Public

Mid-Term (Y-1) Stability Market

Technical Requirements and Specification

Tender Year: 2025-2026

Delivery Year: 2027-2028 / 29

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Version Control

Version Number	Date	Notes
V1	14th January 2026	Instructions for tenderers during the Expression of Interest (EOI) and consultation stages of the tender. This document may be amended or updated at the Invitation to Tender (ITT) stage.
V2	28th January 2026	Changes made to the Power Oscillation Damping requirements. This is introduced under Section 2.5.

Introduction

This document presents the technical requirements and specification which solutions are required to meet for the third round of the Mid-Term (Y-1) Stability Market.

This document is made up of the following parts:

- Part 1 – Inertia Requirements
- Part 2 – Specifications
- Part 3 – Definitions

Part 1 – Inertia Requirements

1.1 Inertia Requirements

In light of declining levels of system stability and the increased costs of its management, NESO is launching a new stability market. This new Mid-Term (Y-1) Stability Market aims to procure firm, high-availability stability services on an annual basis from solutions which either are connected to the grid or hold a valid connection offer for the delivery year.

The third round of the Mid-Term (Y-1) Stability Market will aim to award contracts for the period from 1 October 2027 to 30 September 2028 / 2029 and will be aiming to procure 15 GVA.s[1] of inertia nationally. Where no single solution can contribute more than 5 GVA.s of inertia. This is a technology agnostic tender; any type of solution can partake provided they are able to meet the technical requirements, and the solution aligns with the GB Grid Code definition of GBGF-I or GBGF-S plants. For GBGF-I plants, the maximum H-Constant permitted is 25 MW.s/MVA.

[1] Note: This utilisation profile represents NESO's best view of the average utilisation a provider could expect to be utilised, this is an indicative range of utilisation and is not representative of the absolute minimum and maximum utilisation a provider could expect to be used. This utilisation profile is derived from several different possible scenarios that NESO has forecasted, and as such should be taken as indicative only. NESO will continue to review the forecasted utilisation prior to the tender submissions and communicate any change to this range with the market. Please also note that during the delivery year, the utilisation of each provider will differ, according to their relative merit order in the utilisation price stack.

Part 2 – Specifications

2.1 Location

There will be no locational requirement for the procurement of inertia services for this round (Round 3, delivery year(s) 2027-2028 or 2027-2029) of the Mid-Term (Y-1) Stability Market however, there is an overall aim to distribute inertia regionally across GB to avoid impacts from a local Rate of Change of Frequency (RoCoF) event. As part of the evaluation process, we will assess solutions so that no more than 12 GVA.s of inertia can be lost for a credible fault at any time.

2.2 Availability and Utilisation Profile

This tender is seeking 90% availability, as further detailed in the Instructions to Tenders document a new payment structure is being proposed for **Mid-Term 27/28.**

For solutions based upon GBGF-I technology there will be a one-part payment, based solely upon the availability of the plant, measured on a settlement period basis. The solution should be able to deliver the service in full if the provider has declared themselves available. The reactive power capability of the solution must be maintained as per Grid Code requirements were applicable, or the relevant requirements in section 2.4.

For solutions based upon GBGF-S technology, there will be a two-part payment. The first part of the payment will be based upon availability, measured on a settlement period basis. The second part will be based upon utilisation, the indicative utilisation forecast is that the service will be utilised between 15% – 25% of settlement periods in the delivery year[2]. The solution will be considered being utilised when it is connected and instructed to provide the inertia service to the system, during this time the solution would be expected to also provide the reactive power within the range of capability laid out in section 2.4. The solution should be able to deliver the full range of reactive power whenever the inertia service is instructed.

[2] Note: This utilisation profile represents NESO's best view of the average utilisation a provider could expect to be utilised, this is an indicative range of utilisation and is not representative of the absolute minimum and maximum utilisation a provider could expect to be used. This utilisation profile is derived from several different possible scenarios that NESO has forecasted, and as such should be taken as indicative only. NESO will continue to review the forecasted utilisation prior to the tender submissions and communicate any change to this range with the market. Please also note that during the delivery year, the utilisation of each provider will differ, according to their relative merit order in the utilisation price stack.

