System Services Test Procedure

Ramping Margin / Dispatch

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

Aggregator

Unit Name

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# Document History

Template Version 3.0, published 12th November 2019

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **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 User shall submit the latest version of this test procedure as published on the EirGrid website[[1]](#footnote-2). The test procedure shall be submitted to and approved by [generator\_testing@eirgrid.com](mailto:generator_testing@eirgrid.com), [generator\_testing@soni.ltd.uk](mailto:generator_testing@soni.ltd.uk) not less than 10 business days in advance of the proposed test date.

The purpose of this document is to detail the data required to apply for a system services contract and to detail the necessary test procedures required to be performed should that data not be available.

The Aggregator shall normally complete the test report using approved Technical Offer Data (TOD). Providing units seeking to contract for TOR2 shall provide evidence of the providing unit’s ability to provide TOR2 following the issue of an EDIL instruction

The Aggregator may also provide evidence of the unit’s capability to provide TOR2, RRD or RRS which may not be accurately captured by the units approved TOD.

Additionally testing will also be required if the aggregator is seeking to add additional individual sites (IS’s). In such cases Grid code compliance testing of those sites is also required in addition to any testing of TOR2, RRD or RRS capability.

All yellow sections shall be filled in before the test procedure will be approved. All grey sections shall be filled in during testing. If any test requirements or steps are unclear, or if there is an issue with meeting any requirements or carrying out any steps, please contact [generator\_testing@eirgrid.com](mailto:generator_testing@eirgrid.com) / [generator\_testing@soni.ltd.uk](mailto:generator_testing@soni.ltd.uk)

On the day of testing, suitably qualified technical personnel are required on site to assist in undertaking the tests. The personnel shall have the ability to:

1. Set up and disconnect the control system and instrumentation as required;
2. Ability to fully understand the Unit’s function and its relationship to the System;
3. Liaise with the Aggregator control centre and / or NCC, CHCC as required;
4. Mitigate issues arising during the test and report on system incidents.

On the day of the test, NCC, CHCC will determine:

1. If network conditions allow the testing to proceed.
2. Which tests will be carried out.
3. When the tests will be carried out.

The Aggregator shall liaise with the DSO, DNO as appropriate in advance of testing.

Following testing, the following shall be submitted to [generator\_testing@eirgrid.com](mailto:generator_testing@eirgrid.com) / [generator\_testing@soni.ltd.uk](mailto:generator_testing@soni.ltd.uk)

|  |  |
| --- | --- |
| **Submission** | **Timeline** |
| A scanned copy of the entire test procedure, as completed and signed on site on the day of testing | 1 working day |
| Test data in CSV or Excel format | 1 working day |
| Test report | 10 working days |

# Abbreviations

AGU Aggregated Generating Units

DSO Distribution System Operator

DNO Distribution Network Operator

DSU Demand Side Unit

EDIL Electronic Dispatch Instruction Logger

FFR Fast Frequency Response

IS Individual Site

MEC Maximum Export Capacity

MIC Maximum Import Capacity

MPRN Metering Point Registration Number

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

# Operational Data

## Aggregator Unit Data

|  |  |
| --- | --- |
| Aggregator Type | Unit to specify |
| Aggregator Name | Unit to specify |
| Aggregator Test coordinator contact name and number | Unit to specify |
| Aggregator Control Centre Location and contact Number | Unit to specify |

