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23 June 2008

Patrick Power, ALJ  
Oregon Public Utilities Commission  
1162 Court Street, NE  
Salem, OR

RE: **UE-199**

Dear Judge Power:

We are enclosing an original and five (5) copies of the **TESTIMONY OF KEVIN C. HIGGINS** for Sempra Energy Solutions, LLC, in the above case.

We have already e-filed, as well.

Sincerely,

A handwritten signature in black ink, appearing to read "Nina M. Curtis", is written over a large, stylized circular flourish.

Nina M. Curtis

Richardson & O'Leary PLLC

## CERTIFICATE OF SERVICE

I HEREBY CERTIFY that on the 23<sup>rd</sup> day of June, 2008, a true and correct copy of the within and foregoing TESTIMONY OF KEVIN C. HIGGINS in Case No. UE-199, was served by prepaid U.S. Mail and electronically as noted.



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BEFORE THE PUBLIC UTILITY COMMISSION  
OF THE STATE OF OREGON

In the Matter of PacifiCorp, dba )  
Pacific Power )  
2009 Transition Adjustment )  
Mechanism, Schedule 200, )  
Cost-Based Supply Service )

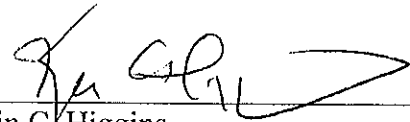
Docket No. UE-199

AFFIDAVIT OF KEVIN C. HIGGINS

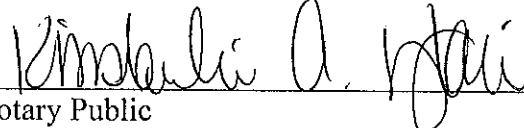
STATE OF UTAH )  
COUNTY OF SALT LAKE )

Kevin C. Higgins, being first duly sworn, deposes and states that:

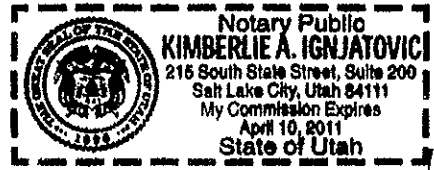
1. He is a Principal with Energy Strategies, L.L.C., in Salt Lake City, Utah;
2. He is the witness who sponsors the accompanying testimony entitled "Reply Testimony of Kevin C. Higgins;"
3. Said testimony was prepared by him and under his direction and supervision;
4. If inquiries were made as to the facts and schedules in said testimony he would respond as therein set forth; and
5. The aforesaid testimony and schedules are true and correct to the best of his knowledge, information and belief.

  
\_\_\_\_\_  
Kevin C. Higgins

Subscribed and sworn to or affirmed before me this 20th day of June, 2008, by Kevin C. Higgins.

  
\_\_\_\_\_  
Notary Public

My Commission Expires: April 10, 2011



BEFORE THE PUBLIC UTILITY COMMISSION  
OF THE STATE OF OREGON

In the Matter of PacifiCorp, dba )  
Pacific Power )  
2009 Transition Adjustment ) Docket No. UE-199  
Mechanism, Schedule 200, )  
Cost-Based Supply Service )

Reply Testimony of Kevin C. Higgins

on behalf of

Sempra Energy Solutions LLC

June 23, 2008

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**REPLY TESTIMONY OF KEVIN C. HIGGINS**

**Introduction**

**Q. Please state your name and business address.**

A. Kevin C. Higgins, 215 South State Street, Suite 200, Salt Lake City, Utah,  
84111.

**Q. By whom are you employed and in what capacity?**

A. I am a Principal in the firm of Energy Strategies, LLC. Energy Strategies  
is a private consulting firm specializing in economic and policy analysis  
applicable to energy production, transportation, and consumption.

**Q. On whose behalf are you testifying in this phase of the proceeding?**

A. My testimony is being sponsored by Sempra Energy Solutions LLC  
("SES"). SES is a retail energy supplier that serves commercial and industrial  
end-use customers in 14 states, the District of Columbia, and Baja California. In  
Oregon, SES is currently serving in excess of 300 customer meters in Portland  
General Electric's service territory and approximately 40 customer meters in  
PacifiCorp's territory.

**Q. Please describe your professional experience and qualifications.**

A. My academic background is in economics, and I have completed all  
coursework and field examinations toward a Ph.D. in Economics at the University  
of Utah. In addition, I have served on the adjunct faculties of both the University  
of Utah and Westminster College, where I taught undergraduate and graduate

1  
2 courses in economics. I joined Energy Strategies in 1995, where I assist private  
3 and public sector clients in the areas of energy-related economic and policy  
4 analysis, including evaluation of electric and gas utility rate matters.

5 Prior to joining Energy Strategies, I held policy positions in state and local  
6 government. From 1983 to 1990, I was economist, then assistant director, for the  
7 Utah Energy Office, where I helped develop and implement state energy policy.  
8 From 1991 to 1994, I was chief of staff to the chairman of the Salt Lake County  
9 Commission, where I was responsible for development and implementation of a  
10 broad spectrum of public policy at the local government level.

11 **Q. Have you ever testified before this Commission?**

12 A. Yes. I have testified in several prior proceedings in Oregon, including  
13 three PacifiCorp general rate cases, UE-179 (2006), UE-170 (2005), and UE-147  
14 (2003). In addition, I testified in the Portland General Electric ("PGE") general  
15 case UE-180 (2006) as well as in the PGE restructuring proceeding, UE-115  
16 (2001).

17 **Q. Have you participated in any workshop processes sponsored by this**  
18 **Commission?**

19 A. Yes. In 2003, I was an active participant in the collaborative process  
20 initiated by the Commission to examine direct access issues in Oregon, UM-1081.

21 **Q. Have you testified before utility regulatory commissions in other states?**

22

23

1 A. Yes. I have testified in over eighty proceedings on the subjects of utility  
2 rates and regulatory policy before state utility regulators in Alaska, Arizona,  
3 Arkansas, Georgia, Idaho, Illinois, Indiana, Kansas, Kentucky, Michigan,  
4 Minnesota, Missouri, Montana, Nevada, New Mexico, New York, Ohio,  
5 Oklahoma, Pennsylvania, South Carolina, Utah, Virginia, Washington, West  
6 Virginia, and Wyoming. I have also prepared affidavits that have been filed with  
7 the Federal Energy Regulatory Commission.

8 A more detailed description of my qualifications is contained in SES  
9 Exhibit 101, attached to my direct testimony.

10  
11 **Overview and Conclusions**

12 **Q. What is the purpose of your testimony in this proceeding?**

13 A. My testimony addresses the calculation of the Transition Adjustment as  
14 applied to Schedules 294 and 295. As part of my testimony, I offer  
15 recommendations to the Commission on these issues in support of a just and  
16 reasonable outcome.

17 **Q. What conclusions and recommendations do you offer based on your**  
18 **analysis?**

19 A. I offer the following conclusions and recommendations:

20 For direct access to be treated in an even-handed manner, it is important  
21 that the Weighted Market Value of energy freed-up due to direct access be  
22 measured as accurately as possible. In my opinion, this is not occurring under the  
23 current methodology employed by PacifiCorp.

1           To remedy this problem, I recommend that the Commission direct  
2 PacifiCorp to calculate the Schedule 294 and 295 Transition Adjustments in a  
3 manner that applies market prices to all megawatt-hours associated with the  
4 decrement of direct access load being evaluated. If the GRID model is used for  
5 this purpose, I recommend that the Weighted Market Value be calculated as  
6 follows:

7           (1) Identify the MWh change in Company transactions at market hubs  
8 resulting from the 25 MW decrement of direct access load assumed in the  
9 Transition Adjustment analysis. Value this energy using the GRID  
10 forward prices for the respective market hubs. Determine separate prices  
11 for heavy-load and light-load hours (as is currently done).

12  
13           (2) Identify the MWh reduction in thermal generation calculated by GRID  
14 for each hour of the year for the 25 MW decrement run. Value this energy  
15 at the prevailing market price in that hour as projected in GRID using the  
16 mid-point of the COB and Mid-Columbia hourly price. Determine  
17 separate prices for heavy-load and light-load hours.

