

**DS3 System Services Volume Uncapped Gate 5  
Bidders' Information Session**

**Tuesday 22<sup>nd</sup> June 2021 10:00 – 11:30**

**Please keep mic muted**

**Please keep video off**

**\*6 on conference line is to mute / unmute**

**Raise queries during webinar to [DS3@EirGrid.com](mailto:DS3@EirGrid.com)**



# Agenda

Topic	Time	Speaker
Introduction	10:00	Carole Devlin
Procurement Process Overview	10:10	Anna Pocock
Q&A	10:25	Attendees
Tender Pack and Technical Questionnaire	10:35	Carole Devlin
Q&A	10:50	Attendees
Testing and Signalling Requirements	11:00	Michael Beggs
Q&A	11:15	Attendees
Closing Comments	11:25	Carole Devlin
Webinar Ended	11:30	-

# Introduction

- Post webinar, queries can be emailed in the clarification template to [Anna.Pocock@Eirgrid.com](mailto:Anna.Pocock@Eirgrid.com) and [tenders@eirgrid.com](mailto:tenders@eirgrid.com):
  - Closing date for receipt of queries is **12 noon on 28<sup>th</sup> June 2021**.
- The presentation slides will be made available on eTenders and on the EirGrid and SONI websites.



# Future Gates

Gate No	Indicative Contract Execution Date
5	October 2021
6	April 2022
7	October 2022
8	April 2023
9	October 2023



# Procurement Process Overview

Anna Pocock



# Qualification System

- **Qualification System** – refers to the system that is in place to enable interested parties to submit a Response and subsequently qualify for award of Contract for provision of DS3 System Services (under Volume Uncapped Arrangements).
- Qualification System will last until April 2024, with the option to extend at the Contracting Entities' discretion and subject to Regulatory Authority approval (1 extension of up to 18 months). This is pursuant to SEM Committee decision paper (SEM 21-021).
- 14 System Services in total are being procured as part of the Qualification System, over 28 lots (14 for EirGrid and 14 for SONI). The remaining 2 services, DRR and FPFAPR, may be added at a future procurement gate of the Qualification System.
- 12 services have been procured to date in accordance with Phase 1 and Phase 2 in 2018, Gate 1 in September 2019, Gate 2 in April 2020 , Gate 3 in October 2020, Gate 4 in April 2021 and Gate 4B in July 2021.



# Gate Process

- **Gate Process** – refers to the period after the initial procurement Phases 1 and 2 whereby Tenderers may apply for a place on the Qualification System at any time.
- New applicants may submit a completed Response for a place on the Qualification System at any time.
- It is intended that specific contracts will be awarded every six months – these periods are referred to as Gate Dates. EirGrid will issue periodic notices on the OJEU / EirGrid websites outlining the requirements and timeframes involved. Indicative dates are contained in the briefing document.
- Exception to the 6-month process is Gate 4-B.



# DS3 System Services Agreement

- This procurement is being run by EirGrid on behalf of both EirGrid and SONI for their respective DS3 System Services Agreement.
- A separate DS3 System Services Agreement is in place for:
  - EirGrid (as contracting entity for the DS3 System Services Agreement applicable to Ireland) and
  - SONI (as contracting entity for the DS3 System Services Agreement applicable to Northern Ireland).
- Existing holders of an agreement will receive an amended Schedule 9; new parties to the Qualification System will receive an agreement dated 1<sup>st</sup> October 2021.





# Gate 5

- OJEU Notice (2021/S 115-303439) published on 16<sup>th</sup> June 2021
  - ENQEIR758 - DS3 System Services - Volume Uncapped – Gate 5
- Two stages in this procurement process (submitted together):
  - Pre-Qualification; and
  - Tender
- Lots
  - Lots 1-12 IE
  - Lots 1-12 NI
- Documents available on eTenders [www.etenders.gov.ie](http://www.etenders.gov.ie)



# Gate 5

➤ Gate 5 applies to 3 scenarios:

1) Providing Unit that is not currently contracted for the provision of any System Service and wishes to tender for one, some or all services;

Tenderer will receive a new agreement

2) Providing Unit intends to amend its contracted values for a service that it currently provides (this may be enhancing or reducing its capability);

3) Providing Unit that is contracted for the provision of one or more services and wishes to tender for additional services.

Tenderer will receive an amended Schedule 9

➤ Providing Units that do not wish to amend their existing provision of a particular service must not submit a tender for the respective Lot.

# Gate 5 Lot Numbers – EirGrid

Existing Services			
<b>POR L1IE</b>	Primary Operating Reserve	<b>SSRP L7IE</b>	Steady State Reactive Power
<b>SOR L2IE</b>	Secondary Operating Reserve	<b>SIR L8IE</b>	Synchronous Inertial Response
<b>TOR1 L3IE</b>	Tertiary 1 Operating Reserve	<b>RM1 L9IE</b>	Ramping Margin 1 Hour
<b>TOR2 L4IE</b>	Tertiary 2 Operating Reserve	<b>RM3 L10IE</b>	Ramping Margin 3 Hour
<b>RRD L5IE</b>	Replacement Reserve (De-Synchronised)	<b>RM8 L11IE</b>	Ramping Margin 8 Hour
<b>RRS L6IE</b>	Replacement Reserve (Synchronised)	<b>FFR L12IE</b>	Fast Frequency Response

# Gate 5 Lot Numbers – SONI

Existing Services			
<b>POR L1NI</b>	Primary Operating Reserve	<b>SSRP L7NI</b>	Steady State Reactive Power
<b>SOR L2NI</b>	Secondary Operating Reserve	<b>SIR L8NI</b>	Synchronous Inertial Response
<b>TOR1 L3NI</b>	Tertiary 1 Operating Reserve	<b>RM1 L9NI</b>	Ramping Margin 1 Hour
<b>TOR2 L4NI</b>	Tertiary 2 Operating Reserve	<b>RM3 L10NI</b>	Ramping Margin 3 Hour
<b>RRD L5NI</b>	Replacement Reserve (De-Synchronised)	<b>RM8 L11NI</b>	Ramping Margin 8 Hour
<b>RRS L6NI</b>	Replacement Reserve (Synchronised)	<b>FFR L12NI</b>	Fast Frequency Response

# Tender Response

- Tenderers must submit a separate standalone tender for each and every Providing Unit.
- Note: A Tenderer may have more than one Providing Unit.
- Tenders should be split into two constituent parts (submitted at the same time):
  - A pre-qualification section; and
  - A tender section.
- Tenderers' response for each Providing Unit should consist of:
  - Part 2 of the **Qualification System Briefing Document**, including Forms 1, 2 and 3; and
  - A Completed **Technical Questionnaire** sheet for each Lot they are submitting for (must be completed in Excel).



