Issue 93 Digital Meeting Etiquette

- Welcome to the Issue 93 Workgroup meeting 6 – we'll start shortly
- No video please to conserve bandwidth
- Please stay on mute unless you need to talk – use IM if you can't break through
- Talk – pause – talk
- Lots of us are working remotely – be mindful of background noise and connection speeds

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Issue 93 - Metering Code of Practice Review

Meeting 6

Monday 17 January 2022

Meeting Agenda

Agenda Item	Lead
1. Welcome and Meeting objectives	Iain Nicoll (Chair)
2. Update on Actions	Stanley Dikeocha (Lead Analyst)
3. BSCP32 process and updated CoP threshold table	Elexon Metering Team
5. Aspects 11, 04 and 06	Elexon Metering Team
4. AOB Items	Iain Nicoll (Chair)
5. Next steps & Meeting close	Stanley Dikeocha (Lead Analyst)

Meeting Objectives

Objectives for this meeting:

- Confirm decision on the proposed BSCP32 process for Aspect 07
- Confirm the next aspect to progress as a Change Proposal
- Update the Work group on the timeline for the remaining aspects

ACTION UPDATE

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Action Update

Owner	Action description	Captured from	Update
Stephen Cuddihey	Send an email to Elexon, explaining the background and requirement for standardising communication ports	WG5	This item is out of scope so we will not be considering the request as part of Issue 93.
Elexon	Update the CoP consolidation table	WG5 (CoP consolidation threshold)	Done. Table was shared with the Issue group on 11/01/2022
Elexon	Issue an RFI on “end dating” CoPs 6 to 9	WG4	We issued the RFI on Thursday 24 Nov with responses welcomed by Thursday 23 December 2021. No responses were received.
Elexon	Create examples to support the proposed BSCP32 process	WG5 (BSCP32 process)	Done.
Elexon	Confirm the cost difference between class 1 and 0.5S Meters.	WG5 (CoP consolidation threshold)	Email sent to the relevant parties – TBC
Dawn	Speak to LDSOs to validate this question “Are voltage supplies to Meters connected to the LDSOs side or Customer’s.	WG5 (A_05 De-energised circuits/feeders)	

Action Update continued

Owner	Action description	Captured from	Update
Elexon	Speak to LDSOs, MOAs and DCs to obtain their views on the proposal to mandate the number of Outstation channels	WG5 (AOB items)	Done
Elexon	Confirm Legal's view on the following points: - Are certain assets considered part of the Total Systems or not? - Does the process in section L3.5.4 cover situations where overall accuracy is not defined in the CoPs like for Reactive Energy Services - Can CoPs sign-post to standards under other Codes (like the REC) and, if so, will TAA be able to audit them and raise non-compliances under the BSC.	WG4	The responses from Legal were shared with the Issue group on 11/01/2022
Elexon	Contact MOAs and CT/VT manufacturers to confirm the minimum burden and the accuracy below minimum rated burden respectively	CT and burden subgroup session	6/7 Manufacturers responded. 4/12 MOAs responded.

BSCP32 PROCESS, COP THRESHOLD TABLE AND ASPECT 11

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BSCP32 PROCESS

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BSCP32 Process – Example 1 – AMP Not At DMP, same voltage, no cable/power transformer compensation

- Metering Equipment location (AMP) separated from the DMP by distance only (no transformers in between DMP and AMP)
- AMP connected at same voltage as DMP
- Registrant/MOA to assess Overall Accuracy to determine impact on Overall Accuracy limits (as per relevant CoP).
- Cable losses not compensated for as losses do not cause Metering System to be outside of Overall Accuracy Limits of relevant CoP.
- Metering System is compliant to the relevant CoP in all aspects aside from location
- No Metering Dispensation required

BSCP32 Process – Example 2 – AMP Not At DMP, same voltage, cable losses applied via compensation

- Metering Equipment location (AMP) separated from the DMP by distance only (no transformers in between DMP and AMP).
- AMP connected at same voltage as DMP.
- Compensation applied (either to the Metering Equipment or Aggregation Rule/Complex Site Rule) to account for Cable losses.
  - Either due to Registrant's own preference to compensate or because Overall Accuracy limits of the relevant CoP can not be met without applying Compensation.
- Metering System compliant to relevant CoP in all aspects aside from location.
- Registrant to submit application for validation by Elexon and submit proposed compensation for validation by ELVA.
- ELVA confirms that proposed compensation figures are suitable
- Elexon grants Metering Dispensation without committee approval.

