

Non-Standard BM Unit Application for Killingholme Power Station

ISG

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Summary

Uniper UK Limited has applied for four Non-Standard BM Units for the Killingholme Power Station. We invite the ISG to approve the application, subject to the Lead Party for T_KILLPG-1 and T_KILLSC-1 being the same BSC Party and the Lead Party for T_KILLPG-2 and T_KILLSC-2 being the same BSC Party.

1. Background

- 1.1 Killingholme Power Station is currently registered as two standard Combined Cycle Gas Turbine (CCGT) Module Balancing Mechanism (BM) Units (T_KILLPG-1 and T_KILLPG-2). The existing BM Units each consist of two gas turbines (GTs) and a steam turbine (ST), connected to their respective Generating Units. Each BM Unit has a single connection to the Transmission System.
- 1.2 Uniper UK Limited, the Lead Party of Killingholme Power Station, is converting the existing STs into synchronous compensators (SCs) by installing flywheels in place of the STs. Uniper UK Limited has a contract with the National Electricity Transmission System Operator (NETSO) for the SCs to provide balancing services for voltage support, inertia and short-circuit contribution to the National Electricity Transmission System as part of NETSO's Stability Pathfinder Project. The NETSO requires these SCs to be separate BM Units from the GTs.
- 1.3 Uniper UK Limited proposes to run the remaining two GTs, in each of the original CCGT BM Units, independently from the SCs. GTs 11 and 12 will continue to form BM Unit T_KILLPG-1 and GTs 21 and 22 will continue to form BM Unit T_KILLPG-2.
- 1.4 The site has a shared 6.6kV supplies board for each CCGT Module (the GTs and the SC will share these metered supplies). A small amount of power will be imported to the SCs, though this board, which is primarily for the GTs. Uniper UK Limited have stated that it is not practical to separately meter the 6.6kV Supplies board imports for the GTs and the SCs due to financial and technical constraints. This means the volumes for the SC 6.6kV supplies board will be metered by the GTs' unit/auxiliary transformer Meters and assigned to the GTs' BM Units and not the SCs' BM Units. The SCs themselves are metered separately (using the existing Active (ex ST Generating Units) Meters and new Reactive metering (for the NETSO contract).

2. Non-Standard BM Unit application

- 2.1 Uniper UK Limited is applying for four Non-Standard BM Units for their Killingholme Power Station.
- 2.2 Uniper UK Limited proposes to reconfigure the existing CCGT Module BM Units to create two Non-Standard BM Units (using the existing T_KILLPG-1 and T_KILLPG-2 BM Unit Ids). Each will contain two GTs from the original Killingholme CCGT Module, plus the shared 6.6kV board. There will be one BM Unit associated with each Transmission System Boundary Point. These would be Non-Standard for two reasons:

- Under the Balancing and Settlement Code, Section K3.1.2 (b), combined with K3.1.2 (e), requires that a BM Unit must consist of the smallest aggregation of Plant or Apparatus that is capable of independent control, up to the Registered Capacity being equivalent to a Small Power Station (for England and Wales this is less than 50MW). The current Killingholme BM Units each have a Registered Capacity of 311MW.
 - Under the Balancing and Settlement Code Section K 3.1.2 (c), all volumes flowing from and to the BM Units need to be determined separately from volumes flowing to and from other BM Units. The 6.6kV board will contain some of the imports to the SC.
- 2.3 Another two new Non-Standard BM Units (T_KILLSC-1 and T_KILLSC-2) would be created for each of the SCs. These would be Non-Standard as they would not meet the requirements of Section K3.1.2(c) as some of the imports to them would be measured by Metering Systems measuring imports to and from other BM Units.
- 2.4 The proposed BM Units for Module One is shown in Attachment C. Module Two is the same configuration as Module One.

