

Commercial Assessment Methodology v2

Pennine Voltage Pathfinder

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Updates v2: TO residual value position updated (no change to status-quo) - Section 7.5, update to length of time for contract signature (and wording clarified) - Section 10.

1. Principles

- 1.1 This document sets out the approach National Grid ESO intends to take in assessing options submitted to manage voltage in the NOA Pennine Voltage Pathfinder.
- 1.2 The aim is to ensure all the voltage requirements in the defined regions are met at the lowest cost to consumers. This could be through contracting with commercial providers and/or recommending that the transmission owner builds an asset.
- 1.3 Queries can be submitted to box.pennine.tender@nationalgrideso.com. This document may be updated up until three weeks prior to the commercial submission deadline.

2. What we are procuring

- 2.1 We are seeking to fulfil the following requirements:
 - At least 200 effective MVAR within the North East Region (Region NE)
 - A total of at least 500 MVAR within the West Yorkshire region (Region WY), with
 - At least 100 MVAR within subregion WY1
 - At least 200 MVAR within subregion WY2
- 2.2 Within the North East Region, options can connect at any substation but will be given an 'effectiveness' factor based on how effective they are compared to a solution at Norton 400kV substation. The methodology for this is included with the tender documents. The preferred solution will be the option(s) that meet the 200 effective MVAR requirement at the lowest cost.
- 2.3 Within the West Yorkshire regions, the complexities of the network mean that an effectiveness approach can't be used. Instead, potential solutions will be technically validated, starting with the lowest cost solution and continuing until an acceptable solution is found. The preferred solution will be the most cost-effective combination of options which solves the voltage issues in the region. 500MVAR is the smallest amount of absorption which could result in a feasible solution, but the amount could be higher.
- 2.4 The service will be required from 1 April 2024 until 31 March 2034.
- 2.5 We will seek an overall solution which minimises our costs while allowing us to meet the requirements set out above. Options tendered through the pathfinder will be compared to options presented by the TO and, where relevant, to the cost of alternative actions such as the Balancing Mechanism.

3. Information Required for Assessment

- 3.1 The following information will form part of the economic assessment:
 - A price in £ per settlement period (£/SP), which should be inclusive of all costs faced by the provider, for example all applicable network / use of system charges, levies & losses

- Steady state MVAR at point of connection¹.
- Connection location and voltage level
- Where a provider submits multiple options, they should indicate if any options are mutually exclusive to each other or part of an 'all or nothing' group
- Connection date

4. Proceeding to Economic Assessment

- 4.1 In order to proceed to the economic assessment, options must meet the tender rules as laid out in the Tender Information Pack and must pass the programme capability assessment.
- 4.2 The programme capability assessment will form part of the commercial submission and consider the ability of a provider to meet their programme. This could include details of the programme milestones and scoring based on a provider's financial standing, credit-worthiness, or if they are an existing provider. Further details will be provided in advance of the commercial submission stage.

5. Infrastructure Costs

- 5.1 When a user connects to the network, there are costs associated with assets for the new connection. Some of these will be connection assets where the cost is recovered from the connecting party through a connection charge. Others will be infrastructure assets, where the cost is socialised and recovered through network charges (TNUoS).
- 5.2 For solutions owned by TOs, the capital costs we receive will include the costs for assets which, for a user connection, would be infrastructure assets. Therefore, these costs are already part of the TO's costs as submitted for the assessment, while they do not form part of a commercial provider's tender bid price.
- 5.3 Commercial providers will have infrastructure costs added on to the cost of their contract for the assessment. The costs used will be provided as part of the connections review stage, or if a connection has a connection agreement then the costs in that agreement will be used. If the connection is not new, i.e. it already had TEC on the January 2021 TEC register, then the infrastructure costs of their connection will not be included. Costs from the connection review will be checked against the ESO's cost book to ensure accuracy, and we will also check that costs are consistent between connections. The costs we use will be specific to the location and connection type of each solution.
- 5.4 We are aware that some providers may plan to use their connection for the provision of other services. It is not possible to portion the costs up and reduce the infrastructure cost the project is assessed on as this would require us to make a judgement on the viability of future projects. If in the future you use the same connection to provide another service to the ESO, we will not count the infrastructure cost again for the assessment of that service as it will no longer be a "new" connection.

6. Availability Price

- 6.1 Each option should have an availability price per settlement period (£/SP) which should be inclusive of all costs faced by the provider. It will not be possible to change or negotiate the price after the commercial tender period closes.

Depending on the solution these may include:

- Cost to build the asset
- Ongoing operating and maintenance costs, including
- Energy costs (i.e. for losses), including all relevant levies and charges, e.g. Final Consumption Levies, TNUoS, BSUoS
- Connection charges, as faced by the user (i.e. not infrastructure asset costs, which are socialised and accounted for separately)

¹ For DNO connections, we will use the equivalent MVAR at the local Grid Supply Point(s), as calculated by the DNO assessment. See the Effectiveness Methodology for further details.

- 6.2 An estimate of connection costs will be provided by the connections review and these should be used to inform your bid if you do not have a connection agreement.
- 6.3 When considering the energy losses of your options, you should consider a maximum annual utilisation of 5500 hours.

