# Connections Approach for the NOA Pathfinder Stability Phase 3 Tender

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nationalgridESO

# Contents

## 1. Purpose of this document

This document outlines the connections approach that will be followed for the NOA Pathfinder Stability Phase 3 (Stability Phase 3) tender and the reasons for adopting this approach.

This document will:

- Review the lessons learned from connection approaches adopted for other Pathfinders
- Explain the approach that will be followed for Stability Phase 3
- Explain why this approach has been selected
- Provide details on the connection approach and what tender participants can expect

Please note that the connections approach outlined in this document is **only** being used to facilitate the Stability Phase 3 tender at this stage.

National Grid Electricity System Operator (NGESO) has collaborated with the relevant TO, and held discussions with OFGEM, to enable this process for Stability Phase 3.

At this point in time NGESO is considering whether this approach could become an enduring solution and what amendments would be required, if any, to existing industry codes. The learnings from Stability Phase 3 and prior Pathfinders will feed into this review. **NGESO invite market participants to provide their feedback on this connection approach through the 'Technical and Connection Consultation Form', or alternatively by email to** box.ESO.StabilityP3@nationalgrideso.com

## 2. Lessons learnt from previous Pathfinders

To date NGESO has observed that Pathfinder requirements can be met by solutions that are either:

- Already connected to the network, and can offer additional capability, or,
- New solutions which are yet to be connected to the network.

The time and cost to connect these solution types to the network is a critical factor for the delivery of Pathfinders and creates an interaction between the connection process and the Pathfinder tenders.

Recognising the importance of this interaction and its complexities, previous Pathfinders have typically stated that having a connection offer is not a requirement of the tender process. Instead, a Connection Review has been completed in collaboration with the TOs and/or DNOs to get a view of the connection costs and delivery timescales. The Connection Review acted as a form of proxy for the standard connection process. Typically, the connection application would then be made by the successful bidder(s) upon completion of the tender.

NGESO has received feedback on the experiences with the connection approach on prior Pathfinders from both market participants and network owners. NGESO has reflected on this feedback and has identified some of the following lessons:

- The Connection Review can quickly become outdated due to the time between the Connection Review and the winning bidder(s) submitting connection applications
- Despite connections not being a requirement, some market participants elected to apply for connections
    - This increased the complexity of the TO and NGESO Connection Team assessments and workload
    - This created an artificial TEC (Transmission Entry Capacity) queue at sites of interest to Pathfinders, impacting the interactivity and cost of connections for customer connections that are both involved and not involved in Pathfinders
- The previous approach led to an influx of Connection Reviews/ connection applications to TOs and was one of the factors that led to delays in Pathfinder timetables
    - These delays impacted business planning of market participants
- The multi-stage tender process to support the Connection Reviews was not as time efficient as possible
- Information about TO-owned non-operational land was released to market later in the tender process

NGESO has reflected on the lessons and has used it to identify a new connection approach for Stability Phase 3.

## 3. What is the new connections approach and why was it selected?

For the purpose of the Stability Phase 3 tender, a number of connection points (bays) on the network have been pre-emptively reserved for the successful Stability Phase 3 tender participant(s).

This avoids the want/need for individual participants to submit their own connection application/modifications until the outcome of the tender is known. In reviewing this approach compared to the lessons learnt detailed in the previous section, the following benefits have been identified.

### Benefits of the new approach

- Minimises barriers to entry for tender participants that a) are not already connected, or b) have not already submitted a connection application.
  - This provides for all participants to have access to network connections without the need to submit and pay for connection applications prior to certainty of success on the Pathfinder tender, making the tender process more equitable.
  - This also results in a more economic and efficient Pathfinder procurement process by avoiding the creation of an artificial TEC queue.
- Provides the market with information about feasibility of connections earlier in the tender process by publishing a Connection Feasibility Report before technical and commercial submissions are due. This enables a more efficient use of bidder time and resources, and more accurate tender submissions.
- Reduces the risk for bidders and NGESO associated with waiting until contract award of the Pathfinder to secure connections. This better enables the network stability requirement to be met on time.
- Improves connection queue and interactivity issues for market participants looking to connect to the network who are not involved in the Pathfinder process, by avoiding the creation of an artificial TEC queue at sites of interest to Pathfinders
- Reduces TO and ESO Connection Team workload and dependency on TO reviews in the tender process, making the tender process more efficient for tender participants, the TO and the ESO.