2.3 Inertia Capability

The provider must ensure that the solution will provide an inertial response with an inertia as defined in Equation 1. The inertial response must be provided for frequency changes both above and below 50Hz.

$$(1)\quad \text{Inertia} = \frac{\Delta P\, f_0}{2 \times RoCoF}$$

Where:

ΔP is the **Active Inertia Power** of the **Grid Forming Plant** for a frequency event of 1Hz/s (MW)

RoCoF is the Rate of Change of Frequency (RoCoF) in Hz/s

f_0 is the pre-fault System Frequency (Hz)

For **GBGF-I Plants,** the inertial response must be such that **Active Inertia Power** is provided without activating current limiting functions for a Rate of Change of System Frequency (RoCoF) whose magnitude is less than or equal to 1Hz/s.

For any Provider stacking with an existing Stability Contract (e.g., Stability Pathfinder Contract), the Inertia in Equation 1 must be additional to the inertia already under another Stability contract.

2.4 Reactive Power Capability

1. The Facility shall, following an Instruction, have the capability to provide Reactive Power within the range set out in the following table[3].

Purpose	**GEP/USEP Voltage (pu)**	**Active Power condition (if applicable)**	**MW at GEP/USEP**	**Lead MVAr at GEP/USEP (absorption: -ve)**	**Lag MVAr at GEP/USEP (injection: +ve)**
Required service (for **GBGF- I** and **GBGF-S**)	0.95	Maximum MW export			
		0 MW			
		Maximum MW import			

[3] Reactive generation and absorption values to be as specified by the tenderer in their tender submission. Relevant parts of the table to be filled in as required depending on technology type.

	1	Maximum MW export			
		0 MW			
		Maximum MW import			
	1.05	Maximum MW export			
		0 MW			
		Maximum MW import			
Required Service for **GBGF-I** only For **GBGF-S** this is only for information	0.9	Maximum MW export			
		0 MW			
		Maximum MW import			
	1.1	Maximum MW export			
		0 MW			
		Maximum MW import			

2. The reactive capability of Grid Forming Plants should be in accordance with the applicable sections of ECC.6.3.2. Any plant partaking in the midterm stability market must meet the minimum reactive capability specified for their technology type.
3. **GBGF-S Plant** for which there are no explicit reactive power provisions in the Grid Code, e.g., the **Grid Forming Plants** that do not export MW (e.g., synchronous condensers) should meet the requirement as defined in Figure 1.

4. **GBGF-I Plant** where there are currently no explicit reactive power provisions in the Grid Code (e.g. zero MW connections using static converter plant such as STATCOMs or SVCs) should meet the reactive power capability requirements defined in Figure 2.

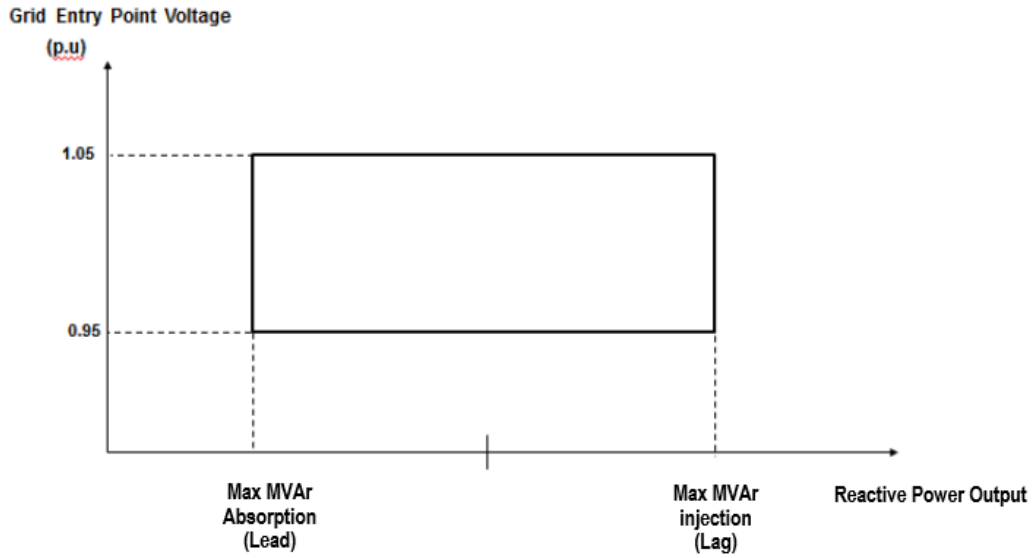

Figure 1: Reactive Capability requirement for GBGF-S Plants not specified in the Grid Code

