but without relying on changes to ZigBee Smart Energy Profile. Instead a new GB-specific functionality for CADs described in the SMETS, Communications Hub Technical Specifications (CHTS) and Great Britain Companion Specification (GBCS) would be created.
> **Option 3:** Implement local CAD pairing through the existing ZigBee standard – this approach would use the existing ZigBee Smart Energy Profile, but consumers would have to enter, on the electricity meter, a pairing code of between 20 and 44 digits (it was expected that CAD providers would likely opt for the longer code, which is generally used now and which is considered the most secure).

6. Option 3 was set out as the preferred approach; and in addition the Programme sought views on:

- The timing of the inclusion of any requirements to implement local CAD pairing, including its retrospective application to SMETS2 equipment already installed through an 'over the air' upgrade.
- Privacy issues arising from the proposed method for local CAD pairing, in particular the setting of an appropriate Privacy PIN (see below) by the consumer.

Responses to consultation and issues identified

7. There were 12 responses to the December 2015 consultation including from: energy suppliers, meter manufacturers, the DCC, a CAD provider and Citizens Advice. A question-by-question summary of the responses and issues identified is provided in Annex 1. In summary, though most respondents supported some form of local CAD pairing 'in principle', they also expressed concerns about option 3, its consumer friendliness and likely take-up, especially given the existence of remote CAD pairing. Two significant issues were raised:

- **Deliverability (complexity and timing)** – manufacturers would need to build new local CAD pairing functionality into electricity meters and communications hubs. This would add to the overall complexity of the meters and would require time to develop, build and test; and potentially add costs. A number of parties argued that work to support local CAD pairing could deflect meter manufacturers' resources during the early stages of the roll-out.

[2] See paras 16-18 of the December 2015 Consultation on 'Local CAD Pairing – Original Proposition'

- **Privacy** – a CAD gives a consumer access to their personal energy use data that is available from the smart meter over the HAN. Access to the functionality to pair a CAD, and thereby access to that data, could be protected by setting a Privacy PIN (as already enabled by the meter specification). However, consumers have a choice about setting the PIN and respondents were concerned that a PIN would not always be set, which would run the risk of a CAD being paired – and granular personal data being accessed – by someone other than the consumer[3]. This would be a particular risk for those meters in shared spaces. Respondents emphasised the potential risks though only a few potential solutions were noted at the time.

8. Given the importance of these issues, a decision on whether to implement a method of local CAD pairing was delayed pending further work and discussion with industry and other stakeholders to explore possible solutions. During summer 2016 the issues were discussed with a range of interested stakeholders (Annex 2). Our final decision informed by those discussions, is presented below.

Addressing privacy concerns

9. The interfaces on smart electricity and gas meters already show some data[4], which the consumer can choose to protect, or not, by setting a Privacy PIN. In terms of local CAD pairing functionality (that is, the ability to pair a CAD and access additional personal data through it), the fact that the consumer has a choice about setting the Privacy PIN means that, where it has not been set by the consumer, anyone with access to the electricity meter (and approximately 50% of electricity meters are in shared spaces) could pair a CAD locally and access personal data through it. This could be accidental or deliberate, but either way it means that someone other than the consumer could access personal data, potentially without the actual consumer being aware. This risk of unauthorised access to personal data is at odds with the strong data access and privacy framework in place for smart metering. Most respondents agreed that the proposed local CAD pairing approach posed such a risk and was at odds with the broader Programme approach and suggested local CAD pairing functionality should be protected.

10. Various options to address the risk were identified. These ranged from strengthening obligations on suppliers to ensure that the Privacy PIN is set through to additional meter functionality/system changes to protect local CAD pairing functionality. It was also noted that any solution would have to deal with a range of consumer engagement scenarios from first installation, to change of supplier, and changes of tenancy. The options were considered with stakeholders, who broadly supported a solution whereby local CAD pairing functionality is protected behind the Privacy PIN at all times (that is, local CAD pairing only works where a

[3] The data of most concern is the real-time (10 second) consumption data and 13 months' stored consumption data. Whilst consumers can choose to set a Privacy PIN (or not), under the Smart Meter Installation Code of Practice suppliers are obliged to inform consumers about the functionality of the meter, which would include a Privacy PIN.

