

SMD/2024/0568 - PROPOSED DEVELOPMENT OF A BATTERY ENERGY STORAGE SYSTEM (BESS) AND ASSOCIATED INFRASTRUCTURE

NEW HOUSE FARM, LUZLOW LANE, BAGNALL, STAFFORDSHIRE ST9 9JZ

CLARIFICATIONS ON CABLE ROUTE

1. This note has been prepared in response to queries from Staffordshire Moorlands District Council (the LPA) in relation to the above application, specifically with regards to the area of search used in the submitted Alternative Site Assessment (ASA).
2. The ASA was submitted to demonstrate that there are no preferable and/or available sites which can accommodate the proposed BESS development within a 2km radius of the point of connection (POC). The POC in this instance is at Cellarhead Grid Supply Point (GSP), located to the east of the application site.
3. Attached is the connection offer for the proposed development to the applicants (YLEM, now Root Power) from National Grid. This has been redacted as it contains sensitive information, however as can be seen on page 12, paragraph 3.2.2 under the 'Contestable Connection Works undertaken by NGED' heading, a cable route of approximately 1.5km is proposed to connect the proposed development to the POC at Cellarhead GSP, which is the approximate distance between these two locations. This is shown in the attached plan.
4. The project, and its costs, are based on a cable route of approximately 1.5km; cabling costs are a significant portion of any BESS project and therefore an increase in this distance would have serious implications on the ability of the applicants to deliver the project viably. On this basis, only sites within 1.5km from the POC would be viable. Recognising that the cable route may not be direct and may need to divert around field boundaries and along highways, etc, a distance of 2km was used in the ASA to ensure as robust an assessment of alternative sites as possible.
5. At this stage, the exact route of the cable has not been determined. This would be confirmed by National Grid once planning permission has been granted and the project moves to the next stage.

Alexandru Lupu
Ylem Energy Ltd
Edison House,
Daniel Adamson Road,
Manchester,
M50 1DT

Toll End Road
TIPTON
West Midlands
DY4 0HH

Tel: 0121 6232919
e-mail:
gjacob@nationalgrid.co.uk

Your Ref:
New House Farm BESS

Our Ref:
4920950

Date:
05/01/2024

Dear Alexandru Lupu,

Connection Offer for electricity connection works by National Grid Electricity Distribution (West Midlands) plc (“NGED”) at New House Farm, Luzlow, Bagnell, Stoke On Trent, ST9 9JZ

Thank you for your application requesting a connection offer for a new electricity connection at the Premises. I am pleased to provide NGED’s formal offer to you to provide the Proposed Connection(s).

All capitalised words and expressions used in this Offer Letter shall, unless otherwise defined in this Offer Letter or the context otherwise provides, have the same meaning as set out in the Specific Conditions for Connections Works and the General Conditions for Connection Works.

The terms and conditions on which NGED will carry out the Connection Works you require are set out in the Specific Conditions for Connection Works and General Conditions for Connection Works. Please ensure that you read both documents carefully.

NGED’s offer for the Proposed Connection(s) (the “**Connection Offer**”) is made pursuant to and in accordance with the provisions of NGED’s Distribution Licence and is comprised of the following documents:

- this offer letter (the “**Offer Letter**”);
- the Specific Conditions for Connection Works;
 - the General Conditions for Connection Works dated April 2023 (a copy of which can be found at <https://connections.nationalgrid.co.uk/types-of-connection-offer> or provided on request)
- Plan 4920950A not dated showing NGED’s existing Distribution System, Point of Connection location and Premises;
- a Customer Breakdown of Charges;
- the Acceptance Form, to be signed and returned by you;
- a Health and Safety Questionnaire to be completed by you

- a Cost of Legal Fees Statement.

The following provides an overview of the Connection Offer based on NGED's understanding of your requirements.

Summary of the electricity connection requirements

NGED propose a non-firm connection with a maximum import capacity of 99,500kVA and a maximum export capacity of 99,000kVA. The connection is intended to be made via an extension of the existing Cellarhead GSP 132kV busbar. A new circuit breaker bay and outdoor circuit breaker are required, as well as associated isolators and equipment. This is subject to a ModApp with NGESO. The latest project progression offer from NGESO confirms the need for new super grid transformers, as well as wider transmission works at Cellarhead GSP with an estimated timescale of ~10 years. NGESO will also assess the import and export capacity offered. Space constraint at Cellarhead GSP is also an issue and likely further costs for installing the proposed bay.

The customer will be connected to Cellarhead GSP via a 132kV underground cable circuit of approximately 1.5km. As this circuit is on third party land, it will require easements. The full nature of the connection will be ascertained following a detailed design and survey after the acceptance of the connection offer. Post acceptance, the scheme will be assessed in detail and implement necessary tactical solution and/or ANM if required; a variation will be sent accordingly.

In addition to the new 132kV cable circuit, a new customer metering substation, consisting of a 132kV metering circuit breaker, protection panel, metering panel and telecontrol will need to be constructed on the customer site.

Summary of the electricity reinforcement required

GSP works to be determined and subject to further P2/SQSS Assessment. SoW process will identify if any Transmission ANM required or wider transmission works required. A DSR contract will be required to ensure that the battery storage scheme is considered "restored" after being switched out under various network conditions.

Competition in Connections and the Connection Charge

Competition in Connections is the term attributed to the opening up of the market for the design, procurement and installation of new assets necessary to accommodate a new or modified electricity connection. You have the option to appoint an independent Connection Provider (an "ICP") to carry out some of the Connection Works, referred to as the "**Contestable Connection Works**". Any Connection Works that can only be undertaken by NGED are referred to as "**Non-contestable Connection Works**".

This Connection Offer contains two options for completing the Connection Works, **Option 1** and **Option 2**. These options are mutually exclusive and you may only accept one of them.

If you want NGED to undertake both the Non-contestable Connection Works and the Contestable Connection Works you should accept **Option 1**. If you want NGED to undertake only the Non-contestable Connection Works you should accept **Option 2**. The Connection Charges for **Option 1** and **Option 2** are set out below:

		Price excluding VAT	Price including VAT
Option 1	NGED undertakes all the Non-contestable and Contestable Connection Works.	██████████	██████████
Option 2	NGED undertakes only the Non-contestable Connection Works and an ICP undertakes the Contestable Works.	██████████	██████████

Please note that the Connection Charge may be adjusted following acceptance of, and as set out in, this Connection Offer, including as set out in clause 6 of the General Conditions for Connection Works. Unless otherwise specified the terms and conditions set out in this Connection Offer shall apply equally to both options.

Please note that, in accordance with the Electricity (Connection Offer Expenses) Regulations 2018, you will be charged for the time we have spent preparing this Connection Offer.

The charge covers the costs we have reasonably incurred when assessing the impacts of the proposed connection on the distribution/transmission system, designing the connection (including any reinforcement works) and preparing the Connection Offer.

The charge payable is shown on the enclosed Customer Breakdown of Charges under the heading 'Assessment & Design'. An invoice has been sent to you in accordance with the notification sent previously and you are required to make payment within 28 days of the date of the invoice.

A description of the Non-contestable Connection Works and Contestable Connection Works is provided in clauses 3.2 and 3.3 of the Specific Conditions for Connection Works. The enclosed Customer Breakdown of Charges also provides further detail.

If you accept Option 2, you (or your appointed ICP) will undertake the Contestable Connection Works specified in clause 3.3.3 of the Specific Conditions for Connection Works.

The enclosed guide provides further explanation on Competition in Connections. If you wish to discuss the options available to you please do not hesitate to contact me.

Pass-through of NGESO requirements

This Connection Offer is made subject to any NGESO requirements arising as a result of or in connection with the impact of the Proposed Connection(s) on the transmission system, including the outcome of any Statement of Works ("SoW") request or modification that NGED is required to submit to National Grid Electricity Transmission plc ("NGESO") in order to ascertain the effect of the Customer's Proposed Connection on the transmission system. Recent SoW requests made to NGESO have highlighted widespread issues on the transmission system that require mitigation. This is due to the cumulative impact of new generation connections on the distribution system. NGESO now require generator sites in many areas to modify the operating characteristics of the generator units. This may include, without limitation, a requirement to operate at a specific power factor, to have the capability of operating within a power factor range and/or to constrain the export capability to zero at certain times. In certain areas NGESO have indicated that they will have to reinforce parts of the transmission system prior to the connection of any further generation capability. Developers who initiate these works will be required to fund the cost and wait for NGESO to complete the reinforcement. The costs may be significant and the associated construction timescales could be lengthy. Please see the Pass-Through of NGESO costs clause of the Specific Conditions for Connection Works for more information.

Interim NGET Two-Step Offer

The rapid growth in connection applications to the electricity system in readiness for decarbonisation has resulted in extensive delays in undertaking the Transmission Reinforcement Works (TRW) required to support this additional demand and generation. Ensuring the physical electricity system can quickly adapt to meet the additional demand has become a key priority.

