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August 6, 2007

VIA E-MAIL AND OVERNIGHT DELIVERY

Public Utility Commission of Oregon
Attention: Filing Center
550 Capitol St NE #215
Salem OR 97308-2148

Re: ***Docket UM 1002 – Wah Chang, Petitioner v. PacifiCorp, Respondent***
PacifiCorp's Reply Testimony and Exhibits

Dear Sir or Madam:

Enclosed for filing are the original and five (5) copies of PacifiCorp's Revised Exhibit 31. Also enclosed are an original and five (5) copies of a marked version of PacifiCorp's Revised Exhibit 31, which is marked to indicate the revisions. Please substitute this document for the Exhibit 31 filed on May 24, 2007.

Very truly yours,

James M. Van Nostrand

cc: Service List
ALJ Patrick Power

DESCRIPTION OF STATISTICAL ANALYSES

Table 5 shows the two statistical tests for the CPX and COB, and Northern California CAISO Real-Time (CAISO NP15) and COB. A "t" statistic below 1.96 is considered rejected at the 95% confidence level. The Peak hours show very different results for the two California markets. In the CPX case, there is no support (t = .143) for the hypothesis that CPX prices and COB prices are different. Quite the opposite (t = 3.9) is shown for the CAISO NP15 Real-Time mean peak price in comparison to COB. This means that the hypothesis of ***no*** difference in means between COB and CAISO NP15 RT could reasonably be rejected with only about a one in a million chance of being wrong.

The Off-Peak comparison would also reject the CAISO NP15 comparison with less than a one in one hundred of being wrong (more that a 99% chance of a difference). The corresponding CPX price comparison for Off-Peak is too close to call, with just about a 40/60 chance of a difference or not.[1]

TABLE 5

COB AND ORGANIZED CALIFORNIA MARKETS

CPX 4/1/98 to 1/28/01

Comparison	COB	PX(w)	T-Statistic
Peak	$75.22	$74.34	0.143
Off Peak	$47.66	$53.00	-1.38

ISO Real-Time (NP15) 4/1/98 to 12/29/02

Comparison	COB	ISO-RT(NP)	T-Statistic
Peak	$76.58	$61.40	3.9
Off Peak	$51.12	$43.80	2.97

[1] Table 5 uses CPX data through 1/28/2001, the date the CPX ceased operations.

The same tests were performed for the OOM prices relative to COB for days on which either the CAISO or the California Department of Water Resources, through its California Energy Resources Scheduling division (CERS), entered the OOM markets (Composite OOM). This OOM data is known informally as the CAISO's MWh laundering data and known more formally as the CAISO Analysis of Trading and Scheduling Strategies: Revised July 15, 2003 (described in the Enron Memos). Combined, there were 209 days on which either or both the CAISO and CERS made peak hour OOM purchases that the CAISO believes were related to MWh laundering. There were 171 days where one of the entities made off-peak hour OOM purchases.[2]

Table 6 shows the composite mean OOM purchase price relative to the corresponding mean COB price. The CAISO Staff tracked sales that Scheduling Coordinators inside of California made outside of California on the same days that the CAISO made OOM purchases. The CAISO Staff determined that these potential pairings of outside-of-California sales and purchases could represent evidence of MWh laundering and/or ricochet trading. The data, however, are insufficient to reach any specific findings related to ricochet schemes. Regardless, Table 6 shows that the sales prices when MWhs were imported from outside of California were much greater than COB prices. However, on days when the CAISO had excess MWhs, shown in the bottom half of Table 6, COB prices were statistically greater than the corresponding OOM prices. Therefore, COB prices were likely not affected by CAISO OOM transactions.[3]

[2] There were 87 CAISO peak days and 131 CERS peak days. There were 54 CAISO off-peak days and 124 CERS off-peak days.
[3] The days for the COB versus OOM purchases (imports) do not match up directly with the days for potential MWh sales used for laundering or ricochet. Accordingly, the mean values at COB differ in the two cases.

TABLE 6

COB AND COMPOSITE OOM

PURCHASES (IMPORTS TO CALIFORNIA)

Comparison	COB	COMPOSITE OOM	T-Statistic
Peak	$287.01	$392.88	-5.18
Off Peak	$209.94	$387.80	-12.58

SALES (EXPORTS FROM CALIFORNIA)

Comparison	COB	COMPOSITE OUTSIDE SALES	T-Statistic
Peak	$204.06	$155.93	2.40
Off Peak	$124.00	$84.67	3.97

COB prices were also compared to CAISO SP15 Real-Time prices (Southern California) and the FERC's mitigated market clearing prices (MMCPs). These comparisons are all strongly statistically different from COB. These results are shown in Table 7.

TABLE 7

COB AND TWO OTHER REFERENCE PRICES

MMCP Period 10/1/00 to 6/17/01

Comparison	COB	MMCP	T-Statistic
Peak	$263.96	$94.82	10.3
Off Peak	$187.98	$80.26	13.4

ISO Real-Time (SP15) Period 4/1/98 to 12/29/02

Comparison	COB	ISO-RT(SP)	T-Statistic
Peak	$76.58	$57.34	5.02
Off Peak	$51.12	$33.77	7.55

Conclusion

COB prices were, on average, quite different from the CAISO prices, the markets where Mr. McCullough alleges "games" occurred. This means that, on average, COB prices are different statistically from the corresponding CAISO markets that may have been manipulated.

The similarity, on average, for COB and CPX markets (where supply and demand under-scheduling tended to cancel out) suggests that, on average, both markets tended to be influenced by similar market forces (supply shortages, increased consumption, high natural gas and NO_X input prices, etc.) as well as market design flaws and congestion difficulties. In addition, other data reviewed by Dr. Cicchetti but not tested statistically show that some significant energy traders in the Northwest traded at COB and concentrated on the CPX in California because, while prices were less, the markets were less volatile and less risky.

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Off Peak	$51.12~~68.33~~	$33.77~~50.15~~	7.55~~4.14~~

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BEFORE THE PUBLIC UTILITY COMMISSION OF OREGON

UM 1002

WAH CHANG, Petitioner, v. PACIFICORP, Respondent.	CERTIFICATE OF SERVICE

I certify that I have this day served PacifiCorp's Revised Exhibit 31, upon all parties of record in this proceeding by hand delivering a copy properly addressed as shown below and by electronic mail pursuant to OAR 860-013-0070, to the following parties or attorneys of parties:

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DATED: August 6, 2007.

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