

**BEFORE THE PUBLIC UTILITY COMMISSION
OF OREGON**

UM 1355

<p>In the Matter of</p> <p>THE PUBLIC UTILITY COMMISSION OF OREGON Investigation into Forecasting Forced Outage Rates for Electric Generating Units</p>		<p>STAFF’S REPLY BRIEF</p>
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Staff of the Public Utility Commission of Oregon replies to the opening brief submitted by PacifiCorp. Unless otherwise expressly stated, staff has no comment upon the opening briefs filed by the Citizens’ Utility Board (CUB) and the Industrial Customers of Northwest Utilities (ICNU).

Staff’s reply will address the issues and assertions made by PacifiCorp basically in the same order as presented in the company’s opening brief. Further, staff anticipated and addressed in its opening brief many of PacifiCorp’s arguments on the issues and continues to stand by the arguments set forth in its opening brief. As such, staff incorporates its opening brief as its reply to any issue not specifically addressed in this reply brief. For the reasons stated below, the Administrative Law Judge and the Commission should adopt the forced outage rate method and other recommendations proposed by staff.

1. PacifiCorp’s proposals for dealing with extreme events are inferior to staff’s

PacifiCorp asks the Commission to adopt either one of two methods to adjust for extreme events or “outliers.” Staff earlier explained the major flaw with PacifiCorp’s “alternative benchmark proposal.” See Staff Opening Brief at 4-9. Briefly stated, PacifiCorp’s benchmark proposal relies on a limited number of data points for its generating units. Staff Opening Brief at 5-6. Further, for some plants, much of the

1 necessary information is simply lacking. *Id.* In contrast, staff’s proposal, using hundreds
2 of data points, results in a more stable, consistent application of the mechanism.¹

3 Staff also agrees with and supports ICNU’s criticisms of the Company’s
4 benchmark proposal. For example, ICNU points out that PacifiCorp’s collar would define
5 outliers as “more than 97.5% and below 2.5%,” and because the data is skewed and not
6 normally distributed, PacifiCorp’s calculation of a confidence interval will result in
7 “unrealistic and impossible outcomes.” *See* ICNU Opening Brief at 12-13.

8 In its opening brief, PacifiCorp also describes what it terms as its “basic
9 proposal.” PacifiCorp Opening Brief at 5. PacifiCorp states that it explained this basic
10 proposal in the supplemental testimony of witness Duvall² and further claims its basic
11 proposal was earlier described “in the Company’s direct and reply testimony.” *Id.* Staff
12 is unable to find any clear reference to this “basic proposal” in the Company’s direct and
13 reply testimony. As a result, staff did not recognize that the Company had a “basic
14 proposal” when it submitted its reply testimony and its opening brief.

15 Nonetheless, based upon evidence in the record, staff concludes PacifiCorp’s
16 basic proposal suffers from several defects. PacifiCorp’s basic proposal would limit
17 forced outage events included in the calculation to 28 days and replace “each day from
18 day 29 to the end of the event” with days from the immediate prior period (with no
19 qualification of the prior period). If, for example, the plant ran for the entire period
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21 purposes of forecasting the rate.

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23 ¹ Staff’s description and understanding of PacifiCorp’s benchmark method is slightly
24 different than the one presented by the company in its opening brief. *Compare* Staff/300,
25 Brown/16 *with* PacifiCorp Opening Brief at 6. But, the major flaws identified by staff,
26 limited data points and missing information, exist under PacifiCorp’s description of its
proposal.

² *See* PPL/405, Duvall/13.

1 There are several reasons why this methodology is flawed. First, PacifiCorp’s
2 proposal results in a logically inconsistent treatment of extreme outage rates in different
3 plants. For example, when looking at the PacifiCorp “equivalent outage rate” (EOR)
4 data, a PacifiCorp coal unit had an annual equivalent outage rate of 21 percent with no
5 single incidence of an outage that lasted longer than 28 days. *See* PPL/106, Godfrey/1.
6 Conversely, a separate coal unit had an outage rate as low as 9.53 percent for the year and
7 apparently had an outage that lasted longer than 28 days, which was then lowered to 4.94
8 percent under the PacifiCorp method. It makes no sense to adjust the rate for a coal unit
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10 21 percent. *Id.* PacifiCorp states in its brief that its method is measured and predictable.
11 PacifiCorp Opening Brief at 6. This example shows that it is not.