7. TO Proposed Options

- 7.1 The Transmission Owner (TO) (which for the sites in this region is NGET) will also be invited to propose options which can contribute to meeting the needs as set out in this tender. These options will be provided to us via the regulated SRF (System Requirements Form) process and as such the way in which they are included in the assessment will be different. Instead of a contract with the ESO, the costs of TO assets will be recovered according to the TO's price control framework.
- 7.2 The TO's submissions will have to follow the same deadlines, submission criteria and technical criteria as other participants.

Capital Cost and Operating and Maintenance Costs

- 7.3 TOs will provide us with a capital spend profile to build a given asset along with costs for ongoing operating and maintenance and the amount of energy it consumes. We will calculate a present value representing the cost to consumers of proceeding to build and operate the option, following the Spackman methodology and using the relevant TO's weighted average cost of capital (WACC) as agreed in the RIIO-T2 price control framework.
- 7.4 We will check TO costs against the ESO's cost book to ensure accuracy and challenge the costs if necessary.
- 7.5 If a solution is submitted by an existing Transmission Owner via the regulated route, the assessment will assume that the total costs of the assets will be recovered over the contract length when determining a £/settlement period rate. Transmission owner assets and other commercial providers will be assessed on parity using a cost per settlement period basis, with no consideration of any residual value in the ESO's assessment.

Losses

- 7.6 The cost of energy losses from TO owned assets are passed onto consumers, not paid by the TO. However, commercial providers will have to pay for the energy their solutions use and are asked to build this cost into their bid. We will include an estimate of the cost of energy losses to consumers for TO solutions and add this onto a TO's assessment cost. TOs will provide details of their solution's energy consumption and using FES electricity price forecasts we will calculate an estimated cost for losses. We will assume 5500 hours of operation per year.
- 7.7 The four FES scenarios include different assumptions on the future price of energy, and consumers will be exposed to changes in this price. If we find that the solution is sensitive to the scenario used (i.e. that using the cheapest cost of energy leads to a TO option being selected, while the more expensive scenario does not) then we will perform a least-worst regrets analysis on the competing options. The tendered option's cost will remain the same in each scenario, while the TO's will differ with the energy price assumption. If choosing the TO in the most expensive energy scenario carries less regret than choosing the alternative in the least expensive energy scenario, the TO will be preferred. See Example 4.

8. Further notes on Assessment

- 8.1 Costs that are incurred across future years will be discounted back to a single year in line with the recommendations of the Treasury Green Book (i.e. a discounting rate of 3.5% for the first 30 years). Any spending by Transmission Owners, including infrastructure costs and any TO proposed solutions will be converted into a present value according to the Spackman methodology, using the TO's Weighted Average Cost of Capital (WACC) as published in their price control.
- 8.2 Tenders will be compared with Balancing Market counterfactuals where BM alternatives exist, as well as with TO build options where these are provided. If there are no such alternatives, prices will be

compared with historic voltage management costs. If the costs to obtain the required volume of options is excessively high compared with these costs, we may reject tenders with £/MVA_r costs that show significant deviation from the average accepted tender price. Providers are expected to be price reflective in line with the market.

- 8.3 If, following the feasibility studies, an option cannot meet a connection date of 1st April 2024, it may still be included in the assessment with additional costs added to represent the cost to the ESO of managing the voltage up until the option's connection.
- 8.4 Since the technical assessment and the requirements tendered for already consider the outages of each option, there is no consideration of the cost impact of equipment outages in the economic assessment. This is in contrast to the previous Mersey tender where solutions with different connection types and outage requirements were assigned costs for the required outages. This change is due to the more complex nature of the Pennine area and the limited options for using the BM to manage outages.

