BSCP32/4.1 Application for a Metering Dispensation

Part A – Applicant Details

To: BSCCo	**Date Sent:** ____21/07/2022_____
From: Requesting Applicant Details Name of Sender: _____ Contact email address: Contact Tel. No.	Contact Fax. No.
Name of Applicant Company: ScottishPower Renewables UK Ltd	
Address: 320 St Vincent Street	
Glasgow	
Post Code: G2 5AD	Our Ref: Harestanes BESS
Name of Authorised Signatory: Authorised Signature: _____	Password:

Confidentiality:

Does any part of this application form contain confidential information?

Request for Confidentiality ~~**YES**~~**/NO*** ***Delete as applicable*

If 'YES', please state the parts of the application form that are considered confidential, including justification below. Information that is considered confidential:
Reasons for requesting confidentiality: …… number, site name, expiry date (if any) and BSC Panel determinations will routinely be made available in the public domain unless the applicant informs BSCCo otherwise at the time of application

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Part B - Affected Party Details

Number of Affected parties__2___[1]
Does this Metering Dispensation affect the metering arrangements for a generator that has applied for/obtained a CFD Agreement? ☐Yes ☒No
If Yes, you must contact the Low Carbon Contracts Company and advise them of your Metering Dispensation application and include them as an Affected Party.
Have you notified all Affected Parties? ☒Yes ☐No

Contact Name at Affected party:	
Contact email address:	
Contact Tel. No.	Contact Tel. No.
Company Name of Affected party: SP Power Systems PLC	
Address: 320 St Vincent Street	
Glasgow	
Post Code: G2 5AD	

Contact Name at Affected party:	
Contact email address:	
Contact Tel. No:	Contact Tel. No.
Company Name of Affected party: National Grid ESO	
Address: Warwick Technology Park	
Faraday House	
Warwick	
Post Code: CV34 6DA	

[1] For more than one Affected party, Part B should be completed for each, using additional copies of Part B as required.

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Part C – Reason for Application

If the application is an extension or update for an existing Metering Dispensation, enter existing ref: D/……..

Site Specific / ~~Generic~~* **Delete as applicable.*

Harestanes BESS (HRSTWB-1) is a Battery Energy Storage System located in the Forest of Ae, Dumfries & Galloway, Scotland and it is a Transmission connected scheme.

The new BESS equipment will comprise a 50 MW system and shall be located on a newly created compound, located adjacent to the existing Harestanes Windfarm substation building and will be connected to the existing 2 Power Park Modules as follows:

BESS Module 1 – 25 MW (connected to Harestanes Windfarm PPM1)
BESS Module 2 – 25 MW (connected to Harestanes Windfarm PPM2)

Harestanes windfarm was connected in 2013 and comprises an installation of 68 x 2.0MW Gamesa Wind Turbine Generators (WTGs) split across 2 Power Park Modules with a total of 136 MW installed net capacity. Although the WF will be capable of producing 136 MW, there is a 125 MW TEC limit on the overall export. The existing Harestanes Windfarm is a single, non-standard BMU. Harestanes Windfarm was approved as a non-standard BMU (HRSTW-1) on 25th Jun 2013 (ISG Paper 146/01).

Harestanes BESS and Harestanes windfarm will have the same Point of Connection (PoC) to the transmission system (and DMP), which is the 33kV metering Circuit Breakers (CBs) in the SP Energy Networks 132/33kV substation as shown on the SLD, as follows:

PPM	SPEN CBs (PoC/DMP)	SPR PPM CBs	BESS CBs (AMP)
PPM1	SG1A	WG-1A	BESS-I1
PPM2	SG2B	WG-2B	BESS-I2

Operationally this shall entail the new BESS and existing WTGs operating as two Power Park Modules (PPMs). The BESS however will be a separate Balancing Mechanism Unit (BMU) from the existing windfarm and wind turbines.

The new BESS facility shall be connected behind the existing settlement meter in accordance with the Ofgem published guidance.

