



Department  
of Energy &  
Climate Change

# Smart Metering Implementation Programme

## A Consultation on the Great Britain Companion Specification

10 July 2014

© Crown copyright 2014

You may re-use this information (not including logos) free of charge in any format or medium, under the terms of the Open Government Licence.

To view this licence, visit [www.nationalarchives.gov.uk/doc/open-government-licence/](http://www.nationalarchives.gov.uk/doc/open-government-licence/) or write to the Information Policy Team, The National Archives, Kew, London TW9 4DU, or email: [psi@nationalarchives.gsi.gov.uk](mailto:psi@nationalarchives.gsi.gov.uk).

This document is also available from our website at [www.gov.uk/decc](http://www.gov.uk/decc).

## General information

### **Purpose of this consultation:**

This consultation seeks views on the content of draft GBCS version 0.8, which is intended to form the basis of Systems Integration Testing. It also proposes minor amendments to the Smart Energy Code (SEC) to be made when the GBCS is incorporated in the SEC.

**Issued:** 10 July 2014

**Respond by:** 21 August 2014

### **Enquiries to:**

Smart Metering Implementation Programme  
Department of Energy & Climate Change  
Orchard 3, Lower Ground Floor

1 Victoria Street

London, SW1H 0ET

Telephone: 0300 068 6659

Email: [smartmetering@decc.gsi.gov.uk](mailto:smartmetering@decc.gsi.gov.uk)

### **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 of Enterprise, Trade and Investment.

### **How to respond:**

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

Responses to this consultation should be sent to [smartmetering@decc.gsi.gov.uk](mailto:smartmetering@decc.gsi.gov.uk) no later than 21 August 2014.

### **Additional copies:**

You may make copies of this document without seeking permission. An electronic version can be found at [www.gov.uk/government/consultations/smart-metering-implementation-programme-great-britain-companion-specification-version-08](http://www.gov.uk/government/consultations/smart-metering-implementation-programme-great-britain-companion-specification-version-08).

Other versions of the document in Braille, large print or audio-cassette are available on request. This includes a Welsh version. Please contact us under the above details to request alternative versions.

### **Confidentiality and data protection:**

DECC intends to summarise all responses and place this summary on our website at [www.gov.uk/government/consultations/smart-metering-implementation-programme-great-britain-companion-specification-version-08](http://www.gov.uk/government/consultations/smart-metering-implementation-programme-great-britain-companion-specification-version-08). This summary will include a list of names or organisations that responded but not people's names, addresses or other contact details. In addition DECC may wish to publish the individual responses on its website and you should therefore let us know if you are not content for the response or any part of it to be published. We will not publish people's personal names, addresses or other contact details. If you indicate that you do not want your

response published we will not publish it automatically but it could still be subject to information requests as detailed below.

Further, information provided in response to this consultation, including personal information, may be subject to publication or disclosure in accordance with the access to information legislation (primarily the Freedom of Information Act 2000, the Data Protection Act 1998 and the Environmental Information Regulations 2004).

If you do not want your individual response to be published on the website, or to otherwise be treated as confidential please say so clearly in writing when you send your response to the consultation. For the purposes of considering access to information requests 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.

**Quality assurance:**

This consultation has been carried out in accordance with the Government's Consultation Principles, which can be found here:

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/60937/Consultation-Principles.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/60937/Consultation-Principles.pdf)

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  
London SW1A 2AW  
Email: [consultation.coordinator@decc.gsi.gov.uk](mailto:consultation.coordinator@decc.gsi.gov.uk)

# Table of Contents

<b>1</b>	<b>Executive Summary and Introduction</b> .....	<b>6</b>
<b>2</b>	<b>GBCS Version 0.8</b> .....	<b>7</b>
2.1	Relationship with other technical requirements .....	7
2.2	Development of the GBCS .....	8
<b>3</b>	<b>Next Steps</b> .....	<b>9</b>
3.1	Future Versions of the GBCS.....	9
3.2	Incorporating the GBCS in the Smart Energy Code .....	9
<b>4</b>	<b>Glossary</b> .....	<b>12</b>

