Issue 93 Digital Meeting Etiquette

- Welcome to the Issue 93 Workgroup meeting 3 – 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 3

19 August 2021

Meeting Agenda

Agenda Item	Lead
1. Welcome and Meeting objectives	Iain Nicoll (Chair)
2. Upcoming Change Proposals	Elexon Metering Team
3. Review Updated Redlining	Elexon Metering Team
4. Identify next Aspects to consider	Issue Working group
5. Next steps	Stanley Dikeocha (Lead Analyst)
6. AOB & Meeting close	Iain Nicoll

Meeting Objectives

Objectives for this meeting:

- Provide an update on upcoming Change proposals
- Provide an update on redlined documents
- Confirm sub group members to address outstanding aspects
- Identify the next set of aspects to review

UPDATE

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Aspects updated

The red-lining for the following aspects have been updated following the second workgroup session.

Aspect	Comment
A_09 - Tightening the minimum accuracy classes for Meters (CoP5) and CTs (CoPs 3, 5 and 10)	- Change Proposal in progress. - CoPs 3, 5, and 10 redlined to account for this aspect
A_10- Accuracy of Active Energy for sites providing Reactive Energy Services (e.g. Stability Pathfinder project)	- CoPs 2 and 4 redlined to account for this aspect
A_12- Future proofing changes to BS EN/IEC Standards	- Change Proposal in progress. - CoP 2
A_15- Monitoring of Voltage failure alarms	- Change Proposal in progress. - CoP 2

A_09 TIGHTENING THE MINIMUM ACCURACY CLASSES FOR METERS (COP5) AND CTS (COPS 3, 5 AND 10)

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A_09 Tightening Accuracy Classes

CoPs 3, 5 and 10 updated:

- Meter class updated to 1 (CoP5);
- CT accuracy class updated to 0.5s (all);
- Updated to include minimum burden of quarter burden required on measurement transformers in section 5.1

Confirmed BSCP27 and CoP4 do not need to be amended for this aspect

CP being raised by Elexon

Require more information on standard CT ratios installed to consider making recommendations on appropriateness of ratios installed.

A_10 ACCURACY OF ACTIVE ENERGY FOR SITES PROVIDING REACTIVE ENERGY SERVICES

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A_10 Reactive Energy Services

CP being raised by Elexon

CoPs 2 and 4 updated:

- Defined Reactive Power Service in CoPs 2 and 4

4.18 Reactive Power Service ‡

Reactive Power Service means any service which imports or exports Reactive Energy but does not result in the production or export of any Active Power to the Total System.

- Add requirement (CoP2) for additional test points specified in CoP4 for Reactive Power Service Site

Can these be points be tested by measurement transformer manufacturers?

Can CVA MOAs test for the additional points?

Should it be done by Meter manufacturer or an Accredited Laboratory?

Are Issue Group happy with CoP2 and CoP4 updates? Can we update CoP1?

Do we need to update CoP3? Could this type of site be at CoP3 level?

A_10 Reactive Energy Services

Additional test points for current transformers at a Reactive Power Service site

Burden (% of rated)	Power Factor	At current (% of rated)				
		1%	5%	20%	100%	120%
100%	0.2 Leading					
25%						
100%	0.2 Lagging					
25%						
100%	Zero					
25%						

Only applicable to Class 0.2S and 0.5S (if CoP3 required to be updated) current transformers

A_10 Reactive Energy Services

Additional test points for voltage transformers at a Reactive Power Service site

Burden (% of rated)	Power Factor	At voltage (% of rated)	
		80%	120%
100%	0.2 Leading		
25%			
100%	0.2 Lagging		
25%			
100%	Zero		
25%			

Would it be better calculate the compensation for voltage transformer errors at the prevailing load point based on the IEC standard requirements for tests at 0.8PF lag?

A_10 Reactive Energy Services

Type A Meter Calibrations for Codes of Practice 1 and 2 Reactive Power Service site

Test Point	Active Meter	
Value of current (I)	Cos φ	
	0.1 Inductive	0.1 Capacitive
0.02 I_n	X	X
0.1 I_n	X	X
1.0 I_n	X	X

Notes:
These tests shall be carried out for Import direction, as registered in SMRS or CMRS for a given Metering Point.
X= all elements combined.