# Tender Evaluation

- All Responses will be evaluated, on a lot by lot basis and Providing Unit by Providing Unit basis, against the qualification and award criteria outlined in the tender pack.
- Tender evaluation:
  - against the **Pass / Fail pre-qualification** minimum requirements for the lot concerned; and
  - against the **award criteria for compliance** in line **with the technical requirements** for the lot concerned.
- As the payment rate (tariff) for each System Service will be fixed, Responses will be assessed under the award criteria based upon quality (technical compliance) only.

# Tender Queries

## ➤ Queries Arising from this Webinar

- We will verbally answer some queries received via Q&A today.
- Formal response will issue to all Tenderers which may supersede information provided today.
- We request Tenderers to formally submit queries via email.

## ➤ General Queries

- Submit by email.
- In Clarification Template.
- Not later than **12:00 noon Irish Time on 28<sup>th</sup> June 2021.**
- Addressed to: Anna Pocock at [anna.pocock@eirgrid.com](mailto:anna.pocock@eirgrid.com) and [tenders@eirgrid.com](mailto:tenders@eirgrid.com)
- EirGrid will respond to all queries by **2<sup>nd</sup> July 2021.**



# Submission of Tenders

- Interested Tenderers must submit a tender response **through the eTenders portal** in respect of the relevant Lot.
- Tender box close time **12 noon**, Irish Time, on **Wednesday 14<sup>th</sup> July 2021** – **eTenders will not allow upload after this time.**
- **The Tenderer is fully responsible for the timely delivery of the tender.**



# Tender Timetable

Event	Date
Deadline for Submission of Queries	No later than 12:00 hrs (Irish Time) on <b>28<sup>th</sup> June 2021</b>
EirGrid and SONI to Respond to Queries	By close of business on (Irish Time) on <b>02<sup>nd</sup> July 2021</b>
Deadline for Submission of Tenders	No later than 12:00 hrs (Irish Time) on <b>14<sup>th</sup> July 2021</b>
Notification of Successful Tenderers	03 <sup>rd</sup> Sept 2021 (Indicative)
Standstill Period	14 days from Notification Date
Contract Commencement	<b>1<sup>st</sup> October 2021</b>



# Procurement Process Overview

## Q & A

TSOs will provide a verbal response to queries received during the webinar.

All queries will receive a written response following the webinar.





# Tender Pack and Technical Questionnaire

Carole Devlin



# Contractual Arrangements

Scenario 1 –  
agreement is dated  
1 October 2021

Scenario 2 & 3 –  
amended Schedule  
9 via Side Letter

## DS3 System Services Agreement

- Standard contractual provisions
- Term
- Schedules for 14 DS3 System Services
- Scaling Factor details
  - Product Scalars
  - Locational Scalar

Clause 15.1 –  
Changed from  
Counterparts to  
Electronic Signature  
clause

## Protocol Document

- Operational Requirements
- Performance Scalar Details
- Performance Monitoring Methods and infrastructure requirements
- Temporal Scarcity Scalar values
- Governance

Version 3 – Effective  
1 October 2020

## Statement of Payments

- DS3 System Service Payment rates

# Service Maximum Capability Volumes

Briefing Document Section 1.6.4 – maximum capability volumes to apply per service.

Service	Max Volume - Normal Operation	Max Volume - Requested by TSO
FFR	75 MW	100 MW
POR	75 MW	100 MW
SOR	75 MW	100 MW
TOR1	75 MW	100 MW
TOR2	75 MW	100 MW
RRD	300 MW	N/A
RRS	300 MW	N/A
RM1	450 MW	N/A
RM3	500 MW	N/A
RM8	500 MW	N/A
SSRP	400 Mvar	N/A
SIR	120,000 MWs <sup>2</sup>	N/A

# Technical Questionnaire

- Excel document that is used to determine a unit's technical capability to provide a service
- Technical Questionnaire contains:
  - General Guidance sheet
  - Reserve Characteristic and PQ Capability sheets
  - System Services Site Info sheet for aggregated Providing Units
  - Individual sheets for each Lot (24 in total)



# Technical Q - Guidance Sheet

## GENERAL INFORMATION

The following information is to assist Tenderers in completing the questionnaire appropriately.

Tenderers must complete the relevant questionnaires for each lot being tendered for as outlined below.

Where additional information is required please input a cross reference number from the tender submission document.

SECTION A in each lot must be completed by a Tenderer that wishes to contract for that lot. This is a PASS/FAIL questionnaire. It will be at EirGrid's sole discretion to request clarification on any technical information provided and subsequently decide whether the technical response is sufficient to achieve a Pass for that requirement. A Tenderer that fails on any one question will be disqualified.

SECTION B (Applicable for Distribution Connected Providing Units only) in each lot must be completed by a Tenderer that wishes to contract for that lot. This is a PASS/FAIL questionnaire. It will be at EirGrid's sole discretion to request clarification on any technical information provided and subsequently decide whether the technical response is sufficient to achieve a Pass for that requirement. A Tenderer that fails on any one question will be disqualified.

SECTION C in each lot is for information purposes. However, unless otherwise stated in Section A, it must be completed in its totality. The Section C questionnaire is to facilitate the tendering process, and where relevant, a Tenderer should provide details of the Providing Unit as it is registered in the SEM e.g. in the case of a three-shaft CCGT that is registered in the SEM as two units, each unit is separately identified.

Tenderers should complete all orange cells. If not applicable please indicate N/A. In some instances this is part of a drop down menu.

Section A is Pass/Fail for all Providing Units.

Section B is Pass/Fail for Distribution Connected Providing Units.

Section C is for information but must be completed as specified.

## FOR COMPLETION BY TENDERER

Service Provider	
Providing Unit	
ID in SEM (if applicable)	
If the Providing Unit is connected to the Ireland DSO/DNO	<p>If the Tenderer replies NO (i.e. does not give permission for the TSO to share this information) the Tenderer must complete Section(s) A of the Procurement Questionnaire for the lot(s) for which it is applying and must submit it to the DSO/DNO (as applicable) by 14th July 2021. This information may be submitted either in written or electronic format to the following address (as applicable):</p> <p><b>EirGrid Contracts (DSO-connected Tenderers) submissions to:</b>          Killian Morgan          ESB Networks Leopardstown          Leopardstown Rd          Foxrock          Dublin D18 XN80</p> <p><b>Electronic submission:</b> Submission via email is also acceptable. A signed copy should be sent to Killian.Morgan@eirgrid.ie no later than 14th July 2021.</p> <p><b>SONI Contracts (DNO-connected Tenderers) submissions to:</b>          David Hill          NIE Networks Ltd          Carn Industrial Estate          Portadown          Co. Armagh          BT63 5QJ</p> <p><b>Electronic submission:</b> Submission via email is also acceptable. A signed copy should be sent to David.Hill@nienetworks.co.uk no later than 14th July 2021.</p> <p>Please note that the relevant completed information must be received by the DSO/DNO by 14th July 2021.</p>

All Providing Units must complete this sheet, including the Lots being tendered for.

