Department of Energy & Climate Change

Smart Metering Implementation Programme

Government response to a consultation on the Great Britain Companion Specification

28 November 2014

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

This document is also available from our website at www.gov.uk/decc.

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1 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 GBCS v0.8 was released on 8 July 2014. It was developed in the manner described in the Government Response to the Consultation on the Process to Finalise the Great Britain Companion Specification[1]. It is based on a suite of agreed, open standards, principally ZigBee Smart Energy Profile (SEP) and DLMS COSEM, reflecting the UK Government's strategy to facilitate the development of third party innovative solutions for consumer devices.

3 We intend to incorporate the GBCS into the Smart Energy Code (SEC), alongside other Device specifications such as the Smart Metering Equipment Technical Specifications (SMETS) and Communications Hub Technical Specifications (CHTS), as soon as it is practical to do so. GBCS v0.8 was added to DECC's Technical and Business Design Group's (TBDG) document baseline on 9 July 2014, and as such is subject to the Programme's Transitional change control process in advance of its incorporation in SEC.

4 On 10 July 2014, the Government launched a consultation seeking views on:

- GBCS v0.8, which would be used as the basis for Systems Integration Testing (SIT); and
- the proposed consequential amendments to the SEC, which would come into effect when the GBCS is incorporated in the SEC.

5 The consultation closed on 21 August 2014, attracting twelve responses (as listed at Annex 1). The remainder of this document is structured as follows:

- Section 2 summarises views on question 1 relating to GBCS content and its suitability as a basis for SIT, and sets out the Government's conclusions;
- Section 3 summarises views on question 2 relating to the proposed approach and legal drafting concerning the incorporation of the GBCS into the SEC, and sets out the Government's conclusions; and
- Section 4 summarises progress and sets out the next steps for GBCS.

6 GBCS v0.8.1 was accepted into the TBDG document baseline[2], together with updated versions of SMETS (v1.58) and CHTS (v1.46)[3], on 26 November 2014. It is now intended that these versions will be used as the basis of SIT.

7 GBCS v0.8.1 builds on GBCS v0.8 to:

- reduce potential ambiguity by incorporating clarifications and amplifications arising from the consultation and other stakeholder queries;
- address identified defects; and
- maintain alignment with SMETS and CHTS.

[1] https://www.gov.uk/government/consultations/smart-metering-implementation-programme-the-process-to-finalise-the-great-britain-companion-specification
[2] This is available at https://www.gov.uk/government/consultations/smart-metering-implementation-programme-great-britain-companion-specification-version-08
[3] These documents can be found at https://www.gov.uk/government/consultations/smart-metering-equipment-technical-specifications-second-version

2 GBCS Version 0.8

2.1 Summary of Issue under Consideration

The consultation set out:

- a summary of the purpose and content of GBCS v0.8, including its use of international, open standards;
- the relationship of GBCS v0.8 with other technical documentation, including SMETS, CHTS, the Security Characteristics and the DCC User Gateway Interface Specification (DUGIS); and
- the development approach for GBCS v0.8, including stakeholder involvement and quality assurance activities.

Consultation Question 1 asked stakeholders if they had any comments on the content of GBCS v0.8, noting that this was the version intended for use during SIT.

2.2 Government Consideration of Issue

8 Respondents' comments fall broadly into two categories: those relating to GBCS purpose and development approach, and those relating to GBCS content.

2.2.1 GBCS Purpose and Development Approach

9 Respondents were generally supportive of GBCS v0.8, noting that it is a fundamental element of the GB smart metering product set. They were confident that it meets its objective to describe the detailed requirements for communications between smart metering Devices in consumers' premises, and between those Devices and users of the smart metering system including via the DCC. Thus respondents felt that the GBCS provides manufacturers with the detail required to build interoperable Devices and provide the DCC with the content needed to build their systems and develop the DUGIS.

10 However, a number of respondents were concerned that some issues relating to the GBCS's purpose and development remain to be addressed.

11 Respondents noted the complexity and highly specialist nature of the document. They were concerned about the possibility of ambiguous interpretation, and / or the time taken to understand the document and thus the risk of time delays and additional costs. To address this, respondents suggested the inclusion of additional material in the GBCS itself, or the preparation of user guides.

12 We acknowledge the complexity of GBCS. However it is intended to be a normative specification, and as such, intentionally limits the inclusion of additional explanatory information. In response to these concerns, we will continue to work with all stakeholders to assist in their understanding of the GBCS, both through formal routes (for example, via TBDG or the Issues Management Process[4]) and ad hoc arrangements.

13 Respondents noted that the GBCS does not stand in isolation of other documentation. This includes the SEC, SMETS, CHTS, and the protocol documentation. One respondent requested clarity on the scope of each of these documents, and how they all inter-relate to each other. Concerns were also raised over the strong link between the GBCS, and DUGIS, and in particular, how the DCC have interpreted the GBCS whilst developing the DUGIS.

