# WFPS Performance Monitoring Process

# Controllability of Windfarms

## Effective from 1st February 2013

# 1. INTRODUCTION

The performance monitoring process is applied to Windfarm Power Station (WFPS) in terms of the categorisation of controllability assigned following the regulatory decision SEM-062-11 for priority Dispatch.

TSO (EirGrid) connected customers must meet standards as set out in the Grid Code. DSO (ESB Networks) connected customers must meet standards set out in the Distribution Code.

## 1.1 WFPS Categories

WFPS categorisation policy applies to all TSO connected WFPS and those DSO WFPS which are 5MW or greater.

Note: (1) WFPS which are less than 5MW connected to the DSO system, (2) WFPS exempted from controllability or (3) WFPS 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.

**Category (i)** - Category (i) is a WFPS that is not compliant with the Controllability Requirements as set out by the Grid Code. For WFPS with the active power control system not working, the TSO will dispatch the WFPS by the Wind Dispatch Tool.

- If this fails, for TSO connected WFPS, the TSO will dispatch the TSO connected WFPS by opening the circuit breaker or point of connection to the system.
- If this fails, for DSO connected WFPS, the TSO will request the DSO to disconnect the DSO connected WFPS by opening the circuit breaker or point of connection to the system.

**Category (ii) -** Category (ii) is a WFPS with controllability status compliant with the Controllability Requirements as specified by the Grid Code. WFPS within Category (ii) under EirGrid's control will be dispatched via the EirGrid Wind Dispatch Tool on a pro-rata basis (pro-rata of Availability, not MEC or output).

**Categories (iii)** - Category (iii) is a WFPS which has been recently energised and has a commissioning and testing programme which has been agreed by the TSO/DSO.

## 1.2 Scope of WFPS Performance Monitoring

The process of monitoring WFPS is only applicable to units which are in Category (ii) as units which are in Category (i) and (iii) are undergoing testing and/or known to be non-compliant.

# 2 COMMUNICATION

As set out in the Grid Code and Distribution Code the TSO is responsible for communicating Performance Monitoring issues directly with transmission TSO connected Windfarm Power Stations (WFPS). Where transmission TSO connected WFPS have any questions the contact address is PerformanceMonitoring@EirGrid.com.

As set out in the Distribution Code, for distribution connected WFPS, ESB Networks is responsible for communicating performance monitoring issues with distribution connected WFPS. Where distribution connected WFPS have any questions the contacts for the relevant ESB Networks person is given below

NDCC: brian.tapley@esb.ie; ger.omahony@esb.ie; martin.mcgrath@esb.ie
SDCC: cathal.hickey@esb.ie; colm.baker@esb.ie

ESB Networks will inform EirGrid of performance monitoring issues related to DSO connected WFPS.

Any queries in relation to this document, please contact the relevant TSO (EirGrid) or DSO (ESB Networks) per contract details above.

# 3 DAILY PERFORMANCE MONITORING

The following process if effective on a daily basis for controllability category[1] (ii) WFPS from 01/02/2013:

## 3.1 TSO Connected WFPS Daily Process

| STEP | DESCRIPTION | TIMELINE |
|---|---|---|
| 1 | TSO carries out performance monitoring each Business Day (BD) for the previous Day for **Category (ii) WFPS**. This check includes:<br>• **a single non-compliance** with a **Active Power Dispatch Instruction(s)** and;<br>• a failure of the **Available Active Power signal** is identified (i.e. it stops working)<br><br>TSO investigates whether the issue is associated with a communications problem e.g. SCADA, Remote Terminal Unit (RTU). If the issue is not associated with communications then TSO communicates non compliance issue to WFPS. | 1 BD |
| 2 | TSO communicates non compliance issue to WFPS. On receipt of non compliance issue the WFPS has 10 business days to rectify. | 10 BD |
| 3 | TSO carries out dispatch test after 10 business days (subject to wind conditions). | Step 2 + 10 BD |
| 4 | TSO will confirm to the WFPS whether the dispatch test was a **Pass** or a **Fail**. The following steps are then carried out:<br>• WFPS will remain in category (ii) where the dispatch test was a **PASS**.<br>• WFPS will move to category (i) where the test was a **FAIL** and the TSO will confirm to the WFPS the effective date of the category (i) change. Should a WFPS be moved to Category (i) the WFPS must provide a report to the TSO detailing why the WFPS failed the dispatch test. | Step 3 + 10 BD |
| 5 | WFPS can request to the TSO a re-test to prove that the WFPS is now compliant. | As available |
| 6 | When a WFPS is deemed to have passed the dispatch test they will move from category (i) to category (ii). TSO will advise the WFPS of the effective date of this Category change. | Step 5 + 10BD |