18  
19           (3) Calculate the Weighted Market Value of freed-up energy by  
20 combining the prices derived in Steps 1 and 2 above on a megawatt-hour-  
21 weighted basis. Determine separate prices for heavy-load and light-load  
22 hours.

23

24           In addition, it appears that PacifiCorp is valuing the freed-up energy from  
25 direct access at the annual average price (or cost) rather than at the actual forecast  
26 price (or cost) that GRID assigns to the 25 MW direct access decrement being  
27 modeled. I recommend that the Commission to direct PacifiCorp prior to the  
28 November filing not to use average annual prices in making this calculation, but  
29 instead to use the actual forecast price (or cost) of the energy that is freed up.

30           Finally, in calculating net power costs, the GRID model assumes that there  
31 are restrictions on the liquidity of power markets during light-load periods.



1           Consequently, if GRID shows that PacifiCorp has resources available during  
2           light-load hours that can earn a margin at market prices, these resources are not  
3           dispatched once the assumed restriction, or market cap, is reached. If the market  
4           cap assumptions are not relaxed to account for the assumed increase in direct  
5           access, then GRID will not sell all the energy freed up by direct access during  
6           light load hours, but will back down lower-priced thermal units. The substitution  
7           of lower-priced thermal generation for market prices causes a reduction in the  
8           calculated value of the Weighted Market Value of freed-up energy, reducing the  
9           Schedule 294 and 295 credits paid to direct access customers. Because this  
10          reduction is caused by a mismatch in the assumptions used for direct access and  
11          market caps, it constitutes an understatement of the Weighted Market Value of  
12          freed-up energy, and a consequent understatement of the Schedule 294 and 295  
13          credits. I recommend that this issue be addressed by relaxing the market caps to  
14          fully match the assumed level of direct access in the GRID run.

15  
16          **Calculation of the Transition Adjustment (Schedules 294 and 295)**

17          **Q.     What is your understanding of the purpose of the Transition Adjustment?**

18          A.           My understanding is that the purpose of the Transition Adjustment is to  
19           provide the appropriate credit or charge for customers who choose direct access  
20           service. The Transition Adjustment is applied either through Schedule 294 or  
21           Schedule 295. The former is applied to customers who choose a one-year direct  
22           access option, whereas the latter is applied to customers who choose a three-year  
23           direct access option.

1           The logical premise behind the Transition Adjustment is to credit or  
2 charge direct access customers the difference between PacifiCorp's regulated  
3 price and the estimated market value of the electricity that is freed up when a  
4 customer chooses direct access service. This is calculated by subtracting the  
5 former from the latter. If the result is a positive number, the difference is applied  
6 as a credit to the direct access customer. If the result is a negative number, the  
7 difference is applied as a charge to the direct access customer.

8           The current practice is to calculate the Transition Adjustment using  
9 PacifiCorp's GRID model. According to PacifiCorp's tariff, the estimated market  
10 value of the electricity that is freed up when a customer chooses direct access  
11 service is determined by running two system simulations – one simulation with  
12 PacifiCorp serving the direct access customer and one simulation with the  
13 Company not serving the direct access consumer. At the present time, these  
14 simulations are run assuming direct access occurs in 25 MW decrements, which  
15 according to PacifiCorp's Response to Sempra Data Request 5, are shaped using  
16 the load shape of the rate schedule being analyzed for purposes of determining its  
17 Schedule 294 or 295 credit (charge). The difference between the two scenarios is  
18 used to calculate the impact on PacifiCorp's total system, which is then used to  
19 determine the Weighted Market Value of the energy freed-up due to direct access.  
20 The Weighted Market Value of the energy is then compared to the customer's  
21 energy-only tariff rate schedule to determine the Schedule 294 or 295 credit  
22 (charge).

1 **Q. Do you have any concerns with respect to the calculation of the Transition**  
2 **Adjustment?**

3 A. Yes. For direct access to be treated in an even-handed manner, it is  
4 important that the Weighted Market Value of energy freed-up due to direct access  
5 be measured as accurately as possible. In my opinion, this is not occurring under  
6 the current methodology employed by PacifiCorp.

7 As PacifiCorp does not intend to file its updated Schedule 294 and 295  
8 rates until November 2008, my analysis is directed toward the calculation  
9 methodology as explained by the Company. I am addressing these issues at this  
10 time because waiting until the November updates are filed will undoubtedly be  
11 too late for changes in the calculation methodology to be implemented.

12 **Q. Please explain your concerns about the calculation of the Transition**  
13 **Adjustment as applied to Schedules 294 and 295.**

14 A. My concerns are directed to the measurement of the Weighted Market  
15 Value of freed-up energy. My concerns can be placed into two categories: (1) The  
16 general methodology being used to determine the market value of freed-up  
17 energy, and (2) specific aspects of the calculation of the Weighted Market Value  
18 of freed-up energy in the GRID model. With respect to the latter, I have concerns  
19 with: (a) PacifiCorp's apparent use of annual average prices to calculate the  
20 Weighted Market Value of freed-up energy, rather than the actual forecast price  
21 (or cost) of the energy that is freed up; and (b) how GRID values freed-up energy  
22 during light-load hours.

23

1        General Methodological Approach

2        **Q.    Please explain the basis of your concerns regarding the general**  
3        **methodological approach to determining the market value of freed-up energy**  
4        **in GRID.**

5        A.            A fundamental requirement in the calculation of the Transition  
6        Adjustment for direct access customers is the determination of the market value of  
7        the energy that would otherwise have been supplied to these customers by  
8        PacifiCorp. For convenience we can refer to this as the market value of the  
9        “freed-up” energy. I am aware that the Commission and Oregon stakeholders  
10       have spent considerable time in the past several years examining various  
11       approaches to measuring this market value. I am also aware that in Order No. 05-  
12       1050, issued in UE-179, the Commission favored the use of the Company’s GRID  
13       model for this purpose. [Order at 21.]

14                My commentary on general methodological concerns is not intended to  
15       ignore this history or reargue past debates. Rather, it is intended to build upon the  
16       previous discussion and to recommend improvements within the framework that  
17       has been put in place. Moreover, in offering these comments, I recognize that the  
18       Commission indicated in UE-179 that the Transition Adjustment is not intended  
19       to promote direct access service.<sup>1</sup> My commentary is offered with that perspective  
20       in mind.

21                The basis of my general concerns stems not from the use of the GRID  
22       model in the determination of the market value of the freed-up energy, but from

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<sup>1</sup> Order No. 05-1050 at 21.

1 the manner in which the GRID model is used to make this calculation. The GRID  
2 model can provide useful insight into the market value of the freed-up energy, and  
3 the current methodology does produce an estimate of market value that is heavily  
4 influenced by the Company's forward price curve at several market hubs.

5 However, the current methodology comes up short in producing an accurate  
6 measure of market value for purposes of determining the Transition Adjustment  
7 because the methodology is really more of an avoided-cost-type calculation,  
8 rather than a projection of market value.

9 **Q. Please explain the difference between an avoided cost calculation and a**  
10 **projection of market value.**

11 A. The two concepts are similar, but there are some subtle differences. In an  
12 avoided cost calculation, retail load does not change, but existing resources are re-  
13 dispatched in response to the availability of a new resource. This re-dispatch may  
14 take the form of reduced market purchases, increased market sales, or reduced  
15 thermal generation. The avoided cost is measured based on the weighted value of  
16 these actions.

17 The market value of energy associated with a decrement of direct access is  
18 calculated with the knowledge that the every kilowatt-hour of the direct access  
19 load must be procured from the market. This means that when we assume a given  
20 decrement of direct access, there must be a corresponding assumption of an  
21 increase in market demand of the same amount. Moreover, this new increment of  
22 market demand requires delivery to the exact geographical location(s) of the  
23 decrement in cost-based load. This characteristic of direct access – that it

1 produces an increase in market demand that requires delivery to the same  
2 location(s) that required power in the baseline (i.e., non-direct-access) case – is  
3 not recognized in the current GRID methodology. The strongest evidence that this  
4 characteristic is not recognized in the current GRID methodology is that the  
5 Weighted Market Value calculated in the GRID model always includes a  
6 significant component of thermal energy (i.e., coal and gas plants) that the model  
7 indicates would be displaced in response to a decrement of direct access load. In  
8 other words, even though market demand for delivery into PacifiCorp's Oregon  
9 territory necessarily increases by the amount of the assumed direct access  
10 decrement, and even though PacifiCorp would never rationally sell output from a  
11 coal unit at cost to a competitive supplier to service retail load, the current  
12 methodology nonetheless includes the unit-costs of the coal plants backed down  
13 by GRID in determining the Weighted Market Value that is used to set the  
14 Schedule 294 and 295 Transition Adjustments. In this sense, the current  
15 methodology produces more of an avoided-cost-type calculation than a market  
16 valuation; and unfortunately, it is an avoided cost calculation that is not fully  
17 synchronous with the situation being evaluated.

