



e-FILING REPORT COVER SHEET

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REPORT NAME: RE 57 - Confidential Wind Availability Report

COMPANY NAME: Pacific Power

DOES REPORT CONTAIN CONFIDENTIAL INFORMATION? No Yes

If yes, please submit only the cover letter electronically. Submit confidential information as directed in OAR 860-001-0070 or the terms of an applicable protective order.

If known, please select designation: RE (Electric) RG (Gas) RW (Water) RO (Other)

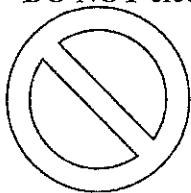
Report is required by: OAR
 Statute
 Order 10-414
 Other

Is this report associated with a specific docket/case? No Yes

If yes, enter docket number: RE 57

List applicable Key Words for this report to facilitate electronic search:
Confidential Wind Availability Report

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- Any daily safety or safety incident reports or
- Accident reports required by ORS 654.715

Please file the above reports according to their individual instructions.



825 NE Multnomah, Suite 2000
Portland, Oregon 97232

April 30, 2013

***VIA ELECTRONIC FILING
AND OVERNIGHT DELIVERY***

Oregon Public Utility Commission
550 Capitol Street NE, Ste 215
Salem, OR 97301-2551

Attn: Filing Center

Re: RE 57 – Confidential Wind Availability Report

PacifiCorp d/b/a Pacific Power submits for filing its confidential wind availability report. This report is provided in accordance with the stipulation in docket UM 1355, adopted by Order No. 10-414, in which the parties agreed that the report would be provided concurrent with the annual results of operations report.

This report is confidential and provided under the general protective order in this proceeding (Order No. 08-549).

It is respectfully requested that all data requests regarding this matter be addressed to:

By E-mail (preferred): datarequest@pacificorp.com

By regular mail: Data Request Response Center
PacifiCorp
825 NE Multnomah, Suite 2000
Portland, OR 97232

For informal inquiries, please contact Bryce Dalley, Director, Regulatory Affairs & Revenue Requirement, at (503) 813-6389.

Very truly yours,

William R. Griffith
Vice President, Regulation

Enclosures

cc: ICNU
CUB

Background

There are many variables associated with calculating the availability of wind-powered generation resources (Wind Projects). Historically, there has been no industry standard definition of “availability”. As a result, availability calculations can and have been turbine manufacturer specific and/or the result of operation and maintenance (O&M) service contract negotiations. The North American Electric Reliability Corporation (NERC) published a document entitled “GADS Wind Turbine Generation Data Reporting Instructions” in January 2011. Generating availability data system (GADS) reporting to NERC for Wind Projects is currently voluntary. It is uncertain when NERC will seek approval from the Federal Energy Regulatory Commission (FERC) for Wind Project GADS reporting to become mandatory. If NERC seeks approval from FERC for mandatory reporting, it is uncertain if FERC would find the level of reporting detailed in the GADS Wind Turbine Generation Data Reporting Instructions (January 2011) to be unduly burdensome and/or having costs that exceed benefits. GADS reporting for Wind Projects will likely be different than GADS reporting for thermal generating units due to the unpredictability of fuel supply associated with Wind Projects.

Background

There are three boundaries typically associated with a Wind Project. There are also numerous ways of accounting for turbine time. Definitions of these boundaries and time allocations can differ between turbine manufacturers and/or O&M service providers. The combinations of these variables result in availability calculations that can and do vary from Wind Project to Wind Project. For the context herein, the availability of a Wind Project is a function of time and has no relation to the energy production or the inherent volatility of energy production due to an intermittent and weather dependent fuel source.

Boundaries

As it relates to availability, Wind Projects are typically viewed as having three primary components that can affect availability. These three components are: the wind turbine generator (WTG), the balance of plant (BOP) and the network transmission system (Grid). The WTG, BOP and Grid are considered to connect to one another at points of electrical interface or “boundaries”.

The boundary between the WTG and the BOP is typically the connection of the power cables at the secondary side of the WTG padmount transformer (ground mounted outside the WTG) or at the first connection of the power cables inside the WTG. The boundary between the BOP and the Grid is usually defined as the point of interconnection (POI) with the network transmission system pursuant to a FERC pro-forma large generator interconnection agreement.

