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August 3, 2015

Via Electronic Filing & Federal Express

Public Utility Commission of Oregon
Attn: Filing Center
201 High St. SE
Salem OR 97301

Re: In the Matter of PACIFICORP, dba PACIFIC POWER
2016 Transition Adjustment Mechanism
Docket No. UE 296

Dear Filing Center:

Enclosed for filing in the above-referenced docket, please find the Redacted Cross-Answering Testimony of Bradley G. Mullins on behalf of the Industrial Customers of Northwest Utilities.

Pursuant to Protective Order No. 10-069, the sealed confidential portions of Mr. Mullins' testimony will follow to the Commission via Federal Express and to the parties that have signed the protective order in this Docket via First Class U.S. Mail.

Thank you for your assistance. If you have any questions, please do not hesitate to call.

Sincerely,

/s/ Jesse O. Gorsuch
Jesse O. Gorsuch

Enclosures

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that I have this day served the confidential portions of the **Cross-Answering Testimony of ICNU** upon the parties shown below by sending copies via First Class U.S. Mail, postage prepaid.

Dated at Portland, Oregon, this 3rd day of August, 2015.

/s/ Jesse O. Gorsuch
Jesse O. Gorsuch

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BEFORE THE PUBLIC UTILITY COMMISSION

OF OREGON

UE 296

In the Matter of	)
	)
PACIFICORP, dba PACIFIC POWER	)
	)
2016 Transition Adjustment Mechanism.	)
	)
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REDACTED CROSS-ANSWERING TESTIMONY OF BRADLEY G. MULLINS

ON BEHALF OF THE INDUSTRIAL CUSTOMERS OF NORTHWEST UTILITIES

August 3, 2015

I. INTRODUCTION

Q. ARE YOU THE SAME BRADLEY G. MULLINS THAT FILED OPENING TESTIMONY IN THIS PROCEEDING?

A. Yes. I filed Opening Testimony on behalf of the Industrial Customers of Northwest Utilities ("ICNU"). ICNU is a non-profit trade association whose members are large industrial customers served by electric utilities throughout the Pacific Northwest, including Pacific Power ("PacifiCorp" or the "Company").

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. My testimony responds to the Opening Testimony of Jorge Ordonez on behalf of Staff, Bob Jenks and Nadine Hanhan on behalf of the Citizens' Utility Board of Oregon ("CUB"), and Kevin Higgins on behalf of Noble Americas Energy Solutions LLC ("Noble Solutions"). In addition, my testimony describes known updates and corrections to the net power cost ("NPC") adjustments presented in my Opening Testimony.

Q. PLEASE PROVIDE A SUMMARY OF THE UPDATES AND CORRECTIONS TO YOUR OPENING TESTIMONY.

A. The updates and corrections to my Opening Testimony are as follows:

- The adjustment titled "2a: Reserves - Regulation Correction" is withdrawn. Based on representations from the Company, the reserve contracts in question were intentionally allowed to provide a level of reserves in excess of the load following reserve requirements, because the Generation and Regulation Initiative Decision Tools ("GRID") model was also using the reserves from those contracts to offset contingency reserve requirements. Therefore, no correction was necessary.

- The hourly reserve calculations developed using 90% exceedance[1/] in adjustment "2b: Reserves - Reliability Metric" were updated to reflect a minor correction. The wind following reserves in the month of March incorrectly referenced a file containing February reserve values. The impact of this correction is an approximate $37,918 reduction to the adjustment value.
- The adjustment related to the Hermiston point-to-point ("PTP") contract was updated to reflect six months of contract payments. Previously, the adjustment value was calculated based on one month of contract payments; however, because the Hermiston purchase contract expires in July of 2016, six months of payments should have been included in the calculation. In addition, while I did not recommend so in my Opening Testimony, the Company should also remove the transmission capacity associated with the Hermiston PTP contract from the GRID model transmission topology. Removing the capacity associated with the portion of the PTP contract attributable to the Hermiston purchase contract will result in an increase to NPC modeled in GRID, which should be applied as an offset to this adjustment in the Company's final GRID model runs. My GRID modeling does not reflect this offset.