18 **Q. Have you prepared an estimate of Weighted Market Value using**  
19 **PacifiCorp's current methodology?**

20 A. Yes, I have. This calculation is presented in SES Confidential Exhibit  
21 102,<sup>2</sup> and the results are summarized in Table KCH-1, below. My analysis starts  
22 by illustrating the results that would obtain if thermal generation were included at

1 cost in the calculation of Weighted Market Value, per the Company's current  
2 methodology. For simplicity, this calculation was run using a 25 MW direct  
3 access decrement for all hours. For any specific rate schedule, the decrement  
4 should be shaped using the rate schedule's load shape consistent with the  
5 Company's current methodology.

6 **Table KCH-1**

7 **Weighted Market Value Calculation**  
8 **Using PacifiCorp's Current Methodology<sup>3</sup>**

	<u>MWh</u> <u>Delta</u>	<u>Average</u> <u>MW</u> <u>Delta</u>	<u>%</u> <u>of Total</u> <u>Change</u>	<u>Average</u> <u>\$/MWh</u>	<u>Weighted</u> <u>Price</u> <u>Input</u>
<b>Increase in System Balancing Sales</b>					
15	37,849	4	17%		
16	19,064	2	9%		
17	56,913	6	26%		
<b>Decrease in System Balancing Purchases</b>					
20	78,709	9	36%		
21	44,312	5	20%		
22	123,021	14	56%		
<b>Decrease in Thermal Generation Levels</b>					
<b>Coal and Gas Generation</b>					
26	6,225	1	3%		
27	32,824	4	15%		
28	39,049	4	18%		
<b>Weighted Market Value</b>					
31			56%		
32			44%		
33			100%		

<sup>2</sup> Note: This calculation differs from PacifiCorp's method in one respect. To value the change in resource costs, I use the GRID forecasts for the freed-up energy rather than average annual price. This is discussed later in my testimony.

<sup>3</sup> See Footnote 2.

1 Inclusion of thermal generation at cost would produce a Weighted Market  
2 Value of freed-up energy for the entire year of ██████ per MWh at current GRID  
3 forward prices. This is derived from the 25-MW-decrement GRID run, which  
4 shows increasing balancing sales at an average price of \$█████ per MWh (26% of  
5 decremented MWh), decreasing balancing purchases at an average price of \$█████  
6 per MWh (56% of decremented MWh), and decreasing thermal generation at an  
7 average cost of \$█████ per MWh (18% of decremented MWh).

8 It is easy to see that even though reductions in thermal output account for  
9 a relatively small (18%) portion of the total change in resource utilization  
10 projected by GRID, this component exerts an important influence on the final  
11 calculated market value of energy in the Company's current approach, because  
12 the unit cost of thermal generation is so much lower than GRID's forward market  
13 prices.

14 **Q. What are the consequences of applying GRID in the current manner to**  
15 **calculate the market value used to set the Transition Adjustment?**

16 A. Even though most of the energy valued in the current GRID approach is  
17 associated with transactions at market hubs, the inclusion of a minority  
18 component of energy associated with GRID's reduction in thermal generation  
19 significantly biases downward the final weighted calculation of market value. As  
20 a result, the Weighted Market Value calculated in GRID will generally always be  
21 less than the market prices that will be faced by suppliers to direct access  
22 customers. Consequently, the Schedule 294 and 295 Transition Adjustment



1 credits can be expected to fall short of the level needed for direct access to occur  
2 in a “market-neutral” manner.

3 Understating the Schedule 294 and 295 credits creates an unwarranted  
4 barrier to direct access service. It is certainly contributing to the difficulties direct  
5 access has faced getting started in the PacifiCorp territory. In 2007, there was less  
6 than 12 MW (average demand) of load taking direct access service in  
7 PacifiCorp’s Oregon service territory.<sup>4</sup>

8 **Q. What is your recommendation to the Commission with respect to general**  
9 **methodological issues?**

10 A. I recommend that the Commission direct PacifiCorp to calculate the  
11 Schedule 294 and 295 Transition Adjustments in a manner that applies market  
12 prices to all megawatt-hours associated with the decrement of direct access load  
13 being evaluated. If the GRID model is used for this purpose, I recommend that the  
14 Weighted Market Value be calculated as follows:

15 (1) Identify the MWh change in Company transactions at market hubs  
16 resulting from the 25 MW decrement of direct access load. Value this energy  
17 using the GRID forward prices for the respective market hubs. Determine separate  
18 prices for heavy-load and light-load hours (as is currently done).

19 (2) Identify the MWh reduction in thermal generation calculated by GRID  
20 for each hour of the year for the 25 MW decrement run. Value this energy at the  
21 prevailing market price in that hour as projected in GRID using the mid-point of

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<sup>4</sup> Derived from PacifiCorp Response to ICNU Data Request 2.13.

1 the COB and Mid-Columbia hourly price. Determine separate prices for heavy-  
2 load and light-load hours.

3 (3) Calculate the Weighted Market Value of freed-up energy by  
4 combining the prices derived in Steps 1 and 2 above on a megawatt-hour-  
5 weighted basis. Determine separate prices for heavy-load and light-load hours.

6 **Q. Have you provided an example of how this calculation should be made?**

7 A. Yes. In SES Confidential Exhibit 103, I provide an example calculation  
8 determining the Weighted Market Value of freed-up energy for Schedule 294  
9 using PacifiCorp's current GRID run. Again, for simplicity, this calculation was  
10 run using a 25 MW direct access decrement for all hours. For any specific rate  
11 schedule, the decrement should be shaped using the rate schedule's load shape  
12 consistent with the Company's current methodology. The results of this example  
13 calculation are summarized in Table KCH-2, below. I note that the calculation in  
14 SES Confidential Exhibit 103 derives a Weighted Market Value for the entire  
15 year. This calculation can also be performed for each month of the year,  
16 consistent with the Company's current approach.

17 The results in Table KCH-2 are identical to those in Table KCH-1 except  
18 that thermal generation is priced at \$ [REDACTED] per MWh during heavy-load hours and  
19 \$ [REDACTED] per MWh during light-load hours, consistent with the market prices  
20 obtaining during the hours in which GRID directs thermal generation to be  
21 reduced. The Weighted Market Value of freed-up energy of \$ [REDACTED] per MWh  
22 produces a more reasonable than the \$ [REDACTED] per MWh shown in Table KCH-1.

Table KCH-2

SES Recommended Approach:  
Weighted Market Value Calculation  
Using PacifiCorp's GRID Model and  
Prevailing Market Prices to Value Thermal Generation Reduction

	<u>MWh</u> <u>Delta</u>	<u>Average</u> <u>MW</u> <u>Delta</u>	<u>%</u> <u>of Total</u> <u>Change</u>	<u>Average</u> <u>\$/MWh</u>	<u>Weighted</u> <u>Price</u> <u>Input</u>
<b>Increase in System Balancing Sales</b>					
HLH	37,849	4	17%		
LLH	19,064	2	9%		
Total	56,913	6	26%		
<b>Decrease in System Balancing Purchases</b>					
HLH	78,709	9	36%		
LLH	44,312	5	20%		
Total	123,021	14	56%		
<b>Decrease in Thermal Generation Levels</b>					
<b>Coal and Gas Generation</b>					
HLH	6,225	1	3%		
LLH	32,824	4	15%		
Total	39,049	4	18%		
<b>Weighted Market Value</b>					
HLH			56%		
LLH			44%		
Total			100%		

Additional Issues Regarding the GRID Calculation

Q. Before discussing your other specific concerns with the calculation of the Weighted Market Value of freed-up energy in GRID, please explain the nexus between the discussion that follows and your preceding discussion on general methodology.