[1] The *WFPS Controllability Categorisation Policy* can be found at http://www.eirgrid.com/media/Wind%20Farm%20Controllability%20Categorisation%20Policy.pdf

## 3.2 DSO Connected WFPS Daily Process

| STEP | DESCRIPTION | TIMELINE |
|---|---|---|
| 1 | TSO carries out performance monitoring each Business Day (BD) for the previous Day for **Category (ii) WFPS**. This check includes:<br>• **a single non-compliance** with a **Active Power Dispatch Instruction(s)** and;<br>• a failure of the **Available Active Power signal** is identified (i.e. it stops working)<br><br>TSO investigates whether the issue is associated with a communications problem e.g. SCADA, Remote Terminal Unit (RTU). If the issue is not associated with communications then TSO communicates non compliance issue to ESB Networks. | 1 BD |
| 2 | ESB Networks communicates non compliance issue to WFPS. On receipt of non compliance issue the WFPS has 10 business days to rectify. | 10 BD |
| 3 | TSO with the agreement of ESB Networks carries out dispatch test after 10 business days (subject to wind conditions). | Step 2 + 10 BD |
| 4 | TSO will confirm to ESB Networks whether the dispatch test was a **Pass** or a **Fail**. The following steps are then carried out:<br>• WFPS will remain in category (ii) where the dispatch test was a **PASS** and ESB Networks will confirm this to the WFPS<br>• WFPS will move to category (i) where the test was a **FAIL** and the ESB Networks will confirm to the WFPS the effective date of the category (i) change. Should a WFPS be moved to category (i) the WFPS must provide a report to ESB Networks detailing why the WFPS failed the dispatch test. | Step 3 + 10 BD |
| 5 | WFPS can request a re-test with ESB Networks to prove that the WFPS is now compliant. | As available |
| 6 | When a WFPS is deemed to have passed the dispatch test they will move from category (i) to category (ii). ESB Networks will advise the WFPS of the effective date of this Category change | Step 5 + 10 BD |

## 3.3 Example 1 – Available Active Power Issue for TSO Connected WFPS

| STEP | DESCRIPTION | TIMELINE |
|---|---|---|
| 1 | TSO carries out performance monitoring each Business Day (BD) for the previous Day for **Category (ii) WFPS**. This check includes:<br>• a single non-compliance with a Active Power Dispatch Instruction(s) and;<br>• a failure of the Available Active Power signal is identified (i.e. it stops working)<br><br>TSO investigates whether the issue is associated with a communications problem e.g. SCADA, Remote Terminal Unit (RTU). If the issue is not associated with communications then TSO communicates non compliance issue to WFPS.<br><br>***Note that the TSO will not be analysing whether the Available Active Power signal is within the quality standard[2] on a daily basis.***<br><br>*TSO identifies that the Available Active Power stops working (Figure 1) for WFPS X, which is connected to the TSO. TSO investigates whether issue is associated with a communication problem e.g. SCADA, Remote Terminal Unit (RTU). If the issue is not associated with a communications then proceed to step 2* | 1 BD |
| 2 | TSO communicates compliance issue to WFPS. The WFPS has 10 business days to rectify issue.<br>*TSO communicates the compliance issue to the WFPS and notifies the WFPS that they have 10 business days to rectify the issue* | 10 BD |
| 3 | TSO carries out dispatch test after 10 business days (subject to wind conditions).<br>*TSO carried out dispatch test after 10 business days* | Step 2 + 10 BD |
| 4 | TSO will confirm to the WFPS within 10 business days after dispatch test whether the dispatch test was a pass or a fail. The following steps are then carried out:<br>• WFPS will remain in category (ii) where the dispatch test was a pass.<br>• WFPS will move to category (i) where the test was a fail and the TSO will confirm to the WFPS the effective date of the category (i) change. Should a WFPS be moved to Category (i) the WFPS must provide a report to the TSO detailing why the WFPS failed the dispatch test.<br><br>*After the dispatch test, the TSO confirms that the WFPS has failed the dispatch test and notifies the WFPS that they will be moving to category (i) in 7 days. WFPS sends in a report detailing the reason (s) for non-compliance* | Step 3 + 10 BD |
| 5 | A re-test can then be arranged to prove the compliance of the WFPS. When a WFPS is deemed to have passed the dispatch test they will move from category (i) to category (ii) it can take up to 10 working dates to complete this process. | As available |