While this new connection approach brings the above benefits within the tender, it could have an impact on new connection customers external to Pathfinders.

Holding back connection points will mean Pathfinder solutions are considered as part of the contracted background for any subsequent connection offer. This impacts any subsequent offers for connection customers external to the Pathfinder.

NGESO recognise the impact of this approach, but on balance believe that this new approach is an appropriate step to support the decarbonisation of the electricity network, considering the benefits of this approach for Pathfinder participants and non-Pathfinder participants.

## 4. Details of the Stability Phase 3 Connection Approach

For the purpose of Stability Phase 3 Pathfinder, the Transmission Owner (TO) will conduct feasibility studies and produce a Connection Feasibility Report (henceforth referred to as 'the Report'). The Report will be produced for the reserved connection points at substations that have been identified based on a balance of the following criteria:

1. Technical effectiveness at meeting the Stability Phase 3 requirements within the specific area of need
2. Substation site has a more credible connection opportunity than other sites within the specific area of need, given the current connection background. This will be further refined through system studies and collaboration between NGESO and the relevant TO before release of the Report.

The Report will be published to Stability Phase 3 tender participants during the tender, well-prior to the tender submission deadline. The Report will provide an indicative view of the connection date, transmission infrastructure costs and site details associated with connecting to the electricity network at the connection points that have been reserved. Tenderers should note that this information will be based on desktop assessments and that the TO will not conduct any site-based investigations to inform the Report.

Tender participants should use the Report to inform tender submissions. The Report will also be used by NGESO in the tender assessment. Detailed information about the Stability Phase 3 assessment criteria and methodology will be published with the Invitation to Tender later this year.

The bays already reserved by the NGESO and being studied by the TO are listed below in Table 1.

**Please note that as the detailed TO feasibility studies are yet to take place Table 1 is subject to change prior to the publication of the Report, i.e., the number of substations could be expanded, or some of the substations listed below may not be included in the final Report, should they not be feasible as a result of the TO feasibility studies. Furthermore, the MVA/ MW/ MVAr assumptions are also subject to change. NGESO assume no liability for any future change to this table.**

*Table 1**

| Site | Region | No. of connection points secured | Assumed SCL (MVA) Category** | Assumed MW | Assumed MVAr |
|---|---|---|---|---|---|
| **Hartmoor 275kV** | North East | 2 | Small-Med | ± 100 per bay | ± 100 per bay |
| **Offerton 275kV** | North East | 1 | Small-Med | | |
| **Walpole 400kV** | East England | 1 | Extra Large | | |
| **Yaxley 400kV*** ** | East England | 1-2 | Med-Large | | |
| **Necton 400kV**** ** | East England | 1 | Med-Large | | |
| **Canterbury 400kV** | South Coast | 2 | Large | | |
| **Richborough 400kV***** ** | South Coast | 1-2 | Large | | |
| **Langage 400kV** | South West | 2 | Small | | |
| **Landulph 400kV** | South West | 1 | Small | | |
| **Cilfynydd 400kV** | South Wales | 1 | Medium | | |
| **Upper Boat 275kV** | South Wales | 2 | Medium | | |
| **Rassau 400kV** | South Wales | 1 | Medium | | |

**Please note Table 1 is subject to change and the final list of substations where connection points are reserved, and associated assumptions, will be contained in the Report that will be published during the tender.* ***The final list of sites where bays have been reserved will be confirmed in the Report.***

