



OPERATIONAL POLICY



Wind Farm Controllability Categorisation Policy

5th March 2012

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1 INTRODUCTION

On 26 August 2011 the SEM Committee published its decision on the “Principles of Dispatch and the Design of the Market Schedule in the Trading and Settlement Code” (SEM-11-062¹). The key message in SEM-11-062 is that the TSOs should continue to “*adhere to an absolute interpretation of priority dispatch whereby economic factors are only taken account of in exceptional situations*”.

On 18 November 2011, EirGrid and SONI published a list² which placed Wind Farm Power Stations (WFPS) in the order in which WFPS would be dispatched down by the TSO in the event that there is a surplus of generation and Priority Dispatch (PD) units need to be dispatched down. Three categories were described in this list.

In December 2011, EirGrid wrote to WFPS in Ireland without controllability to ascertain what is required to implement and test controllability for each WFPS. Similarly SONI has contacted all WFPS in Northern Ireland without controllability.

On 3 February 2012 and 1st March 2012, EirGrid and SONI published updates to the list and also stated the following that since November 2011, EirGrid and SONI have been in discussions with each of the Category (iii) WFPS Owners to ascertain what steps are required to achieve controllability and move to Category (ii). Over the next number of months both TSOs expects to move all existing units to Category (ii). Those units unable to meet controllability in this period will be moved to Category (i) on 1 December 2012.

In this document, the TSOs state the policy by which a WFPS will move between the categories. This policy applies to all transmission connected WFPS and distribution connected WFPS which are \geq 5MW Registered Capacity.

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2 CONTROLLABILITY REQUIREMENTS

In this section the Controllability Requirements are specified by the TSOs. The tests for controllability are described and information regarding the how and what is tested is provided.

2.1 Controllability Requirements

There are two key tests which must be successfully completed before controllability status can be given to a WFPS are as follows:

1. The WFPS **Active Power Control System** is compliant during real time operation and, or, during ongoing performance monitoring and testing of the WFPS.
2. The **Availability Signal** of the WFPS is correct and within the specified quality standard³.

2.2 Controllability Testing

A WFPS controllability test determines if the WFPS is compliant or not with the Controllability Requirements and whether the WFPS should move or remain within a category. The controllability testing may be a real time dispatch instruction from the control centre as appropriate or a scheduled dispatch test. The controllability testing is defined as the following:

¹ http://www.allislandproject.org/en/renewable_decision_documents.aspx?article=77d0b4de-341a-4f10-847f-df2dee9ae674

² <http://www.eirgrid.com/media/Implementing%20SEM%20Decision%20SEM%2011%20062%20in%20Real%20Time%20Operations%20AD DENDUM.pdf>

³ <http://www.eirgrid.com/media/Quality%20Standard%20for%20Windfarm%20Active%20Power.pdf>

1. Successful completion of a dispatch test or dispatch instruction from the TSO

A dispatch test is a remote test carried out by the TSO from the control centre. This test is dependent on system and wind conditions and is typically carried out over an hour depending on the size of the WFPS. All test requests must be submitted by the WFPS and agreed by the TSO in advance of testing. This demonstrates that the active power control system can be dispatched successfully using SCADA from the TSO control centre. This includes but is not limited by the following:

- § Turn the active power control on or off through SCADA with acknowledgement from the WFPS;
- § Dispatch instruction or series of dispatch instructions issued to the WFPS (active power set point(s));
- § Acknowledgement of the received active power control set point(s) through set point feedback from the WFPS for all issued dispatch instruction(s) (active power control set point(s));
- § The WFPS active power control responds within 10 seconds with the required ramp rates to the required dispatch instruction(s);
- § The required dispatch instruction set point should be maintained as a maximum until a new set point is issued from the TSO or the active power control is switched off by the TSO; and
- § Dispatch instructions are applicable for all set points from 0MW to registered capacity of the WFPS.

2. The Availability signal which is provided to the TSO control centre is within the EirGrid or SONI specified quality standard as applicable.

The Availability signal is an independent signal from active power output (when under curtailment or dispatch instruction from the control centre). This signal at a given time is the measure of the active power a WFPS is capable of delivering to the connection point. This signal should account for unavailability of any of the turbines i.e. high and low wind speed shutdown scenarios, outages of a wind turbine generator etc.

Note: Issues arising from RTU and/or telemetry will be first analysed before a WFPS is requested to address a non-compliance that is not telemetry related. Any issue arising from TSO communications will not result in a WFPS moving categories.

2.3 Confirmation of Category Change

There is a lead time of up to **10 Business Days** associated with a WFPS changing category. This lead time is necessary as there are validations required by the TSO in respect of testing, analysis and subsequent categorisation of a WFPS.