[2] The *Quality Standard for WFPS Power Station Available Active Power (AAP) Signal* can be found at http://www.eirgrid.com/media/QualityStandardforWindfarmActivePower.pdf

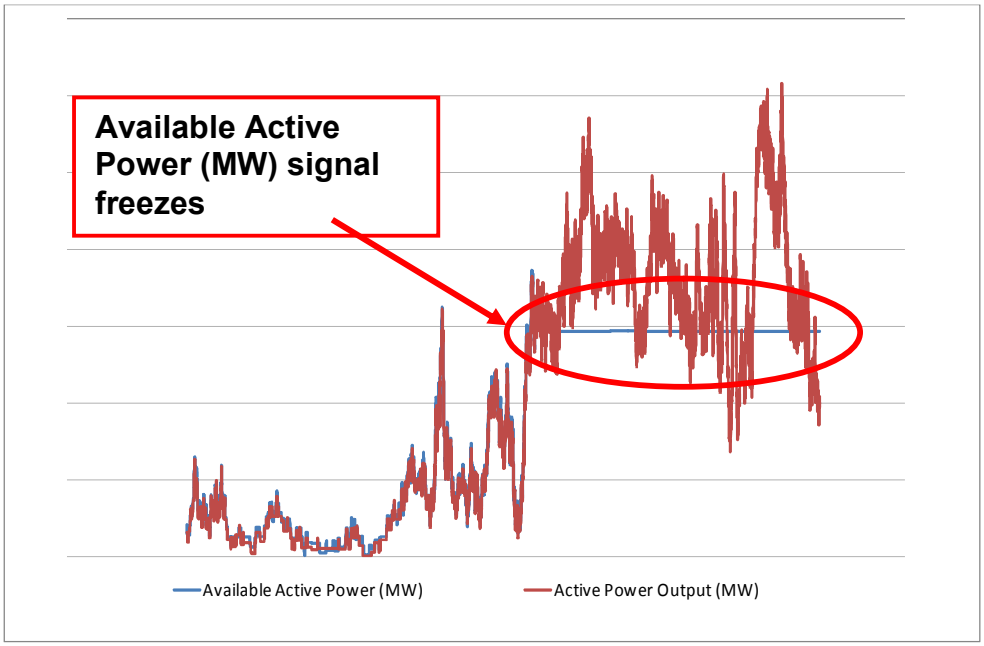


**Figure 1: Available Active Power issue with WFPS X**

## 3.4 Example 2 – Active Power Dispatch Instruction Issue for TSO Connected WFPS

| STEP | DESCRIPTION | TIMELINE |
|---|---|---|
| 1 | TSO carries out performance monitoring each Business Day (BD) for the previous Day for **Category (ii) WFPS**. This check includes:<br>• a single non-compliance with a Active Power Dispatch Instruction(s) and;<br>• a failure of the Available Active Power signal is identified (i.e. it stops working)<br><br>TSO investigates whether the issue is associated with a communications problem e.g. SCADA, Remote Terminal Unit (RTU). If the issue is not associated with communications then TSO communicates non compliance issue to WFPS.<br><br>*TSO identifies that WFPS Y, which is connected to the TSO, does not comply with active power dispatch instructions as shown in Figure 2. TSO investigates whether the issue is associated with communications e.g. SCADA, Remote Terminal Unit (RTU) If the issue is not associated with a communications then proceed to step 2* | 1 BD |
| 2 | TSO communicates compliance issue to WFPS. The WFPS has 10 business days to rectify issue.<br><br>*TSO communicates the compliance issue to the WFPS and notifies the WFPS that they have 10 business days to rectify the issue* | 10 BD |
| 3 | TSO carries out dispatch test after 10 business days (subject to wind conditions).<br><br>*TSO carried out dispatch test after 10 business days* | Step 2 + 10 BD |
| 4 | TSO will confirm to the WFPS after dispatch test whether the dispatch test was a **PASS** or a **FAIL**. The following steps are then carried out:<br>• WFPS will remain in category (ii) where the dispatch test was a **PASS**.<br>• WFPS will move to category (i) where the test was a f **FAIL** and the TSO will confirm to the WFPS the effective date of the category (i) change. Should a WFPS be moved to Category (i) the WFPS must provide a report to the TSO detailing why the WFPS failed the dispatch test.<br><br>*After the dispatch test, the TSO confirms that the WFPS passes the dispatch test and notifies the WFPS that they will be remaining in category (ii)* | Step 3 + 10 BD |
| 5 | A re-test can then be arranged to prove the compliance of the WFPS. When a WFPS is deemed to have passed the dispatch test they will move from category (i) to category (ii) it can take up to 10 working dates to complete this process. | As available |