The connection arrangement and control system has been designed and developed around two BMUs, one for the existing windfarm and a 2nd separate BMU for the BESS

import/export in accordance with the Ofgem guidance. The metering scheme has also been designed and developed around two BMUs, one for the existing windfarm and a 2nd separate BMU for the BESS import/export in accordance with the Ofgem guidance.

ScottishPower Renewables wish to meter Harestanes BESS by metering the two BESS incomers (BESS-I1 and BESS-I2) with individual CoP2 meters. The total output from Harestanes BESS (BMU 2 (HRSTWB-1)) will be calculated from the aggregation of the two meters. The output of the Harestanes Windfarm (BMU 1 (HRSTW-1)) will be calculated by subtracting the BESS meters from the Harestanes CoP1 meters at the PoC.

The two technologies need to be metered separately for the following technical and commercial reasons:

- Requirement for separate measurement for different power park controllers (Gamesa Park Controller and Ingeteam BESS controller)
- Requirement to achieve GB Grid Code compliance for each technology
- Requirement to measure and control the output of both technologies independently
- Only the existing Harestanes windfarm will be eligible and accredited by OFGEM for Renewables Obligation Certificates (ROCs)
- It is possible that the two technologies will have different Power Purchase Agreement (PPA) providers
- Both technologies will participate in the Balancing Mechanism independently

Considering the above reasons, National Grid Electricity System Operator and SPEN have both agreed to the proposed metering arrangement at Harestanes windfarm.

Period of Metering Dispensation required

Lifetime / ~~Temporary~~* *Delete as applicable.

If temporary, indicate for how long the Metering Dispensation is required.	

Provide justified reasoning for the period of Metering Dispensation requested in the box below:

Rationale for duration of Metering Dispensation:

A Metering Dispensation is sought to meter the Harestanes BESS at the Harestanes BESS incomer panels (BESS-I1 and BESS-I2) and not at the DMP (PoC/Boundary Point) for the operational lifetime of the BESS for the following reasons:

Harestanes BESS and Harestanes windfarm share the same PoC (Boundary Point) where it is only possible to meter the total export and import for both technologies and therefore required for the lifetime and not on a temporary basis as the installed metering system will be the permanent solution.

Part D1 - Loss Adjustments for Power Transformer and/or Cable/Line Losses

Where loss adjustments are proposed and applied (or are to be applied) to the Metering System or Asset Metering System for power transformer and/or cable/line losses, provide the following information:

Describe how do you propose to correct the Metering System, or Asset Metering System, to account for the losses of this power transformer?

N/A – Actual Metering Points (AMPs) and Defined Metering Points (DMPs) are separated by only a short section of copper busbar and cable, so overall accuracy will be maintained.

In order to validate the loss adjustments applied (or to be applied) to the Metering System, or Asset Metering System, please provide the following information together with supporting data (e.g. power transformer test certificates):

N/A

What are the iron losses for this power transformer?

N/A

What are the copper losses for this power transformer?

N/A

Are there any other losses that have been taken into account? ~~Yes~~/No*. If Yes what are they?

Demonstrate how these elements of loss have been used in the corrections to the Metering System.

N/A

*Delete as applicable.

Describe how do you propose to correct the Metering System, or Asset Metering System, to account for the losses of the power cable/line?

N/A – Actual Metering Points (AMPs) and Defined Metering Points (DMPs) are separated by only a short section of copper busbar and cable, so overall accuracy will be maintained

In order to validate the loss adjustments applied (or to be applied) to the Metering System, or Asset Metering System, please provide the following information together with supporting data (e.g. cable/line manufacturer's data sheet):

What is the type of power cable/line?

BS 7870-4.10 Al XLPE 630 mm2 (two systems of three single-core cables bundled in trefoil)

What is the length of this power cable/line?
250 meters

What is the DC resistance of this power cable/line?
0.011725 Ω

What is the impedance of this power cable/line?