1 A. The proposals I make for modifying the GRID calculation in the  
2 discussion that follows are applicable whether or not the Commission accepts my  
3 previous recommendation on general methodology. In other words, if the  
4 Commission accepts my recommendation on general methodology, then I  
5 recommend that the Commission also adopt the two proposals that follow.  
6 Similarly, if the Commission does not accept my recommendation on general  
7 methodology, then I still recommend that the Commission adopt the two  
8 proposals that follow, as they will improve GRID's calculation of Weighted  
9 Market Value, although the methodology will still fall short of producing a  
10 reasonably accurate measurement of market value.

11 **Q. Please explain your concern regarding PacifiCorp's apparent use of annual**  
12 **average prices to calculate the Weighted Market Value of freed-up energy.**

13 A. I am basing this critique on the explanation offered by PacifiCorp in UE-  
14 170 on how the Weighted Market Value of freed-up energy is calculated. In that  
15 proceeding, PacifiCorp stated that the Weighted Market Value is determined  
16 using the "average annual transaction price at the relevant market hub or the cost  
17 of generating power at the impacted unit."<sup>5</sup> This means that the freed-up energy  
18 is valued at the annual average price (or cost) rather than at the specific price or  
19 cost in GRID for the 25 MW decrement being modeled. As the Company has not  
20 yet filed its 2009 Weighted Market Value in this proceeding, it remains to be seen  
21 whether PacifiCorp intends to use this same approach to pricing in its November  
22 calculation of the Transition Adjustment. In my opinion, it is advisable for the

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<sup>5</sup>UE-170, Direct testimony of Christy A. Omohundro, p. 5.

1 Commission to direct PacifiCorp prior to the November filing not to use average  
2 annual prices in making this calculation, but instead to use the actual forecast  
3 price (or cost) of the energy that is freed up.

4 **Q. Please explain why the actual forecast price (or cost) of the freed-up energy**  
5 **should used, rather than the average annual price (or cost).**

6 A. The 25 MW decrement is occurring at the margin in GRID. Subject to  
7 various constraints, it is the highest cost resources that are being displaced when  
8 direct access reduces the Company's cost-based load. These are the costs that  
9 should be reflected in the Weighted Market Value of freed-up energy. The use of  
10 annual average prices will understate this value.

11 **Q. Please refer to the calculation you presented in SES Confidential Exhibit 102**  
12 **to illustrate your recommended methodological approach. In making this**  
13 **calculation, what approach did you use to evaluate the changes in market**  
14 **purchases and sales?**

15 A. I evaluated the changes in market purchases and sales using the actual  
16 GRID forecast price (or cost) of the energy that is freed up, i.e., the same  
17 approach I am recommending here.

18 **Q. Let's turn now to your next recommendation. Please explain your concern**  
19 **regarding the manner in which GRID values freed-up energy during light-**  
20 **load hours.**

21 A. This issue can be viewed as a subset of the general methodological  
22 problem I discussed previously in my testimony. In calculating net power costs,  
23 the GRID model assumes that there are restrictions on the liquidity of power

1 markets during light-load periods. Consequently, if GRID shows that PacifiCorp  
2 has resources available during light-load hours that can earn a margin at market  
3 prices, these resources are not dispatched once the assumed restriction, or market  
4 cap, is reached.

5 While I do not necessarily object to these market cap assumptions for  
6 normal operation of the GRID model to determine net power costs, I believe this  
7 restriction should be modified for running GRID to determine Schedule 294 and  
8 295 Transition Adjustment. This modification is particularly important if my  
9 general recommendation on methodology is not adopted. Specifically, if a given  
10 amount of direct access is being assumed in the GRID run, it is reasonable (and  
11 necessary) to make a matching assumption that liquidity has been increased in the  
12 market hubs by this same amount of direct access megawatt-hours. After all, the  
13 direct access load must be served during light-load hours. Since the direct access  
14 decrement in the GRID run represents a change in assumptions from the baseline  
15 GRID run, consistency requires that this change be extended to the assumed  
16 demand for power in the market hubs during light-load hours on the part of the  
17 suppliers seeking to serve the assumed direct access load. Failure to make this  
18 conforming change in the market cap assumption results in a systematic  
19 understatement of the Schedule 294 and 295 Transition Adjustment credits.

20 **Q. Why will failure to relax the market cap assumption result in a systematic**  
21 **understatement of the Schedule 294 and 295 Transition Adjustments?**

22 **A.** If the market cap assumptions are not relaxed to account for the assumed  
23 increase in direct access, then GRID will not sell all the energy freed up by direct

1 access during light load hours, but will back down lower-priced thermal units –  
2 even though the suppliers to the assumed direct access load would be seeking to  
3 purchase power from the market to supply these loads, adding to the market for  
4 freed-up energy. The substitution of lower-priced thermal generation for market  
5 prices would result in a reduction in the calculated value of the Weighted Market  
6 Value of freed-up energy, reducing the Schedule 294 and 295 credits paid to  
7 direct access customers. Because this reduction is caused by a mismatch in the  
8 assumptions used for direct access and market caps, it constitutes an  
9 understatement of the Weighted Market Value of freed-up energy, and a  
10 consequent understatement of the Schedule 294 and 295 credits.

11 **Q. What are the consequences of understating the Schedule 294 and 295**  
12 **credits?**

13 A. As I discussed above, understating the Schedule 294 and 295 credits  
14 creates an unwarranted barrier to direct access service.

15 **Q. Have you estimated the amount of the understatement in the Weighted**  
16 **Market Value of freed-up energy that would occur in GRID unless the**  
17 **market cap assumptions are relaxed?**

18 A. Yes. I have conducted several GRID runs to address this question. The  
19 analysis consists of replicating PacifiCorp's calculation of the Weighted Market  
20 Value of freed-up energy, as described in the PacifiCorp's Response to Sempra  
21 Data Request 5. (Note that in order to allow ready comparison with PacifiCorp's  
22 current approach, my analysis discussed in this section does not incorporate my  
23 recommended change in general methodology that was discussed previously.

1           However, the analysis does value market transactions using actual forecast price  
2           or cost of the energy that is freed up, consistent with my recommendation on that  
3           point.)

4           My initial GRID run simply decrements Oregon load by 25 MW, which is  
5           assumed to move to direct access service. The resulting Weighted Market Value  
6           of freed-up energy was presented in Table KCH-1, above, and SES Confidential  
7           Exhibit 102. As discussed previously, the annual market value of \$ [REDACTED] per  
8           MWh determined under the current methodology is significantly less than the  
9           annual value of increased energy balancing sales (\$ [REDACTED]/MWh) and the annual  
10          value of decreased energy balancing purchases (\$ [REDACTED]/MWh). This information  
11          suggests on its face that the GRID calculation may not be providing the best  
12          “estimated market value of the electricity” called for in the tariff.

13       **Q.    What GRID analysis did you conduct to examine the specific issue of market**  
14       **caps?**

15       **A.**Subsequent to the analysis presented in Table KCH-2, I conducted a third  
16       GRID analysis that relaxed the market caps in the manner called for in the  
17       stipulation approved by the Commission in UE-170, in which the market cap at  
18       COB is increased by 10 MW and the market cap at Mid-Columbia is increased by  
19       10 MW in response to 25 MW of direct access load. The resulting Weighted  
20       Market Value of freed-up energy is presented in Table KCH-3 below and  
21       summarized further in SES Confidential Exhibit 104. This approach partly  
22       addresses the mismatch discussed above, but does not completely remove it.