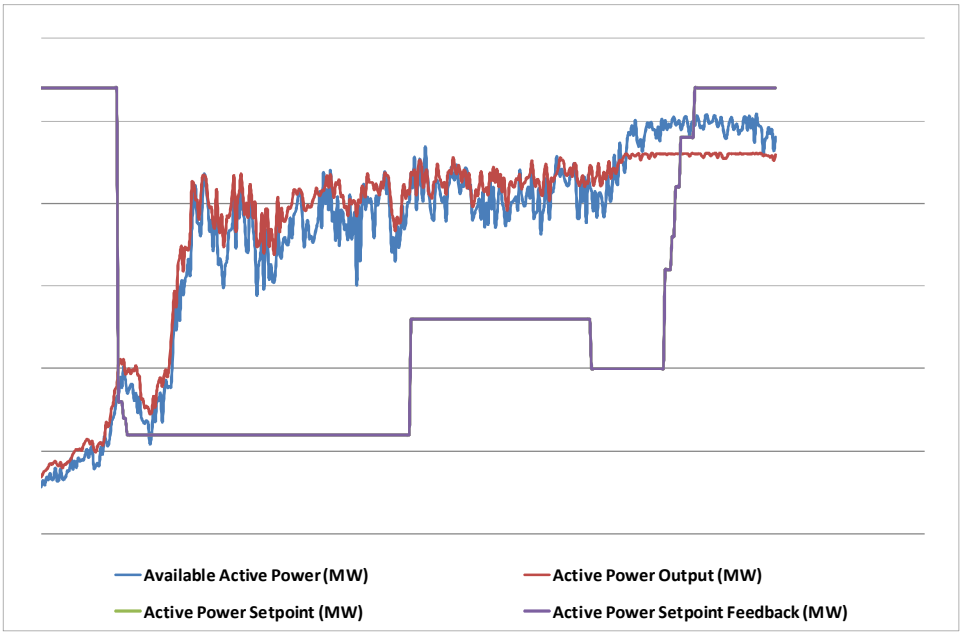


**Figure 2: Active Power setpoint issue with WFPS Y**

## 3.5 Example 3 – Available Active Power Issue for DSO Connected WFPS

| STEP | DESCRIPTION | TIMELINE |
|---|---|---|
| 1 | TSO carries out performance monitoring each Business Day (BD) for the previous Day for **Category (ii) WFPS**. This check includes:<br>• a single non-compliance with a Active Power Dispatch Instruction(s) and;<br>• a failure of the Available Active Power signal is identified (i.e. it stops working)<br><br>TSO investigates whether the issue is associated with a communications problem e.g. SCADA, Remote Terminal Unit (RTU). If the issue is not associated with communications then TSO communicates non compliance issue to WFPS.<br><br>***Note that the TSO will not be analysing whether the Available Active Power signal is within the quality standard[3] on a daily basis.***<br><br>*TSO identifies that the Available Active Power stops working (Figure 4) for WFPS X, which is connected to the DSO. TSO investigates whether issue is associated with a communication problem e.g. SCADA, Remote Terminal Unit (RTU). If the issue is not associated with a communications then proceed to step 2* | 1 BD |
| 2 | ESB Networks communicates compliance issue to WFPS. The WFPS has 10 business days to rectify issue.<br><br>*ESB Networks communicates the compliance issue to the WFPS. ESB Networks notifies the WFPS that they have 10 business days to rectify the issue* | 10 BD |
| 3 | TSO carries out dispatch test with the agreement of ESB Networks after 10 business days (subject to wind conditions).<br><br>*TSO carried out dispatch test after 10 business days* | Step 2 + 10 BD |
| 4 | TSO will confirm to ESB Networks whether the dispatch test was a **PASS** or a **FAIL**. The following steps are then carried out:<br>• WFPS will remain in category (ii) where the dispatch test was a **PASS** and ESB Networks will confirm this to the WFPS<br>• WFPS will move to category (i) where the test was a **FAIL** and the ESB Networks will confirm to the WFPS the effective date of the Category (i) change. Should a WFPS be moved to Category (i) the WFPS must provide a report to ESB Networks detailing why the WFPS failed the dispatch test.<br><br>*ESB Networks will receive dispatch test results from the TSO. If the WFPS failed, ESB Networks will notify the WFPS that they will be moving to category (i) in 7 days* | Step 3 + 10 BD |
| 5 | When a WFPS is deemed to have passed the dispatch test they will move from Category (i) to Category (ii). ESB Networks will advise the WFPS of the effective date of this Category change. | As available |

[3] The *Quality Standard for WFPS Power Station Available Active Power (AAP) Signal* can be found at http://www.eirgrid.com/media/QualityStandardforWindfarmActivePower.pdf