# 1 Executive Summary and Introduction

- 1 The Great Britain Companion Specification (GBCS) for smart metering describes the detailed requirements for communications between smart metering Devices in consumers' premises, and between these Devices and users of the smart metering system (such as energy suppliers and network operators) via the Data and Communications Company (DCC).
- 2 Through this consultation, the Government is seeking views on:
  - the GBCS version 0.8<sup>1</sup>, which is intended to be used as the basis for Systems Integration Testing (SIT); and
  - the proposed amendments to the Smart Energy Code (SEC), to be made at the time the GBCS is incorporated in the SEC<sup>2</sup>.
- 3 The GBCS v0.8:
  - provides a stable baseline for manufacturers to proceed with pre-production/prototype Device development and testing; and
  - enables the DCC to complete the DCC User Gateway Specification (DUGIS) and to develop the Data Service Provider (DSP) systems.
- 4 The GBCS has been developed in the manner described in the Government Response to the Consultation on the Process to Finalise the Great Britain Companion Specification<sup>3</sup>. It is based on internationally recognised communications protocols, ZigBee SEP and DLMS COSEM, and details implementation requirements for GB smart metering where necessary. Extensive input has been obtained at each stage of its development, including via stakeholder reviews<sup>4</sup> and through two 'paper-based' proving exercises<sup>5</sup> (these were led by the DCC). Chapter 2 provides further detail on GBCS v0.8.
- 5 We intend to incorporate the GBCS into the SEC, alongside other Device specifications, as soon as it is practical to do so. We propose several amendments to the SEC in section 3.2 to support this. The GBCS was added to the Technical and Business Design Group's (TBDG) document-set baseline on 9 July 2014, and as such will be subject to the Programme's transitional change control process in advance of its incorporation in SEC. Section 3.1 explains the further work that will be undertaken to assure the GBCS.

---

<sup>1</sup> Available at [www.gov.uk/government/consultations/smart-metering-implementation-programme-great-britain-companion-specification-version-08](http://www.gov.uk/government/consultations/smart-metering-implementation-programme-great-britain-companion-specification-version-08)

<sup>2</sup> The Government is also currently considering responses to, and will shortly respond to, the consultation on changes to equipment installation requirements and the governance arrangements for technical specifications ([www.gov.uk/government/consultations/changes-to-equipment-installation-requirements-and-governance-arrangements-for-technical-specifications](http://www.gov.uk/government/consultations/changes-to-equipment-installation-requirements-and-governance-arrangements-for-technical-specifications)).

<sup>3</sup> [www.gov.uk/government/consultations/smart-metering-implementation-programme-the-process-to-finalise-the-great-britain-companion-specification](http://www.gov.uk/government/consultations/smart-metering-implementation-programme-the-process-to-finalise-the-great-britain-companion-specification).

<sup>4</sup> Including Energy UK, Energy Networks Association, CMAP, BEAMA and Energy Utilities Alliance. It also been reviewed by a variety of other organisations – we provided draft versions of the GBCS to any party who requested it during its development.

<sup>5</sup> This involved participants simulating (i.e. performing the interface role of) the DCC and Devices and generating messages and responses based on the GBCS Use Cases.

## 2 GBCS Version 0.8

### 2.1 Relationship with other technical requirements

- 6 The GBCS describes the communications requirements (message structures, data conventions, security mechanisms, etc.) needed to support the minimum functionality of GB smart metering Devices, as described in the second version of the Smart Metering Equipment Technical Specifications (SMETS), In Home Display Technical Specifications (IHDTs), HAN Controlled Auxiliary Load Control Switches Technical Specifications (HCALESTS), Prepayment Interface Device Technical Specifications (PPMIDTS) and Communications Hub Technical Specifications (CHTS); together the 'Device Specifications'<sup>6</sup>. These Device Specifications set out the minimum physical, functional, interface, data, testing and certification requirements for Devices and have been developed, consulted upon, and base-lined in accordance with the SMIP transitional governance procedures.
- 7 In our response to the SMETS 2 consultation<sup>6</sup>, we confirmed that the GBCS would be based on international and open standards, specifically ZigBee SEP 1.2 and DLMS COSEM. We clarified in the Government Response to the Consultation on the Process to Finalise the GBCS that the GBCS would describe communications between the:
  - Devices on the Home Area Network (HAN), which will be a subset of the requirements defined in ZigBee SEP 1.2;
  - Gas Smart Meter and the DCC, which are based on ZigBee SEP message structures contained within a GB security wrapper; and
  - Electricity Smart Meter and the DCC, which are based on DLMS COSEM.
- 8 ZigBee SEP 1.2 will be used in its pure form as the HAN protocol for messages between Devices in the consumer's premises. However, it has been necessary to modify or actively dis-apply certain features such that it can be used for communications between Devices and the DCC across the Wide Area Network (WAN). The GBCS identifies those instances where the standard protocol has not been used, and Devices do not require certification against these features.
- 9 In a similar manner, it has been necessary to modify or actively dis-apply certain features of the DLMS protocol (as defined in the DLMS Green Book and Blue Book). Again, the GBCS clearly identifies those instances where the standard protocol has not been used, and Devices do not require certification against these features.
- 10 As confirmed in the Government Response to the Consultation on the Process to Finalise the Great Britain Companion Specification, energy suppliers will be required to undertake testing to ensure Devices comply with the GBCS and interoperate with the DCC's systems.
- 11 The DUGIS, which defines the manner in which DCC Users will communicate with the DCC, and the Security Characteristics, which set out the requirements for Commercial Product Assurance (CPA) Device certification, are dependent

