Change Proposal – BSCP40/01

CP No: 1166

Version No: 2.0

Title *(mandatory by originator)*

Changes to allow use of inbound communications for CoP5 Metering

Description of Problem/Issue *(mandatory by originator)*

Most of the current communications technology for the Half Hourly (HH) market is based on Meter data being collected by a central system using an 'outbound' approach, where a central system initiates a dialogue with the Meter. As a result, many of the relevant equipment definitions and process descriptions in the Codes of Practice and BSC Procedures are directly associated with a Meter interrogation activity, when in fact the key requirements are for the robust storage and transfer of data.

In contrast, some smart metering makes use of an 'inbound' communications technology, where Meter data is transmitted to a central system automatically without the need of an initial data request. While the Meter may still be subject to occasional remote or local interrogation, the majority of the HH data required for Settlement purposes would be received via the 'inbound' route.

This CP proposes to modify areas of Code of Practice 5 (CoP5) to allow this 'inbound' approach to be regarded as a legitimate method of communication for CoP5 Meters, i.e. those installed to meter energy transfers with a maximum demand of up to and including 1MW for Settlement purposes. Changes are also proposed to BSCP502 'Half Hourly Data Collection For SVA Metering Systems Registered in SMRS' and BSCP601 'Appendix - Generic Test Specification - v2.0' to ensure that data received from smart Meters via this route can be used within the HH Settlement processes.

Proposed Solution(s) (*mandatory by originator)*

CoP5

The following changes are proposed to CoP5 (comments in this section of the Change Proposal are in italics):

1 Scope

It derives force from the Code, and in particular the metering provisions (Section L, to which reference should be made. It should also be read in conjunction with the relevant BSC Procedures.

Nothing in this Code of Practice prohibits the use of technologies that deliver metering data to a Data Collector Agent provided the requirements of this Code of Practice are met.

This Code of Practice does not contain the calibration, testing and commissioning requirements for Metering Equipment used for Settlement purposes. These requirements are detailed in Code of Practice Four - "Code of Practice for Calibration, Testing and Commissioning Requirements for Metering Equipment for Settlement Purposes".

3.21 Outstation System

The change proposed to the definition below is such that it does not in any way inhibit the use of

new technologies and clarification has been provided so as not to change the meaning of the definition:

Outstation System means one or more Outstations linked to a single communication line. For clarification, where there is no physical communication line (i.e. SMS) the point of connection to the communication system shall be deemed as the communications line,

5.5 Outstation

The CoP5 Review Group recommended that any technology used for receiving inbound metering data from Outstations and for accessing Outstation data locally (to extract metering data for onward transmission) should undergo protocol approval to ensure the integrity of the data collected at the receiving end. This change is intended to emphasise this requirement:

An Outstation System shall be provided which transfers data to and receives data from a Settlement Instation.

The Outstation data shall be to a format and protocol approved by the Panel in accordance with BSCP601 'Metering Protocol Approval and Compliance Testing'.

The Outstation shall facilitate the metering data to be read by instations other than the Settlement Instation provided the requirements of clause 7 of this Code of Practice are satisfied.

The change below sets a minimum requirement for inbound technology such that metering data can be sent at least as frequently as the current minimum period for performing a mini Meter Advance Reconciliation (a 'mini-MAR' as described in section 4.1.5 of BSCP502). The second change is a recommended interim measure until such times as sufficient evidence can be presented to provide assurances that third party Outstation clock resets are reliable and accurate to Universal Co-ordinated Time (UTC):

Normally, metering data will be collected by the Settlement Instation by a daily interrogation, but repeat collections of metering data shall be possible throughout the Outstation data storage period.

Where metering data is transferred to the Settlement Instation automatically, the Outstation shall be capable of providing this data on a daily basis as a minimum. Time synchronisation of the Outstation shall be performed by the Half Hourly Data Collector communicating directly with the Outstation in accordance with BSCP 502 'Half Hourly Data Collection for SVA Metering Systems Registered in SMRS'.

If not integral with the Meter, a separately fused supply shall be provided for each Outstation.

5.5.3 Monitoring Facilities

Monitoring facilities shall be provided for each of the following conditions and shall be reported, as separate alarm indications, tagged to the relevant Demand Period(s), via remote ~~online~~ communications and the local Interrogation Unit:-

5.6 Communications

The following change is recommended in order to allow the appointed Half Hourly Data Collector (HHDC) to change the frequency at which data is sent by Outstations:

To prevent unauthorised access to the data in the Metering Equipment a security scheme, as defined below and in Appendix D, shall be incorporated for both local and remote access. Separate security levels shall be provided for the following activities:-

(i) ...

