System Services Bidders' Conference

19 December 2017

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Agenda

Topic	Time	Speaker
Registration (Tea & Coffee)	09.30	
Introduction	10.00	Ian Connaughton
Procurement Process	10.10	Anthony Flood
System Services Contracts	10.40	Niamh Delaney
Questions Session	11.10	Panel
Protocol Document	11.40	Eoin Kennedy / Joe Deegan
Testing Document	12.10	Karl O'Keeffe
Performance Monitoring	12.40	Diarmaid Gillespie
Questions Session	12.55	Panel
Session Closed	13.20	Ian Connaughton

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Procurement Process

Anthony Flood

Procurement Process Overview

1. OJEU Notice
2. DS3 System Services Agreement
3. Qualification System
4. Gate Process
5. Lots
6. Procurement Process
7. Providing Unit
8. Tender Response
9. Tender Evaluation
10. Queries
11. Tender Submission
12. Timetable

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OJEU

- Given the monetary value of the DS3 System Services – Volume Uncapped (excess €418k) we are required to run a full tender process in line with EU Utilities Directive
- OJEU Notice Published on 12 December 2017
- Qualification System to be established
- Documents available on eTenders www.etenders.gov.ie
- We are running this as two stages in one process
  - Pre-Qualification (EOI) and
  - Tender

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 being put 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).

Start Date of the DS3 System Services Agreements is 1st May 2018.

Term of DS3 System Services Agreements will be 5 years

- Option for each TSO to extend for the term of its Contract in respect of any or all of its applicable Lots in certain defined cases for two additional time periods of up to eighteen (18) months each.

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Qualification System

Qualification System – refers to the system that will be put in place to enable interested parties to submit a Response and subsequently qualify for award of Contract for provision of DS3 System Services.

Qualification System will be maintained for an indefinite period - anticipated to be 5 years from the date of its establishment with the option to extend at the Contracting Entities' discretion and subject to Regulatory Authority approval.

There are 14 System Services in total to be procured, as part of this Qualification System, over 28 lots (14 for EirGrid and 14 for SONI).

11 of the Services are existing Services and 3 are new Services.

The first 11 services will be procured as Phase 1 in accordance with this procurement process. The remaining 3 services will be procured in accordance with a separate Call for Competition (Phase 2).

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Gate Process

Gate Process – refers to the period subsequent to the initial procurement phases 1 and 2 whereby Tenderers may apply for a place on the Qualification System at any time.

- EirGrid will issue additional notices on the existence of the Qualification System on the OJEU / EirGrid website outlining the requirements and timeframes involved.
- 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.
- The exact timing of Gate Dates will be at EirGrid's discretion.

Gate Process - Continued

Admission to the Qualification System through this gate process is subject to a Tenderer meeting all of the minimum requirements against the relevant criteria for award.

This will be set out in the documentation which will be published for each Gate Date.

Existing members of the Qualification System may submit a Response for additional Lots or amend / update their existing Contract.

Any amendments to the Qualification System / Terms and Conditions of the Contract, which may be announced in subsequent notices, may apply to these revised Contracts.

All information will be provided to the market in advance of these Gate Dates, primarily via the EirGrid Group website.

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Lot Numbers

The requirements of each Service are detailed in the DS3 System Services Agreements and in the relevant Grid Codes as applicable.

The Services are split into a number of lots for each of the TSOs as follows:

- **Lots 1IE – 14IE** relate to the System Services required by EirGrid.
- **Lots 1NI – 14NI** relate to the System Services required by SONI.

Lot Numbers EirGrid Phase 1

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

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Lot Numbers SONI Phase 1

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

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Lot Numbers Phase 2

EirGrid Phase 2	
FFR L12IE	Fast Frequency Response
FPFAPR L13IE	Fast Post-Fault Active Power Recovery
DRR L14IE	Dynamic Reactive Response
SONI Phase 2	
FFR L12NI	Fast Frequency Response
FPFAPR L13NI	Fast Post-Fault Active Power Recovery
DRR L14NI	Dynamic Reactive Response

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Procurement Process – Successful Tenderers

- Any interested provider will be permitted to **submit a response** in respect of any **one, more or all of the lots**.

- It is envisaged that there will be no limit to the number of Tenderers who can be appointed to the Qualification System. However, it is at the Contracting Entities' absolute discretion to limit the number of successful Tenderers under any given Lot.

- All Tenderers who submit a **compliant response** for a particular lot or lots and **subsequently sign the DS3 System Services Agreement** for those lots will be deemed **the "successful Tenderers" for those lots** and appointed to the Qualification System in respect of those lots.

Providing Unit

Tenderers must submit a separate standalone tender for each and every Providing Unit

Providing Unit

- If registered in the SEM, to the extent that is required, Providing Units should apply in accordance with how they are registered in the SEM.
- If not registered in the SEM, the Providing Unit is the Unit or collection of Units behind a single connection point.
- In the case of an Aggregator, the Providing Unit is the collection of sites which is controlled by the Aggregator, and the interface with the TSO shall be with the Aggregator.

Note: A Tenderer may have more than one Providing Unit

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Tender Response

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.

Tender Evaluation

All Responses will be evaluated, on a lot by lot basis and Providing Unit by Providing Unit basis.

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 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.

Qualification Criteria

Selection Criterion	Minimum Requirement	Weighting	Minimum
Exclusionary Criteria Declaration	Exclusionary Criteria Declaration must be completed satisfactorily. See Form 2 of Qualification System Briefing Document.	Pass/Fail	Pass
Financial & Economic Standing	Tenderers must complete the Self-Declaration of Financial and Economic Capacity. See Form 2 of Qualification System Briefing Document.	Pass/Fail	Pass
Health & Safety, Environment and Employment	Tenderers must demonstrate that they comply with the relevant health and safety, environmental and employment legislation. See Form 2 of Qualification System Briefing Document.	Pass/Fail	Pass

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Award Criteria

Award Criterion	Description	Weighting	Minimum
Technical Compliance	Tenderers are required to demonstrate compliance against the requirements set out in the Technical Questionnaire and Scope of Work, for each Lot they are applying for.	Pass/Fail	Pass
Legal	Acceptance of contractual conditions in accordance with Form 3. Tenderers shall complete the Contractual Acceptance Declaration as part of their tender submission. This verifies that Tenderers accept the Terms and Conditions as issued.	Pass/Fail	Pass

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Award Criteria Assessment

The Technical Questionnaire outlines a set of questions :

- Section A - For evaluation purposes
- Section B - For evaluation purposes (where relevant)
- Section C - For information purposes

- For Section A and Section B (where relevant) of the Technical Questionnaire:
  - A pass is awarded for every requirement that is met. A fail is allocated for every requirement that is not met.

- A Tenderer must meet every single requirement (i.e. get a pass for every requirement in Section A (and B where applicable) in the Technical Questionnaire) in order to meet the minimum required score.

- Note: This involves Tenderers confirming compliance of their proposal with the requirements set out in the Technical Questionnaire and providing satisfactory evidence where required. If it is not, the tender may be rejected.

Tenderers who fail to meet the minimum requirement will be excluded from further participation.

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Documents Required

- **Details of Tenderer – Form 1,** duly signed
- **Declarations – Form 2,** all templates completed and details provided for the **Qualification Criteria**
- **Contract Acceptance Declaration – Form 3,** duly signed
- **Tender Questionnaire,** all templates completed and details provided as appropriate to Lots being tendered. **This must be provided in Excel.**

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Queries

Queries from this Bidders' Conference

- We will endeavour to respond to all queries today
- We request Tenderers to formally submit queries via email
- Formal response will issue to all Tenderers which may supersede information provided today

General Queries

- Submitted by email
- In Clarification Template
- Not later than **12:00hrs Irish Time on Monday 8th January 2018**
- Addressed to: Sinead Connolly Email: sinead.connolly@eirgrid.com and purchasing@eirgrid.com

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Submission of Tenders

The completed Tender shall be enclosed in a sealed envelope bearing the label provided in the Tender pack and containing the required information and shall be delivered not later than **12:00 hrs Irish Time on Thursday 8th February 2018.**

Tenderers are required to provide **three (3) paper copies** of the tender documents and **one soft copy on disk or memory key**

The soft copy shall contain all of the documents included in the hard copy

- **It is EirGrid policy to open tenders promptly on the closing date**
- **The Tenderer is fully responsible for the timely delivery of the tender**
- **Late tenders may be returned unopened to the Tenderer**

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Timetable

Event	Date
Issue date for OJEU Notice	12th December 2017
Bidders' conference	10.00am on 19th December 2017
Latest date for receipt of queries	No later than 12.00noon Irish Time 8th January 2018
Latest date for receipt of tenders	No later than 12.00noon Irish Time on 8th February 2018
Notification of Successful Tenderers - anticipated	Mid April 2018
Standstill Period	14 days from Notification date
Contract Commencement	01st May 2018

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Thank You!