3. Uniper UK Limited comments

- 3.1 Uniper UK Limited note that the CCGT Modules were previously covered by the provisions of K3.1.4 (a) of the BSC, which defines CCGT Modules as Standard BM Units. However, the removal of the ST has rendered the station as an Open Cycle Gas Turbine (OCGT) Plant¹. In order to avoid the expense and disruption in reconfiguring the CCGT Modules as four individual GTs, with the associated metering, Uniper UK Limited are requesting that it can continue with the existing BM Units registered as T_KILLPG-1 and T_KILLPG-2.
- 3.2 Uniper UK Limited state that a modest amount of power is required to power the flywheel and to run auxiliary processes on the SC units. The imports for the auxiliary processes will largely occur via one of the GTs through a shared 6.6kV board. The operation of the SC plant will cause Imports to the associated GT BM Unit. Uniper UK Limited state that it is not financially or technically practical to separately meter the power flows between the two BM Units, e.g. between T_KILLPG-1 and T_KILLSC-1. Therefore, the imports required for the SC BM Units will be measured and appear as Imports on the associated GT BM Unit. This means the operation of T_KILLSC-1 would sometimes cause Imports to be recorded on T_KILLPG-1. The operation of T_KILLSC-2 would affect T_KILLPG-2 in a similar manner. Uniper UK Limited has provided a more detailed explanation of this set up, and the rationale for it, in Attachment D.
- 3.3 Uniper UK Limited believes that, whilst this configuration will meet most of the requirements in Section K 3.1.2, it fails to meet 3.1.2 (b) which requires the Exports and/or Imports of electricity from and to the Plant and/or Apparatus comprised in the BM Unit to be capable of being controlled independently of the Exports and/or Imports of electricity from and/or to any Plant or Apparatus which is not comprised in the BM Unit.
- 3.4 Uniper UK Limited feel that this will not lead to any concern regarding the integrity of Settlement for the following reasons:
- The size of additional Imports which could be caused in the GT BM Units is small compared with their overall capacity (circa a maximum of an extra 6MW Import compared with 300MW capacity in each BM Unit, around 2%). Installing all necessary metering would be unduly expensive and time consuming given the size of additional Import which could be caused.
 - All volumes will be correctly allocated to Uniper UK Limited's Energy Accounts for the purpose of Settlement.
 - There may be a small risk that Uniper UK Limited will incur non-delivery charges in respect of a GT BM Unit if the SC BM Unit is importing at the same time as it responds to a BM instruction on the GT. This is a risk that Uniper UK Limited will have to manage, and will have no impact on other BSC Parties.
- 3.5 If the ISG were to agree to the approval of these applications, being contingent on all affected BM Units continuing to be registered to the same Lead Party, Uniper UK Limited noted that they would be happy to comply with this.

¹ From Section X Annex X-1: "Open Cycle Gas Turbine Plant": means Plant consisting of one or more Gas Turbine Units which are not part of a CCGT Module;

4. The NETSO comments

4.1 We circulated the Non-Standard BMU application to the NETSO for comments. The NETSO confirmed that they had no issues with the application.

5. Elexon comments

5.1 Elexon has assessed this application with its legal team against the requirements of section K3.1. The application meets the following criteria:

- the responsibility for the flows of electricity associated with each BM Unit lie with one Party (Uniper UK Limited, Section K 3.1.1, 3.1.2 (a));
- the Plant and Apparatus associated with each of the Non-Standard BM Units for Killingholme Power Station are capable of independent control from any other Plant and Apparatus² (Section K3.1.2 (b)); and
- the BM Unit does not comprise Central Volume Allocation (CVA) and Supplier Volume Allocation (SVA) Metering Systems that measure the same Imports or Exports at any one time (Section K 3.1.2 (d)).

5.2 The application does not meet the following criteria:

- There are smaller aggregations of the Plant and Apparatus that satisfies K3.1.2 (a)-(c) for T_KILLPG-1 and T_KILLPG-2, however the individual GTs within the BM Units have been operating as a single BM Unit within the CCGT Module since NETA Go-Live (Section K 3.1.2 (e)); and
- A small part of the import to T_KILLSC-1 and T_KILLSC-2 will not appear in the correct BM Unit. K3.1.2 (c) states that all volumes flowing from and to the BM Units will be captured by compliant Metering Systems (Section K 3.1.2 (c)).

5.3 Section K3.1.6 (c) states that where the Panel (delegated to the ISG) believes that the configuration of the Plant and Apparatus does not satisfy the criteria in K3.1.2, the Panel may agree a different configuration that most nearly achieves the objectives which are reflected in the criteria in K3.1.2. This means that the ISG is required to identify the objectives reflected in K3.1.2 and satisfy itself that the proposed configuration of the Plant and Apparatus achieves the reflected objectives as nearly as possible.

5.4 Elexon recommends that the ISG agree this application, subject to the BM Units being registered to the same Lead Party, on the basis that:

- For T_KILLPG-1 and T_KILLPG-2, the energy from each of the pairs of GTs is exported through a single Boundary Point;
- The NETSO requires each of the SCs to be individual BM Units;
- The imports allocated to the incorrect BM Units are small in comparison to the imports to the GTs' BM Units;
- Uniper UK Limited has demonstrated that it is not practical to meter the connection between the GTs and the SCs;
- The incorrectly allocated Imports are not predictable so, it is not possible to estimate these and account for them in the correct BM Unit through a constant in the Aggregation Rules ([BSCP75](#)); and
- As the Registrant for each of the BM Units is Uniper UK Limited, the energy will ultimately be allocated to the correct BSC Party.