*** Small = in the region of 500MVA, Medium = in the region of 1200MVA, Large = in the region of 2000MVA, Extra Large = region of 3000MVA. The assumed solution size will depend on the final number of connection points reserved following TO feasibility studies. This will be confirmed at the time of launching the tender.*

****NGESO understands that Yaxley is a new build substation where there is potential for new bays. The detailed studies conducted by the TO will explore the feasibility of this. The Report that will be published with the invitation to tender will confirm this.*

*****Please note that this connection point available at Necton is contingent on a generation connection proceeding.*

******There may be potential for 2 bays at Richborough. This is contingent on another connection proceeding. The detailed studies conducted by the TO will confirm the feasibility of this reservation and this will be confirmed to participants with the full tender.*

NGESO are aware that the bays listed overlap with regions where there are currently MW constraints. Market participants should be aware that this may impact the cost and time for delivery in those areas where participants wish to have MW capability.

For each substation included within the Report, a connection point has been reserved in anticipation of the connection(s) of the successful tender solution(s). These connection points will be treated as unavailable and therefore in the contracted background for any subsequent connection application, until the successful tender participants make their connection application.

## What does this mean for tender participants who wish to participate in Stability Phase 3?

This means that where tender participants plan to connect their solutions to the network using one of the substations in the Report, having a connection agreement in place **is not a pre-requisite for participating in the tender.**

Following contract award, successful tender participants that plan to connect their solution(s) to the network through one of the reserved connection points in the Report will be asked to apply for their connection using the formal connection process. Assuming there are no issues with the bidder's application (e.g. see the final question of this section), they will receive a connection offer based on the connection point that has been reserved by NGESO.

Please note that tender participants will be asked to identify which of the connection points would be utilised for the solution in their tender submission.

## Can tender participants submit proposals for more than one of the substations where a connection point as been held?

Yes, tender participants will have the opportunity to provide proposals for multiple connection points reserved across each of the regions of need.

Similar to the NOA Pathfinder Voltage Pennine tender, Stability Phase 3 will cap the number of solutions that tender participants can submit. This cap may be by region of need, in accordance with how many connection points have been secured. Details of this cap will be confirmed with the tender information.

Where one substation has two connection points (bays) reserved, NGESO are also exploring whether proposals can be bundled where one solution proposal is a two-bay solution. Details of this will be confirmed with the tender information later this year.

## What if a tender participant wishes to connect at a substation not reserved within the Report?

Should tender participants wish to connect within a SCL location of need but at a substation that is not reserved in the Report, and therefore does not have a secured connection point, these tender participants will be required to go through the standard connection process to receive a connection offer for that substation.

Such applications will follow the normal process such that system studies and assessments of the application will consider what is in the contracted background and earlier offers made, including what has already been held back for the Stability Phase 3 tender.

Should tender participants choose to connect their solution in this way, proof of a connection offer will be required as part of the tender submission. Please note that any tender participants who wish to take this approach do so at their own risk and cost. Neither NGESO nor any company within the National Grid Group will be liable for any result of doing so.

## What if a tender participant wishes to seek their own connection at a substation that is included in the Report?

If a tender participant wishes to submit a connection application at a site where a connection point has been reserved, but not use the specific bay that has been reserved at that substation, that connection application should follow the normal process. The system studies and assessments of the connection application will consider what is in the contracted background and previous offers made, including what has already been held back for Stability Phase 3.

This means that if a tender participant applies for a connection, their application will be treated as being behind what has already been held for the successful Stability Phase 3 tender participants.

Should tender participants choose to connect their solution in this way, proof of a connection offer will be required as part of the tender submission. Please note that any tender participants who wish to take this approach do so at their own risk and cost. Neither NGESO nor any company within the National Grid Group will be liable for any result of doing so.

