

Electricity System Restoration Competitive Procurement Webinar

22nd November 2023

South West and Midlands Regional Tender

- This session will be recorded
- Please remain on mute during the presentations
- Type in your questions in the chat box
- Please refrain from asking questions that may identify you as a current Electricity System Restoration (ESR) Service Provider





Presenters

Alex Unitt, Restoration Contracts Manager

Xiaolei Cai, Restoration Engineer

Vitor Soares, Restoration Manager

Steve Miller, Contracts Team Manager (Long Term Services)

Purpose of the webinar

- ❑ Provide an overview of the tender process for electricity system restoration (ESR) services in 2023
- ❑ Highlight key changes from previous restoration tenders
- ❑ Invite feedback from interested service providers to improve the proposed process
- ❑ Take early questions about the process and requirements to enter this service
- ❑ Update you on learnings from the other tender rounds launched in 2022

We encourage you to ask us questions and provide your feedback now, and afterwards

“It is our commitment to work collaboratively with our stakeholders to respond to the changing energy landscape and incrementally evolve our process and restoration strategy to include newer technologies as their contribution to restoration is proven, to reduce the risk to end consumers”

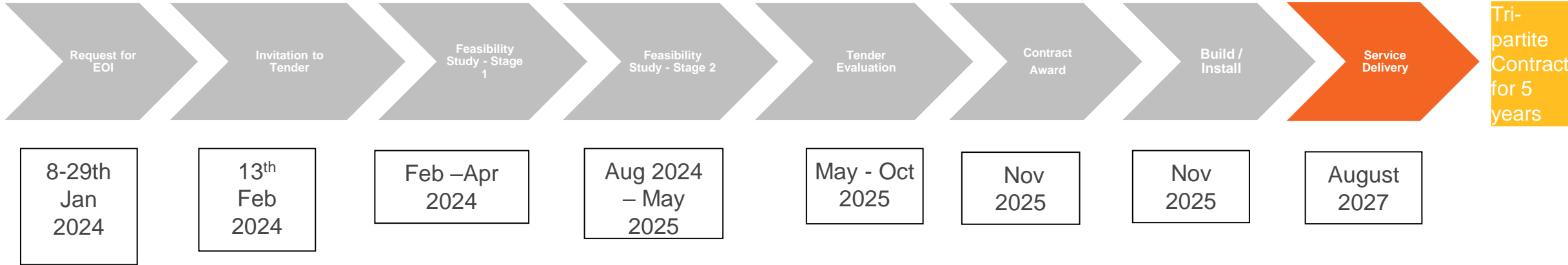
Webinar agenda

| Content | Update provided by |
|---|--------------------|
| Welcome | Alex Unitt |
| Tender Plan for the SW & Midlands | Alex Unitt |
| Provider feedback & changes from 2022 Tenders | Alex Unitt |
| Tender Market including Distributed ReStart | Alex Unitt |
| Technical Requirements & Assessment Criteria | Xiaolei Cai |
| Tender Process | Alex Unitt |
| Q & A | All |

What we are doing for the SW & Midlands region

- ✓ Continuing with our commitment to move towards a more competitive and transparent procurement approach
- ✓ Removing barriers to market entry for new providers
- ✓ Introducing more technology types for restoration services

- As before, launching a competitive tender bid for restoration service providers
- As a minimum we will procure to maintain our existing capability in the region, plus any additional requirements to meet the new restoration standard (ESRS)
- Launch campaign in January 2024, service go-live August 2027 and contract expiry July 2032



Areas included in this tender

- ❖ **East Midlands** – National Grid Electricity Distribution (NGED)
- ❖ **West Midlands** - National Grid Electricity Distribution (NGED)
- ❖ **Southern England** - Scottish and Southern Energy Power Distribution (SSEN)
- ❖ **South Wales** - National Grid Electricity Distribution (NGED)
- ❖ **South West England** - National Grid Electricity Distribution (NGED)

- If you do not know who your DNO is you can find out who it is on the [Energy Networks Association](#) website and search by postcode

*NGED (Formerly **Western Power Distribution**)

Most notable changes from the previous SW & Midlands Tender



Innovation meets BAU

Distribution Restoration to supplement existing process and help meet ESRS requirements



More routes to market

Service providers can choose to tender for multiple categories.



Reduced technical requirements

'Availability' reduced from $\geq 90\%$ to $\geq 80\%$ and 'Block Loading size' from $\geq 20\text{MW}$ to $\geq 10\text{MW}$ Final tender evaluation weightings changed from 70:30 to 50:50



Following stakeholder feedback

FS2 moved from 6 to 9 months allowing more time to complete study and build time increased to 21 months.

