

Metering Dispensation D/517 – New Cross Tunnel Boring Machine

Imbalance Settlement Group

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Summary **Engie Power Ltd has applied for a temporary Metering Dispensation (D/517), against Code of Practice (CoP) 4. This is for the Metering Equipment that will measure the supplies for the New Cross Tunnel Boring Machine (TBM). CoP4 requires the Calibration Certificates for the current transformers (CTs) and voltage transformers (VTs), produced after 6 November 2008, to have statements of measurement uncertainty on them. The Calibration Certificates for the CTs and VT for the TBM supplies do not have statements of measurement uncertainty on them. We invite the ISG to approve D/517 on a temporary basis until 31 December 2025.**

1. BSC requirements

- 1.1 Section L¹ of the Balancing and Settlement Code (BSC) requires all Metering Equipment to either:
 - comply with the requirements set out in the relevant Code of Practice (CoP) at the time the Metering System is first registered for Settlement under the BSC (L3.2.2); or
 - be the subject of, and comply with, a Metering Dispensation (L3.4).
- 1.2 Section L allows the Registrant of a Metering System to apply for a Metering Dispensation if, for financial or practical reasons, Metering Equipment will not or does not comply with some or all the requirements of a CoP.
- 1.3 The process for applying for a Metering Dispensation is set out in [BSCP32](#)².

2. Confidentiality

- 2.1 BSCP32 allows the Metering Dispensation applicant to request confidentiality via the application form (BSCP32/4.1).
- 2.2 In this case, the applicant has noted on the application form that the application is confidential. However, we have confirmed that the content of the application form itself is not confidential and that the applicant has requested that we only keep the electrical single line diagram (SLD) (Attachment B) and the metering SLD (Attachment C) confidential, for commercial reasons. This is to prevent Elexon making these details public on the BSC Website. Additionally, we will keep the Calibration Certificates for the manufacturers' measurement transformer Calibration equipment confidential (Attachment Ds and E), as they contain names, signatures and address details.

¹ 'Metering'

² 'Metering Dispersations'

3. Background to Metering Dispensation D/517

- 3.1 As part of the construction of the £1bn London Power Tunnels (LPT) project for National Grid (NG), NG has provided a temporary new connection for a Tunnel Boring Machine (TBM) off the 13kV tertiary winding of a 275/132/13kV Super Grid Transformer (SGT), SGT4, at New Cross³. The circuit from the SGT4 tertiary winding feeds a 5MVA 13/11kV transformer, before connecting to an 11kV Ring Main Unit (RMU). This is where the circuit for the 4MVA TBM supplies will connect to and this is the Transmission System Boundary Point and Defined Metering Point. The LPT project is a £1bn critical national infrastructure upgrade of the NG Transmission System in South London. The temporary supply is only required for four years and 10 months (duration of the construction of tunnels).
- 3.2 NG ordered the RMU from the manufacturer⁴ and requested the metering current transformers (CTs) and voltage transformers (VTs), supplied within the RMU, comply with [CoP3](#)⁵. The manufacturer of the CTs⁶ tested and Calibrated the CTs supplied to the RMU manufacturer to install within the RMU. The manufacturer of the VTs⁷ tested and Calibrated the VTs supplied to the RMU manufacturer to install within the RMU. The CTs/VTs meet (and exceed) the minimum class accuracy requirements in CoP3 as they are class 0.5s (instead of class 0.5) and class 0.5 (instead of class 1.0), respectively, and were tested and comply with the relevant IEC standard for metering CTs/VTs stated in CoP3 and [CoP4](#)⁸ (i.e. IEC 61869-2⁹ and IEC 61869-3¹⁰, respectively).
- 3.3 However, the purchaser of the CTs and VTs (the RMU manufacturer) has not provided measurement uncertainty evaluations for the results obtained from Calibrating the CTs and VT. The Metering Dispensation applicant's, and NG's, understanding is that the RMU manufacturer was unaware of this CoP4 requirement. CoP4 (paragraph 5.3.2 'Initial Calibration') states that:
- "For Certificates produced for measurement transformers ordered after the effective date of Issue 6, Version 5.0 of CoP4, the accuracy test results shall include a measurement uncertainty evaluation which shall be determined to a confidence level of 95% or greater in accordance with the UKAS Directive M3003"^{11,12}.
- 3.4 As soon as the applicant realised the accuracy results did not include a measurement uncertainty evaluation they immediately liaised with the manufacturers of the CTs and the VTs directly. Unfortunately, although the Calibration Certificates provided show the accuracy test results, the additional information that has been provided does not satisfy the measurement uncertainty requirements.
- 3.5 The applicant has also investigated other options to using the existing CTs and VT installed in the RMU:
- 3.6 Option 1: Re-testing: This would involve sending the switchgear that has been installed at site to a UKAS approved testing centre for retesting. This would require:
- The removal/disassembly of the switchgear from site;
 - Finding a testing centre with capacity and availability to undertake these tests; and
 - Re-assembly of the switchgear at site after testing.
- This will lead to a significant cost increase and time delay (approximately 6 - 8 weeks) to the NG project.
- 3.7 Option 2: Replacement: The procurement, installation and commissioning of replacement switchgear has considerable time (approximately 12 weeks) and cost impact to the NG project.
- 3.8 As the applicant is currently working intensively towards meeting NG's 'available for commercial load' (ACL) requirements, to provide the temporary supply by February 2021, it is becoming more evident that these options are not feasible due to the time and cost impact to the NG project.