For Distribution Connected Providing Units, TSO will share relevant information with the DSO/DNO if tenderer permits.

COMPLETE THE FOLLOWING GUIDANCE TABLE AS APPROPRIATE: THIS IS TO ASSIST THE TENDERER TO COMPLETE A SUCCESSFUL TENDER AND TO ALLOW THE TSO TO ASSESS THE INFORMATION FOR CO

IRELAND				NORTHERN IRELAND			
LOT(IE)	POR	ARE YOU APPLYING FOR THIS LOT? HAVE YOU COMPLETED THE TECHNICAL QUESTIONNAIRE SHEET?	CONFIRMATION	LOT(NI)	POR	ARE YOU APPLYING FOR THIS LOT? HAVE YOU COMPLETED THE TECHNICAL QUESTIONNAIRE SHEET?	CONFIRMATION

GENERAL GUIDANCE NOTE Reserve Characteristic PQ Capability System Services Ste Info LOT1(IE) POR LOT1(NI) POR LOT2(IE) SOR LOT2(NI) SOR LOT3(IE)





# Technical Q – Reserve Characteristic

## INSTRUCTIONS FOR COMPLETING THIS SHEET.

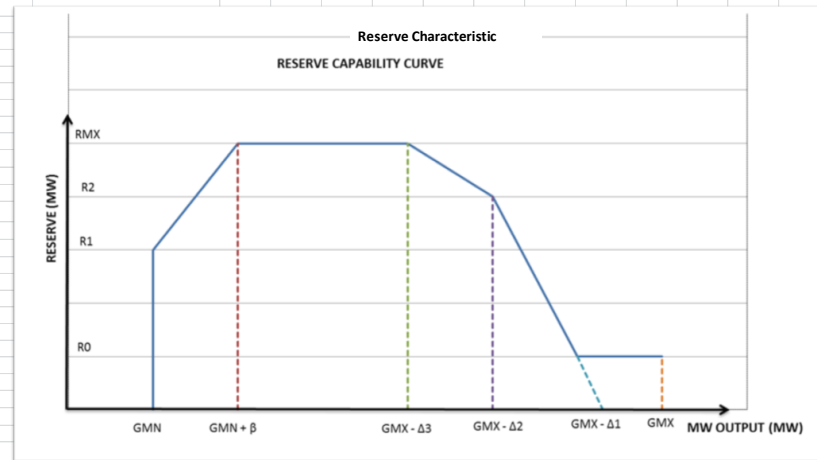
- : If the Providing Unit can operate on only one fuel, please complete TABLE 1.
- : If the Providing Unit can operate on two fuels, please complete TABLE 1 and TABLE 2.
- : If the Providing Unit can operate on three fuels, please complete TABLE 1, TABLE 2 and TABLE 3.
- : If the Providing Unit is a CCGT and can operate in Open Cycle Mode, in addition please complete TABLE 4.
- : If the Providing Unit is a CCGT and can operate on two fuels in Open Cycle Mode, in addition please complete TABLE 5.
- : If the Providing Unit is a WFPS and can provide FFR through emulated inertia please complete TABLE 2.

TABLE 1 - RESERVE CHARACTERISTIC PARAMETERS ON PRIMARY FUEL / FUEL 1						
	D53 System Services Reserve Characteristic parameters					
	FFR	POR	SOR	TOR1	TOR2	RR
RMX						
GMN						
R0						
R1						
R2						
DELTA1						
DELTA2						
DELTA3						
BETA						
PRIMARY FUEL / FUEL 1						

TABLE 2 - RESERVE CHARACTERISTIC PARAMETERS ON SECONDARY FUEL / FUEL 2						
	D53 System Services Reserve Characteristic parameters					
	FFR	POR	SOR	TOR1	TOR2	RR
RMX						
GMN						
R0						
R1						
R2						
DELTA1						
DELTA2						
DELTA3						
BETA						
SECONDARY FUEL / FUEL 2						

TABLE 3 - RESERVE CHARACTERISTIC PARAMETERS ON TERTIARY FUEL / FUEL 3						
	D53 System Services Reserve Characteristic parameters					
	FFR	POR	SOR	TOR1	TOR2	RR
RMX						
GMN						
R0						
R1						
R2						
DELTA1						
DELTA2						
DELTA3						
BETA						
TERTIARY FUEL / FUEL 3						

FOR INFORMATION: RESERVE FUEL GENERATION MODEL



# Technical Q – PQ Capability

## INSTRUCTIONS FOR COMPLETING THIS SHEET.

: If the Providing Unit is a Generation Unit, but is not a dual-shaft or three-shaft which is part of a CCGT installation, please complete TABLE1

: If the Providing Unit is a dual-shaft or three-shaft which is part of a CCGT installation, please complete TABLE2, TABLE3

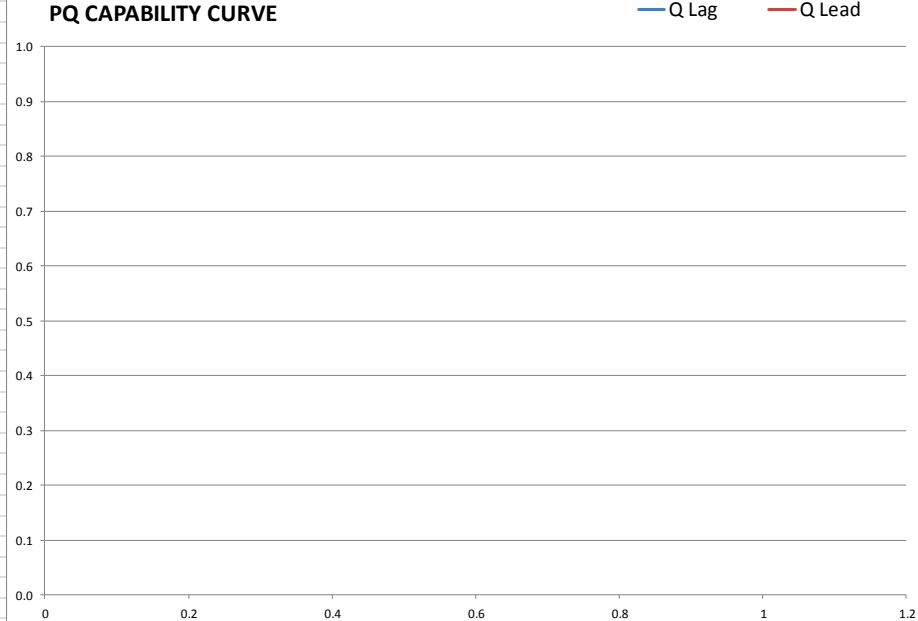
: If the Providing Unit is non-synchronous and has a negative Active Power range, please complete TABLE4

