BSCP32/4.1 Application for a Metering Dispensation

Part A – Applicant Details

To: BSCCo	**Date Sent:** 22/02/2024
From: Requesting Applicant Details Name of Sender: Contact email address: Contact Tel. No.	Contact Fax. No._____
Name of Applicant Company: EDF Energy Ltd	
Address: 90 Whitfield Street,	
Post Code: W1T 4EZ	Our Ref:
Name of Authorised Signatory: Authorised Signature:	Password:

Request for Confidentiality YES

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: Areas to remain confidential are as follow: Part D1 - Loss Adjustments for Power Transformer and/or Cable/Line Losses Materiality Site details Technical details Reasons for above to remain confidential is due to the customers connected to the private wire and commercial values of installed assets. …… 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___6__[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: Fastned UK Limited	
Address: 3 Bath Place, 1 Floor, London, England	
Post Code: EC2A 3DR	

Contact Name at Affected party:	
Contact email address:	
Contact Tel. No.	Contact Tel. No.
Company Name of Affected party: Tesla Motors Ltd	
Address: 109 Devonshire Road, London, England	
Post Code: W4 2AN	

Contact Name at Affected party:	
Contact email address:	
Contact Tel. No.	Contact Tel. No.
Company Name of Affected party: Oxford City Council	
Address: Town Hall Offices, St. Aldates, Oxford, United Kingdom	
Post Code: OX1 1BX	

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

Contact Name at Affected party:	
Contact email address:	
Contact Tel. No.	Contact Tel. No.
Company Name of Affected party: Pivoted Power LLP	
Address: Alexander House, 1 Mandarin Road, Rainton Bridge Business Park, Houghton Le Spring, Sunderland	
Post Code: DH4 5RA	

Contact Name at Affected party:	
Contact email address:	
Contact Tel. No.	Contact Tel. No.
Company Name of Affected party: Go-Ahead Group (Oxford Bus Company)	
Address: Cowley House, Watlington Rd, Oxford	
Post Code: OX4 6GA	

Contact Name at Affected party:	
Contact email address:	
Contact Tel. No.	Contact Tel. No.
Company Name of Affected party: Thames Transit Limited (Stagecoach)	
Address: C/O Stagecoach Services Limited One Stockport Exchange, 20 Railway Road, Stockport, United Kingdom,	
Post Code: SK1 3SW	

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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/562

Site Specific:

Describe why you require a Metering Dispensation. Include any steps you propose to limit the impact on Settlement and other Registrants:

This Metering Dispensation application updates and supplements the information provided in D/562 in order to further clarify non-compliances as summarised below and explained in greater detail in subsections that follow:

A. ***Update of the metering compensation factors calculated in D/562, required for each existing embedded Customer on the Cowley private network due to the addition of the new Customer load at the Network Oxford Cowley (NOC substation). In addition, a separate compensation factor is developed to be applied at the new embedded NOC Customer Meter.***

Section A

This Metering Dispensation is requested for a private wire network because the Metering Equipment for the four existing embedded customer sites (Fastned, Tesla, Oxford City Council (OCC), and Oxford Bus Company (OBC)) aren't located at the Defined Metering Point (DMP) and it is financially unviable to locate the metering for the private wire at the DMP. In addition to this, the Metering Equipment for the new Customer at NOC also isn't located at the DMP, as it is financially unviable to locate the metering for the private wire at the DMP.

Metering Dispensation D/562 provided loss compensation factors for the existing three embedded customers located at the Redbridge substation, and the recent addition at the OBC substation, based on bands for total expected respective substation load. The reason for their update is twofold:

1. The addition of length of cabling to facilitate the loop in/out of the NOC substation between the OBC and Redbridge substations' circuit; and
2. The addition of load being added to the private wire network at the newly created NOC substation, resulting in an increase in losses on the shared network.

Loss factors for the existing embedded circuit Meters have therefore changed.

Calculations previously provided in D/562 have been updated by an independent HV contractor, Power Systems UK, who was responsible for the design and installation of the entire private wire network. Relevant losses information can be found in the updated supporting documents "16157-Cable Losses – B" and "16157-101B Single Line Diagram"

The updated Meter scaling factors applied only at Redbridge substation Meters (as previous, within D/562), based on a updated total site load of 18.85MW (7MW existing at

Redbridge, 7.5MW at OBC, 2.5MW additional new load at NOC, and 1.85MW Auxiliary Load), and updated circuit lengths, are as shown below:

MVA scale	Loss correction factor applied to meter
0 < ¼ Load	0.057%
¼ Load < ½ Load	0.228%
½ Load < ¾ Load	0.514%
¾ Load < Full Load	0.914%

The updated Meter scaling factor applied only at OBC substation Meter (as previous, within D/562), based on a updated total site load of 18.85MW (7MW existing at Redbridge, 7.5MW at OBC, 2.5MW additional new load at NOC, and 1.85MW Auxiliary Load), and updated circuit lengths, are as shown below:

MVA scale	Loss correction factor applied to meter
0 < ¼ Load	0.030%
¼ Load < ½ Load	0.121%
½ Load < ¾ Load	0.272%
¾ Load < Full Load	0.484%

As the new embedded Customer, to be connected to the Cowley private wire network, is upstream of the Redbridge substation and downstream of the OBC substation, the associated losses from the cable run connecting NOC and OBC is not applicable to the new NOC site.