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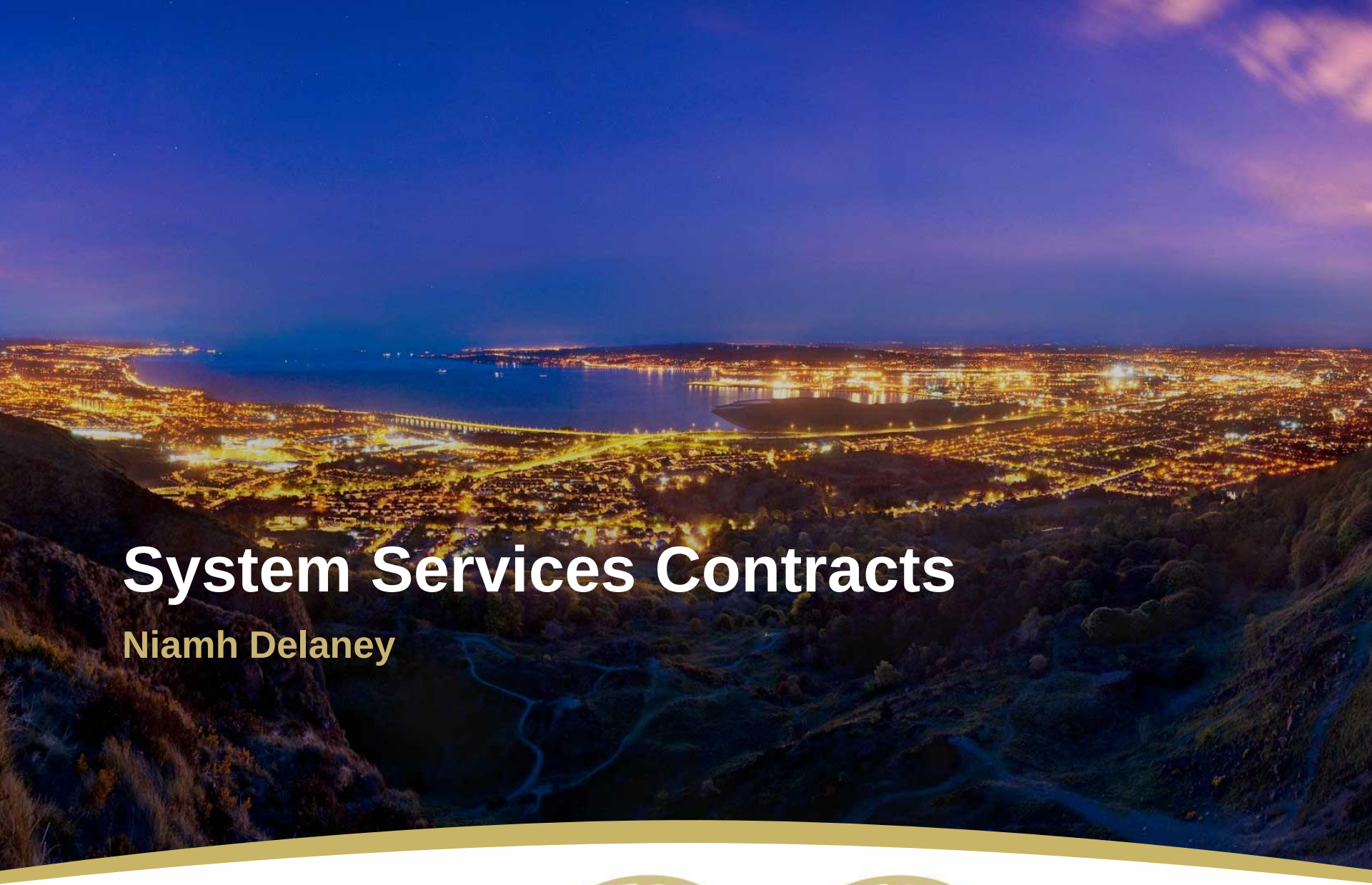

System Services Contracts

Niamh Delaney

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Summary of main Outcomes of Contracts Consultation

Procurement

- Volume Uncapped procurement – no restriction on high availability units from tendering
- Published Contracts apply to Volume Uncapped only
- Volume Capped arrangements will be subject to further consultation
- “Bundling” of services for Volume Capped arrangements will be subject to further consultation

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Summary of main Outcomes of Contracts Consultation

Contracts

- Term of Volume Uncapped contracts will be up to 5 years
- One year Termination clause for Volume Uncapped contracts
- Volume Uncapped contracts allow for review of tariffs and Temporal Scarcity Scalars subject to industry consultation and RA approval
- Values of the Temporal Scarcity Scalars specified in the Protocol
- Governance of the Protocol:
  - all future changes will be subject to industry consultation and RA approval
  - change proposals will be allowed a maximum of once every 3 months

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Summary of main Outcomes of Contracts Consultation

Market Position vs. Physical Dispatch

- The TSOs will work with the RAs to develop the payment rules for Market Position vs. Physical Dispatch, ahead of I-SEM go-live

- Resettlement (accounting for the impact of the market position) to cover the period back to 1 June 2018 will follow TSO settlement system implementation of the rules

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Summary of main Outcomes of Contracts Consultation

FFR Issues

- The product scalar for the enhanced delivery of FFR will incentivise the provision of FFR from Providing Units with dynamic and static capability
- Frequency response curves will apply for each of dynamic and static capability for the provision of FFR
- In the Performance Assessment of FFR, the initial response of the Providing Unit at its required response time will be weighted more heavily than its maintained response for the duration of the FFR timeframe

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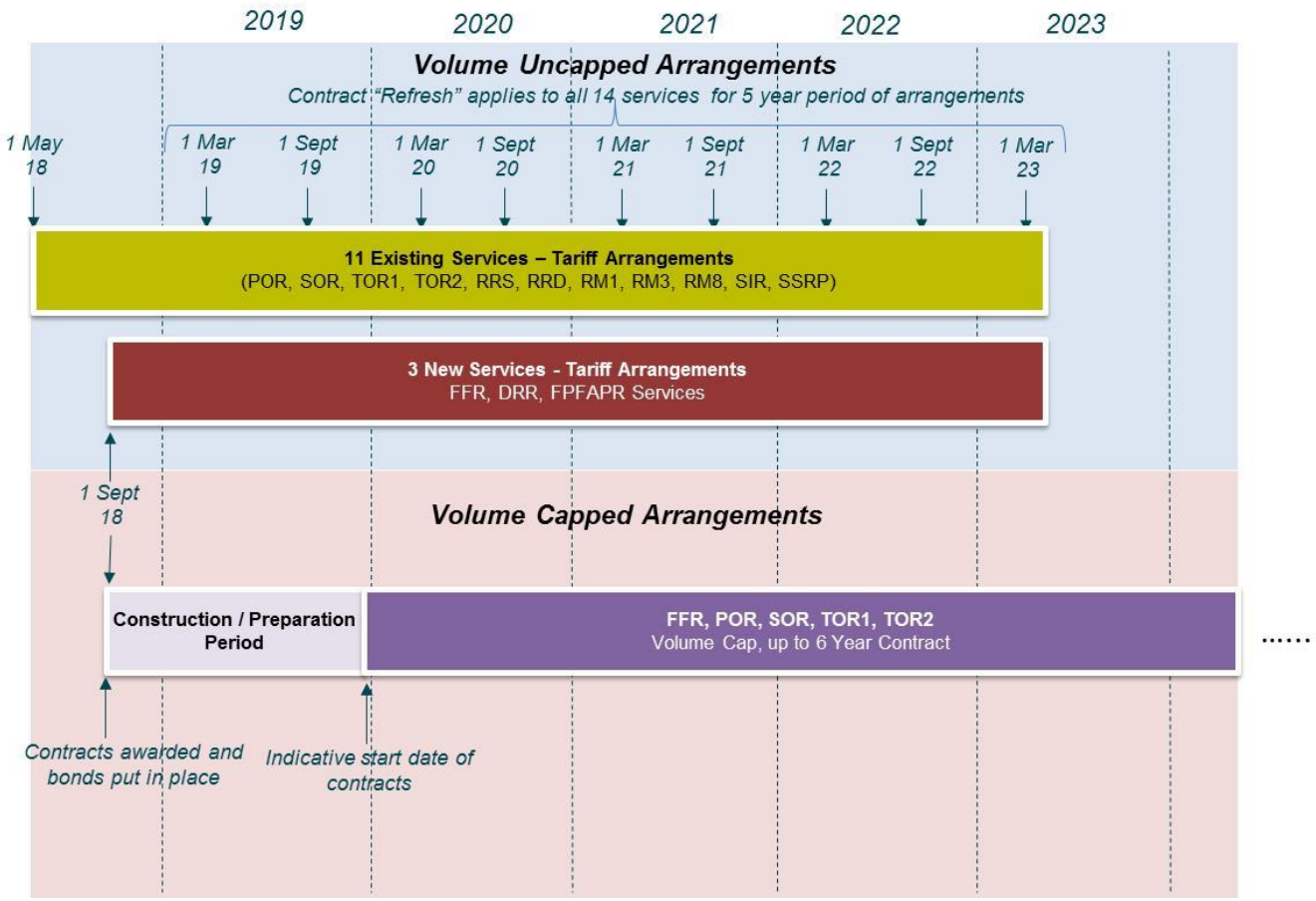
Regulated Arrangements Timeline