(ii) Level 2 – Password for:-

(a) corrections to the time and/or date; ~~and~~
(b) resetting of the MD; and
(c) programming of the schedule for automated transfer of Level 1 metering data.

5.6.2 Remote Interrogation

The proposed change to section 5.6.2 below is a reflection of one of the current technologies of choice for smart metering, which involves the use of SMS text messages over the GSM mobile phone network. However, the other changes proposed in this CP are more generic and will serve to accommodate any technology where data may be obtained from a Meter without an initiating action being required from a central system:

Remote interrogation facilities shall be provided with error checking of the communications between the Outstation System and the Settlement Instation.

It shall not be possible to disconnect the remote communications connection to/from the Outstation without the breaking of an appropriate seal (see clause 5.7).

Interrogation of an Outstation shall be possible using one of the following media:

(i) Switched telephone networks, e.g. PSTN or CTN;
(ii) Public data networks, e.g. PSN;
(iii) Radio data networks, e.g. GSM, Paknet or any equivalent;
(iv) Customer own network;
(v) Mains signalling / power line carrier;
(vi) Low power radio;
(vii) Satellite; or
(viii) Cable TV.

In addition any further media may be used as approved by the Panel.

The actual media employed shall be in accordance with the requirements of the CDCA for CVA

Metering Systems and the Supplier for SVA Metering Systems. The data shall be to a format and protocol approved by the Panel in accordance with BSCP601 'Metering Protocol Approval and Compliance Testing'.

BSCP502

BSCP502 section 4.1 'Validate Meter Data' describes the validation processes to be carried out by the HHDC, however, many of the paragraphs in this section are worded specifically in the context of meter interrogation rather than general data receipt. These should be reworded so that they apply for any data received from an Outstation, whether automatically or via local or remote interrogation.

4.1.1 Outstation Id (Device Id)

When the Outstation is interrogated, or when data is received from the Outstation automatically, the 'electronic serial number' of the ~~o~~Outstation is compared with that expected. If they differ then no data is collected and the failure is investigated in accordance with section 2.4.2.

4.1.2 Outstation Number of Channels

When the ~~o~~Outstation is interrogated, or when data is received from the Outstation automatically, the number of channels of the Outstation is compared with that expected. If they differ then no data is collected and the failure is investigated in accordance with section 2.4.2.

4.1.3 Outstation Time

Since time synchronisation of the Outstation will be performed by the Half Hourly Data Collector communicating directly with the Outstation (see proposed change to CoP5 Section 5.5 'Outstation') a footnote will be added to this section to cover inbound communication scenarios. The proposal of 20 days was approved by the Supplier Volume Allocation Group at it meeting in January 2007 (see SVG paper SVG72/06) and aligns with the minimum storage period and maximum permissible Outstation clock drift (20 seconds after 20 days of no communication) for a CoP5 Outstation.

When the Outstation is interrogated[29], the time of the Outstation is compared with that expected. If they differ by more than 20 seconds and less than 15 minutes then the ~~o~~Outstation time is corrected by the data collection system. If the time differs by more than 15 minutes then the problem is resolved in accordance with section 2.4.2.

[29] Where data is received from the Outstation automatically then the Outstation shall be interrogated at least every 20 days and such that the requirements set out in this section, 4.1.3, are met.

4.1.4 Alarms

When the Outstation is interrogated, or when data is received from the Outstation automatically, the individual alarms required by the relevant Code of Practice (CoP) shall be investigated if flagged. Some MSs may not have all the alarm flags specified in the relevant CoP, in which case a

Dispensation under BSCP32 should exist.

Each alarm shall be investigated in accordance with section 2.4.2.

4.1.5 Cumulative/Total Consumption Comparison

When the Outstation is interrogated, or when data is received from the Outstation automatically, and where the Outstation provides an electronic cumulative reading of the prime register equivalent to the total consumption of the Meter at that point in time. Using these readings, the following checks will be performed at least every seven days (i.e. on a daily or weekly basis or as agreed by the Supplier and HHDC).

and also:

i) ...

