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NOA Mersey Voltage Pathfinder
Lessons Learnt – December 2020

Executive Summary

In November 2019 we published a tender for the NOA Mersey High Voltage pathfinder – a project which would compare commercial solutions with network owner solutions for the first time. The contract opportunity was for delivery of a reactive power service over a nine-year term starting in April 2022 and welcomed participation at both transmission and distribution levels. The relevant transmission owner (NGET) – acronym glossary in Appendix – took part alongside the commercial tender using the standard route but were included within the same assessment process.

The tender was completed in two stages – a technical stage, following which, participants received connection and effectiveness information on their solutions; and a commercial stage – which allowed participants to submit their commercial bids using the information from the technical stage. Tenders were submitted by 14 companies, covering 76 solutions. Contracts were awarded to the most economical solution – including connection costs and outage requirements – to PeakGen and Zenobe in May 2020. Ofgem noted this as a 'landmark decision' and acknowledged as a significant step forward.

This document captures the lessons we have learnt which we have shared with the tender participants and since reflected on their feedback.

Key areas of challenge:

- Ensuring a level playing field between commercial providers and network owners in contract terms and assessment
- Ensuring all necessary information is supplied promptly to all potential providers to prevent incorrect assumptions being made.

For future pathfinders, we will:

- Engage earlier with network owners to understand network limitations;
- Review our commercial assessment methodology between commercial providers and regulated network owners;
- Not supply extra information or update contract terms, tender principles, or assessment methodology after a certain date;
- Host opportunities for participants to engage throughout the process, including possible post tender discussions to clarify our expectations of what should be included in the tender submission;
- Be clear on what information will be shared and when, and what assumptions we will use such as generic vs site-specific;
- Be clear on the costs and charges which we expect participants to include in their submitted bid; and

- Require participants to submit full and final bids, accounting for any reasonable potential cost exposure.

Update since tender result

Throughout the Mersey pathfinder we have constantly evolved the process and service as we have learnt by doing – post contract award has been no exception. NGESO and PeakGen have experienced some challenges since the contracts were awarded on 22 May 2020.

- PeakGen assumed their solution would not be exposed to Final Consumption Levies (FCLs) based on the expected licence for their asset. PeakGen's application for an appropriate license is still being considered by Ofgem and it has become apparent that they may be exposed to FCLs which would incur significant costs not included in their tendered bid.
- Full connection applications were not required to participate in the tender. An alternative process to provide site-specific information was accepted and agreed with NGET. However, a consequence of this is PeakGen have been notified of additional site-specific NGET costs which were not provided during the tender process.
- Like many other companies, PeakGen have been affected by COVID-19, incurring costs above those included in the tendered bid.

PeakGen proactively approached NGESO seeking a way to recover these additional costs. Following discussions between NGESO, PeakGen and Ofgem, NGESO have agreed to allow PeakGen to recover some additional costs subject to a cap. The site-specific and COVID costs are fixed and will be included in an updated availability fee – as they are fixed capital payments. They are therefore subject to availability penalties. Any exposure to FCLs will be included as a MWh utilisation payment, paid on a pass-through basis – the advantage to treating FCLs separately is consumers won't pay if we get a conclusion before the end of the contracted period and therefore PeakGen will not be paid for FCLs if they are no longer exposed to them.

We believe this is the right deal for the consumer. The inclusion of the new fixed costs results in the PeakGen / Zenobe solution still representing the most economic Present Value outcome by ~£0.6m. Inclusion of the variable FCL costs is ultimately marginally less economic, however it remains our expectation that these costs will be avoided either before the contract commences or during the term.

Whilst the above approach has been retrospectively taken for the Mersey pathfinder, we do not intend to apply the same approach for future pathfinders. We recognise that there are many providers offering different technical solutions which all come with exposure to different and varying costs. We will therefore require all tender participants to account for any potential cost exposure by submitting full and final bids. This avoids the consumer taking financial risk via NGESO where additional costs are sought after contract award.

Further detail – including a revised results table – can be found in our specific statement for changes to the tender result on our website[1] under "Static Reactive Power – Mersey 2022 – 2031".

[1] https://www.nationalgrideso.com/transmission-constraint-management?market-information

Lessons Learnt

In the next section we have reviewed different areas of the procurement process, what we aimed to do, participants' feedback to us so far and, based on their feedback, what we will aim to do for future Pathfinder programmes.

