

# Stability Pathfinder Phase 2

Request for Information –  
Procurement process and  
timescales

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# Version control

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# Introduction

This Request for Information invites feedback on the proposed process and timelines for Stability Pathfinder Phase 2. We would especially like to understand how we can accommodate the impact of Covid-19 to maximise participation

The pack is split into four sections:

1. How to feedback	Outlines the process for providing us with your views
2. Context	Provides background to the Stability Pathfinder and links to documentation from previous steps
3. Phase 1 lessons learnt	Summarises lessons learnt from Stability Pathfinder Phase 1
4. Phase 2 outline	Gives an overview of the proposed process for Stability Pathfinder Phase 2

# 1. How to feedback

We would specifically like your views on the following questions

**Question one:** Do you have any feedback following Phase 1 which could help in the development of future pathfinders?

**Question two:** Are the timescales and proposed procurement process for Stability Pathfinder Phase 2 feasible from a provider perspective?

**Question three:** Is there anything we should consider to take into account the impact of COVID-19 on the Stability Pathfinder Phase 2 process?

**Question four:** What impact would requiring over 90% availability have on your ability to participate in the service?

**Question five:** Do you have any feedback on the published technical specification?

Please use the feedback form which is available [here](#) to respond to this RFI.

The deadline for submission of information is close of business 15<sup>th</sup> July 2020. Please send your responses via email to [box.networkdevelopment.roadmap@nationalgrideso.com](mailto:box.networkdevelopment.roadmap@nationalgrideso.com)

We will use the information received to inform our next steps and the scope and shape of the procurement process.

We will publish an anonymised summary of the findings of the RFI. At this stage, no commercial sensitive information will be published.

## 2. Context

### Why are we running a Stability Pathfinder?

- The [System Operability Framework](#) (SOF) has highlighted operability risks expected due to the decline in transmission connected synchronous generation over the next decade.
- As part of our [Network Development Roadmap](#), we want to explore the benefits and practicalities of applying a Network Options Assessment (NOA)-type approach to the operability aspects of system stability.
- Following Stability Pathfinder Phase 1, this Request for Information (RFI) is the next step in expanding the opportunity for varied technologies and providers to participate in the assessment of market-based solutions against Network Owner options.
- The outcome of the Stability Pathfinder Phase 2 procurement process will be a recommendation of the most economic & efficient solution for securing stability in Scotland.
- The recommended solution could consist of market-based options, Network Owner options or a mix of market based and Network Owner options.
- For the avoidance of doubt, an outcome could be that we accept no market tender and/or no Network Owner options if none of the solutions considered provide economic benefits against our forecasted alternative cost of maintaining Stability through the Balancing Mechanism (BM).

## 2. Context

### What has happened so far?

- Last summer we published a technical RFI on our plans for the stability pathfinder. [LINK](#)
- The RFI feedback identified a number of providers who could deliver stability solutions quickly, and so we responded by initiating an accelerated tender process: Phase 1. [LINK](#)
- Phase 1 subsequently launched in November 2019 inviting prospective providers to tender solutions for delivery by April 2021. [LINK](#)
- In January 2020 we accepted tenders from 5 providers across 7 sites – awarded contracts have now been signed with these parties and we are managing these through to delivery. [LINK](#)

### What are the next steps?

#### Phase 2

- Based on our technical analysis to-date, Scotland is our next priority area with short circuit level being a key focus.
- Phase 2 will open procurement to a broader range of technology types than Phase 1, building a feasibility stage into the tender timeline to allow technical capability to be demonstrated ahead of commercial tender.
- We will also remove the 0 MW export pre-qualification condition, building into our economic assessment the adverse impact of market distortion created as a result of bringing on active power alongside stability.
- We are still seeking to procure additional capability compared with what we expect to be inherently available in the energy market over the next decade, and will therefore only place value in the commercial assessment against the additional capability tendered.

#### Subsequent procurement

- Beyond Phase 2 we foresee procuring stability on a frequent (possibly annual) basis on the path towards what may eventually become a ‘closer-to-real-time’ stability market.

# 3. Phase 1 lessons learnt (1 of 3)

**Question 1:** Do you have any feedback following Phase 1 which could help us further refine the development of future pathfinders?