[4] Including, amongst other items, debt, meter balance and MPAN. The Programme was comfortable – in the absence of LCP – that protecting this data by setting a Privacy PIN should be a choice for individual consumers.

Privacy PIN is set). This was considered proportionate as it focuses on the risk identified. However, it was also noted that it involves a change to the meter firmware, which adds cost; and that additional costs would arise from establishing business processes and call centre resource to support the approach.

11. Placing local CAD pairing functionality behind the Privacy PIN has two significant implications:

- It adds complexity to what is already a challenging consumer process, with consumers having to set the Privacy PIN, and then remember / record it and use it to get to the stage where they can manually input the 20 to 44 digit code into the electricity meter interface – this is unlikely to be a regularly used PIN, so the instances of forgotten Privacy PINs would likely be high.
- If a Privacy PIN has not been set, or has been forgotten, or there has been a change of tenancy, the consumer would have to contact their supplier (or another DCC User) to enable the Privacy PIN to be set/reset, and then input the 20 to 44 digit code.

12. In summary, this means that the number of potential 'failure' points for local CAD pairing is increased by the need to set or reset a Privacy PIN, in addition to the challenges of the pairing process itself. Consumers would be likely to encounter significant difficulties, which would result in the need to contact their supplier (or another DCC User). Stakeholders were of the view that remote CAD pairing offers a quicker and easier solution (that is, once the consumer is in contact with a DCC User, they might as well simply complete the pairing using remote CAD pairing rather than go back to re-try local CAD pairing).

13. The main rationale for including local CAD pairing was to give consumers a choice about how they pair CADs and freedom from having to contact a third party (in particular, their supplier) to do it. The latter point has been emphasised by some stakeholders, though this was tempered by the view that local CAD pairing provision should not be *at any cost*. Innovation in service provision has also been cited as a benefit of local CAD pairing, however stakeholders – including potential non-supplier service providers – generally thought that such innovation would be driven by the fact that CADs could be paired and data become available (whatever the method). They also generally agreed that innovation would not emerge from the method of pairing itself. The feedback received did not suggest that business models were being based on the availability of local CAD pairing.

Conclusion

14. We conclude that any local CAD pairing solution would need to ensure that a privacy PIN is set to protect the pairing functionality and underlying data. This has timing and resource implications for the introduction of any local CAD pairing method. In revisiting the overall case for local CAD pairing, given these technical constraints, stakeholders were broadly of the view that neither consumers nor market participants will favour local CAD pairing as it would not offer a consumer friendly experience. Remote CAD pairing already offers an alternative, and one which can be made a simple and attractive consumer experience. Overall local CAD

pairing does not therefore add value, and we have concluded that local CAD pairing should not be introduced for the time being.

15. This decision does not prevent local CAD pairing being introduced at a later date if a solution emerges that overcomes the challenges outlined here. The enduring industry governance processes under the Smart Energy Code Panel would be the right place for any future proposal to introduce local CAD pairing to be considered.

Implications for remote CAD pairing

16. We also recognise that, in the absence of local CAD pairing, it will be important that remote CAD pairing is effective. Businesses offering products or services based on CADs will, in the first instance, need to engage consumers themselves – but they also need to be confident that their CADs can be paired. Suppliers are already required by licence to pair a CAD if asked to do so by their consumers. Suppliers also have natural incentives to make remote CAD pairing easy and efficient, to avoid handling high volumes of calls from consumers about pairing. Some non-supplier organisations have also previously indicated that they would consider offering pairing services through becoming a DCC User. Furthermore, a variety of approaches to remote CAD pairing are likely to emerge to suit consumers, including web or app-based approaches. However, we will continue to monitor the implementation of remote CAD pairing and act to protect consumers' interests or to support innovation if necessary.

ANNEX 1: OVERVIEW OF CONSULTATION RESPONSES

17. This annex provides an overview of the issues raised in responses to the December 2015 consultation on local CAD pairing. The consultation also covered two other topics, with the questions covering local CAD pairing numbered 3-9 (the original numbering is maintained here to avoid confusion). We have grouped the questions into four sections: general approach and timing; firmware upgrade and retrospective application of any requirements; cost and timing impacts; and privacy PIN protection.