Q. HAVE YOU PREPARED AN UPDATED TABLE TO ACCOUNT FOR THESE CORRECTIONS AND UPDATES?

A. Yes. Table 1-CA, below, includes the impact of each of these updates and corrections, with the corrected adjustments indicated in italics.

1/ Note that for purposes of Opening Testimony the term used to describe the reliability metric was "confidence interval," which is often used interchangeably with exceedance-based statistical intervals. Notwithstanding, the more technically correct term to describe the statistical interval used by the Company is likely a "predictive confidence interval" or "prediction interval."

TABLE 1-CA
Updated NPC Recommendation

	$000	
	Total-Company	Oregon-Allocated
2015 TAM	1,472,643	363,705
Company Filing	1,537,484	374,516
NPC Increase	64,842	10,811
Other Revenue Adjustment	8,803	2,296
EIM Costs Reduction	(2,088)	(547)
Load Adjustment	-	(808)
Company Proposed Rate Increase	**71,557**	**11,752**
Recommended Adjustments:		
1a Reject System Balancing Adj.	(31,300)	(7,739)
1b Market Liquidity Proposal	(6,862)	(1,697)
2a *Reserves - Regulation Correction*	-	-
2b *Reserves - Reliability Metric*	*(11,202)*	*(2,770)*
2c Reserves - PSE & APS Reserve Diversity	(61)	(15)
2d Reserves - Idaho Power Asset Exchange	(1,327)	(328)
3a EIM Disp. Benefit - Seasonality	(1,471)	(364)
3b EIM Disp. Benefit - New Participants	(3,158)	(781)
4b *Hermiston - PTP Contract*	*(2,637)*	*(652)*
5 Outage Modeling	(789)	(195)
6a Wind Profile - Avian Protection	(211)	(52)
6b Wind Profile - Rolling Average	(5,758)	(1,424)
Total Adjustments	(64,775)	(16,015)
Recommended Rate Increase (Decrease)	**6,782**	**(4,263)**

Q. DO YOU HAVE ANY OTHER COMMENTS ABOUT TABLE 1-CA?

A Yes. The adjustments in Table 1 in my Opening Testimony were performed sequentially and the order of the runs impacted the ultimate adjustment amount. For purposes of the above updates and corrections, I did not rerun each of the studies to reflect the potential impact of the update on the other adjustments. These adjustments also do not reflect the thermal plant screening process, a lengthy manual process undertaken by the Company to determine which plants to run in the model on an hourly basis. Accordingly, the ultimate impact of each

adjustment on NPC may be slightly different when the Company reruns NPC based upon the methodologies approved by the Commission in its November update.

Q. HAVE YOU REFINED ANY OF THE RECOMMENDATIONS DETAILED ABOVE?

A. Yes. I recently filed testimony before the Wyoming Public Service Commission ("Wyoming PSC") on behalf of the Wyoming Industrial Energy Consumers in Wyoming PSC Docket No. 20000-469-ER-15 (the "Wyoming GRC"). In that proceeding, I recommended a slightly different methodology for determining the shape of Energy Imbalance Market ("EIM") inter-regional dispatch benefits. Based on my review of the Company's updated calculations of EIM benefits presented in that proceeding, I concluded that the economic margins on inter-regional EIM transfers were better aligned with changes to the overall market prices, rather than changes in the market spreads between the Northwest and California. This updated calculation resulted in a larger adjustment value of approximately $3 million in that proceeding. Because, however, the Company has not presented an updated calculation of inter-regional EIM dispatch margins in this proceeding, and due to the fact that updating the methodology would result in a larger adjustment, I have not updated my recommendation for purposes of this proceeding.

In addition, in the Wyoming GRC, I did not address the Company's proposal to update the capacity factors of non-owned wind resources. I continue, however, to believe that the use of a five-year period to normalize the output from these resources is too short to be used to establish normalized NPC and have not withdrawn that adjustment for purposes of this proceeding.