During phase 1 and in line with our 'learn by doing' approach to these pathfinder tenders, we moved at pace to respond to an opportunity presented by the RFI to resolve our near-term operability needs. As a result, there are several lessons learnt for ourselves and the market ~ covered in this section of the RFI pack.

As a result of lessons learnt from Phase 1, in future pathfinders we will:

- ✓ **Standardise Terminology:** Be clearer as to our definition of stability and the tender parameters sought in relation to this
- ✓ **Pre-Qualification & Compliant bids:** Be more explicit as to what constitutes a non-compliant bid, refining our tender proformas to reduce the risk of human error
- ✓ **Delivery Timeline:** Incorporate feedback from providers requesting more time between contract terms and tender opening, to enable internal governance steps to be followed in a timely manner
- ✓ **Transparency:** Through our system operability framework and network development roadmap work, publish further information on our longer-term stability requirements
- ✓ **Transparency:** Increase the transparency of our assessment to be clearer as to how effectiveness impacts the value of a tender



# 3. Phase 1 lessons learnt (2 of 3)

## Standardising terminology

There is a greater need for standardisation of terminology, measures and definitions around stability. Some of the tender parameters sought from providers e.g. H value, inertia value (in MVA.s) required further explanation or clarity to enable providers to submit values they could be confident in.

- ✓ We have updated our technical specification based on feedback following Phase 1.
- ✓ The proposed Phase 2 process includes a feasibility stage to ensure that technical parameters are understood by both parties in advance of the commercial tender.

## Pre-qualification and compliant bids

Upon submission, tenders were first reviewed to ensure bids were compliant. In some instances the basis of compliance was not clear enough.

For example, the 'time to synchronise' parameter was stated as needing to be 15 minutes or less but there was insufficient clarity as to how a bid with a value greater than 15 minutes would be treated.

In this example we deemed the bid compliant and assessed it in line with all other tenders, but we could have equally deemed it as non-compliant.

- ✓ We will ensure that the basis of compliance for each of the tender parameters is clear in future pathfinders. This will improve providers' confidence in their submission as well as tightening up the assessment process by removing any such ambiguity.

# 3. Phase 1 lessons learnt (3 of 3)

## Delivery timeline

Providers often wish to utilise assets for multiple purposes / revenue streams and therefore seek greater alignment of procurement windows and freedom to optimise across balancing services.

- ✓ For the GB wide requirement we are reviewing our needs for voltage and stability together to enable us to consider more coordinated procurement processes in 2021.

Providers' governance processes require a less hurried tender process, otherwise the breadth of market participants may be unintendedly constrained.

- ✓ In the proposed timeline we have allowed a 3-month window between publishing of contracts terms and submission of commercial tenders. Prospective market participants have an opportunity to feedback through this process as to whether this is sufficient or should be further relaxed.

## Transparency

Feedback from industry suggests the scale of contract values awarded surprised some stakeholders, indicating that further work is required to set and manage expectations on NGESO's forecasted costs of managing the system's future Stability needs. In addition, there is a strong desire from stakeholders to understand our longer-term stability needs.

- ✓ Through our system operability framework and network development roadmap work, we will publish further information on our longer-term stability requirements

Further transparency is necessary around the assessment process, to enable providers to better align their technical solution and bid with the relative value of their solution. Effectiveness weightings for Phase 1 were summarised qualitatively as high, medium and low. This hindered an objective perception of value.

- ✓ For phase 2, our assessment process will be more transparent. We will publish locational effectiveness in a more quantitative manner, providing clarity on the relationship between parameters and value used by our economic assessment model

## 4. Phase 2 outline

**Question 2:** Are the timescales in the proposed procurement process feasible from a provider perspective?

**Question 3:** Is there anything further we should consider doing to account for the potential impact of COVID-19 on this tender?



This section outlines our proposed plans for Stability Pathfinder Phase 2 and seeks feedback on the **process and timescales** set out, ahead of launching an invitation for Expressions of Interest (EOI).

Further information will be provided at the EOI stage on the commercial arrangements for the service.

An opportunity to feedback on the proposed contract terms will be provided later in the process, ahead of commercial tender.

