ISG212/01 – METERING DISPENSATION D/491 – GASCOIGNE WOOD

MEETING NAME	ISG 212

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Owner/author	Mike Smith
Purpose of paper	Decision
Classification	Public
Summary	E.ON UK has applied for a lifetime Metering Dispensation (D/491) from Code of Practice (CoP) 2. D/491 relates to the Metering Equipment measuring the supplies to a business park connected to Northern Powergrid's Gascoigne Wood substation. The existing current transformers are not the correct accuracy class and energy measurement is not taking place at the Defined Metering Point (DMP). However, overall accuracy will be maintained within CoP2 limits at the DMP. We invite the ISG to approve Metering Dispensation application D/491 on a lifetime basis.

1. BSC requirements

1.1 Section L 'Metering' 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; or
- be the subject of, and comply with, a Metering Dispensation.

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 'Metering Dispensations'.

2. Confidentiality request

2.1 Registrants can request confidentiality for Metering Dispensation applications (or parts of them or attachments to them). In this case, the Registrant has requested confidentiality for the electrical single line diagrams (Attachments E, F, G and H).

3. Background to Metering Dispensation D/491

3.1 Northern Powergrid's (NPG's) Gascoigne Wood 33kV substation used to feed the Selby Gascoigne Wood Colliery.

3.2 The Settlement voltage transformers (VTs) and current transformers (CTs) are located within NPG's switchgear at this substation. E.ON UK, the Metering Dispensation applicant, believes this substation was built and put in use in the 1980's.

3.3 The site has since been developed into a business park and this supply point was believed to be compliant with Code of Practice (CoP) 3[1] and used to facilitate a historical import capacity below 10MVA. Attachment E shows the historic metering arrangement.

3.4 In order to facilitate Settlement arrangements for a 20 MVA Generating Plant within the business park private network, the Metering System needs to be upgraded to comply with CoP2[2] (Issue 4). Attachment F shows the proposed metering arrangement and Attachment G shows the proposed metering arrangement with the diesel Generating Plant (and its own metering[3]) shown.

3.5 During checks on the Gascoigne Wood substation installation equipment the applicant established the existing CT's are to accuracy class 0.5, as opposed to the correct CT accuracy class of 0.2s required for CoP2. The CTs are also mounted within old switchgear and are not at the Defined Metering Point (DMP) - the point of connection to the Distribution System of the Licensed Distribution System Operator (LDSO). The CTs cannot be changed (or moved) due to the age of the switchgear and the removal of the internal busbar to install correct accuracy class CTs may cause irreparable damage to the site switchgear and will have a detrimental operational impact to the 33kV network.

3.6 NPG (the LDSO) has quoted an estimate of £1.5 million to fully comply with CoP2. This would involve establishing a new 33kV substation on site. The two existing circuits would need to be extended to the new substation which would house a new 33kV five panel board with measurement transformers installed at the DMP within the switchgear. Labour costs are also included in the estimate. There may be additional costs for disruption to the network or disruption to local services (road closures, etc.).

3.7 There would also be an impact on the downstream private wire business park consumers and the lead time to complete the work would be over a period of 18-24 months to physically change the equipment within the substations.

3.8 The proposed solution will cost approximately £12,000. This cost comprises:

- £11,844 for the metering; and
- £410 for installing the electrical supply for the metering.

4. Metering Dispensation application (D/491)

4.1 E.ON UK has applied for a lifetime Metering Dispensation (D/491) from CoP2 (Attachment A) to use the existing CTs (and VTs) in the Gascoigne Wood substation.

4.2 The Metering Equipment is non-compliant with CoP2 in two respects:

- the existing CTs are not the correct accuracy class; and
- the CTs/VTs are not located at the DMP.

4.3 The applicant has tested the CTs to obtain accuracy results (Attachments B and C). The applicant has also provided the calibration certificate for the VTs (Attachment D).

4.4 In addition, the applicant proposes to exceed CoP2 Meter accuracy class requirements (i.e. 0.5s) by using Meters to CoP1[4] accuracy class (i.e. 0.2s).