BSCP32 Process – Example 3 – AMP Not At DMP, different voltage, no compensation applied

- Metering Equipment location (AMP) separated from the DMP by distance and voltage (power transformer located between DMP and AMP).
- Registrant/MOA to assess Overall Accuracy to determine impact on Overall Accuracy limits (as per relevant CoP).
- Cable/Power Transformer losses not compensated for as losses do not cause Metering System to be outside of Overall Accuracy Limits of relevant CoP
- Metering System is compliant to the relevant CoP in all aspects aside from location
- No Metering Dispensation required
  - Is this suitable for Metering Systems where the AMP is connected at a different voltage but the losses are not accounted for (as they do not cause the Metering System errors to exceed the Overall Accuracy limits).

BSCP32 Process – Example 4 – AMP Not At DMP, different voltage, losses applied via compensation

- Metering Equipment location (AMP) separated from the DMP by distance and voltage (power transformer located between DMP and AMP).
- Compensation applied (either to the Metering Equipment or Aggregation Rule/Complex Site Rule) to account for Cable/Power Transformer (iron and copper losses).
  - Either due to Registrant's own preference to compensate or because Overall Accuracy limits of the relevant CoP can not be met without applying Compensation.
- Metering System compliant to relevant CoP in all aspects aside from location.
- Registrant to submit application for validation by Elexon and submit proposed compensation for validation by ELVA.
- ELVA confirms that proposed compensation figures are suitable
- Elexon grants Metering Dispensation without committee approval.

ASPECT 11 ‘DETERMINING THE RELEVANT COP FOR EMBEDDED CIRCUITS

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Relevant CoP for embedded Metering Equipment.

- Should the relevant CoP for an embedded Metering System be (it is identified that this is currently ambiguous) :
  - The CoP that the Metering Equipment would be required to be registered against were it located at the DMP. (Current Elexon guidance takes this approach)
  - The CoP relevant for the capacity of the embedded circuit where the Metering Equipment is located.

- Should the Workgroup feel that the relevant CoP should be as if the Metering Equipment was located at the DMP then any deviation from that CoP aside from location would result in the full Metering Dispensation process (as it is understood today with committee approval) being progressed.
- This is to say that installing Metering Equipment “suitable” for the capacity of the embedded circuit would not be covered by the reduced Metering Dispensation process.
- Should the Workgroup feel that the relevant CoP should be related to the capacity of the embedded metered circuit then location would be the only non compliance from the relevant CoP and so the reduced Metering Dispensation process would apply.

- **Discussion : What should the relevant CoP be in relation to embedded Metering Systems?**

COP THRESHOLD TABLE

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Updated CoP Threshold Table

Category	LV Whole Current	LV CT	HV CT up to, and including, 40 MVA	HV CT over 40 MVA
Main / Check	Main only	Main only	Main and Check	Main and Check
Active Energy Meter	As per Electricity Act (MID/MIR)	Class 1.0	Class 0.5S or Class 1.0 - TBC	Class 0.2S
Reactive Energy Meter	Class 3.0	Class 3.0	Class 2.0 or Class 3.0 - TBC	Class 2.0
Different manufacturer for Main and Check Meters	N/A	N/A	Optional	Mandatory - TBC
CT	N/A	Class 0.5S	Class 0.2S or Class 0.5S - TBC	Class 0.2S – separate CTs for Main & Check Meters
VT	N/A	N/A	Class 0.5 or Class 1.0 - TBC	Class 0.2 – separate secondary winding for Main & Check Meters
CT/VT Cable Routing	N/A	N/A	Diverse routing should be used between CT/VTs and Meters where risk of cables being damaged - TBC	Diverse routing should be used between CT/VTs and Meters
CT/VT Compensation	N/A	N/A	Optional	Mandatory
Communications	Single	Single	Single or Duplicate - TBC	Duplicate

ASPECTS 04 AND 06 DISCUSSIONS

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ASPECT 04 ‘CALIBRATION CHECKS FOR MAIN AND CHECK METERS

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A_04 Calibration checks for Main and Check Meters

Issue 93 form:

- Aspect 4:

  - Not clear if the calibration checks, and operation checks, for main and check meters are being done; and
  - Whether they are working, as there is currently no requirement to report on this.