Contractual Arrangements

DS3 System Services Protocol –

Regulated Arrangements

DS3 System Services Implementation Project

12 December 2017

Version 1.0

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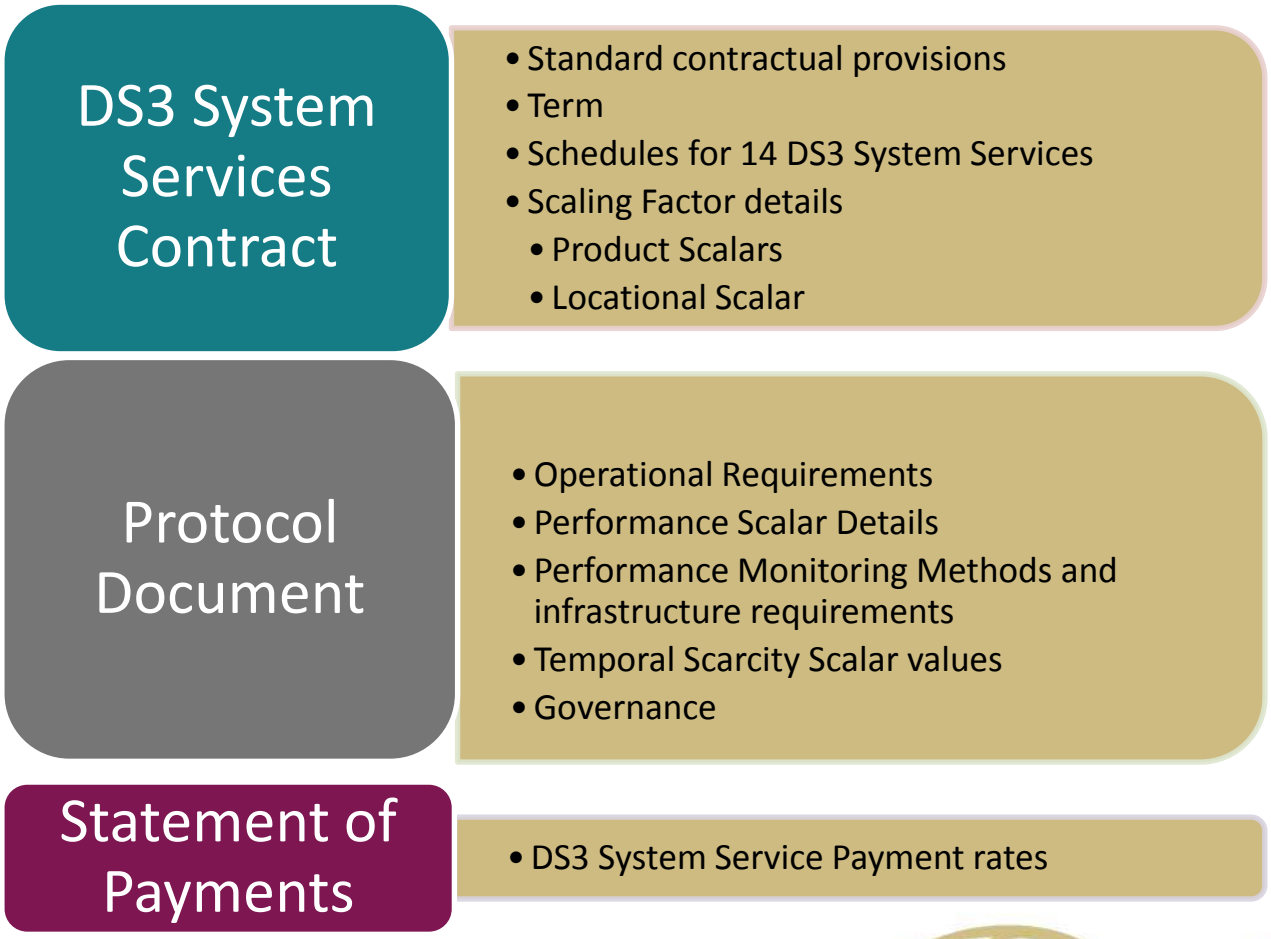
Regulated Arrangements Contractual Arrangements



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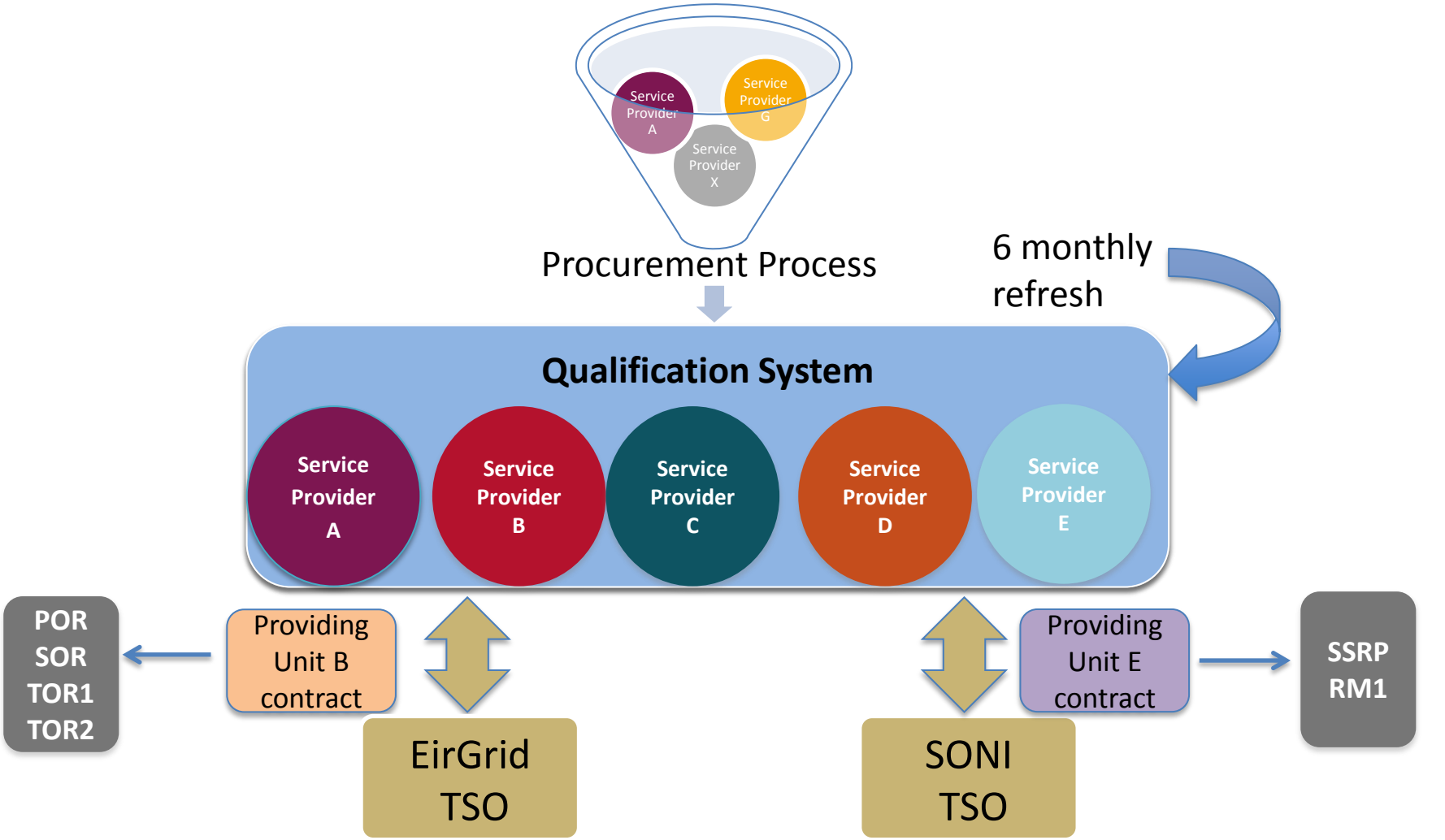
Volume Uncapped Procurement



