DSU MW Capacity Individual Site Test

[Insert Name]

Version 0.3

EIRGRID_2015 Functional Document Template (21

Contents

[1 Document Version History 3](#_Toc448826200)

[2 Introduction 3](#_Toc448826201)

[3 Abbreviations 4](#_Toc448826202)

[4 Operational Data 4](#_Toc448826203)

[4.1 DSU 4](#_Toc448826204)

[4.2 Individual Demand site details 5](#_Toc448826205)

[5 Grid Code References 6](#_Toc448826206)

[6 Site requirements 7](#_Toc448826207)

[7 Test desciption and pre conditions 7](#_Toc448826208)

[7.1 Purpose of the Test 7](#_Toc448826209)

[7.2 Pass Criteria 7](#_Toc448826210)

[7.3 Instrumentation and onsite data trending available to NCC 7](#_Toc448826211)

[7.4 Pre Test Conditions 8](#_Toc448826212)

[7.5 Pre Test Checks 8](#_Toc448826213)

[8 Test Steps 9](#_Toc448826214)

[9 Comments & Sign Off 12](#_Toc448826215)

DISCLAIMER:

This Document contains information (and/or attachments) which may be privileged or confidential. All content is intended solely for the use of the individual or entity to whom it is addressed. If you are not the intended recipient please be aware that any disclosure, copying, distribution or use of the contents of this message is prohibited. If you suspect that you have received this Document in error please notify EirGrid immediately. EirGrid does not accept liability for any loss or damage arising from the use of this document or any reliance on the information it contains or the accuracy or up to date nature thereof. Use of this document and the information it contains is at the user’s sole risk. In addition, EirGrid strongly recommends that any party wishing to make a decision based on the content of this document should not rely solely upon data and information contained herein and should consult EirGrid in advance.

Further information can be found at: <http://www.eirgridgroup.com/legal/>

# DOCUMENT HISTORY

|  |  |  |
| --- | --- | --- |
| **{Insert Name} Document Version History** | | |
| **Version** | **Date** | **Comment** |
|  |  |  |
|  |  |  |

|  |  |
| --- | --- |
| **EirGrid** **Template change control details** | |
| Template Version | 0.3 |
| Date | 10/05/2016 |
| Grid Code Version | 6 |

# Introduction

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

All yellow sections shall be filled in before the test procedure will be approved. All grey sections must 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).

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 DSU control centre or NCC as required;
4. Mitigate issues arising during the test and report on system incidents.

On the day of the test, NCC 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.

This test is carried out in advance of the aggregate MW capacity test for new site applications and is used to verify that the system is working correctly to NCC. The DSU shall liaise with the DSO as appropriate.

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

|  |  |
| --- | --- |
| **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

DSO Distribution System Operator

DSU Demand Side Unit

EDIL Electronic Dispatch Instruction Logger

IDS Individual Demand Site

MEC Maximum Export Capacity

MPRN Metering Point Registration Number

MRSO Meter Readings Service Operator

Mvar Mega Var

MW Mega watt

NCC National Control Centre

SCADA Supervisory Control and Data Acquisition

TSO Transmission System Operator

# Operational Data

## DSU

|  |  |
| --- | --- |
| DSU Name | DSU to specify |
| DSU Point of contact and contact number | DSU to specify |
| DSU Control Centre Location and main contact Number | DSU to specify |
| DSU Notice Time (min) | DSU to specify |
| DSU MW Response Time (min) | DSU to specify |

## Individual Demand site details

|  |  |  |
| --- | --- | --- |
| **Individual Demand Site Name/Number** |  | DSU to specify |
| **MPRN** |  | DSU to specify |
| **Bulk Supply Point or Connection Point** |  | DSU to specify |
| **Special Operating Limits or Network Limitations** |  | DSU to specify |
| **Irish Grid Co-ordinates** | **Eastings** | DSU to specify |
| **Northing** | DSU to specify |
| **MW Capacity (expected)** | **(MW)** | DSU to specify |
| **Demand Reduction Capability - Avoided Consumption** | **(MW)** | DSU to specify |
| **Demand Reduction Capability - On Site Generation (Continuous Parallel Mode or Shaving Mode)** | **(MW)** | DSU to specify |
| **Notification Time to the individual demand site** | **(Min)** | DSU to specify |
| **Time to Maximum reduction from Notice time** | **(Min)** | DSU to specify |
| **Ramp up rate** | **MW/Minute** | DSU to specify |
| **Ramp Down Rate** | **MW/Minute** | DSU to specify |
| **Minimum Down Time** | **Time** | DSU to specify |
| **Minimum Off time** | **Time** | DSU to specify |
| **Maximum Import Capacity** | **MW** | DSU to specify |

# Grid Code References

|  |  |
| --- | --- |
| Grid Code Version: | DSU shall specify |

CC.12.2 Signals and indications required to be provided by **Users** will include but shall not be limited to the following:

*(l), (m), (n), (o), (p), (q), (r) and (s)* are applicable to **Demand Side Unit Operators** who represent a **Demand Side Unit:**

(l) **Demand Side Unit MW Response** from **Generation**;

(m) **Demand Side Unit MW Response** from avoided **Demand** consumption;

(n) Remaining **Demand Side Unit MW Capacity**;

(o) **Demand Side Unit MW Response** from each **Demand** load with a **Demand Side Unit MW Capacity** of greater than or equal to 5 **MW**;

(p) **MW Output** from **Generation Units** with a **Capacity** greater than or equal to 5 **MW**;

(q) **Mvar Output** from **Generation Units** with a **Capacity** greater than or equal to 5 **MW** at **Individual Demand Sites** with a **Maximum Export Capacity** specified in the **Connection Agreement** or **DSO Connection Agreement** as applicable, as required by the TSO;

(r) **MW Output** from **Generation Units** on **Individual Demand Sites** with a combined **Capacity** of greater than or equal to 5 **MW**, as required by the TSO; and

(s) **Demand Side Unit MW Response** from each **Individual Demand Site** that comprises the **Demand Side Unit**, as required by the TSO.

CC.12.6 **Demand Side Unit Operators** and **Generator Aggregators** shall provide the **TSO** the specification of the method of aggregation of SCADA from multiple sites. The minimum specifications shall be agreed with the **TSO** in advance and shall include:

1. signals from **Demand Side Unit Operators** shall be relayed to the **TSO Telecommunication Interface Cabinet** which reflect the **Demand Side Unit MW Response** to an accuracy of within 1 **MW** of the actual **Demand Side Unit MW Response** within 15 seconds of change occurring to the **Demand Side Unit MW Response**;

# Site requirements

The following is required for the EirGrid 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 | DSU to specify |

# Test desciption and pre conditions

## Purpose of the Test

The purpose of this test is to demonstrate the signals and communications for [insert individual demand site name] that form part of the [insert DSU Name] DSU are being relayed to NCC as per the DSU Specification of aggregation. This is checked using real values from site to the DSU control system and relayed to NCC.

## Pass Criteria

The following is the pass criteria for the test. Any subsequent report for this test will be assessed against each of these criteria.

1. Signals as specified in CC.12.2 are correct as per signal list. (As the control centre is not yet in situ, this is verified to DSU interface provided on site and EMS).
2. DSU communications system operates for each of the individual demand sites as specified in CC.12.6.

## Instrumentation and onsite data trending available to NCC

All of the following trends must be recorded by the DSU during the test. Failure to provide any of these trends will result in test cancellation.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No.** | **Data Trending and Recording** | **Resolution** | **Accuracy** | **Check On Day Of Test** |
| 1 | Total MW reduction Availability of DSU | DSU to specify | DSU to specify | Yes / No |
| 2 | Total MW Reduction achieved from Generation | DSU to specify | DSU to specify | Yes / No |
| 3 | Total MW Reduction achieved from Demand Reduction | DSU to specify | DSU to specify | Yes / No |
|  | Onsite Generation MW, AAAAA Generator #1 | DSU to Specify | DSU to Specify | Yes / No |
|  | Demand Reduction from site MW, DDDDDD #1 | DSU to Specify | DSU to Specify | Yes / No |

## Pre Test Conditions

Should “No” be answered by the DSU to any of the following conditions, the test will not proceed.

|  |  |  |
| --- | --- | --- |
| **No.** | **Conditions** | **Check on day of test** |
| 1 | Pre Grid Code Check has been completed with the appropriate signoff sheet as per the signal list scanned, and submitted to [generator\_testing@eirgrid.com](mailto:generator_testing@eirgrid.com). | Yes/No |
| 2 | Test Profiles[[2]](#footnote-2) have been submitted and approved by [neartime@eirgrid.com](mailto:neartime@eirgrid.com). | Yes/No |
| 3 | EDIL Instruction with Test Flag is in place | Yes/No |

## Pre Test Checks

Confirm the following prior to commencing the test.

|  |  |  |
| --- | --- | --- |
| **No.** | **Conditions** | **Check on day of test** |
| 1 | Onsite meter reading for demand site MW import is / is not available to read on site. | Yes / No |
| 2 | Confirm nature of Demand Response (physical nature, expected ramping, short term parallel, etc.) | Record in Comments Section |
| 3 | Confirm expected level and type of Demand Response   1. Generation 2. Demand Reduction | \_\_\_\_\_ MW  \_\_\_\_\_ MW |
| 4 | How is the MW Response Signal Provided (Complete in advance of test): |  |