Communication

This was the first time we ran a procurement event of this type comparing commercial and network solutions. There were some teething problems throughout, and we informed all participants at the earliest opportunity. However, some key information was still being communicated on the tender deadline day and we acknowledged the concerns this may have raised with participants.

We said

Throughout the tender period we kept participants updated with changes to contract terms and other tender information direct via email and uploaded to the website. Particularly towards the end of the tender period we let participants know of upcoming changes prior to issuing the change detail.

We acknowledge the potential for concern due to issuing information on the tender deadline day for outage durations and connection costs. We believe that there is a need to set a deadline for issuing any changes to contract terms, tender principles, and assessment methodology amongst others. Bearing in mind that there is always potential for necessary change or statement after this date. For example, if an assumption which impacts the cost of a connection turns out to be incorrect, the correction would be communicated to all participants.

Responding to queries was not always from the shared email address but often directly from an individual. This meant we did not update our FAQs (Frequently Asked Questions) document where relevant. There is a future need for an internal process to update FAQs regularly, which would also include the changes referred to earlier e.g. contractual updates and changes.

Participants said

Most participants agreed that a deadline for information sharing is necessary, due to the potential impact on their bid and internal governance processes, but there were a range of opinions on when or how far in advance of the tender submission deadline this should be.

Participants also agreed that our process for responding to queries was not consistent and that, where appropriate, responses should be shared with all participants.

We will

We are reviewing the timeline for the next voltage pathfinder in the Pennines region and are considering where the deadline should be. **The deadline for sharing information could be when we return the results of the technical feasibility studies**. As Pennine is a larger area than Mersey this could be eight weeks before the commercial tender deadline.

We are developing our process for responding to queries and updating an FAQs document. It is likely that updates to the FAQ document will be scheduled, instead of ad-hoc. We will include responses provided to all participants, where not commercially sensitive.

Pre-qualification and compliant bids

We said

We reviewed all submitted tenders to ensure compliance both at the technical and commercial submission stages. Some submissions showed that we needed to be more explicit in what could be considered as a non-compliant bid. We will look to improve the clarity of future proformas.

We recognise the disappointment felt by participants who could not continue to the commercial stage of the tender due to restrictions on the distribution network. In future, we will engage earlier in the process with

network owners to understand the limitations of their network and the lead times for delivering reinforcements to potentially avoid associated tender participation costs.

Participants said

Whilst some participants were happy with the proforma, others expressed a need for more flexibility to allow for multiple bid submissions and enter free comments to support the bid. We need to be clear why we are asking for certain information and that there are opportunities to discuss any issues with submitted bids before being classed as non-compliant.

The two-stage tender approach was praised and is expected for future tenders. Information should be supplied earlier in the process where possible to reduce the need to submit multiple bids, and for opportunities to adjust bids to reflect information returned to participants. A list of proven technologies was suggested to confirm which technologies can deliver the service.

We will

We will incorporate the suggestions to the tender proforma and allow for free comments to be submitted where possible. We can review this information and use it to clarify elements of the tender submission, but we can only use information submitted in the correct areas of the proforma in the tender assessment. We will also **offer opportunities for participants to discuss their bids after the submission deadline**. This approach has been used before in Black Start tenders.

We have engaged with the relevant network owners ahead of the Pennine voltage pathfinder. We are **reviewing the tender timeline with the network owners to see what information can be supplied when**. We are considering a list of proven technologies, but this would not have helped participants in the Mersey tender as the power factor restrictions on the distribution network was the limiting factor, not the participant technology.

Assessment (including transparency)

We said

We acknowledged we were not clear in the tender information pack that the costs of securing outages for each tender submission would be considered as part of the assessment. We had considered it within the short-term Mersey tender published in October 2019 but recognise the omitted information for this tender.

We used generic infrastructure costs and generic outage periods, depending on connection type, for use in the assessment. Some participants already had connection offers which meant they had specific connection costs and expected outage periods. As we did not require participants to have a connection offer prior to tender, we could not use connection costs for those who did have them as it could mean an advantage.