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[1] 'Code of Practice for the metering of circuits with a rated capacity not exceeding 10MVA for Settlement purposes'
[2] 'Code of Practice for the metering of circuits with a rated capacity not exceeding 100MVA for Settlement purposes'
[3] The proposed Registrant (Gazprom Marketing & Trading Retail Ltd) of the Metering Equipment for the Generating Plant has applied for a site specific Metering Dispensation (D/492), for its location (ISG212/02).
[4] 'Code of Practice for the metering of circuits with a rated capacity exceeding 100MVA for Settlement purposes'

4.5 The electrical losses from the Actual Metering Points (AMP) to the DMP to will be very minimal (centimetres of switchgear busbar losses) and under the proposed solution overall accuracy will be maintained within CoP2 limits at the DMP.

5. MDRG comments

5.1 We circulated the application to the Metering Dispensation Review Group (MDRG) for comments, along with the following additional clarifications provided by the applicant:

- the substation/metering system historically fed the Selby Gascoigne Wood Colliery & we believe this substation was built & put in use in the 1980's as such we believe that this set up was in place prior to the privatisation of the electricity industry, so its correct that the MPAN was first registered under the Pooling and Settlement Agreement;
- the existing Metering System is currently/has been aligned to CoP3 as the coal mines demand did not exceed 10MVA, the earliest version of CoP3 version 1.0 issue 1 was effective from 15 April 1993 so we believe that these elements of the Metering System (CT/VT's) pre-date the metering CoP.
- the reason for the dispensation for CT class 0.5s is because the Metering System should comply with CoP2 to facilitate an increase in capacity to 20MVA, moving the Metering System requirements from a CoP3 to a CoP2 system - current CoP2 requires CT class accuracy 0.2s;
- in order to move the Metering System into CoP2 for the future increased in capacity we would need a dispensation against the current CoP2 DMP definition to achieve compliance against CoP2, we believe this would constitute a material change to the Metering System rather than a change [related] to just a Meter exchange; and
- we believe that the AMP not complying with DMP definitions has stemmed from the time the Metering System was installed, whilst PGEN have supplied this since 2012. However, it only came to light that the AMP was not the DMP when the infrastructure survey was carried out to facilitate the required increase in electrical capacity, which initiated this Metering Dispensation earlier in the year.

5.2 Four MDRG members responded to our request for comments. Two MDRG members declared an interest and did not provide any comments (one is affiliated with the applicant's company and one is the Meter Operator Agent (MOA)).

5.3 One MDRG member supports the application and provided the following rationale:

- the Meters will be appropriately compensated for losses and I understand that retrofitting CTs and VTs to older equipment is not always possible.

5.4 One MDRG member does not support the application as proposed and provided the following rationale:

- insufficient information, or apparently consideration, has been provided about the alternative approach of fitting metering on the outgoing feeders;
  - The alternative of metering the feeders allows the generator to be treated as a simple connection direct to the DNO network and removes the complexity of measuring and removing from the calculation the DNO network 'pass through' energy.
  - The alternative also allows for reactive power to be determined correctly for the private network, which is impossible for the proposed arrangement due to the complexities.
- The report to Performance Assurance Board last Thursday highlighted the consequence of a complex differencing approach at [a site] not happening correctly. This led to an error in Settlement over five years which had to be resolved via a Trading Dispute. The Trading Dispute stated value was over

£660,000, plus the consequential costs of investigation, DUoS etc., which "…is not small change." It is intended that a lessons learnt activity will commence early in 2019. This application, as proposed, has similar opportunity for error if further generation is fitted within the private network, as happened at [the site].

- More complex arrangements also add to the ongoing BSC costs for assurance and auditing of the correct energy allocation.

5.5 In response to this MDRG member's initial questions about whether there was any metering on the E1T1 & E1T2 (which might allow a simpler arrangement) and the cost of fitting metering on these two feeders, the applicant provided the following response:

- although there would be space in the substation to install new CT/VTs NPG can't use the basement of the substation as it floods so the applicant is not sure on the feasibility of actually installing new equipment in it;
- the costs of at least installing three new CT/VT units in addition to anything that might need doing in the substation, based on the costs of the CTs already installed, would amount to at least £165k. This would also mean both meters would be on the private wire rather than NPGs equipment which could raise a separate issue with embedded metering; and
- NPG noted the last issue with installing new CT/VTs in the sub was regarding the thermal protection switch, as this is controlled from this point, it may need to be replaced onto the new CT/VTs which could cause issues with operability. The applicant assumed there would be a cost associated to this as well.