To enable more generation to connect to the grid at an efficient pace, National Grid Electricity Transmission (NGET) have introduced an interim two-step offer process for applications connecting post 1st January 2026. The interim two step offer process is as follows:

Step One – Initial offer

The initial offer will identify the Connection Site/Point and a Completion Date based on the existing queue and current TRW. The initial offer will not include, detailed works, build out programme, or indicative costs. Securities will be set at £0.

If accepted, a meeting will be held to discuss the timing of the Step Two offer and likely results.

Step Two – Follow up offer

Step Two offer will be issued within a maximum of 9 months after acceptance and counter-signature of the Step One offer. This offer will update the Step One offer and include securities and the programme based on the identified transmission reinforcement works.

Customers with a Two Step Offer will benefit from a realistic contracted background and a coordinated approach to network studies with the potential for earlier connection dates.

For more information on the Interim NGET Two-Step Offer, please visit:

<https://www.nationalgrideso.com/industry-information/connections/two-step-offer-process>

General Conditions for Connection Works

As well as the documents enclosed with this Offer Letter, the Connection Offer also incorporates and is subject to version 7 September 2022 of our General Conditions for Connection Works. The General Conditions for Connection Works are a part of the Agreement that is formed between us in accordance with the 'Acceptance' paragraph below. You can view them here <https://connections.nationalgrid.co.uk/types-of-connection-offer> alternatively, we can send you a copy on request.

Please take the time to read them as they include important provisions setting out, for example, the circumstances in which you may cancel or NGED may terminate the Connection Offer . They also set out details of NGED's limits of its liability to you, as well as definitions of terms used in this document that you may find helpful. We are happy to discuss any element of these conditions with you.

Data Protection

NGED take data protection very seriously – details of:

- how NGED collects, stores and uses information that identifies individuals ("Personal Information") in connection with its business activities;
- NGED's legal basis is for processing that Personal Information; and
- your rights in relation to your Personal Information,

can be found on NGED's privacy policy, which can be viewed here <https://www.nationalgrid.co.uk/Privacy-Policy.aspx>. Alternatively, we can send you a copy on request.

Acceptance

If you would like to accept this Connection Offer please return the following completed documents to NGED at the above address:

- the Acceptance Form;
- the Health and Safety Questionnaire.

Unless otherwise agreed with us in writing this Connection Offer will automatically expire if NGED do not receive these documents by 04/04/2024.

Once NGED have received the documents set out above, subject to any provisos set out in the Connection Offer, NGED will:

- date the Acceptance Form and send you a copy for your records; and
- invoice you for any payments which are due.

The Agreement between you and NGED shall be formed when we date the Acceptance Form. NGED reserve the right to withdraw the Connection Offer on written notice at any time prior to formation of the Agreement including, where we have previously notified you of the case, where payment of the Assessment & Design fees is not made by the due date set out in that notice and related invoice. Unless otherwise agreed with NGED in writing, the Agreement shall be on the terms and conditions set out in this Connection Offer, and any purported acceptance of the Connection Offer containing any variation to these terms shall be invalid.

If the Agreement is terminated by you or by NGED as set out in clause 13.3 of the General Conditions for Connection Works you will be liable for any reasonable costs incurred by NGED as a result as set out in that clause. You may also be liable for an NGESO cancellation charge as set out in the clause headed 'Pass-Through of NGESO costs' in the Specific Conditions for Connection Works.

Interactivity

If NGED receives a separate application for a connection which makes use of the same part of our **Existing Network**, or **Committed Network** as the proposed development and, due to network constraints and the amount of capacity available on the Distribution System, NGED determines that it cannot accommodate the proposed development and the new connection without a material impact on the terms of the connection offers made (including, for example, an increase in the connection charge to account for additional reinforcement works) this Connection Offer may become "Interactive". If NGED becomes aware that this Connection Offer might become interactive, NGED will, where possible, send you a **Notice of Potential Interactivity**.

If this Connection Offer does become interactive, NGED will send you a **Notice of Interactivity** which will confirm that this Connection Offer is interactive, provide details of any changes to the terms of the Connection Offer and inform you of any revised process for accepting your offer.

Because of the order in which your application was received by NGED, if your Connection Offer does become interactive, your application will take priority and, provided you accept the Connection Offer before the end of the period for acceptance in accordance with the terms of the Connection Offer (as may be amended and varied by a **Notice of Interactivity**), then your Connection Offer will not be conditional upon whether any other applicants accept any **Interactive Connection Offers** issued to them.

Note that if there are more than 30 days of the existing acceptance period for your Connection Offer remaining from the date of any **Notice of Interactivity**, your acceptance period will be reduced to 30 days from the date of the notice.

If you receive a **Notice of Interactivity** and there are 30 days or less of the existing acceptance period for your Connection Offer remaining, the existing acceptance period will continue to apply.

Where a **Notice of Interactivity** is issued, NGED will not grant an extension to any period for acceptance of your Connection Offer under any circumstances.

It is important to note that, if you do receive a **Notice of Interactivity**, in addition to any changes that this will result in to your acceptance date, your acceptance will also be conditional upon payment (in cleared funds and notwithstanding any other provision of this Connection Offer or as set out on any invoice) of the Initial Payment (if any) set out in Clause 3 of the Specific Conditions for Connection Works or (where a single payment is provided for in Clause 3) the entire Connection Charge by the expiry of the acceptance period. You will also need to sign and return the acceptance form enclosed with such **Notice of Interactivity** for your acceptance to be valid.

Further information in relation to interactivity (including the meaning of the emboldened terms used in this section) is set out in NGED's Interactivity Process Guide, which is available from NGED's website www.nationalgrid.co.uk.

Further Information

If you have any queries or are not satisfied with the terms of this Connection Offer and, after discussion, you and I are unable to reach agreement, I hope you will take the opportunity of talking to my manager: Andrew Akani on 01216 239296. If, following discussion with Andrew Akani, we still cannot reach an agreement please contact the Complaints Department on 0800 055 6833 or email complaints@nationalgrid.co.uk. Our complaints procedure is available on our website <https://nationalgrid.co.uk/Contact-us/Complaints.aspx>. If we are unable to resolve your complaint, you will have the right to refer the matter to the independent dispute resolution service, the Energy Ombudsman, for a decision.

If you have any questions or wish to discuss any of the above, please do not hesitate to contact me.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Gibu Jacob', with a long horizontal flourish extending to the right.

Gibu Jacob

Primary Design - West Midlands

National Grid Electricity Distribution (West Midlands) plc Registered in England and Wales No. 3600574

Registered Office: Avonbank, Feeder Road, Bristol BS2 0TB

Important:

All rights in the design, specification, plans or drawings or any other document contained or accompanying this Connection Offer belong to and remain with NGED and shall not be used or disclosed by the Customer or any other person without NGED's written consent.

All data and information acquired or reviewed by the parties in connection with this Connection Offer is confidential and shall not be divulged to any third party without the prior written consent of the other party except insofar as may be required by law.

NATIONAL GRID ELECTRICITY DISTRIBUTION ("NGED") SPECIFIC CONDITIONS FOR CONNECTION WORKS

1. Definitions

1.1. All capitalised words and expressions used in these Specific Conditions for Connection Works shall, unless otherwise defined in these Specific Conditions for Connection Works or the context otherwise provides, have the same meaning as set out in the Offer Letter and the General Conditions for Connection Works.

1.2. Unless the context otherwise requires, the following words shall have the following meanings:

"Curtail/Curtailment" means any action taken by NGED to restrict the flow of electricity at the Connection Point, except where that restriction is caused by an interruption (being a loss of supply to one or more customer as a result of an incident, excluding voltage quality and frequency abnormalities, such as dips, spikes or harmonics), or as a result of constraints on the transmission system.

"Curtailed Connection" means a connection which is made on the basis that it is expressly subject to Curtailment.

"Curtailment End Date" means the date set out in clause 2.2.1, as such date may be amended by agreement between NGED and the Customer, or by NGED in accordance with paragraph 7.2 of Schedule 2D of the Distribution and Connection Use of System Agreement ("DCUSA").

"Customer" means Ylem Energy Ltd (company no: 02152229)

"Excess Capacity" means any capacity within the Maximum Export Capacity (as set out in clause 2.2.1) which exceeds the Installed Capacity.

"Installed Capacity" means the capacity of the Customer's generating equipment once installed.

"Non-Curtailed Connection" means a connection which is not a Curtailed Connection.

"Reservation Period" means a period of time determined by NGED up to a maximum of 18 months from the date of the Connection Agreement.

2. Basis of the Connection Offer

2.1. Customer's Installation

NGED understands that, based on current information provided by the Customer, including within the Customer's connection application, the proposed Customer's Installation will comprise the following:-

- 2x 132/33kV 55MVA transformer
- 132kV busbar
- 1x 132kV metering circuit breaker
- two 33kV switch rooms in separate blocks with each containing 15x 33kV circuit breaker panels
- Current and voltage transformers for metering purposes
- 30 x 3.45MW BESS units
- Protection in accordance with engineering recommendation G99
- G100 export limiting scheme to limit the export from 103.45MW to 99MW.