[4] This is available on the on GBCS Huddle area. Stakeholders who do not already have access to this should email smartmetering@decc.gsi.gov.uk.

14 We recognise the inter-relationships between these documents. As part of the work to develop GBCS v0.8.1, we have undertaken a number of activities to ensure the alignment of content across the portfolio of smart metering technical documentation, and also its relationship with the SEC. We will work closely with the DCC to ensure that DUGIS development parallels that of the GBCS and provides a unified baseline for use by all stakeholders.

15 Respondents noted the significant progress reflected in the content of GBCS v0.8, and the collaborative work with stakeholders that had been essential in reaching this point. They stressed the importance of continued stakeholder engagement in the further development of the GBCS. Through TBDG, we have established the Technical Specification Issue Resolution Subgroup (TSIRS). The TSIRS complements the TBDG change management process by providing a working level forum through which we can work together with key industry participants and other delivery partners to review end-to-end (cross cutting) issues with the technical specifications and reach a consensus where possible on the interpretation and implementation of the specifications.

16 Respondents were also concerned that due processes for release management, quality management and change control should continue to be followed. We will ensure that the existing Issues Management Process, quality assurance approach and TBDG's transitional change management processes are applied to when updating technical documentation.

17 Respondents were unanimous in stressing the importance of a stable version of the GBCS as an input to SIT, and thus the need to minimise the amount of redesign, build and test required prior to ILO. They noted that a new version of the GBCS would be needed to accommodate the timely and satisfactory resolution of issues raised in response to the consultation. The publication of GBCS v0.8.1 addresses this concern.

18 Thereafter, we acknowledge respondents' requests for the publication of a clear change schedule (for example, in response to the DCC's Automated Testing of GBCS (ATG), which is now underway) setting out the development path for GBCS, related technical specifications and protocol updates. We will publish this information through TBDG, and on the GBCS Huddle area, as required.

19 Respondents felt that the mid to long term ownership of the GBCS is not clear, nor the timescales for transitioning the document into the SEC. The Government will retain responsibility for the GBCS until such time as it is incorporated into the SEC (when the SEC modification processes are fully switched on and the relevant enduring SEC committees are established). This is unlikely to be before the completion of SIT.

2.2.2 GBCS Content

20 Issues raised fell broadly into one of the following categories:

- support for interoperability;
- Use Cases;
- Device certification; and
- message sizes.

21 Some respondents were concerned that GBCS, SMETS and CHTS combined are not specific enough to guarantee Device interoperability, due to differing interpretations by Device manufacturers. One of the primary aims of the GBCS is to enable interoperability. It has been developed in close cooperation with industry and has undergone initial proving by the DCC. These exercises and this consultation have led to further clarifications of the requirements. However, if it is found during ATG, SIT or

interface testing that the GBCS is ambiguous and different interpretations are uncovered, we will update the GBCS to remove this ambiguity.

22 One respondent felt that the market may be unfairly skewed in favour of those manufacturers producing both meters and Communications Hubs, as they would be in a better position to achieve interoperability. We do not agree. As noted above the process for developing the GBCS has been transparent and the GBCS is based on open standards. In addition, we require that the DCC provides an environment for testing the interoperability of Devices with its systems. This environment will be available during End-to-End Testing and will be accessible to all manufacturers. Furthermore, the DCC is also developing a tool (GBCS Interface Testing (GIT) for Industry) to be available ahead of End-to-End Testing, which will allow manufacturers to generate end-to-end messages in their test labs.

23 The Use Cases form a significant element of the GBCS. Some respondents (particularly Energy Suppliers) noted a number of detailed drafting issues with these. In addition, they were concerned that the Use Cases and accompanying message templates, as currently documented, do not provide the required detail to ensure consistent business outcomes. For example, some suppliers argued that the process for switching Devices between prepayment and credit modes was not adequately defined and if implemented incorrectly could lead to consumers unintentionally losing supply. The detailed drafting issues raised by respondents on GBCS v0.8 have been resolved in GBCS v0.8.1. However, the GBCS is not intended to define Energy Suppliers' business processes. Rather it provides the technical details required for the Use Case to operate. It is then for Energy Suppliers to define their business processes based on how these Use Cases operate.

24 A number of respondents noted that while the GBCS is based on international standards (ZigBee SEP, DLMS COSEM and ASN.1), it is specifically adapted to meet the GB requirements and as such it is not clear how Devices will be certified. The GBCS defines how the elements of the protocols need to work and where the protocols deviate from the standards. The GBCS clearly identifies the requirements that should be certified as ZigBee SEP and DLMS COSEM compliant. There are also separate requirements on Energy Suppliers (for metering equipment) and the DCC (for Communications Hubs) to undertake testing and retain evidence to demonstrate:

- Compliance with the GBCS;
- Compliance with the SMETS or CHTS respectively; and
- Interoperability with DCC's systems.