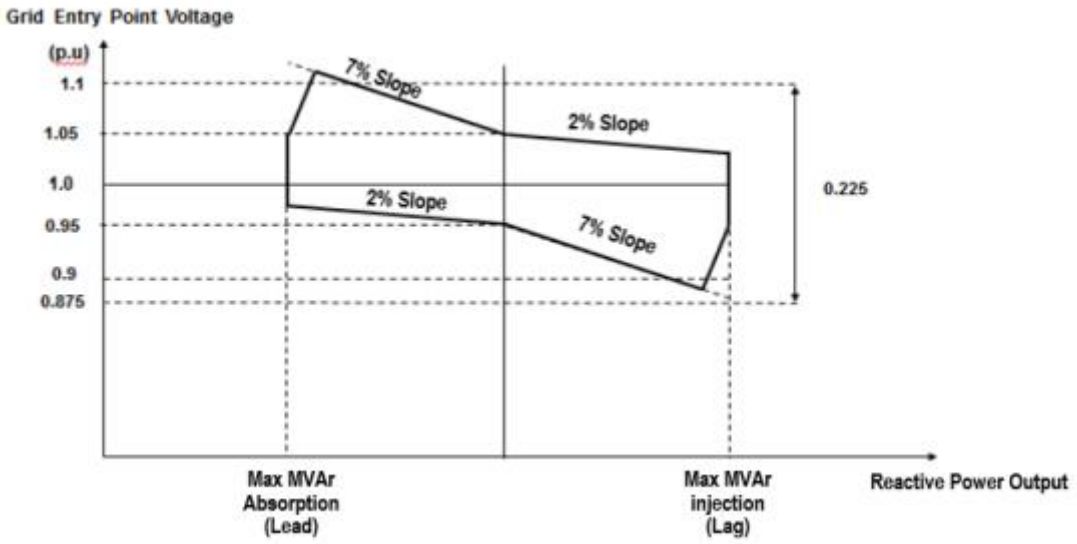

Figure 2: Reactive Capability requirement for GBGF-I Plants not specified in the Grid Code

5. The reactive capability must be fully achievable at the **Grid Entry Point** or the **User System Entry Point** where the voltage at the **Grid Entry Point** or the **User System Entry Point** is between 0.95pu and 1.05pu inclusive. Operating at any point within this reactive range should not limit the ability to provide the contracted inertia.
6. The solutions excitation and voltage control shall be in accordance with the applicable sections of the Grid Code (e.g., ECC.6.3.8) and as specified in the Facility's Bilateral Connection Agreement. For the avoidance of doubt, **GBGF-S Plants** and **GBGF-I Plants** not explicitly catered for in ECC.6.3.8 should meet the requirements of ECC.6.3.8.3 and ECC.6.3.8.4 respectively.
7. Any existing synchronous plant making changes to participate in this market, through means of allowing 0 MW operation. It is expected that their reactive capability is not less than their current stated maximum leading and lagging capability according to their HV Generator Performance Chart. This is to mean that the reactive capability of the machine will not be reduced when operating in 0MW mode.
8. Solutions with restrictions on their MVAr capability requirements, through their connection agreements can forego meeting the Reactive Power Capability requirements set out in this technical specification. In this case the solution should abide by the restrictions of their agreement.

2.5 V2: Power Oscillation Damping

1. The Facility shall be capable of active and/or reactive power oscillation damping achieved over a duration of 20s. The Power oscillation damping shall:

   1.1. Inherently or through a control system contribute to damping sub-synchronous frequency oscillations in the system's active or reactive power range over a frequency bandwidth of 0.3-2 Hz.

   1.2. Inject active or reactive current adequately in antiphase to achieve a reduction in oscillations (as described above) at the **Grid Entry Point.**

   1.3. Change the amount of active or reactive current injection proportional to the amplitude of the oscillations.

   1.4. Ensure the influence of any subsidiary control functions be no more than 10% of the machine rating.

   1.5. In addition, solutions based on **GBGF-I** technology are required to provide damping as described in this Guidance Note. Please note this Guidance Note is a live document on the **NESO** website and it may be updated from time to time.

   1.6. Solutions based on GBGF-S technology are required to provide damping as described in any future guidance published by **NESO**.

1.7. For Hybrid solutions, Providers must agree with **NESO** a methodology for the demonstration of Oscillation Damping Performance.[2]

1.8. For all plant any Sub-Synchronous Oscillation Behaviour assessment must consider the actual operation of the plant, including but not limited to the stacking of Active Power Services.