Technical Questionnaire - Guidance Sheet

: 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 who 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 contracting process, and must be completed by a Tenderer that wishes to contact for that lot.

: 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 a Providing Unit and details should be supplied accordingly.

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

FOR COMPLETION BY TENDERER	
Service Provider	
Providing Unit	
ID in SEM (if applicable)	
If the Providing Unit is connected to the Ireland/ Northern Ireland Distribution System or will be before 1 May 2018, the TSO will share all information relevant to DSO/DNO approvals with the DSO/DNO (as applicable), unless the Tenderer does not wish them to do so. If the Tenderer does not wish the TSO to share information relevant to DSO/DNO approvals with the DSO/DNO, Tenderer must respond NO. If Tenderer agrees for relevant information to be shared with the DNO/DSO, Tenderer must respond YES.	

If the Tenderer replies NO (i.e. does not give permission for the TSO to share this information with the DSO/DNO (as applicable)), 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 8th February 2018. This information may be submitted either in written or electronic format to the following address (as applicable):

EirGrid Contracts (DSO-connected Tenderers) submissions to:
Pádraig Lyons
ESB Networks Leopardstown
Leopardstown Rd
Foxrock
Dublin D18 XN80

Electronic submission: Submission via email is also acceptable. A signed copy should be sent to padraig.lyons@esb.ie. no later than 8th February 2018.

SONI Contracts (DNO-connected Tenderers) submissions to:
David Hill
NIE Networks Ltd
Carn Industrial Estate
Portadown
Co. Armagh
BT63 5QJ

Electronic submission: Submission via email is also acceptable. A signed copy should be sent to David.hill@nienetworks.co.uk no later than 8th February 2018.

PLEASE 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 COMPLIANCE

IRELAND			CONFIRMATION
		ARE YOU APPLYING FOR THIS LOT?	
		HAVE YOU COMPLETED THE TECHNICAL QUESTIONNAIRE?	
		HAVE YOU FILLED IN THE APPROPRIATE RESERVE CHARACTERISTIC INFORMATION (WHERE APPLICABLE)?	
		ARE YOU APPLYING FOR THIS LOT?	
		HAVE YOU COMPLETED TECHNICAL QUESTIONNAIRE SHEET?	
		HAVE YOU FILLED IN THE APPROPRIATE RESERVE CHARACTERISTIC INFORMATION (WHERE APPLICABLE)?	
		ARE YOU APPLYING FOR THIS LOT?	
		HAVE YOU COMPLETED THE TECHNICAL QUESTIONNAIRE SHEET?	
		HAVE YOU FILLED IN THE APPROPRIATE RESERVE CHARACTERISTIC INFORMATION (WHERE APPLICABLE)?	
LOT4(IE	TOR2	ARE YOU APPLYING FOR THIS LOT?	
		HAVE YOU COMPLETED THE TECHNICAL QUESTIONNAIRE SHEET?	

NORTHERN IRELAND			CONFIRMATION
LOT1(NI	POR	ARE YOU APPLYING FOR THIS LOT?	
		HAVE YOU COMPLETED THE TECHNICAL QUESTIONNAIRE?	
		HAVE YOU FILLED IN THE APPROPRIATE RESERVE CHARACTERISTIC INFORMATION (WHERE APPLICABLE)?	
LOT2(NI	SOR	ARE YOU APPLYING FOR THIS LOT?	
		HAVE YOU COMPLETED TECHNICAL QUESTIONNAIRE SHEET?	
		HAVE YOU FILLED IN THE APPROPRIATE RESERVE CHARACTERISTIC INFORMATION (WHERE APPLICABLE)?	
LOT3(NI	TOR	ARE YOU APPLYING FOR THIS LOT?	
		HAVE YOU COMPLETED THE TECHNICAL QUESTIONNAIRE SHEET?	
		HAVE YOU FILLED IN THE APPROPRIATE RESERVE CHARACTERISTIC INFORMATION (WHERE APPLICABLE)?	
LOT4(NI	TOR	ARE YOU APPLYING FOR THIS LOT?	
		HAVE YOU COMPLETED THE TECHNICAL QUESTIONNAIRE SHEET?	

GENERAL GUIDANCE NOTE | PQ Capability | Reserve Characteristic | LOT1(IE) POR | LOT1(NI) POR | LOT2(IE) SOR | LOT2(NI) SOR | LOT3(IE) TOR1 | LOT3(NI) TOR1 | LOT4(IE) TOR2

Section A is Pass/Fail for all units

Section B is Pass/Fail for distribution-connected units

Section C is for information but must be completed as specified

TSO will share relevant information with the DSO/DNO if tenderer agrees

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Technical Questionnaire- Sample Lot (Section A)

INSTRUCTIONS FOR COMPLETING THIS SHEET.
PLEASE COMPLETE ALL ORANGE FIELDS. IF NOT APPLICABLE, PLEASE TYPE IN "N/A" MANUALLY WHERE REQUIRED.
PLEASE PROVIDE CROSS REFERENCE TO SUBMISSION WHERE ADDITIONAL INFORMATION IS REQUIRED.
PLEASE SCROLL DOWN FOR SECTIONS B & C.

PRIMARY OPERATING RESERVE (POR) SECTION A - PASS/FAIL TECHNICAL QUESTIONNAIRE (COMPLETE EITHER SECTION A.1 OR SECTION A.2 AS APPLICABLE)

