ELEXON

Metering Dispensation D/518 – Keith Stability Project

Imbalance Settlement Group (ISG)

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Summary

Statkraft Markets GmbH has applied for a lifetime Metering Dispensation (D/518), against Code of Practice (CoP) 1. This is for the location of the Metering Equipment associated with the two rotating stabilisers (RSs) for the Keith Stability Project. The whole site (and thus RS2) will be metered less than 20m above the Defined Metering Point (DMP) and RS1 will be metered 290m below the DMP. The Metered Volumes for RS2 will be derived by differencing the RS1 Metered Volumes off the Metered Volumes for the whole site. We invite the ISG to approve Metering Dispensation D/518 on a lifetime basis.

1. BSC requirements

1.1 Section L[1] 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. Background to Metering Dispensation D/518

2.1 The Keith Stability Project comprises two rotating stabilisers (RSs). These RSs are high inertia, wound field (with excitation system) synchronous machines, without prime movers. Each RS operates at 13.8kV and is connected to the 132kV network by a dedicated 132kV/13.8kV transformer. The busbar connections from the 132kV terminals of the transformers are connected together and there is a single cable connection (of approximately 290m in length) to a single circuit breaker in Scottish Hydro Electric Transmission Ltd's (SHETL's) existing Keith 132kV substation. Attachment A contains a sketch of the metering proposal and Attachment B a more detailed Single Line Diagram (SLD), showing the metering.

2.2 Statkraft Markets GmbH (Statkraft) has entered into two Stability Compensation Service (SCS) contracts with National Grid Electricity System Operator (NGESO) (also known as Pathfinder projects), one for each RS, to provide inertia and Reactive Power. Since each SCS contract requires its related RS to be individually controlled, it is necessary to register each as a Balancing Mechanism (BM) Unit (T_KTHRS-1 and T_KTHRS-2). This will require separate Metering Equipment for each RS.

[1] 'Metering'
[2] 'Metering Dispensations'

2.3 In addition, Statkraft would like offer one or both RSs in the BM (for Active Import). This could be at times when the RSs are not dispatched by NGESO under the existing SCS contracts or could be in the future when the SCS contracts have expired. Statkraft would also like the flexibility to expand the site in the future to include additional generation or demand, possibly including additional synchronous compensators.

3. Metering Dispensation application D/518

3.1 Statkraft has applied for a lifetime[3] Metering Dispensation (D/518), against CoP1[4].

3.2 In order to separately measure the Active Import and Reactive Import / Export caused by each RS, and to allocate them to the appropriate BM Unit, Statkraft proposes to:

- Install Boundary Point Metering Equipment (for RS2) as close as practical to the Defined Metering Point (DMP), the point of connection to the Transmission System; and
- Install Metering Equipment for RS1 at the 132kV terminals of its 132/13.8kV power transformer.

3.3 For practical reasons the Boundary Point Metering Equipment will be up to 15m above the DMP[5]. Since the distance between the Actual Metering Point (AMP) for the Boundary Point Metering Equipment and the DMP is short, and the associated losses are small compared with the tolerances in the applicable Code of Practice, the overall metering will effectively be carried out at the DMP. Therefore this part of the Metering Dispensation application will not have an effect on overall accuracy for Settlement or on other Registrants.

3.4 The RS1 Metering Equipment will be located 295m[6] below the DMP[7]. The RS1 Meters will be compensated for Active Import and Reactive Import/Export losses over 290m of cable (Attachment C). The additional 5m of busbar losses from the cable to the DMP will be negligible and not compensated for. Therefore this part of the Metering Dispensation application will also not have an effect on overall accuracy for Settlement or on other Registrants. The Registrants of the Metering Equipment for RS1 and for RS2 will be the same.

3.5 The difference between the total Import / Export measured by the Boundary Point Metering Equipment and the corrected measurements for RS1, will be allocated to the RS2 BM Unit (T_KTHRS-2). This will be achieved through the Aggregation Rule for the RS2 BM Unit.

4. MDRG comments

4.1 We circulated the Metering Dispensation application (and attachments) to the Metering Dispensation Review Group (MDRG) for comments (Attachments A - C).

4.2 All three MDRG members responded. All three MDRG members support the application on the following bases:

- The AMP(s) and DMP are within close proximity and at the same voltage level and it is metered at the Boundary Point and part of the load is deducted, so relatively simple.
- It seems pointless to apply for a Metering Dispensation when the DMP and AMP are pretty close together, even up to 200 metres has very little impact.[8]
- There will be negligible impact on Settlement accuracy.

5. NETSO comments

5.1 We circulated the Metering Dispensation application (and attachments) to the National Electricity Transmission System Operator (NETSO) for comments (Attachments A - C).

5.2 The NETSO has no objection to the ISG granting a Metering Dispensation.

6. ELVA comments

6.1 We circulated the Metering Dispensation application (and attachments) to the Electrical Loss Validation Agent (ELVA) for comments (Attachments A - C).

[3] A lifetime Metering Dispensation is required as there is no intention for the connection arrangement to change within the lifetime of the assets.
[4] 'Code of Practice for the metering of circuits with a rated capacity exceeding 100MVA for Settlement purposes'
[5] This is because there is a 90 degree bend in the busbar between the metering current transformers (CTs) and voltage transformers (VTs) and the busbar clamp at the Surge Arrestor / Post Insulator (the DMP), due to the existing layout of SHETL's Keith substation – this distance is as short as possible and less than 15 metres for all three phases.
[6] 290m of cable and 5m of busbar.
[7] Since the overall rating of the project is 140MVA, it is well within the capability of a single Transmission System connection. So, a second Transmission System connection, to enable each RS to be separately metered at, or as close and practical to, the DMP, would not be economic.
[8] This issue has been raised under Issue 93 to come up with some criteria for an 'acceptable' distance between the AMP and the DMP that would not require a Metering Dispensation.

6.2 The ELVA agreed the proposed compensation factors were suitable but had some comments. The ELVA:

- Has assumed that the applicant has rounded up the Active Power Loss to achieve a result of 2kW.
- Accepted the judgement of the applicant that any loss over the busbar connection is likely to have little or no impact to the total cable losses; but
- Were unable confirm the generation loss of 467kVAr as this is not within the current scope of the Standard Methodology utilised by ELVA; and
- Believes the compensation factor should be applied equally to each circuit, whilst the applicant's commentary indicates compensation should be applied contrary to its understanding and it would be appreciated if this could be clarified.

6.3 Elexon clarified that it believes the losses are only applied to the RS1 Meters as the RS2 Meters are located close to the DMP. Elexon clarified with the applicant how it determined the 467kVAr figure (and provided the calculation to the ELVA, to its satisfaction).

7. Elexon's view

7.1 Elexon supports this lifetime Metering Dispensation covering the location of the Metering Equipment associated with both RS machines. This is because the RS1 Meters will be compensated for losses to the DMP and overall accuracy for both Metering Subsystems will be maintained within CoP1 limits at the DMP.

8. Recommendation

8.1 We invite the ISG to:

a) **APPROVE** Metering Dispensation D/518, for the Keith Stability Project, on a lifetime basis.

Attachments

Attachment A – Metering Dispensation application D/518

Attachment B – Metering Dispensation D/518 – SLD with metering

Attachment C – Metering Dispensation D/518 – Cable data

For more information, please contact:

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