12 Second, the PacifiCorp method relies solely upon a single event to define an
13 extreme outage for a year. In contrast, staff’s method relies on the sum of all the outages
14 in a year to determine an extreme event. Multiple outage events, with one to two days of
15 operation in between, are common occurrences. PacifiCorp’s approach would force the
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17 was part of one event or was a truly separate event. This is the type of subjective
18 investigation that the Commission was trying to avoid when it opened up this docket.

19 Finally, setting a 28-day standard for a single outage event could create an
20 incentive for the utility to operate its plants so that they incurred shorter, but more
21 frequent outages. In response to ICNU witness Falkenberg’s opening testimony, in
22 which Mr. Falkenberg originally proposed to exclude days beyond the 28th day³,
23 PacifiCorp witness Godfrey states “The removal of lengthy outages appears only to
24 create an incentive for shorter, but more frequent and perhaps more costly, outages.” *See*

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26 ³ *See* ICNU/100, Falkenberg/9.

1 PPL/101, Godfrey/3. Thus, PacifiCorp’s preferred “basic proposal” creates the same
2 incentive the company itself says should be avoided.

3 In sum, staff’s proposal, using the annual forced outage rate, is superior to
4 PacifiCorp’s as it does not create such adverse utility incentives, it does not require a
5 detailed investigation of each event and what caused it, and it will consistently identify
6 from year to year what level of outage rate constitutes an outlier.

7 **2. PacifiCorp’s deferred accounting argument concerns an irrelevant issue**

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10 PacifiCorp to seek deferred accounting where appropriate in a timely manner.”

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14 The deferred accounting issue is what lawyers refer to as a “red herring” – it
15 appears relevant, but upon inspection and reflection, is not. The purpose of this docket is
16 to create an acceptable method for forecasting the forced outage rate for use in a utility’s
17 forward-looking power cost model (PacifiCorp’s model is known as “GRID”). Staff’s
18 Collar mechanism functions as an adjustment for extreme outage events to increase the
19 accuracy of the forecasted forced outage rate. This has no relevance with regard to a
20 utility’s ability to recover its costs from a prior period. Retroactive ratemaking is
21 generally prohibited by law and rates are intended to reflect the cost of service at the time
22 the service is being rendered. *See* Staff/300, Brown/14-16.

23 Independent and apart from the forced outage rate input in a forward-looking cost
24 model, a utility like PacifiCorp may make a request to the Commission for permission to
25 use “deferred accounting” to recover costs arising from a forced outage at a particular
26 generating unit. *See* ORS 757.259. However, PacifiCorp inappropriately conflates a

1 Collar-type adjustment for ultimate use in the forward-looking GRID model with the
2 notion of recovery of prudently incurred costs from a prior period. Thus, the forecasted
3 forced outage rate and deferred accounting concepts are related only to the limited extent
4 that both involve different aspects of the topic of extreme outages - they are not otherwise
5 dependent upon each other.

6 **3. PacifiCorp's claim that its GRID model overstates coal generation availability is**
7 **irrelevant**

8 PacifiCorp makes the statement that its GRID model overstates coal generation
9 and that to adopt staff's Collar mechanism would further aggravate this problem.
10 PacifiCorp Opening Brief at 9. This docket is an investigation into the most accurate
11 methodology for forecasting forced outage rates, it is not an investigation into why the
12 GRID model may be overstating, or understating, coal generation. Staff is open to
13 discussing this issue with PacifiCorp in a more appropriate docket, and investigating
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15 However, the purpose of this docket is to adopt the most accurate methodology for
16 forecasting forced outage rates, with the end goal that accurate inputs into the GRID
17 model will result in accurate forecasts of net variable cost.