Generation Unit, but is not a dual-shaft or three-shaft which is part of a CCGT installation

**TABLE 1 - PQ Capability**

Registered Capacity			
% RCAP	P	Q Lead	Q Lag
0.00 of RCAP	0.0		
0.05 of RCAP	0.0		
0.10 of RCAP	0.0		
0.12 of RCAP	0.0		
0.15 of RCAP	0.0		
0.20 of RCAP	0.0		
0.25 of RCAP	0.0		
0.30 of RCAP	0.0		
0.35 of RCAP	0.0		
0.40 of RCAP	0.0		
0.45 of RCAP	0.0		
0.50 of RCAP	0.0		
0.55 of RCAP	0.0		
0.60 of RCAP	0.0		
0.65 of RCAP	0.0		
0.70 of RCAP	0.0		
0.75 of RCAP	0.0		
0.80 of RCAP	0.0		
0.85 of RCAP	0.0		
0.90 of RCAP	0.0		
0.95 of RCAP	0.0		
1.00 of RCAP	0.0		

**PQ CAPABILITY CURVE**



# Sample Lot – Section A

1.1	Has the Providing Unit an existing DS3 System Services Agreement for Regulated Arrangements for POR for a non-zero value and is applying to change the Reserve Characteristic for POR relative to the values specified in its DS3 System Services Agreement or to change from Static to Dynamic service provision or vice versa??		Tenderer must respond YES and must answer questions 1.2A - 1.4, Section B and all of Section C.  If the Providing Unit is an Aggregator please provide all associated MPRN meter numbers, and individual Demand Sites or Generator Sites details, as outlined in the Grid Codes (SONI section PC.A3.4.2 for AGU, SONI section PC.A3.4.3 for DSU, EirGrid section PC.A4.13 for AGU, EirGrid section PC.A7 for DSU) by filling out the System Services Site Info tab. Aggregators must be able to provide all contracted capability by 1 October 2021 and that capability must be reflected on the Providing Unit's Operational Certificate on or before 1 October 2021.  Where an Individual Demand Site or Generator Site is not currently contracted with the Aggregator, the Providing Unit must provide satisfactory evidence, for example a letter of intent, that such contracts will be in place by 1 October 2021. Where an Individual Demand Site or Generator Site is currently contracted to another Aggregator, in order to complete the transfer of an Individual Demand Site or Generator Site into the Operational Certificate of the tendering Providing Unit effective 1 October 2021, the TSO will	
1.2A	Has the Providing Unit a TSO-approved System Services Test Report demonstrating the Providing Unit's capability to provide the POR service according to the applied for changes (i.e. changed Reserve Characteristic and/or Static/Dynamic classification)? (This question is only pass/fail in combination with 1.2B & 1.2C)  Note: Test Reports must be in the correct System Services Test Report template. System Services Test Report templates are available here: <a href="http://www.eirgridgroup.com/customer-and-industry/general-customer-information/grid-code-compliance-test/compliance-testing/system-services-testing/index.xml">http://www.eirgridgroup.com/customer-and-industry/general-customer-information/grid-code-compliance-test/compliance-testing/system-services-testing/index.xml</a>		Tenderer must respond either YES or NO. If Tenderer responds YES, Tenderer must provide the TSO-approved System Services Test Report demonstrating the Providing Unit's capability. If Tenderer responds NO, Tenderer must respond to questions 1.2B - 1.2C and provide the associated evidence.	
1.2B	If the answer to question 1.2A above is NO, please confirm: Has the Providing Unit conducted testing with the TSO to demonstrate capability to provide the POR service and has not yet had a test report approved by the TSO? OR Has the Providing Unit submitted a Testing Request to the TSO and the TSO has agreed to a date, which must not be after 6 August 2021, for testing to take place? OR Has the Providing Unit submitted test data (witnessed as required by the TSO), or performance data, to the TSO and the TSO has agreed to evaluate the Providing Unit's capability to provide the POR service based on the data?  Note 1: Tenderer must have engaged with the TSO regarding the Providing Unit's testing requirements in advance of tender submission. Note 2: If Tenderer is a DSU, Tenderer must submit a completed DSU application form when requesting a test date, which must include all Individual Demand Sites that are to be tested. Note 3: If Tenderer is a DSU or AGU and is intending to test an Individual Demand Site or Generator Site that is currently contracted to another Aggregator, Tenderer must provide signed correspondence (or e-mail approval) from the Individual Demand Site or Generator Site confirming that the Individual Demand Site or Generator Site will ensure to declare down availability with the other Aggregator during any associated testing period. Note 4: Tenderer must submit a System Services Testing Scope Document within 2 working days of confirmation of a test date. Note 5: Following testing, Tenderer must submit a completed System Services Test Report and Checklist to the TSO within 10 working days of the testing date as per the Testing process. This deadline will be strictly enforced by the TSO. Where the Tenderer has outsourced testing to a third party, it is the Tenderer's responsibility to ensure that testing requirements and Test Report deadlines are met. Test Reports must be in the correct System Services Test Report template. Note 6: The TSO's testing procedures and requirements apply to this procurement process. DS3 System Services Testing Scope Document, Test Report and Checklist templates are available here:		Tenderer must respond YES. Tenderer must provide written confirmation from the relevant system operator confirming that: Testing has taken place. Tenderer must state the test date. OR If a Testing Request has been submitted, that the TSO has agreed a date, which must not be after 6 August 2021, for testing to take place. Tenderer must state the test date. OR If test / performance data has been submitted, that the TSO has agreed to evaluate the Providing Unit's capability to provide the service based on the data.	
1.2C	If the answer to question 1.2A above is NO, do you understand that a System Services Test Report demonstrating the Providing Unit's capability to provide the POR service must be approved by the TSO by 20 August 2021, unless otherwise agreed with the TSO?		Tenderer must respond YES.	

Section A.1 is for Candidates that are applying to amend their existing contracted service values.

Aggregators take note of Q1.1 – specifically relating to individual sites that are not currently contracted with the Providing Unit.

# Aggregator Site Switching

- A service provider managing an aggregated DSU / AGU may submit a tender in respect of a Providing Unit comprising a list of constituent sites where for such sites there is either:
  - an active contract in place between the service provider and the site; or
  - where a site is not currently contracted with the Aggregator, satisfactory evidence, for example a letter of intent, that such contracts will be in place by 1<sup>st</sup> October 2021.
- Where another aggregator has advised the TSO that an Individual Demand Site or Generator Site will remain contracted with it beyond 1<sup>st</sup> October 2021, the TSO will not proceed with any transfer to an Ops Cert.
- All necessary testing as specified under the procurement rules must be completed by the deadlines specified within the procurement.