25 One respondent raised a particular concern relating to message sizes for commands defined in the GBCS, when compared to original estimates. The increase in size may impact both on DCC service design and capacity, and on Target Response Times for Service Requests within the SEC. The original estimates for message size were based on the best information available at the time. The GBCS defines exactly how the messages are formed, and as a result the actual size of messages can be calculated. The DCC are investigating what impact the now known message sizes have on the Target Response Times, and whether improvements can be made to the specifications and infrastructure being provided by its Service Providers, to minimise any impact.

26 As noted in Annex 1, respondents also raised a total of 669 comments on GBCS content. The nature of these is highly varied, but common themes include issues relating to future dating of commands, Device requirements, the use of alerts, and provisions for auxiliary load control switches. These comments have been addressed, where clarification or defect resolution was needed, in GBCS v0.8.1.

3 Incorporating the GBCS into the SEC

3.1 Summary of Issue under Consideration

The consultation set out the Government's proposals to:

- incorporate the GBCS into the SEC at the same time that the Device Specifications are incorporated (which we intend to do as soon as it is practical) using existing provisions in the DCC licence and SEC;
- require that once in the SEC that amendments to the GBCS would be considered via the SEC modification process; and
- introduce a number of consequential amendments when designating the GBCS.

Question 2 of the Consultation asked whether stakeholders agreed with the Government's proposed approach and legal drafting concerning the incorporation of the GBCS into the SEC

3.2 Government Consideration of Issue

27 All seven respondents who provided a narrative response (as identified in Annex 1) addressed this question.

3.2.1 General Comments

28 All the respondents to this question agreed that the GBCS should be incorporated into the SEC and there was general consensus that this should only happen:

- after centralised testing has established that the GBCS is sufficiently stable;
- alongside the designation of other technical specifications (for example, SMETS, CHTS and DUGIS) into the SEC; and
- when the SEC Panel (through the Technical Sub-Committee) has access to the expertise required to maintain the technical specifications.

29 Stakeholder views are consistent with the Government's proposals and so we will seek to incorporate the GBCS in the SEC in line with the principles above.

30 Energy Suppliers noted that the SEC does not outline the connection between the various documents including the GBCS, SMETS, CHTS, DUGIS and SEC, and suggested that transitional and enduring change control process should ensure that the impact on all these documents should be assessed when any changes to the technical requirements have been proposed.

31 The transitional change control process, which is managed via the TBDG, will ensure that the implications on the wider technical architecture are considered when changes to any of the technical document are proposed. Section F1 of the SEC also sets out provisions that will mean that the Technical Sub-Committee will play this role in the enduring change control purpose. This is provided by F1.4(a), but we will extend the definition of Technical Specifications and Device Specifications to include the GBCS.

32 Energy Suppliers also noted the importance of the underlying protocols, principally DLMS COSEM and ZigBee SEP, and sought reassurance that backward compatibility would not become an issue. The use of open standards provides protection against backward compatibility issues as the process for changing the standards includes consideration of this.

3.2.2 Detailed Comments on Proposed SEC Drafting

33 Energy Suppliers noted a general preference for consistency of defined terms between documents, arguing that using different term across documents could lead to misinterpretation, and so questioned the inclusion of the proposed 'interpretation' drafting for Section A2 of the SEC. Energy UK also questioned the use of embedded documents in the GBCS rather than separate appendices.

34 Efforts have been made to provide consistency across documents, but the significantly different development paths of the technical specifications and the SEC have resulted in a number of differences. From a SEC perspective we have attempted generally to use terms consistent with the technical specifications. However, in addition, we have also sought to ensure consistency with existing industry terminology in licences and other codes as well as ensuring a high degree of legal robustness.

35 It is also the case that the GBCS, SMETS and CHTS have been developed to apply both to Devices enrolled with DCC and Devices opted out from DCC. Consequently in some cases, a generic definition of a particular term adopted in the technical specifications maps onto a specific definition of a particular solutions under the SEC. In these cases we are currently of the view that it would not be appropriate fully to align the drafting. The proposed interpretation provision for the SEC seeks to aid Parties' understanding of these variations.

36 One respondent requested clarity on whether the Access Control Broker definition, which identified the DCC as fulfilling this role, was only relevant for Devices enrolled with DCC. They suggested that if this was not the case the definition was too narrow, as opted out Devices would require a different access control broker. Our intention is that 'Access Control Broker' in the GBCS is a generic term that could in principle apply to any person carrying out this role in relation to a Device. However, for Devices that are enrolled into the DCC, the DCC would specifically carry out this role. We will amend the definition to clarify this.