Table KCH-3

**Weighted Market Value Calculation  
Using PacifiCorp's GRID Model  
with COB and Mid-C market caps increased by 10 MW**

	<u>MWh</u> <u>Delta</u>	<u>Average</u> <u>MW</u> <u>Delta</u>	<u>%</u> <u>of Total</u> <u>Change</u>	<u>Average</u> <u>\$/MWh</u>	<u>Weighted</u> <u>Price</u> <u>Input</u>
<b>Increase in System Balancing Sales</b>					
HLH	37,849	4	17%		
LLH	42,385	5	19%		
Total	80,234	9	37%		
<b>Decrease in System Balancing Purchases</b>					
HLH	78,709	9	36%		
LLH	39,659	5	18%		
Total	118,368	14	54%		
<b>Decrease in Thermal Generation Levels Coal and Gas Generation</b>					
HLH	6,225	1	3%		
LLH	14,156	2	6%		
Total	20,381	2	9%		
<b>Weighted Market Value</b>					
HLH			56%		
LLH			44%		
Total			100%		

31 **Q. What is your understanding as to whether the market cap assumptions**  
32 **adopted in the UE-170 stipulation continue to be used by PacifiCorp in the**  
33 **calculation of the Schedule 294 and 295 Transition Adjustments?**

34 **A.** It is my understanding that the market cap assumptions adopted in the UE-  
35 170 stipulation were not used by PacifiCorp in the calculation of the Schedule 294  
36 and 295 Transition Adjustments in the most recent setting of those rates.

1   **Q.    Do you recommend adoption of the market cap treatment agreed upon in the**  
2   **UE-170 stipulation in this case?**

3    A.        It is not my preferred option. While the treatment of market caps in the  
4    UE-170 stipulation is an improvement over the Company's current practice of not  
5    relaxing the caps, the UE-170 approach is still insufficient to reflect the full value  
6    of the Weighted Market Value of freed-up energy. Instead, I recommend relaxing  
7    the market caps to fully match the assumed level of direct access in the GRID run,  
8    for the reasons I explained above.

9   **Q.    Have you conducted an analysis that demonstrates the effect on the Weighted**  
10   **Market Value of freed-up energy of relaxing the market caps in the manner**  
11   **you are recommending?**

12            Yes. I conducted a fourth GRID run that relaxed the market caps by 10  
13    MW at COB and 15 MW at Mid-Columbia to match the assumed level of direct  
14    access. The resulting Weighted Market Value of freed-up energy is presented in  
15    Table KCH-4 below and summarized further in SES Confidential Exhibit 105.  
16    This approach resolves the mismatch discussed above, and I recommend that it be  
17    adopted by the Commission.

Table KCH-4

**Weighted Market Value Calculation  
Using PacifiCorp's GRID Model  
with COB market cap increased by 10 MW  
and Mid-C market cap increased by 15 MW**

	<u>MWh</u> <u>Delta</u>	<u>Average</u> <u>MW</u> <u>Delta</u>	<u>%</u> <u>of Total</u> <u>Change</u>	<u>Average</u> <u>\$/MWh</u>	<u>Weighted</u> <u>Price</u> <u>Input</u>
<b>Increase in System Balancing Sales</b>					
HLH	37,849	4	17%		
LLH	45,912	5	21%		
<b>Total</b>	<b>83,761</b>	<b>10</b>	<b>38%</b>		
<b>Decrease in System Balancing Purchases</b>					
HLH	78,709	9	36%		
LLH	39,370	4	18%		
<b>Total</b>	<b>118,080</b>	<b>13</b>	<b>54%</b>		
<b>Decrease in Thermal Generation Levels Coal and Gas Generation</b>					
HLH	6,225	1	3%		
LLH	10,917	1	5%		
<b>Total</b>	<b>17,143</b>	<b>2</b>	<b>8%</b>		
<b>Weighted Market Value</b>					
HLH			56%		
LLH			44%		
<b>Total</b>			<b>100%</b>		

Q. If the Commission adopts your recommendation on this point, would that be sufficient to address fully the methodological concerns discussed previously in your testimony?

A. No. Adopting my recommendation to fully relax the market caps partially addresses the concerns I raised above concerning general methodology. As can be seen by comparing Table KCH-2 and Table KCH-4, relaxing the market caps to fully match the assumed level of direct access reduces the thermal component in

1 the analysis from 18% to 8%. However, the remaining thermal component is still  
2 significant enough to bias materially the calculation of Weighted Market Value.  
3 For this reason, it is important to value this thermal component at the market  
4 prices prevailing in the hours that the GRID simulation directs this thermal  
5 generation to be reduced, as recommended previously in my testimony.

6 **Q. Does this conclude your reply testimony?**

7 **A. Yes, it does.**

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**Vitae**

**PROFESSIONAL EXPERIENCE**

Principal, Energy Strategies, L.L.C., Salt Lake City, Utah, January 2000 to present. Responsible for energy-related economic and policy analysis, regulatory intervention, and strategic negotiation on behalf of industrial, commercial, and public sector interests. Previously Senior Associate, February 1995 to December 1999.

Adjunct Instructor in Economics, Westminster College, Salt Lake City, Utah, September 1981 to May 1982; September 1987 to May 1995. Taught in the economics and M.B.A. programs. Awarded Adjunct Professor of the Year, Gore School of Business, 1990-91.

Chief of Staff to the Chairman, Salt Lake County Board of Commissioners, Salt Lake City, Utah, January 1991 to January 1995. Senior executive responsibility for all matters of county government, including formulation and execution of public policy, delivery of approximately 140 government services, budget adoption and fiscal management (over \$300 million), strategic planning, coordination with elected officials, and communication with consultants and media.

Assistant Director, Utah Energy Office, Utah Department of Natural Resources, Salt Lake City, Utah, August 1985 to January 1991. Directed the agency's resource development section, which provided energy policy analysis to the Governor, implemented state energy development policy, coordinated state energy data collection and dissemination, and managed energy technology demonstration programs. Position responsibilities included policy formulation and implementation, design and administration of energy technology demonstration programs, strategic management of the agency's interventions before the Utah Public Service Commission, budget preparation, and staff development. Supervised a staff of economists, engineers, and policy analysts, and served as lead economist on selected projects.

Utility Economist, Utah Energy Office, January 1985 to August 1985. Provided policy and economic analysis pertaining to energy conservation and resource development, with an emphasis on utility issues. Testified before the state Public Service Commission as an expert witness in cases related to the above.

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Acting Assistant Director, Utah Energy Office, June 1984 to January 1985. Same responsibilities as Assistant Director identified above.

Research Economist, Utah Energy Office, October 1983 to June 1984. Provided economic analysis pertaining to renewable energy resource development and utility issues. Experience includes preparation of testimony, development of strategy, and appearance as an expert witness for the Energy Office before the Utah PSC.

Operations Research Assistant, Corporate Modeling and Operations Research Department, Utah Power and Light Company, Salt Lake City, Utah, May 1983 to September 1983. Primary area of responsibility: designing and conducting energy load forecasts.

Instructor in Economics, University of Utah, Salt Lake City, Utah, January 1982 to April 1983. Taught intermediate microeconomics, principles of macroeconomics, and economics as a social science.

Teacher, Vernon-Verona-Sherrill School District, Verona, New York, September 1976 to June 1978.

## **EDUCATION**

Ph.D. Candidate, Economics, University of Utah (coursework and field exams completed, 1981).

Fields of Specialization: Public Finance, Urban and Regional Economics, Economic Development, International Economics, History of Economic Doctrines.

Bachelor of Science, Education, State University of New York at Plattsburgh, 1976 (cum laude).

Danish International Studies Program, University of Copenhagen, 1975.

## **SCHOLARSHIPS AND FELLOWSHIPS**

University Research Fellow, University of Utah, Salt Lake City, Utah 1982 to 1983.

Research Fellow, Institute of Human Resources Management, University of Utah, 1980 to 1982.

Teaching Fellow, Economics Department, University of Utah, 1978 to 1980.

New York State Regents Scholar, 1972 to 1976.

**EXPERT TESTIMONY**

“2008 Puget Sound Energy General Rate Case,” **Washington** Utilities and Transportation Commission, Docket Nos. UE-072300 and UG-072301. Response testimony submitted May 30, 2008.