II. RESPONSE TO STAFF

Q. PLEASE SUMMARIZE YOUR UNDERSTANDING OF STAFF'S TESTIMONY.

A. Staff's testimony makes three recommendations. First, Staff proposes to model dynamic transfer capability between balancing areas.[2/] Second, Staff recommended including within-hour dispatch benefits as an EIM adjustment.[3/] Third, Staff recommends that the Commission reject the Company's proposed system balancing adjustments.[4/]

Q. DO YOU AGREE GENERALLY WITH STAFF'S RECOMMENDATIONS?

A. Yes. Staff's recommendations largely overlap with recommendations made in my Opening Testimony. Staff's first proposal, to model dynamic transfer capability between balancing areas, is similar in concept to my adjustment "2d: Reserves - Idaho Power Asset Exchange," where I have modeled the ability of the Company to transfer 50 MW of capacity between the Eastern and Western Balancing Areas. Staff's second proposal, regarding EIM within-hour dispatch benefits, largely overlaps with my adjustment "2b: Reserves - Reliability Metric," which was premised in part on the notion that relaxing the confidence interval in the reserve study would be more reflective of the within-hour reserve savings expected from the EIM. Finally, Staff's third proposal is consistent with my adjustment "1a: Reject System Balancing Adj.," to reject the Company's proposed modeling adjustment to reflect historical system balancing costs. As a result, I generally agree with the recommendations made by Staff in Opening Testimony.

2/ Staff/100 at 2:8-9.
3/ Staff/100 at 2:10-11.
4/ Staff/100 at 2:12-13.

Q. PLEASE EXPLAIN.

A. In the matter of dynamic transmission transfer capability between balancing areas, for instance, Staff and ICNU both note that the Company has failed to model benefits associated with 200 MW of additional operational flexibility between its balancing areas resulting from an approved asset exchange with Idaho Power Company.[5/] While Staff firmly believes that "such benefits should be reflected in this filing,"[6/] Staff did not offer a definite adjustment in opening testimony, explaining that it "continues to explore this issue."[7/] ICNU fully agrees that such benefits should be reflected in this case, in support of which I have provided testimony recommending a $0.3 million NPC reduction on an Oregon-allocated basis.[8/] Similarly, another Staff recommendation, that the Commission not adopt the Company's proposed system balancing modeling change,[9/] is complemented by ICNU's recommendation that the Commission reject the Company's system balancing adjustment in conjunction with the adoption of an alternative modeling change to incorporate realistic bid-ask spreads in the Company's GRID model.[10/]

Q. WOULD YOU LIKE TO ADD ANYTHING IN REGARD TO STAFF'S OPENING TESTIMONY?

A. Yes. Staff has proposed a $1.43 million Oregon-allocated reduction to NPC to account for the EIM benefits of reduced regulating margin reserve resulting from within-hour scheduling.[11/] I believe that Staff's proposed adjustment has merit, and complements ICNU recommendations

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5/ Compare Staff/100 at 8-11, with ICNU/100 at 31-33.
6/ Staff/100 at 11:3-4.
7/ Id. at 10:11-12.
8/ ICNU/100 at 31-33.
9/ Staff/100 at 20-24.
10/ ICNU/100 at 5-20.
11/ Staff/100 at 15:18-16:10.

to account for these EIM benefits through a holistic review of the Company's reserve study and the use of a 90% exceedance interval.[12/]