---

<sup>6</sup> The current drafts of SMETS 2 (which incorporates the IHDTs, PPMIDTS and HCALESTS) and CHTS are available at [www.gov.uk/government/consultations/smart-metering-equipment-technical-specifications-second-version](http://www.gov.uk/government/consultations/smart-metering-equipment-technical-specifications-second-version).

upon the GBCS. Thus, the DCC's consultation on the DUGIS will overlap with this GBCS Consultation allowing both specifications to be reviewed in parallel. The Security Characteristics will be updated by the CPA working group to reflect the requirements in GBCS version 0.8 ahead of their planned notification to the European Commission on 31 July.

## 2.2 Development of the GBCS

- 12 A joint industry project team, led by the Government, was established to oversee the development of the GBCS. The GBCS was developed in an iterative manner, with iterations released for comment by stakeholders in December 2013 and, February and May 2014. The Programme also undertook extensive stakeholder engagement to support the review of the GBCS; for example, meetings and workshops were held with interested stakeholders.
- 13 The GBCS was also subject to two proving exercises, which were led by the DCC and supported by its Service Providers and Device manufacturers. These proving exercises covered all Use Cases that are set out in the GBCS.
- 14 Issues raised during these processes have been addressed in GBCS v0.8, or were rejected with the rationale provided to the raising party.
- 15 GBCS v0.8 is based upon the draft 0.9 release of ZigBee SEP 1.2<sup>7</sup> which provides a stable protocol specification. We expect that the final version of ZigBee SEP 1.2 release 0.9 will be available prior to the notification of GBCS at the end of July. However, we will notify against the draft version of ZigBee SEP 1.2 release 0.9 if necessary.
- 16 GBCS version 0.8 is also based upon the DLMS COSEM Green Book<sup>8</sup> version 8 and draft DLMS COSEM Blue Book version 12<sup>9</sup>. These provide a stable basis upon which to produce the GBCS. When it is published in mid-August, we are not anticipating any further changes in the Blue Book which will impact the GBCS. The currently available versions will form the basis for notification.
- 17 GBCS v0.8 is: functionally complete; sufficiently explicit, unambiguous and comprehensible; and aligned with other documentation, and so we believe it:
  - provides a stable baseline for manufacturers to proceed with pre-production/prototype Device development and testing; and
  - enables the DCC to complete the DUGIS and to develop the DSP systems.

### Question

Q1 Do you have any comments on the content of the GBCS v0.8, noting that this is the version intended for use during SIT and may be subject to further change thereafter? Please provide a rationale for your views.

*Please comment on the GBCS using the response sheet provided at:*  
[www.gov.uk/government/consultations/smart-metering-implementation-programme-great-britain-companion-specification-version-08](http://www.gov.uk/government/consultations/smart-metering-implementation-programme-great-britain-companion-specification-version-08).

<sup>7</sup> The 0.9 release of ZigBee SEP is a certification ready specification (i.e. parties that have been involved in interoperability testing can certify their devices against the 0.9 specification).

<sup>8</sup> DLMS UA 1000-2 Ed. 8.0 – the Green Book describes the communications architecture and protocol.

<sup>9</sup> DLMS UA 1000-1 Ed. 12.0 – the Blue Book provides the meter object model and the object identification system.



## 3 Next Steps

- 18 The GBCS will be notified to the European Commission on the 31<sup>st</sup> July 2014 alongside the Device Specifications, the CPA Security Characteristics and the relevant sections of the DCC and supply licences.
- 19 The DCC will align the DUGIS with the GBCS v0.8 and will consult stakeholders in due course.
- 20 As noted in the Government Response to the Consultation on the Process to Finalise the Great Britain Companion Specification, locally initiated CAD pairing is to be reintroduced as soon after initial Live Operations as possible. Although the precise nature of this is to be determined, it is likely to require changes to the GBCS.

