

Pathfinders Markets Day Unanswered Questions

Q2. If a proposal can save billions for consumers, both one-off & ongoing, why can't you consider appropriate benefits sharing & life-of-plant contracts? Pathfinder only considers regulatory derogations.

As the Electricity System Operator, it's our job to keep the grid stable at all times so we can deliver safe and reliable electricity. This means that we are looking for solutions to challenges in the electricity system, which is carrying increasing amounts of energy generated from renewable and low carbon sources. The projects that look for these solutions are Pathfinders as we want to find innovative new ways to operate the electricity system of today and tomorrow, and keep costs down for consumers. Pathfinders are 'learning by doing' and engaging solution providers in an ongoing conversation about how we can improve tender processes for long-term contract opportunities. This will help to attract competitive and innovative service proposals, leading to contracts for the services we need. Pathfinders are the ESO's approach to answering these big challenges, but as the question suggests the potential impacts and need for solutions go wider than the ESO's remit to resolve. This is widely recognised and there is work in train to tackle many of these wider questions. For example early competition will impact licencing, regulation and codes and is being pushed forward by the ESO, BEIS, Ofgem, network operators, and industry participants. This is because the maximum benefit for end consumers will only be achieved by all parties pulling together as an industry.

Q3. If a technology can't deliver one service without another (e.g. constraint management or voltage/frequency regulation without stability), why can't the pathfinder cope with it by contracting for both?

Each service is trying to address a specific system need, reflected in the current tendering approach. We are not requiring specific technologies, but instead products that meet the technical specification. A product could be combination of different technologies. ESO is using the learning from the ongoing Pathfinders to understand if it would be economically beneficial to procure services separately, combined or simultaneously in the future.

Q6. just a quick one, where is the stability phase 1 delivered for?

The results of Stability Pathfinder Phase one are published on our website [here](#). Cruachan and Deeside have announced the commencement of their services. We are looking at how to be more transparent on future projects. No update to share as of now but will look to share info on our webpage, subject to it being allowed in the contract terms.

Q8. Congratulations to Triton Power's Deeside Station for going live this week with its Stability PF1 service this week after repurposing its decommissioned gas turbines - Recycling at its best

Innovations such as Triton's are part of our new approach to system stability, are cheaper and greener than the alternative, reducing emissions and saving money for electricity consumers. Triton Power's Deeside Power Station's two gas turbines have been repurposed to provide National Grid ESO with vital system support services as part of a six-year contract. Deeside will provide inertia and reactive power to keep power supplies secure without generating any electricity, reducing the need for carbon emitting generators to come online and enabling more wind and solar generation. It is believed to be the first conversion of a gas turbine rotor to provide standalone inertia and stability services anywhere in the world

Q9. Is the ESO being 'penny wise/pound foolish' by not procuring services for a longer period?

The decisions we make over the duration of our procurement is based on the overriding principle that we are delivering value for consumers. Long term contracts provide benefit for developers, as they can support investment funding in new flexible assets which would otherwise not be funded, and this then ensures that the ESO has a larger pool of potential providers which can increase competition. However, where there is already competition, long term contracts can lock us into paying for a service which may be above the market price and act to stifle innovation and competition. Short term contracts also give us the ability to manage our services to meet operational needs closer to real time and avoid the risk of over- or under-procurement. Through the work we are doing on the reform of balancing services and pathfinder projects, we are investigating both long- and short-term markets for flexibility, as we believe a mix of both approaches will best deliver value to the end consumer.

Q10. Is there any info published on which Phase 1 contracts are delayed coming online and when this will now be please?

We are looking at how to be more transparent on future projects. No update to share as of now but will look to share info on our webpage, subject to it being allowed in the contract terms

Q13. Scotland has lost vastly more inertia than the 3GVAs the Stability Ph2 p/finder will buy.is the Ph2 tender missing a huge opportunity to buy inertia? (Iven)

For phase 2, we are looking to buy up to 6 GVA.s based on system requirement studies. ESO expect there to be future opportunities/mechanisms to buy more if there are system needs.

Q16. Can you please confirm what the primary requirement of phase 3 will be - inertia or SCL?

Stability Phase 3 will be going to market for both SCL and inertia. More details on the technical requirement for phase 3 will be available to the market when the pre-tender information is published.

Q17. Please can NGENSO provide an update on whether they currently expect to top up any pathfinder contracts due to the requirement for providers to pay Final Consumption Levies?