Tender Service Categories

1. ANCHOR GENERATOR (Tx)
(Formerly referred to as Primary Service)

2. ANCHOR GENERATOR (Dx)


3. Top Up Service (Tx)

4. Top Up Services (Dx)



*To form a feasible DRZ – An Anchor Generator Dx must combine with at least one Top Up Service Dx

What feedback did we get from the 2022 Tenders? And what changes have we made?



- ✓ Less onerous EOI stage
- ✓ Performance monitoring guidelines
- ✓ Extended F2 Submission period
- ✓ Earlier engagement with DNO's
- ✓ Updated service contract terms
- ✓ Extension for NDA's to be reviewed and signed
- ✓ Increased collaboration between all DNO's/TO's

Tender market for the SW & Midlands regions

Regional requirement = [Demand vs Generation]

Existing generation includes Hydro, CCGT, OCGT, Natural Gas Engine and Interconnector

Potential for more wind generation, battery storage and biomass providers with >10MW capacity

Why is this service of any benefit to you?

- ✓ Open to transmission and distribution connected energy resources
- ✓ Five-year restoration service contract
- ✓ Funding provided for FS2, capital contributions and availability fee
- ✓ Your plant can still provide other balancing services
- ✓ Service only required in the event of a partial or full blackout situation

What is Distributed ReStart?

Innovation project

3.5 year Network Innovation Competition (NIC) partnership: NGENSO, SPEN, TNEI

Technical, organisational and procurement service designs have been delivered

Final year focused on demonstration

Objective

Use DER to energise the distribution and transmission system to compliment and expand on existing Restoration procedures.

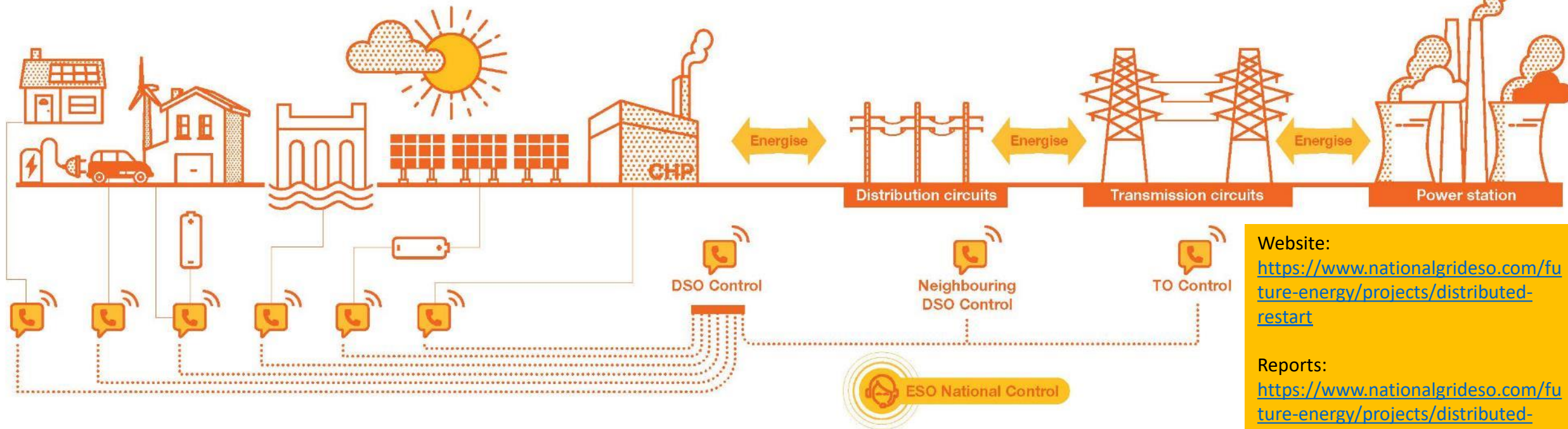
The project will design and demonstrate the technical capability, organisational capability and functional route to market for this service.