### 3.1 Future Versions of the GBCS

- 21 GBCS v0.8 has been included within the Programme document-set baseline and any future changes will be presented to the TBDG for consideration.
- 22 We anticipate that changes may arise to GBCS v0.8 from a number of sources over the coming months, including from:
- an assessment of responses to this consultation;
  - the notification process;
  - GBCS Interface Testing<sup>10</sup>; and
  - Systems Integration Testing.
- 23 We intend that any such changes that are required in advance of the start of SIT are brought together into a single update of GBCS, and submitted to TBDG in Quarter 4 2014.
- 24 Any changes that are required as a result of SIT will also be submitted to the TBDG. The GBCS will be re-notified to the European Commission at this point if so required.

### 3.2 Incorporating the GBCS in the Smart Energy Code

- 25 The Government intends to incorporate the GBCS into the Smart Energy Code at the same time that the Device Specifications are incorporated into the SEC (which we intend to do as soon as it is practical). Subsequent amendments to the GBCS would be considered via the SEC modification process (subject to any transitional variations to that modification process set out in Section X of the SEC).
- 26 Specific provisions have been included in Condition 22 of the DCC Licence (and repeated in Section X5.3 of the SEC) to enable the Government to make these changes. This also includes the power to make any consequential changes to the SEC as required to facilitate the documents' introduction.
- 27 We propose to use these powers to make the following amendments to the SEC at the time of the GBCS's introduction:
- Section A 1(Definitions) –

<sup>10</sup> Electronic test of end-to-end messages using prototype meters ahead of SIT.

- Expand the definition of GBCS to clarify that this includes any requirements embedded within the GBCS;
- Add new term ‘Message’ to be given the same meaning as used in the GBCS;
- Add new term ‘Access Control Broker’ to mean the DCC acting as the Known Remote Party role defined in the GBCS; and
- Add new term ‘WAN Provider’ to mean the DCC acting as the Known Remote Party role defined in the GBCS,
- Section A2 (Interpretation) – explanation that definitions used in subsidiary documents should be used when interpreting requirements in that subsidiary document but otherwise any definition in the main body of the SEC should take precedence; and
- Section H4 (processing Service Requests) – requirement on the DCC, where they have received appropriate instruction from a Party, to format Messages in the way defined in the SEC (i.e. including as defined in the GBCS as appropriate).

Proposed SEC Amendments	
<b>A1 Definitions</b>	<p>Replace current definition for “GB Companion Specification” with:</p> <p><i>means the specification set out as a SEC Subsidiary Document in Appendix [TBC], and shall be taken to include the content of such documents as are embedded within that Appendix.</i></p>
	<p>Add new term “Message”:</p> <p><i>has the meaning given to that expression in the GB Companion Specification.</i></p>
	<p>Add new term “Access Control Broker”:</p> <p><i>means the DCC, acting in the capacity and exercising the functions of the Known Remote Party role identified as such in the GB Companion Specification.</i></p>
	<p>Add new term “Wide Area Network (WAN) Provider”:</p> <p><i>means the DCC, acting in the capacity and exercising the functions of the Known Remote Party role identified as such in the GB Companion Specification.</i></p>
<b>A2 Interpretation</b>	<p>Add the following new provisions:</p> <p><i>A2.6 Where any expression is defined both in Section A of this Code and in any SEC Subsidiary Document:</i></p> <p style="margin-left: 40px;"><i>(a) the definition in the SEC Subsidiary Document shall take precedence for the purposes of that SEC Subsidiary Document; and</i></p> <p style="margin-left: 40px;"><i>(b) the definition in Section A shall take precedence for all other purposes.</i></p> <p><i>A2.7 For the purposes of Section A2.6, where the meaning of an expression is explained in any glossary (or equivalent section) contained within a SEC Subsidiary Document, it shall be treated as an expression that is defined in that SEC Subsidiary Document.</i></p>
<b>H4 Processing</b>	<p>Add the following new provisions:</p>