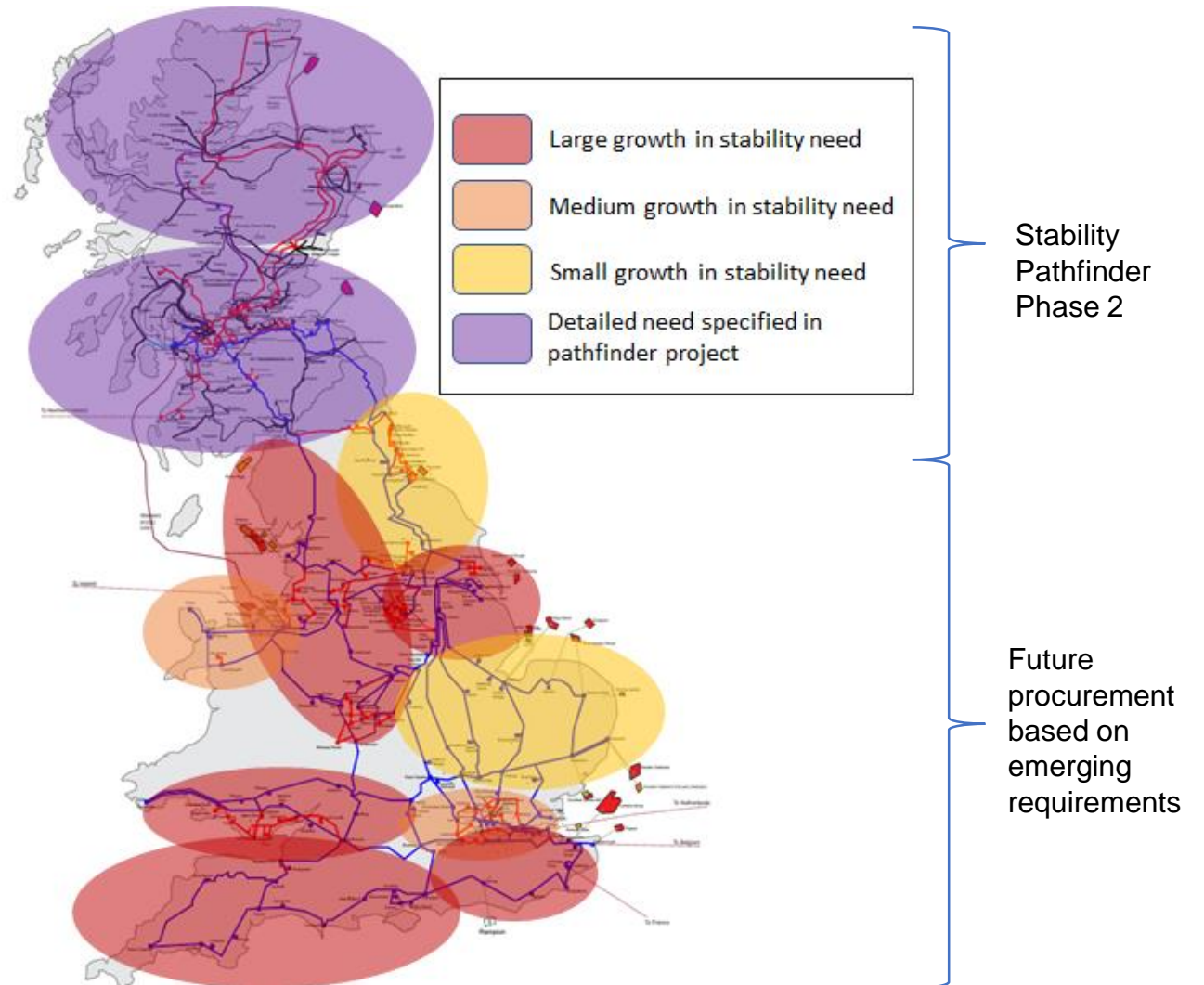
## 4. GB areas of stability focus

Our assessment shows that our need for stability products differs across the country.