18 **4. PacifiCorp takes staff's response to DR 4.6 out-of-context**

19 Citing to staff's response to PacifiCorp Data Response (DR) 4.6, the company
20 asserts "Staff admitted that PacifiCorp's method demonstrated less deviation between the
21 forecast and actual results than did Staff's." PacifiCorp Opening Brief at 9. While staff
22 answered "yes" to the question posed "Doesn't an RMSE of 4.01 demonstrate less
23 deviation between forecast and actual results than an RMSE of 4.17," staff went on to
24 explain that PacifiCorp's model predicts EOR and staff's model predicts FOR (Forced
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1 model would also have a lower RMSE if it were used to predict FOR.” *See* Staff
2 Response to PacifiCorp DR 4.6.⁴

3 Put more simply, PacifiCorp may have a model that predicts the heights of men
4 and staff may have a different model that predicts the heights of women. PacifiCorp’s
5 model, predicting the height of men, may have a lower RMSE than staff’s model (which
6 predicts the height of women). Just because PacifiCorp’s model has a lower RMSE with
7 regard to its ability to predict the height of men, does not mean that PacifiCorp’s model
8 would also be more accurate at predicting the heights of women than would staff’s
9 model. Staff’s accuracy determination shows staff’s collar method was an improvement
10 in the accuracy of the simple four-year average. *See* Staff/300, Brown/4. What this test
11 also shows, by way of comparison, is that staff’s model had a greater degree of
12 improvement over the simple four-year average than that of PacifiCorp’s. *Id.* PacifiCorp
13 has not disagreed with this point.

14 **5. Staff’s Collar mechanism properly treats recurring outages**

15 PacifiCorp raises an odd point related to forced outages. PacifiCorp states that an
16 outage event that occurs regularly is “by definition normal and should be included in the
17 forecast of future outages for a particular unit. Thus, any method to exclude extreme
18 outages must ensure that it does not exclude recurring outages.” PacifiCorp Opening
19 Brief at 11. From this, PacifiCorp asserts staff’s model violates this “principle” as the
20 model may apply frequently to a particular plant. *Id.*

21 PacifiCorp’s obscure point misses any recognizable mark. A forced outage event
22 is by definition unplanned, unpredictable and random. Staff/100, Brown/5. If a unit were
23 to have recurring forced outage events, the events would most likely have an underlying
24

25 ⁴ “RMSE” is an acronym for “Root Mean Squared Error.” The RMSE demonstrates the
26 deviation between forecast and actual results, with a low RMSE indicating less deviation
than a high RMSE. *See* Response to PacifiCorp DR 4.6.

1 “cause” (for example, inadequate maintenance) and would therefore not be random or
2 unpredictable. Staff/300, Brown/12. Staff’s Collar mechanism adjusts the forced outage
3 rate for unplanned forced outage events and thus properly excludes what PacifiCorp
4 terms as predictable “recurring outages.” Staff further notes that, while a particular plant
5 may have periods where it incurs numerous outages, thus making such operations routine
6 for that plant for certain periods of time, that does not mean the plant’s spotty operations
7 are “normal,” especially when viewed against a selected peer group of plants.

8 **6. Staff’s Collar does not improperly “mismatch” data**

9 PacifiCorp states that staff’s Collar mechanism calculates a four-year average
10 using North American Electric Reliability Corporation (NERC) data and then replaces an
11 extreme event that occurs in a single year with that average. PacifiCorp Opening Brief at
12 15. PacifiCorp terms this a “mismatch” that results in the Collar applying more
13 frequently than it should. *Id.*

14 Staff responded to a variation of this assertion in its opening brief. *See* Staff
15 Opening Brief at 7. In addition, PacifiCorp misunderstands staff’s mechanism: staff does
16 not calculate a four-year average using NERC data as PacifiCorp states. Instead, staff
17 uses the NERC data to calculate a discrete probability distribution. Then, staff
18 determines the 90/10 percentile values for the data and if a generating unit’s forced
19 outage rate falls outside the 90/10 Collar, the forced outage rate is adjusted to the 90/10
20 percentile value for that calendar year. *See* Staff/100, Brown/19 and Staff/200, Brown/9-
21 10 (providing an example using staff’s method).

22 Staff further notes that PacifiCorp’s alternative benchmark proposal uses the same
23 type of method to adjust a particular plant’s forced outage rate (i.e. PacifiCorp’s method
24 replaces a plant’s one-year forced outage rate based upon 20 years’ of actual plant data).
25 *See* PacifiCorp Opening Brief at 6.