Future pathfinders could require participants to have completed some form of feasibility study with the relevant network owner prior to any tender, such that each tender submission would have site-specific costs and outage requirements. Alternatively, an extended technical assessment phase could provide this information for consideration in participant's commercial submission.

Participants said

Solution or site-specific costs and outage information are more desirable than generic. Provision of this information earlier in the process would also be preferable. But if generic information needs to be used then information relating to all connection types should be supplied and not just the tendered connection type.

There were mixed responses whether to require a feasibility study to be completed prior to a tender. Where there was support for a feasibility study it was noted that it needed to find the right balance between supplying information early in the process but that it did not overly prevent the participant making minor changes during the tender process. It was also noted that the network owner would need to be able to accommodate the study requests promptly and that study results should be as transparent as possible. Other responses suggested that feasibility studies were not a necessary requirement but could be left for

the participant to seek at their own risk to inform the connection costs for their tender price. However, there was also a view that the studies are part of the assessment process so the costs should be borne by NGESO.

We will

We will be **clear on how costs for securing outages will be considered in future assessments**. We were not able to publish these costs for the Mersey region due to the commercially sensitive nature of the data we used for this region of the network. However, it may be possible in future tenders for other regions.

We have reviewed the whole Mersey tender process and have engaged with the relevant network owners for the Pennine pathfinder. **We expect to publish generic connection cost and outage information at the outset, but solutions could be assessed on specific information**. We have also worked with the Stability pathfinder team and expect to adopt some of their approach, for phase two in Scotland, on application of effectiveness factors.

We acknowledge the potential impact on timelines by requiring completed feasibility studies prior to tender. We have reviewed the whole tender process to see what information can be supplied when and the benefits these would give to the assessment and consumer. **Our preference is to run a co-ordinated approach and pass all technical submissions to network owners for group feasibility assessment**. This delivers cost efficiencies and encourages multiple options to be submitted by a participant.

Participation and 'Level playing field'

We said

This pathfinder was solving a compliance need in the Mersey region. Reflecting on the penalties associated with this contract we feel there could be a need to introduce further stringent measures to ensure deliverability of solutions, both for the start of the contract period and during the contract term. For the Mersey pathfinder, we used a penalty scheme which was based on annual availability during the contract, resulting in penal payments below 90% availability. For future pathfinders, we will consider whether a form of acceptable security (such as bid bond, cash deposit, letter of credit or any other such form acceptable to the ESO) will be a condition of tender and whether the use of liquidated damages for any delay to the service commencement, unavailability during the contract term or early termination should be adopted. The Stability Phase 2 RFI published on 17 June 2020 proposes that prior to contract award due diligence will be carried out to check providers can meet their parameters.

Scottish Power Energy Networks (SPEN) took part in the tender, acting as a technical aggregator. Whilst we had concerns about potential conflicts of interest, the feasibility studies ruled out participation by distributed providers which prevented SPEN from continuing to the commercial stage.

From the very beginning of this tender we wanted to ensure that we ran as fair an assessment as possible between commercial providers and a regulated asset provided by the transmission owner – NGET. Our aim was always to find the lowest total cost to the end consumer. We were grateful to the participant who highlighted that commercial providers are exposed to losses and NGET are not. We amended the assessment methodology and added an estimated cost of losses to NGET's cost submission to mitigate this differential. We acknowledge that commercial providers are exposed to other costs, levies and charges which were not singled out in the commercial assessment. Table 1 in the Appendix shows cost exposure for different provider types. We will review the treatment of these for future pathfinders and tenders.
As part of the Targeted Charging Review implementation for the Transmission Demand Residual (TDR) definitions modification (CMP334) we raised an alternative solution that would exempt Single Sites that import Active Power from the transmission network solely for voltage support from paying the TDR. This – and other alternative solutions – received working group approval to be taken forward for Ofgem decision.

On 30 November 2020 Ofgem published their decision[2] to approve the CMP334 proposal, meaning that users who solely import active power for voltage support would be excluded from paying the TDR.

[2] https://www.ofgem.gov.uk/system/files/docs/2020/11/cmp334d.pdf

Participants said

Responses were in favour of introducing a bid bond to avoid speculative tender submissions and ensure that the winning bids deliver – commercially and technically. Those who did not see a need for securities suggested NGESO should conduct more due diligence on participants and submitted tenders, comparing these against reasonable thresholds early in the tender process.