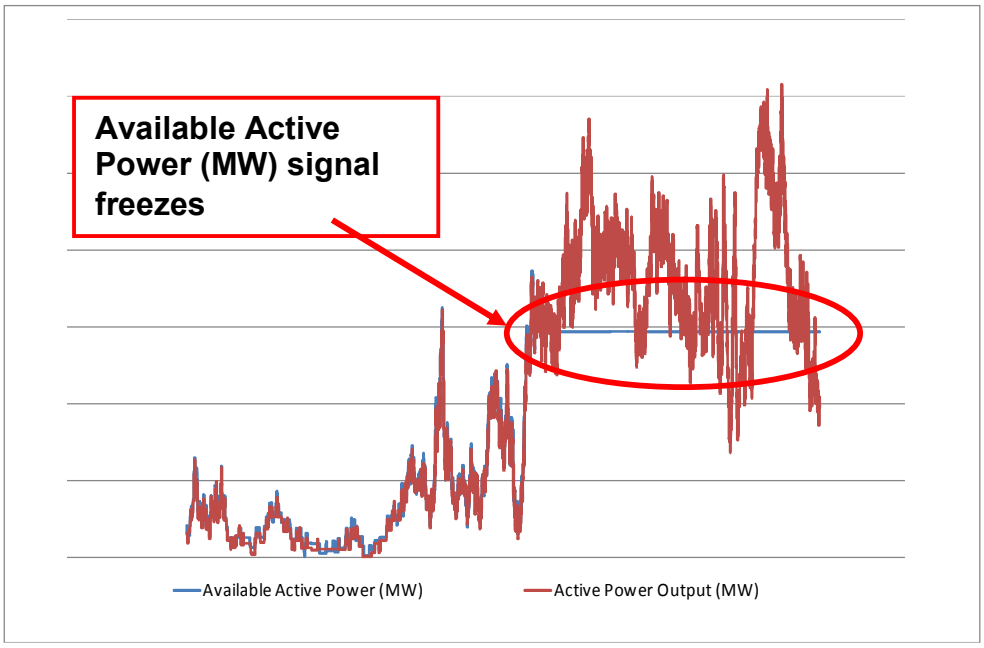


**Figure 4: Available Active Power issue with WFPS X**

## 3.6 Example 4 - Active Power Dispatch Instruction Issue with DSO Connected WFPS

| STEP | DESCRIPTION | TIMELINE |
|---|---|---|
| 1 | TSO carries out performance monitoring each Business Day (BD) for the previous Day for **Category (ii) WFPS**. This check includes:<br>• a single non-compliance with a Active Power Dispatch Instruction(s) and;<br>• a failure of the Available Active Power signal is identified (i.e. it stops working)<br><br>TSO investigates whether issue is associated with communication issues e.g. SCADA, Remote Terminal Unit (RTU). If issue is not associated with communications then TSO communicates non compliance issue to ESB Networks.<br><br>*TSO identifies that WFPS Y, which is connected to the DSO, does not comply with active power dispatch instructions as shown in Figure 4. TSO investigates whether the issue is associated with communications e.g. SCADA, Remote Terminal Unit (RTU). If the issue is not associated with communications then proceed to step 2* | 1 BD |
| 2 | ESB Networks communicates compliance issue to WFPS. The WFPS has 10 business days to rectify issue.<br><br>*ESB Networks communicates the compliance issue to the WFPS. ESB Networks notifies the WFPS that they have 10 business days to rectify the issue* | 10 BD |
| 3 | TSO carries out dispatch test with the agreement of ESB Networks after 10 business days (subject to wind conditions).<br><br>*TSO carried out dispatch test after 10 business days* | Step 2 + 10 BD |