3 WIND FARM CONTROLLABILITY CATEGORIES

This categorisation policy applies to all transmission connected WFPS and those WFPS which are 5MW or more connected to distribution system. WFPS which are less than 5MW connected to the distribution system and WFPS exempted from controllability or connected before the Grid Code and Distribution Code are not categorised.

There are 3 categories of dispatch which are implemented by the control centres in a sequential manner for curtailment or constraint events. Non categorised WFPS are exempt from curtailment/constraint.

3.1 Category (i)

Category (i) is a WFPS that is not compliant with the Controllability Requirements, which are defined in Section 2, as required by the TSO. For WFPS with the active power control system not working, the responsible TSO will dispatch the WFPS by opening the circuit breaker or point of connection to the system. This will be coordinated with the Distribution System Operators as appropriate.

3.2 Category (ii)

Category (ii) is a WFPS with controllability status compliant with the Controllability Requirements as specified by the TSO. WFPS within Category (ii) under EirGrid's control will be dispatched via the EirGrid Wind Dispatch Tool on a pro-rata basis ⁴(pro-rata of Availability, not MEC or output). WFPS under SONI's control (hierarchy level (ii)) will be dispatched on a rota basis until such a time as the Energy Management System upgrades are completed.

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3.3 Category (iii)

There are two scenarios where a WFPS may be in Category (iii). These are:

1. A WFPS which has been recently energised and has a commissioning and testing programme which has been agreed by the TSO.
2. A WFPS which has been energised for some time on the transmission or distribution system and which has until 1 Dec 2012 to successfully comply with Controllability Requirements.

3.4 Non Categorised WFPS

The following WFPS are not categorised:

1. WFPS which are exempted from controllability requirements under the relevant Codes.
2. WFPS which are connected pre-Grid Code or pre-Distribution Code.
3. WFPS which are less than 5MW.

⁴ Pro-rata by EirGrid and rota basis by SONI will continue to be carried out until such time as SEM-011-105 is implemented by each TSO.

4 MOVING CATEGORIES

A WFPS will move between categories for different scenarios highlighted below as a result of compliance or non-compliance with the Controllability Requirements as specified in Section 2. Compliance or non-compliance with the Controllability Requirements will be determined through ongoing performance monitoring and testing of the WFPS controllability status.

As stated in Section 2, there is a lead time of up to **10 Working Days** when moving between categories as the TSO must validate the change of category through testing, analysis and subsequent categorisation of a WFPS. Note, as stated in Section 2.2, issues arising from TSO communications will not result in a WFPS moving categories.

The following sections now describe the scenarios where a WFPS may move category which will be then validated and confirmed by the TSO.

4.1 Moving from Category (iii) to Category (ii)

This scenario is where a unit which is either in Commissioning or a legacy unit which now satisfies the Controllability Requirements and can move to Category (ii).

4.1.1 New Connections

Prior to energisation, the WFPS must agree with the TSO a commissioning programme with fixed timelines. An export capacity limit will be applied to the WFPS at energisation and the WFPS will undergo a number of dispatch tests so to demonstrate controllability and increase export capacity access to the system. The maximum allowable generation limit (dispatch test + 10MW) will be applied and removed locally by the WFPS in agreement with the TSO and shall be independent of active power control system used by the TSO. This process limits the amount of uncontrollable wind exporting to the system.

When the last turbine is installed as per the agreed commissioning programme, the WFPS has **6 weeks** to meet the Controllability Requirements. This 6 week period is provided to address any outstanding issues of commissioning, tune the availability signal, complete controllability testing and be confirmed compliant by the TSO with the controllability requirements and move from Category (iii) to Category (ii). The TSO will issue the WFPS an Operational Readiness Confirmation for this WFPS which may have market implications as determined by rules of the Trading and Settlement Code.

See Section 5 which illustrates an example of the steps involved in a WFPS Commissioning.

4.1.2 Existing Connections

Existing WFPS within Category (iii) on the transmission or distribution system must complete controllability testing, be confirmed compliant by the TSO with the Controllability Requirements and be categorised by 1 Dec 2012 to move from Category (iii) to Category (ii). On 1 Dec 2012, the TSO expects to have moved all existing WFPS within Category (iii) to either Category (ii) or Category (i) as appropriate.

4.2 Moving from Category (iii) to Category (i)

This scenario is where a unit which is in Commissioning, and which has been unable to satisfy in the 6 weeks period the Controllability Requirements, will move to Category (i). The scenario also applies to a legacy unit which has not successfully completed the Controllability Requirements by 1 December 2012.

4.2.1 New Connections

After full export capacity access of the WFPS is achieved and the last turbine is installed for the agreed commissioning programme the WFPS has **6 weeks** to meet the Controllability Requirements. This period is provided to address any outstanding issues of commissioning, tune the availability signal, complete controllability testing, be confirmed compliant (Operational Readiness Confirmation) by the TSO with the Controllability Requirements and be categorised to Category (ii).