A separate set of scaling factors based on a updated total site load of 18.85MW (7MW existing at Redbridge, 7.5MW at OBC, 2.5MW additional new load at NOC, and 1.85MW Auxiliary Load), and updated circuit lengths, that will be applied to the NOC Customer's Meters located at the OBC substation, are as shown below:

MVA scale	Loss correction factor applied to meter
0 < ¼ Load	0.047%
¼ Load < ½ Load	0.190%
½ Load < ¾ Load	0.427%
¾ Load < Full Load	0.759%

The Meter Operator Agent (MOA) will be instructed to update the Meters with the loss adjustment percentages within the individual existing, and newly installed, Meter(s).

The new NOC Customer will be assigned their own BM Unit and Aggregation Rules will be applied to each BM Unit:

The sum of the five (previously four, as within D/562) Customer site Aggregation Rules will be differenced off the Aggregation Rule for the Cowley BESS, so as to work out the BESS BM Unit Metered Volumes:

Cowley BESS BM Unit Metered Volume = $(AE\text{-}AI)_{BESS} - \{(AE\text{-}AI)_{Fastned} + (AE\text{-}AI)_{Tesla} + (AE\text{-}AI)_{OCC} + (AE\text{-}AI)_{OBC} + (AE\text{-}AI)_{NOC}\}$

Fastned BM Unit Metered Volume = $(AE\text{-}AI)_{Fastned}$; Tesla BM Unit Metered Volume = $(AE\text{-}AI)_{Tesla}$; OCC BM Unit Metered Volume = $(AE\text{-}AI)_{OCC,}$ OBC BM Unit Metered Volume = $(AE\text{-}AI)_{OBC}$, and NOC BM Unit Metered Volume = $(AE\text{-}AI)_{NOC}$ It is noted that if a new embedded BM Unit is introduced in the future, at any point in the private wire network, the network losses will change and therefore require a further update to the loss factor calculations described herein. It is also noted that under the recent BSC modification proposal P453, effective from November 2, 2023, the new Customer, NOC, who would have previously been categorized as CoP2, will now fall under CoP3. This change is a result of the revised circuit capacity-based approach to determine the appropriate Code of Practice for embedded circuits, not simply the CoP applicable at the DMP. Therefore, it is important to note that no dispensation is to be applied for as a result of CT class and VT class/arrangements. EDFR has confirmed with Elexon separately the site's compliance with CoP3 standards.

Period of Metering Dispensation required

Lifetime

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

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

Rationale for duration of Metering Dispensation: Metering Dispensation is required for the lifetime of the asset which is 30 years.

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 because there are no power transformers between the DMP and the embedded customers and the power transformers of the embedded customers are downstream of their CoP2 Metering Systems. The DMP and BM Units' metering point measurement is taking place at the same voltage (33kV).

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):

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?

N/A

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?

Cable loss calculations have updated from D/562 by the HV electrical supplier. Losses will be applied to the individual Customer Meters in-line with scaling factors.
None of the Customer BM Units will be able to Export.

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?

See Appendix 1

What is the length of this power cable/line?
See Appendix 1

What is the DC resistance of this power cable/line?
See Appendix 1

What is the impedance of this power cable/line?
See Appendix 1

What is the capacitance of this power cable/line?
See Appendix 1

Are there any other losses that have been taken into account? No

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

Following on from D/562, calculated losses for all customers have been updated to account for the load increase and circuit length increases as a result of the NOC customer being added.

The calculated losses will be applied to the Meters only and reviewed in-line with Customer consumption.

Should a new Customer be contracted with, ahead of them joining the network, the losses will be reviewed and updated for the network.

The loss factors applied to the Meters will be percentages based on the Meters' Rated Power. These loss factors can be seen above in part C.

*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?
See Appendix 1	See Appendix 1
What is the cost of the proposed solution?	What does this cost entail?
See Appendix 1	See Appendix 1
What is the impact to Settlement of your proposed solution?	Why?
Settlements will not be impacted by this solution	Loss factors will be applied to the metered circuits to accommodate circuit losses of remote Metering Systems
What is the impact to other Registrants of your proposed solution?	Why?
None	Difference metering will be put in place so any errors in the loss factors will mean the Registrant of the BESS Metering System will pick these up.