## Individual site details

*Copy and paste this table depending of number of IS being tested and complete accordingly*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Descriptor** | **Site No.1** | **Site No.2** | **Site No. 3** | **Site No. 4** |
| Individual Demand Site Name | Unit to specify | Unit to specify | Unit to specify | Unit to specify |
| MPRN | Unit to specify | Unit to specify | Unit to specify | Unit to specify |
| Bulk Supply Point or Connection Point | Unit to specify | Unit to specify | Unit to specify | Unit to specify |
| Irish Grid Co-ordinates | Eastings | Eastings | Eastings | Eastings |
| Northing | Northing | Northing | Northing |
| Site Address | Unit to specify | Unit to specify | Unit to specify | Unit to specify |
| Special Operating Limits or Network Limitations | Unit to specify | Unit to specify | Unit to specify | Unit to specify |
| MW Capacity (expected) | \_\_\_\_\_\_\_\_MW | \_\_\_\_\_\_\_\_MW | \_\_\_\_\_\_\_\_MW | \_\_\_\_\_\_\_\_MW |
| Demand Reduction Capability - Avoided Consumption | \_\_\_\_\_\_\_\_MW | \_\_\_\_\_\_\_\_MW | \_\_\_\_\_\_\_\_MW | \_\_\_\_\_\_\_\_MW |
| Demand Reduction Capability - On Site Generation (Continuous Parallel Mode or Shaving Mode) | \_\_\_\_\_\_\_\_MW | \_\_\_\_\_\_\_\_MW | \_\_\_\_\_\_\_\_MW | \_\_\_\_\_\_\_\_MW |
| Maximum Import Capacity | \_\_\_\_\_\_\_\_MW | \_\_\_\_\_\_\_\_MW | \_\_\_\_\_\_\_\_MW | \_\_\_\_\_\_\_\_MW |
| Maximum Export Capacity | \_\_\_\_\_\_\_\_MW | \_\_\_\_\_\_\_\_MW | \_\_\_\_\_\_\_\_MW | \_\_\_\_\_\_\_\_MW |
| Response time from Dispatch Instruction (expected) | \_\_\_\_\_\_\_\_min | \_\_\_\_\_\_\_\_min | \_\_\_\_\_\_\_\_min | \_\_\_\_\_\_\_\_\_min |
| Maximum down time / Duration (expected) | \_\_\_\_\_\_\_\_hr | \_\_\_\_\_\_\_\_hr | \_\_\_\_\_\_\_\_\_hr | \_\_\_\_\_\_\_\_\_hr |
| TOR2 Capacity (MW) expected | \_\_\_\_\_\_\_\_MW | \_\_\_\_\_\_\_\_MW | \_\_\_\_\_\_\_\_MW | \_\_\_\_\_\_\_\_MW |
| RRS Capacity (MW) expected | \_\_\_\_\_\_\_\_MW | \_\_\_\_\_\_\_\_MW | \_\_\_\_\_\_\_\_MW | \_\_\_\_\_\_\_\_MW |
| RRD Capacity (MW) expected | \_\_\_\_\_\_\_\_MW | \_\_\_\_\_\_\_\_MW | \_\_\_\_\_\_\_\_MW | \_\_\_\_\_\_\_\_MW |
| RM1 Capacity (MW) expected | \_\_\_\_\_\_\_\_MW | \_\_\_\_\_\_\_\_MW | \_\_\_\_\_\_\_\_MW | \_\_\_\_\_\_\_\_MW |
| RM3 Capacity (MW) expected | \_\_\_\_\_\_\_\_MW | \_\_\_\_\_\_\_\_MW | \_\_\_\_\_\_\_\_MW | \_\_\_\_\_\_\_\_MW |
| RM8 Capacity (MW) expected | \_\_\_\_\_\_\_\_MW | \_\_\_\_\_\_\_\_MW | \_\_\_\_\_\_\_\_MW | \_\_\_\_\_\_\_\_MW |

# System services

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.

## Dispatchable Reserve Services

### Tertiary Operating Reserve band 2 (TOR2)

Tertiary Operating Reserve (TOR2) is the additional MW output (and/or reduction in Demand) required at the frequency nadir (minimum), 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.

### Replacement Reserve Synchronised (RRS)

Replacement Reserve Synchronised (RRS) is the additional MW output (and/or reduction in Demand) required at the frequency nadir (minimum), 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.

### Replacement Reserve Desynchronised (RRD)

Replacement Reserve Desynchronised (RRD) is the additional MW output (and/or reduction in Demand) required at the frequency nadir (minimum), 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.

## Ramping Margin Services

### Ramping Margin 1 (RM1)

Ramping Margin (RM1) is the additional MW output (and/or reduction in Demand) required at the frequency nadir (minimum), compared to the pre-incident output (or Demand) which is fully available and sustainable over the period from 1 hour to 2 hours following an event.

### Ramping Margin 3 (RM3)

Ramping Margin (RM3) is the additional MW output (and/or reduction in Demand) required at the frequency nadir (minimum), compared to the pre-incident output (or Demand) which is fully available and sustainable over the period from 3 hour to 5 hours following an event.

### Ramping Margin 8 (RM8)

Ramping Margin (RM8) is the additional MW output (and/or reduction in Demand) required at the frequency nadir (minimum), compared to the pre-incident output (or Demand) which is fully available and sustainable over the period from 8 hour following an event.