## What if a tender participant is already connected to one of the sites reserved in the Report?

In the event a tender participant is already connected (or will be connected) at one of the sites listed in the Report but requires an update to their connection, the reserved position in the queue could be allocated if the tender participant is successful.

Therefore, a modification application would be required, and this can be submitted post-contract award. The modification process would be based on the held connection point.

NOTE: Existing connections will also need to satisfy the additionality criteria to meet the requirements for this tender.

## What if a tender participant is already connected, but at a site not listed in the Report?

If a tender participant is already connected at a site within a SCL location of need, but not at a site reserved in the Report, this participant would be required to go through the modification application process for any updates to their connection.

Proof of a modification application offer will be required as part of the tender submission criteria, should tender participants need to update their existing connection. This is because a queue position is not secured for these sites.

NOTE: Existing connections will also need to satisfy the additionality criteria to meet the requirements for this tender.

## What if a tender participant wants to connect or is already connected at a site outside of the SCL location of need?

NGESO is not accepting any submissions for the Stability Phase 3 tender that would connect at sites outside of the SCL locations of need.

## What does this mean for connection customers who are not interested in Stability Phase 3 but wish to connect at a site where ESO have a position held for Pathfinders?

Such customer connections will follow the normal connection process where system studies of the applications will consider what is in the contracted background; this will include the positions that have been held for Stability Phase 3. The impact will be that these connections offers might see an increase in cost and/ or a longer connection date if that customer chooses to connect in the same area as one of the sites considered in this Pathfinder.

NGESO recommend that these customers engage with NGESO and NGET connections teams for a pre-application call to understand the feasible connection options available.

## Is there a risk that the positions have been held and then might not be used by Stability Phase 3 solutions?

NGESO have identified the number of connection points to reserve by considering the SCL and inertia requirement and the average solution size from previous Pathfinders to calculate the likely portfolio of solutions that will meet the Stability Phase 3 requirement in each location of need. However, this is only a forecast and will only be verified as result of the tender process.

NGESO have not reserved more (or less) connection points than the NGESO feel is needed to fulfil the Stability Phase 3 requirement.

There is a potential that not all the connection points held for Stability Phase 3 are required for the number of solutions that are successful at the end of the Stability Phase 3 tender. For example, this could occur where multiple already-connected solutions are successful (having met the additionality criteria).

If this is the case, the connection points reserved but not used will be released and where possible any offers made based on this being in the background will be reviewed in accordance with the normal connection process.

## Is there a risk that the ESO reserved connection points cannot facilitate the size of the successful solutions?

If following the tender assessment NGESO require more capacity at a site than originally assumed to facilitate the successful solution(s), NGESO reserve the right to work with the successful solution(s) at said connection point to increase the capacity of the solution to cover any gaps exposed during the tender assessment.

## What if a successful tendered solution and its connection application is fundamentally different to what has been reserved?

The assumptions that will be considered and associated with the TO feasibility studies and reservation of each connection point are detailed in Table 1 above. These assumptions will be confirmed at the launch of the tender.

Should a solution exceed or be fundamentally different to these assumptions, tender participants should anticipate variations to the indicated costs and connection timescales included in the Report. For example, if a solution is submitted as 1000MVA for a connection point where 500MVA has been assumed, this could trigger additional works within the connection, impacting the indicative cost and connection timescale in the Report.

Please note that if a tender participant initiates a substantial increase in the size of their solution post-tender award, any increase in the cost of connection resulting from such change would be borne by the tender participant i.e. the tendered price for the service will not be adjusted. Furthermore, tender participants will also need to ensure that the service start date, stated as part of the tender return, is not impacted by the increase in size.

## 5. Details of the Connection Feasibility Report

The next section describes what is expected to be included within the Connection Feasibility Report (the Report) that will be produced by the TO.