Q No.	Description	Response	Parameter	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 Testing Report)
SECTION A.1 - EXISTING CONTRACTED ENTITIES ONLY					
1.1	Has the Providing Unit an existing DS3 System Services Interim Framework Agreement for POR for a non-zero value?			Tenderer must respond YES and provide Schedule 9 of the DS3 System Services Interim Framework Agreement which indicates the associated contracted values for this service. 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.A6 for DSU).	
1.2	If the answer to 1.1 above is YES, is the Providing Unit applying to change the Reserve Characteristic for POR relative to the values specified in its DS3 System Services Interim Framework Agreement or to change from Static to Dynamic service provision or vice versa?			Tenderer must respond either YES or NO. If Tenderer responds YES, Tenderer must answer questions 1.3A-1.4 and all of Section C. If Tenderer responds NO, Tenderer only needs to answer Question 1.4 and either Questions 2-2.10 or Questions 3-3.7 (as applicable) in Section C.	
1.3A	Has the Providing Unit a TSO-approved Testing Report (and Wiring Cert where applicable) 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 1.3B & 1.3C)			Tenderer must respond either YES or NO. If Tenderer responds YES, Tenderer must provide the TSO-approved Testing Report (and Wiring Cert where applicable) demonstrating the Providing Unit's capability. If Tenderer responds NO, Tenderer must respond to questions 1.3B - 1.3C and provide the associated evidence.	
1.3B	If the answer to question 1.3A above is **NO**, please confirm that a Testing Request has been submitted to the TSO and that the TSO has agreed to a date, which must not be after 2 April 2018, for testing to take place. Tenderer must provide evidence.			Tenderer must respond YES. Tenderer must provide written confirmation from the relevant system operator confirming that the TSO has agreed a date, which must not be after 2 April 2018, for testing to take place.	
1.3C	If the answer to question 1.3A above is **NO**, do you understand that a Testing Report (and Wiring Cert where applicable) for provision of the POR service must be approved by the TSO by 24 April 2018?			Tenderer must respond YES.	
1.4	Have the relevant questions in Section C been answered?			Tenderer must respond YES and fully complete all relevant questions in Section C.	
SECTION A.2 - ASPIRING ENTRANTS ONLY					
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 information (1000 words maximum) on the Providing Unit's technology as evidence. If Tenderer responds NO, Tenderer must provide evidence (1000 words maximum) that the Providing Unit's technology can provide the service.	
1.6	Is the Providing Unit a Demand Side Unit?			Tenderer must respond YES or NO. If Tenderer responds YES, Tenderer must answer question 1.6A If Tenderer responds NO, Tenderer does not need to answer question 1.6A but must complete remaining questions in this section.	

ANCE NOTE / PO Capability / Reserve Characteristic / **LOT1(IE) POR** / LOT1(NI) POR / LOT2(IE) SOR / LOT2(NI) SOR / LOT3(IE) TOR1 / LOT3(NI) TOR1 / LOT4(IE) TOR2 / LOT4(NI) TOR2 / LOT5(IE) RRD / LO

Section A is divided into sections for units with Interim contracts and aspiring units

Testing Reports required for all services as evidence of increased capability/aspiring units' ability to provide a service

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Technical Questionnaire- Sample Lot (Sections B and C)

A	B	C	D	E	F
	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 Testing Report)
1.14	If the Providing Unit is connected to the Ireland/ Northern Ireland Distribution System or will be before 1 May 2018, do you understand that formal notification must be provided from the relevant DSO/DNO confirming appropriate operational protocols are in place by 16 March 2018?			Tenderer must respond YES. Formal notification from the relevant DSO/DNO confirming appropriate operational protocols will be required by 16 March 2018.	

	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 applicable please indicate N/A.	Notes	Please provide document name, location and cross reference number in submission for explanation where required (e.g. pg.4 POR Testing Report)
	Operating Reserve Questions Relating to POR (DYNAMIC RESPONSE)				
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?				
	Operating Reserve Questions Relating to POR (STATIC RESPONSE)				
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				
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.				
	General Primary Operating Reserve (POR) Technical Questions				
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	

GENERAL GUIDANCE NOTE | PQ Capability | Reserve Characteristic | **LOT1(IE) POR** | LOT1(NI) POR | LOT2(IE) SOR | LOT2(NI) SOR | LOT3(IE) TOR1 | LOT3(NI) TOR1 | LOT4(IE) TOR2 | LOT4(NI) TOR2 | LOT5(IE) RRD | LOT5(NI) F

dy

Section B is Pass/Fail for distribution-connected units

Section C is for information but must be completed as specified

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Volume Uncapped Procurement Timelines

- Deadline for clarification requests :
  - **12 noon January 8 2018**
- Tender submission deadline :
  - **12 noon February 8 2018**
- Notification letters to tenderers :
  - **mid-April 2018**

Protocol Document and FFR Product Definition

Joe Deegan

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Protocol Document

Protocol Document

- Governance
- Operational Requirements
- SNSP Forecasting
- Performance Monitoring
- Temporal Scarcity Scalar Values

Operational Requirements

- Unit must comply with the relevant Operational Requirements applicable to System Services
- Operational Requirements may be separate from and additional to the technical requirements assessed in the procurement process
- Compliance with the Operational requirements may require successful completion of the Compliance Process and be subject to ongoing monitoring

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Operational Requirements

Inclusions
General Operational Requirements
Service Specific Requirements
Technology Specific Requirements
Provision of FFR

FFR Product Definition

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FFR Product Definition

- Dynamic and Static capability – based on criteria
- Frequency Response Curves
- Product Scalar for Enhanced Delivery of FFR
- Some changes to previously consulted-upon proposals

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Provision of FFR with Dynamic Capability

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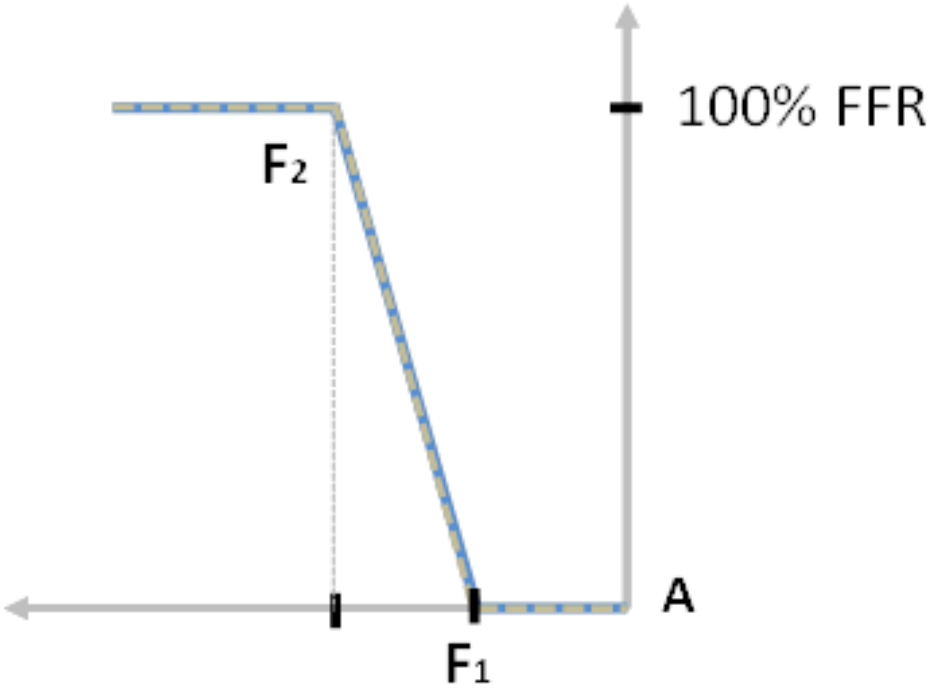
FFR Dynamic Capability



X axis	System Frequency (Hz)
Y axis	FFR Magnitude (%)
A	50 Hz, 0% FFR
F_1	Frequency set point 1
F_2	Frequency set point 2

Frequency falling

Frequency recovering

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FFR Dynamic Capability

- Key changes to the Dynamic Response Curve:
  - 1 frequency trigger set point, instead of 2 as previously consulted upon
  - Response described in terms of 'trajectory', instead of a 'droop'

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FFR Dynamic Capability

- Product scalar for enhanced provision of FFR:

Value Range	Dynamic Scalar Components and Weighting	
0.7 – 1	Dynamic Trigger Scalar	40%
0.2 – 1	Dynamic Trajectory Scalar	60%

FFR Dynamic Capability

- Key changes to Dynamic product scalar composition:
  - Removal of Step Scalar component
  - Trajectory component incentivises capability more sensitive than 0.7 Hz
  - Trajectory component is now weighted more heavily than the previous droop component

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FFR Dynamic Capability

- Criteria for Dynamic Capability:
  - Ability to track frequency changes dynamically
  - Capability to provide at least 10 steps, with no step > 5MW
  - Frequency trigger set point to be at least 49.8Hz
  - Trajectory capability to be at least 2 Hz

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FFR Dynamic Capability

- Criteria for Dynamic Capability continued:
  - Ability to operate without immediate recovery of resource
  - Provision of POR, SOR and TOR1 should mirror unit's FFR response characteristics
  - Appropriate monitoring equipment must be in place