2. If the **Facility** is to operate with a Power Systems Stabiliser (PSS) capability as specified through its Bilateral Connection Agreement and the GB Grid Code then this PSS mode shall be used instead of the Power Oscillation Damping specified in 2.5.1. If at any time during the length of the contract, the **Facility** is not operating with a PSS, then the **Facility** will need to satisfy the requirements specified in 2.5.1

2.6 Other Technical Requirements

The Grid Forming Plant/ Facility must be able to:

1. Provide the value set out in Part 2.3 based on the normal operating mode of the Facility. These include, but are not limited to, steady state active and reactive power operating modes, operating modes at all system voltages specified in in CC.6.1.4 or ECC.6.1.4 (as applicable) of the Grid Code, whichever is applicable. For the avoidance of doubt, such operating modes should not limit the ability to provide the capability set out in Part 2.3.
2. In the event that the resulting Active Inertia Power would have caused the Facility to exceed its maximum overload capability or rated capability, a limited Active Inertia Power may be supplied up to its maximum overload capability providing this value is reflected in Part 2.3.
3. Each Grid Forming Plant Owner is required to confirm to **The Company**, about their repeated ability to supply Active Inertia Power in the event of successive frequency events of either +1Hz/s or -1Hz/s lasting for 1 second each, without the need to charge or discharge in between the events. Grid Forming Plant Owners should inform **The Company** of the maximum number of repeated operations that can be performed under such conditions and any limiting factors to repeated operation such as storage capacity available for inertial response.
4. Ensure continuous and controllable operation shall be possible at all system voltages specified in CC.6.1.4, ECC.6.1.4.1, ECC.6.1.4.2, ECC.6.1.4.3 of the Grid Code, whichever is applicable.
5. Ensure continuous and controllable operation shall be possible at all system frequencies specified in ECC.6.1.2.1.2 of the Grid Code.
6. All solutions must meet the relevant Grid Forming requirements for either GBGF-I or GBGF-S in ECC.6.3.19.

7. All Solutions must be able to meet the relevant voltage duration curves for connections at or above 110kV as specified in ECC.6.3.15 according to their relevant technology type. This requirement must be met regardless of the connection voltage of the solution.
8. Any solution connected to the distribution network must be able to withstand 0 p.u. voltage at the User System Entry Point for the duration of the local fault clearance time. The user shall inform the Company of the local Fault Clearance time at their User System Entry Point and demonstrate this capability through simulations. Please note this requirement is in addition to the Fault Ride Through (FRT) requirements in ECC.6.3.15.
9. For the avoidance of doubt, a Facility, with an existing connection and meeting the technical criteria is expected to comply with the specific sections of Grid Code referred to in this contract in addition to its normal Grid Code obligations.
10. Solutions must not be fitted with RoCoF protection relays or any other equipment which may impede their ability to supply Active RoCoF Response Power. [4]
11. Solutions based on **GBGF-I** technology, must remain in Grid Forming mode for the duration of the delivery year (1 October 2027 to 30 September 2028 or 2029) irrespective of the declared availability for the avoidance of doubt, changes from Grid Forming mode to Grid Following mode or otherwise will be prohibited throughout the delivery period irrespective of declared availability
12. Solutions based on **GBGF-I** technology, must fix their Inertia contribution for the year. This is to mean that the inertia value of the technology is not changed throughout the delivery year.
13. When the solution delivers an inertial response, there should be a limited impact upon the reactive power output of the solution. Any change in reactive power must be in support of maintaining the voltage setpoint at the **Grid Entry Point** or the **User System Entry Point**. The solution should have the inherent capability to independently control reactive and active power control.
14. For all technology types, the influence of any subsidiary control functions should be no more than 10% of the machine rating.

[4] Providers are expected to engage with the relevant DNO to understand the impact that any Grid Forming equipment may have upon their network. Providers should also clarify the impact of meeting these criteria upon the relevant DNO's networks and provide clarity to the Company on any Loss of Mains protection (including intertrips) equipment they have fitted. It is the expectation that DNO connected solutions would be fitted with an intertrip to provide Loss of Mains protection. Loss of Mains protection settings will impact upon the eligibility of solutions to partake in this tender.

15. Prior to the start of the stability service the provider must notify the host TO or DNO of modification to their plant (or otherwise update their connection offer) if required to update their technology type to reflect being Grid Forming.

2.7 Control and Indication Facilities

Where applicable, the transformer tap position shall be provided by the Provider at The Company's operational metering system control and data acquisition (SCADA) outstation interface, as specified in the Provider's Bilateral Connection Agreement.