# System Services Site Info

	Site No.	Tenderer should align the Site no. with site numbers listed in the DSU Application form / AGU Application form / DSU Ops Cert / GASOA Schedule	1	2	3	4	5	6	7
1	Is this site providing DS3 System Services?	Yes / No	Please Select from Drop Down List	Please Select from Drop Down List	Please Select from Drop Down List	Please Select from Drop Down List	Please Select from Drop Down List	Please Select from Drop Down List	Please Select from Drop Down List
2	Name of Individual Demand Site		<Insert Here>	<Insert Here>	<Insert Here>	<Insert Here>	<Insert Here>	<Insert Here>	<Insert Here>
3	MPRN		<Insert Here>	<Insert Here>	<Insert Here>	<Insert Here>	<Insert Here>	<Insert Here>	<Insert Here>
4	Irish Grid Co-ordinates of the Connection Point		<Insert Here>	<Insert Here>	<Insert Here>	<Insert Here>	<Insert Here>	<Insert Here>	<Insert Here>
5	Maximum Export Capacity	(MW)	<Insert Here>	<Insert Here>	<Insert Here>	<Insert Here>	<Insert Here>	<Insert Here>	<Insert Here>
6	Maximum Import Capacity	(MW)	<Insert Here>	<Insert Here>	<Insert Here>	<Insert Here>	<Insert Here>	<Insert Here>	<Insert Here>
7	Performance Measurement Device Standards for Fast Acting Services installed in agreement with TSO.	Yes / No	Please Select from Drop Down List	Please Select from Drop Down List	Please Select from Drop Down List	Please Select from Drop Down List	Please Select from Drop Down List	Please Select from Drop Down List	Please Select from Drop Down List
8	The Trigger Point that the IDS is expected to start responding at (F Trigger On).	(Hz)	<Insert Here>	<Insert Here>	<Insert Here>	<Insert Here>	<Insert Here>	<Insert Here>	<Insert Here>
9	The frequency range over which the IDS will go from minimum to maximum declared response (F Trigger Range).	(Min Hz - Max Hz)	<Insert Here>	<Insert Here>	<Insert Here>	<Insert Here>	<Insert Here>	<Insert Here>	<Insert Here>
10	The frequency at which the IDS will begin to cease responding at (F Trigger Off).	(Hz)	<Insert Here>	<Insert Here>	<Insert Here>	<Insert Here>	<Insert Here>	<Insert Here>	<Insert Here>
11	Time delay to the F Trigger Off characteristic that the IDS will continue to respond for thereafter (T Trigger Off).	(sec)	<Insert Here>	<Insert Here>	<Insert Here>	<Insert Here>	<Insert Here>	<Insert Here>	<Insert Here>
		(sec)	<Insert Here>	<Insert Here>	<Insert Here>	<Insert Here>	<Insert Here>	<Insert Here>	<Insert Here>

This must be completed for all aggregators sites and not just additional volumes being tendered for



# Sample Lot – Section A – Testing

1.12A	Has the Providing Unit a TSO-approved System Services Test Report demonstrating the Providing Unit's capability to provide the POR service and has not yet had a test report approved by the TSO? (This question is only applicable if the answer to question 1.12B is YES.)			Tenderer must respond either YES or NO. If Tenderer responds YES, Tenderer must provide the TSO-approved System Services Test Report demonstrating the Providing Unit's capability. If Tenderer responds NO, Tenderer must respond to questions 1.12B - 1.12C and provide the associated evidence.
1.12B	If the answer to question 1.12A above is NO, please confirm: Has the Providing Unit conducted testing with the TSO to demonstrate capability to provide the POR service and has not yet had a test report approved by the TSO? OR Has the Providing Unit submitted a Testing Request to the TSO and the TSO has agreed to a date, which must not be after 6 August 2021? OR Has the Providing Unit agreed to evaluate the test data? Note 1: Tenderer must submit a completed System Services Testing Scope Document, Test Report and Checklist to the TSO within 10 working days of the testing date as per the Testing process. This deadline will be strictly enforced by the TSO. Where the Tenderer has outsourced testing to a third party, it is the Tenderer's responsibility to ensure that testing requirements and Test Report deadlines are met. Test Reports must be in the correct System Services Test Report template. Note 2: If Tenderer is a DSU or AGU and is intending to test an Individual Demand Site or Generator Site that is currently contracted to another Aggregator, Tenderer must provide signed correspondence (or e-mail approval) from the Individual Demand Site or Generator Site confirming that the Individual Demand Site or Generator Site will ensure to declare down availability with the other Aggregator during any associated testing period. Note 3: If Tenderer is a DSU or AGU and is intending to test an Individual Demand Site or Generator Site that is currently contracted to another Aggregator, Tenderer must provide signed correspondence (or e-mail approval) from the Individual Demand Site or Generator Site confirming that the Individual Demand Site or Generator Site will ensure to declare down availability with the other Aggregator during any associated testing period. Note 4: Tenderer must submit a System Services Testing Scope Document within 2 working days of confirmation of a test date. Note 5: Following testing, Tenderer must submit a completed System Services Test Report and Checklist to the TSO within 10 working days of the testing date as per the Testing process. This deadline will be strictly enforced by the TSO. Where the Tenderer has outsourced testing to a third party, it is the Tenderer's responsibility to ensure that testing requirements and Test Report deadlines are met. Test Reports must be in the correct System Services Test Report template. Note 6: The TSO's testing procedures and requirements apply to this procurement process. DS3 System Services Testing Scope Document, Test Report and Checklist templates are available here: <a href="http://www.eirgridgroup.com/customer-and-industry/general-customer-information/grid-code-compliance-testing/compliance-testing/system-services-testing/index.xml">http://www.eirgridgroup.com/customer-and-industry/general-customer-information/grid-code-compliance-testing/compliance-testing/system-services-testing/index.xml</a>			Tenderer must respond YES. Tenderer must provide written confirmation from the relevant system operator confirming that: Testing has taken place. Tenderer must state the test date. OR If a Testing Request has been submitted, that the TSO has agreed a date, which must not be after 6 August 2021. OR If test data has been evaluated, that the TSO has agreed to evaluate the test data.
1.12C	If the answer to question 1.12B above is YES, please confirm: Has the Providing Unit submitted a Testing Request to the TSO and the TSO has agreed to a date, which must not be after 6 August 2021? OR Has the Providing Unit agreed to evaluate the test data? Note 1: Tenderer must submit a completed System Services Testing Scope Document, Test Report and Checklist to the TSO within 10 working days of the testing date as per the Testing process. This deadline will be strictly enforced by the TSO. Where the Tenderer has outsourced testing to a third party, it is the Tenderer's responsibility to ensure that testing requirements and Test Report deadlines are met. Test Reports must be in the correct System Services Test Report template. Note 2: If Tenderer is a DSU or AGU and is intending to test an Individual Demand Site or Generator Site that is currently contracted to another Aggregator, Tenderer must provide signed correspondence (or e-mail approval) from the Individual Demand Site or Generator Site confirming that the Individual Demand Site or Generator Site will ensure to declare down availability with the other Aggregator during any associated testing period. Note 3: If Tenderer is a DSU or AGU and is intending to test an Individual Demand Site or Generator Site that is currently contracted to another Aggregator, Tenderer must provide signed correspondence (or e-mail approval) from the Individual Demand Site or Generator Site confirming that the Individual Demand Site or Generator Site will ensure to declare down availability with the other Aggregator during any associated testing period. Note 4: Tenderer must submit a System Services Testing Scope Document within 2 working days of confirmation of a test date. Note 5: Following testing, Tenderer must submit a completed System Services Test Report and Checklist to the TSO within 10 working days of the testing date as per the Testing process. This deadline will be strictly enforced by the TSO. Where the Tenderer has outsourced testing to a third party, it is the Tenderer's responsibility to ensure that testing requirements and Test Report deadlines are met. Test Reports must be in the correct System Services Test Report template. Note 6: The TSO's testing procedures and requirements apply to this procurement process. DS3 System Services Testing Scope Document, Test Report and Checklist templates are available here: <a href="http://www.eirgridgroup.com/customer-and-industry/general-customer-information/grid-code-compliance-testing/compliance-testing/system-services-testing/index.xml">http://www.eirgridgroup.com/customer-and-industry/general-customer-information/grid-code-compliance-testing/compliance-testing/system-services-testing/index.xml</a>			Tenderer must respond YES.