General approach and timing

Consultation questions 3, 4 & 5	
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.

Summary of views

18. Respondents were supportive, at least 'in principle', of the inclusion of local CAD pairing functionality. It was noted that local CAD pairing may be attractive to some consumers and could have advantages compared to remote CAD pairing (remote CAD pairing), such as removing dependency on an energy supplier or other DCC User. However, a number of potential issues were raised. There were views about the likely quality of the consumer experience from meter manufacturers and energy suppliers as well as potential service providers. For example, the potential difficulties of entering a long pairing code into the limited electricity meter interface were highlighted. There was also some concern about the complexity of implementing changes to smart electricity meters, especially around, or shortly following, the time of DCC Live. Limited rationale was provided for the views set out.

Firmware upgrade and retrospective application

Consultation questions 6 & 7	
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.

Summary of views

19. Respondents appeared to agree that the inclusion of local CAD pairing functionality (as set out in the consultation) was a matter of upgrading software and not hardware. Although little evidence was provided to support this initially, follow-up discussion appears to support this. There was general agreement that, ideally, all SMETS2 meters should include local CAD pairing functionality if such functionality was to be required; and responses suggested that theoretically an 'over the air' upgrade should be possible to achieve this. However, most responses also noted that this was subject to proof that an 'over the air' upgrade was feasible and dependent on an assessment of the associated risks as well as benefits at the time. There were also views that an 'on demand' implementation for consumers who wanted local CAD pairing might be more appropriate, i.e. that this would target the functionality at those who wanted it and lessen the potential risks of a large-scale upgrade.

Cost and timing impacts

Consultation question 8	
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.

Summary of views

20. Overall the views expressed were that the implementation could happen without a significant impact on timescales, though there were some concerns about its implementation being combined with other changes, which could lead to significant resource pressures in particular for meter manufacturers. However, little evidence was provided on the scale of the changes to deliver the local CAD pairing approach set out or the time it would take to implement. Subsequent discussions have provided a better view and some evidence on costs, indicating potentially significant cost and time impacts, in particular when taking into account the privacy issues raised (and potential solutions to these).

Privacy PIN protection

Consultation question 9	
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.

Summary of views

21. The initial responses to this question did not explore the issues in the depth expected. A number of responses cited the Smart Metering Installation Code of Practice (SMICoP) and its requirements to 'demonstrate functionality' as sufficient to ensure the PIN was set. Others were concerned about the risk of data being accessed by someone other than the consumer, but did not suggest approaches to addressing this risk.

22. We also consulted with industry via the smart metering Transitional Security Expert Group (TSEG). The group expressed concern that consumers may not set a Privacy PIN, or use an inadequate Privacy PIN, and that this could result in someone other than the consumer pairing a CAD to a meter. Whilst this does not compromise the security of the smart metering system, it could result in unauthorised access to personal data.

23. As set out in the main body of this response, this is the principal area of concern for the Programme and further discussions were held with stakeholders to explore the issues raised and consider potential solutions.

ANNEX 2: STAKEHOLDER ENGAGEMENT

Responses to the December 2015 consultation were received from:

British Gas	EUA/ BEAMA
Citizens Advice	EUK
DCC	Labrador
EDF	Npower
EDMI	Technical Sub Committee
EON	Utilita

During summer 2016 discussions were held with:

BEAMA: Various members
Citizens Advice
ESTA: PA Energy, Energy Assets, Energy Metering Technology, SMS, Carbon2018
EUK: BG; EON; Utilita; SSE; Npower; SP; EDF
Pilot Systems
Sustainable Energy Association (SEA): Baxi, Mitsubishi, NIBE, Glen Dimplex
techUK: Analysys Mason Limited, CGI IT UK Ltd., Gemserv Ltd, Toshiba Information Systems (UK) Ltd., Vodafone Ltd., Wifore

Department for Business, Energy & Industrial Strategy
www.gov.uk/beis