Enhanced Reactive Tender Guidance Document

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Version Control

Version	Date published	Page No.	Comments
1.0	1/02/2019		

How to use this guide

- This document aims to provide current and potential Reactive Power providers with clear, simple and transparent guidance on the service. It pulls together FAQs on the service and provides links to related documents, such as testing guidance and Market Information Reports.
- A menu button on each page allows access back to the main menu, or section menu where required:

 Return to main menu  Return to section 3.2

A toolbar runs along the bottom of every page, allowing for quick navigation to section menus. Coloured icons allow navigation to relevant sections of the document.

1. Market information	2. Reactive overview	3. Technical requirements	4. How to participate	5. Assessment principles	6. Contract Options

- Sections of the guidance are colour coded, for ease of use.

- Please contact commercial.operation@nationalgrid.com if you have any questions or feedback.

Note: icons on this page are for illustration only - links do not work.

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Main Menu

1. Market information
2. Reactive overview
3. Technical requirements
4. How to participate
5. Assessment principles
6. Contract Options

Key Documents

1. Market information for 2019 and 2020

Procurement options will be considered for : 2019/2020

- Reactive Capability Requirement exists between 1st April 2019 to 31st March 2020
- Requirement 24/7 during some times of the year
- Indicative Reactive Lead requirement: 300MVAr
- Indicative Reactive Lag requirement: 400MVAr
- The reactive requirement is measured from the transmission system and volumes procured depend on the exact location of the reactive capability required and provider effectiveness.

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2. Reactive overview

2.1. Context Setting – Voltage and Reactive

2.2. Enhanced Reactive Services

2.3. Expected Utilisation

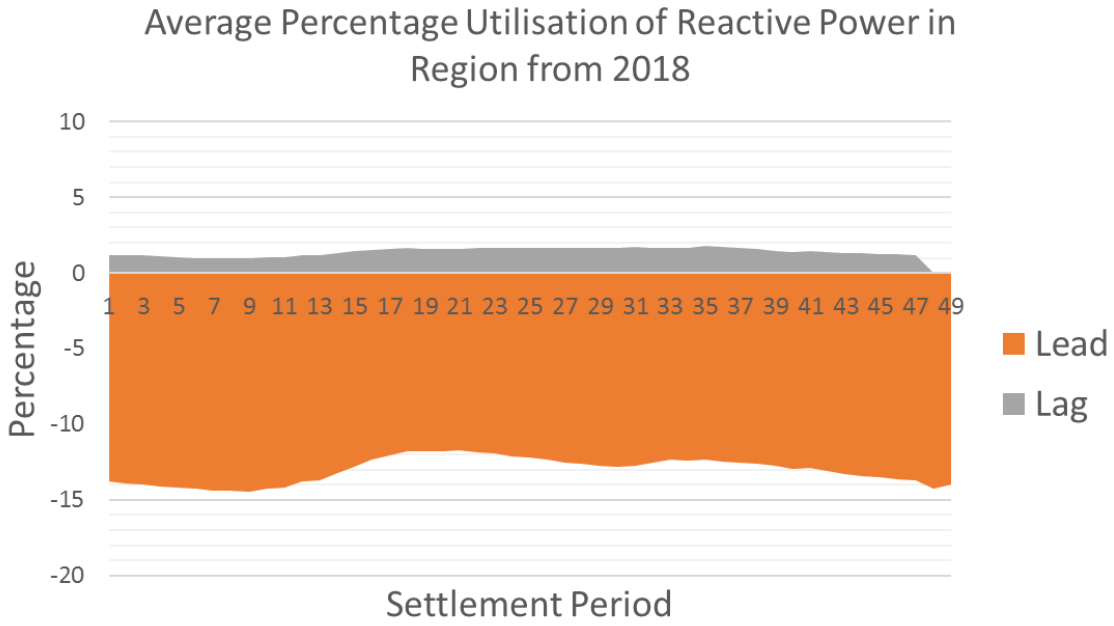
2.1. Context setting – Voltage and Reactive

System Operator obligation	■ The System Operator has a statutory obligation to maintain the National Electricity Transmission System Voltage to ±5% of 400kV or -5% and +9% of 275kV.
System Voltage	■ System voltage is continuously changing and is variable across the system ■ There are differing requirements across areas of the system due to this variability ■ System Voltage is managed by a combination of installed regulated assets (capacitors and reactors) and through the use of generation with reactive capability
Reactive Power	■ Voltage constraints contracts have been historically used to procure additional reactive capability paid at the mandatory ORPS rate. ■ Voltage constraints are locational and as such assets have different ability to resolve the operational challenges depending on the point of connection.