Does the tenderer have an approved test report?

If not, tenderer must satisfy one of 3 conditions:

- Have already tested, or
- Have an agreed test date before 06/08/2021, or
- Have agreed with the TSO to use test data

Approved test report is required by 20/08/2021.

3 questions relate to Testing – apply to all Providing Units and taken together are Pass / Fail

All units must have engaged with the TSO in advance of tender submission and agreed a testing plan.

Testing deadlines will be enforced for the Gate.

We encourage units to test early!

It is the tenderer's responsibility to ensure that testing activities are conducted within the required timeframes.

# Sample Lot – Section A – Signals

1.12B	<p>If the answer to question 1.12A above is NO, please confirm:</p> <p>Has the Providing Unit conducted testing with the TSO to demonstrate capability to provide the POR service and has not yet had a test report approved by the TSO?</p> <p>OR</p> <p>Has the Providing Unit submitted a Testing Request to the TSO and the TSO has agreed to a date, which must not be after <b>6 August 2021</b>, for testing to take place?</p> <p>OR</p> <p>Has the Providing Unit submitted test data (witnessed as required by the TSO), or performance data, to the TSO and the TSO has agreed to evaluate the Providing Unit's capability to provide the POR service based on the data?</p> <p>Note 1: Tenderer must have engaged with the TSO regarding the Providing Unit's testing requirements in advance of tender submission.</p> <p>Note 2: If Tenderer is a DSU, Tenderer must submit a completed DSU application form when requesting a test date, which must include all Individual Demand Sites that are to be tested.</p> <p>Note 3: If Tenderer is a DSU or AGU and is intending to test an Individual Demand Site or Generator Site that is currently contracted to another Aggregator, Tenderer must provide signed correspondence (or e-mail approval) from the Individual Demand Site or Generator Site confirming that the Individual Demand Site or Generator Site will ensure to declare down availability with the other Aggregator during any associated testing period.</p> <p>Note 4: Tenderer must submit a System Services Testing Scope Document within 2 working days of confirmation of a test date.</p>		<p>Tenderer must respond YES.</p> <p>Tenderer must provide written confirmation from the relevant system operator confirming that:</p> <p>Testing has taken place. Tenderer must state the test date.</p> <p>OR</p> <p>If a Testing Request has been submitted, that the TSO has agreed a date, which must not be after 6 August 2021, for testing to take place. Tenderer must state the test date.</p> <p>OR</p> <p>If test / performance data has been submitted, that the TSO has agreed to evaluate the Providing Unit's capability to provide the service based on the data.</p>	
1.12C	<p>Unit's capability to provide the POR service must be approved by the TSO by <b>20 August 2021</b>, unless otherwise agreed with the TSO.</p>		Tenderer must respond YES.	
1.13A	<p>Does the Providing Unit comply with the signalling requirements for the provision of the POR service, as applicable to the Providing Unit's technology?</p> <p>Note 1: There are specific signalling requirements for the provision of the POR service from Aggregated Generator Units, Demand Side Units, Energy Storage Providing Units (including batteries), and Wind Farms providing the service through emulated inertia.</p> <p>Note 2: Signals lists that specify the signalling requirements for the provision of the POR service, applicable to the Providing Unit's technology, are available here: <a href="http://www.eirgridgroup.com/customer-and-industry/general-customer-information/grid-code-compliance-test/compliance-testing/system-services-testing/index.xml">http://www.eirgridgroup.com/customer-and-industry/general-customer-information/grid-code-compliance-test/compliance-testing/system-services-testing/index.xml</a></p> <p>In addition, signalling requirements for the provision of the POR service are set out in the DS3 System Services New Signals Requirements for the Regulated Arrangements Version 2.0 document that is included in the tender pack (or available here: <a href="http://www.eirgridgroup.com/site-files/library/EirGrid/DS3-System-Services-Volume-Uncapped-New-Signals-Requirements-">http://www.eirgridgroup.com/site-files/library/EirGrid/DS3-System-Services-Volume-Uncapped-New-Signals-Requirements-</a></p>		<p>Tenderer must respond either YES or NO.</p> <p>If Tenderer responds YES, Tenderer must provide a site-specific Wiring Certificate confirming compliance with the signalling requirements for the POR service.</p> <p>If Tenderer responds NO, Tenderer must respond to question 1.13B.</p>	
1.13B	<p>If the answer to question 1.13A above is NO, do you understand that where applicable the signalling requirements for the POR service must be met by the Providing Unit and that a site-specific Wiring Certificate must be provided to the TSO by <b>20 August</b></p>		Tenderer must respond YES.	

Does the unit comply with the Signalling requirements for the service? Specific Signalling requirements are noted per Lot.

Site specific wiring cert is required by 20/08/2021.

Questions relate to Signalling – apply to Providing Units depending on the technology and the service being tendered for.