III. RESPONSE TO CUB

Q. DO YOU AGREE WITH CUB'S CHARACTERIZATION OF THE COMPANY'S SYSTEM BALANCING PROPOSAL?

A. Yes. CUB notes that the Company's system balancing modeling proposal in this proceeding is premised largely on the notion that actual NPC in recent years has been higher than the level of normalized NPC established in the TAM.[13/] CUB suggests that the Company's use of historic variation between normalized and actual NPC in its modeling "is a significant and inappropriate change."[14/] I agree. In my Opening Testimony, I explained that the Company's reliance upon extraordinary weather and market conditions in 2014 produced an unreasonable result in the Company's bid-ask spread calculations, leading me to recommend that "the impact of historical weather events should be normalized out of power costs."[15/] Similarly, CUB points out that the fundamental design of the TAM is "to forecast power costs on a weather normalized basis. It was not intended to reflect the actual prices incurred under actual weather conditions."[16/]

Q. IS THE GRID MODEL INTENDED TO PERFECTLY FORECAST ACTUAL NPC?

A. No. The GRID model is a tool that is used to develop normalized levels of NPC, based upon normal loads, normal prices and known and measurable changes to the Company's resource portfolio. The GRID model, itself, is not intended to produce a perfect forecast of the level of NPC that the Company will experience in actual operations. Actual NPC is ultimately driven

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12/ ICNU/100 at 23-31, 33-39.
13/ CUB/100 at 5:11-7:22.
14/ CUB/100 at 1:11-12.
15/ ICNU/100 at 18:8-15.
16/ CUB/100 at 2:21-23.

by the Company's success in managing NPC on a daily basis and a number of other factors such as weather conditions, market conditions, unforeseen changes in the Company's resource portfolio, and plant availability. Some of these anomalies, such as weather conditions, are removed from the level of normalized NPC included in rates, as they are not representative of known and measurable test period conditions.

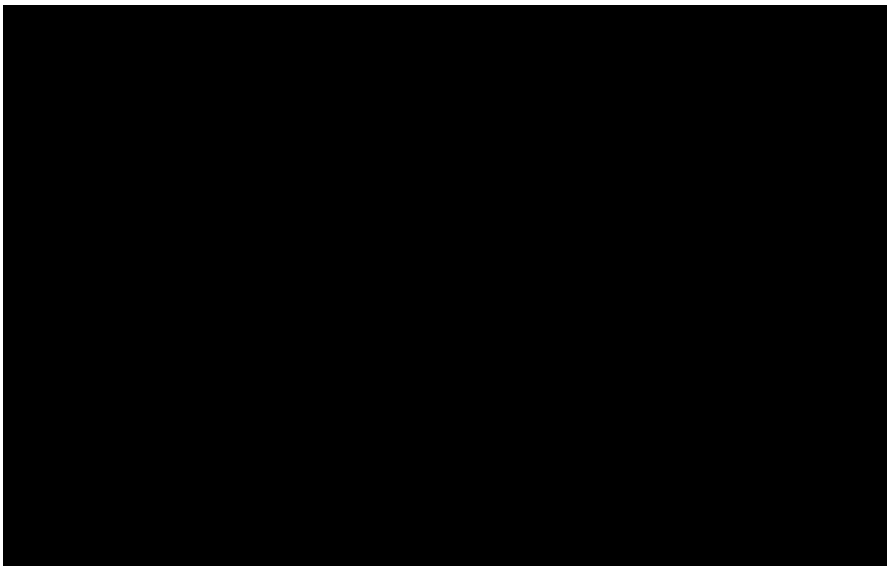
Q. DO YOU AGREE THAT THE GRID MODEL UNDERSTATES NORMALIZED NPC?

A. No. The recent differences between normalized NPC and actual NPC have no bearing on how effective the GRID model is at calculating a normalized level of net power costs. The difference between the level of normalized NPC included in rates and actual NPC is ultimately driven by the accuracy of the forecast inputs into the model—the loads, forward prices, and forecasted changes to the Company's resource portfolio. If, for example, the Company's load forecast is understated in the GRID model relative to actual operations, the resulting increases in actual NPC should not be construed as an indication that the GRID model, itself, produces an inaccurate calculation of normalized NPC. Rather, it should be construed as an indication that the normalized load input into the model was inaccurate. Similarly, if the forward prices input into the GRID model are materially different from the prices experienced in actual operations, it is expected that actual NPC will be also be materially different from the Company's forecast. Thus, the difference between normalized and actual NPC is an indication that inputs into the model did not correspond to actual weather and plant conditions that occurred in the test period, not that the GRID model produced an inaccurate normalized forecast.