M2 is the cumulative reading (in kWh) returned from the last time that the Meter was interrogated or data was received automatically; and M1 is the cumulative reading (in kWh) returned from the previous time that the Meter was interrogated or data was received automatically over the same time period as the sum of HH period energy.

BSCP601 Appendix - Generic Test Specification - v2.0

The generic test specification appendix 'Specification Compliance Testing of Metering Equipment Codes of Practice One, Two, Three and Five v2.0' to BSCP601 'Metering Protocol Approval and Compliance Testing' contains a series of tests and checks used by the Compliance Testing Agent to ensure that the requirements set out in the relevant CoPs are met by the Metering Equipment undergoing Compliance Testing. The following sections of this document will need to be updated to reflect the new requirements in CoP5:

Section 1. Definitions and Interpretations

The definition of 'Code of Practice Five' in will need to be updated with the new issue/version number and CoP5 effective date:

Code of Practice Five means Code of Practice Five: Issue ~~6~~7, version ~~4~~5.0; dated ~~3 November 2005~~ CoP5 effective date - CODE OF PRACTICE FOR THE METERING OF ENERGY TRANSFERS WITH A MAXIMUM DEMAND OF UP TO (AND INCLUDING) 1MW FOR SETTLEMENT PURPOSES.

Section 5.10 Outstation

Three new tests (checks) (g), (h) and (i) will need to be added to this section as follows:

(f)	The Outstation can provide all metered data stored from the time of commencement of any specified date upon request by the Instation during the data storage period of the outstation.	**053**
(g)	Establish whether the Outstation is capable of sending metering data automatically;	**054**

(h)	Verify that the metering data sent complies with section 5.15.1 'Level 1 Passwords' of this test specification; and	**055**
(i)	Establish whether the Outstation is capable of sending metering data on a daily basis as a minimum.	**056**

Section 5.15.2 Level 2 Passwords

The following test (check) will also need to be added under this section:

Using the Level 2 Password, establish that all the data listed at Level 1 can be retrieved and in addition that the following actions can be performed:		~~**100**~~**103**
(a)	changes to time and date; ~~and~~	~~**101**~~**104**
(b)	resetting of all Maximum Demands~~.~~; and	~~**102**~~**105**
(c)	where applicable, confirm it is possible to programme the schedule for automated transfer of Level 1 metering data via Level 2 access.	**106**

Note: Party Agents should be aware that new technologies used for delivering data to Settlements may impact re-qualification/certification.

Justification for Change *(mandatory by originator)*

The use of inbound technology for CoP5 Metering Systems will allow this area of the market to be metered at a significantly reduced cost without representing undue risk to the industry. This will increase the potential for HH metering and in doing so will increase the accuracy of data entering Settlement.

Is the Change being proposed a Housekeeping Change? *(optional by originator)*

No [1]

Configurable Items Potentially Affected by Proposed Solution(s) *(optional by originator)*

CoP5 'Code of Practice for the Metering of Energy Transfers with a Demand of up to (and including) 1MW for Settlement Purposes'

BSCP502 'Half Hourly Data Collection for SVA Metering Systems Registered in SMRS'

BSCP601 Appendix - Generic Test Specification - v2.0 'Specification Compliance Testing of Metering Equipment Codes of Practice One, Two, Three and Five'

[1] The relevant Panel Committee will decide whether a Change Proposal can be progressed as a Housekeeping Change Proposal.

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Impact on Core Industry Documents or System Operator-Transmission Owner Code *(optional by originator)*

DTC Annex D – Changes to 'Item Description' and 'Notes' of the J1690 'Dial In/ Dial Out Indicator' data item as described in the Master Registration Agreement (MRA) DTC CP 'Modification of J1690 Dial In / Dial Out Indicator for 'Inbound' communication' (Attachment A). The DTC CP will be progressed if CP1166 V2.0 is approved.

Related Changes and/or Projects *(mandatory by BSCCo)*

None

Requested Implementation Date *(mandatory by originator)*

November 2007 BSC Systems Release

Reason:

Agreed Release/Implementation Date *(mandatory by BSCCo)*

November 2007 BSC Systems Release

Originator's Details:

Name……..

Organisation……ELEXON

Email Address……ccc@elexon.co.uk

Date……30 March 2007

Attachments: Yes - Proposed MRA DTC CP 'Modification of J1690 Dial In / Dial Out Indicator for 'Inbound' communication' (Attachment A)