The availability threshold of 90% was a low bar. Responses suggested that the tendered equipment/assets had much higher availability but acknowledged that the penalty regime drove the right behaviour. It was noted that NGET would not be subject to any availability penalty under the current regulatory framework. This means commercial solutions will incur higher prices to account for the risks associated with the penalty scheme.

There were many suggestions for ensuring a level playing field between commercial providers and network owners.

- Request clearer communication on how network owners can compete with commercial solutions and whether they can recover the investment costs in or out of the regulatory price period.
- Concerned that tender process includes TO/DNO, and that commercially and technically sensitive information is shared with network owners - two suggestions:
    - NGESO sets price threshold – if the market exceeds the threshold then network owners are approached to supply solution
    - Network owners supply costs to NGESO. These are published for the market to beat.
- Need earlier access to final effectiveness factors with one substation being highlighted as changing from 90% to 80% for a tertiary connection.
- There should be a process to hold incumbent network owners to cost, in the same way that commercial providers are.
- Remove the exposure to Final Consumption Levies (FCLs) for grid services – assets/solutions which are using energy to solely deliver grid services such as reactive power.
- Consider moving losses for commercial providers to system losses pot or pay for losses at wholesale (like Stability Pathfinder Phase 1) - removes risk premium added to commercial tendered price.
- Need to pass through more costs such as user connection costs.
- Increased transparency – share all information with all participants.

We will

We have considered the possibility of a bid bond but believe this could be too restrictive for some market participants and could reduce the number of options proposed by any one participant. We have **considered the possibility of a performance bond instead** which would incentivise delivery of successful tenders post contract award.

We will **apply a similar penalty scheme** to the Pennine voltage pathfinder as used for the Mersey pathfinder. Whilst network owners are not subject to penalties for unavailability, they still have an obligation to deliver a compliant network. We can share these concerns with Ofgem, but this is not something which we can account for in the next pathfinder.

We engaged with Ofgem on the tender process for the Mersey pathfinder and they supported the approach comparing commercial solutions with network owner solutions, including the use of the network owner System Requirements Form (SRF) process within the same timescales as the commercial tenders. We were satisfied with the level of confirmation from both network owners that conflicts of interest were being managed between the teams which assessed connections and submitted the solution(s). **We will include more information on how the network owners are taking part in the next pathfinder**. We understand

that the TO takes part under the regulatory framework and would recover their costs via their price control. The DNO would recover their costs through a contractual arrangement paid through BSUoS.

We have reviewed the tender timeline with the network owners for the Pennine region to see what information can be supplied when. **We expect to provide more information on site effectiveness at the start of the tender**.

We are aware that the TO is not held to cost in the same way that a commercial solution would be, however the TO is funded under a regulatory price control and this comes with regulatory requirements monitored by Ofgem.

We have conducted a targeted review into the treatment of FCLs for grid services within the voltage pathfinders. The **application of FCLs to demand sites is not something which could be changed before the next pathfinder tender as it requires regulatory change involving BEIS and industry consultation**. Instead, we considered ways to account for FCLs in contract and service terms, and the tender assessment. The potential proposals would mean the FCL risk is borne by the end consumer, but we believe that until such time as the necessary regulatory changes are made, the FCL risk needs to sit with the tender participant. This means **we will not be making any changes to the treatment of FCLs** in the next pathfinder tender. But **we are still committed to engaging in the discussion with BEIS, Ofgem and industry for the application of FCLs on grid services**.

We have worked closely with the Stability pathfinder team and considered alternative ways to treat system losses both in contract terms and the commercial assessment. We have concluded to continue with the same approach as Mersey for the next voltage pathfinder. The NOA Stability pathfinder phase 2 is also adopting this approach. **Participants need to account for losses within their tender submission**.

We have considered the treatment of user connection costs for reactive power only assets – as these costs would also be incurred by users supplying other services, **we do not believe they should be paid for under a reactive power contract**. They should therefore be included in the full and final bids.

We have heard the 'transparency for all participants' feedback, and we will ensure that – where appropriate – **all participants will have the same information throughout the tender process** e.g. available connections, generic connection costs for all connection types.

