

ELEXON Ltd
350 Euston Road
London
NW1 3AW

11 September 2017

Dear Sir or Madam,

Application for non-standard BM Units for West Burton Battery

I refer to the above battery storage project, which is being developed by EDF Energy (West Burton Power) Ltd (EDFEWBPL) on the site of West Burton B CCGT power station.

EDFEWBPL wishes to register the battery as two BM Units, which we believe to be a non-standard arrangement. This letter supersedes our previous draft application for a single BM Unit for the battery, following discussions with National Grid and Elexon regarding the site. The attached schematic Single Line Diagram is provided as supporting information.

West Burton Battery is a 49MW battery storage project. The battery comprises several sub-modules, which are designed to be controlled as a single entity. It will be connected in two banks to the 6.6kV Unit 1 and Unit 3 Auxiliary Boards for West Burton B CCGT. One bank will comprise a set of battery sub-modules connected to the unit board for BM Unit T_WBURB-1 and the remainder will be connected to the unit board for T_WBURB-3. This allows efficient use of existing electrical infrastructure. The commercial boundary with the Transmission System is on the high voltage side of the 400kV generator transformers for the West Burton CCGT Module 1 and 3 generators, to which the Unit Auxiliary Boards connect through respective existing West Burton B Unit and Generator Transformers. It is planned that the battery will be energised at the beginning of October 2017 and commercial operation is scheduled for January 2018. The battery has been awarded a 15 year Capacity Market Agreement starting from Delivery year 2020, and National Grid has awarded it a four year Enhanced Frequency Response (EFR) agreement starting in 2018.

We believe that the site cannot be registered in a configuration that meets all the conditions for a standard BM Unit specified in BSC Section K3.1.2.

Section K3.1.2(a) states that "only one Party must be responsible for the Exports and/or Imports from or to the Plant and/or Apparatus which is comprised in the BM Unit". EDFEWBPL will have sole responsibility for the BM Units as well as the other West Burton B BM Units which are affected by the application.

Section K3.1.2(b) requires that "the Exports and/or Imports of electricity from and to the Plant and/or Apparatus comprised in the BM Unit are 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...". EDFEWBPL originally applied for a single BM Unit representing the smallest aggregation of separately controllable equipment. However, National Grid system operations advised it will only give approval for two BM Units, representing the two separate connection points to the Transmission System. The battery will be controlled, dispatched and operated as a single unit, so BSC Section K3.1.2(b) specifying separate control cannot be fully satisfied with two BM Units. National Grid have said they are content with not having separate control of the two battery banks, as long as the battery does not participate in the Balancing Mechanism. Therefore two BM Units should be acceptable for BSC settlement purposes. National Grid have suggested names T_WBURB-41 and T_WBURB-43.

National Grid have indicated that separate control would be required in future in order for the BM Units to be accepted as active participants in the Balancing Mechanism. We may make changes to our control system to make the two BM Units separately instructable and controllable in future, for example if we opt to actively participate in the Balancing Mechanism after the four year EFR contract has expired.

Under paragraph 3.1.2(c) a BM Unit must have metering equipment which is installed pursuant to Section L, and from Section L, conforming to the appropriate Code of Practice. The metering equipment for the battery will comply with the technical requirements of Code of Practice 1. The meters are not situated at the commercial boundary with the transmission network and we will apply for a metering dispensation. For the main CCGT Module BM Unit T_WBURB-1, the flow measured by the new battery settlement meter connected to Unit 1 auxiliary board will be subtracted in aggregation rules from the flow measured by the corresponding existing settlement meter at the 400kV commercial boundary. A corresponding change to aggregation rules will be made for the new Unit 3 auxiliary board battery connection and CCGT Module BM Unit T_WBURB-3. There is no unit transformer for CCGT Module T_WBURB-2 so no flow from the battery to its 400kV transmission connection is possible and its aggregation rules will be unaffected.

The unit boards for main units 1 and 3 are normally isolated from each other so as not to parallel the transmission system, but may be connected in rare circumstances of outage of one or other main unit connection. If this happens, and the battery is not shut down, battery flow between unit boards 1 and 3 may occur. We will submit alternative aggregation rules for the rare situations when either T_WBURB-1 or T_WBURB-3 is on outage and battery flow between unit boards may occur. If T_WBURB-1 is out of service, then both flows measured by the two battery settlement meters will be subtracted from the existing settlement meter at the commercial boundary for T_WBURB-3. A corresponding aggregation rule will subtract both battery flows from the T_WBURB-1 settlement meter when T_WBURB-3 is on outage.

All flows with transmission will be captured by the existing fully compliant transmission boundary settlement meters. All transmission boundary energy will be accounted for in settlement in all circumstances. All battery flows are captured by the internal battery settlement meters. It is impossible to meter the battery separately at the transmission boundary, and a metering dispensation is being sought for internal meters not at the boundary, compensated to the boundary. Internal loss compensation to the transmission boundary for the battery meters will affect the allocation of boundary flow between the battery BM Units and the CCGT existing BM Units through the meter aggregation rules, without affecting the net external flow for the site.

EDFEWBPL wants to register the battery as two BM Units. As we believe this would not satisfy the requirements for a standard BM Unit, we are making an application for the approval of two

non-standard BM Units, in accordance with Section K3.1.6. National Grid has suggested names T_WBURB-41 and T_WBURB-43.

Our proposed approach satisfies the conditions of 3.1.2 (a) and (c). The two BM Units will comprise a single controllable unit, which National Grid has indicated will be acceptable for the four year Enhanced Frequency Response contract. If future operations require the two BM Units to be controlled separately then we would make the necessary configuration changes.

National Grid (as EMR delivery body) awarded the project a Capacity Agreement for a single Capacity Market Unit comprising one BM Unit and we will amend the details to reflect the sub-division into two BM Units.

It is therefore our request that the battery should instead be considered as two non-standard BM Units.

If the Panel should require any further information to assist in assessing this application, please do not hesitate to contact me.

Yours faithfully,
Jonathan Priestley
Power Settlements Manager
EDF Energy plc

Enclosures:

- Electrical single line diagram