The Report is expected to include:

- The final list of substations where connection points are being held
- Identification of available bays at these substations
- What, if any, substation TO reinforcement works are required to extend the substation
    - These works will be categorised into infrastructure assets only and the standard CUSC ownership boundaries will apply. User assets will be the responsibility of the tender participants.
    - A single line diagram will be provided to identify the infrastructure assets, and user assets.
- Available Fault Level headroom, MW and MVAr headroom at the time the Report is issued
- Identification of any available TO non-operational land including substation layout diagrams to demonstrate where this land is located and access information to the land
    - Please note that NGESO has not and will not be reserving any land for tender participants
    - Please also note that NGESO is attempting to organise site walks for bidders at the substations with reserved connection points
- High-level assessment of lead time and earliest in-service delivery date (EISD) for the TO works or reinforcements. This will be indicative.
- Estimation of infrastructure costs involved in connecting a solution to the network for each site within the Report. This will be indicative and may not consider site-specific risks at this stage.
- More complex studies assessing the impact on system stability, power quality, sub-synchronous interaction, protection, etc. **will not** form part of the scope of the connections review process.

## 6. Additional Notes

- The list of substations, connection points and assumptions identified in Table 1 is subject to change during the duration of the study work prior to the publication of the Report.
- Tender participants are to recognise that any indicative costs and indicative dates provided in the Report are subject to variation in the connection process, should tender participants be successful in Stability Phase 3 and required to go through the connection process.
- The TO will assume that all connections will be SQSS (Security and Quality of Supply Standard) compliant.
- The studies will be based on assumptions agreed between NGESO and the TO. These assumptions will be stated in the Report that will be issued to tender participants.
- Categorisation of infrastructure and connection assets (if applicable) will follow the principles laid out in the CUSC (Connection and Use of System Code), Section 14 - Charging Methodologies.
- Infrastructure costs are not directly borne by the tender participant but will need to be secured for by the tender participant in the formal connections process. The infrastructure costs will be accounted for in the assessment stage by NGESO and do not need to be included in the commercial bid of the tender participant. The tender participant will need to account for any costs for the provision of security in their commercial submission.
- Connection charges (where applicable) and costs of user assets will need to be accounted for by the tender participant in their commercial submission.
- While the Report will provide information on whether there is any available TO non-operational land near substations, tender participants are responsible for gathering and using information about land availability, planning permission or similar rights within any tender submissions or project planning. NGESO, or any other company within the National Grid plc group, shall not be held liable for this information and how it is used within tender submissions or project planning.
    - https://www.nationalgrid.com/uk/electricity-transmission/network-and-infrastructure/working-near-our-assets
    - https://nationalgridlive.e-permits.co.uk/banners/nationalgrid/banner1.htm
- The outcome of the connections approach is not binding and is the best indicative view that can be provided at the point of issue. Any successful tender participant that does not already have a connection agreement will still require a formal connection offer following the announcement of the tender results.
- Successful tender participants who are required to go through the connection process post-contract award should plan to submit a connection application no later than 1 week after the announcement of the tender results and application clock started no later than 1 week after submission of the application, thereby allowing 2 weeks between tender results and connection clock-start. This timing requirement will be confirmed within the Invitation to Tender.

- The duration of the formal connection application process should be assumed by tender participants when developing programmes. For more information on this process please visit:
    - https://www.nationalgrideso.com/industry-information/connections
    - https://www.nationalgrid.com/uk/electricity-transmission/connections

- All requirements and obligations from Grid Code, CUSC, NETS SQSS will apply. Any specific requirements will be reflected in the Bilateral Connection Agreement (BCA) when a connection offer is issued.
- All user assets and works will be delivered by the tender participant who will seek and ensure that they have all necessary consenting rights, permits, land rights and access.
- The tender participant needs to ensure that they have the appropriate licenses to deliver the service.
- If tender participants choose to commence any commercial planning or make any commercial decisions prior to the publication of the Report, **NGESO, or any other company within the National Grid plc group, shall not be held liable for these plans or decisions, and does not accept any responsibility for plans or decisions made.**