- Details:

  - CoP used to require different makes and models for main and check Meters, intended to mitigate the risk of type failures of Metering Equipment – removed by CP1224 ‘Review of Code of Practice 4’ which introduced a different calibration frequency for the main and check Meters.

  - No industry reporting as to whether calibration checks are occurring or revealing any concerns about Meter accuracy - resilience to error which was designed into the use of different Metering Equipment has been replaced with operational checks, but there is no industry recognition as to whether the checks are happening. Revisit this decision based on the experience over 11 years.

  - Trading Dispute - main then check Meter failed, lead time for replacement equipment was many months, led to erroneous estimated data being used for Settlement, which was then corrected to more accurately reflect estimated data - different equipment may have reduced the likelihood of failure at the same time.

  - Main/check comparison check will pick up if either or both of the Meter’s accuracy drifts from alignment, alerting the failure. Metering Equipment of the same make/model, and probably of the same batch, can have a type fault that can allow a consistent drift, which will not trigger a main/check error.

The aim of consideration is to review the operational impact of the changes and determine if reporting is required and/or whether the requirement for the use of different equipment should be reinstated.

A_04 Calibration checks for Main and Check Meters

- CoP4 (up to Issue 5) used to allow for different 'on-site testing' regimes if different Meter types were installed for main and check Meters:
- **Initial Calibration** - All Meters shall be calibrated prior to installation on-site in accordance with clause 10 and shall be provided with a traceable calibration record from a manufacturer or laboratory/test house
- **Periodic testing**
  - *Calibration*:
    - Electromechanical – intervals not exceeding 10 years (expect some class 0.5 Meter types where it was 3 or 5 years – FLF, FMF, E72F, FN and KTA)
    - Electronic - evenly phased calibration schedule. 20% of the total of each such type of Meter shall be calibrated over a 10 year period (no adjustment) and results recorded, then adjust and re-calibrate where necessary to comply with CoP4.

    MOA to calibrate at least one Meter of each type on circuit in any 5 year period. Results sent to the Technical Assurance Agent for review. The Technical Assurance Agent shall advise the Panel of the need to revise any of the requirements.
  - *On-site accuracy tests*:

  In addition to the requirements to calibrate, on-site accuracy tests shall be performed:

  - For electromechanical Meters:
    - Active Energy Meters (class 0.5) - on-site accuracy tests performed at intervals not exceeding 5 years, except for the particular meter types listed above (where no on-site accuracy tests are required).
    - All other types of electromechanical meters – no on-site accuracy tests required.
  - For electronic Meters:
    - Main and check Meters (CoP 1, 2 and 3) of the **same manufacture and type**, on-site accuracy tests performed at intervals not exceeding 5 years for Active Energy Meters and intervals not exceeding 10 years for Reactive Energy Meters.
    - Main and check Meters employed on a circuit are of a **different manufacture or type**, no on-site accuracy tests required on such Meters.
    - Main (only) Active Energy Meter (CoP5) - on-site accuracy tests performed at intervals not exceeding 10 years on such Meter.
    - Main (only) Reactive Energy Meter - on-site accuracy tests performed at intervals not exceeding 10 years on such Meter.

Calibration and Sample Calibration and Reporting – CoP4 Issue 6

- This was removed under CoP4 Issue 6 (v5.0) (implemented on 5 November 2008). Main (and check) Meters need to calibrated according to Appendix A of CoP4 Issue 6:

APPENDIX A. CALIBRATION PERIOD TABLE

Period Table A1

Dates shown indicate maximum periods within which Calibrations must be carried out – year 0 relates to the initial or Type A Calibration. Although it is feasible to delay Calibrations until the year in which they are due, due consideration should be given by the MOA to a phased programme of Calibrations.