| 4 | TSO will confirm to ESB Networks whether the dispatch test was a **PASS** or a **FAIL**. The following steps are then carried out:<br>• WFPS will remain in category (ii) where the dispatch test was a **PASS** and ESB Networks will confirm this to the WFPS<br>• WFPS will move to category (i) where the test was a **FAIL** and the ESB Networks will confirm to the WFPS the effective date of the Category (i) change. Should a WFPS be moved to Category (i) the WFPS must provide a report to ESB Networks detailing why the WFPS failed the dispatch test.<br><br>*ESB Networks will receive dispatch test results from the TSO. If the WFPS failed, ESB Networks will notify the WFPS that they will be moving to category (i) in 7 days* | Step 3 + 10 BD |
| 5 | When a WFPS is deemed to have passed the dispatch test they will move from Category (i) to Category (ii). ESB Networks will advise the WFPS of the effective date of this Category change. | |

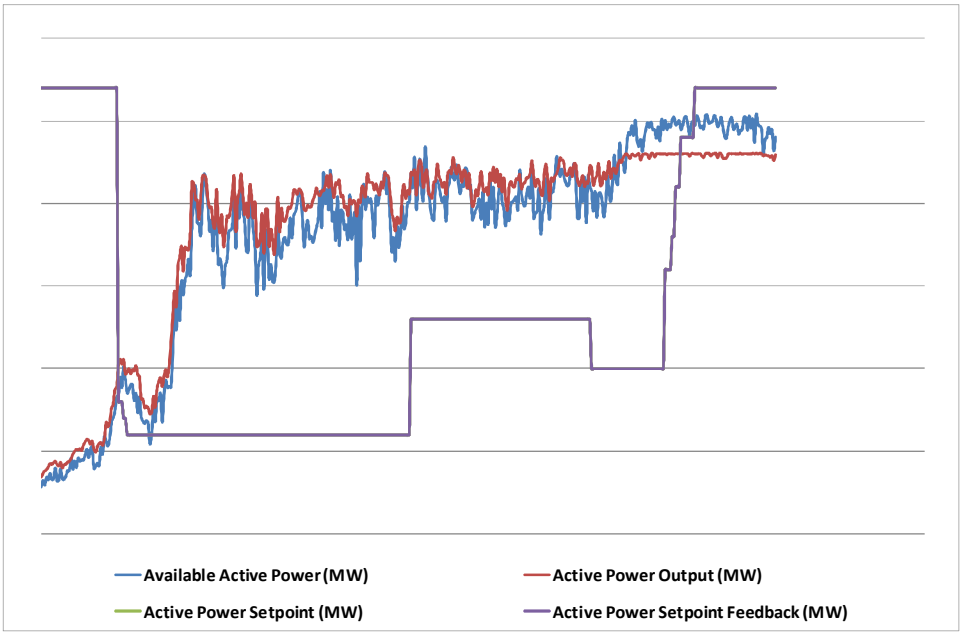


**Figure 5: Active Power setpoint issue with WFPS Y**

# 4 MONTHLY PERFORMANCE MONITORING

Monthly Performance Reports are prepared for each controllable WFPS by TSO and the findings from these are issued to the WFPS and DSO 10 business days following the end of each month. The purpose of these is to determine whether:

2. The Available Active Power signal quality is within the required standard[3] (6%) as this is not carried out in the daily process.
3. The WFPS achieves the required Active Power dispatch instruction with an allowable tolerance of ± 1 MW.

