4.13 BSCP15/4.13 Application for Non-Standard Primary BM Unit

To: BSCCo	**Date Sent:** 15/7/2021
From: Uniper UK Limited	
Party ID: EECL	**Name of Sender: Adam Polmear**
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Confidentiality

This form with contact and Authorised Signatory details removed, associated diagrams and BSC Panel documents will routinely be made available in the public domain unless the applicant informs BSCCo otherwise at the time of application

Request for Confidentiality YES ***Delete as applicable**

If 'YES', what is confidential?

Confidential[1]?	**Yes/No (if only part then indicate which part)**
Application form	No
Diagrams	Yes
BSC Panel Documents	No

Justification for requesting confidentiality: We would like to keep the diagram and detailed description of the electrical configuration of our facility, contained in the two attachments to this application, confidential primarily for security reasons.

Site Details

[1] BSCCo will publish all Panel determinations, though for confidential papers the details will be anonymised. BSCCo is required to keep a list of all Non-Standard BM Unit determinations which must be made available to any Party upon request.

Primary BM Unit Id(s) (if known):	T_KILLPG-1 T_KILLPG-2
Primary BM Unit Name(s) (Max 30 Characters):	T_KILLPG-1 T_KILLPG-2
NGC BM Unit Id(s) (if known and applicable):	KILLPG-1 KILLPG-2

Application:

Why are you applying for a Non-Standard Primary BM Unit (please tick)

The Plant and Apparatus does not fall into one of the standard categories in K3.1.4	✓
The Plant and Apparatus does fall into one of the standard categories in K3.1.4 but a different configuration satisfies the requirements for Primary BM Units in K3.1.2	
The Plant and Apparatus Exports or Imports are at a CVA Boundary Point at which there are other Exports or Imports for which another person is responsible (the Plant and Apparatus may or may not be of a Standard Primary BM Unit configuration)	

Description of Non-Standard Primary BM Unit configuration

The steam turbine generation units which were previously part of Killingholme CCGT Modules 1 and 2 have been repurposed as zero MW generation units. Flywheels are being installed in place of each existing steam turbine, and the steam turbine generators and their associated plant items will be converted into synchronous compensators (SC).

The remaining 2 GTs in the modules will be run independently from the SC units. We are applying for these to continue as combined BM Units under the existing registration for the previous CCGT modules. Therefore, GTs 11and 12 will continue to form BM Unit T_KILLPG-1, whilst GTs 21 and 22 will form BM Unit T_KILLPG-2. As the modules will no longer consist of CCGT units we are making a non standard BM Unit application.

Additionally, a relatively small amount of power will be transferred to the SCs via the associated GTs through a shared 6.6kV board. An associated application has been made for non standard BM Units for the SC units (T_KILLSC-1 and T_KILLSC-2).

Please provide electrical single line diagram(s) of the Plant and Apparatus included in the Non-Standard (and any Standard) Primary BM Unit(s) to support your application. The diagrams need to clearly show the location of the Metering Equipment, in particular the Settlement Current and Voltage Transformers (CTs/VTs) and CT/VT ratios, all existing Boundary Points and any System Connection Points at or near the proposed Boundary Point(s) and which items of Plant and Apparatus comprise which Non-Standard (and any Standard) Primary BM Unit(s).

List of electrical single line diagrams attached and description of Plant and Apparatus covered by each diagram.

"*1. Killingholme B Power Station – Location of Metering Points, Commercial Boundary and BMU Arrangements"* provides an overview of the configuration of the electrical power system for Module 1 & Module 2 at Killingholme B Power Station, identifying the locations of the meters, the apparatus contained in the SC and GT BM Units, plus a table of ratios and accuracies for the CTs and VTs.

Rationale

Rationale with reference to BSC Section K3.1 for the request for the Non-Standard Primary BM Unit:
Please contact BSCCo for guidance on how to complete this section

*The steam turbine generation units which were previously part of Killingholme CCGT Modules 1 and 2 have been repurposed as synchronous compensator (SC) zero MW generation units. Our Stability Pathfinder contract with NGESO requires that these are registered as a stand alone BM Units (*T_KILLSC-1 and T_KILLSC-2). *The remaining GTs in the modules will be run independently from the SC units and we are requesting that these are able to continue as a combined BM Unit under the existing registrations (T_KILLPG-1 and T_KILLPG-2).*

We are applying for both GT BM Units to be registered as non standard BM Units:

The GT BM Units do not meet the requirements of a Standard BM Unit under Section K 3.1 of the BSC as two generating units are combined into one BM Unit. This runs contrary to Section K3.1.2(e). The modules used to be 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 steam turbine has rendered the station as an OCGT. In order to avoid the expense and disruption in reconfiguring the sites as four individual GTs, with the associated metering, we are requesting that we can continue with the existing BM Units registered as T_KILLPG-1 and T_KILLPG-2. We understand that non standard BM Units have been agreed in similar circumstances previously.

Additionally, a modest amount of power is required to power the flywheel and to run auxiliary processes on the SC units. The imports required for this will largely occur via one of the GTs in each module through a shared 6.6kV board. We have attached a more detailed explanation of this set up and the rationale for it in the attached document ("2. Killingholme SCU Auxiliary Power Requirements and Metering"). It also explains the possible power flows between the GTs and SCs based on different modes of operation. These estimates are worst case examples assuming the unlikely scenarios that all relevant systems are operating simultaneously.

Technically when power passes between the two BM Units (GT BM Unit to SC BM Unit) an Import (as defined in section K1.1.4(b)) will not take place to the SC BM Unit, as both sets of Plant and Apparatus do not form part of the Total System. The Import will occur as the energy leaves the Transmission System (which is part of the Total System) and enters the GT BM Unit. Therefore, operation of the SC plant will cause Imports to the associated GT BM Unit. It is not practical to separately meter the power flows between the two BM Units. Therefore, the imports required for the SC BM Unit will be measured and appear as Imports (as defined in the BSC) on the associated GT BM Unit. This means operation of T_KILLSC-1 would sometimes cause Imports on T_KILLPG-1. The operation of T_KILLSC-2 would affect T_KILLPG-2 in a similar manner.

Additionally, the commons services board for the power station is fed through GTs 11 and 21. This is a pre-existing set up to provide the power required for services which are not directly related to the GT and SC systems e.g. subboards for lighting and power sockets, cranes, lifts, HVAC-systems etc. The common services 415V boards also supply systems which require an uninterruptible power supply, such as gas monitoring systems and systems in the control room.

Therefore, 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 or Imports of electricity from or to any Plant or Apparatus which is not comprised in the BM Unit. This is because operation of the SC could cause Imports and/or Exports on the SC BM Unit, plus Imports on the GT BM Unit, albeit to a modest extent.

We do not believe that this will lead to any concern regarding the integrity of settlement as:

- *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 for a very short period of time compared*

with 300MW capacity in each BM Unit, ie around 2% based on capacity). 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's Energy Accounts for the purpose of Settlement.*
- *There may be a small risk that we will incur non delivery charges in respect of a GT BM Unit if the SC Unit is importing at the same time as we respond to a BM instruction on the GT. Clearly this is a risk which we will have to manage, and would have no impact on other BSC Parties.*

We would also be happy to agree to the approval of this application, plus the associated application made in respect of the SCs, being contingent on all affected units continuing to be registered to the same Lead Party.