# Sample Lot – Section A

1.5	Is the Providing Unit's technology designated as "Proven" for the POR service on the DS3 System Services Proven Technologies List?	Tenderer must respond YES or NO. If Tenderer responds YES, Tenderer must provide maximum on the Providing Unit's technology as a maximum that the Providing Unit's technology can provide.	Section A.2 is for Tenderers that do not currently provide the service in the Lot.
1.6A	Note: Individual Demand Sites must be part of a DSU in order to qualify to provide this service.	Tenderer must respond YES or NO. If Tenderer responds YES, Tenderer must answer question 1.6B. If Tenderer responds NO, Tenderer does not need to answer question 1.6B but must complete remaining questions in this section.	
1.6B	Is the Providing Unit registered in SEM or will it be registered by 1 October 2021? Note: If the Providing Unit is a Demand Side Unit, it must be registered in SEM by 1 October 2021 in order to qualify to provide this service.	Tenderer must respond YES.	
1.7	Can the Providing Unit provide a Dynamic Response or a Static Response? Please detail in the Parameter cell if Dynamic Response or Static Response or both. (Explanatory note on Static/Dynamic given below for clarity).	Tenderer must respond YES and provide parameter, either 'Static', 'Dynamic' or 'Both' for the Providing Unit.	
1.8	Is the Reserve Trigger Capability greater than or equal to 49.3Hz?	Tenderer must respond YES	
1.9	Can the Providing Unit provide a minimum of 1MW of POR?	Tenderer must respond YES.	Additional Pass / Fail questions apply to aspiring entrants, including:
1.10	Can the unit provide the minimum service vol?	If the Providing Unit is not an Aggregator, please see below. If the Providing Unit is an Aggregator, please see below. If not currently connected to the Power System by 1 October 2021 please provide a detailed programme (MS Project Format or similar) and proof of connection agreement or letter from relevant system operator (EirGrid, SONI, ESB Networks, NIE Networks) confirming connection by 1 October 2021. If the Providing Unit is an Aggregator, please see below.  If the Providing Unit is an Aggregator please provide all associated MPRN meter numbers, and Individual Demand Sites or Generator Sites details, as outlined in the Grid Codes (SONI section PC.A3.4.2 for AGU, SONI section PC.A3.4.3 for DSU, EirGrid section PC.A4.13 for AGU, EirGrid section PC.A7 for DSU) by filling out the System Services Site Info tab. Aggregators must be able to provide all contracted capability by 1 October 2021 and that capability must be reflected on the Providing Unit's Operational Certificate on or before 1 October 2021. Where an Individual Demand Site or Generator Site is not currently contracted with the Aggregator, the Providing Unit must provide satisfactory evidence, for example a letter of intent, that such contracts will be in place by 1 October 2021. Where an Individual Demand Site or Generator Site is currently contracted to another Aggregator, in order to complete the transfer of an Individual Demand Site or Generator Site into the Operational Certificate of the tendering Providing Unit effective 1 October 2021, the TSO will require written confirmation.	
1.11	Can the Providing Unit provide POR by 1 October 2021 as per the technical description in the DS3 System Services Annex A.2?	Tenderer must respond YES.	
1.12A	Has the Providing Unit a TSO-approved System Services Test Report demonstrating the Providing Unit's capability to provide the POR service according to the applied for changes (i.e. changed Reserve Characteristic and/or Static/Dynamic classification)? (This question is only pass/fail in combination with 1.12B & 1.12C)  Note: Test Reports must be in the correct System Services Test Report template. System Services Test Report templates are available here: <a href="http://www.eirgridgroup.com/customer-and-industry/general-customer-information/grid-code-compliance-test/compliance-testing/system-services-testing/index.xml">http://www.eirgridgroup.com/customer-and-industry/general-customer-information/grid-code-compliance-test/compliance-testing/system-services-testing/index.xml</a>	Tenderer must respond either YES or NO. If Tenderer responds YES, Tenderer must provide System Services Test Report demonstrating the Providing Unit's capability. If Tenderer responds NO, Tenderer must respond 1.12C and provide the associated evidence.	Pass / Fail Questions relating to Testing and Signalling (where applicable to the technology and service) are the same as Section A.1.

# Sample Lot – Section B

Section B is for Distribution-Connected Candidates only.

PRIMARY OPERATING RESERVE (POR) SECTION B - PASS/FAIL TECHNICAL QUESTIONNAIRE FOR DISTRIBUTION CONNECTED PROVIDING UNITS ONLY				
Q No.	Description	Response	Minimum Evidence Required to demonstrate compliance	Please provide document name, location and cross reference number in submission for explanation where required [e.g. pg.4 POR]
1.15	If the Providing Unit is connected to the Ireland/ Northern Ireland Distribution System or will be before <b>1 October 2021</b> , do you understand that formal notification must be provided from the relevant DSO/DNO confirming consent for the service to be provided by <b>13 August 2021</b> ?		Tenderer must respond YES. Formal notification from the relevant DSO/DNO confirming consent for the Providing Unit to provide the service must be provided by 13 August 2021.	

# Sample Lot – Section C

Section C is for information purposes but must be completed as specified.

PRIMARY OPERATING RESERVE (POR) SECTION C - TECHNICAL (FOR INFORMATION PURPOSES ONLY) QUESTIONNAIRE				
Q No	Description	Response	Parameter (All orange fields must be completed, if not)	Notes
<b>Operating Reserve Questions Relating to POR (DYNAMIC RESPONSE)</b>				
2	If the Providing Unit can provide a Dynamic Response please confirm and complete questions 2.1 - 2.10.			
2.1	What is the Reserve Trigger Capability of the Providing Unit? (Definition of Reserve Trigger Capability given below).			
2.2	Is the Reserve Trigger adjustable? (Definition of Reserve Trigger given below).			
2.3	If the Reserve Trigger is adjustable what is the adjustable range? Please note that the lower limit of the range cannot be lower than 49.3 Hz and the upper limit of the range cannot be above 49.985 Hz.			
2.4	Is the Governor Droop adjustable?			
2.5	What is the Governor Droop adjustable range?			
2.6	What is the Governor Droop currently set at whether fixed or adjustable?			
2.7	At what capacity is the droop referenced? NOTE: Droop is normally referenced against Registered Capacity.			
2.8	If the Providing Unit is a part or whole of a CCGT Installation and can operate in Open Cycle Mode, what is the Governor Droop adjustable range when operating in Open Cycle Mode?			
2.9	If the Providing Unit is a part or whole of a CCGT Installation and can operate in Open Cycle Mode, what is the Governor Droop currently set at whether fixed or adjustable when operating in Open Cycle Mode?			
2.10	If the Providing Unit is a part or whole of a CCGT Installation and can operate in Open Cycle Mode, at what capacity is the droop referenced if not referenced against Registered Capacity when operating in Open Cycle Mode?			
<b>Operating Reserve Questions Relating to POR (STATIC RESPONSE)</b>				
3	If the Providing Unit can provide a Static Response please confirm and complete questions 3.1-3.7.			
3.1	What is the Reserve Trigger Capability of the Providing Unit? (Definition of Reserve Trigger Capability given below).			
3.2	If the Reserve Trigger is adjustable what is the adjustable range? Please note that the lower limit of the range cannot be lower than 49.3 Hz and the upper limit of the range cannot be above 49.985 Hz.(Definition of Reserve Trigger given below).			
3.3	What is the Reserve Trigger currently set at (where applicable)?			
3.4	Is the Reserve Trigger adjustable?			
3.5	What is maximum number of Reserve Step Triggers? (Definition of Reserve Step Triggers given below).			
3.6	Is each Reserve Step Size adjustable? (Definition of Reserve Step Size given below).			
3.7	If the answer to question 3.6 is YES, please specify the Reserve Step Sizes which are adjustable and provide the associated adjustable range in MW.			
<b>General Primary Operating Reserve (POR) Technical Questions</b>				
4.1	What is the maximum volume of POR that the Service Provider is seeking to contract for the Providing Unit under the Regulated Arrangements?			
4.2	Please provide POR Reserve Characteristics.			Please complete "Reserve Characteristic" sheet