ACTIVE METER

By Year	0	5	10	15	20	25	30	35	40
CoP1 & CoP2	A	-	C	-	C	-	C	-	C
		B_m[12]	B_c	$C_m + B_c$	B_m	B_c	$C_c + B_m$	B_m	B_c
CoP3, 5, 6 & 7	A	-	-	B	C	B	B	B	C

The Calibration Types and periods for CoP1 and 2 active Meters may either be conducted by performing Type C Calibrations at 10 year intervals as shown in row 1 or, alternatively, the Calibration Types and periods highlighted in row 2 may be used.

Wherever main Meter and check Meter is not specified then both main and check shall be calibrated.

- There is also a requirement (clause 5.2) to sample Calibrate new Meter types identified by BSCCo (on CoP Compliance list) and report on both Calibrations (Appendix E1 – Meter Calibration Report) and Sample Calibrations (Appendix E2 – Meter Sampling Report):

CoP4 Sample Calibrations

Meter Type	Sample Calibration Year									
	2010	2011		2012	2013	2014	2015	2016	2017	2018	2019
Prometer R/W (Registered against CoP1 or 2)	✓	✓		✓	✓	✓					
Prometer R/W (Registered against CoP3, 5, 6 or 7)							✓	✓	✓	✓	✓

This table shows which Meters Types require Sample Calibrations in the indicated year in accordance with CoP4 Section 5.2

- Last reports received from MOAs in 2013 (three MPIDs), new Meter types not added by BSCCo to CoP4 Sample Calibration table.

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Questions

- Are MOAs still carrying out (periodic) Calibrations – assuming initial Calibrations are being done?
  - If not, why not?
  - Are they ‘working’?
  - Do MOAs have the data for (periodic) Calibrations to report these to BSCCo, as per CoP4?
  - If yes, does the data show any particular concerns with any Meter types?
  - Can they be sent to BSCCo now for analysis and reporting to the BSC Panel?

- Should CoP4 have different (periodic) Calibration intervals if a different main and check Meter Types are fitted, or not?
  - Does the workgroup think that mandating different Meter types will mitigate the Risk to Settlement of drift and ‘same Meter type faults’?
  - What are the cost/benefits of doing this?
  - Should this be across all CoP 1, 2 and 3 circuits or just the higher ones or above a threshold agreed under a consolidated CoP?

- Did MOAs carry out Sample Calibrations on Prometer R/Ws up until 2014 (CoPs 1 and 2) and/or up until 2019 (CoPs 3 and 5)?
  - Do MOAs have the data for Sample Calibrations to report these to BSCCo?
  - If yes, does the data show any particular concerns with the Prometer R/W Meter types?
  - Can they be sent now to BSCCo for analysis and reporting to the BSC Panel?

- Should Sample Calibration continue under CoP4, or not, and why?

ASPECT 06 ‘INCONSISTENT USE OF MWH VS KWH’

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Aspect 06 ‘Inconsistent use of MWh vs kWh’

- Whilst the use of MWh and kWh is not consistent across SVA and CVA Metering Systems it is not intended to be.
    - CoPs 1, 2, 3 and 5 state that measured quantities and demand values for Metering Systems registered in CVA should be measured in MWh/ Mvarh (measured quantities); or MW/Mvar (demand values)
    - CoPs 1, 2, 3, 5 and 10 state that measured quantities and demand values for Metering Systems registered in SVA should be measured in kWh/ kvarh (measured quantities); or kW/kvar (demand values)
- Elexon believe this is appropriate given the difference in quantity of energy measured (generally) between SVA and CVA.