2.2. Enhanced Reactive Services

Purpose	■ To allow the System Operator to access Reactive Power beyond Grid Code Obligations ■ In this tender the focus is on reactive capability available when Active Power output is less than 20% of the rated active power output of the unit ■ This will increased the range of options to the System Operator for the control of Reactive Power in times of low generation.
Availability	■ For Enhanced Reactive Service contract there will be no purchase of Active Power, however a fixed fee will be paid to access reactive power at low output ■ Availability payment for reactive capability - £/hr ■ Procure only Reactive Power – providers are expected to manage any Active Power actions required to achieved the Reactive Power output required.
Utilisation	■ Reactive Power dispatch is paid at ORPS as outlined in the CUSC ■ Reactive Utilisation reported through ‘Reactive’ part of the MBSS

2.3 Expected Utilisation



Illustrative data using a sample of mandatory reactive utilisation from 1st January 2018 to 31st December 2018. This data is based on utilisation of reactive power in Scotland

This data is aimed to help understand the potential utilisation of the service, it is indicative only. Utilisation of any procured service will be dependant on many factors.

3. Technical Requirements

Prospective Reactive Providers must meet the following technical requirements:

Minimum Requirements	• Reactive capability between 0 and 20% of MEL • A provider must be capable of absorbing and generating reactive power. • Providers must have an existing final MSA covering reactive power, or intend to have a final MSA one month prior to service delivery.
Voltage Control	• All technologies should be in the correct control mode for the duration of the contract period and if operating in a different mode, must move to voltage droop without instruction. • Providers must have capability of receiving instructions 24/7 for the duration of the contract period
Location	• Any provider connected in Scotland is welcome tender in • Please refer to the assessment principals on how providers at different locations will be assessed

4. Tender Participation

Contract Terms

The contract terms are available alongside this pack, when a provider submits a tender this is on the basis that the contract terms can be adhere to. Please read the contract terms thoroughly prior to submitting a tender to ensure these can be adhered to.

Publication of Information

National Grid shall publish and / or announce details of the information submitted for the above service from any service provider, and the service provider is required to consent to the disclosure by National Grid of any such information. To this end, National Grid cannot accept an offer from any potential service provider unless they consent to the disclosure of such information.

Submission of tenders

A provider can submit a tender for part of the service term with a minimum of 1 month service delivery which must start on the 1st of the month. Providers can submit up to two tenders per unit per tender period.

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4. Tender Participation

The tender timeline as follows:

Tender Submission Deadline	18th February 2019 by 5pm
Outcome of tender published	1st March 2019
Contract signatory deadline	22nd March

Please use the below proforma for submission of tender:

Scotland Tender Proforma

Should a provider wish to submit a tender these should be submitted to Emily.campion@nationalgrid.com and commercial.operation@nationalgrid.com in accordance with the timeline above. This process is not governed by National Grid standard contract terms, therefore the electronic submission of such offers are acceptable providing the above timescales are complied with.

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5. Assessment Principals

5.1 General Assessment Information

5.2 Provider Effectiveness

5.3 Assessment Process

5.1. General Assessment Principals

The criteria for selection for qualification include but are not limited to:

- Delivery from a diverse set of service providers is optimal
- The proposed service must meet the minimum technical requirements
- Dispatch capability
- Duration of the service
- Provider Effectiveness

Reactive capability (lead/lag) will be assessed at 0% of Rated Active Power Output

5.2 Provider Effectiveness

Reactive Power is a regional service, and the location of any reactive provider does influence the value and use. This is therefore included as part of the assessment. The areas referred to are illustrated in the Scotland heatmap published alongside this tender.

Effectiveness is determined by combination of connection location and connection voltage. As a consequence, all providers have differing effectiveness.

The effectiveness scores described in the next slide are indicative and are subject to change following through assessment.

5.2 Provider Effectiveness

The order of effectiveness, and approximations of percentage effectiveness are below. Any provider outside these regions is expected to be less than 30% effective

Region No.	Region Colour	Approximate Region Effectiveness
1.	Blue	100%
2.	Light Green	80 – 90%
3.	Green	80 – 90%
4.	Orange	50 – 75%
5.	Grey	40 – 60%
6.	Purple	40 – 60%

5.2. Reactive Tender Assessment Process

Step 1: Ensure tender compliance

Step 2: Effectiveness Assessment

The first step in the assessment process is to establish through System Studies the effectiveness of each provider. The total effectiveness of the machines will impact the volume of reactive power procured.

Providers in different locations, connected at different voltage levels have a different impact on the transmission system voltage, therefore an effectiveness score needs to be established through technical assessment.

Step 3: Calculation of Tender Benefit

The assessment team consider how much each tender would cost to procure in the Balancing Mechanism (BM), allowing for cost variabilities in the BM. This includes consideration of how often the market may deliver the reactive capability without intervention from the System Operator.