Site Details (for Site Specific Metering Dispensation)

Site Name:	Tesla
Site Address:	Redbridge Park and Ride, Abingdon Rd, Oxford, OX1 4XG
MSID(s) *Delete as applicable.	See Appendix 1
Registered in: CMRS / ~~SMRS / AMRS~~*: *Delete as applicable.	
For SMRS, please advise of SMRA in space provided.	N/A

Site Name:	Oxford City Council
Site Address:	Redbridge Park and Ride, Abingdon Rd, Oxford, OX1 4XG
MSID(s) *Delete as applicable.	See Appendix 1
Registered in: CMRS / ~~SMRS / AMRS~~*: *Delete as applicable.	
For SMRS, please advise of SMRA in space provided.	N/A

Site Name:	Fastned Charging
Site Address:	Redbridge Park and Ride, Abingdon Rd, Oxford, OX1 4XG
MSID(s) *Delete as applicable.	See Appendix 1
Registered in: CMRS / ~~SMRS / AMRS~~*: *Delete as applicable.	
For SMRS, please advise of SMRA in space provided.	

Site Name:	Oxford Bus Company
Site Address:	Cowley House, Watlington Rd, Oxford OX4 6GA
MSID(s) *Delete as applicable.	See Appendix 1
Registered in: CMRS / ~~SMRS / AMRS~~*: *Delete as applicable.	
For SMRS, please advise of SMRA in space provided.	

Site Name:	Network Oxford Cowley
Site Address:	The premises at Network Oxford, Sandy Lane, Oxfordshire, OX4 2RP
MSID(s) *Delete as applicable.	See Appendix 1
Registered in: CMRS / ~~SMRS / AMRS~~*: *Delete as applicable.	

For SMRS, please advise of SMRA in space provided.	

Manufacturer Details (for Generic Metering Dispensation)

Manufacturer Name:	N/A
Metering Equipment / Asset Metering Equipment Details*: *Delete as applicable	N/A

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Part D - Technical Details

Code of Practice details

Metering Dispensation against Code of Practice*	Code of Practice (CoP) 2 (existing embedded Customers) CoP3 (new embedded Customer)
Issue of Code of Practice*:	Issue 5 (CoP2) Issue 6 (CoP3)
If against Code of Practice 11 against which Asset Metering Type	N/A
Capacity of Metering Circuits/Site Maximum Demand (MW/MVA):	See Appendix 1
(Proposed) Commissioning Date of Metering:	See Appendix 1
Accuracy at Defined Metering Point:	<1% accuracy
Accuracy of Proposed Solution (including loss adjustments):	<1% accuracy
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):	***EDF has observed that deviations from the Code of Practice (CoP) are influenced by the installation dates of customers on the Cowley network. In the case of existing customers at the Redbridge and Oxford Bus Company Substations, specifically mentioned in document D/562, each customer was required to adhere to CoP2 standards. This was because their installations occurred before the introduction of P453, which meant that the CoP was applicable to the boundary point circuit of the network.*** ***The new customer mentioned in this context is scheduled to be energized after the implementation of P453. Consequently, the CoP will now be applicable to the rated capacity of the metered circuit, which, as mentioned earlier, is 9.5MVA. As a result, the new customer, referred to as NOC, will be subject to CoP3.***

	The subsequent two subsections will outline the non-compliances associated with both sets of customers, each presented separately. ***Section 1 - Existing Customers (Tesla, Fastned, OCC, OBC)*** ***AMP is not at the DMP in accordance with clause 4.3.3. Cable losses will be applied to each embedded Metering System.*** Appendix A Defined Metering Points: "8. For transfers between the Transmission System and a Customer, the DMP shall be at the point(s) of connection to the Transmission System." ***Whilst a dedicated set are provided for each metered circuit, the CTs used are class 0.5s and are therefore not in accordance with the clause 5.1.1 of CoP2.*** 5.1.1 Current Transformers "A dedicated set of current transformers in accordance with BS EN/IEC 61869-2 and with a minimum standard of accuracy to class 0.2S (irrespective of the secondary current rating of the CTs) shall be provided solely for the Settlement Metering of each circuit." ***For the 3 metered circuits at the Redbridge substation (as identified D/549), voltage readings are supplied via a single busbar VT of class 0.5 – 3P. Main and check meters for all circuits are supplied through a single secondary winding and is therefore non-compliant with CoP2. Other windings are used for "RPA relay" and "spare". The use of a single secondary to supply all 3 embedded meters is not in accordance with clause 5.1.2 in CoP2.*** 5.1.2 Voltage Transformers "…a dedicated secondary winding shall be provided for the main and check metering. The voltage transformer secondary winding shall be in accordance with BS EN/IEC 61869-3 and with a minimum standard of accuracy to Class 0.5. Where a voltage transformer has other secondary windings these may be used for the check metering of that circuit and for other purposes provided the overall accuracy requirements in clause 4.3.1 are met" ***Section 2 – New Customer (NOC)*** ***AMP is not at the DMP in accordance with clause 4.3.3. Cable losses will be applied to each embedded Metering System.***

	Appendix A Defined Metering Points: "8. For transfers between the Transmission System and a Customer, the DMP shall be at the point(s) of connection to the Transmission System."

* insert Code of Practice number and issue

Any Other Technical Information

N/A

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:*

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: M Smith *Date:22 February 2024*

Duly authorised for and on behalf of BSCCo