Q. WHY HAS THE COMPANY'S ACTUAL NPC BEEN HIGHER THAN NORMALIZED NPC IN RATES IN RECENT YEARS?

A. A combination of factors have led to the Company's high power costs in 2013 and 2014, relative to normalized base NPC. Foremost, the weather conditions in the Northwest have been abnormal in recent years. Due to extraordinarily cold temperatures in the winter of 2013 – 2014, power prices at certain Northwest power hubs were trading at hundreds of dollars per megawatt-hour. In addition, the Company experienced several plant outages during this period, including major outages at Colstrip Unit 4, Chehalis, and Wyodak. The combination of these factors led to some of the highest levels of monthly NPC that the Company has experienced since the California energy crisis in 2001. The 2014 – 2015 winter, however, has not resulted in such extraordinary conditions. As detailed in Confidential Figure 1-CA, below, the NPC in the 2014 – 2015 winter timeframe has been materially lower than the NPC experienced by the Company in the 2013 – 2014 winter.

CONFIDENTIAL FIGURE 1-CA
Year-to-Year Comparison of Winter NPC ($million)



Q. WHAT IS THE PROPER WAY TO EVALUATE THE ACCURACY OF THE GRID MODEL?

A. One of the only ways to fairly understand how accurate the GRID model is in producing a normalizing NPC relative to matters outside the Company's control (like weather) is to perform a "back-cast." A back-cast is a model run that is populated with inputs representative of the Company's actual operations over a historical period. For purposes of the GRID model, this would include using actual loads, actual prices, and other aspects of the Company's actual resource portfolio in the historical period. The expectation is that the GRID model, if populated with the non-normal actual data associated with the historical period, will produce a level of NPC that is consistent with actual NPC in a historical period. To be adequate, a back-cast should be performed over a number of years, and include varying market and resource conditions.

Q. DID THE COMPANY PREPARE A BACK-CAST TO SUPPORT ITS CLAIMS THAT THE GRID MODEL INACCURATELY NORMALIZES NPC?

A. No. Absent a back-cast or other similar analysis that would isolate the impact of non-normal conditions on power costs, I disagree with the Company's claim that the GRID model, as it has been deployed, systematically understates normalized NPC.

Q. HAS THE COMPANY PERFORMED A BACK-CAST IN THE PAST?

A. Yes. My understanding is that the Company has, in fact, performed a number of back-casts since the GRID model was developed in 2001 and that these studies have demonstrated that the GRID model does produce an accurate level of normalized NPC. The Company prepared a back-cast in 2003 shortly after the GRID model was implemented.[17/] As stated by Randy Falkenberg, who reviewed the Company's back-cast analysis on behalf of ICNU, "[i]n the

[17/] See, e.g., In re Pacific Power Light Request for a General Rate Increase in the Company's Oregon Annual Revenues, Docket No. UE 170, Surrebuttal Testimony of Randall J. Falkenberg, ICNU/111 at 24:13-24.

analysis, the Company contended that GRID predicted power costs within 0.1% of actual."[18/] The Company has not performed a similar analysis in this proceeding. Thus, it is not possible to know whether, as a result of some structural change in the Company's operating environment, the GRID model no longer produces accurate normalized results as it once did.

Q. DO YOU AGREE WITH CUB'S CONCLUSION THAT THE COMPANY'S PROPOSED MODELING WOULD IMPROPERLY RESULT IN THE INCLUSION OF HISTORICAL NON-NORMAL COSTS IN NPC?

A. Yes. The evidence is clear that the Company's modeling proposal is heavily influenced by historical market and weather anomalies. For example, the excessive market spreads in February detailed in Confidential Table 2 of my Opening Testimony were driven largely by the extraordinary power costs experienced by the Company in February of 2014, detailed in Confidential Figure 1-CA above.

