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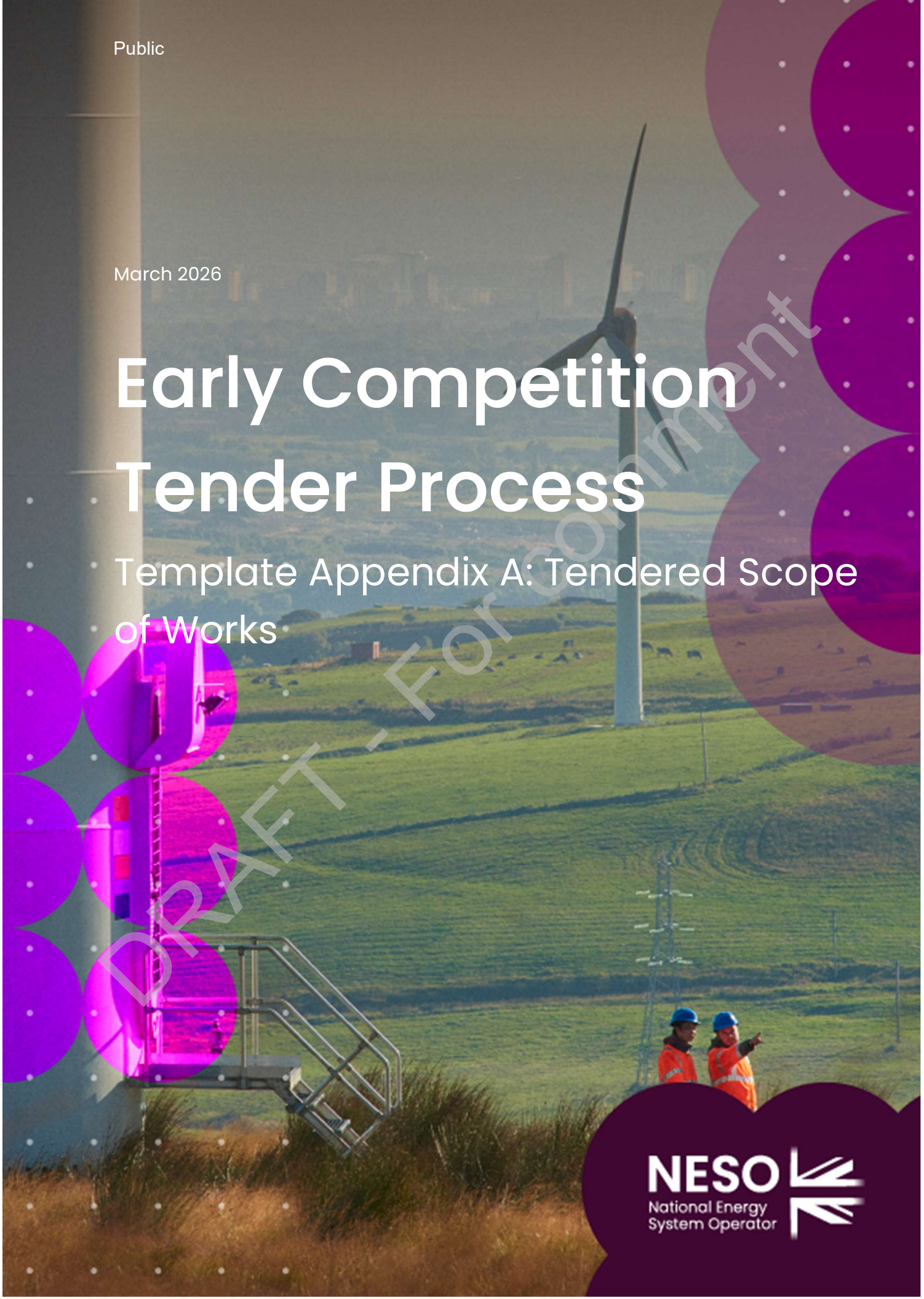
Early Competition Tender Process

Template Appendix A: Tendered Scope of Works



NESO
National Energy System Operator

Explanatory note

This draft document is shared with industry to demonstrate the nature and level of information that will be provided by NESO within the Tendered Scope of Works for a tender. Final versions will be issued as part of each tender launch. The aim of this document is to support industry understanding of the expected technical detail and to invite feedback to inform the final documentation. Where "Guidance" boxes are shown, this is guidance for the NESO team in ensuring the required details are provided for any tender, however are show here to give context to the level of information that will be provided in each section. Some sections may not contain "Guidance" boxes. Where this is the case, these section are populated with details of any standard text that would be provided.

1. Context of the Need

Guidance

Provide a short paragraph linking the need to the underlying reason why the need has materialised (This could be linked to the "SRF Part B – What does the reinforcement solve)

Provide a short paragraph linking the description to the relevant network planning documents such as FES, ETYS, and CSNP in the future, or alternate published document

Provide a short paragraph linking the description to the various connection drivers (where applicable)

2. Technology details

High level description of the option

Guidance:

Technology Type: Description of the technology, voltage, capacity and involved assets.

Strategic design: Description of the design, including whether it is onshore or offshore, predominantly overhead or underground and any strategic mitigation.