2.2. Supply Specification for the Proposed Connection(s)

2.2.1. Subject to any other provision of this Connection Offer, the characteristics of the Proposed Connection(s) will be:	
Nominal Voltage at Connection Point	132000 Volts
No of Phases	Three Phase
Nominal Frequency	50 Hz
Maximum Export Capacity	99,000 kVA
Maximum Import Capacity	99,500 kVA

NATIONAL GRID ELECTRICITY DISTRIBUTION (“NGED”) SPECIFIC CONDITIONS FOR CONNECTION WORKS

Maximum Prospective Short Circuit Current	0.92kA
Acceptable Power Factor for Export Capacity	unity
Acceptable Power Factor for Import Capacity	0.95 lag to unity
Non-Curtailable Import Capacity	██████
Non-Curtailable Export Capacity	██████
Curtailable Import Capacity	██████
Curtailable Export Capacity	██████
Curtailment End Date:	██
Import Curtailment Limit	██████
Export Curtailment Limit	██████
Exceeded Import Curtailment Price (subject to change)	████████
Exceeded Export Curtailment Price (subject to change)	████████

- 2.2.2. The Acceptable Power Factor for Export Capacity and Import Capacity are both subject to the agreement of NGESO in accordance with the 'Pass-Through of NGESO requirements' clause in these Specific Conditions for Connection Works.
- 2.2.3. In order to allow NGED to contain voltage within acceptable limits at the transmission system/Distribution System interface, the Customer must ensure that the generators have the capability to operate between 0.95 leading and 0.95 lagging power factor, and shall operate at the power factor prescribed by NGED as set out above. In the event that, in NGED's reasonable opinion, NGED needs to contain voltage within acceptable limits it shall instruct the Customer in writing to operate thereafter at a different power factor, which shall be within the 0.95 leading and 0.95 lagging power factor range. The Customer shall at the Customer's own expense comply with the instruction within 28 days of the date of the notification.
- 2.2.4. Where the Proposed Connection(s) is provided in two or more phases the Customer's load shall, as far as is reasonably practical, be balanced.
- 2.2.5. Description of Dynamic Requirements (Active Power)
Export Power ramp rate (Positive) 99 MW/sec
Power ramp rate (Negative) 99 MW/sec
Total power swing 198 MW

Import Power ramp rate (Positive) 99 MW/sec
Power ramp rate (Negative) 99 MW/sec
Total power swing 198 MW

Total magnitude of the power swing 198 MW both
- 2.2.6. Without prejudice to the other provisions of this clause 2, the Maximum Import Capacity and Maximum Export Capacity means the maximum power in kilovolt amperes (kVA) which has been requested by the Customer and which NGED is prepared to make available. NGED accepts no obligation to provide capacity in excess of this. Further information is provided in NGED's Statement of Methodology and Charges for Connection.
- 2.2.7. The Customer's Installation must be designed and operated to ensure there is no kilovolt amperes reactive (kVAR) power flow into the existing Distribution System at the Point Of Connection. Therefore the site shall operate at a leading power factor when exporting real power, and at a lagging power factor when importing real power to negate the kVAR effects of the Connection Equipment and the Customer's Installation on the Distribution System beyond the Point of Connection.
- 2.2.8. Upon completion of the design of the Customer's Installation the parties shall agree the mitigation measures required to comply with the reactive power requirement and the Customer shall ensure that these are in place prior to Energisation or (as relevant) completion of a varied Connection Agreement. If the parties cannot agree the mitigation measures required within 28 days of completion of the design, either party may treat the matter as a dispute in accordance with the dispute resolution process set out in clause 15 of the General Conditions for Connection Works.
- 2.2.9. Prior to Energisation of the Customer's Installation or (as applicable) utilisation of increased capacity in respect of an augmented connection the Customer must enter into a Connection Agreement with NGED specifying the Installed Capacity of the Customer's generating equipment. Subject to the clause below, where the Installed Capacity is less than the Maximum Export Capacity, NGED will be under no obligation to reserve any Excess Capacity for future use by the Customer.
- 2.2.10. If the Customer intends to install further generation plant that will use the Excess Capacity, it shall provide written notice to NGED prior to entering into the Connection Agreement. If NGED receives written notice of such intention, a 'Reservation of Capacity Agreement' shall be entered into, or this Agreement shall be amended, to set out the terms and conditions under which Excess Capacity may be used for further generation plant.

2.3. **Point of Connection**

The Point of Connection to NGED's existing Distribution System will be via a new 132kV straight joint outside the Cellarhead GSP.

2.4. **Connection Point**

The Connection Point will be the Customer's side terminals of the 132kV disconnector located on the Customer's side of the 132kV metering circuit breaker. It will be the Customer's responsibility to provide and maintain the Customer's Installation beyond the Connection Point in conformity with any regulations and orders for the use of electricity on the Premises

2.5. **Network Constraints**

2.5.1. Whilst NGED will endeavor to minimise any disruption, NGED does not guarantee that the Customer will be able to import or export electricity through the Connection Point at all times. NGED may instruct the Customer to immediately de-energise or implement an immediate reduction in the Maximum Import Capacity and/or the Maximum Export Capacity (including to zero), or the Connection Point may otherwise be de-energised or a Customer's Maximum Import Capacity and/or the Maximum Export Capacity reduced (including to zero) as set out in the Connection Agreement, including for the reasons set out in the National Terms of Connection (as amended from time to time and as incorporated into the Connection Agreement), (ii) in the event of abnormal network running conditions (including as a result of network faults or outages or communications system failures), and (iii) where an instruction has been received by NGED from NGESO in accordance with the requirements of BC2.9.1.4 of the Grid Code and using the principles set out in OC6.7.1 of the Grid Code under emergency conditions on the transmission system, which will typically occur when a number of generators' output is high and, at the same time, distribution demand is low, leading to either voltage, thermal or protection issues on the Distribution System or transmission system.

- i) In the event of a fault or outage affecting the Network, and any resulting curtailment or interruption of the Customer's Maximum Import Capacity and/or the Maximum Export Capacity;
- ii) the Company may consider any reduction in the Customer's Maximum Import Capacity as constituting contracted Demand Side Response (DSR) (as detailed in Engineering Report 130 as referred to in the Distribution Code);
- iii) the activation of such contracted DSR will **not** be compensated by the Company and, in accordance with Engineering Recommendation P2, is deemed as an equivalent of the restoration of demand;
- iv) the Customer agrees that The Electricity (Standards of Performance) Regulations 2015 (the "Regulations") shall be deemed not to apply, and waives any rights to compensation under such Regulations; and
- v) For the purposes of Appendix F of the Regulatory Instructions and Guidance for RIIO-ED2, the Customer hereby refuses the provision of a temporary generator, fuel and/or the payment of fuel costs by the Company, in the event of an outage affecting the Connection Point.

2.5.2. Without prejudice to any other right of NGED in respect of network constraints, the following potential network constraints have been identified – this is a non-exhaustive list and also does not take into account future developments and changes to the electricity network:

- 132kV fault/outage on the Cellarhead busbars
- 132kV fault/outage on the circuits connecting to Cellarhead GSP
- Any fault/outage on the supergrid network

2.5.3. Where a constraint has been identified above, a separate document entitled 'Historical Outage Information' should also have been sent to you with this Connection Offer. The document details both planned and unplanned outage events that have occurred on the above mentioned circuits in the last 10 years and also future planned outage events during the current year. Please note this information is for indicative purposes only and is subject to

change. The historical performance of the network provided is no indication or guarantee of future network performance.

2.6. **Dynamic Import / Export requirements**

2.6.1. This Alternative Connection Offer has been designed on the ramp rates provided by the Customer, detailed in section 2.2.5. Without prejudice to any other right of NGED in respect of network constraints, if the Customer's operation regime exceeds this requirement and this results in the network exceeding its design and or statutory limits the Customer will be required (when instructed by NGED) to disconnect from the network and may be charged for additional works to ensure the network will operate within its design and or statutory limits. It is the Customer's responsibility to ensure that any transition from full import to export and export to import must be limited to infrequent operations as per National Engineering Recommendation P28.

2.6.2. NGED shall use its reasonable endeavors to provide as long a period of notice as is practicable of any requirement to de-energise or reduce export (including to zero), including such notice period as is set out in the National Terms of Connection, however NGED reserves the right to de-energise or reduce export without notice where it reasonably considers it necessary based on the system conditions prevailing on the Distribution System and/or the transmission network, or where the Customer has failed to comply with any instruction from NGED to de-energise or reduce export.

2.6.3. Save in respect of liability which cannot be limited by law (including liability for death and personal injury caused by NGED's negligence and for fraud), NGED shall under no circumstances be liable to the Customer for any costs, damages, expenses or losses (including, without limitation, third party losses or loss of profits) suffered or incurred by the Customer or arising out of or in connection with any de-energisation or curtailment of export as set out above other than as set out in the Connection Agreement.