A_12 FUTURE PROOFING CHANGES TO BS EN/IEC STANDARDS

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A_12 Future proofing changes to BS EN/IEC Standards

Updated wording following WG2
- Removed ‘purchased’

CP being raised by Elexon

Where a measurement transformer has been tested and stamped to an iteration of the applicable BS EN/IEC standard and that differs from the version referenced in this Code of Practice (i.e. BS EN/IEC 61869-2; BS EN/IEC 61869-3; BS EN/IEC 61869-4) measurement transformers may still be used providing the requirements in clauses 4.3.1 and 5.1.3 are met and if one of the following conditions is met:

- All measurement transformers purchased post implementation of the latest applicable BS EN/IEC standard should be manufactured in accordance with that version of the BS EN/IEC standard that has superseded the version of the BS EN/IEC standard referenced in this Code of Practice (i.e. BS EN/IEC 61869-2; BS EN/IEC 61869-3; BS EN/IEC 61869-4). **This is only for measurement transformers where the same accuracy class is available and limits of error and phase displacement have not changed from the BS EN/IEC standard referenced in this Code of Practice (i.e. BS EN/IEC 61869-2; BS EN/IEC 61869-3; BS EN/IEC 61869-4)**; **or**

- All measurement transformers purchased prior to the implementation of the latest version of the applicable BS EN/IEC standard referenced in this Code of Practice (i.e. BS EN/IEC 61869-2; BS EN/IEC 61869-3; BS EN/IEC 61869-4) should be in accordance with the previous version of the applicable BS EN/IEC standard that the latest version has superseded. **This is only for stocks of measurement transformers held to be used up and does not allow measurement transformers compliant with an older version of a BS EN/IEC standard where the same accuracy class is not available or limits of error and phase displacement have changed to be used .**

This condition is in effect until this Code of Practice has been updated to reference the latest versions of the applicable BS EN/IEC standard.

This condition is in effect from when this Code of Practice has been updated to reference the latest versions of the applicable BS EN/IEC standard.

A_15 MONITORING OF VOLTAGE FAILURE ALARMS

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A_15 Monitoring of Voltage failure alarms

CP being raised by Elexon

Wording of 5.1.3 updated following WG2

Monitoring facilities for voltage transformers shall be provided for the following condition:-

- phase failure of any one or combination of phases.

The phase failure alarm shall remain active so long as the fault condition exists.

The phase failure alarm must be dedicated to the monitoring of voltage transformers and not be combined with any other monitoring of prevailing conditions (such as an alarm monitoring for the condition where there is current being seen by the Meter but no voltage).

Meters combining integral Outstations shall provide for the data to be identified with an alarm indicating phase failure and tagged to the relevant Demand Period(s) and shall be reported via on-line communications and the local Interrogation Unit to the CDCA or Data Collector, as the case may be.

For separate Outstations, an alarm may be used which shall incorporate a time delay feature so as to avoid spurious operation. A spare channel on the Outstation or any other available means shall be used to transmit the alarm and shall be reported via on-line communications and the local Interrogation Unit to the CDCA or Data Collector, as the case may be.

ISSUE 93 PRIORITY ASPECTS

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Aspects for discussion

The following aspects have been highlighted by WG2 to be prioritised

A_07 Consideration of DMP vs AMP – Metering Dispensations and the need to compensate (if necessary)
A_08 Number of measuring elements
A_11 Relevant CoP for embedded circuits

CONSIDERATION OF DMP VS AMP

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Consideration of DMP vs AMP

In Appendix A – Defined Metering Points

Below is one example where an allowance has already been made for AMP not at DMP:

For transfers between the Transmission System and a Distribution System operated by a Licensed Distribution System Operator where no other Party(s) are connected to the busbar, the DMP shall be at the point(s) of connection to the Transmission System. A Party shall install Metering Equipment at a point on the circuit (e.g. the common incoming circuit for double busbar connections) within 100 metres of the DMP. Such point shall be the Actual Metering Point for the purposes of this Code of Practice.

We get Metering Dispensation applications where the AMP doesn't coincide with the DMP and the Applicant chooses not to compensate the Meters for losses as they are so low and have no material impact on Settlement. These are generally for sites (i.e. generators/Battery Energy Storage Systems) connected directly to the Transmission System (and potentially a Distribution System).

Processing Metering Dispensations in these circumstances is imposing an unnecessary burden on the Applicant and on Elexon (including MDRG members and Panel Committees)

What other parts of Appendix A should be considered?

Consideration of DMP vs AMP

Proposed Solution

Consider expanding allowing the AMP and DMP to be a certain distance apart to be compliant for other scenarios in Appendix A

There can be no equipment connected between AMP and DMP (e.g. parasitic loads, power transformers etc.)

Define limits where loss compensation does not need to be required – e.g.