We have to-date carried out a detailed assessment of our stability needs in Scotland and a high-level assessment of our needs across England & Wales (E&W)

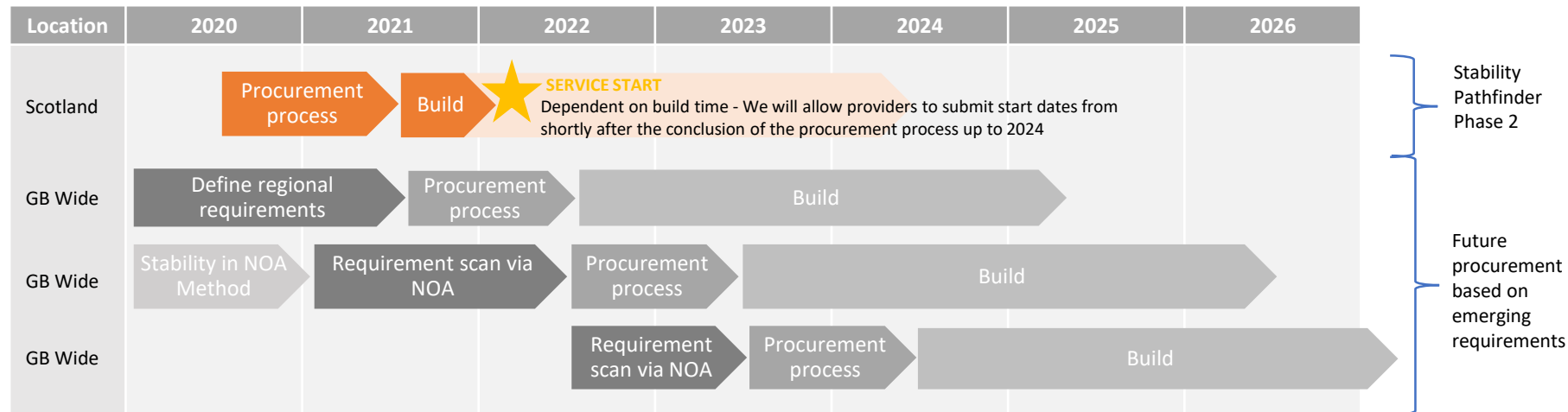
Our current analysis points to:

- Scotland solutions being our next priority – hence the focus of this Phase 2 tender.
- E&W requirements needing to be assessed in more granularity to inform the focus of future procurement exercises. To this end, we have commenced a detailed assessment of E&W requirements this year.
- Following this GB-wide analysis, we intend to examine our needs and run associated procurement exercises.



# 4. Stability pathfinder ambition

- Our ambition is to have a GB wide annual procurement process which allows us to compare asset and commercial solutions
- In 2020 we will trial the procurement approach in Scotland whilst we define our regional requirement in England and Wales
- We will use what we learn from the pathfinders to develop our procurement approach in future years

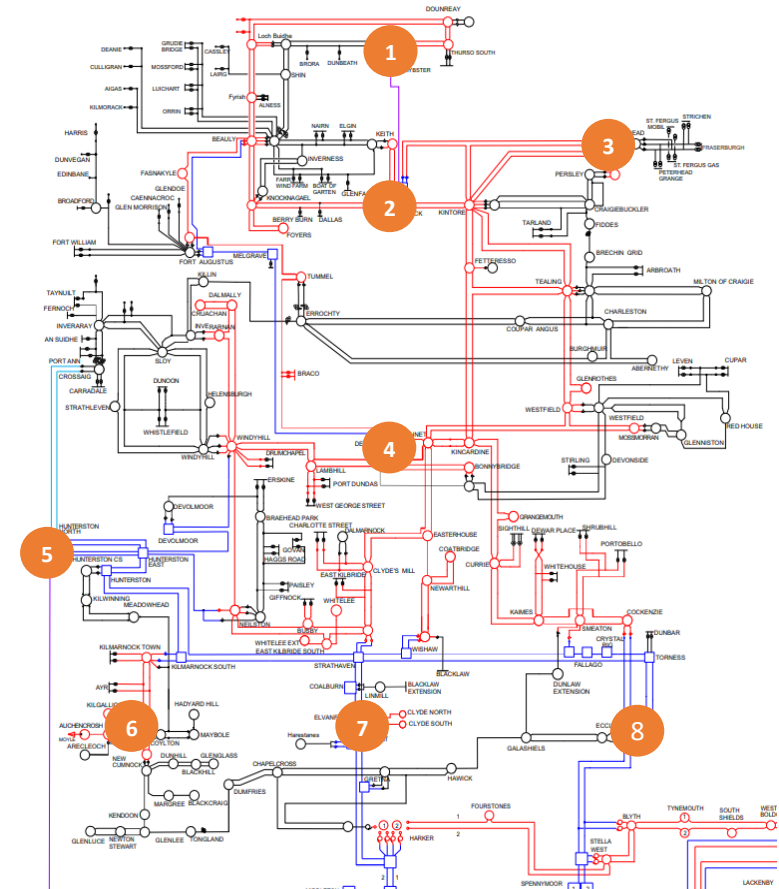


# 4. Stability Phase 2 requirements

The primary requirement for stability pathfinder Phase 2 is for regional short circuit level. This differs from Phase 1 which responded to an opportunity to procure national inertia. The contribution of solutions to national inertia will however be valued alongside regional short circuit level in our Phase 2 assessment. More details on this as part of the assessment methodology will be provided at the EOI stage.