37 The DCC suggested that the drafting should refer to the Smart Metering Wide Area Network (SMWAN), rather than the WAN. However, this drafting is intended to cover requirements for Devices that are not enrolled in the DCC, as well as those that are. The DCC will not act as the WAN Provider for Devices that are not enrolled with it and so it is not appropriate to use the term SMWAN here. However, we will clarify that this definition only applies to Devices comprising enrolled smart metering systems.

38 The DCC also proposed the following addition to clauses H4.X1 and H4.X2:

> *The DCC shall transform all service requests received from service users that result in a command being sent to a Device to be formatted in accordance with the relevant use case as defined in the GBCS.*

39 We do not believe that this change is necessary as the DUGIS will map the service request to the appropriate Use Cases in the GBCS.

40 The amendments to the SEC drafting proposed in the consultation, with the variations noted here, will be introduced to the SEC as part of the SEC 4B response, or as consequential amendments when the technical specifications are designated into the SEC.

4 Next Steps

41 GBCS v0.8 was notified to the European Commission on 31 July 2014 alongside the SMETS, the CHTS, the Commercial Products Assurance (CPA) Security Characteristics and the relevant sections of the DCC licence, supply licence and the Smart Energy Code. The standstill period following this notification completed on 3 November 2014. We received no comments or detailed opinions and so we can proceed with the next stages of development of the technical specifications.

42 In parallel to the publication of this document, GBCS v0.8.1 has been accepted into the TBDG document baseline and is intended to be used as one of the baseline documents for SIT.

43 Looking forward, we anticipate that any further changes to the GBCS are most likely to arise from three possible sources:

- ATG – conducted by the DCC and building on its earlier proving exercises on GBCS v0.7 revision 7. This has commenced, and is currently scheduled to complete in February 2015;
- Device manufacturer development – manufacturers have been involved in the development of GBCS throughout and have been raising issues as they emerged but further issues may arise as they complete their designs; and
- SIT – at this stage the DCC's systems and Devices are integrated.

44 In addition, we will need to consider any updates to the underlying GBCS protocols as these arise. GBCS v0.8.1 is aligned to the current published versions of the DLMS Blue and Green Books, and to ZigBee SEP 1.2a v0.9. GBCS v0.8.1 will be impact assessed against v1.0 of this specification when this version of the Zigbee SEP is published in December 2014, although we have already completed this work against a draft version of this document, and therefore expect any further changes to be minimal.

45 Issues which arise from any of these sources will be handled through our established Issues Management Process. Where the proposed resolution of an issue results in a change to the GBCS, SMETS and / or CHTS, these will be published as Issue Resolution Proposals, to sit alongside the current documentation.

46 Final versions of the GBCS, SMETS or CHTS will be incorporated into the SEC. Any requirement for further interim versions (beyond GBCS v0.8.1) within this time period will depend on the volume of published IRPs, will be determined on an as-needed basis, and will be presented for consideration by TBDG.

Annex 1: Consultation Respondents

47 The following organisations submitted responses to the Consultation on the Great Britain Companion Specification:

BEAMA / EUA	EDF Energy	RWE nPower	SSE
DCC	Energy UK	Scottish Power	Trilliant
e.on	ESTA	SGN	UKMF

48 Responses can be grouped as follows:

- three respondents provided a narrative response to the questions, and in addition, completed a detailed comments form (DCC, Energy UK (EUK) and RWE npower);
- four respondents wrote in support of the Energy UK response, confirming that they had worked with other members of the Supplier Design Assurance Forum (SDAF) in preparing this (EDF Energy, e.on, SSE and Scottish Power); and
- five respondents provided all their comments in a detailed comments form, and did not provide a narrative response (BEAMA / EUA, ESTA, SGN, Trilliant and UKMF).

49 In total, 669 comments were raised via the seven comment forms[5]. In line with procedures set out in the Issues Management Process, these have been classified as follows:

- Accept (resolution will result in a change to the GBCS (including the Mapping Table), SMETS and / or CHTS): 201
- Explain (an explanation is required but no change will result): 241
- Reject (DECC considers the issue not to be valid): 23
- Noted (a general observation for which an explanation is not required, or for which change control is required): 121
- Clarify (further information has been requested but not received): 18
- Duplicate (entirely covered by another issue): 65.

[5] These comments are all logged on the GBCS Issues Log, which is maintained at the GBCS Huddle area. Stakeholders who wish to view the Issues Log should email smartmetering@decc.gsi.gov.uk.

Glossary

Abstract Syntax Notation One (ASN.1)

A standard notation for the definition of data types and values.

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.

Data and Communications Company (DCC)

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

Device

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

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.

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.

Use Cases

The structure, format and processing of a message.

ZigBee SEP (Smart Energy Profile)

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

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