5.5 If the ISG were to agree the Non-Standard BM Units without the 'subject to' clause, and a change of Lead Party for either the GTs or the SCs were to occur, the relevant Parties would have to manage any financial adjustments for the incorrect allocation of the Imports between them, outside the BSC.

6. Recommendation

6.1 We invite the ISG to:

² Note that Uniper felt that this requirement was not satisfied in their application. We feel that each BM Unit is independently controllable in practice but it will not appear to be independently controllable due to the shared metering.

- **APPROVE** four Non-Standard BM Units for Killingholme PS, subject to the Lead Party for T_KILLPG-1 and T_KILLSC-1 being the same BSC Party and the Lead Party for T_KILLPG-2 and T_KILLSC-2 being the same BSC Party.

Appendices

Appendix 1 – Primary BM Unit Configurations

Attachments

Attachment A – BSCP15/4.13 Application for Non-Standard Primary BM Unit (T_KILLPG-1 and T_KILLPG-2)

Attachment B – BSCP15/4.13 Application for Non-Standard Primary BM Unit (T_KILLSC-1 and T_KILLSC-2)

Attachment C (CONFIDENTIAL) – Killingholme B Power Station – Location of Metering Points, Commercial Boundary and BMU Arrangements

Attachment D (CONFIDENTIAL) – Killingholme SCU Auxiliary Power Requirements and Metering

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Appendix 1 – Primary BM Unit Configurations

The BSC states that a BM Unit shall comprise Plant and/or Apparatus for whose Exports and / or Imports a Party is responsible (Section K3.1.1).

A BM Unit must satisfy the following conditions (K3.1.2):

- responsibility for the BM Unit would lie with one Party;
- it would be capable of independent control;
- it would be visible to the Settlement Administration Agent (SAA) as a metered quantity separately from anything that is not included in the BM Unit;
- the BM Unit does not comprise of CVA and SVA Metering Systems that measure the same Imports or Exports, except where the SVA connection is for backup purposes and less than or equal to 415V; and
- for Plant and Apparatus greater than the size of a Small Power Station³ it would be the smallest aggregation of Plant and Apparatus that satisfies the first three bullet points above. Smaller Plant and Aggregation can be aggregated up to the size of a Small Power Station.

The BSC also sets out a number of standard configurations of BM Units (Section K3.1.4), including:

- Combined Cycle Gas Turbine (CCGT) Module;
- Power Park Module (PPM);
- Power Station Transformers (Station Transformers);
- Directly Connected Demand at a single Boundary Point;
- Combined Offshore BM Unit (COBMU)⁴;
- Directly connected demand at more than one Boundary Point provided that the total Imports are less than 50MW in England and Wales, 30MW in South Scotland and 10MW in North Scotland;
- Supplier (Base or Additional) Primary BM Unit;
- Interconnector Primary BM Unit;
- Any BM Units that were determined as part of the transitional arrangements for the implementation of the British Electricity Trading and Transmission Arrangements (BETTA);
- An Offshore PPM or COBMU⁴ and its associated Low Voltage Assets;
- Combination of Generating Units connected to the Total System provided that the total Exports are less than 50MW in England and Wales, 30MW in South Scotland and 10MW in North Scotland;
- Electricity Storage Module provided that the total Exports are less than 50MW in England and Wales, 30MW in South Scotland and 10MW in North Scotland; and
- Hybrid Plant – PPM or combination of Generating Units plus Storage Module provided that the total Exports are less than 50MW in England and Wales, 30MW in South Scotland and 10MW in North Scotland.

The BSC states that a Registrant and/or Central Data Collection Agent (CDCA) / Central Registration Agent (CRA) can apply to the Panel for a Non-Standard BM Unit configuration in the following circumstances (K3.1.5):

- the Plant / Apparatus does not fall into a category listed in section K3.1.4 or the CDCA / CRA considers that there is reasonable doubt that this is the case;
- the Plant / Apparatus does fall into a category listed in K3.1.4 but the responsible Party considers that a different configuration would satisfy the requirements set out in K3.1.2; or
- there is more than one set of Exports / Imports at a CVA Boundary Point and more than one Party is responsible for these.

³ Small Power Station is defined in the Grid Code as less than 50MW in England and Wales, less than 30MW in South Scotland and less than 10MW in North Scotland.

⁴ The NETSO must agree that two or more Power Park Modules can be combined into a COBMU.