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1 **7. Staff’s Collar is not a form of “performance-based ratemaking” (PBR)**

2 PacifiCorp repeats PacifiCorp witness Duvall’s assertion that staff’s Collar
3 mechanism constitutes PBR because it uses the 90/10 percentile values as a “benchmark”
4 performance goal the company must achieve in order to recover its net power costs.
5 PacifiCorp Opening Brief at 16. Staff’s opening brief anticipated this argument and
6 explained why it is not valid. *See* Staff Opening Brief at 8. Simply stated, the purpose of
7 staff’s Collar is to increase the accuracy of the forced outage rate methodology for use in
8 a forward- looking automatic adjustment clause. The Collar mechanism, properly viewed
9 and understood, is no more a type of PBR than is PacifiCorp’s power cost model a type
10 of PBR (an assertion PacifiCorp is careful to avoid making).

11 **8. Staff’s Collar mechanism is not an improper prudence determination**

12 PacifiCorp asserts that “comparing the performance of a particular unit to industry
13 standards” constitutes an automatic prudence determination. PacifiCorp Opening Brief at
14 18. Again, staff anticipated and addressed this argument in its opening brief. *See* Staff
15 Opening Brief at 8.

16 Staff further notes that PacifiCorp’s quoted statement misleads the reader as it
17 does not complete the thought. A prudence review is a backwards-looking review of a
18 particular plant performed in order to determine whether all, or a part of, its costs should
19 be recoverable in rates. Staff’s Collar mechanism does not make a determination
20 whatsoever concerning the appropriateness of allowing the recovery of a particular
21 plant’s specific costs in rates. Rather, as stated, the Collar mechanism is an adjustment
22 that relies upon industry data to exclude extreme outage events in order to make the
23 forced outage rate a better predictor of future outages at the plant under review. The
24 Collar mechanism says nothing about whether any or all of the particular, specific plant
25 costs should be disallowed based upon a backwards look at the prudence of management
26 decisions concerning the plant.

1 **9. Conclusion**

2 For the reasons stated, the Administrative Law Judge and the Commission should
3 adopt staff's forced outage rate methodology (the "collar") and other recommendations
4 associated with ICNU's heat rate and minimum operating capacity adjustment.

5 DATED this 24th day of September 2009.

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Respectfully submitted,

JOHN R. KROGER
Attorney General



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Assistant Attorney General
Of Attorneys for Staff of the Public
Utility Commission of Oregon

1 **CERTIFICATE OF SERVICE**

2 I certify that on September 24, 2009, I served the foregoing Staff's Reply Brief upon all
3 parties of record in this proceeding by delivering a copy by electronic mail and by mailing a
4 copy by postage prepaid first class mail or by hand delivery/shuttle mail to the parties accepting
5 paper service.

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4 and staff may have a different model that predicts the heights of women. PacifiCorp’s
5 model, predicting the height of men, may have a lower RMSE than staff’s model (which
6 predicts the height of women). Just because PacifiCorp’s model has a lower RMSE with
7 regard to its ability to predict the height of men, does not mean that PacifiCorp’s model
8 would also be more accurate at predicting the heights of women than would staff’s
9 model. Staff’s accuracy determination shows staff’s collar method was an improvement
10 in the accuracy of the simple four-year average. *See* Staff/300, Brown/4. What this test
11 also shows, by way of comparison, is that staff’s model had a greater degree of
12 improvement over the simple four-year average than that of PacifiCorp’s. *Id.* PacifiCorp
13 has not disagreed with this point.

14 **5. Staff’s Collar mechanism properly treats recurring outages**

15 PacifiCorp raises an odd point related to forced outages. PacifiCorp states that an
16 outage event that occurs regularly is “by definition normal and should be included in the
17 forecast of future outages for a particular unit. Thus, any method to exclude extreme
18 outages must ensure that it does not exclude recurring outages.” PacifiCorp Opening
19 Brief at 11. From this, PacifiCorp asserts staff’s model violates this “principle” as the
20 model may apply frequently to a particular plant. *Id.*

21 PacifiCorp’s obscure point misses any recognizable mark. A forced outage event
22 is by definition unplanned, unpredictable and random. Staff/100, Brown/5. If a unit were
23 to have recurring forced outage events, the events would most likely have an underlying
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25 ⁴ “RMSE” is an acronym for “Root Mean Squared Error.” The RMSE demonstrates the
26 deviation between forecast and actual results, with a low RMSE indicating less deviation
than a high RMSE. *See* Response to PacifiCorp DR 4.6.