5.6 Overall the applicant believes that the cost and time to complete the works would be too great when compared to utilising the existing equipment with the aid of a Metering Dispensation.

5.7 The MDRG member then suggested this had not answered the questions and the options for metering were:

- Option 1: go with the complex arrangement of metering as proposed in the dispensation request, where the metering is not at the DMP anyway; or
- Option 2: fit metering on E1T1 & E1T2 and dispensation only required for the AMP/DMP being 10m apart (similar to generator connection on E1T3).

5.8 In response, the applicant stated that unfortunately they did not have the exact costs for option 2 but based on the new metering that has already been installed they would expect this to cost over £100,000. The applicant hoped the member would agree this is not small change and far too expensive an option in comparison to the dispensation request. If exact costs are required the applicant will need to go back to NPG, this could cause a significant delay though and the customer is keen to see a resolution to this asap as the generation company on site are ready to begin generating.

5.9 The MOA later confirmed that there is no space in the substation to fit an additional two standalone CT/VT units on E1T1 and E1T2 to measure the supplies to the rest of the private network.

6. Transmission Company and LDSO comments

6.1 We circulated the application to the Transmission Company and the LDSO for comments.

6.2 The Transmission Company does not support the application, as proposed, and supports the position of the MDRG member who does not support the application, particularly the first bullet point (see section 5.4).

6.3 The LDSO has no issues or objections to the application.

7. ELEXON's view

Compliance

7.1 ELEXON supports this lifetime Metering Dispensation application (D/491) as overall accuracy will be maintained within CoP2 limits at the DMP despite the two non-compliances with CoP2:

- using class 0.5 CTs as opposed to class 0.2s CTs; and
- AMP not at the DMP.

7.2 To ensure that overall accuracy will be maintained within CoP2 limits at the DMP the applicant has:

- calibrated the existing class 0.5 CTs to obtain accuracy results;
- provided the original calibration certificate for the VTs;
- exceeded CoP2 Meter accuracy class requirements by installing Meters to CoP1 accuracy class requirements (i.e. 0.2s); and
- confirmed the electrical losses from the AMP to the DMP to will be very minimal (centimetres of switchgear busbar losses).

Risk

7.3 As a consequence of measuring the Customer's supplies away from the DMP, above the switchgear busbar, there is the potential for LDSO network flows to impact the Customer's Settlement Meter readings if the bus-section switches are ever run closed and without appropriate complex site mapping in place (such situations are envisaged under the BSC - see BSCP514[5], Section 8.4.8 'Network Flows Impacting Settlement Meters'). Additionally, complex site mapping is required because the CTs/VT for the embedded Generating Plant (Allen Diesels) are located below the CTs/VTs for the Customer's site and therefore Generating Plant metered volumes need to be deducted from the Customer's metered volumes (as any private network, embedded generator's or embedded Customer's volumes would).

7.4 In this case, the complex mapping will be in place permanently for this site because of the embedded Generating Plant and therefore will not be dependent on whether or not the bus-section switches are run open or closed.

7.5 The applicant has stated that they and the Customer (private network owner) are willing to take on the risk of something going wrong with the proposed arrangements.

7.6 If additional generation is added to the Customer's private network or other tenants embedded within the Customer private network seek a competitive supply, then this site would be like many other complex sites where a change below the Boundary Point Settlement Metering System has the potential impact the complex site arrangements.

7.7 We believe that if the existing controls around complex sites are insufficient to mitigate these additional risks, these should be strengthened for all complex sites and this can be discussed under the Issue on complex sites that ELEXON will be raising in early 2019.

8. Recommendations

8.1 We invite you to:

a) **APPROVE** Metering Dispensation application D/491 for Gascoigne Wood on a lifetime basis.

[5] 'SVA Meter Operations for Metering Systems Registered in SMRS'

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Attachments

Attachment A – Metering Dispensation application (D/491)

Attachment B – Test results for the Osgodby CTs

Attachment C – Test results for the ex-Wistow CTs

Attachment D – Calibration certificate for the VTs

Attachment E (CONFIDENTIAL) – Historic metering arrangement

Attachment F (CONFIDENTIAL) – Proposed metering arrangement

Attachment G (CONFIDENTIAL) – Proposed metering arrangement (with diesel Generating Units and its metering shown)

Attachment H (CONFIDENTIAL) – LDSO's network diagram

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