Tenderers must specify the total contracted volume that is being applied for.

## Tender Pack and Technical Questionnaire

### Q & A

TSOs will provide a verbal response to select queries received during the webinar.

All queries will receive a written response following the webinar.





A photograph of three men standing in front of a white vehicle, possibly a mobile office or information centre. The man on the left, wearing a dark green jacket, is pointing at a clipboard held by the man in the middle. The man on the right, wearing a blue and red plaid shirt, is looking at the clipboard. The background shows a rural landscape with cows and a power line tower. The vehicle has text on its side, including 'Information Centre' and 'Working w safe, secu supply of'.

# Testing and Signalling

Michael Beggs

# DS3 System Services Compliance Webpage

- EirGrid website has a DS3 System Services compliance webpage at <http://www.eirgridgroup.com/customer-and-industry/general-customer-information/grid-code-compliance-test/compliance-testing/system-services-testing/index.xml>
- System Services test reports and procedures per technology type
- System Services signalling requirements / lists per technology type
- Any questions on testing / signals can be directed to the relevant testing team:
  - [Generator\\_Testing@EirGrid.com](mailto:Generator_Testing@EirGrid.com)
  - [Generator\\_Testing@SONI.ltd.uk](mailto:Generator_Testing@SONI.ltd.uk)
  - [DSU@eirgrid.com](mailto:DSU@eirgrid.com) (*for DSU related queries*)





# Tender Testing Requirements

- Tenderers **must** engage with our testing teams prior to tender submission
- Tender submissions **must** be accompanied by:
  - Approved recent DS3 System Services Test Report
  - Or
  - Evidence of recent testing, where a Test Report has not yet been approved
  - Or
  - Confirmed Testing Date
  - Or
  - Confirmation from TSOs that alternate test data can be used for the purpose of demonstrating capability

# Testing Dates

- **Early engagement** please.
- Please contact us **now** to book testing slots if you intend to tender for services.
- Testing Dates (subject to availability)
  - First date: Now
  - Last date: **Friday 6<sup>th</sup> August 2021**
  - Test dates must be agreed by: **14<sup>th</sup> July 2021**
    - **This applies to all testing whether witnessed or unwitnessed by TSOs**
- Testing deadlines will be enforced e.g. 10 working days to submit a report post test (note – TSOs may return reports that are incomplete)
- **Friday 20 August 2021** is the deadline for an approved test report.

# Testing Documentation

- Scope – Document to be submitted 2 BD following confirmation of test date outlining the services the unit wishes to contract for including a detailed plan and timeline of how they will achieve these goals.
- Checklist – A checklist is to be completed with each report to ensure all required aspects of a complete report are met. This is to help mitigate delays at the report reviewing stage.
- Templates for the documents are available on the EirGrid website.

# Updated Testing Documentation

- WFPS Operating Reserve
  - May not witness unless Emulated Inertia
  - Tests will still be scheduled via existing calendar process
- Conventional TOR2
  - EDIL instruction or suitable alternative
- Battery Ramping Services
  - Alternative options if EDIL instruction and TOD are not feasible

# Testing of DSUs

- **Early engagement** please
- **When requesting a Testing Date:**
  - DSUs must submit a DSU application at the same time
  - This is required in order for the TSOs to understand the scope of the unit's testing requirements and to resource accordingly
  - Ramping or Capacity tests only witnessed as needed – new DSU or testing > 10 MW
  - Tests will still be scheduled via existing calendar process
- **Individual Demand Site switching:**
  - Please ensure that applications are supported by satisfactory evidence, for example a letter of intent, that contracts with the site will be in place by 1<sup>st</sup> October 2021, as well as consent from the sites to be tested
  - The Providing Unit must provide signed correspondence (or e-mail approval) from the site confirming that it will ensure to declare down availability with another Aggregator during any associated testing period

# Reserve Testing Standards

- No change to the testing standards from Gate 4B
- For reserve services, the following standards apply:
  - Conventional units – a frequency injection of 200 mHz to 500 mHz
  - Wind farms – a frequency injection of 200 mHz
  - Aggregators – based on the unit's reserve trigger(s)
  - Interconnectors – based on the unit's reserve trigger(s)
  - Batteries – based on the unit's reserve trigger(s)
- TOR2 assessment:
  - TOR2 may be assessed from a frequency injection
  - TOR2 may be assessed based on approved TOD

# Signalling Requirements

- Certain DS3 System Services have specific signalling requirements:
  - Dependent on the Providing Unit's technology
  - Noted in the relevant Lot of the Technical Questionnaire
  - Published on the DS3 System Services Compliance webpage
  - Refer to 'DS3 System Services New Signaling Requirements for the Regulated Arrangements' document dated November 2019 (in tender pack)
  
- Signalling requirements obligations must be met by **Friday 20<sup>th</sup> August 2021**:
  - Providing Unit must request a site-specific Signal List
  - TSO issues site-specific signal list (based on TSO templates & site-specific info)
  - Providing Unit must make the signals available to the TSO (at interface)
  - Providing Unit must complete, sign and submit the site-specific Wiring Certificate

## Testing and Signalling

### Q & A

TSOs will provide a verbal response to select queries received during the webinar.

All queries will receive a written response following the webinar.





## Webinar – Concluded

### Queries on Volume Uncapped Gate:

- Send no later than 12:00 hrs Irish Time on **28<sup>th</sup> June 2021**.
- To: [anna.pockock@eirgrid.com](mailto:anna.pockock@eirgrid.com) and [tenders@eirgrid.com](mailto:tenders@eirgrid.com)

EirGrid will respond to all queries by **02<sup>nd</sup> July 2021**.

Webinar slide deck will be published shortly.