For future pathfinders we will work closely with successful parties to ensure progress is being made towards signing contracts as soon as possible. We will **consider implementing a deadline for signing contracts and reserve the right to return to the tender stack** for the next economic solution if a timely solution is likely to not be delivered. Where a solution is made from multiple options, we will consider whether they should be conditional on each other.

Timeline

We said

This was the first time we ran a commercial tender in this way, and we recognise there was always potential for delays. We encountered two main impacts to the timeline. First was the return of technical assessment results with added delays for participants wanting tertiary connections. Following participant feedback, we extended the commercial submission stage from three weeks to four. The second delay was a further extension to the commercial submission stage, allowing participants to reflect on any implications of COVID-19 and clarifications provided in an update letter on 20 March 2020. We will review the timeline for future pathfinders.
The Stability Phase 2 RFI published on 17 June 2020 has already adopted some learning and is proposing to allow three months between publication of contract terms and submission of commercial tenders - recognising providers' internal governance processes.

Participants said

Participants welcomed the ability to take part without the need to secure land or a grid connection and acknowledged that the COVID impacts were handled well by NGESO.

The original tender timeline was too constrained – particularly the commercial stage which did not allow for internal governance processes. The timeline between contract award and service delivery (just less than two years) was also tight.

We will

We have reviewed the tender process timeline with our stakeholders ahead of the next pathfinder. **We have extended[3] the timeline to reflect the size and complexity of the Pennine region and the feedback received from the Mersey pathfinder**.

Further feedback

Finally, we would like to thank industry for engaging with and taking part in the Mersey pathfinder tender, an industry first to compare commercial solutions and regulated assets. We are keen to receive further feedback from wider industry as we develop the next reactive pathfinder tender - you can send any comments to the pathfinder team via commercial.operation@nationalgrideso.com

[3] see announcement here https://www.nationalgrideso.com/research-publications/network-options-assessment-noa/network-development-roadmap

Appendix

Table 1: costs by provider type (as at 30 March 2020 and subject to change)

	Build Cost	Maintenance Cost	TNUOS - Generation	TNUOS - Demand	BSUOS	DUoS	Wholesale Energy	Retail Energy
Transmission Owner	Yes	Yes	No	No	No	No	No - costs covered by Transmission losses	No
Transmission Generation Connection	Yes	Yes	Yes, based on TEC	Yes, if take demand over Triad. Under TCR reforms would be zero.	Yes, but reform may move whole charge to Demand. Now £2.50/MWh	No	Yes - can purchase energy at £50 - £100 / MWh on the wholesale market	No
Transmission Demand Connection	Yes	Yes	No	Yes, if take demand over Triad ~£50/kW, but under TCR reforms from 2021, flat £ per annum	Yes, but reform may move whole charge to Demand (hence doubled) Now £2.50/MWh could be £5/MWh	No	No, uses Retail	Yes - including various levies and taxes
Distribution System Operator (DSO)	Yes	Yes	No	No	No	No	No - costs covered by DNO line loss factors	No
Distribution Generation Connection	Yes	Yes	No, unless >100MW. Future reform may charge generation TNUOS	Yes, if take demand over Triad. Credited Embedded Export Tariff for output over Triad ~£3/kW Likely to change	Depending on arrangement with Supplier, can obtain an embedded benefit up to a payment of ~£2.50/MWh	Yes – pay DUoS, but often a credit to the generator	No	Yes - including various levies and taxes
Distribution Demand Connection	Yes	Yes	No	Yes, if take demand over Triad ~£50/kW, but under TCR reforms from 2021, flat £ per annum	Yes, but reform may move whole charge to Demand (hence doubled) Now £2.50/MWh could be £5/MWh	Yes – pay DUoS on the RAG time band per DNO.	No	Yes - including various levies and taxes

Acronym glossary

BEIS – Business, Energy & Industrial Strategy

BSUOS – Balancing Services Use of System

DNO – Distribution Network Owner

DUOS – Distribution Use of System

FCLs – Final Consumption Levies

NGESO – National Grid Electricity System Operator

NGET – National Grid Electricity Transmission

NOA – Network Options Assessment

RFI – Request for Information

SPEN – Scottish Power Energy Networks

SRF – System Requirements Form

TCR – Targeted Charging Review

TEC – Transmission Entry Capacity

TNUOS – Transmission Network Use of System