System Services Test Report

Ramping Margin / Dispatch

(TOR2, RRD, RRS, RM1, RM3, RM8)

Battery

Unit Name

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# Document Version History

Revision 3.0, published 23 November 2020

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Version** | **Date** | **Comment** | **Name** | **Company** |
| 0.1 | Insert Date | Minor version (v0.1) - First submission for review and approval | Insert Name | Unit Company Name |
| 1.0 | Insert Date | Revised to version 1.0 following approval by EirGrid, SONI. | Insert Name | Unit Company Name |

# Introduction

The Unit shall submit the latest version of this test report template as published on the EirGrid, SONI websites[[1]](#footnote-2).

The report shall be developed for technical and non-technical readers and shall follow the agreed test programme. The report is submitted to [generator\_testing@eirgrid.com](mailto:generator_testing@eirgrid.com) or [generator\_testing@soni.ltd.uk](mailto:generation-outages@soni.ltd.uk) as appropriate.

The purpose of the report is to present information demonstrating the unit’s ability to provide the dispatch based services listed in the corresponding test procedure. The completed report should contain analysis, tables and graphs demonstrating the unit’s compliance with the individual services.

In the simplest circumstance, the report may be compiled using data collated using previous grid code testing. In such cases the data presented should align with the units **existing approved** Technical Offer Data (TOD) for a unit[[2]](#footnote-3).

If a Unit is updating or amending its TOD values due to a change in its operating characteristics of the unit, all relevant testing shall be completed and the new TOD values validated **before** completing this report.

Service providers may provide information in this report demonstrating an ability to provide greater levels of TOR2, RRD and RRS, than would otherwise be verified using the units TOD data. In such instances the battery will request an unscheduled dispatch test from the TSO. The TSO will subsequently issue an unscheduled dispatch to the unit within 10 business days of approving the test request. Only data gathered from this dispatch can be used for demonstrating higher volumes of TOR2, RRS or RRD than would otherwise be demonstrated by the units TOD. Note Time to Synchronise as defined in Grid Code must be accounted for, thus providers may be required to amend this in some instances in order to qualify for TOR2, RRS or RRD respectively.

# Abbreviations

DSO Distribution System Operator

DNO Distribution Network Operator

EDIL Electronic Dispatch Instruction Logger

FFR Fast Frequency Response

MEC Maximum Export Capacity

MIC Maximum Import Capacity

MVAr Mega Volt Amp reactive

MW Mega watt

NCC, CHCC National Control Centre, Castlereagh House Control Centre

PMU Phasor Monitoring Unit

RM Ramping Margin

RRD Replacement Reserve – Desynchronised

RRS Replacement Reserve – Synchronised

TOD Technical Offer Data

TOR2 Tertiary Operating Reserve 2

TSO Transmission System Operator

# Unit Data

|  |  |
| --- | --- |
| Battery Name | User to Specify |
| Battery Location | User to Specify |
| Battery Connection Point | HV Bushings of T101 in XX 110kV station |
| Battery Connection Voltage | User to Specify |
| Battery Technology Type | User to Specify |
| Contracted MEC | User to Specify |
| Contracted MIC | User to Specify |
| Nominal Recharging Power | User to Specify |

# System Services

## Ramping margin services (TOR2, RRD, RRS, RM1, RM3, RM8)

The definitions referenced in this document are for indicative purposes only. In the event of inconsistency between the definitions in this document and those in the DS3 System Services Agreement, the definitions in the DS3 System Services Agreement shall prevail.

TOR2 is the additional MW output (and/or reduction in demand) provided compared to the pre-incident output (or demand) which is fully available and sustainable over the period from 5 minutes to 20 minutes following an event, or dispatch instruction.

RRS and RRD are the additional MW output (and/or reduction in demand) provided compared to the pre-incident output (or demand) which is fully available and sustainable over the period from 20 minutes to 1 hour following an event or dispatch instruction.

RM is defined as:

“the guaranteed margin that a unit provides to the system operator at a point in time for a specific horizon and duration”

There are horizons of one, three and eight hours with associated durations of two, five and eight hours respectively. It is important to remember that RM is defined by **both** the minimum ramp-up and the output duration. Thus the RM represents the increased MW Response output or that can be delivered by the service horizon time and sustained for the product duration window.

|  |  |  |
| --- | --- | --- |
| **RM Service** | **Ramp-up Requirement** | **Sustained Output Duration** |
| **TOR2** | 5 Mins | 20 Mins |
| **RRS** | 20 Mins | 1 Hour |
| **RRD** | 20 Mins | 1 Hour |
| **RM1** | 1 Hour | 2 Hours |
| **RM3** | 3 Hour | 5 Hours |
| **RM8** | 8 Hours | 8 Hours |

