4.3 CP Form

Change Proposal – BSCP40/02	**CP No:** *Version No:1.0* *(mandatory by BSCCo)*

Title (mandatory by originator)

Tightening the requirements for the minimum accuracy classes for Meters in Code of Practice (CoP) 5 and Current Transformers (CT) in CoPs 3, 5 and 10

Description of Problem/Issue (mandatory by originator)

Meter Accuracy Class

Currently the minimum accuracy class required for Meters in CoP5 'The Metering of Energy Transfers with Max Demand of up to (and including) 1MW for Settlement Purposes' is class 2 (or class A), which means that the Meter must have an accuracy within ±2%. However, the Overall Accuracy for a CoP5 Metering System is ±1.5%. When the CoP5 Meter with a the current accuracy of ±2% is combined with the accuracy of 0.5 for a Current Transformer (CT) , this means that specific low voltage Metering System will have an overall accuracy of ±2.5%, which exceeds the limit of ±1.5% specified for Metering Systems in CoP5.

The absence of the Meter's Calibration Certificates detailing the actual errors of the Meter makes it difficult for Meter Operator Agents (MOA) to assure the Overall Accuracy of the Metering System is within the limits specified in CoP5. As a result, the Technical Assurance Agent (TAA) assumes a worst case error of the accuracy class and issues Category 2 non-compliances as the Metering System could potentially be outside of the Overall Accuracy limits.

CT Accuracy Class

Currently the minimum accuracy class for CTs in CoPs 3 'The Metering of Circuits with a Rated Capacity not Exceeding 10 MVA for Settlement Purposes', 5 and 10 'The Metering of Energy via Low Voltage Circuits for Settlement Purposes' is class 0.5, the IEC standard (IEC 61869-2:2012 Instrument transformers - Part 2: Additional requirements for current transformers) for which details the limits of ratio error and phase displacement permitted for both classes 0.5 and 0.5S CTs.

For class 0.5 CTs, the standard only requires that the CT is tested to a minimum of 5% of the rated current of the CT. The practice of "bulk buying" the same ratio CTs (e.g. 500/5A) for multiple installations of different agreed capacities can mean that some CTs are measuring current levels below 5% of rated current. As the standard does not define the limits of error below 5% of rated current then the accuracy of the CTs below these current levels is unknown. This means the errors of the CTs and the Overall Accuracy of the Metering System are unknown.

Proposed Solution (mandatory by originator)

Meter Accuracy Class

The Issue 93 workgroup proposes to tighten the requirements for the minimum accuracy class of Meters to class 1/class B for CoP5, meaning that their accuracy will be within ±1%. This will ensure that a Low Voltage (LV) CoP5 site will always be aligned with the Overall Accuracy of ±1.5% as defined for CoP5 meters. As result, where the Calibration Certificates are not provided, the TAA will not issue Category 2 non-compliances for these Metering Systems potentially being outside the limits of overall accuracy as defined within CoP5.

CT Accuracy Class

As BS EN/IEC 61869-2 [1]mandates that class 0.5S CTs are tested (and the permissible error limit defined) to 1% of rated current, the Issue 93 workgroup propose to tighten the requirements for the minimum class accuracy of CTs from class 0.5 to 0.5S for CoPs 3, 5 and 10.

Justification for Change (mandatory by originator)

Meter Accuracy Class

Category 2 non-compliances (following a TAA visit) against Metering Systems potentially being outside of the overall accuracy limits have been noted as a significant issue for a number of years. Tightening the requirements to ensure that all Meters registered against CoP5 are class 1/class B Meters will remove the need to present Calibration Certificates for LV CoP5 Metering Systems.

As the minimum requirement for CTs is class 0.5, this means that an LV CoP5 Metering System should never exceed the defined Overall Accuracy requirements, if Metering Equipment of a compliant accuracy class is installed. This will greatly reduce the number of non-compliances given by the TAA for the non-provision of Calibration Certificates (related to LV CoP3, 5 and 10 sites).

However, a footnote will be added to clarify that wherever compensation has been applied to a Meter then Calibration Certificates for all Metering Equipment comprised within a Metering System will need to be retained and available on request.

CT Accuracy Class

By mandating that class 0.5S CTs are installed for Metering Systems registered against CoPs 3, 5 and 10, it is more likely that the errors of the CT at the operating load will be known. Whilst it is feasible that, for low capacity sites, a CT may not measure currents greater than 5% of the rated current, it is far less likely that the energy associated with a Metering System will be consistently less than 1% of the rated current of the CTs. This will assist the MOA with assuring the Overall Accuracy of the Metering System.

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

Section L 'Metering'

[1] This standard BS EN 61869-2 is applicable to newly manufactured inductive current transformers for use with electrical measuring instruments and/or electricl protective devices having rated frequencies from 15 Hz to 100 Hz.

Estimated Implementation Costs (mandatory by BSCCo)

Less than £1k of effort to implement the necessary document changes.

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

Code of Practice 3

Code of Practice 5

Code of Practice 10

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 Code of Practice'

Requested Implementation Date (mandatory by originator)

30 June 2022 (standard June 2022 BSC Release)

Reason:

This issue was originally raised at a TAMEG meeting and a solution discussed. This Change Proposal combines the discussions held by both TAMEG and the Issue 93 Workgroup.

We have targeted June 2022 BSC Release because it enables us to batch up this change alongside the subsequent CPs that is raised as a result of the Issue 93 exercise.

Version History (mandatory by BSCCo)

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Attachments: **Y** (Draft redline changes to CoPs 3, 5, and 10)