Aspect 06 – Granularity of Data: SVA

- For Metering Systems registered in SVA, granularity of data is defined by the logical format and physical length of the data item within which the data is submitted by the HHDC.
    - Non – Supplier Serviced Meters – Period Meter Consumption (J0177)
        - Units: kWh, kVArh Lag, kVArh Lead
        - Logical Format : +/- NUM(7,1), e.g. +/- 123456.1
        - Physical Length: 9
    - Supplier Serviced Meters (SMETS) – Smart Meter Period Consumption (J2207).
        - Units: kWh, kVArh Lag, kVArh Lead
        - Logical Format: +/- NUM(9,3), e.g. +/- 123456.123
        - Physical Length: 11
- J0177 - Period Meter Consumption is present in:
    - D0036 - Validated Half Hourly Advances for Inclusion in Aggregated Supplier Matrix
    - D0275 - Validated Half Hourly Advances
- J2207 - Smart Meter Period Consumption is present in:
    - D0379 - Half Hourly Advances UTC
    - D0380 - Half Hourly Advances for Inclusion in Aggregated Supplier Matrix
- All four of these data flows changed ownership from MRA to BSC at REC 2.0 go live. This means Elexon is responsible for processing any future changes to these data flows.

Aspect 06 – Granularity of Data: CVA

- For Metering Systems registered in CVA, granularity of data is defined in the NETA IDD Part 1 spreadsheet for the CDCA:

  - CDCA-I010 ‘Exception Report for Missing and Invalid Meter Period Data’
    - Settlement Period Exceptions and Raw Meter Period Data:
      - Meter Reading Volume – decimal(12,3)

  - CDCA-I012 ‘Report Raw Meter Data’
    - Raw Meter Period Data:
      - Meter Reading Volume – decimal(12,3)

  - CDCA-I014 ‘Estimated Data Report’
    - Total Volume Estimated:
      - Total Volume Estimated In Report - decimal(12,3)
    - Estimated Meter Data:
      - Original Meter Reading - decimal(12,3)
      - Estimated Meter Volume - decimal(12,3)

  - CDCA-I029 ‘Aggregated GSP Group Take Volumes’
    - Aggregated GSP Group Take – Period:
      - GSP Group Take Volume - decimal(14,4)

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Aspect 06 – Granularity of Data: CVA continued

- CDCA-I029 ‘Aggregated GSP Group Take Volumes’
  - Aggregated GSP Group Take – Period:
    - GSP Group Take Volume - decimal(14,4)

- CDCA-I030 ‘Meter Period Data for Distribution Area’:
  - GSP Period Data, Interconnector Period Data and Inter-GSP-Group Connection Period Data (Processed Meter Data – Period)
    - Meter Volume - decimal(10,3)

- CDCA-I041 ‘Interconnector Aggregation Report’:
  - Aggregated Interconnector Volume – Period:
    - Meter Volume - decimal(10,3)
- CDCA-I042 ‘BM Unit Aggregation Report’:
  - Aggregated BM Unit Volume – Period:
    - Meter Volume - decimal(10,3)

- CDCA-I054 ‘Meter Status Report’:
  - Main/Check Discrepancies
    - Meter Reading Difference - decimal(10,3)
    - Percentage of Main Reading - decimal(5,2)
  - Primary/Secondary Period Data
    - Meter Reading Difference - decimal(10,3)
    - Percentage of Primary Reading - decimal(5,2)
  - Data Outside Limits
    - Minimum Outstation Channel Limit - decimal(10,3)
    - Maximum Outstation Channel Limit - decimal(10,3)
  - Data Outside Limits Period Data
    - Meter Volume - decimal(10,3)

AOB ITEMS AND NEXT STEPS

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AOB ITEMS

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AOB Items

- Update on “End-dating” CoPs 6 to 9
- Feedback on 98-F ‘Mandating the number of outstation channels used for Settlement Purposes’
- Update on the ‘Request to extend the Issue 93 review by 6 months
  - Approved by the ISG and SVG at their meetings on Tuesday 11 January 2022

NEXT STEPS

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Next steps

- Subject to the WG's approval, progress BSCP32 as a Change Proposal
- Produce redlining to reflect today's discussions
- Arrange the next Work group session
  - Proposing WC 7 March or 14 March for the seventh WG session
- Arrange a subgroup to discuss Aspect 03 'Duplicate communications paths for Metering Equipment within CoPs 1 and 2'
- Arrange a second session to discuss the appropriate CT ratio and minimum burden

MEETING CLOSE

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THANK YOU

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Monday 17 January 2022