4. Metering Dispensation application D/517

- 4.1 Engie Power Ltd, the applicant and proposed Registrant, has requested a temporary Metering Dispensation (D/517), until 31 December 2025, from CoP4. This is for the Settlement CTs and VT related to the new, temporary, 4MVA supply, from the Transmission System, for a TBM.

³ The 132kV secondary winding feeds the New Cross Grid Supply Point and is separately metered for Settlement purposes.

⁴ Schneider Electric.

⁵ 'Code of Practice for the metering of circuits with a rated capacity not exceeding 10MVA for Settlement purposes'

⁶ Instrument Transformers Ltd (ITL) in Scotland.

⁷ SADTEM in France.

⁸ 'Code of Practice for the calibration, testing and commissioning requirements of Metering Equipment for Settlement purposes'.

⁹ 'Instrument transformers – Part 2: Additional requirements for current transformers'

¹⁰ 'Instrument transformers – Part 3: Additional requirements for inductive voltage transformers'

¹¹ CoP4 Issue 6 v5.0 became effective on 6 November 2008 following a full review (CP1224).

¹² M3003, Edition 4, dated October 2019, is titled 'The Expression of Uncertainty and Confidence in Measurement'.

- 4.2 Although tested to the required IEC standards for measurement transformers, the accuracy test results on the CT and VT Calibration Certificates do not come with measurement uncertainty evaluations.
- 4.3 CoP4 also requires the Calibration equipment used to Calibrate CTs and VTs to be Traceable (i.e. have been tested against identified Calibrated Standards held by a Test House or an Accredited Laboratory) and that the Calibrations and measurements are derived from national measurement standards, either directly or indirectly.
- 4.4 As mentioned previously, the information initially provided by the CT and VT manufacturers does not satisfy the measurement uncertainty requirements however, following further discussions with the CT and VT manufacturers, the applicant has established that the equipment used by the CT and VT manufacturers to Calibrate the CTs and VTs is Traceable to national Calibration Standards (for testing CTs) and international Calibration Standards (for testing VTs) (Attachments D and E).
- 4.5 The applicant requests that the Panel (who has delegated this responsibility to the the ISG and the Supplier Volume Allocation Group (SVG)) considers the following:
- The impact of not providing the supply on time will have a significant cost and time impact a critical national infrastructure project;
 - The 4MVA connection to be provided is only to be used for four years and 10 months;
 - The CTs/VT have the correct accuracy class for a CoP3 Metering System. In fact, the CTs and VT exceed CoP3 minimum class accuracy requirements; and
 - The applicant has undertaken all reasonable steps to ensure that the provided Metering Equipment meets the required standards by purchasing this equipment from a known UK supplier of 11kV metering units.
- 4.6 The impact on Settlement and other Registrants is likely to be very low to immaterial as the Settlement CTs and VT are tested to the relevant IEC standards and exceed CoP3 minimum class accuracy requirements.

5. MDRG comments

- 5.1 We circulated the Metering Dispensation application (and attachments) to the Metering Dispensation Review Group (MDRG) for comments (Attachments A - C).
- 5.2 Two out of three MDRG members responded. One MDRG member is the appointed Meter Operator Agent and has not responded. The other two MDRG members support the application on the following bases:
- They support this Metering Dispensation due to the time limited nature and the low/no impact on Settlements; and
 - As discussed at the Technical Assurance of Metering Expert Group (presumably following identification of this issue) the basis of the uncertainty requirement is not very clear and has little (if any) impact on accuracy and the fact that it is temporary.

6. NETSO comments

- 6.1 We circulated the Metering Dispensation application (and attachments) to the National Electricity Transmission System Operator (NETSO) for comments (Attachments A - C).
- 6.2 The NETSO has no objection to the ISG granting a Metering Dispensation.

7. Elexon's view

- 7.1 Elexon supports this temporary Metering Dispensation application, from CoP4, for four years and 10 months.
- 7.2 This was on condition that the applicant confirms (and provides evidence) that:
- The Calibration equipment used by the CT and VT manufacturers, to Calibrate the CTs and VTs, is Traceable to national (or international) Standards (held by a Test House or Accredited Laboratory (NPL or a Calibration laboratory that has been accredited by UKAS or similarly accredited International body)); and
 - The Calibrations and measurements are also Traceable (i.e. are derived from national measurement standards, either directly or indirectly).
- 7.3 The applicant has now provided this evidence (Attachments D and E) and therefore we believe the impact of using these Settlement CTs and VT will not be material.

8. Recommendation

- 8.1 We invite the ISG to:

- a) **APPROVE** Metering Dispensation D/517, for the New Cross Tunnel Boring Machine supplies, on a temporary basis until 31 December 2025; and
- b) **NOTE** we will present a similar decision paper to the Supplier Volume Allocation Group at its meeting on 2 March 2021.

Attachments

Attachment A – Metering Dispensation application (D/517)

Attachment B (CONFIDENTIAL) – Single line diagram (SLD) for the New Cross TBM supplies

Attachment C (CONFIDENTIAL) – Metering SLD for the New Cross TBM supplies

Attachment D (CONFIDENTIAL) – CT Analyser Calibration Certificate

Attachment E (CONFIDENTIAL) – VT Tester Calibration Certificate

For more information, please contact:

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