1. Where applicable, the following facilities for voltage control and control of the stability service to **The Company's** instructions shall be provided by the Provider at a manned control point This data shall be provided through a system elected by NESO:
    - 1.1 Start-up of machine and transition to Stability Compensation mode.
    - 1.2 Shut-down of Stability Compensation mode.
    - 1.3 Availability of Inertia
    - 1.4 Target voltage setting (resolution 1kV) (for *Target Voltage* control mode).
    - 1.5 Control mode selection (Target Voltage).
    - 1.6 Slope setting (range 2% to 7%, resolution 0.5%.)

2. The following additional facilities for voltage/reactive power control shall be provided by the Provider. The Provider shall use all reasonable endeavours to adjust any of the following specified quantities on **The Company**'s instruction within 24 hours' notice. Adjustments including 3.1 and 3.2 shall not be made unless instructed by **The Company.**

    2.1 When operating in Voltage Control Mode, the control system shall be capable of operating to a Setpoint Voltage between 95% and 105% with a resolution of 0.25%

    2.2 Where applicable, the time for switching between Target Voltage mode and Constant MVAr mode (The value shall be within the range 5 minutes to 30 minutes, with a resolution of 5 minutes).

3. To accurately monitor the performance of a **Grid Forming Plant**, **each Grid Forming Plant** shall be equipped with a dynamic monitoring facility in accordance with the requirements of ECC.6.6.1.2 or an alternative solution as agreed with **The Company**.

4. For **GBGF-I** in addition to the DSM requirements set out in ECC.6.6.1.2 it is expected that the user installs additional monitoring equipment for the purpose of performance monitoring, this equipment should be capable of recording frequency, voltage, active and reactive power and current at a sampling rate of no less than 100Hz. This data should be held by

the **User** for at least 28 days. The accuracy of all Active Power, Reactive Power and their derived quantities should be at least +/- 1%. Further detailed specifications will be specified by **The Company**.

5. The signals which shall be provided by the **User** to **The Company** for Physical Testing shall be of the following resolution, unless otherwise agreed by **The Company**:
   5.1 1 kHz for **Grid Forming Plant** signals including fast fault current measurements.
   5.2 1 kHz for the other **Grid Forming Plant** tests.

2.8 Model Provision

1. Solutions with dynamic reactive power capability must, prior to commissioning, submit a dynamic (Root Mean Square - RMS) model and an electromagnetic transient (EMT) model in accordance with Grid Code PC.A.5.3 or PC.A.5.4 and PC.A.9 as appropriate. All solutions must also submit models in compliance with PC.A.5.8.
2. The Company may accept an open RMS model (i.e., transfer functions visible with no encryption on any block diagrams, equations or macros and not contain DLL code or requiring set up script to function) produced in DIgSILENT PowerFactory in a software version that is agreeable between the Company and the provider.
3. The provider must submit an EMT model in a software version that is agreeable between the Company and the provider 3 months before the Scheduled Commercial Operations date. Further to this the model must be accepted by the Company.

   Any model submitted should be in line with PC.A.9.4, PC.A.9.6 and PC.A.9.9. The model should be expected to be shared with the relevant TO and if it applies the relevant DNO. The model may also be shared with other users as a part of the compliance process.

   For more information around Model Provision please see Guidance Notes for Electro-Magnetic Transient (EMT) Models

4. The provider must submit a Performance Chart in accordance with Grid Code OC2.4.2.1.

2.9 Compliance Requirements

1. The **Company** shall provide a full set of test requirements no less than 1 year before the Scheduled Commercial Operations Date.

2. For **Grid Forming Plant Owners,** the Operational Notification Process contained in ECP.5 to ECP.7 shall apply in relation to the type of Plant to which the **Grid Forming Capability** is provided (be it a **GBGF-S Plant** or **GBGF-I Plant**) in order for the user's Facility to become operational.

3. For GBGF-I solutions all tests covered in ECP.A.9 shall be completed through physical testing. These tests must be completed to a methodology agreed with **The Company**.

Part 3 – Definitions

Term	Definition
Provider	Used to refer to whichever company is successful and contracted for provision of the stability service when referring to their obligations with the technical specification. Please refer to the contract for an exact definition
Solution	Any one asset or group of assets connected through one connection point/bay being proposed as a solution to the stability mid-term market. A change to the asset, or connection point would represent a completely new and different solution.
Facility	The term used to refer to the asset that is enabling the provision of the stability service through a contract, which a provider is responsible for. Please refer to the contract for exact definition.