FCL payments are tied to the designation of an asset/connection being demand. As highlighted in the challenge section of the presentation, we are discussing this point with OFGEM to understand the position. At present we are not minded to amend contract terms to compensate bidders who are obligated to pay FCL charges but we will keep this under review.

Q18. ESO being "penny wise, pound foolish" also applies to salami slicing services: a single inertial plant deliver balancing, ancillary, stability, constraint management etc. much cheaper than buying each alone.

We are committed to introducing markets and facilitating service stacking to fulfil our ancillary service needs while removing barriers to entry for market parties to maximise competition as we believe this provides the best outcome for end consumers. Bundling services potentially introduces barriers to participation as assets might not be able to provide all the services asked for which might preclude them from any tender. When we consulted on this topic through the System Needs and Product Strategy (SNaPS) Consultation, the overall preference of respondents was for discrete

products for each of our system needs. The key concern being that having a single market may introduce too much complexity and would reduce transparency. This is because it would not be possible to identify the value of each individual component of the service, which creates a barrier to new competition and new technologies and transparency in markets was a key preference from the industry.

In addition, the direction of travel from recent energy packages has been to move balancing service procurement to day ahead markets. This requires automation through an auction as procurement is so close to delivery and means that there is insufficient time to assess tenders manually, which precludes long term bundled contracts.

Q19. Allowing all providers to participate in Stability tenders/markets would ensure lowest cost solutions are selected. By excluding existing plant, how can ESO make claims of lowest consumer costs?

To date Pathfinders have allowed both existing plant with existing connections and new assets to participate subject to the additionality criteria of the tender being met. The reason for this is that the pathfinders are used to 'top up' what is already provided through the energy market. We believe to date we've designed the pathfinder tenders in a way that secure value for the consumer while meeting the operational requirements of the system.

We will be launching an innovation project to review a broader range of approaches for procuring stability. Once this has launched, we will be inviting views from the industry on this.

Q20. Please can the ESO confirm how much they are paying the TOs to undertake TO connection reviews for the stability pathfinder phase 2? This is relevant to the approach taken evaluating connections.

While we cannot disclose the actual amounts that they will be paid, the rates for the works carried out by the TOs is in line with the Charging Statement as published on their websites.

Q22. Pathfinders appear to be piecemeal short-term incremental change. Is there associated long term 10 to 20+ year vision, which matches typical lifetime of assets?

The longer-term vision is set out in many of our publications such as our Future Energy Scenarios, Bridging the Gap, Electricity Ten Year Statement and our market roadmap. However probably the most relevant document for this question is our Operability Strategy Report, which explains the challenges we face in maintaining an operable electricity system and how we are addressing them. Our work is framed by our 2025 ambitions, including 'an electricity system that can operate carbon free', 'competition everywhere', and 'ESO as a trusted partner'. While the focus of this report is operability and how we will deliver safe, reliable electricity supply today and into the future, the challenges we face in enabling the energy transformation are wide ranging. Across the ESO we continue to work closely with our stakeholders to ensure a holistic approach that looks across systems, markets, policy, technology and innovation as we develop and deliver solutions in response to those challenges.

Q23. Re: commercial structure, preferable for NGENSO to either pay utilisation direct (like phase 1) or have a utilisation fee. This would remove uncertainty around utilisation.

Thank you for providing that feedback. We have currently chosen to pay providers fixed fee for periods of availability (£/SP) to cover all costs of providing the service throughout the service term, however we are keen to understand how any developments to the payment structure could help reduce suppliers risk/costs to deliver additional value for end consumers.

Q24. End consumer will be benefited by lower cost by having longer pathfinder contracts. How ESO look at this aspect?

We currently have a range of contract lengths across the pathfinders, based on what the technical requirement of the system is. We believe to date we have found a good balance with meeting our operational needs whilst ensuring good value for money for the end consumer.

Q25. Any plans to value Stability from MW assets as opposed to focussing on zero MW assets?

This is part of the broadening out of technology types which is happening in phase two. MW services are able to participate as long as they meet the additionality criteria.

Q27. Re: commercial structure, we think important to add a prequalification stage like the capacity market to remove delivery risk for NGESO

Thank you for your feedback. To date Pathfinders have been structured as a two-stage process, requesting technical submissions before progressing to the commercials. We are looking to trial a one-stage process in the future where both technical/commercial submissions are submitted together to allow for a more streamlined tender process. Based on the learnings from the one-stage process we will review and consider alternatives such as a pre-qualification stage.

Q28. What level of early engagement by ESO with the supply chain as limited supply chain?