2.7. **Fault Level at the Connection Point**

2.7.1. The proposed connection(s) increases the sub-transient, transient and steady state fault level on the Distribution System. This Connection Offer is based on a maximum generator plant capacity of 99000kVA. The total contribution from the Customer's Premises, as modelled at the 132000 Volts Connection Point, has been calculated to be or, based on the information provided by the Customer, assumed to be:

- (a) L-L-L-G 0.477kA Make (Asymmetrical Peak @ 10ms - Make); and**
- (b) L-L-L-G 0.334kA Break (RMS Symmetrical @ 50ms - Break);**

2.7.2. NGED's current assessment is that, based on the calculation or assumption above, no remedial works will be necessary as a result of the total contribution to fault level from the Customer's Premises, as under normal system configuration, the increased fault level is either within the rating of NGED switchgear or it can be managed within existing Distribution System and transmission system constraints via network management.

2.7.3. NGED reserves the right at any time prior to Energisation or (as relevant) completion of a varied Connection Agreement, when full details of the Proposed Connection(s) and the Customer Installation have been confirmed, to carry out subsequent assessments of the potential impact of the total contribution to fault level from the Customer's Premises on the Distribution System or any third party apparatus.

2.7.4. This Connection Offer is subject to any further studies on the Distribution System that NGED may require when full details of the Proposed Connection(s) and the Customer Installation have been confirmed (including, but not limited to, transient, steady state and dynamic stability studies). The costs of these studies are not included in the Connection Charge and shall be borne by the Customer.

2.7.5. NGED shall be under no obligation to commence performance of the Connection Works (including, without limitation, placing any order for plant or equipment required for the Proposed Connection(s)) until the outcome of any study undertaken in accordance with the above clauses has been determined.

2.8. **Reinforcement Cost Apportionment**

- 2.8.1. The Non-contestable Connection Works charge identified under each option in clause 3 below includes an amount for reinforcement of NGED's shared use Distribution System. The cost of these works is apportioned between the Customer and NGED in accordance with the apportionment rules contained in our Statement of Methodology and Charges for Connection to our Distribution System which may be found on our website: www.nationalgrid.co.uk. The Customer's contribution toward the cost is calculated using the following formula to determine the Cost Apportionment Factor (CAF):

3. **Outline of the Connection Works**

- 3.1. This Connection Offer provides the Customer with two mutually exclusive options for the Proposed Connection(s).

3.2. **OPTION 1**

The first option for the Proposed Connection(s) is for NGED to undertake both the Non-Contestable and the Contestable Connection Works.

Non-contestable Connection Works undertaken by NGED

- 3.2.1. NGED will provide the Proposed Connection(s) by performing the following Non-contestable Connection Works:

- Undertake a survey of Cellarhead GSP substation to design the 132kV outdoor circuit breaker bay required to establish a single circuit connection to the proposed battery storage system. ModApp to NGESO required for the new 132kV bay and for the detailed transmission works information. Post acceptance, if required, detailed assessment needed for any tactical solution and/or ANM.
- Establish a 132kV outdoor AIS circuit breaker bay at Cellarhead GSP substation consisting of busbar disconnectors, dead tank circuit breaker and cable end sealing structure.
- Install electrical protection panels at Cellarhead GSP substation associated with the new 132kV circuit breaker bay.
- Undertake a telecommunications survey to design the communications link between Cellarhead GSP substation and the 132kV connection point substation.
- Establish an underground fibre optic communications link between Cellarhead GSP and the 132kV connection point substation.
- Install fibre optic communications equipment within the connection point substation for the establishment of a unit protection scheme for the underground circuit.
- Supply and install battery charger associated with the telecontrol equipment installed within the customer substation.
- Supply, install and commission a connection control panel (CCP) at the 132kV connection point substation.
- Carry out a harmonic limits assessment for Cellarhead GSP.
- Commission the metering circuit breaker at the customer substation.

Contestable Connection Works undertaken by NGED

- 3.2.2. NGED will provide the Proposed Connection(s) by performing the following Contestable Connection Works:

- Excavate, supply, joint and terminate approximately 1.5km of 132kV underground cable from the 132kV connection point substation to Cellarhead GSP.
- Construct a 132kV metering substation containing 132kV circuit breaker, 132kV circuit breaker bay and associated isolators/disconnectors.
- Install a metering panel and multicore wiring between the 132kV metering circuit breaker and NGEDs metering panel.

Payment of the Connection Charge

- 3.2.3. Payment of the Connection Charge (which may be further adjusted as set out in this connection Offer, including clause 6 of the General Conditions for Connection Works) shall be made in

staged
Payment amounts (excluding VAT) and timings are as follows:-

payments.

Initial Payment	
Prior to order of plant and equipment	
Total Payment excluding VAT	

VAT rate = 20%

- 3.2.4. Where we have previously notified you of the case, payment of the Assessment & Design Fees is now due and we will invoice you for the sum shown as the Initial Payment (if any) above on acceptance of this Connection Offer.
- 3.2.5. If we haven't previously notified you, you will be required to pay the Initial Payment for the Assessment & Design Fees on acceptance of this Connection Offer.
- 3.2.6. Unless otherwise notified, NGED may invoice the Initial Payment (if any) set out above, or (where a single payment is provided for) the entire payment following the Customer's acceptance of this connection offer and for any other payments based on the timings set out above, which such invoices must be paid by the Customer within 28 days of the date of that invoice.
- 3.2.7. Without prejudice to any other provision in this Connection Offer, NGED shall be under no obligation to commence its Connection Works until the Initial Payment set out above has been received.
- 3.2.8. Without prejudice to any other provision of this Connection Offer, the Connection Charge may be adjusted to take into account a full ANM study, telecoms design/installation and incorporation to the ANM core systems. An annual licensing fee may also be payable by the Customer. Further details are available on request.

3.3. **OPTION 2**

The second option for the Proposed Connection(s) is for NGED to undertake only the Non-Contestable Connection Works.

Non-contestable Connection Works undertaken by NGED

- 3.3.1. NGED will provide the Proposed Connection(s) by performing the following Non-contestable Connection Works:
- Undertake a survey of Cellarhead GSP substation to design the 132kV outdoor circuit breaker bay required to establish a single circuit connection to the proposed battery storage system. ModApp to NGESO required for the new 132kV bay and for the detailed transmission works. Post acceptance, if required, detailed assessment needed for any tactical solution and/or ANM.
 - Establish a 132kV outdoor AIS circuit breaker bay at Cellarhead GSP substation consisting of busbar disconnectors, dead tank circuit breaker and cable end sealing structure.
 - Install electrical protection panels at Cellarhead GSP substation associated with the new 132kV circuit breaker bay.
 - Undertake a telecommunications survey to design the communications link between Cellarhead GSP substation and the 132kV connection point substation.
 - Establish an underground fibre optic communications link between Cellarhead GSP and the 132kV connection point substation.
 - Install fibre optic equipment within the connection point substation for the establishment of a unit protection scheme for the underground circuit.
 - Supply and install battery charger associated with the telecontrol equipment installed within the customer substation.
 - Supply, install and commission a connection control panel (CCP) at the 132kV connection point substation.
 - Carry out a harmonic limits assessment for Cellarhead GSP.

- Commission the metering circuit breaker at the customer substation.

Contestable Connection Works undertaken by NGED

- 3.3.2. NGED will provide the Proposed Connection(s) by performing the following Contestable Connection Works:

None

Contestable Connection Works undertaken by the Customer or the Customer's appointed Connection Provider

- 3.3.3. The Customer or the Customer's appointed Connection Provider, shall, at no cost to NGED, undertake the following:
- design and construct the Contestable Connection Works from the Point of Connection to the Connection Point
 - where NGED is to adopt any of the Contestable Connection Works, arrange legal documentation (wayleave, easement, lease or transfer as applicable to the site and NGED policy) to be completed in NGED's name prior to adoption of the equipment by NGED

Payment of the Connection Charge

- 3.3.4. Payment of the Connection Charge (which may be further adjusted as set out in this Connection Offer, including clause 6 of the General Conditions for Connection Works) is required on acceptance of this Connection Offer.
- 3.3.5. Payment of the Connection Charge (which may be further adjusted as set out in this Connection Offer, including clause 6 of the General Conditions for Connection Works) shall be made in staged payments. Payment amounts (excluding VAT) and timings are as follows:-

Initial Payment	
Prior to order of plant and equipment	
Total Payment excluding VAT	

VAT rate = 20%

- 3.3.6. Where we have previously notified you of the case, payment of the Assessment & Design Fees is now due and we will invoice you for the sum shown as the Initial Payment (if any) above on acceptance of this Connection Offer. If we haven't previously notified you, you will be required to pay the Initial Payment for the Assessment & Design Fees on acceptance of this Connection Offer.
- 3.3.7. Unless otherwise notified, NGED may invoice the Initial Payment (if any) or (where a single payment is provided for) the entire payment set out above following the Customer's acceptance of this Connection Offer and for any other payments based on the timings set out above, which such invoices must be paid by the Customer within 28 days of the date of that invoice.
- 3.3.8. Without prejudice to any other provision in this Connection Offer, NGED shall be under no obligation to commence the Connection Works until the Initial Payment set out above has been received.
- 3.3.9. Without prejudice to any other provision of this Connection Offer, the Connection Charge may be adjusted to take into account a full ANM study, telecoms design/installation and incorporation to the ANM core systems. Further details are available on request.