Q. DO YOU AGREE WITH CUB'S PROPOSALS REGARDING THE EIM?

A. CUB's testimony on EIM benefits is consistent with ICNU's recommendations in many respects. For instance, both parties point out the need to account for seasonality, while CUB has stated an openness to accept benefit forecasting results that differ from the Company's.[19/] As CUB observes in regard to the EIM: "The Company's reality is changing. How they operate will change."[20/] In this light, I recommend that the Commission take into consideration the recent treatment of EIM benefits by other state commissions regulating the Company.

Q. HOW HAVE OTHER STATE UTILITY COMMISSIONS TREATED EIM BENEFITS ACCRUING TO THE COMPANY?

A. The Wyoming PSC rejected claims that EIM benefits were too uncertain to incorporate into rates established in 2014, finding that the Company "provided little comfort that it would be

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[18/] Id.
[19/] Compare CUB/100 at 8-9, with ICNU/100 at 35-39.
[20/] CUB/100 at 10:5.

able to calculate benefits as the EIM progresses."[21/] Like CUB, the Wyoming PSC effectively recognized that "[t]he Company's reality is changing" via EIM participation, and would not allow customers to be deprived of definite rate period benefits, simply on account of any imperfect benefit forecasting analysis supplied by the Company.

Conversely, within just three months of finding that EIM benefit estimates were "too uncertain" in the Company's recent general rate case,[22/] the Washington Utilities and Transportation Commission ("WUTC") had to open a new EIM investigatory docket in June 2015 to obtain "information concerning the estimated benefits to Pacific Power and its Washington ratepayers from participation in the EIM."[23/] The WUTC's initial acceptance of the Company's claim—i.e., that it was "impossible … to accurately project the amount of offsetting benefits" related to the EIM in 2015[24/]—has resulted in Washington ratepayers being deprived of current EIM benefits in conjunction with the unnecessary resource drain of additional and avoidable proceedings. This outcome can be averted in Oregon simply by following the example of the Wyoming PSC in accounting for all reasonably proposed EIM benefits in the present docket.

Q. SHOULD THE COMPANY BE REQUIRED TO DEFER THE DIFFERENCE BETWEEN ACTUAL EIM BENEFITS AND THOSE BENEFITS FORECAST IN THE TAM, AS SUGGESTED BY CUB?

A. Irrespective of whether there is a deferral to account for variances between forecast and actual EIM benefits, it is important to set the base level of EIM benefits in a manner that is as accurate as possible. While I do not take issue with CUB's deferral proposal in this

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21/ Re Application of Rocky Mountain Power for Approval of a General Rate Increase, Wyoming PSC Docket No. 20000-446-ER-14, Order at ¶ 184 (Dec. 30, 2014).

22/ WUTC v. Pacific Power, WUTC Dockets UE-140762 *et al.*, Order 08 at 89 (Mar. 25, 2015).

23/ Re Investigation of Pacific Power and Light Company's Participation in the Energy Imbalance Market, WUTC Docket UE-151273, Notice of Opportunity to File Written Comments and Notice of Workshop (July 10, 2015).

24/ WUTC Dockets UE-140762 *et al.*, Duvall, Exh. No. GND-4T at 30:22-23.

proceeding, I would note that the Company already has the Power Cost Adjustment Mechanism, where the EIM benefits will be trued-up.

IV. RESPONSE TO NOBLE SOLUTIONS

Q. ARE YOU CONCERNED WITH ANY OF THE PROPOSALS MADE BY NOBLE SOLUTIONS IN OPENING TESTIMONY?

A. No. Noble Solutions has made recommendations concerning direct access transition adjustments and opt-out issues, which appear reasonable and desirable in order to avoid potential draconian results that would not be in keeping with the purpose of Oregon's direct access law. With members who could be affected by these direct access issues, ICNU supports the adoption of Noble Solutions' opening testimony recommendations.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.