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Provision of FFR with Static Capability

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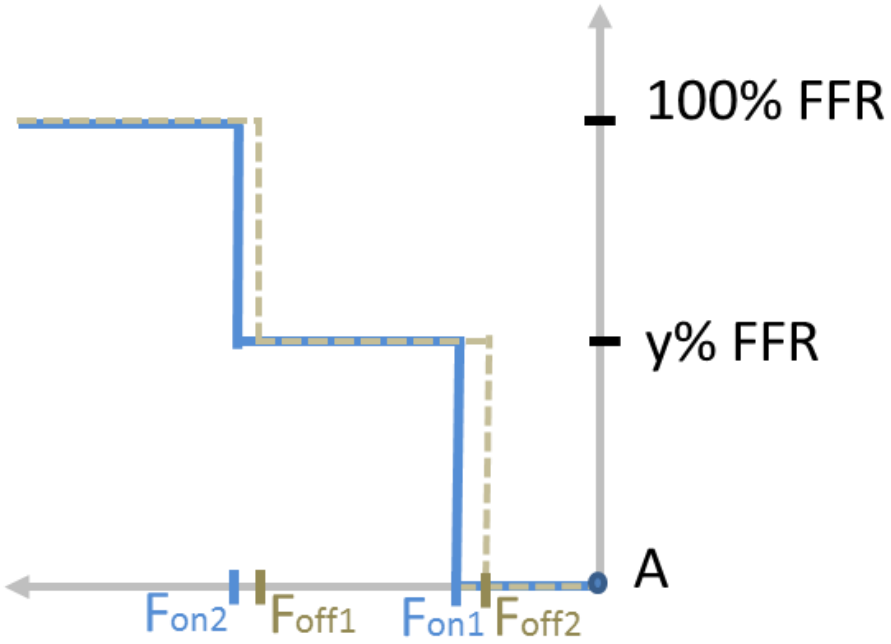
FFR Static Capability



X axis	System Frequency (Hz)
Y axis	FFR Magnitude (%)
A	50Hz, 0% FFR
Fon1	Response Step1
Fon2	Response Step 2
Foff1	Recovery Step 1
Foff2	Recovery Step 2

Frequency falling

Frequency recovering

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FFR Static Capability

- Product scalar for enhanced provision of FFR:

Value Range	Static Scalar Components and Weighting	
0.1 – 0.5	Static Trigger Scalar	40%
0.5 or 1	Static Hysteresis Scalar	40%
0.1 – 1	Static Step Scalar	20%

FFR Static Capability

- Key changes to Static product scalar composition:
  - Static Trigger Scalar value range is from 0.1 to 0.5
  - Static Hysteresis Scalar is now weighted more heavily

FFR Static Capability

- Criteria for Static Capability:
  - Frequency trigger set point is to be at least 49.3Hz
  - Capability to provide discrete step ≤ 75MW
  - TSOs must have the ability to choose when to use the entire static response
  - Smallest discrete step must be ≥ 20% of largest step

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FFR Static Capability

- Criteria for Static Capability continued:
  - Basic recovery of FFR product applies
  - Provision of POR, SOR and TOR1 should mirror unit's FFR response characteristics
  - Appropriate monitoring equipment must be in place

Capability Management

Karl O'Keeffe

EIRGRID GROUP

Topics

- Capability Management
  - Commissioning and Compliance Process
  - When is the compliance Process applied?
  - Example (Synchronous Inertial Response / Minimum Load)
- Guidance Document
- Demonstrating Capability and Evidence
  - Reports
  - Procedures
- Signalling
  - Requirements
  - Process
  - Example for Aggregators providing reserve
- Important Testing Dates
- Webpage

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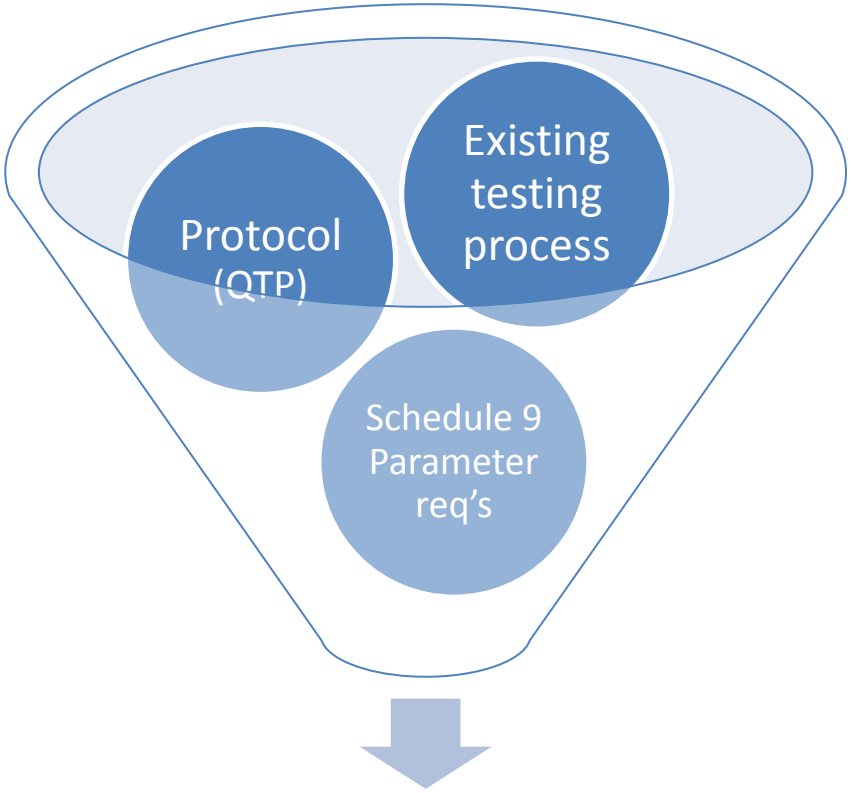
Capability Management



Compliance Process

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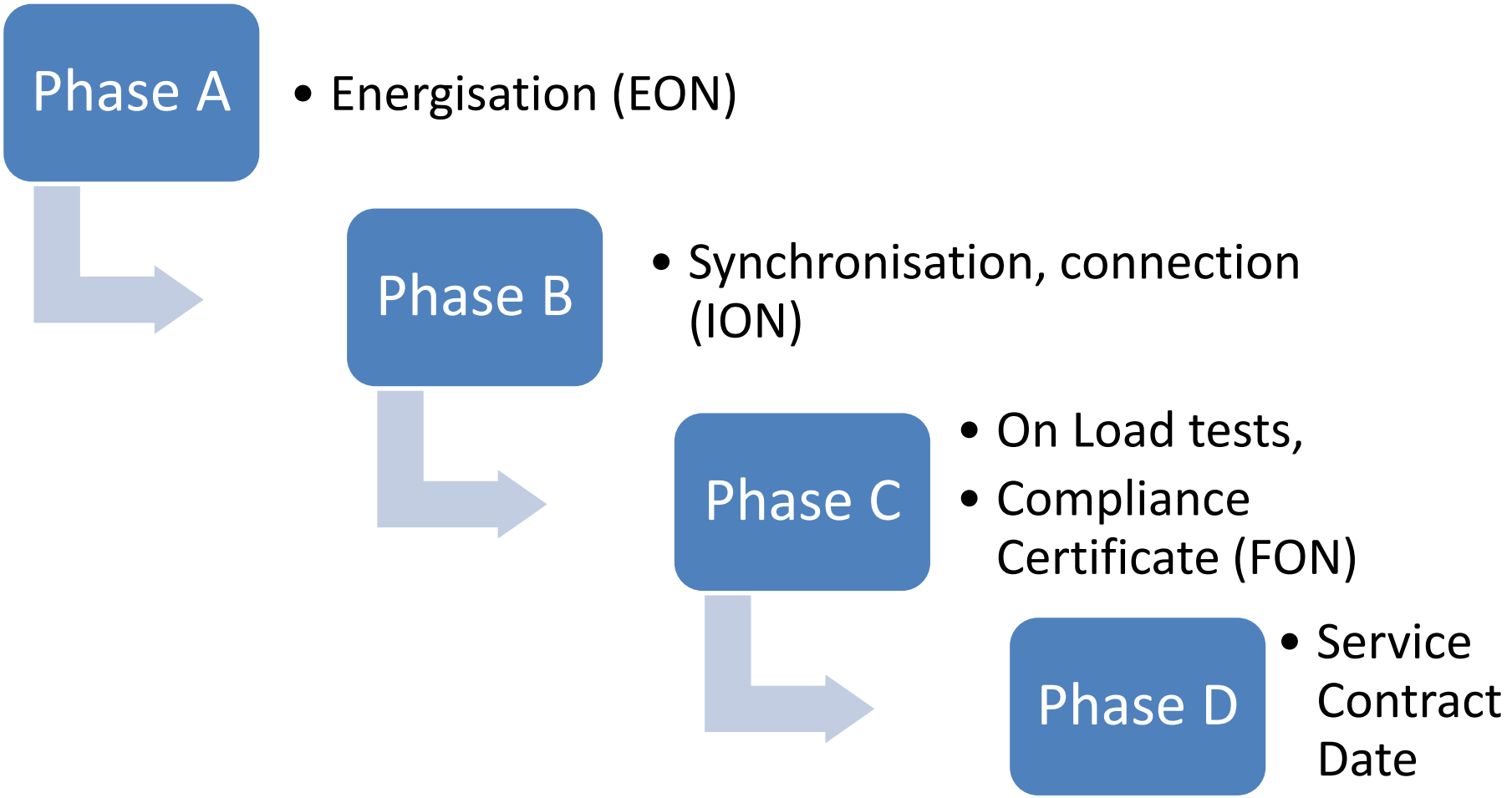
Commissioning and Compliance Process