Location	Ref	Requirement (MVA)
Spittal	1	600
Blackhillock	2	1,300
Peterhead	3	1,300
Longannet area	4	600
Hunterston	5	1,200
Mark Hill/ Coylton area	6	400
Moffatt/ Elvanfoot area	7	1,800
Eccles area	8	1,200
Total		8,400

The total requirement is for 8.4GVA across the 8 locations as above. As any solution at one location will have a positive knock-on impact on all the other 7 locations, the totality of volume procured across all sites is expected be less than 8.4GVA.





## 4. Availability requirement

- There is a need for short circuit infeed at all times. Our current forecasts show that across the range of years and FES scenarios we may need to enact a service to enhance stability on the system between 55% and 85% of the time. This means that procuring a service from providers which can provide certainty of availability significantly increases our confidence that the requirement can be met.
- It is not possible to forecast the precise volume and timing of requirement until close to real time as it is driven by the distribution of generation and demand on the system and the network configuration. Therefore we are expecting providers to be able to demonstrate over 90% availability of the service so that we can rely on it to be there when it's needed.
- We would like to design a service which allows a broad range of participation but we also need to ensure that our requirement is met at all times. It would be helpful to understand more about the ability of different technologies to provide high availability.

**Question 4:** What impact would requiring over 90% availability have on your ability to participate in the service?



## 4. Stability Phase 2 procurement scope

Topic	Phase 2 expectation
Requirement procured	Inertia, short circuit level, dynamic voltage support
Region	Scotland
Service delivery period	Services can start as early as July 2021 and must start by April 2024 at the latest Services can end as late as April 2030
At what voltage levels can solutions be offered?	Solutions can be offered at 132kV and above, however connections at higher voltages will attribute a higher effectiveness weighting in the economic assessment.
Technology	Any type of solution can participate but they must demonstrate capability through a feasibility study prior to submitting a commercial tender.
Non-zero MW providers	Non-zero MW providers can participate but must provide additional capability. The assessment methodology will only value the additional stability being offered beyond what we expect to be inherently provided. Furthermore, the assessment will incorporate the cost of displacing in-merit generation on the system.
Can TOs participate?	Transmission network owners have license obligations to ensure safe, economic and reliable operation of their networks and to facilitate connections. In an absence of market solutions, TOs will be investing in their network as needed to ensure an operable network. Through this pathfinder, we will make a comparison of transmission solutions and tendered commercial solutions in the tender assessment. Any necessary TO investment will be brought forward under existing regulated processes separate to this pathfinder.
Can DNOs participate?	Whilst we are not precluding the participation of DNOs in this tender, we are only seeking transmission connected solutions