“Verified Petition of Duke Energy Indiana, Inc. Requesting the Indiana Utility Regulatory Commission to Approve an Alternative Regulatory Plan Pursuant to the Ind. Code 8-1-2.5, Et Seq., for the Offering of Energy Efficiency Conservation, Demand Response, and Demand-Side Management Programs and Associated Rate Treatment Including Incentives Pursuant to a Revised Standard Contract Rider No. 66 in Accordance with Ind. Code 8-1-2.5-1Et Seq. and 8-1-2-42(a); Authority to Defer Program Costs Associated with Its Energy Efficiency Portfolio of Programs; Authority to Implement New and Enhanced Energy Efficiency Programs in Its Energy Efficiency Portfolio of Programs; and Approval of a Modification of the Fuel Adjustment Clause Earnings and Expense Tests,” **Indiana** Utility Regulatory Commission, Cause No. 43374. Direct testimony submitted May 21, 2008.

“Cinergy Corp., Duke Energy Ohio, Inc., Cinergy Power Investments, Inc., Generating Facilities LLCs,” **Federal Energy Regulatory Commission**, Docket No. EC-08-78-000. Affidavit filed May 14, 2008.

“Application of Entergy Gulf States, Inc. for Authority to Change Rates and to Reconcile Fuel Costs, Public Utility Commission of **Texas**, Docket No. 34800 [SOAH Docket No. 473-08-0334]. Direct testimony submitted April 11, 2008. Testimony withdrawn pursuant to stipulation.

“Central Illinois Light Company d/b/a AmerenCILCO Proposed General Increase in Electric Delivery Service Rates, Central Illinois Public Service Company d/b/a AmerenCIPS Proposed General Increase in Electric Delivery Service Rates, Illinois Power Company d/b/a AmerenIP Proposed General Increase in Electric Delivery Service Rates, Central Illinois Light Company d/b/a AmerenCILCO, Proposed General Increase in Gas Delivery Service Rates, Central Illinois Public Service Company d/b/a AmerenCIPS Proposed General Increase in Gas Delivery Service Rates, Illinois Power Company d/b/a AmerenIP Proposed General Increase in Gas Delivery Service Rates, **Illinois** Commerce Commission, Docket Nos. 07-0585, 07-0586, 07-0587, 07-0588, 07-0589, 07-0590. Direct testimony submitted March 14, 2008. Rebuttal testimony submitted April 8, 2008.

“In the Matter of the Application of Public Service Company of Colorado for Authority to Implement an Enhanced Demand Side Management Cost Adjustment Mechanism to Include Current Recovery and Incentives,” **Colorado** Public Utilities Commission, Docket No. 07A-420E. Answer testimony submitted March 10, 2008. Cross examined April 25, 2008.

“An Investigation of the Energy and Regulatory Issues in Section 50 of Kentucky’s 2007 Energy Act,” **Kentucky** Public Service Commission, Administrative Case No. 2007-00477. Direct testimony submitted February 29, 2008. Supplemental direct testimony submitted April 1, 2008. Cross examined April 30, 2008.

In the Matter of the Application of Tucson Electric Power Company for the Establishment of Just and Reasonable Rates and Charges Designed to Realize a Reasonable Rate of Return on the Fair Value of Its Operations throughout the State of Arizona, **Arizona** Corporation Commission, Docket No. E-01933A-07-0402. Direct testimony submitted February 29, 2008 (revenue requirement), March 14, 2008 (rate design), and June 12, 2008 (settlement agreement).

“Commonwealth Edison Company Proposed General Increase in Electric Rates,” **Illinois** Commerce Commission, Docket No. 07-0566. Direct testimony submitted February 11, 2008. Rebuttal testimony submitted April 8, 2008.

“In the Matter of the Application of Questar Gas Company to File a General Rate Case,” **Utah** Public Service Commission, Docket No. 07-057-13. Direct testimony submitted January 28, 2008 (test period), March 31, 2008 (rate of return), and April 21, 2008 (revenue requirement). Surrebuttal testimony submitted May 12, 2008 (rate of return). Cross examined February 8, 2008 (test period) and May 21, 2008 (rate of return).

“In the Matter of the Application of Rocky Mountain Power for Authority to Increase its Retail Electric Utility Service Rates in Utah and for Approval of its Proposed Electric Service Schedules and Electric Service Regulations, Consisting of a General Rate Increase of Approximately \$161.2 Million Per Year, and for Approval of a New Large Load Surcharge,” **Utah** Public Service Commission, Docket No. 07-035-93. Direct testimony submitted January 25, 2008 (test period) and April 7, 2008 (revenue requirement). Surrebuttal testimony submitted May 23, 2008 (revenue requirement). Cross examined February 7, 2008 (test period).

“In the Matter of the Application of Ohio Edison Company, The Cleveland Electric Illuminating Company and The Toledo Edison Company for Authority to Increase Rates for Distribution Service, Modify Certain Accounting Practices and for Tariff Approvals,” Public Utilities Commission of **Ohio**, Case Nos. 07-551-EL-AIR, 07-552-EL-ATA, 07-553-EL-AAM, and 07-554-EL-UNC. Direct testimony submitted January 10, 2008.

“In the Matter of the Application of Rocky Mountain Power for Authority to Increase Its Retail Electric Utility Service Rates in Wyoming, Consisting of a General Rate Increase of Approximately \$36.1 Million per Year, and for Approval of a New Renewable Resource



Mechanism and Marginal Cost Pricing Tariff,” **Wyoming** Public Service Commission, Docket No. 20000-277-ER-07. Direct testimony submitted January 7, 2008. Cross examined March 6, 2008.

“In the Matter of the Application of Idaho Power Company for Authority to Increase Its Rates and Charges for Electric Service to Electric Customers in the State of Idaho,” **Idaho** Public Utilities Commission, Case No. IPC-E-07-8. Direct testimony submitted December 10, 2007. Cross examined January 23, 2008.

“In The Matter of the Application of Consumers Energy Company for Authority to Increase Its Rates for the Generation and Distribution Of Electricity and Other Relief,” **Michigan** Public Service Commission, Case No. U-15245. Direct testimony submitted November 6, 2007. Rebuttal testimony submitted November 20, 2007.

“In the Matter of Montana-Dakota Utilities Co., Application for Authority to Establish Increased Rates for Electric Service,” **Montana** Public Service Commission, Docket No. D2007.7.79. Direct testimony submitted October 24, 2007.

“In the Matter of the Application of Public Service Company of New Mexico for Revision of its Retail Electric Rates Pursuant to Advice Notice No. 334,” **New Mexico** Public Regulation Commission, Case No. 07-0077-UT. Direct testimony submitted October 22, 2007. Rebuttal testimony submitted November 19, 2007. Cross examined December 12, 2007.

“In The Matter of Georgia Power Company’s 2007 Rate Case,” **Georgia** Public Service Commission, Docket No. 25060-U. Direct testimony submitted October 22, 2007. Cross examined November 7, 2007.

“In the Matter of the Application of Rocky Mountain Power for an Accounting Order to Defer the Costs Related to the MidAmerican Energy Holdings Company Transaction,” **Utah** Public Service Commission, Docket No. 07-035-04; “In the Matter of the Application of Rocky Mountain Power, a Division of PacifiCorp, for a Deferred Accounting Order To Defer the Costs of Loans Made to Grid West, the Regional Transmission Organization,” Docket No. 06-035-163; “In the Matter of the Application of Rocky Mountain Power for an Accounting Order for Costs related to the Flooding of the Powerdale Hydro Facility,” Docket No. 07-035-14. Direct testimony submitted September 10, 2007. Surrebuttal testimony submitted October 22, 2007. Cross examined October 30, 2007.

“In the Matter of General Adjustment of Electric Rates of East Kentucky Power Cooperative, Inc.,” **Kentucky** Public Service Commission, Case No. 2006-00472. Direct testimony submitted July 6, 2007. Supplemental direct testimony submitted March 14, 2008.

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“In the Matter of the Application of Sempra Energy Solutions for a Certificate of Convenience and Necessity for Competitive Retail Electric Service,” **Arizona** Corporation Commission, Docket No. E-03964A-06-0168. Direct testimony submitted July 3, 2007. Rebuttal testimony submitted January 17, 2008.