9. Finding the Optimal Solution

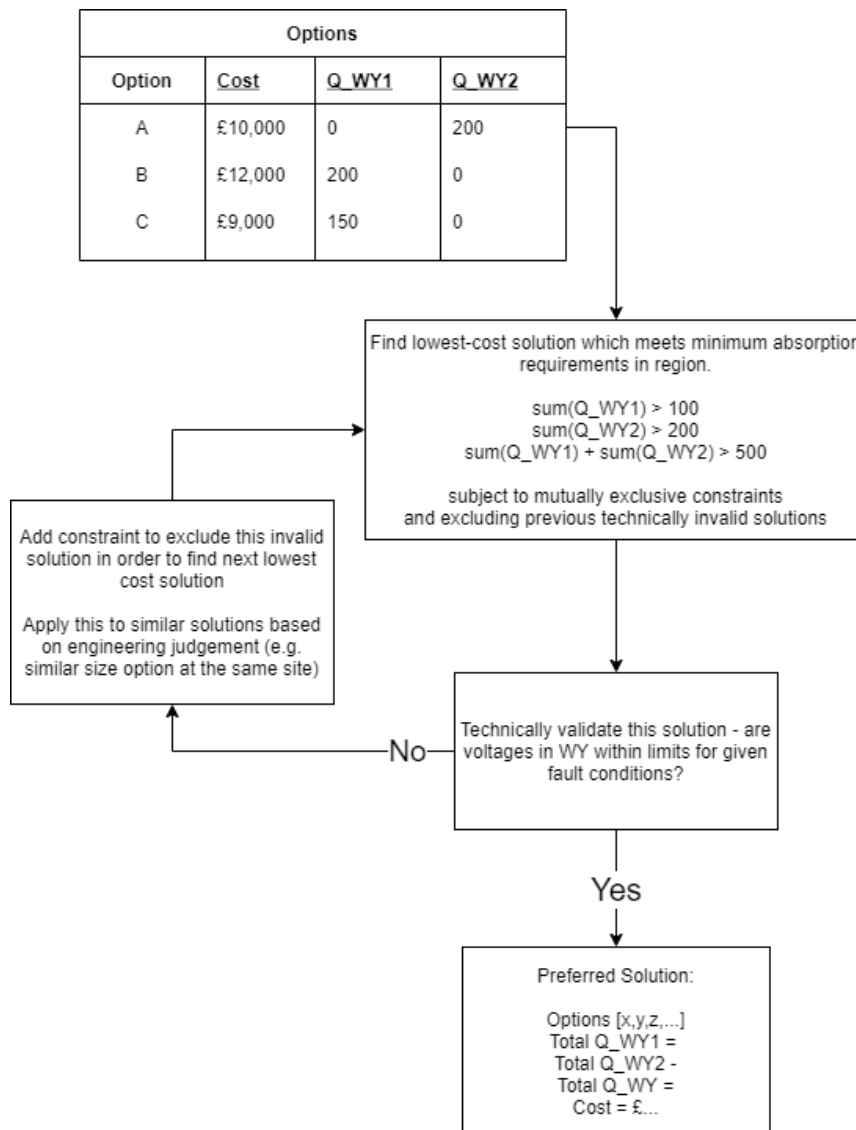
North East Region

- 9.1 For the North East region, the lowest cost option of combination of options which results in at least 200 effective MVA_r being procured will be chosen.
- 9.2 Once the optimal solution has been found by the economic assessment, we will validate that the solution is technically feasible when all selected options are working together. If the solution suggested does not perform as expected, then the next lowest cost solution which is technically viable will be selected instead.
- 9.3 Reasons for a solution not being valid could include interactions between the options which decreases the overall effectiveness, or options being selected which would occupy the same physical space.

West Yorkshire Region

- 9.4 For the West Yorkshire region, the requirement of 500 MVA_r is the minimum, based on optimal siting and sizing of assets. The amount of reactive absorption required to solve the voltage problem in this region may be higher. Complexities in the network mean that it is not possible to give a single effectiveness value for each site - the combinations of options must each be checked individually.
- 9.5 We will create a stack of initially feasible solutions by finding the lowest cost combinations of options which meet the minimum requirements described in Section 2. Each of these will be checked in turn to see if the solution is technically valid - i.e. that it does indeed result in a compliant network. If the first option is not valid, the next lowest cost solution which meets the requirements is found and checked, moving to the third, fourth, and so on until a valid solution is found.

9.6 The diagram below illustrates the process. Q_WY1 and Q_WY2 represent the MVAR in regions WY1 and WY2 respectively, this will be the stated MVAR capability for transmission connected assets, while for DNO assets this will be the MVAR capability as seen at the transmission level².



10. Re-evaluating the solution

10.1 Tenderers will have a maximum of 15 working days after NGENSO issue formal contracts for all parties to sign them. When communicating the results of the tender, NGENSO will make clear if any contract award is linked to another party also signing their contract.

Whilst NGENSO expect that all solutions that are successful in the tender will progress to a signed contract if selected as part of the optimal portfolio of options, there may be circumstances in which an accepted solution does not sign the contract as expected.

10.2 If within this 15 working day period an unlinked contract declines to sign, NGENSO reserve the right to re-evaluate that party's option(s) and procure the most economic replacement(s).

² See the Effectiveness Methodology, issued as part of the tender pack, for further details on how this is calculated.

If within this 15 working day period any of the linked contracts declines to sign, NGESO reserve the right to reconsider all the linked contract awards in this period. For avoidance of doubt, if in this period all the linked contracts are signed, within the 15 working day period this will not be required.

- 10.3 If upon the 15 working day signature deadline a party has failed to sign and not provided reason for not signing, NGESO reserve the right to re-evaluate that party's option(s) and procure the most economic replacement(s). The replacement(s) could be chosen from the previously unsuccessful tendered options, managing the system through the Balancing Mechanism, or re-tendering for the remaining requirement if necessary.
- 10.4 For this tender, no offers for the North East region would be linked to the West Yorkshire region. Within each region it is likely that all offers will be linked.
- 10.5 If we need to re-evaluate the solution after this period then we may procure the most economic replacement(s) only for the option(s) which have not progressed, while keeping previously accepted options as part of the solution. The replacement(s) would be chosen from the previously unsuccessful tendered options (while tenders are still valid). Selecting a replacement may lead to an overall less optimal solution than the original outcome and to over procuring against our requirements but will prevent the other options with signed contracts from being 'knocked out' of the solution after they have committed to delivering.