Interface zones: Description of the areas of the transmission system which the option will connect between.

Explicitly link this to the CSNP or connections offer output

Boundary drawing/plan and spatial envelope

Guidance:

Provide a plan showing the boundary impacted/reinforced]

Spatial envelope: Description of the broad geographical area in which the option required

High Level Single Line Diagram

Guidance:
Provide a sketch of the Single Line Diagram, giving context of the proposed solution within the wider network

Interface substation locations

Guidance:
Provide a short description of Interface substation locations, voltage level and coordinates

High-level planning, environmental and community context

Guidance:
Provide a short description of:

- the broad geographical context and routing restrictions
- any significant environmental considerations within the study area
- the landscape context
- any significant considerations relating to historic environment
- the presence of residential features within the study area
- any recreational considerations within the study area

Technical Parameters to be met

Guidance:

Thermal rating of the proposed circuits linking to the capacity uplift over the relevant boundary.

Customer connection requirements (i.e. number of bays at substation and/or generation and/or demand levels) (known Gate 2 data – publicly available (e.g. capacity requirement)

Availability

Guidance:

Provide a short sentence describing the availability requirements, i.e. 98%

Required in-service date

Guidance:

Provide an actual date for “Required in-service date”

Operational control centre communications

The CATO should comply with the STC in terms of operational control centre communications. Attention is drawn to STC Section D, STCP 04, STCP 09-1, STCP 18-5, and STCP 19-7 as a non-exhaustive list.

Technology readiness level

The solution should meet a technology readiness level of at least L8, i.e an equivalent actual system has been completed and qualified through test and demonstration. The technology has been proven to work in its final form under expected conditions. Examples include developmental testing and the evaluation of the system in an operational environment.

Relevant Codes and Standards

The CATO needs to comply with the following codes and standards:

1. Statutory Requirements
2. The National Energy System Operator (NESO) Standards namely The Connection and Use of System Code (CUSC), The Grid Code (GC), The System Operator – Transmission Owner Code (STC), and The Security & Quality of Supply Standard (SQSS)
3. NESO Electricity Transmission Design Principles
4. Tender Specific Standards including the relevant standards at point of connection listed below

In addition to the above, the CATO shall also consider the PASE requirements as set out by Ofgem in their proposed design.

Tender specific standards

Guidance:

Provide a list of specific standards that relate to this project, i.e. reference to transmission owner specific standards at point of interconnection

System Modelling

Guidance:

Provide detail of any context around the system modelling requirements specific to the tender, with reference to the model that will be shared at ITT stage

Considerations of Future Connections

Guidance:

Provide descriptions of considering the planned/potential connections nearby, relevant strategic development plans or any other analysis, and corresponding measures to take this into account

Appendix A1 - Interface site details [to be shared only post successful PQ pass and confidentiality agreement signed]

Substation drawings

Guidance:

Provide:

- Drawing showing the proposed spare bays at each substation with clear bay identifiers suitable for connection of the proposed competed asset
- Operational diagrams
- Protection Key Line Diagrams
- Drawings showing any TO owned non-operational land beyond the operational boundary of the site

Interfacing substation earliest in service dates

Guidance:

Provide the proposed EISD for the connection bay at the substation sites - This should summarise any programme risks, such as land purchase/lease extension that developers should be aware of.

Fault Levels:

Substation Fault Levels – Busbar Fault details at point(s) of interconnection (if applicable)

Substation Name	Substation Voltage (kV)	Three Phase Initial Peak Current (kA)	Three Phase RMS Break Current (kA)	Three Phase DC Break Current (kA)	Three Phase Peak Break Current (kA)	Single Phase Initial Peak Current (kA)	Single Phase RMS Break Current (kA)	Single Phase DC Break Current (kA)	Single Phase Peak Break Current (kA)

Fault Level- Infeed details at point(s) of interconnection (if applicable)

Not applicable.

System Impedance:

Impedance							
Substation Name	**Substation Voltage (kV)**	Sk" (MVA)	X/R ratio (peak)	Zsys (Ohm)	Rsys (Ohm)	Xsys (Ohm)	Zsys angle (degree)

Earth Return Current

Earth Return Current		
Substation Name	**Substation Voltage** (kV)	**Earth Return Current**

Interfaces with existing and future TO projects (if applicable)

Interface Description	Timescale
State the key third party and scheme interfaces, e.g., DNO, Genco, other projects etc.	
[…]	

Integration into existing automation schemes (if applicable)

Automation Schemes Operational Tripping / Auto Close Scheme/ Active Network Management Scheme/Demand Tripping Scheme	
	Requirements
Title	[…]
Justification	
Operating Times	
Monitored Circuits	
Tripping Sites	
3rd Party Impact	
Narrative	

Line Connections into existing (if applicable, for new connections)

Line Connections		
Circuit Identity	**OHL Voltage** (kV)	**Details**
[…]		
Narrative		

Appendix A2 – Relevant direct connection details [to be shared only post successful PQ pass and confidentiality agreement signed]

Guidance:
Provide DRC where applicable if CATO is a host site for a customer connection