If the WFPS is not compliant with the Controllability Requirements within these **6 weeks** the TSO will move the WFPS to Category (i) until such time as the issue(s) have been addressed, the WFPS completes controllability testing, is confirmed compliant by the TSO with the controllability requirements (Operational Readiness Confirmation) and is categorised as Category (ii).

Any significant delays or alterations (i.e. >1 week) to the agreed commissioning programme after energisation must be first agreed with the TSO otherwise it could result in categorisation of the WFPS as Category (i).

See Section 5 which illustrates an example of the steps involved in a WFPS Commissioning.

4.2.2 Existing Connections

Existing WFPS within Category (iii) on the transmission or distribution system that do not complete controllability testing, be confirmed compliant (Operational Readiness Confirmation) by the TSO with the Controllability Requirements and be categorised to Category (ii) by 1 Dec 2012 will move to Category (i). On 1 Dec 2012, the TSO expects to have moved all existing WFPS within Category (iii) to either Category (ii) or Category (i) as appropriate.

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4.3 Moving from Category (ii) to Category (i)

This scenario is where a unit which has Controllability status but is now non-compliant and the following re-categorisation may then occur. There are two scenarios where a WFPS can move from (ii) to (i).

4.3.1 Non-Compliance with Controllability Requirements

This scenario is where a WFPS who has completed controllability testing i.e. has been confirmed compliant by the TSO with the Controllability Requirements, but has subsequently become non-compliant. Performance monitoring data⁵ is used by each TSO to demonstrate non-compliance. For such cases identified as non-compliant, the WFPS will be allowed **10 Business Days** to rectify the problem and confirm compliance with the controllability requirements with the TSO.

At the end of the **10 Business days**, unless confirmed compliant, the WFPS will be categorised as Category (i) and will remain in Category (i) until such time as the controllability status has been restored, controllability testing is completed and the WFPS is confirmed compliant by the TSO. Note as set out in Section 2.3 moving category can take up to 10 Business Days.

Examples of non-compliance with Controllability Requirements and how they are considered by the TSO include the following:

1. Failure to respond to a dispatch instruction. A single failure to respond to a dispatch instruction must be addressed by the WFPS, tested and confirmed compliant by the TSO within **10 Business days**.

⁵ Performance Monitoring obligations are set out in OC11 and OC10 of the relevant Grid Codes in Northern Ireland and Ireland.

2. Where the availability signal is non-compliant and outside the required standard, the metered output will be replaced by the availability signal. Upon notification by the relevant TSO of availability signal non-compliance, a WFPS is given 10 Business Days to address the issue.
3. As per Grid Code, a non-compliance may need to be monitored over sufficient periods (i.e. daily, monthly and, or, quarterly) to determine level of non-compliance of a WFPS.

4.3.2 No Operational Certificate

This scenario is where a WFPS who has completed controllability testing has been confirmed compliant by the TSO with the Controllability Requirements but has not completed compliance testing and achieved either an Operational Certificate (or Operational Certificate Justification as in the case of the Distribution Code) from the TSO within 12 months of energisation (for new connections).