0.03 Ω

What is the capacitance of this power cable/line?

0.0825 μF

Are there any other losses that have been taken into account? ~~Yes~~/No*. If Yes what are they?

Demonstrate how these elements of loss have been used in the corrections to the Metering System, or Asset Metering System.

Both the windfarm (operating since 2013) and the battery energy storage system (due for construction through 2022 and Commercial Operation in 2023) are owned and operated by SPR and it is considered that due to the short length of cable to connect the battery energy storage system to the defined metering point, the losses of are negligible and will not impact the overall accuracy of the metering systems.

*Delete as applicable.

Materiality

Please complete the following:

What is the cost of providing compliant Metering Equipment or Asset Metering Equipment?	What does this cost entail?
In excess of £1.5M, if even possible to facilitate due to local constraints in DNO network	Two new connections including DNO and User connection apparatus would be required with tee connection into the existing 33kV network
What is the cost of the proposed solution?	What does this cost entail?
Less than £40k	Installation, commissioning and testing of two CoP2 Meters.
What is the impact to Settlement of your proposed solution?	Why?
No impact	Due to the proposed location there would be no notable losses in the system. Harestanes Battery Energy Storage System metered data will be deducted from the Harestanes windfarm metered data (via a complex mapping form) to ensure that accuracy will be maintained for the Harestanes windfarm metered data
What is the impact to other Registrants of your proposed solution?	Why?
No impact	No other Registrants are affected as there is only one Registrant for the Metering System and accuracy is maintained for both Harestanes Battery Energy Storage System and Harestanes Windfarm Metering Systems.

Site Details (for Site Specific Metering Dispensation)

Site Name:	Harestanes BESS
Site Address:	Harestanes BESS Forest of Ae, Dumfries & Galloway OS Grid Ref. NY 00871 97723
MSID(s) / ~~AMSID(s)~~:	Not yet available (windfarm MSID is 8336)

*Delete as applicable.	
Registered in: CMRS / ~~SMRS / AMRS~~*: *Delete as applicable.	CMRS
For SMRS, please advise of SMRA in space provided.	

Manufacturer Details (for Generic Metering Dispensation)

Manufacturer Name:	Cewe
Metering Equipment / ~~Asset Metering Equipment~~ Details*: *Delete as applicable	Prometer W

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Part D - Technical Details

Code of Practice details

Metering Dispensation against Code of Practice*	*BSC Code of Practice Two*
Issue of Code of Practice*:	*Issue 5, Version 16.0*
If against Code of Practice 11 against which Asset Metering Type	*N/A*
Capacity of Metering Circuits/Site Maximum Demand (MW/MVA):	*PPM1 (BESS 1) – 29 MVA* *PPM2 (BESS 2) – 29 MVA*
(Proposed) Commissioning Date of Metering:	*30 July 2023*
Accuracy at Defined Metering Point:	*DMP metering remains 1%*
Accuracy of Proposed Solution (including loss adjustments):	*Remain as 1%*
Outstanding non-compliances on Metering Systems or ~~Asset Metering Systems~~*:	*N/A*
*Delete as applicable	
Deviations from the Code of Practice (reference to appropriate clause):	*Appendix A, paragraph 6*

* insert Code of Practice number and issue

Any Other Technical Information

Reference SLD: *Harestanes BESS - metering diagram.pdf*
Cable datasheet: *EPM88251-Cabelte.pdf*

Declaration

We declare that other than as set out above we are in all other respects, in compliance with the requirements of the relevant Code of Practice and the BSC. A schematic is attached to this application for clarification of the metering points involved.

Signature: ..... *Date:* *21 July 2022*

Password: .....

Duly authorised for and on behalf of Applicant Company

Confirmation of Receipt and Reference

BSCCo acknowledges receipt of this document and has assigned the reference number as indicated on the first page.

Signature: ..... *Date:*

Duly authorised for and on behalf of BSCCo