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When is Compliance Process applied?

1. Existing units (with contract)
   - No changes – resubmit values using existing Schedule 9 contract parameters

2. For new units
   - Complete the process (A,B,C,D)

3. Existing Units (updating or new services)
   - Engage early using the existing process'
   - Submit and agree scope of works and timelines.
   - TSO will review appropriate compliance elements applicable for the System Service Product
   - Complete the process (for which elements of A,B,C,D may apply)

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Example - Synchronous Inertial Response

- Increase SIR with reduction in Minimum Load
  - Innovative conventional loading products
- TSO Impact Assessment
  - Phase A – review studies – FRT, RoCoF
  - Phase C – Fuel types, Minimum Load, Ramping, Time from Sync to Min Load, Reactive Power, Operating Reserves
  - Phase C – Update TOD and agree effective date
  - Phase D – SIR contract
- Where existing performance information is available this is used and the testing scope is reduced.
- Testing and operation to be completed within specified licence limits e.g. emissions limits.

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Guidance Document

- Assist units in planning and coordinating changes to capability.
  - List of proven technologies and services
  - Expected timelines for demonstration
    - *E.g.* engaging in testing process to demonstrate the quantity of service a unit can provide
  - Changes agreed & coordinated with EirGrid, SONI
  - Impact of changes
    - Interaction with Grid Code
    - Tests required

Demonstrating Capability and Evidence

- Test Report Templates
  - What data is required
  - How to assess that data
  - Where existing performance information is available this is used and the testing scope is reduced.
  - Example – WFPS FFR, POR, SOR, TOR1
- Test Procedure Templates
  - Steps to gather required data
  - Overlap with Grid Code Compliance Testing
  - Example – SSRP Synchronous machines

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Signalling Requirements

- Signals are required to manage provision of the services
  - Based on QTP findings
- Update published templates
  - Wind Farm
  - Demand Side Units
- Signal Specifications document
- Functional compliance checks completed in advance of compliance testing

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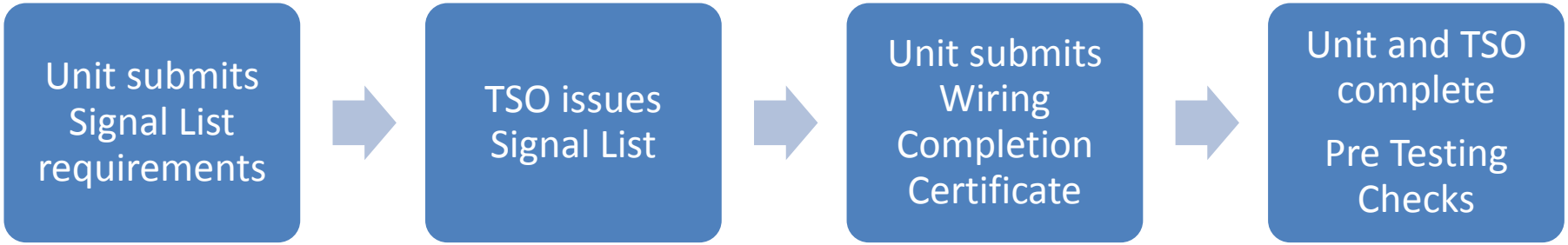
Signalling Process



Example – Aggregators providing reserve

- Application Form Updates incl. System Services
- Signal Requirements
  - Protocol requirements apply
  - Retrofit of existing RTU
  - Wiring Completion Certificate required
  - 1 Hz SCADA data with a latency of no more than 5 seconds
- Performance Measurement Device Standards for Fast Acting Services installed
  - Provide installed spec and list of applicable sites
- Injection Testing in line with the Published Test Procedure.

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Aggregators – New Signals

1. FFR Availability (MW)
2. POR Availability (MW)
3. SOR Availability (MW)
4. TOR1 Availability (MW)
5. Frequency Response Provided (MW)
6. Aggregated Incomer Load for all Sites Providing Frequency Response (MW)
7. Reserve Response mode (No.1-6)

Important Testing Dates

- Existing Units, making changes or providing new services
  - Early engagement required.
- Agreed TSO Testing dates shall not be after 2 April 2018.
- Report (and Wiring Cert where applicable) shall be approved by the TSO by 24 April 2018.
- The Providing Unit must be registered in SEM by 1 May 2018 in order to qualify to provide this service.

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Webpage

- http://www.eirgridgroup.com
- Single location for the relevant documents
  - Guidance Document
  - Signal Lists
  - Reports & Procedures
- Developed for industry use
  - feedback welcome

Performance Monitoring

Diarmaid Gillespie

EIRGRID SONI

Performance Monitoring of DS3 System Services

Service	Assessment Period	Assessment	Performance Incident Scaling Factor, Q_i
POR	T+5s to T+15s	Point in time difference between Expected POR and the Achieved POR response at t=5s	Pass ≥ 90% 70% > Partial Pass < 90% Fail ≤ 70%
SOR	T+15s to T+90s	Difference between Expected SOR and the Achieved SOR response for each sample point and average deficit produced	Pass ≥ 90% 70% > Partial Pass < 90% Fail ≤ 70%
TOR1	T+90s to T+300s	Difference between Expected TOR1 and the Achieved TOR1 response for each sample point and average deficit produced	Pass ≥ 90% 70% > Partial Pass < 90% Fail ≤ 70%
TOR2	T+300s to T+20mins	Not assessed	Set equal to Q_i for TOR1
RRS	-	Not assessed	Set equal to Q_i for TOR1

Where T=0s is the start of the Frequency Event when the frequency falls through the Reserve Trigger for that Providing Unit

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Performance Monitoring of DS3 System Services

Service	Assessment Period	Assessment	Performance Incident Scaling Factor, Q_i
RM1	1 Hour	EirGrid and SONI Grid Code Process	Pass or Fail Only
RM3	3 Hours	Not currently assessed	Set equal to Q_i for RM1
RM8	8 Hours	Not currently assessed	Set equal to Q_i for RM1
RRD	-	Not currently assessed	Set equal to Q_i for RM1
SIR	-	Not currently assessed	Not calculated
SSRP	-	Not currently assessed	Not calculated

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Performance Monitoring of Fast Acting Services

- Service Providers must install their own Monitoring Equipment
- DS3 Performance Measurement Device Standards for Fast Acting Service document sets out the requirements
- If TSO has Monitoring Equipment installed on the site this may be used for a maximum period of 24 months

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Assessment of Fast Frequency Response

- Assessment based on **FFR Response Time,** where T equals the length of time from the start of a Frequency Event that it takes to provide the FFR response

- Two assessments are carried out:
  1. Difference between Expected and Achieved FFR response at FFR Response Time

  2. Difference between Expected and Achieved FFR response from FFR Response Time up to T=10s]

- Performance Incident Scaling Factor calculated based on 80% of assessment 1 and 20 % of assessment 2.