# Site Safety requirements

The following is required for the EirGrid, SONI witness to attend the individual demand site.

|  |  |
| --- | --- |
| Personnel Protection Gear Requirements   1. Site Safety boots 2. Hard Hat with chin strap 3. Hi Vis 4. Arc Resistive clothing 5. Safety Glasses 6. Gloves 7. Safe Pass | 1. Yes / No 2. Yes / No 3. Yes / No 4. Yes / No 5. Yes / No 6. Yes / No 7. Yes / No |
| Site Induction requirements | Yes / No |
| Any further information | Unit to specify |

# Test description and pre conditions

## Purpose of the Test

The purpose of this test is to verify:

1. Verify the speed to which the Individual sites can respond following the issue of a dispatch instruction
2. Verify the speed to which the aggregator can respond following the issue of a dispatch instruction
3. Verify the quantity or volume of each service provided by the Individual sites
4. Verify the quantity or volume of each service provided by the aggregator
5. Verify that the service provided, at aggregator level is compliant with the technical specification of the individual services.
6. Verify that the aggregator continues to meet with relevant Grid Code requirement while providing the dispatch based services.
7. Demonstrate the units overall capability for cross verification and / or updating of units TOD where applicable.

## Instrumentation and onsite data trending

All of the following trends shall be recorded by the Aggregator such that they can be accessed and reported on after the dispatch has taken place.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No.** | **Data Trending and Recording** | **Resolution** | **Accuracy** | **Check on advance of test** |
| 1 | DSU: Total MW reduction Availability of DSU | Unit to specify | Unit to specify | Yes / No |
| 2 | DSU: Total MW Reduction achieved from Generation | Unit to specify | Unit to specify | Yes / No |
| 3 | DSU: Total MW Reduction achieved from Demand Reduction | Unit to specify | Unit to specify | Yes / No |
| 4 | AGU: Total MW from Generation | Unit to specify | Unit to specify | Yes / No |
| 5 | All: Onsite Generation MW, AAAAA Generator #1 | Unit to specify | Unit to specify | Yes / No |
| 6 | DSU: Demand Reduction from site MW, DDDDDD #1 | Unit to specify | Unit to specify | Yes / No |
| 7 | Other signals as required by the unit or by [generator\_testing@eirgrid.com](mailto:generator_testing@eirgrid.com) or [generator\_testing@soni.ltd.uk](mailto:generator_testing@soni.ltd.uk). | Unit to confirm with TSO | Unit to confirm with TSO | Yes / No |

## Pre Test Conditions

Should “No” be answered by the Unit to any of the following conditions, aggregator shall not submit a request for this dispatch test.

|  |  |  |
| --- | --- | --- |
| **No.** | **Conditions** | **Check in advance of test** |
| 1 | All Individual demand sites to be tested (listed in Section 4.2) are available for dispatch | Yes / No |
| 2 | EDIL is commissioned and functional | Yes / No |
| 3 | PN changes had been submitted via MPI (with Test Flag), NCC contacted and changes approved. | Yes / No |
| 4 | Aggregator to confirm services being demonstrated:   * TOR2 * RRD * RRD * RM1 * RM3 * RM8 | Yes /No  Yes /No  Yes /No  Yes /No  Yes /No  Yes / No |
| 5 | Aggregator to confirm quantity (MW) of dispatch required | \_\_\_MW |
| 6 | Aggregator to confirm Duration of dispatch required | hh:mm |

# Test Steps – Unit Operating Reserve

## Dispatch test

| **Step No.** | **Action** | **Event Time** | **Comments** |
| --- | --- | --- | --- |
| 1 | Aggregator requests dispatch test from TSO |  |  |
| 2 | TSO provides approval of test |  |  |
| 3 | Aggregator records all trends noted in Section 7.2, above |  |  |
| 4 | TSO dispatches Aggregator as per 7.3.4 |  | Issue Time:\_\_\_\_\_\_\_\_  Effective Time: \_\_\_\_\_\_\_\_  MW:\_\_\_\_\_\_ |
| 5 | Aggregator dispatches the individual sites and records the time when the aggregated unit begins to ramp. |  | Ramp begins at: \_\_\_\_\_\_\_ |
| 6 | TSO dispatches Aggregator off as per 7.3.5 |  | Issue Time:\_\_\_\_\_\_\_\_  Effective Time: \_\_\_\_\_\_\_\_  MW:\_\_\_\_\_\_\_ |

# Comments & Sign Off

|  |
| --- |
| **Comments:** |
| Aggregator Witness signoff that this test has been carried out according to the test procedure, above.  Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date / Time: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| EirGrid, SONI Witness signoff that this test has been carried out according to the test procedure, above.  Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date / Time: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

1. <http://www.eirgridgroup.com/__uuid/b1d14629-fe49-41a9-ac30-c3cb14393c82/index.xml?__toolbar=1> [↑](#footnote-ref-2)