ELEXON

Application for a Non-Standard BM Unit for Whitelee 1 Battery Energy Storage Scheme

ISG235

Date of meeting	**3 November 2020**	Paper number	**ISG235/01**
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Classification	**Public**	Document version	**v1.0**

Summary **Scottish Power Renewables (UK) Limited has applied for a non-standard BM Unit for the Whitelee 1 Battery Energy Storage Scheme (BESS). We invite the ISG to approve the application.**

1. Background

1.1 Scottish Power Renewables (UK) Limited (the applicant) is developing the Whitelee 1 Battery Energy Storage Scheme (BESS), proposed BM Unit T_WHLWB-1. The BESS equipment will comprise a 50MW system and will be located on a newly created compound, adjacent to the existing Whitelee 1 Wind Farm (T_WHILW-1) substation building. The BESS will be connected to the existing three Power Park Modules (PPM) as follows:

BESS Module 1 - 13MW (connected to Whitelee 1 Wind farm PPM1)
BESS Module 2 - 16MW (connected to Whitelee 1 Wind farm PPM2)
BESS Module 3 - 21MW (connected to Whitelee 1 Wind farm PPM3)

1.2 Whitelee 1 Wind Farm was connected in 2007 and comprises an installation of 140 x 2.3MW Siemens Wind Turbine Generators (WTG's) split across three PPMs with a total of 322MW installed net capacity. The existing Whitelee 1 Windfarm is a single, non-standard BM Unit, approved by the ISG on 23 October 2007 (ISG/81/03). These three PPMs are connected to the Scottish Power Energy Networks (SPEN) Whitelee 275/33kV substation. The existing Boundary Point Metering Equipment is located on the six SPEN metering circuit breakers (two per PPM).

1.3 Whitelee 1 BESS will have the same point of connection to the Transmission System (and Defined Metering Point) as Whitelee 1 Wind Farm, which is the 33kV metering circuit breakers in the SPEN 275/33kV substation, as shown in Attachment B. Operationally this shall entail the new BESS and existing WTG's operating as three PPMs. The Whitelee 1 BESS will have separate Balancing Mechanism (BM) Unit(s) from the Whitelee 1 Wind Farm.

1.4 The applicant wishes to meter Whitelee 1 BESS by metering the three BESS feeders (EXT-1, EXT-2 and EXT-3) with individual Code of Practice (CoP) 2 Meters. The total output from Whitelee 1 BESS will be calculated from the aggregation of the three Meters. The output of the Whitelee 1 Wind Farm will be calculated by subtracting the BESS Meters from the Whitelee 1 Meters at the point of connection.

1.5 The connection arrangement and control system has been designed and developed around two BM Units, one for the existing Wind Farm and a second separate BM Unit for the BESS Import/Export.

1.6 Under the Balancing & Settlement Code Section K3.1.2, the standard arrangement for the BESS Plant and Apparatus would be two or three BM Units, each with a total size of less than 30MW[1]. Either: one BM Unit for

1 The BSC allows the aggregation of small Plant and Apparatus up to the size of a Small Power Station (as defined in the Grid Code). For the South of Scotland region, a Small Power Station is defined as less than 30MW.

each of the BESS Modules; or a combination of BESS Modules 1 and 2 (i.e. aggregate capacity <30MW) and a separate BM Unit for BESS Module 3 (21MW).

2. Non-standard BM Unit application

2.1 Scottish Power Renewables (UK) Limited is seeking approval for a single non-standard BM Unit for all three BESS Modules (Attachment A).

2.2 Scottish Power Renewables (UK) Limited believes that registering two or three standard BM Units would mean higher costs of operation. The applicant states that the whole Wind Farm and BESS will be operated as one individual site for both mandatory and commercial ancillary services. The applicant's view is that registering Whitelee 1 BESS as a single BM Unit would better facilitate the operating plan, Wind Farm size and the configuration. Additionally, the National Electricity Transmission System Operator (NETSO) and SPEN have both agreed to the proposed connection and metering arrangement at Whitelee 1 Wind Farm.

3. The NETSO and Elexon comments

3.1 We circulated the non-standard BMU application to the NETSO for comments but they have not responded.

3.2 Elexon recommends that the ISG agree this application on the basis that:

- the responsibility for the flows of electricity associated with the BM Unit lie with one Party, Section K 3.1.2 (a));
- The Plant and Apparatus associated with the Whitelee 1 BESS is capable of independent control from any other Plant and Apparatus (Section K3.1.2 (b));
- all volumes flowing from and to the BM Units will be captured by compliant Metering Systems[2] and these volumes will be determined separately from volumes to and from other BM Units (Section K 3.1.2 (c));
- 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)); and
- Although there are smaller aggregations of the Plant and Apparatus that satisfies K3.1.2 (a)-(c) the Whitelee 1 BESS is designed to operate as a single unit (Section K 3.1.2 (e)).

4. Recommendation

4.1 We invite the ISG to:

a) **APPROVE** a single non-standard BM Unit for the Whitelee 1 BESS.

Appendices

Appendix 1 – BM Unit Configurations

Attachments

Attachment A – BSCP15/4.13 Application for Non-standard Primary BM Unit

Attachment B (CONFIDENTIAL) – Single line diagram for Whitelee 1 BESS

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[2] Subject to Metering Dispensation D/509 as the BESS CoP2 Metering Systems Actual Metering Point (AMP) is not at the Defined Metering Point (DMP).

Appendix 1 – BM Unit Configurations

The BSC states that a BM Unit shall comprise Plant and/or Apparatus for who's 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 415V; and
- for Plant and Apparatus greater than the size of a Small Power Station[3] 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:

- Closed Cycle Generating 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 COBMU[4] 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.