Type of connection between AMP and DMP	Voltage Level / Distance in m			
	33kV	132kV	275kV	400kV
Overhead Line				
Cable				
Solid Busbar				

Do we want to process a full application for AMP not at the DMP over longer distances where compensation has been applied? Could we say for dispensations related solely to location, a Metering Dispensation isn't required but the compensation still has to be checked by the Electrical Loss Validation Agent?

Insignificant Import in comparison to Export

Issue with the design of Metering Equipment installed being based on the export and may not be fit for purpose for the import.

The import is insignificant compared to the export and could be less than 5% or 1% Ir, impacting the accuracy of the energy being recorded for import

Recent example:

A solar farm with a large export capacity (CoP2) where the import is being recorded on the export channel of the Meter at the DMP due to the Meter operating at a current and power factor outside of the range it is designed to operate accurately at.

A power quality meter on the low voltage side of the power transformer is recording the import correctly.

Options:

- Should the Import be metered at the LV side of the Power Transformer and loss compensation applied and leave the Export metering at the DMP? Treat the site as complex to account for erroneous export.

- Should the Import and Export be metered at the LV side of the Power Transformer and loss compensation applied?

- Should the Import and Export be on separate circuits so appropriate metering is installed for each circuit?

Consideration of DMP vs AMP

Other considerations for Appendix A

For transfers between the Transmission System and an Offshore Power Park Module(s) consider interconnector/exchange Metering Systems used for Switching Aggregation Rules

Group may want to consider interconnector metering DMP between other types of BM Units (e.g. between a Generation BM Unit and Station Load BM Unit at a site).

Clarify this type of arrangement in Appendix A

Limit requirement for a Metering Dispensation to only be where loss compensations need to be applied

Clarity can be provided on the appropriate DMP for LV Supplies in Offshore and onshore substations

NUMBER OF MEASURING ELEMENTS

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Number of Measuring Elements

The CoPs (except CoP10) specify that ‘Active Energy Meters shall be configured such that the number of measuring elements is equal to or one less than the number of primary system conductors. These include the neutral conductor, and/or the earth conductor where system configurations enable the flow of zero sequence energy.’

Issues can arise where the wrong configuration of switchgear is ordered and it is three phase three wire but it is connected to a three phase four wire system.

The Meter Operator does not order the switchgear and can only highlight the issue where they attend site to install/commission the Metering Equipment

Do we need to clarify the requirements?

Should it be in CT/VT section as well as Equipment Owners more likely to refer to this as they don’t install Meters?

Should we specify in the CoPs that three CTs should always be used and three phase and neutral voltages be provided? This will allow the Meter Operator to make the decision as to what configuration is required and it to be available (i.e. they can choose because the choice is available).

Would there be any conflicts with NGESO requirements?

RELEVANT COP FOR EMBEDDED CIRCUITS

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Relevant CoP for embedded circuits

CoPs specify (CoP1) ‘minimum requirements for the Metering Equipment required for the measurement and recording of electricity transfers at Defined Metering Points where the rated circuit capacity exceeds 100MVA’

Where a Metering Dispensation application is made to use an embedded circuit what should the relevant CoP for Settlement be? e.g.:

1. Based on Rated Capacity of the Boundary Point connection where the AMP should be i.e. at the DMP; or
2. Based on the Rated Capacity of the circuit and the AMP

Proposed Solution

Clarify in Foreword and Appendix A how embedded (i.e. circuits located below the DMP) should be handled where the Rated Capacity at DMP and embedded circuit are at different CoPs

Consider the impact on and risk to Settlements e.g.

- Based on the Rated Capacity of the circuit at the AMP; **OR**

- For AMP at CoP2 but DMP is CoP1, embedded circuit should be CoP1 (If CoP2 installed less accurate and less redundancy);
- For AMP at CoP3 but DMP is CoP2, embedded circuit should be CoP2 (If CoP3 installed less accurate and less redundancy);
- For AMP at CoP5 or CoP10, embedded circuit CoP should be based on the demand at AMP, for example if DMP is CoP2 and an embedded customer wants to use Third Party Access and AMP would be CoP5 allow embedded circuit to use CoP5 (If CoP5 or CoP10 installed less accurate and less redundancy but low materiality on Settlements with low energy volumes)

NEXT STEPS

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Next steps

- Elexon plan to raise the 3 new change proposals
  - A CP takes around 4 months to progress
  - Internal review → Industry consultation → Report phase → Plan for implementation
  - Currently targeting June 2022 BSC release schedule
- Elexon plan to schedule a monthly WG meeting
  - Is 17th or 20th of September good for the next WG?
- Elexon to share a summary of WG3 meeting with the group
- Work on the next prioritised aspects
  - Need volunteers for sub-groups to address the next aspects

MEETING CLOSE

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THANK YOU

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