4.3 CP Form

Change Proposal – BSCP40/02	**CP No:** *Version No:* *(mandatory by BSCCo)*

Title (mandatory by originator)

Clarify the requirements for the number of Meter measuring elements and measurement transformers in the CoPs

Description of Problem/Issue (mandatory by originator)

What is the Issue? (summary)

The requirements regarding the number of measuring elements on neutral and earth conductors don't appear to be sufficiently clear, or are not being complied with.

Further Detail

At the second subgroup meeting under Issue 93 'Review of the BSC metering Codes of Practice', the Workgroup agreed to raise a Change Proposal (CP) that addresses the 'Measuring elements on neutral and earth conductors' aspect of Issue 93.

Section 5.3 'Meters' of metering Codes of Practice (CoPs) 1, 2, 3 and 5 requires Active Energy Meters to have, or be configured with, the correct number of measuring elements compared to the number of primary system conductors, with clarification that, in certain primary system configurations, neutral and/or earth conductors may need to be considered in the total number of primary system conductors.

However, the requirements don't appear to be sufficiently clear, or are not being complied with, highlighted by a scenario where a Meter Operator Agent (MOA) reported that the CoPs lack clarity in determining the number of measuring elements required.

Linked to this lack of clarity in determining the number of measuring elements required is that section 5.1 'Measurement Transformers' of CoPs 1, 2, 3 and 5 makes no reference to providing a suitable number of current transformers (CTs), and a voltage transformer (VT) neutral connection (where required), based on the number of primary system conductors, so this matches up with the number of measuring elements provided, or configured, in the Meter the MOA installs.

This has resulted in issues with the accuracy of Settlement data where the measurement transformer owner has provided an incorrect number of high voltage (HV) CTs, and no neutral connection on the VT. This results in the Metering System being inaccurate where the load across the phases, is, or becomes, unbalanced.

Proposed Solution (mandatory by originator)

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This CP proposes to amend section 5.3 'Meters' in the relevant COPs, to delete the sentence: 'These include the neutral conductor, and/or the earth conductor where system configurations enable the flow of zero sequence energy' and refer to having to match the configuration provided by the owner of the measurement transformers in compliance with section 5.1 'Measurement Transformers'.

This CP will also introduce a requirement in section 5.1 'Measurement Transformers', of CoPs 1, 2, 3 and 5, where measurement transformer owners are more likely to refer to. To clarify the requirements to measurement transformer owners, this CP proposes to add a paragraph on the number of current transformers, and possible need for a VT neutral, to be provided in section 5.1 'Measurement Transformers'. The proposed wording is:

'The number of CTs provided shall be equal to or one less than the number of primary system conductors. These include the neutral conductor and/or earth conductor, where system configurations enable the flow of zero sequence energy. Consideration shall be given as to whether a VT neutral is required to be provided, depending on the number of CTs provided.'

Justification for Change (mandatory by originator)

There have been three reported instances of an unsuitable configuration of metering being installed on sites (e.g. wrong number of CTs and no VT neutral). A lack of clarity in the CoPs has been cited as the reason. Any issue with the accuracy of the Metering System can have an impact on Settlement data. This CP seeks to provide that clarification to owners of measurement transformers, in the section of the CoPs most relevant to them (i.e. 5.1 'Measurement Transformers'), rather than only being in section 5.3 'Meters', which is relevant to the MOA.

Without additional clarification in the CoPs there is a risk that this issue will occur again and negatively impact the accuracy of Settlement data.

To which section of the Code does the CP relate, and does the CP facilitate the current provisions of the Code? (mandatory by originator)

BSC Section L 'Metering'

Estimated Implementation Costs (mandatory by BSCCo)

<£1k

BSC Configurable Items Affected by Proposed Solution(s) (mandatory by originator)

Code of Practice 1: The Metering of Circuits with a Rated Capacity Exceeding 100 MVA for Settlement Purposes

Code of Practice 2: The Metering of Circuits with a Rated Capacity not Exceeding 100 MVA for Settlement Purposes

Code of Practice 3: The Metering of Circuits with a Rated Capacity not Exceeding 10 MVA for Settlement Purposes

Code of Practice 5: The Metering of Energy Transfers with Maximum Demand of up to (and Including) 1MW for Settlement Purposes

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Impact on Core Industry Documents or System Operator-Transmission Owner Code (mandatory by originator) None
Related Changes and/or BSC Releases (mandatory by BSCCo) Issue 93 'Review of the BSC metering Codes of Practice'
Requested Implementation Date (mandatory by originator) 29 June 2023 (June 2023 Standard BSC Release)
Reason: We have targeted the June 2023 BSC Release because it is the earliest available release in order to realise the benefits of the change as early as possible.
Version History (mandatory by BSCCo)
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Date: *1 November 2022*
Attachments: **Y** *Draft redline changes to CoPs 1, 2, 3, 5*

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