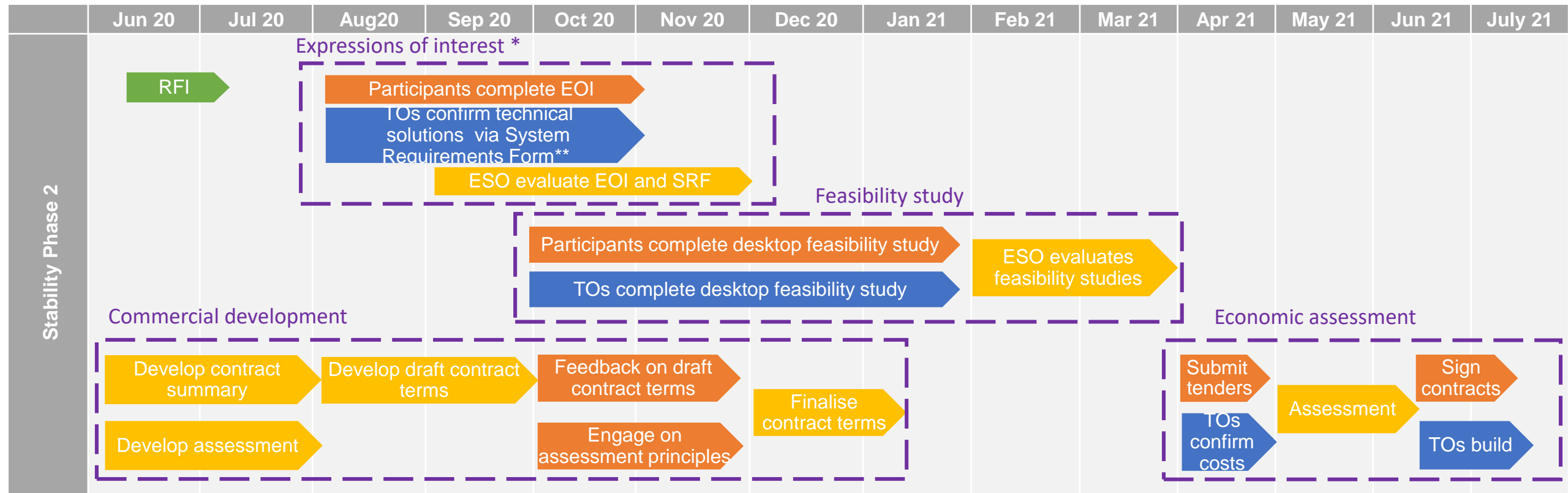
# 4. Phase 2 Process / timeline overview

## KEY:

Commercial options

Network options

ESO



\* Providers may submit an EOI at any time during the 3-month period. Prospective providers who submit an EOI early will benefit from more time to develop their feasibility study.

\*\*See next slide on System Requirements Form

# 4. System Requirements Form for regulated network owner options

System Requirements Form (SRF) is an excel based form used under the Network Options Assessment (NOA) process. The form communicates the ESO requirements to TOs and TOs submit network options to the ESO via this form. The table in this slide provides an overview of each part of the form.

The details of the form used under the NOA for boundary capabilities can be found in [NOA methodology document](#).

The details of the form used for high voltage and stability management can be found in [NOA high voltage and stability management process document](#).

## SRF overview for stability process

Section title	Details
Requirement	Information on requirement will be the same as the information published as part of the Request for Information.
TO proposed options	TOs provide the information on their proposed options.
Outage requirement	TOs provide the expected outages required to connect new assets associated with their proposed options.
Option costs	TOs provide the costs on their proposed options. Information should include, but is not limited to:  Capital cost, annual breakdown of cost, operation & maintenance cost, WACC etc.
Publication information	TOs specify the information which they give consent to the ESO to publish. The ESO will request consent from the TOs to publish the same level of information consistent with the way information from a Commercial service option will be published when the Tender Process concludes.

# 4. Stability Phase 2: Feasibility process

## Expression of interest

- The EOI will comprise: i) Technical criteria (final technical specification), ii) Heads of Terms and iii) Assessment principles
- It invites prospective parties to declare an interest in tendering into this procurement round, but does not commit the party to progressing with the tender in any way
- Any party wishing to tender later on in the procurement process, must have submitted an EOI template by the specified EOI submission deadline and passed assessment against the criteria.
- This template will capture the provider's intended technology, location, solution size and scope to allow us to understand if the minimum criteria can be met.
- Providers may submit an EOI at any time during the 3-month period. Prospective providers who submit an EOI early will benefit from more time to develop their feasibility study.
- After submission of EOI, we will assess proposed solutions against the technical criteria and feedback to all providers.
- A pass/fail outcome will be bilaterally communicated to all providers. A successful outcome will be followed by an invitation to participate in the feasibility study.

## Feasibility study

- Having passed the EOI stage, prospective providers will be then required to demonstrate that their solution meets the technical specification by undertaking feasibility study, project planning and submitting it to NGESO for review.
- This will include (but is not limited to) submission of desktop-based power system simulations and manufacturer datasheets/specifications.
- Further guidance regarding the feasibility study will be published with the EOI.