# Analysis

## Results Summary

|  |  |
| --- | --- |
| **Parameter** | **Total:**  **Services tested and available from date of System Service contract** |
| Providing Unit Capacity (MW) | \_\_\_\_\_\_\_\_MW |
| Providing Unit MWh | \_\_\_\_\_\_\_\_MWh |
| Providing Unit Maximum On Time | \_\_\_\_\_\_\_\_hours, minutes |
| TOR2 Capacity (MW) (achieved) | \_\_\_\_\_\_\_\_MW |
| RRD Capacity (MW) (achieved) | \_\_\_\_\_\_\_\_MW |
| RM1 Capacity (MW) (achieved) | \_\_\_\_\_\_\_\_MW |
| RM3 Capacity (MW) (achieved) | \_\_\_\_\_\_\_\_MW |
| RM8 Capacity (MW) (achieved) | \_\_\_\_\_\_\_\_MW |

## TOR2 and RRD

Where the method below cannot be followed due to unavailability of EDIL or suitability of Technical Offer Data, providing unit may propose a suitable alternative to the method below, subject to approval by the TSO.

Applications for TOR2 are based on the assessment of approved TOD and shall also include evidence of the units’ ability to provide TOR2 following the issue of an EDIL instruction. The data used for this assessment shall be agreed in advance with the TSO. For batteries, assessment shall be based on performance data using dispatch instructions from NCC, CHCC.

Alternatively TOR2, RRD and RRS can be assessed using performance data using a dispatch instruction from NCC, CHCC. The data used for this assessment shall be agreed in advance with the TSO. Sync time / Notice time will be included in this calculation as per the example graph shown below in section 6.2.2.

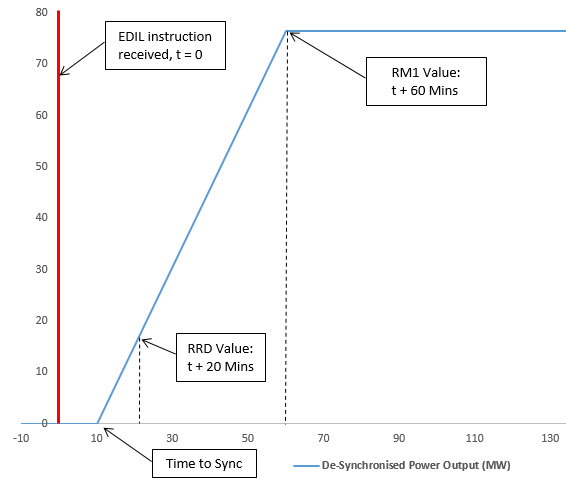
Alternatively, TOR2 can be assessed as response to a frequency event, using performance data, or test data (witnessed, as required by the TSO). The data used for this assessment shall be agreed in advance with the TSO.

### Graphed Analysis (Insert Product as applicable).

[*Insert a full graph of the units’ output over a suitable time period in response to a dispatch instruction. The graph shall be clear and shall highlight all the System Services values that the unit is contracting for. All Graphs shall be clearly labelled and easy to read. All Graphs shall have a one second resolution and shall be accompanied by verified test data unless otherwise agreed with the TSO]*

[*Include any relevant test notes here, relating to how the test was carried out or any specific conditions encountered during this test*].

### Example graphs



|  |  |
| --- | --- |
| Time to Synchronise | \_\_ hours, minutes |
| Ramp up rate | \_\_ MW/min |
| Maximum On Time | \_\_ hours, minutes |

# Technical Offer Data

The Unit shall include the approved Technical Offer Data[[3]](#footnote-4) used for the analysis. Multiple Technical Offer Data Sets may be used for the Analysis.

## Approved TOD

Add rows as required to the table below.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Item** | **Set 1 (Default)** | **Set 2** | **Set 3** | **Set 4** | **Set 5** | **Set 6** |
| **Insert relevant TOD** |  |  |  |  |  |  |
| **Insert Relevant TOD** |  |  |  |  |  |  |

## Operating Characteristics as per Operational Certificate

Add rows as required to the table below.

|  |  |
| --- | --- |
|  | **Set Description** |
| **MW Capacity** |  |
| **MWh Capacity** |  |
| **Ramp Up Rate** |  |
| **Maximum On Time** |  |

1. <http://www.eirgridgroup.com/> or <http://www.soni.ltd.uk/> [↑](#footnote-ref-2)
2. **TOR2, RRD and RRS applications shall provide results for review based on unscheduled NCC or CHCC EDIL Dispatch Instructions.** [↑](#footnote-ref-3)
3. Information on Validation Technical Offer Data requirements in 3.42A - 3.42O (T&SC) and Appendix I - Offer Data. [↑](#footnote-ref-4)