The following process if effective for controllability category[4] (ii) WFPS from 01/02/2013:

## 4.1 TSO Connected WFPS Monthly Process

**As noted in section 3 the daily performance monitoring process only identify when the Available Active Power signals stops working**

| STEP | DESCRIPTION | TIMELINE |
|---|---|---|
| 1 | TSO identifies non-compliance with Dispatch Instruction(s) or if that the Available Active Power signal is outside of the standard[3]. TSO investigates whether the issue is associated with communications e.g. SCADA, Remote Terminal Unit (RTU). If the issue is not associated with communications then TSO communicates non compliance issue to WFPS. | Month End |
| 2 | If communication issues are ruled out then the following action will be taken for non-compliances:<br><br>**Available Active Power**<br>If the Available Active Power is outside of the quality standard[3] then the Available Active Power will be substituted with the metered energy for the periods in which the WFPS is non-compliant. The WFPS will also be requested to follow up on the non-compliance to remedy this.<br><br>**Active Power Control**<br>If the WFPS does not comply with the active power dispatch standard of ±1 MW then the WFPS will be notified and have 10 business days to rectify this. WFPS will be subject to the daily performance monitoring process outlined in section 3. | Month End |
| 3 | TSO issues summary of the reports and of the actions required to the WFPS. | Month End + 10 BD |
| 4 | WFPS has 10 business days to rectify non-compliance with Active Power Dispatch Instructions. Continue to Step 2 in Section 3.1<br><br>WFPS has 10 business days to rectify non-compliance with the Available Active Power signal or submit timelines and derogation associated with this non-compliance. | Step 3 + 10 BD |

## 4.2 DSO Connected WFPS Monthly Process

**As noted in section 3 the daily performance monitoring process only identify when the Available Active Power signals stops working**

| STEP | DESCRIPTION | TIMELINE |
|---|---|---|
| 1 | TSO identifies non-compliance with Dispatch Instruction(s) or if that the Available Active Power signal is outside of the Quality standard[3]. TSO investigates whether there was a communications issue or whether the issue was with the WFPS. | Month End |
| 2 | If communication issues are ruled out then the following action will be taken for non-compliances:<br><br>**Available Active Power**<br>If the Available Active Power is outside of the quality standard[3] then the Available Active Power will be substituted with the metered energy for the periods in which the WFPS is non-compliant. The WFPS will also be requested to follow up on the non-compliance to remedy this.<br><br>**Active Power Control**<br>If the WFPS does not comply with the active power dispatch standard of ±1 MW then the WFPS will be notified that they have 10 business days to rectify this non-compliance through the daily performance monitoring process outlined in section 3. | Month End |
| 3 | TSO issues summary reports with detailed data where there is an identified issue and agrees the actions required with ESB Networks. ESB Networks communicates this to the WFPS. | Month End + 13 BD |
| 4 | WFPS has 10 business days to rectify non-compliance with Active Power Dispatch Instructions. Continue to Step 2 in Section 3.2.<br><br>WFPS has 10 business days to rectify non-compliance with the Available Active Power signal or submit timelines and a derogation associated with this non-compliance. | Step 3 + 10 BD |

[3] Quality Standard for Wind Farm Power Station Available Active Power (AAP Signal); available at http://www.eirgrid.com/media/QualityStandardforWindfarmActivePower.pdf

# 5 PUBLICATION AND CHANGE CONTROL

This document is developed jointly by TSO and DSO. It will be reviewed as required to maintain the effectiveness of the Grid Code and Distribution Code.

| Issue | Date | Record of amendments |
|---|---|---|
| V1.0 | 29/01/2013 | Version 1 |

This document can be found on

EirGrid website:
http://www.eirgrid.com/operations/gridcode/performancemonitoring

ESB Networks website:
www.esb.ie/esbnetworks/en/generator-connections