# 4. Stability Phase 2: Commercial process

## Commercial development

- Further to the Heads of Terms and Assessment Principles published within the EOI, whilst the Feasibility Study is underway, **draft contract terms** will be issued for consultation.
- Taking feedback from Phase 1, we will allow prospective providers a longer period to review and assess these draft terms, providing feedback as to how the terms could be improved to help facilitate participation in this tender.
- A finalised set of contract terms will then be published, reflecting this feedback. This will be issued no later than 3-months ahead of the close of the commercial tender window to provide sufficient time for bidders to structure their tenders and gain internal approvals.

## Economic assessment

- Solutions which have **successfully demonstrated technical capability** during the feasibility stage will be able to participate in the commercial tender.
- A tender proforma will be published for prospective providers to submit their commercial tender.
- Commercial tenders need to have **full board approval** and **bidders will be held** to all commercial parameters tendered.
- Transmission Owners will submit costs via the regulated route at the same time as commercial tenders.
- Following the assessment period we will publish the results of the tender and sign contracts with successful parties.
- Ahead of contract award we will carry out **due-diligence** on the ability of the provider to meet their parameters, this can non-exhaustively include requesting supporting evidence from the provider's supply-chain, network owner etc.

# 4. Stability Phase 2

## Connection review

- We expect some solutions to come forward which either require a new connection or a modification to their existing connection.
- To help provide assurance that these potential solutions can be connected to the network in the timescales required and potential service providers have a reasonable indication of the potential cost, we need potential connections to be reviewed by network owners ahead of the commercial tender.
- We are not proposing that participants are required to complete the connection application process ahead of the tender.
- For new sites or those requiring changes to their connection arrangements, completion of a connection application or modification application will need to be included in post tender milestones of any offer submitted.
- We are considering two options to ensure we get a better assurance of connections ahead of the tender without expecting the completion of the full connection application process:
  - **Network owner connection feasibility studies** - Require all participants to have completed a connection feasibility study with the relevant network owner for each solution ahead of the commercial tender.
  - **Coordinated connection review** - ESO coordinates a network owner connection review of all connection proposals as part of the feasibility evaluation stage to review possible options at the same time. -RECOMMENDED

# 4. Stability Phase 2

## Connection review

The major features of the two options are described below. Our recommended option at this stage is "2. Coordinated Connection Review" as we believe this can provide sufficient confidence at the feasibility stage without putting in place the real and perceived barriers that a requirement for a connection offer might present and provides a more efficient and coordinated approach.

	1. Network owner connection review	2. Coordinated connection review
Timescales	Providers will need to allow time to complete connection feasibility process alongside procurement process	Review will be completed in parallel with feasibility stage of procurement exercise
Resource	Multiple study requests will be made when only a proportion are likely to be accepted through the tender	Study requests will be coordinated through Stability Pathfinder Phase 2 procurement process
Certainty	Information gathered will not be firm until the full connection application process has been completed	Information gathered will not be firm until the full connection application process has been completed
Cost	Participants will pay for the cost of a network owner feasibility study without knowing if they will be successful in the tender	Participants are likely to pay for the cost of reviewing their potential connection without knowing if they will be successful in the tender
Engagement	Bilateral discussions between TO connections team and individual providers.	Coordinated through Stability Pathfinder Phase 2 procurement process

# 4. Stability Phase 2

## Locational effectiveness

- Our stability needs in Scotland are primarily driven by a forecasted reduction in short circuit level
- To enable prospective providers to understand the effectiveness of their solution geographically, we hereby publish a list of substations and their respective effectiveness factors based on short circuit level contribution at our locations of interest
- The effectiveness table reflects that solutions connected at higher voltages are more effective in meeting our transmission stability needs.
- We will, upon request, happily provide effectiveness of any Scottish site at voltage levels of  $\geq 132\text{kV}$  not covered in the attached, at the Expression of Interest stage on case by case basis.
- Please note that the effectiveness levels reflected here will directly contribute to the assessment methodology
- You can view the locational substation effectiveness table as part of the RFI Pack [here](#)

# 4. Stability Phase 2 Technical specification

**Question 5:** Do you have any feedback on the published technical specification?

- We are publishing a technical specification as part of this RFI.
- We have refined the specification based on lessons learnt from Phase 1 and subsequent work carried out by the GB Grid Forming Working group.
- We welcome any comments on this as part of your feedback to this RFI.
- Based on the feedback received, we will publish a final version of the Technical Specification at the EOI stage.
- You can view the technical specification as part of the RFI pack [here](#)