1 “cause” (for example, inadequate maintenance) and would therefore not be random or
2 unpredictable. Staff/300, Brown/12. Staff’s Collar mechanism adjusts the forced outage
3 rate for unplanned forced outage events and thus properly excludes what PacifiCorp
4 terms as predictable “recurring outages.” Staff further notes that, while a particular plant
5 may have periods where it incurs numerous outages, thus making such operations routine
6 for that plant for certain periods of time, that does not mean the plant’s spotty operations
7 are “normal,” especially when viewed against a selected peer group of plants.

8 **6. Staff’s Collar does not improperly “mismatch” data**

9 PacifiCorp states that staff’s Collar mechanism calculates a four-year average
10 using North American Electric Reliability Corporation (NERC) data and then replaces an
11 extreme event that occurs in a single year with that average. PacifiCorp Opening Brief at
12 15. PacifiCorp terms this a “mismatch” that results in the Collar applying more
13 frequently than it should. *Id.*

14 Staff responded to a variation of this assertion in its opening brief. *See* Staff
15 Opening Brief at 7. In addition, PacifiCorp misunderstands staff’s mechanism: staff does
16 not calculate a four-year average using NERC data as PacifiCorp states. Instead, staff
17 uses the NERC data to calculate a discrete probability distribution. Then, staff
18 determines the 90/10 percentile values for the data and if a generating unit’s forced
19 outage rate falls outside the 90/10 Collar, the forced outage rate is adjusted to the 90/10
20 percentile value for that calendar year. *See* Staff/100, Brown/19 and Staff/200, Brown/9-
21 10 (providing an example using staff’s method).

22 Staff further notes that PacifiCorp’s alternative benchmark proposal uses the same
23 type of method to adjust a particular plant’s forced outage rate (i.e. PacifiCorp’s method
24 replaces a plant’s one-year forced outage rate based upon 20 years’ of actual plant data).
25 *See* PacifiCorp Opening Brief at 6.

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1 **7. Staff’s Collar is not a form of “performance-based ratemaking” (PBR)**

2 PacifiCorp repeats PacifiCorp witness Duvall’s assertion that staff’s Collar
3 mechanism constitutes PBR because it uses the 90/10 percentile values as a “benchmark”
4 performance goal the company must achieve in order to recover its net power costs.
5 PacifiCorp Opening Brief at 16. Staff’s opening brief anticipated this argument and
6 explained why it is not valid. *See* Staff Opening Brief at 8. Simply stated, the purpose of
7 staff’s Collar is to increase the accuracy of the forced outage rate methodology for use in
8 a forward- looking automatic adjustment clause. The Collar mechanism, properly viewed
9 and understood, is no more a type of PBR than is PacifiCorp’s power cost model a type
10 of PBR (an assertion PacifiCorp is careful to avoid making).

11 **8. Staff’s Collar mechanism is not an improper prudence determination**

12 PacifiCorp asserts that “comparing the performance of a particular unit to industry
13 standards” constitutes an automatic prudence determination. PacifiCorp Opening Brief at
14 18. Again, staff anticipated and addressed this argument in its opening brief. *See* Staff
15 Opening Brief at 8.

16 Staff further notes that PacifiCorp’s quoted statement misleads the reader as it
17 does not complete the thought. A prudence review is a backwards-looking review of a
18 particular plant performed in order to determine whether all, or a part of, its costs should
19 be recoverable in rates. Staff’s Collar mechanism does not make a determination
20 whatsoever concerning the appropriateness of allowing the recovery of a particular
21 plant’s specific costs in rates. Rather, as stated, the Collar mechanism is an adjustment
22 that relies upon industry data to exclude extreme outage events in order to make the
23 forced outage rate a better predictor of future outages at the plant under review. The
24 Collar mechanism says nothing about whether any or all of the particular, specific plant
25 costs should be disallowed based upon a backwards look at the prudence of management
26 decisions concerning the plant.

1 **9. Conclusion**

2 For the reasons stated, the Administrative Law Judge and the Commission should
3 adopt staff's forced outage rate methodology (the "collar") and other recommendations
4 associated with ICNU's heat rate and minimum operating capacity adjustment.

5 DATED this 24th day of September 2009.

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Respectfully submitted,

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