FFR Performance Incident Scaling Factor, Q_i
Pass ≥ 90%
80% > Partial Pass < 90%
Fail ≤ 80%

Where T=0s is the start of the Frequency Event when the frequency falls through the Reserve Trigger for that Providing Unit

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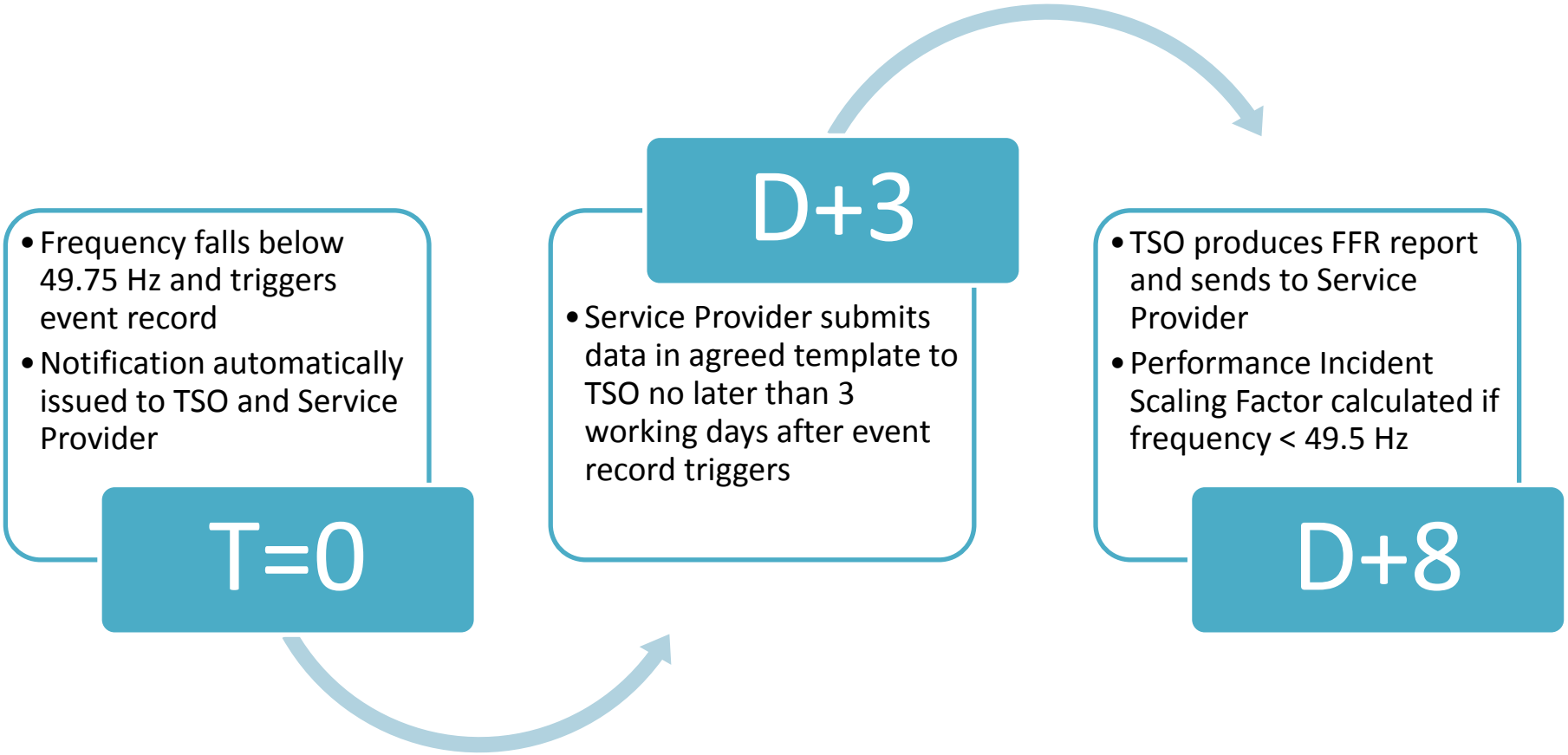
Data Provision from Service Provider to TSO for FFR



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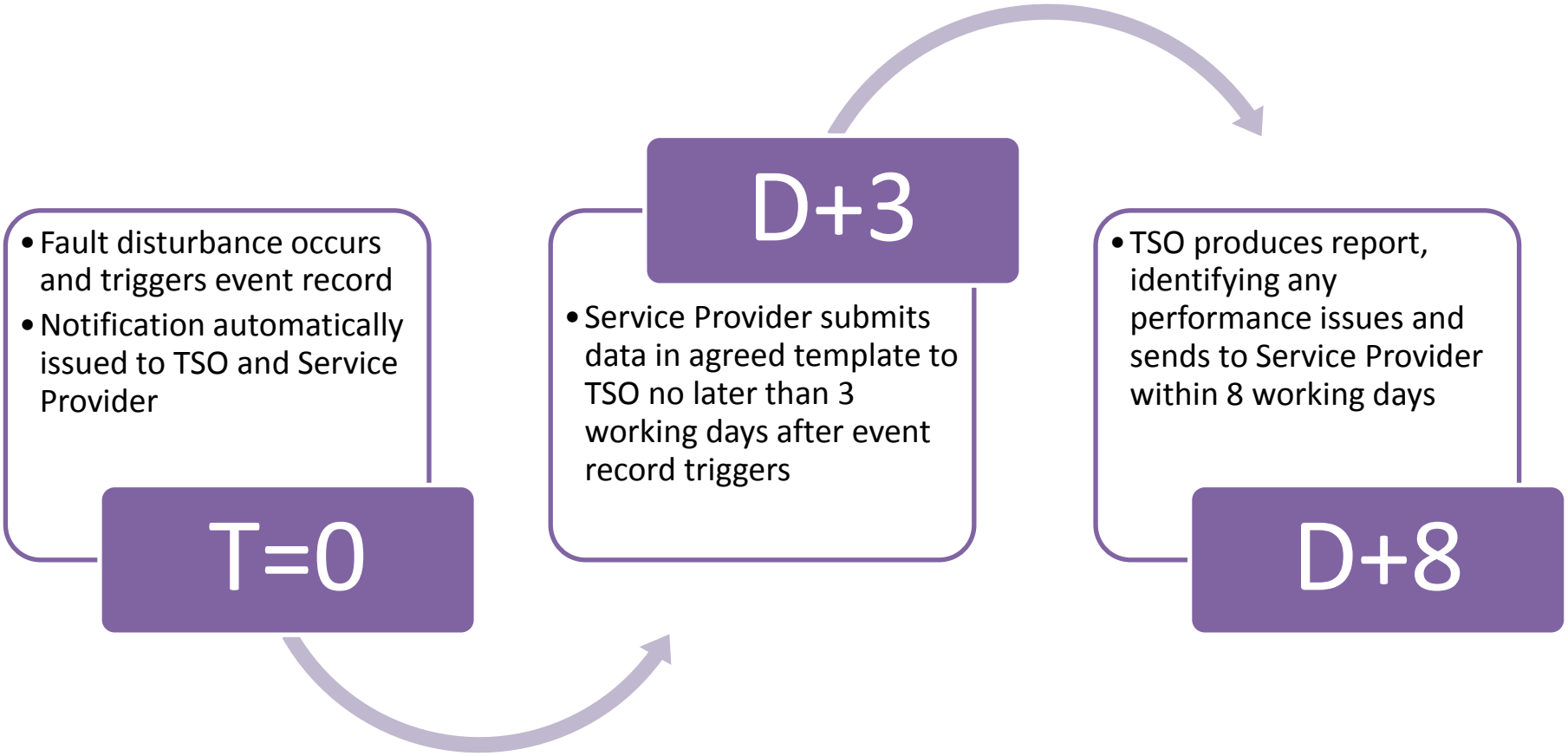
Data Provision from Service Provider to TSO for FPFAPR and DRR



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Questions

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