<b>Service Requests</b>	<p><i>H4.X1 Where:</i></p> <ul style="list-style-type: none"> <li>(a) a Device which forms part of a Smart Metering System is listed in the Smart Metering Inventory with an SMI Status of 'commissioned' or 'installed not commissioned'; and</li> <li>(b) in accordance with any provision of the Code, any Message sent to that Device by DCC (or by a User further to a Local Command Service) is required to contain specified information or be in a specified format,</li> </ul> <p><i>subject to Section H4.X2, the DCC shall ensure that the Message sent to the Device (or to the User further to a Local Command Service) contains the specified information or is in the specified format (as the case may be).</i></p> <p><i>H4.X2 The DCC shall not be treated as having failed to comply with the requirement at Section H4.X1 where any Message referred to in that Section does not contain the specified information or is not in the specified format as a direct consequence of a failure by any Party to comply with any provision of this Code.</i></p>
-------------------------	---

### Question

<b>Q2</b>	Do you agree with our proposed approach and legal drafting concerning the incorporation of the GBCS into the SEC? Please provide a rationale for your views.
-----------	--

## 4 Glossary

### **Communications Hub**

A device which complies with the requirements of CHTS.

### **Communications Hub Technical Specifications (CHTS)**

A document which sets out the minimum physical, functional, interface and data requirements that will apply to a Communications Hub.

### **Consumer Access Device (CAD)**

A device which will be securely connected via the HAN interface and will receive consumption and tariff information which it will use to assist consumers manage their energy use. A CAD may be one of a number of devices - such as an enhanced energy display, a smart appliance or a home automation controller.

### **Data and Communications Company (DCC)**

The holder of the smart meter communication licence, Smart DCC Ltd.

### **Data Service Provider (DSP)**

The company awarded a contract to be a service provider of data services to DCC as part of DCC's Relevant Services Capability. CGI IT UK Limited has been appointed to provide these services.

### **DCC User**

A SEC Party who has completed the User Entry Processes and is therefore able to use DCC Services.

### **Device**

One of the following: (a) an Electricity Smart Meter; (b) a Gas Smart Meter; (c) a Communications Hub Function; (d) a Gas Proxy Function; (e) a Pre-Payment Interface; (f) an HAN Controlled Auxiliary Load Control Switch; or (g) any Type 2 Device (e.g. IHD).

### **DLMS COSEM (Device Language Message Specification Companion Specification for Energy Metering)**

The suite of standards developed and maintained by the DLMS User Association that describes a common communications language for exchanges with energy meters.

### **DLMS User Association**

The body that develops and maintains DLMS COSEM.

### **Electricity Smart Meter**

A Device meeting the requirements placed on Electricity Smart Metering Equipment in the SMETS.

### **Gas Smart Meter**

A Device meeting the requirements placed on Gas Smart Metering Equipment in the SMETS.

### **GB Companion Specification (GBCS)**

A document setting out amongst other things, the detailed arrangements for communications between Devices on the HAN and between the DCC and Devices.

### **HAN Controlled Auxiliary Load Control Switches (HCALCS) Technical Specifications**

A document which sets out the minimum physical, functional, interface and data requirements that will apply to a HCALCS.

### **Home Area Network (HAN)**

The means by which communication between Devices takes place within a premises.

### **In Home Display (IHD) Technical Specifications**

A document which sets out the minimum physical, functional, interface and data requirements that will apply to a IHD.

### **Initial Live Operations**

The expectation that the DCC will have built and tested its systems for SMETS2 equipment and be operationally ready; all of the Large suppliers will be ready to use the DCC's Services, start installing SMETS2 meters and offer basic services to both credit and pre-payment customers; the DNOs will be ready to support Smart Meter installation; and the Electricity DNOs ready to use the DCC Service to improve network management. Currently, this is planned to be September 2015.

### **Prepayment Interface Device (PPMID) Technical Specifications**

A document which sets out the minimum physical, functional, interface and data requirements that will apply to a PPMID.

### **Smart Energy Code (SEC)**

The Code designated by the Secretary of State pursuant to Condition 22 of the DCC licence and setting out, amongst other things, the contractual arrangements by which DCC provides services to users as part of its Authorised Business.

### **Smart Metering Equipment Technical Specifications (SMETS)**

A document that sets out the minimum physical, functional, interface and data requirements that will apply to smart metering equipment.

### **Systems Integration Testing (SIT)**

The period of DCC testing where Devices and DCC's service providers systems are tested together.

### **ZigBee Alliance**

The body that develops and maintains ZigBee SEP.

### **ZigBee SEP (Smart Energy Profile)**

A specification for a suite of high level communication protocols used for energy applications on local networks.

Crown copyright 2014

Department of Energy & Climate Change  
3 Whitehall Place  
London SW1A 2AW

[www.gov.uk/decc](http://www.gov.uk/decc)

URN 14D/244