Design Approval

- 3.3.10. The Customer (or their Connection Provider) is required to provide NGED with all information relating to the design of its or their Contestable Connection Works in order to confirm suitability for Adoption by NGED. NGED require a (single) full and comprehensive design submission for the Customer's / Connection Provider's Contestable Connection Assets (including, without limitation plant, equipment and cables/lines) which are to be adopted by NGED. Part or

incomplete designs will not be accepted as a valid design submission. Where NGED does not consider the submission to be full and comprehensive, NGED will inform the Customer / Connection Provider that the submission has been rejected.

- 3.3.11. The Customer should refer to and comply with the requirements laid out under NGED'S appropriate design guides for switchgear and associated equipment. A copy of the appropriate design guides and other design specification information is available on request or on the NGED Technical Information Website.
- 3.3.12. Where reasonably practicable the design submission shall be in electronic format. On receipt of a full design submission, NGED will either provide confirmation of approval or an explanation for rejection within 10 Business Days of receipt of the design (20 Business Days where EHV works are required). Where the design submission is rejected NGED may levy additional charges for considering subsequent design submissions.

Inspections

- 3.3.13. NGED will undertake inspections of the Customer's / Connection Provider's Contestable Connection Works. The number of inspections required has been calculated on the basis of the number of visits NGED anticipates it will make for a connection of this type and size. Inspections are primarily non-chargeable. Charges will apply for any necessary re-visit following failure. The Customer will be required to pay for each additional inspection at the rates set out within NGED's Statement of Methodology and Charges

Adoption Agreement

- 3.3.14. Where the Customer (or the Customer's appointed Connection Provider) wishes to provide some or all the Contestable Connection Work they must first provide such evidence as NGED may reasonably require that the Customer (or their Connection Provider) has the necessary competence and experience to carry out the work properly and safely by providing evidence of appropriate accreditation under the Lloyds Registration scheme. For further information reference should be made to www.lr.org
- 3.3.15. The Customer (or their appointed Connection Provider) must comply with all appropriate legislation, national standards, technical/engineering recommendations, NGED specifications for design, planning, materials, installation and recording of the Contestable Connection Works. Further information is available on request and via the NGED Technical Information Site.
- 3.3.16. The Customer (or the Customer's appointed Connection Provider for the Contestable Connection Works, when applicable) must, prior to commencement of any Connection Works, enter into NGED's Framework Network Access and Adoption Agreement, which sets out the terms and conditions upon which NGED shall Adopt the assets installed by the Customer (or the Customer's appointed Connection Provider). NGED will (upon submission of the Customer's (or their appointed Connection Provider's) design) issue a site specific agreement pursuant to the Framework Network Access and Adoption Agreement to the Customer (or their appointed Connection Provider) in respect of the Proposed Connection(s) for signature.

The following terms and conditions apply to both Options 1 and Options 2

4. Customer Works

- 4.1. The Customer shall provide and install, at no cost to NGED, the following:-
- The Customer shall be responsible for all on-going repairs and maintenance of all accommodation, equipment and facilities it has provided.

5. Customer Installation

- 5.1. The Customer shall be required to confirm full and final details of the Proposed Connection(s) and Customer Installation, including the electrical layout, provisions for protection and electrical parameters of the Customer's Installation, prior to commencement of any Connection Works by NGED.

- 5.2. Without prejudice to any other provision in this Connection Offer, if final details of the Proposed Connection(s) and Customer Installation (including where confirmed to NGED pursuant to the clause above or otherwise or arising out of the results of any surveys, studies or investigations carried out by the Customer or by NGED) modify or deviate from, or have any other impact on, the physical or electrical characteristics of, the Proposed Connection(s) as confirmed to NGED prior to issuance of this Connection Offer, including where any additional works are identified as being required:
- 5.2.1. following any studies on the Distribution System (including, but not limited, steady state, transient or voltage stability studies) undertaken pursuant to clause 2 ; or
- 5.2.2. as a result of an increase in fault level ascertained following any calculations of the potential impact of the total contribution to fault levels in accordance with clause 2; or
- 5.2.3. in respect of any earthing pursuant to the clause headed 'Earthing' below,
- 5.2.4. in respect of any system protection pursuant to the clause headed 'System Protection' below,
- NGED may, at its sole option, terminate (with immediate effect by notice) the Agreement or require a variation to the Agreement, including the Connection Charge. Where NGED requires a variation to the Agreement (including, where relevant, the Connection Charge) NGED shall give notice of such required variation to the Customer and the Agreement shall be deemed to be varied accordingly as from the date of deemed service of such notice. For the avoidance of doubt, clause 14 of the General Conditions for Connection Works does not apply to any such variation. If the Customer does not accept (in accordance with its terms) or disputes any variation to this Agreement required by NGED as notified to the Customer, then NGED shall have the option to terminate (with immediate effect by notice) the Agreement.
- 5.3. Once final details of the Proposed Connection(s) and Customer Installation have been confirmed to NGED these shall be deemed to be included in this Agreement and any change to these will constitute a variation to which clause 14 of the General Conditions for Connection Works shall apply.
- 5.4. The Customer shall ensure that any voltage fluctuation or unbalance and harmonics caused by any of its electrical equipment or apparatus at the Customer's Installation does not exceed the levels laid down in National Engineering Recommendations P28, P29 and G5/5, as amended, and if appropriate, as modified by NGED.
- P28 covers 'Planning limits for voltage fluctuations caused by industrial, commercial and domestic equipment in the United Kingdom'
 - P29 covers 'Planning limits for voltage unbalance in the United Kingdom'
 - G5/5 sets down the 'Limits for harmonics in the United Kingdom supply system'
- 5.5. The short-term flicker severity, Pst, as defined in Engineering Recommendation P28, caused by the Customer's Installation shall be limited to 0.5 at the point of common coupling. The Customer's Installation shall be designed such that it is possible, if so required, to introduce sequential switching to ensure a minimum period between each operation that causes voltage step change consistent with the above flicker limit; examples include switching of each generator, switching of each transformer, switching of load etc. The magnitude of the voltage change caused by the operation of the Customer's Installation shall be limited to 3%.
- 5.6. Where appropriate, NGED may define harmonic limitations that take account of the multiple connection applications to the same part of the Distribution System to give equitable treatment for all. This means that the Customer may be allocated a portion of the margin between background level and planning level as set out in G5/5, rather than allowing one connection to take the whole margin.
- 5.7. NGED will not Energise the Customer's Installation or (as relevant) enter into an amended Connection Agreement until NGED is satisfied the requirements of G5/5 and P28 are met and

any required mitigation put in place. The Customer's choice of equipment may influence the need for mitigation significantly (e.g. harmonic emissions produced by equipment with a similar function can vary substantially with some makes/models being cleaner than others). If requested by the Customer, NGED will undertake Stage 2 power quality assessments under G5/5 and P28 following acceptance by the Customer of this Connection Offer.

- 5.8. The Customer shall not connect any electrical equipment that may adversely affect the supply of electricity to others and/or cause disturbance outside of acceptable limits to the Distribution System without NGED's previous written consent, which will not be unreasonably delayed or withheld. Such equipment includes motors, welders, furnaces, high power appliances, convertors (e.g. rectifiers, switch mode power supplies, uninterruptible power supplies, battery chargers, high-frequency induction furnaces and variable speed drives), regulators (e.g. AC heating and lighting controls) and other equipment with non-linear voltage/current characteristics (e.g. arc welders and arc furnaces). Consent may be granted for equipment subject to specified operating restrictions required by NGED. NGED may base any consent upon estimating the disturbance caused by the proposed equipment (which cannot be precisely determined in advance) and taking a risk-based approach to the likelihood of complaint. Given this it may be that, after the installation of any electrical equipment is complete, the disturbance levels are determined to be unacceptable, and/or complaints are received that are attributable to the Customer's equipment. NGED may de-energise the Connection Point or curtail the Customer's import / export (including to zero) where the Customer's Installation and/or any other electrical equipment which the Customer connects adversely affects any other customer connected to the Distribution System and/or causes disturbance outside of acceptable limits and the Customer shall be responsible for the costs of any remedial action that may be required as a result of any electrical equipment which the Customer connects (including to the Customer's Installation and/or the Distribution System).

6. Programme of Connection Works

- 6.1. A detailed programme of Connection Works has not yet been finalised. The programme will be discussed and agreed following acceptance of the Connection Offer and depending on the level of Contestable Connection Works to be undertaken by the Customer. By way of a non-binding indication, a scheme of this nature typically has a timescale of approximately 48 month(s) from the date of the Acceptance Form to Energisation or (as relevant) completion of an amended Connection Agreement.
- 6.2. Notwithstanding that a detailed programme of Connection Works is still to be agreed, this Connection Offer is made on the understanding that the following milestones are met by the respective milestone dates:
- 6.2.1. either;
- i) a valid planning application for the Customer's Installation and the Connection Works shall have been submitted to the local planning authority within two (2) months from the date of the Acceptance Form; or
 - ii) where an Environmental Impact Assessment (EIA) is required
 - a) the EIA assessment work has been initiated within two (2) months from the date of the Acceptance Form; and
 - b) a valid planning application for the Customer's Installation and the Connection Works has been submitted to the local planning authority within six (6) months from the date of the Acceptance Form;
- 6.2.2. the Customer
- i) has a freehold or leasehold interest in the land on which the Customer's Installation is or will be situated; or

- ii) has entered into an agreement to lease the land on which the Customer's Installation is or will be situated; or
- iii) has in place an option to purchase or to lease the land on which the Customer's Installation is or will be situated

within two (2) months from the date of the Acceptance Form or, subsequently, where the Customer no longer holds a freehold interest or leasehold interest or where an agreement to lease or option to purchase or to lease is no longer in place or exercisable, within two (2) months from the date on which any such interest is no longer held or agreement to lease or option to purchase or lease is no longer in place or exercisable.