# Test Steps

| **Step No.** | **Action** | **Time** | **Comments / data to be filled in during the test.** |
| --- | --- | --- | --- |
| 1 | DSU begins data recording for all trends noted in Section 7.3, above |  |  |
| 2 | DSU requests permission from NCC to proceed with the Individual Site test. |  |  |
| 3 | DSU checks current availability for demand site  Witness checks and notes the import level of the individual demand site. (delete if cannot be confirmed on site) |  | Site availability: \_\_\_\_ MW  Site demand: \_\_\_ MW (delete if cannot be confirmed on site) |
| 4 | DSU confirms and notes the following with NCC:   1. Total MW Reduction Availability of DSU. 2. Total MW Reduction Achieved from Generation. 3. Total MW Reduction Achieved from Demand Reduction. 4. Onsite Generation MW, AAAAA Generator #1. 5. Demand Reduction from site MW, DDDDDD #1. |  | NCC DSU   1. \_\_\_\_\_ MW \_\_\_\_\_ MW 2. \_\_\_\_\_ MW \_\_\_\_\_ MW 3. \_\_\_\_\_ MW \_\_\_\_\_ MW 4. \_\_\_\_\_ MW \_\_\_\_\_ MW 5. \_\_\_\_\_ MW \_\_\_\_\_ MW |
| 5 | DSU Prepares to record time delay from IDS to NCC – (DSU will record start time from actual demand response from site, and stops time record when notified of change within NCC). |  |  |
| 6 | DSU control room operator dispatches the individual demand sites. |  | Ramp begins at: \_\_\_\_ |
| 7 | NCC confirms time delay with DSU from when change occurs on site to when signals in EMS reflect that change in demand. |  | Time delay: \_\_\_\_\_ seconds  Change Observed \_\_\_\_\_\_\_ MW |
| 8 | When the DSU MW Response is achieved the DSU confirms and notes the following with NCC:   1. Total MW Reduction Availability of DSU. 2. Total MW Reduction Achieved from Generation. 3. Total MW Reduction Achieved from Demand Reduction. 4. Onsite Generation MW, AAAAA Generator #1. 5. Demand Reduction from site MW, DDDDDD #1. |  | NCC DSU   1. \_\_\_\_\_ MW \_\_\_\_\_ MW 2. \_\_\_\_\_ MW \_\_\_\_\_ MW 3. \_\_\_\_\_ MW \_\_\_\_\_ MW 4. \_\_\_\_\_ MW \_\_\_\_\_ MW 5. \_\_\_\_\_ MW \_\_\_\_\_ MW |
| 9 | DSU checks current availability for demand site  Witness checks and notes the import level of the individual demand site. (delete if cannot be confirmed on site) |  | Site availability: \_\_\_\_ MW  Site demand: \_\_\_ MW (delete if cannot be confirmed on site) |
| 10 | DSU Prepares to record time delay from IDS to NCC – (DSU will record start time from actual demand response from site, and stops time record when notified of change within NCC). |  |  |
| 11 | DSU control room operator dispatches the individual demand site to stop providing response.  Following down time of <= 30 minutes, DSU MW Response begins ramping to 0 MW, at the Dispatch Instruction Effective Time |  | Ramp begins at: \_\_\_\_ |
| 12 | NCC confirms time delay with site witness from when change occurs on site to when signals in EMS reflect that change in demand. |  | Time delay: \_\_\_\_\_ seconds  Change Observed \_\_\_\_\_\_\_ MW |
| 13 | When **0 MW** response is achieved the DSU confirms and notes the following with NCC:   1. Total MW reduction Availability of DSU. 2. Total MW Reduction achieved from Generation. 3. Total MW Reduction achieved from Demand Reduction. 4. Onsite Generation MW, AAAAA Generator #1. 5. Demand Reduction from site MW, DDDDDD #1. |  | NCC DSU   1. \_\_\_\_\_ MW \_\_\_\_\_ MW 2. \_\_\_\_\_ MW \_\_\_\_\_ MW 3. \_\_\_\_\_ MW \_\_\_\_\_ MW 4. \_\_\_\_\_ MW \_\_\_\_\_ MW 5. \_\_\_\_\_ MW \_\_\_\_\_ MW |
| 14 | DSU ends data recording |  |  |
| 15 | DSU informs NCC that the Individual site test is complete |  |  |
| 16 | DSU requests NCC to issue via EDIL a dispatch instruction of **0 MW** for XX1 DSU. (This step is only required if there are to be no further IDS tests for the DSU on the day) |  | Effective Time: \_\_\_\_  MW:\_\_\_\_ |

# Comments & Sign Off

|  |
| --- |
| **Comments:** |
| DSU Witness signoff that this test has been carried out according to the test procedure, above.  Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date / Time: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| EirGrid 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-1)
2. http://www.eirgridgroup.com/site-files/library/EirGrid/DSUTestProfileTemplate.xlsx [↑](#footnote-ref-2)