Expected Benefits

Future proof restoration through using DER, increasing the diversity of providers

Expected savings of £115M by 2050 through enhanced competition

Save up to 810,000 tonnes CO₂ through avoiding warming of conventional generation



Website:

<https://www.nationalgrideso.com/future-energy/projects/distributed-restart>

Reports:

<https://www.nationalgrideso.com/future-energy/projects/distributed-restart/key-documents>

What services do we need from DER to achieve a DRZ

The total requirements for each DRZ will be site specific (depending on the scope of the DRZ and capability of DER within), but will consist of the following:

| Service | Requirement | Description | Potential providers |
|----------------------------------|-------------|--|--|
| Anchor generator (or power park) | Essential | Only one anchor generator is required per power island. Self-start and provide a controlled voltage source, able to energise the network to reach the next resource. | Synchronous generator, or other technology with required capability. A single point of connection is required with the DNO network. |
| Fast MW Control | Potential | May be required to supplement technical capability of anchor generator for example enhance block loading. | Battery, loadbank, flywheel, generator, others. |
| Inertia | Potential | Increase frequency stability of the DRZ and/or/ allow greater demand blocks to be picked up. | Synchronous generator, synchronous compensator (an inherent response is required without any measurement delays), others. |
| Frequency control | Potential | May be required to support the anchor generator to maintain frequency parameters during normal operation. | Synchronous generator, converter based sources with appropriate control, others. |
| Voltage control | Potential | May be required to enhance the MVar capability of the DRZ to expand the island/energise to a higher voltage. | Wind farm, solar, battery, synchronous gen, Statcom, SVC, others. |
| Short circuit level | Potential | Increase the DRZ fault level. Facilitate protection operation at higher voltage levels or converter DER to connect | Synchronous generator, synchronous compensator, others. |
| Energy (MWh) | Potential | Enhance capability of the DRZ to restore demand above the capacity of the anchor generator. This could come from other any other gens on the island. (May be schedulable or intermittent.) | Schedulable MW - Synchronous generator (additional to the anchor), Intermittent resources (constrained and controlled by a set point), demand side management, others. |

Technical Requirements 1/2

Anchor generator(Tx)

- Time to Connect $\leq 2h$
- Service Availability $\geq 80\%$
- Voltage Regulation: Existent
- Frequency Regulation: Existent
- Resilience of Supply:
 - Service $\geq 10h$
 - Auxiliary Unit(s) $\geq 72h$
- Block Loading Size $\geq 10MW$
- Reactive capability $\geq 50MVAR$ Leading
- Sequential Start-ups ≥ 3
- Short Circuit Level
- Inertia Value ≥ 400 MVAs

Top-up Service (Tx)

Mandatory Requirements

- Service Availability $\geq 80\%$
- Resilience $\geq 24h$
- Voltage Regulation: Existent
- Frequency Regulation: Existent

At least one of the Requirements below

- Resilience of Supply:
 - Service $\geq 10h$
- Block Loading Size $\geq 10MW$
- Reactive capability $\geq 50MVAR$ Leading
- Inertia Value ≥ 400 MVAs

Anchor Generator (Dx)

- Time to Connect $\leq 8h$
- Service Availability $\geq 80\%$
- Voltage Regulation
- Frequency Regulation
- Resilience of Supply:
 - Service $\geq 72h$ up to 120h
 - Auxiliary Unit(s) $\geq 120h$
- Block Loading Size $\geq 2MW$
- Reactive capability 0.95 lead/lag pf minimum
- Short Circuit Level $\geq 1xDER$ MVA rating
- Sequential Start-ups ≥ 3

Top-up Service (Dx)

- Service Availability $\geq 80\%$
- Fast MW Control $\leq 200ms$
- Inertia inherent MW to frequency response (no measurement delays)
- Frequency Regulation
- Voltage Regulation
- Short Circuit Level $\geq 1xDER$ MVA rating
- Energy (MWh) generate within 10s of request
- Resilience:
 - Service for minimum 72h duration
 - Maintain control & comms up to 72h

Technical Requirements 2/2

For all tender participants,

| Service | Requirement |
|--|--|
| Communication Resilient under NPO event | <p>A resilient telecommunication system shall be provided between ESR plant and relevant control room, including remote monitoring and operation.</p> <p>It is the providers responsibility to test this at regular intervals in line with the tender terms.</p> |
| Operational Metering requirement (Grid Code CC6.5.6) | <p>As a minimum the ESO control room will required a live feed showing</p> <ul style="list-style-type: none"> • Frequency (Hz) • Voltage (kV) • Availability of Contracted Units (for each contracted Unit, Available/Unavailable) • Power Output – MW • Power Output – MVar <p>Specifically for Wind Providers we are also expecting the additional information:</p> <ul style="list-style-type: none"> • Wind speed forecasts and observations (ms-1) • Wind direction forecasts and observations (degrees) |
| Network Energization Method | Hard energization only |