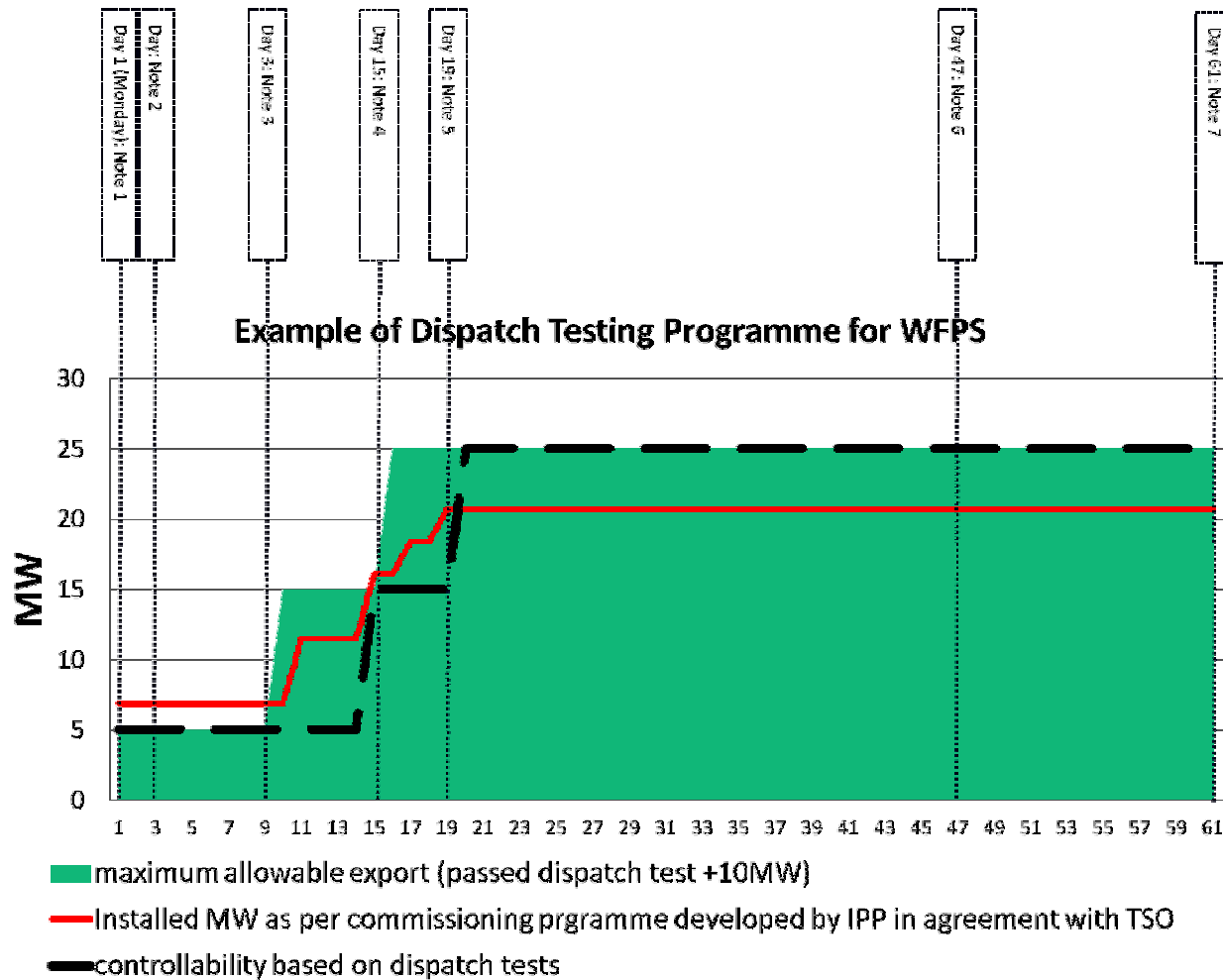
Existing connections will be required to obtain an Operational Certificate within 12 months of achieving compliance with the Controllability Requirements as confirmed by the TSO.

The 12 months provided in each case for Existing and New Connections provides sufficient time for the WFPS concerned to obtain an Operations Certificate.

4.4 Moving from Category (ii) to Category (iii)

This scenario is not available as a WFPS may not be considered Commissioning once the 6 week period described in 4.2.1 is complete.

5 EXAMPLE OF A COMMISSIONING WFPS



Day 1: The WFPS is energised. A capacity limit of 5MW is applied by the IPP independent of Active Power Control System used by TSO. The installed capacity is 6.9MW (3x2.3MW).

Day 3: The WFPS has completed post energisation signals and controls check with the TSO and submitted test request for Day 9.

Day 9: Dispatch Test no.1 carried out by TSO. Test demonstrates Active Power Control System working to control centre. TSO notifies Pass / Fail to IPP who lifts the capacity limit to the next level (5MW + 10MW) or not.

Day 15: Dispatch Test no.2 carried out by TSO. Test demonstrates Active Power Control System working to control centre. TSO notifies Pass / Fail to IPP who lifts the capacity limit to the next level (15MW + 10MW) or not.

Day 19: Last turbine installed. A dispatch test may be carried out at this point should it be required. The IPP has 6 Weeks (day 61) to complete final dispatch test and to have availability within the quality standard i.e. be compliant with Controllability Requirements and to move from Category (iii) to Category (ii).

Day 47: This is the last day to demonstrate controllability and be sure to have the WFPS moved from Category (iii) to Category (ii) respecting the standard lead-time of 10 Business days. Should the WFPS pass all requirements it receives Operational Readiness Confirmation.

Day 61: This is the last day of 6 Week Period to have WFPS moved to Category (ii). The unit will alternatively move to Category (i).



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6 COMMUNICATION AND FURTHER INFORMATION

This document sets out the TSOs' policy for the categorisation of WFPS in respect of their Controllability status and the movement of WFPS between categories as required by the TSO. Any comments or queries on this policy should be directed to Info@eirgrid.com or enquiries@soni.ltd.uk. The TSOs intend to communicate this policy at relevant upcoming meetings with Wind Farm owners/operators.

The TSOs will continue to publish on a monthly basis the list of categories. Included in this publication will be a summary of the changes from the previous month.