Issue 93 – Measuring elements on neutral and earth conductors

## Summary

1. **Meeting Objectives**

The Chair welcomed attendees, confirmed WG consent for recording the session and presented the following meeting objectives to WG Members:

* Agree on a solution to this aspect of Issue 93.
* Confirm redlining requirements.

1. **Background**
   1. Elexon explained the background of this aspect and highlighted the key question to address.
   2. Elexon asked the WG to confirm if they had any concerns on ‘2-wattmeter method solution requiring two Current transformers (CTs) for Metering Systems’ being an issue.
      1. KW commented and noted that this arrangement was always used, therefore, saw no need to change it
      2. DB noted that in general this should be fine, however, could be an issue when the CTs are incorrectly configured.
      3. MW mentioned that there wasn’t any issue with the equipment being installed, rather it could be down to miscommunication between the relevant Parties.
      4. To which, Elexon asked the WG to confirm if they agreed to ‘Lack of communication’ as the root of the issue.
         1. Most of the WG members agreed.
2. **Number of measuring elements**
   1. Elexon summarised the current wording for the number of measuring elements required for Meters in Section 5.3 ‘Meters of the Codes of Practice (CoPs), highlighting the ambiguity in it regarding neutral and/or earth conductors, and noting the missing criteria for Measurement Transformers in Section 5.1 ‘Measurement Transformers’ of the CoPs**.**
   2. Elexon asked the WG if an equivalent statement for the number of CTs and a requirement for a voltage neutral should be added to Section 5.1 of the CoPs.
      1. MC said that they received different requests from Meter Operator Agents (MOAs\_, specifically on CoP1 level, who were unsure about CT fittings.
      2. KW’s view was that most people may not understand what the questions (relating to CT fittings) and the implications are. KW then asked if the requiring three CTs to be fitted in all cases will be costly to Licensed Distribution System Operators (LDSOs).
      3. MC agreed with KW’s cost concern, but noted that it may not be an issue for Voltage Transformers (VTs).
      4. MW argued that this was most likely a lack of communication or training, as the CoPs and processes are available to guide MOAs on what needs to be fitted. Therefore, these instances should be reported to the back office.
      5. KW then flagged a related issue to do with labelling of equipment and the MOCOP labelling and the ferrule numbering used by the installer. MW reconfirmed that this was a process related issue.
      6. Elexon then asked the WG if the CoPs should refer (‘sign-post’) to the standard of labelling in [MOCOPA](https://mocopa.org.uk/) (now referred to, under the Retail Energy Code (REC), as MOCOP). MW questioned if it was required and stated that LDSOs and Parties that use this process are already aware of it. Two WG members stated that the Transmission System owners in Scotland both use the Energy Networks Association TS 50-19[[1]](#footnote-1) standard. TC noted that MOCOPA/MOCOP audits were desk based so secondary wiring labelling on site would not be audited and any issues found regarding this should be reported to the LDSO/REC (now). Elexon took an action to speak to its legal team about whether the CoPs could ‘sign-post’ to standards under other Codes (like the REC) and, if so, whether this meant the Technical Assurance Agent could audit them and raise non-compliances under the Balancing and Settlement Code (like the sealing arrangements in MOCOPA/MOCOP for Supplier Volume Allocation Metering Systems).
      7. Elexon asked if it was worth reaching out to Siemens to confirm what standard they currently follow for Transmission System (possibly in England and Wales only) connected Central Volume Allocation Metering Systems. The WG welcomed the idea and Elexon took an action.
   3. Elexon followed up the question with a summary of the suggested redlining to provide clarity on the wording for Section 5.3 of the CoPs.
      1. SH agreed to the principle of clarifying the wording, especially for MOAs, noting that it was difficult for MOAs to identify the primary voltage.
   4. Elexon presented a draft CoP1 wiring diagram, which was created as a Technical Assurance of Metering Expert Group ([TAMEG](https://www.elexon.co.uk/group/technical-assurance-of-metering-expert-group-tameg/)) action, to the WG.
      1. MW didn’t disagree with the diagram but pointed out that there wasn’t any way of standardising what needs to be fitted by the Agents. A member of the WG expanded on MW’s point and noted that there could be some confusion in the CoPs due to introducing diagrams for every scenario.
      2. The WG asked for the diagram to be circulated. Elexon took an action to circulate the diagram as part of the post meeting documents.
   5. Elexon suggested text to include in the CoPs.
      1. WG wanted some clarification on what “zero sequence energy” from the proposed text meant. Some members wanted to understand the value this text will add to the edited section of the CoPs.
      2. SC commented on this and pointed out that it could be related to the ‘Harmonics’.
      3. To which, most WG members wanted to confirm in what scenario the use of ‘zero sequence energy’ is applied.
      4. Elexon took an action to contact Siemens to understand more about the ‘harmonics’ and ‘zero sequence energy’ situation and if they are applicable to neutral and/or earth conductors. Secondly, to ascertain their value of including this text in the edited section of the CoPs.
      5. Another WG member mentioned that it would also be worth knowing what battery storage systems do in terms of harmonics.
   6. The conclusion and summary from the discussions were that;
      1. The underlying issue in this aspect could be related to communication between Parties and not necessarily the number of CTs.
      2. Elexon to draft up some redlining which will cover the deletion of the sentence in Section 5.3 that talks about “earth conductor”. Additionally, a footnote to explain the application of neutral and earth conductors will be introduced in Section 5.1 of the CoPs.
3. **Next Steps**

* Elexon to progress and manage all of the captured actions.
* Elexon to update the Issue 93 WG on the points discussed in the meeting.
* Elexon to progress redlining requirements captured in the meeting.

1. **Actions**

* Elexon to contact Siemens regarding the ‘Harmonics’ and ‘zero sequence energy’ situation.
* Elexon to circulate a draft wiring diagram with the WG.
* KW to highlight the auditing issue with REC
* Elexon to seek legal view on a proposed wording in Section 5.1 ‘Measurement Transformers’ about labelling in accordance with standards specified elsewhere.
* Elexon to draft redlining incorporating the views and comments from the WG members.

1. Standard Numbering for Small Wiring (For switchgear and transformers together with their associated relay panels) [↑](#footnote-ref-1)