To date our engagement with the supply chain has been through our pre-tender market engagement, when we signal the need for a solution and run consultations with the market on the proposed technical requirement. We recognise that pathfinders are new and unique, making the supply chain limited. Despite this we have received very positive engagement from market players and are thankful to everyone who has helped shape what pathfinders look like to date.

Q29. It would be great if the ESO could provide better clarity of what stage pathfinders are at when looking at your website going forward.

Thanks for your feedback. we are looking at continuous improvements to the website.

Q30. I am interested in knowing how much you want to spend on each pathfinder project?

Our aim would be to secure these services efficiently and effectively and at the best overall value for the end consumer. We believe the tender process will allow us to effectively undertake this price point discovery.

Q31. When requesting DRC data, it is implied that the electrical information is true and final when in reality a lot of this information is difficult to attain until after a design, is this understood?

Similar to the existing connection processes, a certain level of technical information is required to undertake the necessary technical studies to understand how to facilitate a connection to the system.

It is understood that not all data is finalised, but when TOs are doing feasibility studies they are unable to make assumptions on behalf of tenderers. The requirement for data to be 'as close to final

as possible' seeks to reduce the risk that the feasibility studies will later be invalidated and post the tender process that required reinforcements / connection costs could change dramatically.

Q32. Is there a long-term plan to have the pathfinders develop into formal markets, akin to the rest of the ancillary services?

Pathfinders are a step on the way to a long-term solution. They fix an operability need, that long term we see provided by liquid markets. For example, there is the future of reactive markets work that long term will resolve the voltage market issue. For stability we see something similar. Shortly we will publish on the ENA website information about an innovation project that looks to engage industry to identify how a stability market might be delivered and implemented.

Q33. Thanks for answering the £8m/ saving Q. Given the pathfinders prevent existing plant from tendering how do you know you haven't got the cheapest stability offerings?

To date Pathfinders have allowed existing plant with existing connections to participate subject to the additionality criteria of the tender being met. The reason for this is that the pathfinders are used to 'top up' what is already provided through the energy market. We believe to date we've designed the pathfinder tenders in a way that secure value for the consumer while meeting the operational requirements of the system.

Q34. It is very difficult for providers to prepare to take part in pathfinders when locational requirements are not confirmed until the last minute. How can ESO signal locational requirements earlier?

We recognise that by making Pathfinders specific to locations of requirements, this triggers workload and project planning for tender participants.

Once the locations of requirement are known internally ESO have to identify how best to run the procurement event and manage the interaction with the connections process. ESO are attempting to strike the balance of signalling requirements of pathfinders as early as possible with certainty on how these other items will be managed. We are hopeful that the work on the ongoing challenges and future directions will help enable ESO to signal requirements earlier and facilitate a more efficient tender process.

Q35. Pathfinders exclude any generator in the July 2019 TEC register - FACT. This is discriminatory mkt entry and needs to be removed as limiting factor for consumers...

This is related to phase 2 stability. We have an additionality criteria which is not discriminating anyone but reflecting our system needs. Any existing generators if they met the additional criteria were able to participate. The suitability of the additionality criteria will be looked at as part of the stability market innovation project that will examine how a stability market might be delivered and implemented. More information will shortly be available on the ENA website.

Q36. An existing PSH plant has a contract in Phase I. Fact

The full list of tenders for Stability Pathfinder Phase 1 can be found [here](#) on the ESO website. To participate in phase 1, all services needed to be synchronous and able to deliver the technical performance requirements at OMW output.

Q37. Should the ESO put more resource into progressing the reactive roadmap rather than the voltage pathfinders? More value to be gained?

Pathfinders are the delivery vehicle, but the system needed is identified by our voltage strategy. We are about to publish the GB voltage screening report which indicates potential regions where there might be future voltage compliance requirements, signalling the need for a more detailed analysis and where potential new solutions could be required, whether build or non-build.

Q38. A market open to all allows market to deliver efficient solutions. Reliance on ESO "learnings" introduces inefficiencies / higher consumer costs. When will ESO introduce an efficient inertia market?

We will be launching an innovation project to review a broader range of approaches for procuring stability including inertia. Once this has launched, we will be inviting views from the industry on this.

Q39. How will you involve providers in discussions on whether synchronous compensators are generation or demand? Eg Flywheels = storage = generation

We have been approached by impacted parties and this has informed our views. We note that a synchronous compensator does not fit neatly into either generation (which includes storage) or demand within industry frameworks and that Ofgem has determined that flywheels are a form of electricity storage. Therefore, the discussion largely revolves around appropriate licencing, which is Ofgem's area of responsibility.