“Application of Public Service Company of Oklahoma for a Determination that Additional Electric Generating Capacity Will Be Used and Useful,” **Oklahoma** Corporation Commission, Cause No. PUD 200500516; “Application of Public Service Company of Oklahoma for a Determination that Additional Baseload Electric Generating Capacity Will Be Used and Useful,” Cause No. PUD 200600030; “In the Matter of the Application of Oklahoma Gas and Electric Company for an Order Granting Pre-Approval to Construct Red Rock Generating Facility and Authorizing a Recovery Rider,” Cause No. PUD200700012. Responsive testimony submitted May 21, 2007. Cross examined July 26, 2007.

“Application of Nevada Power Company for Authority to Increase Its Annual Revenue Requirement for General Rates Charged to All Classes of Electric Customers and for Relief Properly Related Thereto,” Public Utilities Commission of **Nevada**, Docket No. 06-11022. Direct testimony submitted March 14, 2007 (Phase III – revenue requirements) and March 19, 2007 (Phase IV – rate design). Cross examined April 10, 2007 (Phase III – revenue requirements) and April 16, 2007 (Phase IV – rate design).

“In the Matter of the Application of Entergy Arkansas, Inc. for Approval of Changes in Rates for Retail Electric Service,” **Arkansas** Public Service Commission, Docket No. 06-101-U. Direct testimony submitted February 5, 2007. Surrebuttal testimony submitted March 26, 2007.

“Monongahela Power Company and The Potomac Edison Company, both d/b/a Allegheny Power – Rule 42T Application to Increase Electric Rates and Charges,” Public Service Commission of **West Virginia**, Case No. 06-0960-E-42T; “Monongahela Power Company and The Potomac Edison Company, both d/b/a Allegheny Power – Information Required for Change of Depreciation Rates Pursuant to Rule 20,” Case No. 06-1426-E-D. Direct and rebuttal testimony submitted January 22, 2007.

“In the Matter of the Tariffs of Aquila, Inc., d/b/a Aquila Networks-MPS and Aquila Networks-L&P Increasing Electric Rates for the Services Provided to Customers in the Aquila Networks-MPS and Aquila Networks-L&P Missouri Service Areas,” **Missouri** Public Service Commission, Case No. ER-2007-0004. Direct testimony submitted January 18, 2007 (revenue requirements) and January 25, 2007 (revenue apportionment). Supplemental direct testimony submitted February 27, 2007.

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“In the Matter of the Filing by Tucson Electric Power Company to Amend Decision No. 62103, **Arizona** Corporation Commission, Docket No. E-01933A-05-0650. Direct testimony submitted January 8, 2007. Surrebuttal testimony filed February 8, 2007. Cross examined March 8, 2007.

“In the Matter of Union Electric Company d/b/a AmerenUE for Authority to File Tariffs Increasing Rates for Electric Service Provided to Customers in the Company’s Missouri Service Area,” **Missouri** Public Service Commission, Case No. ER-2007-0002. Direct testimony submitted December 15, 2006 (revenue requirements) and December 29, 2006 (fuel adjustment clause/cost-of-service/rate design). Rebuttal testimony submitted February 5, 2007 (cost-of-service). Surrebuttal testimony submitted February 27, 2007. Cross examined March 21, 2007.

“In the Matter of Application of The Union Light, Heat and Power Company d/b/a Duke Energy Kentucky, Inc. for an Adjustment of Electric Rates,” **Kentucky** Public Service Commission, Case No. 2006-00172. Direct testimony submitted September 13, 2006.

“In the Matter of Appalachian Power Company’s Application for Increase in Electric Rates,” **Virginia** State Corporation Commission, Case No. PUE-2006-00065. Direct testimony submitted September 1, 2006. Cross examined December 7, 2006.

“In the Matter of the Application of Arizona Public Service Company for a Hearing to Determine the Fair Value of the Utility Property for Ratemaking Purposes, to Fix a Just and Reasonable Rate of Return Thereon, To Approve Rate Schedules Designed to Develop Such Return, and to Amend Decision No. 67744, **Arizona** Corporation Commission,” Docket No. E-01345A-05-0816. Direct testimony submitted August 18, 2006 (revenue requirements) and September 1, 2006 (cost-of-service/rate design). Surrebuttal testimony submitted September 27, 2006. Cross examined November 7, 2006.

“Re: The Tariff Sheets Filed by Public Service Company of Colorado with Advice Letter No 1454 – Electric,” **Colorado** Public Utilities Commission, Docket No. 06S-234EG. Answer testimony submitted August 18, 2006.

“Portland General Electric General Rate Case Filing,” Public Utility Commission of **Oregon**, Docket No. UE-180. Direct testimony submitted August 9, 2006. Joint testimony regarding stipulation submitted August 22, 2006.

“2006 Puget Sound Energy General Rate Case,” **Washington** Utilities and Transportation Commission, Docket Nos. UE-060266 and UG-060267. Response testimony submitted July 19, 2006. Joint testimony regarding stipulation submitted August 23, 2006.

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“In the Matter of PacifiCorp, dba Pacific Power & Light Company, Request for a General Rate Increase in the Company’s Oregon Annual Revenues,” Public Utility Commission of **Oregon**, Docket No. UE-179. Direct testimony submitted July 12, 2006. Joint testimony regarding stipulation submitted August 21, 2006.

“Petition of Metropolitan Edison Company for Approval of a Rate Transition Plan,” **Pennsylvania** Public Utilities Commission, Docket Nos. P-00062213 and R-00061366; “Petition of Pennsylvania Electric Company for Approval of a Rate Transition Plan,” Docket Nos. P-0062214 and R-00061367; Merger Savings Remand Proceeding, Docket Nos. A-110300F0095 and A-110400F0040. Direct testimony submitted July 10, 2006. Rebuttal testimony submitted August 8, 2006. Surrebuttal testimony submitted August 18, 2006. Cross examined August 30, 2006.

“In the Matter of the Application of PacifiCorp for approval of its Proposed Electric Rate Schedules & Electric Service Regulations,” **Utah** Public Service Commission, Docket No. 06-035-21. Direct testimony submitted June 9, 2006 (Test Period). Surrebuttal testimony submitted July 14, 2006.

“Joint Application of Questar Gas Company, the Division of Public Utilities, and Utah Clean Energy for the Approval of the Conservation Enabling Tariff Adjustment Option and Accounting Orders,” **Utah** Public Service Commission, Docket No. 05-057-T01. Direct testimony submitted May 15, 2006. Rebuttal testimony submitted August 8, 2007. Cross examined September 19, 2007.

“Central Illinois Light Company d/b/a AmerenCILCO, Central Illinois Public Service Company d/b/a AmerenCIPS, Illinois Power Company d/b/a AmerenIP, Proposed General Increase in Rates for Delivery Service (Tariffs Filed December 27, 2005),” **Illinois** Commerce Commission, Docket Nos. 06-0070, 06-0071, 06-0072. Direct testimony submitted March 26, 2006. Rebuttal testimony submitted June 27, 2006.

“In the Matter of Appalachian Power Company and Wheeling Power Company, both dba American Electric Power,” Public Service Commission of **West Virginia**, Case No. 05-1278-E-PC-PW-42T. Direct and rebuttal testimony submitted March 8, 2006.

“In the Matter of Northern States Power Company d/b/a Xcel Energy for Authority to Increase Rates for Electric Service in Minnesota,” **Minnesota** Public Utilities Commission, Docket No. G-002/GR-05-1428. Direct testimony submitted March 2, 2006. Rebuttal testimony submitted March 30, 2006. Cross examined April 25, 2006.

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“In the Matter of the Application of Arizona Public Service Company for an Emergency Interim Rate Increase and for an Interim Amendment to Decision No. 67744,” **Arizona** Corporation Commission, Docket No. E-01345A-06-0009. Direct testimony submitted February 28, 2006. Cross examined March 23, 2006.

“In the Matter of the Applications of Westar Energy, Inc. and Kansas Gas and Electric Company for Approval to Make Certain Changes in Their Charges for Electric Service,” State Corporation Commission of **Kansas**, Case No. 05-WSEE-981-RTS. Direct testimony submitted September 9, 2005. Cross examined October 28, 2005.