A tender benefit is calculated and then each tender is stacked in descending order of its cost benefit, with consideration of the effectiveness of the provider. A tender has to be beneficial against forecasted alternative BM cost for the reactive volume.

Continued...

5.2. Reactive Tender Assessment Process

Step 4: Comparison against requirements

All tenders are compared against the requirements. Tenders which meet requirements, and result in no over holding are considered for acceptance.

Consideration weighting will be given to solutions that result in reactive capability being delivered from multiple reactive power sources.

6. Contract

Payment Structure	■ Provider paid for every hour Enhanced Reactive Capability is made available, independent of operating level ■ Availability payment is a £/h against an agreed Reactive volume ■ Utilisation paid at ORPS, at £/MVArh
Contract Structure	■ For sites with multiple generators units reactive range can be delivered from any unit, as long as the contracted reactive range is maintained ■ Reactive Range must be always be delivered from the agreed contract location ■ If the service is unavailable this must be declared via Fax immediately, and the availability payment will not be paid for any hour where the service is not available. ■ Unavailability is defined as an inability to be able to both absorb or generate reactive power, or if reactive capability range is less than 50% of the contracted MVAr output.
Duration	■ All Tenders must be 24/ 7 ■ Minimum Tender length is 1 month which must start delivery on the 1st of the month ■ Up to 2 tenders per unit per time period will be accepted

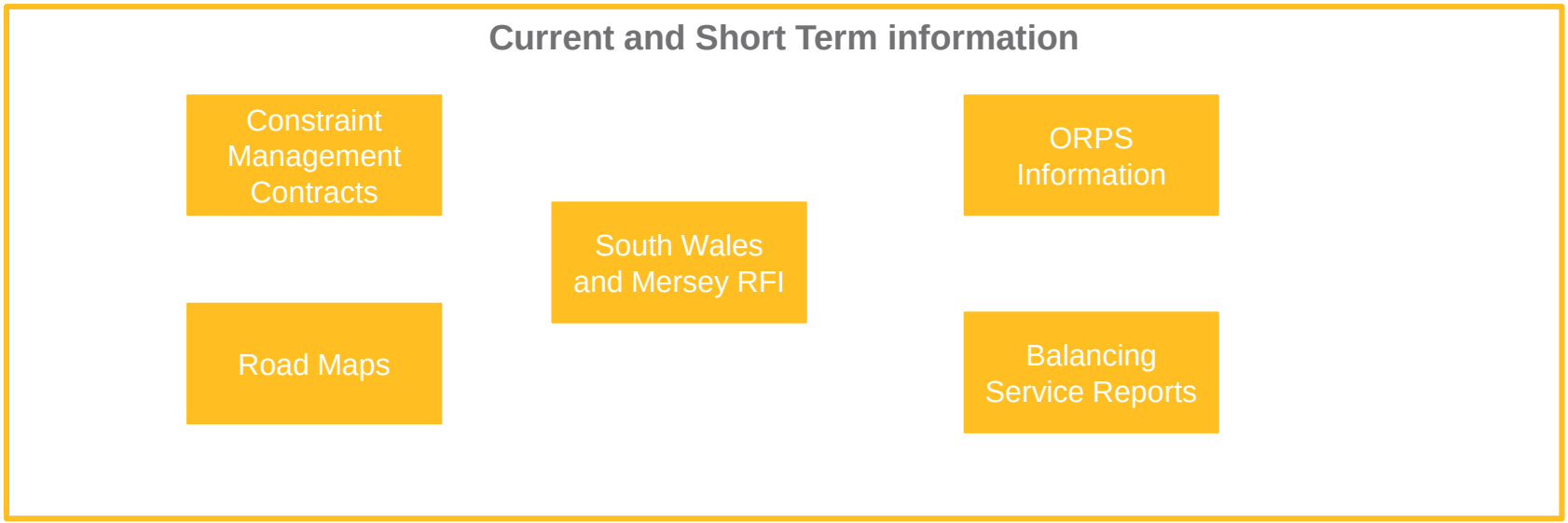
7. Wider Activities Impact Reactive Power

There are a significant number of activities on-going to review the Reactive Power ancillary service. This is part of the System Operator's review of Balancing Services, aiming to create balancing service markets that meet our changing system needs.

The Product Roadmap for reactive power provides detailed information on the developments within the ancillary service. Developments that directly impact the Request for Information are:

- Product Roadmap
- Applying a 'Network Options Assessment' to Voltage
- Power Potential
- Suggested CUSC modification to review ORPS
- Proposed CUSC modification to remove ERPS
- Mersey and South Wales RFI

Key documents



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