- 6.2.3. planning consent for the Customer's Installation and the Connection Works shall have been granted within six (6) months from the date of the Acceptance Form;
- 6.2.4. a detailed programme of works is agreed within six (6) months from the date planning permission has been granted for the Customer's Installation and;
- 6.2.5. the Connection Works are commenced within six (6) months from the date planning permission has been granted for the Customer's Installation and the Connection Works (save for in the event that this milestone is missed as a direct result of an act or omission of NGED, other than where such act or omission is due to a Condition Precedent not having been, or continuing to be, satisfied or any other reason outside of NGED's reasonable control or any act, default or omission by the Customer, its employees, agents or sub-contractors or the Customer's breach of the Agreement or any statutory duty); and
- 6.2.6. where required Project Commitment is issued to NGED on or before the midpoint date between the date of confirmation of detailed programme of works and the date of commencement of works. The Project Commitment can be evidenced by any of the following;
 - Binding contract for main plant equipment; or
 - Staged payment made to the network company; or
 - Board paper Evidencing Final Investment Decision (FID); or
 - Subsidy award; and
- 6.2.7. As relevant, the Connection Works are completed and the Proposed Connection is Energised and/or a new / varied Connection Agreement entered within twelve (12) months of the date of commencement of the Connection Works (save for in the event that this milestone is missed as a direct result of an act or omission of NGED, other than where such act or omission is due to a Condition Precedent not having been, or continuing to be, satisfied or any other reason outside of NGED's reasonable control or any act, default or omission by the Customer, its employees, agents or sub-contractors or the Customer's breach of the Agreement or any statutory duty).
- 6.3. Upon request the Customer shall provide evidence to NGED's satisfaction confirming the progress against each of the milestones and that it has met, or reasonably believes it will meet, each one by the dates specified. If a milestone has not been achieved by the relevant date, or will not be (in NGED's opinion, at its absolute discretion) achieved by the relevant date, NGED shall be entitled, at its absolute discretion, to terminate, with immediate effect by notice, the Agreement or to require a variation to the Agreement, including the Connection Charge and the milestones and milestone dates. Where some progress is being made toward the relevant milestone, NGED may, at its absolute discretion, take account of this fact when considering whether to terminate or vary the Agreement. For example, if a planning application has been rejected by the local planning authority the Customer will be allowed to lodge an appeal within 6 months of the refusal and the milestones reset for dealing with such appeal.

- 6.4. Where NGED requires a variation to the Agreement (including, where relevant, the Connection Charge) pursuant to the terms of the clause above, NGED shall give notice of such required variation to the Customer and the Agreement shall be deemed to be varied accordingly as from the date of deemed service of such notice. For the avoidance of doubt, clause 14 of the General Conditions for Connection Works does not apply to variations made pursuant to this clause. If the Customer does not accept (in accordance with its terms) or disputes any variation to the Agreement required by NGED as notified to the Customer, then NGED shall have the option to terminate (with immediate effect by notice) the Agreement.
- 6.5. The date of Energisation (where relevant) and/or completing a new / varied Connection Agreement is dependent upon the Conditions Precedent set out in the General Conditions for Connection Works being, and (where relevant) continuing to be, satisfied (including no Connection Works Dispute arising or any such Connection Works Dispute being fully resolved and/or settled), Distribution System access, operational constraints, manpower availability, delivery times for cables, switchgear, transformers and other equipment and no Event of Force Majeure and/or a Distribution System emergency arising. Whilst NGED will use commercially reasonable endeavours to meet the Customer's requested timescales, NGED is not able to guarantee any particular date and shall not be liable to the Customer or any Third Party for any delay in the anticipated date for Energisation (where relevant) and/or completing a new / varied Connection Agreement or for any related costs, damages, expenses or losses resulting from any delay caused by any of the above mentioned matters.
- 6.6. Any costs for the earthing systems, substation extension, wayleaves, fault level correction, reverse power flow, intertripping, testing and commissioning, protection changes and additions that may require for the successful commissioning of this scheme to be paid by the customer in addition. If our final studies indicate any issues for connecting the generator as planned, offer need to be reassessed with other connection options. All prices quoted are subject to final bids and prices from contractors and suppliers. Any additional money required for the successful generation connection to be paid by the customer in full. A DSR contract required to ensure that the battery storage scheme is considered "restored" after being switched out under various network conditions. A full SQSS assessment will also need to be carried out by NGET.
- 6.7. The project need to comply with P2 class E and n-2. BESS need DSR to remain off or pre-fault ANM import curtailment and DSR contract to comply, where the BESS remain on. As per ETR130, if the customer requested for a single circuit security, EREC

7. Safety

- 7.1. Any work in the vicinity of NGED equipment must be carried out in a safe manner, including, as a minimum, compliance with the relevant Health and Safety Executive Guidance Notes available from HMSO.
- 7.2. In particular:
- GS6 - Avoidance of danger from overhead electric lines.
 - HS(G)47 - Avoiding danger from underground cables.
- 7.3. As part of the planning process and before commencement of any site works the Customer should contact NGED's Map Response Team to ascertain the location of any existing NGED apparatus on or in close proximity to the site and to take the necessary precautions to avoid possible danger from that apparatus. The NGED Map Response Team can be contacted on 0121 623 9780 or by email on NGED.MapResponse@nationalgrid.co.uk

8. System Protection

- 8.1. It is a condition to Energisation or (as relevant) utilisation of increased capacity in respect of an augmented connection, and the Customer's responsibility, to ensure that:
- 8.1.1. the operation of any generators in parallel with NGED's Distribution System conforms to National Engineering Recommendations G99: 'Requirements for the connection of generation

equipment in parallel with public distribution networks on or after 27 April 2019' (ERG99) as amended from time to time. This will include a requirement for interface protection, including loss of mains protection. The detail of this protection is to be agreed with NGED.

- 8.1.2. the proposed generation runs in parallel with NGED's Distribution System through the agreed Connection Point. Any alternative or back-up supplies must be subject to NGED's agreement and suitably interlocked.
- 8.1.3. the multiple generating units start (and under normal operating conditions, stop) sequentially with sufficient time delay between these operations in order to prevent P28 rapid voltage change limits from being exceeded.
- 8.1.4. there shall be no electrical interconnection between the proposed new electricity connection and any existing connection at the Premises.
- 8.2. Prior to any parallel operation of the Customer's proposed new generation with the Distribution System NGED shall, following sufficient notification from the Customer, witness commissioning tests carried out on the Customer's Installation with regard to compliance with ERG99 (as amended) as appropriate. NGED may charge the Customer for providing this service. Parallel operation with the Distribution System can only be permitted following written confirmation that the commissioning has been successfully completed by the Customer and, where necessary, witnessed by NGED. A minimum of two weeks' notice will be required for the witnessing to be arranged.
- 8.3. The proposed NGED-owned 132000 Volts metered circuit breaker at the Connection Point substation shall have installed as standard overcurrent and earth fault protection. In addition, depending on Distribution System configuration and operational conditions there may be a requirement for additional protection inter-tripping to be installed. NGED shall provide the Customer with details of the protection settings employed at the metering circuit breakers. It is the Customer's responsibility to ensure that these settings provide adequate protection of the Customer's Installation.
- 8.4. To ensure compliance with the Electricity, Safety, Quality & Continuity Regulations 2002 (as amended) the Customer shall ensure their equipment and installation is adequately protected, both mechanically and electrically.
- 8.5. NGED may consider accepting tripping signals from the Customer. Each request will be considered on its merits. Where NGED agrees to accept tripping signals from the Customer, normally open volt free contacts for this purpose shall be provided by the Customer.
- 8.6. NGED's Connection Point circuit breaker and its associated protection may be included in the Customer's protection scheme for the site. The inclusion of NGED's equipment and protection into the Customer's protection scheme is the responsibility of the Customer. This facility is provided entirely at the Customer's risk and (subject to clause 10.1 of the General Conditions for Connection Works) NGED shall not be liable for any costs, expenses, damages or any other losses arising out of or in connection with the facility. NGED shall provide the Customer with details of the protection settings employed at the Connection Point circuit breaker. It is the Customer's responsibility to ensure that these settings provide adequate protection of the Customer's plant and apparatus.
- 8.7. A trip operation of NGED's metering circuit breaker(s) shall cause the Customer's generator circuit breaker to be tripped. A single set of normally open 'remote trip' volt free contacts, for incorporation, by the Customer, into the tripping circuit of the Customer's generator circuit breaker, shall be provided from NGED's metering circuit breaker(s).
- 8.8. An emergency trip button (break glass type) shall be provided that will enable the Customer to trip the NGED circuit breaker. The location of the emergency trip button will normally be in the Customer's own substation or control room but this will be decided on a project specific basis in conjunction with the Customer's requirements.