Each component can be viewed differently by the parties involved (WTG manufacturer, O&M service provider and owner). WTG manufacturers historically have not programmed their supervisory control and data acquisition (SCADA) systems to accommodate the number of time allocation variables that an owner or O&M service provider may desire. SCADA systems are WTG specific.

Time Allocations

There are several categories of WTG time allocation. If the WTG is operating normally then the WTG manufacturer can have multiple variables in their SCADA system allocated to normal operation. Normal operation means the WTG is available to produce energy but not necessarily producing energy.

If a WTG is not available due to an environmental condition (i.e., high winds, low temperature or high temperature) then the SCADA system may have several variables allocated to unavailability due to environmental reasons.

If a WTG is not available due to the lack of power from the GRID then the SCADA system may have several variables allocated to unavailability due to loss of power.

If a WTG is not available due to a problem with the BOP then the SCADA system may have several variables allocated to unavailability due to BOP. The distinction due to unavailability associated with a BOP problem versus loss of power usually requires determination and manual input on the part of the O&M provider.

If a WTG is not available due to fault, repair, or scheduled maintenance of the WTG itself then the SCADA system will usually have several variables allocated to unavailability due to these service related issues.

While there are numerous ways to allocate turbine time, at its simplest, availability is calculated as follows:

$$\frac{\text{Survey Time (ST)} - \text{Lost Time (LT)}}{\text{Survey Time (ST)}} \quad \text{or} \quad 1 - \frac{\text{Lost Time (LT)}}{\text{Survey Time (ST)}}$$

Survey time can either be a function of calendar time or a summation of some or all of the WTG time allocations. Survey time may or may not include time associated with loss of power or BOP related issues. In addition, the time associated with instances when the WTGs are not communicating to the SCADA system (i.e., a fiber optic failure or other communications related failure) may or may not be included as part of survey time or lost time. As a further example, some amount of time associated with scheduled WTG maintenance, untwist time or startup time may or may not be included as part of lost time.

Wind Project availability calculations, while not standardized, are usually calculated either as the average of all of the individual WTG availabilities or as the summation of the individual WTG time related events.

PacifiCorp Wind Projects

PacifiCorp fully owns twelve Wind Projects and partially owns one Wind Project. Each Wind Project is monitored by its own individual SCADA with the exception of Seven Mile Hill II, McFadden Ridge I and Glenrock III. These three Wind Projects are monitored by a SCADA system that monitors another nearby Wind Project.

PacifiCorp Wind Project specific calculations generally consist of the following:

- **Goodnoe Hills** – Survey time and lost time are based on 23 different groupings of SCADA variables.
- **Leaning Juniper I** – Survey time is defined as normal operation time plus loss of power time plus environmental time plus external stop time plus service time plus customer caused stop time plus lost time. Lost time is defined as outage time plus repair time.
- **Marengo & Marengo II** - Survey time is defined as normal operation time plus environmental time plus lost time. Lost time is defined as manufacturers down time.
- **Glenrock & Glenrock III** – Survey time is defined as normal operation time plus loss of power time plus environmental time plus external stop time plus external energy curtailment time plus maintenance time plus customer stop time plus lost time. Lost time is defined as down time plus repair time.
- **Seven Mile Hill & Seven Mile Hill II** – Survey time is defined as normal operation time plus loss of power time plus environmental time plus external stop time plus external energy curtailment time plus maintenance time plus customer stop time plus lost time. Lost time is defined as down time plus repair time.
- **High Plains & McFadden Ridge I** – Survey time is defined as normal operation time plus loss of power time plus environmental time plus external stop time plus external energy curtailment time plus maintenance time plus customer stop time plus lost time. Lost time is defined as down time plus repair time.
- **Dunlap I** - Survey time is defined as normal operation time plus line out time plus environmental time plus external stop time plus external energy curtailment time plus customer stop time plus lost time. Lost time is defined as down time plus repair time plus availability adjustments plus maintenance time.
- **Foote Creek I** - Survey time is defined as the number of turbines times the number of days in the period times 24 hours per day. Lost time is defined as manufacturers down time which is defined as time electrical power was not generated due to scheduled and unscheduled service, maintenance and repairs of the wind turbine. This includes shutdown time due to breach of noise and environmental warranties.