The tender process



- Follows the same stages as previous ESR tender rounds but with longer timings in some sections
- For potential bidders – concise route/set of documents to follow irrespective of service type: AG or TuS
- For ESO – all the technical specifications for both Tx & Dx restoration services, assessment criteria and how the commercial stacking will work will be published shortly under the webpage below, but will primarily follow on from the SE Tender version of the [Commercial Evaluation Methodology](#).
- FYI - copies of previous ESR tender documents can be found on our website:

[Restoration Services | ESO \(nationalgrideso.com\)](#)

Expression of Interest (EOI)



To identify and confirm eligible tenderers ahead of the formal ITT

- EOI is a mandatory prerequisite to the tender
- Three week submission period for potential providers
- Assessed by ESO using pass/fail questions
- Information submitted to confirm:
 - Type of Service (Top up Service/Anchor generator)
 - Confirmation of technical characteristics, capability and Location
 - Ability to meet service commencement date and connection agreement

Invitation to tender stage 1



ITT marks the start of the feasibility assessment process, during which the tender participants will be expected to produce and submit two sets of feasibility reports at stage 1 and stage 2

ITT Stage 1

- 10 Week submission period for Stage 1 Feasibility Study Report (F1 Report) and proposed scope of works for Stage 2 (F2 Scope), signed NDA and acceptance of draft contract terms which was previously part of the EOI stage

F1 Study / F1 Report – Overview

- Provide a first assessment around the provider's potential to become a Service Provider (technical capability, needs, timescales, etc.)
- Development / Delivery of the report not expected to be time consuming
- Highlight any risks/concerns the potential provider considers should be included in the more detailed study (F2 study)

Invitation to tender stage 2



ITT Stage 2

- Nine month submission period for Stage 2 Feasibility Study Report (F2 Report)
- Complete F2 will form technical submission for tender
- F2 Study Process - Capped contribution - Price dependent on offering (TuS / AG)

F2 Study / Report – Overview

- Confirm technical capability (validated by the OEM) and how will the ‘Service’ be delivered
- For some TuS, certificate of assurance might be required
- If applicable / necessary, develop network modelling to ensure the ‘Service’ will not cause any impact or damage to third party plant or equipment
- Provide an Implementation Strategy
- Provide a Commercial Offer for the Service

Tender evaluation



Tenders will be assessed on the tender participant's contribution to a restoration, based on specific capabilities or characteristics, with a weighting of (50:50), (Commercial : Technical).

- Technical scores – total of all scores given for each sub-criterion as per the assessment criteria
- Commercial scores – the commercial assessment methodology will be published. A percentage based on the tenderer's commercial submission in relation to all other tenderer's commercial submissions
- To combine the scores, the technical will be weighted to account for 50% of the total, and the commercial score to account for 50% of the total

Technical assessment criteria



The evaluations will create four price stacks with the assessment criteria for each detailed below. These tender stacks will be assessed in isolation

Primary Restoration Service Providers

- Minimum requirements Pass/Fail
- Connection to Network 8%
- Time to Connect 5%
- Service Availability 10%
- Power Output 25%
- Block Loading Size 10%
- Resilience of Supply 20%
- Contribution to System Stability 12%
- Contribution to Restoration Time 10%

Distributed ReStart – Anchor Generators

- Minimum requirements Pass/Fail
- Connection to Network 5%
- Time to Connect 10%
- Service Availability 15%
- Power Output 20%
- Block Loading Size 10%
- Resilience of Supply 25%
- Contribution to Restoration Time 15%

Distributed ReStart services will be determined following consultation with DNO and 'Rules of Play' for feasible DRZ(s)

Distributed ReStart – Top-up Services

- Minimum requirements Pass/Fail

Top-up Services

- Minimum requirements Pass/Fail
- Connection to Network 8%
- Resilience 20%
- Service Availability 10%
- Power Output 25%
- Block Loading Size 10%
- Resilience of Supply 15%
- Contribution to System Stability 12%

Q & A

Please use the chat function in Teams to submit your questions

Please do not disclose any information that could identify you as a restoration service provider

Questions will be published after the webinar

Let's continue this dialogue

Please email us with your questions or further feedback:

commercial.operation@nationalgrideso.com

To ensure you keep up to date with the Restoration Competitive Procurement Event, sign up for the Future of Balancing Services distribution list at the link below

<https://www.nationalgrideso.com/insights/future-balancing-services>