- 8.9. Costs will be subject to review following the design of a full operational inter-trip scheme following completion of this Agreement.
- 8.10. The Customer shall be responsible for the costs of any communication channels required for telecontrol, protection and operational inter-tripping.
- 8.11. Please note, all protection requirements shall be agreed with NGED prior to installation.
- 8.12. Inter-tripping will be required between NGED's Distribution System and the Customer's Installation (inter-trip received from both NGED's and the Customer's Installation). Allowance has been made for a basic scheme. No allowance has been allowed beyond the metering circuit breaker(s) into the Premises. The responsibility and costs of this part of the inter-tripping scheme is to be borne by the Customer. Details of the final inter-trip scheme will need to be agreed with NGED. NGED reserve the right to amend its proposals and the Connection Charge to accommodate the Customer's protection proposal.

9. Earthing

- 9.1. The earthing system must meet the requirements of Engineering Recommendation ENA TS 41-24 (available from the Electricity Networks Association) and any NGED specification as notified.
- 9.2. Upon completion of the Customer's earthing system installation, the Customer shall provide NGED with detailed 'as constructed' drawings for the Customer's earthing system, including details of electrode size and installed depth.
- 9.3. It is the Customer's responsibility to ensure that the Customer's Installation has adequate earth fault protection, and no liability will be accepted by NGED if its earth terminal is used. The Customer shall allow NGED to connect to the Customer's earthing system at no cost.
- 9.4. Special precautions must be taken with telecommunications plant and strict working procedures adopted in the immediate vicinity of substations where the rise of local earth potential could under severe fault conditions exceed 430V. Where this limit is exceeded the site will be classified as 'hot'.
- 9.5. ENA Engineering Recommendation S36, as amended, defines the criteria for classification of substations and power stations as 'Hot Sites'. For safety reasons it may be necessary for mitigation to be applied at and in the vicinity of Hot Sites. If the NGED substation/Customer Installation is assessed to be a Hot Site then the Customer shall consult with Openreach to establish if any mitigation is required. NGED require written confirmation that Openreach agree to Energisation of the Hot Site or (as relevant) utilisation of increased capacity in respect of an augmented connection, before NGED will Energise a Hot Site or, as relevant, enter into an amended Connection Agreement. This confirmation must be relevant to the actual installed substation/Customer Installation. Note that sometimes sites that are predicted to be 'cold' do become Hot Sites if the earth impedance actually achieved is higher than predicted. As this can be identified late in the connection process it is recommended that assessments at the design phase are conservative and that consultation with Openreach occurs at an early stage to avoid prolonged delays to the Premises being Energised or, as relevant, an amended Connection Agreement being entered into, in the case of Openreach mitigation measures.
- 9.6. Before Energisation or, as relevant, an amended Connection Agreement being entered into, NGED will examine the Customer's earthing design to ensure that it complies with NGED's specification.
- 9.7. An earthing study must be carried out for the Premises to assess the earthing requirements for the connection. The costs of such a study shall be borne by the Customer. It is the Customer's responsibility to arrange this study and provide a copy of the results to NGED free of charge. On request, NGED will provide the necessary fault level and circuit information in order that these studies can be completed. NGED reserve the right to amend its proposals and the Connection Charge to accommodate the results of the earthing study.

- 9.8. The earthing system must be designed so that, if reasonably practicable, the substation does not become 'hot'. The costs of any works associated with making the Customer's Installation or NGED's substation 'cold', or for any remedial works by third parties due to either installation being 'hot', shall be borne by the Customer.
- 9.9. As the site is likely to be declared 'Cold' (as defined in ENA Engineering Recommendation S36), confirmation is required that step and touch potential limits are not exceeded on or off site. Making the site 'Cold' does not necessarily make the installation and adjacent properties safe for step and touch potential.
- 9.10. NGED has a duty of care to ensure it does not knowingly Energise a site or permit the utilisation of electricity that could be unsafe. NGED therefore require confirmation that the site is safe in this respect before it can approve the design. Touch and step potentials will need to be calculated and verified within the Customer's Installation and any adjacent properties.
- 9.11. Where the site is classified as 'hot' (as defined in ENA Engineering Recommendation S36), the Customer shall ensure that:
- there is adequate segregation between HV and LV earthing systems
 - there is adequate segregation between NGED's HV switchgear and the Customer's transformer / LV system / PV panels.
 - a NGED approved isolation transformer for the LV supply within the switch room / enclosure is provided by the developer.
 - adequate isolation equipment in the signal cables between NGED's control panel and the Customer's Installation.
- 9.12. Where the site is declared 'Cold' (as defined in ENA Engineering Recommendation S36), confirmation is required that step and touch potential limits are not exceeded on or off site. Making the site 'Cold' does not necessarily make the installation and adjacent properties safe for step and touch potential.
- 9.13. NGED has a duty of care to ensure it does not knowingly Energise a site or permit the utilisation of electricity that could be unsafe. We therefore require confirmation that the site is safe in this respect before we can approve the design. Touch and step potentials will need to be calculated and verified within the Customer's Installation and any adjacent properties.
- 9.14. Where the site is classified as 'hot' (as defined in ENA Engineering Recommendation S36), the Customer shall ensure that;
- there is adequate segregation between HV and LV earthing systems
 - there is adequate segregation between NGED's HV switchgear and the Customer's transformer / LV system / PV panels.
 - a NGED approved isolation transformer for the LV supply within the switch room / enclosure is provided by the developer.
 - adequate isolation equipment in the signal cables between NGED's control panel and the Customer's Installation.
- 10. Appointing a Supplier / Meter Operator**
- 10.1. Before a supply of electricity can be imported or exported through the new connection the Customer must ensure an electricity supplier is appointed and has registered in accordance with electricity trading arrangements. For a list of licensed suppliers please visit the Ofgem website, www.ofgem.gov.uk/Licensing.
- 10.2. Prior to connection, NGED will provide the Customer with an import and export supply number for the new electricity connection. The Customer will need to quote the supply number(s) to the electricity supplier of their choice in order to arrange an electricity supply. If the supplier fails to register the supply number NGED will be unable to Energise the connection.
- 10.3. For connections with a maximum demand above 100kW and a generation capability above 30kW, half hourly metering is mandatory. The Customer's appointed supplier may arrange for a meter operator to install half hourly metering or the Customer to appoint their meter

operator directly.

- 10.4. A list of meter operators can be obtained from the Association of Meter Operators, www.meteroperators.org.uk. It will be necessary for the Customer to ensure in conjunction with the meter operator, that suitable metering exists/is installed for the required level of import/export capacity.

11. Connection Agreement

- 11.1. Prior to Energisation of the Customer's Installation or (as applicable) utilisation of capacity in respect of an augmented connection the Customer or, where relevant, an end user of the Proposed Connection, must enter into a written Connection Agreement with NGED.
- 11.2. The new or varied Connection Agreement entered into with NGED will govern the terms and conditions under which the Customer's Installation may be connected (and remain connected) to NGED's Distribution System. The Connection Agreement is based on an industry standard and the terms and conditions contained therein are largely non-negotiable. Any request to amend the Connection Agreement will require a referral for legal advice and the Customer shall be responsible for costs incurred by NGED regardless of whether or not these changes or amendments are agreed and incorporated in the Connection Agreement.

12. Pass-Through of NGESO requirements

- 12.1. As set out in clause 5 of the General Conditions for Connection Works, this Connection Offer (including the Connection Charge) does not take account of any impact of the Agreement and the Proposed Connection(s) on the transmission system (including the outcome of any request for a Statement of Works (including any subsequent project progression) or Modification Application that NGED may be required to submit to NGESO in accordance with sections 6.5.5 or 6.9, of the Connection and Use of System Code (the "**CUSC**") (as may be adjusted as agreed between NGED and NGESO), or other similar process agreed between NGED and NGESO), as may be re-assessed or revised from time to time (an "**Evaluation of Transmission Impact**"). . For the purposes of this clause, an Electricity Storage Facility (as the same is defined in the Electricity Generation Licence: Standard Conditions) shall be treated as generation for the purposes of any Evaluation of Transmission Impact that may be required. NGESO will assess the impact of both the export and import requirements of an Electricity Storage Facility on the transmission system. The requirements of this clause apply to both the export and import requirements of the relevant Electricity Storage Facility and any fees, charges, secured amounts or any other costs or obligations shall be applicable in respect of the same.
- 12.2. Where the Customer is responsible for fees and/or costs associated with an Evaluation of Transmission Impact that may be required, NGED will notify the Customer in writing as soon as practicable after NGED receives confirmation of such costs and/or fees from NGESO, and will issue an invoice for the same. All such fees and/or costs associated with an initial Evaluation of Transmission Impact are payable by the Customer in advance of NGED submitting the relevant request or application to NGESO.
- 12.3. Should the Customer seek to make a significant change to its Proposed Connection (as described in this Agreement) following the date of the Agreement, or should the Agreement be terminated for any reason, NGED may be required (notwithstanding any termination) to submit or request a further, revised or new Evaluation of Transmission Impact to or from NGESO and/or to submit a request to vary an existing modification to NGESO.
- 12.4. NGESO may require works to be undertaken on the transmission system in order to accommodate the Customer's Proposed Connection(s), which will be identified in any response to an Evaluation of Transmission Impact and/or request to vary an existing modification. In the event of NGESO applying charges for these works, NGED will reflect these charges in its charges to the Customer. The Customer also acknowledges and accepts that:

- 12.4.1. if there are multiple generation schemes submitted under an Evaluation of Transmission Impact, any NGESO charges for transmission system works that are required in order to accommodate more than one such generation scheme (a "**Triggering Scheme**") will be apportioned between those relevant schemes. In the event that one or more Triggering Scheme is terminated for any reason, then the NGESO transmission system works costs shall be re-apportioned between the remaining schemes. For the avoidance of doubt, if there are no other Triggering Schemes, or all other Triggering Schemes are terminated, then the Customer shall be liable for the full cost of the NGESO transmission system works that are required in order for the Customer to connect; and
- 12.4.2. NGESO's proposals and estimated charges as set out in any response to a request for an Evaluation of Transmission Impact and/or request to vary an existing modification may be subject to further change, including an adjustment to reflect indexed costs in the year of invoicing, following detailed design, tender and safety assessment, or as a result of any cost benefit analysis identified by NGESO as being required and/or any re-classification of transmission assets that may be undertaken by NGESO from time to time.
- 12.5. Should transmission system works be required NGESO may apply a cancellation charge in the event that this Agreement is terminated or a reduction to the Maximum Export Capacity is agreed, which shall (without prejudice to any further or revised Evaluation of Transmission Impact and/or request to vary an existing Modification that may also be required to be submitted as a result of any such termination or reduction in Maximum Export Capacity) be payable by the Customer. NGESO may also calculate a secured amount in respect of this cancellation charge (being a percentage of the cancellation charge, which reduces at certain trigger points). NGED shall be entitled to require the Customer to provide security in respect of this secured amount. For the avoidance of doubt, the Customer will not be required to provide security in excess of the secured amount calculated by NGESO.
- 12.6. In addition to its right to terminate for non-payment by the Customer under clause 12 of the General Conditions for Connection Works, NGED shall be entitled to terminate this Agreement if the Customer, when requested to do so by NGED, fails to confirm that it will provide any security requested by NGED or fails to then provide such security, or fails to confirm that it will pay any sums for which it is responsible under clause 5.4 of the General Conditions for Connection Works.
- 12.7. In addition to liability for NGESO costs, the Customer acknowledges and accepts that:
- 12.7.1. due to the cumulative impact of new connections on the Distribution System, NGESO has identified widespread issues on the transmission system that require mitigation, and that NGESO may therefore require modifications to be made to the operating characteristics of the generator units on generator sites in some areas. This may include, without limitation, a requirement to operate at a different power factor to that proposed under the Connection Offer, to have the capability of operating within a power factor range and/or to reduce the export capability to zero at certain times. Any modification to the operating characteristics of the Customer's generator units required by NGESO will also be reflected in the Connection Agreement governing the Premises;
- 12.7.2. the Customer shall be responsible for the cost of any works required on the Distribution System as a result of the Evaluation of Transmission Impact and/or request to vary an existing modification;
- 12.7.3. any works required to the transmission system and/or Distribution System may be required to be completed as a condition of Energisation of the Proposed Connection(s) or (as applicable) the entering into a varied Connection Agreement;
- 12.7.4. any dates provided by NGESO for completion of any transmission system works are indicative and subject to change;
- 12.7.5. the outcome of an Evaluation of Transmission Impact and/or request to vary an

existing modification (including, without limitation, any requirement for NGESO to modify the transmission system) could severely delay the anticipated date for connection and Energisation of the Premises or (as relevant) the entering into of an amended Connection Agreement; and

- 12.7.6. the order of generation schemes submitted under an Evaluation of Transmission Impact will be based on the date of formation of the Connection Offer (that is, the date that NGED dates the Customer's signed Acceptance Form).
- 12.8. NGED shall not be liable to the Customer for any modification to the operating characteristics of the generator units required by NGESO (including any reduction of export capacity arising out of or in connection with such modification), any delay in the anticipated date for connection or Energisation of the Premises and/or entering into a new or varied Connection Agreement, any amendment to this Agreement or revision of the Connection Charge, or any costs, fees, damages, expenses or losses (including, without limitation, third party losses, loss of profit or economic loss) required as a result of or in connection with any Evaluation of Transmission Impact and/or any request to vary an existing modification.

Acceptance Form**Please complete Part B of this form and return to:**

Toll End Road
 TIPTON
 West Midlands
 DY4 0HH
 FAO: Gibu Jacob

The Agreement (including the General Conditions for Connection Works) between the Customer and NGED shall be formed when NGED dates Part C of this Acceptance Form.

Part A: Connection Details**NGED Ref:** 4920950**Premises:** New House Farm adj, Luzlow, Bagnell, Stoke On Trent, ST9 9JZ**Customer:** Ylem Energy Ltd**Company Number (if appropriate):** 02152229**Customer Address:**

Edison House,
 Daniel Adamson Road,
 Manchester,
 M50 1DT

Part B: (to be completed by the Customer)

I/We, the Customer, accept the terms of the Connection Offer dated 21/12/2023 (including the General Conditions for Connection Works) and wish to proceed on the basis of the option indicated below.

Option 1 – NGED to undertake both Non-contestable and Contestable works ☐

Option 2 – NGED to undertake the Non-contestable work only ☐

I/We, the Customer, accept responsibility for any reasonable costs that NGED may incur as a result of any termination in accordance with clause 13.3 of the General Conditions for Connection Works.

Signed.....
 for and on behalf of the Customer

Full Name.....

Designation.....
 (NOTE THAT THIS MUST BE SIGNED BY AN AUTHORISED PERSON)

Part C: (to be completed by National Grid Electricity Distribution)

Signed.....

for and on behalf of National Grid Electricity Distribution (West Midlands) plc Registered in England and Wales No. 36005
 Registered Office: Avonbank, Feeder Road, Bristol BS2 0TB

Dated.....

Customer SHE Risk Information
Construction (Design and Management) Regulations 2015

Hazard Category	Risk & Action Required	Further details attached?
Restrictions		
Site access/ egress		Yes / No
Proximity of live conductors/ other utilities		Yes / No
Adjacent land use		Yes / No
Space restrictions		Yes / No
Designated sites (SSSIs)/ invasive plants/ protected species (incl. nesting birds)		Yes / No
Site Conditions		
Asbestos		Yes / No
Confined spaces		Yes / No
Contaminated land/ radon		Yes / No
Ground conditions (incl. proximity of water courses)		Yes / No
Site Activities		
Vehicle movements (incl. heavy plant)		Yes / No
Fire/ hot work		Yes / No
Excavations		Yes / No
Work at height/ falling objects		Yes / No
Lifting operations (cranes)		Yes / No
Hazardous substances/ biological agents		Yes / No
Other		

Signed

Print Name

Dated

Job title

Company

Cost of Legal Fees Statement

1. The Connection Charge stated in this Alternative Connection Offer is:
 - 1.1 inclusive of the costs incurred by NGED specialist staff in, or arising from, securing, obtaining or procuring all the necessary Rights in Freehold Land and/or Rights in Leasehold Land, for example securing wayleaves or easements; and
 - 1.2 exclusive of NGED's solicitors fees and costs incurred in, or arising from, securing, obtaining or procuring all the necessary Rights in Freehold Land and/or Rights in Leasehold Land (where such professional services are deemed necessary by NGED, at its absolute discretion).
2. Should you choose to accept this Alternative Connection Offer and such professional services are deemed necessary be NGED in order to secure, obtain or procure any Rights in Freehold Land and/or Rights in Leasehold Land, we will instruct our solicitor to confirm their estimated costs for the work within their initial correspondence to you. Our solicitor will recover these costs directly from you or your appointed legal representative.
3. For guidance purposes only, our solicitors will normally charge in the region of £835 - £990+ VAT and disbursements. For more complicated or larger schemes these costs may increase.
4. Should you accept this Alternative Connection Offer and Rights in Freehold Land and/or Rights in Leasehold Land in respect of the Premises are required (as confirmed by NGED), please complete the form below and return it with your Acceptance Form in order to help us progress the legal aspects of the connection.

Land owner(s)¹ details

Land owners name(s):

Telephone/mobile:

E-mail:

Address:

Legal representative details

Legal representative acting for land owner(s):

Company Name:

Contact name:

Telephone/mobile:

E-mail:

Address:

¹ Please include details of the Freeholder plus any person with a leasehold interest of the land.

PLEASE NOTE: This plan ONLY shows assets owned by National Grid Electricity Distribution (NGED). Electricity assets owned by National Grid Electricity Transmission (NGET) and IDNO's (Independent Network Operators) MAY be present in this area.