“In the Matter of the Application of Columbus Southern Power Company and Ohio Power Company for Authority to Recover Costs Associated with the Construction and Ultimate Operation of an Integrated Combined Cycle Electric Generating Facility,” Public Utilities Commission of **Ohio**,” Case No. 05-376-EL-UNC. Direct testimony submitted July 15, 2005. Cross examined August 12, 2005.

“In the Matter of the Filing of General Rate Case Information by Tucson Electric Power Company Pursuant to Decision No. 62103,” **Arizona** Corporation Commission, Docket No. E-01933A-04-0408. Direct testimony submitted June 24, 2005.

“In the Matter of Application of The Detroit Edison Company to Unbundle and Realign Its Rate Schedules for Jurisdictional Retail Sales of Electricity,” **Michigan** Public Service Commission, Case No. U-14399. Direct testimony submitted June 9, 2005. Rebuttal testimony submitted July 1, 2005.

“In the Matter of the Application of Consumers Energy Company for Authority to Increase Its Rates for the Generation and Distribution of Electricity and Other Relief,” **Michigan** Public Service Commission, Case No. U-14347. Direct testimony submitted June 3, 2005. Rebuttal testimony submitted June 17, 2005.

“In the Matter of Pacific Power & Light, Request for a General Rate Increase in the Company’s Oregon Annual Revenues,” Public Utility Commission of **Oregon**, Docket No. UE 170. Direct testimony submitted May 9, 2005. Surrebuttal testimony submitted June 27, 2005. Joint testimony regarding partial stipulations submitted June 2005, July 2005, and August 2005.

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“In the Matter of the Application of Trico Electric Cooperative, Inc. for a Rate Increase,” **Arizona** Corporation Commission, Docket No. E-01461A-04-0607. Direct testimony submitted April 13, 2005. Surrebuttal testimony submitted May 16, 2005. Cross examined May 26, 2005.

“In the Matter of the Application of PacifiCorp for Approval of its Proposed Electric Service Schedules and Electric Service Regulations,” **Utah** Public Service Commission, Docket No. 04-035-42. Direct testimony submitted January 7, 2005.

“In the Matter of the Application by Golden Valley Electric Association, Inc., for Authority to Implement Simplified Rate Filing Procedures and Adjust Rates,” Regulatory Commission of **Alaska**, Docket No. U-4-33. Direct testimony submitted November 5, 2004. Cross examined February 8, 2005.

“Advice Letter No. 1411 - Public Service Company of Colorado Electric Phase II General Rate Case,” **Colorado** Public Utilities Commission, Docket No. 04S-164E. Direct testimony submitted October 12, 2004. Cross-answer testimony submitted December 13, 2004. Testimony withdrawn January 18, 2005, following Applicant’s withdrawal of testimony pertaining to TOU rates.

“In the Matter of Georgia Power Company’s 2004 Rate Case,” **Georgia** Public Service Commission, Docket No. 18300-U. Direct testimony submitted October 8, 2004. Cross examined October 27, 2004.

“2004 Puget Sound Energy General Rate Case,” **Washington** Utilities and Transportation Commission, Docket Nos. UE-040641 and UG-040640. Response testimony submitted September 23, 2004. Cross-answer testimony submitted November 3, 2004. Joint testimony regarding stipulation submitted December 6, 2004.

“In the Matter of the Application of PacifiCorp for an Investigation of Interjurisdictional Issues,” **Utah** Public Service Commission, Docket No. 02-035-04. Direct testimony submitted July 15, 2004. Cross examined July 19, 2004.

“In the Matter of an Adjustment of the Gas and Electric Rates, Terms and Conditions of Kentucky Utilities Company,” **Kentucky** Public Service Commission, Case No. 2003-00434. Direct testimony submitted March 23, 2004. Testimony withdrawn pursuant to stipulation entered May 2004.

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“In the Matter of an Adjustment of the Gas and Electric Rates, Terms and Conditions of Louisville Gas and Electric Company,” **Kentucky** Public Service Commission, Case No. 2003-00433. Direct testimony submitted March 23, 2004. Testimony withdrawn pursuant to stipulation entered May 2004.

“In the Matter of the Application of Idaho Power Company for Authority to Increase Its Interim and Base Rates and Charges for Electric Service,” **Idaho** Public Utilities Commission, Case No. IPC-E-03-13. Direct testimony submitted February 20, 2004. Rebuttal testimony submitted March 19, 2004. Cross examined April 1, 2004.

“In the Matter of the Applications of the Ohio Edison Company, the Cleveland Electric Illuminating Company and the Toledo Edison Company for Authority to Continue and Modify Certain Regulatory Accounting Practices and Procedures, for Tariff Approvals and to Establish Rates and Other Charges, Including Regulatory Transition Charges Following the Market Development Period,” Public Utilities Commission of **Ohio**, Case No. 03-2144-EL-ATA. Direct testimony submitted February 6, 2004. Cross examined February 18, 2004.

“In the Matter of the Application of Arizona Public Service Company for a Hearing to Determine the Fair Value of the Utility Property of the Company for Ratemaking Purposes, To Fix a Just and Reasonable Rate of Return Thereon, To Approve Rate Schedules Designed to Develop Such Return, and For Approval of Purchased Power Contract,” **Arizona** Corporation Commission, Docket No. E-01345A-03-0437. Direct testimony submitted February 3, 2004. Rebuttal testimony submitted March 30, 2004. Direct testimony regarding stipulation submitted September 27, 2004. Responsive / Clarifying testimony regarding stipulation submitted October 25, 2004. Cross examined November 8-10, 2004 and November 29-December 3, 2004.

“In the Matter of Application of the Detroit Edison Company to Increase Rates, Amend Its Rate Schedules Governing the Distribution and Supply of Electric Energy, etc.,” **Michigan** Public Service Commission, Case No. U-13808. Direct testimony submitted December 12, 2003 (interim request) and March 5, 2004 (general rate case).

“In the Matter of PacifiCorp’s Filing of Revised Tariff Schedules,” Public Utility Commission of **Oregon**, Docket No. UE-147. Joint testimony regarding stipulation submitted August 21, 2003.

“Petition of PSI Energy, Inc. for Authority to Increase Its Rates and Charges for Electric Service, etc.,” **Indiana** Utility Regulatory Commission, Cause No. 42359. Direct testimony submitted August 19, 2003. Cross examined November 5, 2003.

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“In the Matter of the Application of Consumers Energy Company for a Financing Order Approving the Securitization of Certain of its Qualified Cost,” **Michigan** Public Service Commission, Case No. U-13715. Direct testimony submitted April 8, 2003. Cross examined April 23, 2003.

“In the Matter of the Application of Arizona Public Service Company for Approval of Adjustment Mechanisms,” **Arizona** Corporation Commission, Docket No. E-01345A-02-0403. Direct testimony submitted February 13, 2003. Surrebuttal testimony submitted March 20, 2003. Cross examined April 8, 2003.

“Re: The Investigation and Suspension of Tariff Sheets Filed by Public Service Company of Colorado, Advice Letter No. 1373 – Electric, Advice Letter No. 593 – Gas, Advice Letter No. 80 – Steam,” **Colorado** Public Utilities Commission, Docket No. 02S-315 EG. Direct testimony submitted November 22, 2002. Cross-answer testimony submitted January 24, 2003.

“In the Matter of the Application of The Detroit Edison Company to Implement the Commission’s Stranded Cost Recovery Procedure and for Approval of Net Stranded Cost Recovery Charges,” **Michigan** Public Service Commission, Case No. U-13350. Direct testimony submitted November 12, 2002.

“Application of South Carolina Electric & Gas Company: Adjustments in the Company’s Electric Rate Schedules and Tariffs,” Public Service Commission of **South Carolina**, Docket No. 2002-223-E. Direct testimony submitted November 8, 2002. Surrebuttal testimony submitted November 18, 2002. Cross examined November 21, 2002.

“In the Matter of the Application of Questar Gas Company for a General Increase in Rates and Charges,” **Utah** Public Service Commission, Docket No. 02-057-02. Direct testimony submitted August 30, 2002. Rebuttal testimony submitted October 4, 2002.

“The Kroger Co. v. Dynegy Power Marketing, Inc.,” **Federal Energy Regulatory Commission**, EL02-119-000. Confidential affidavit filed August 13, 2002.

“In the matter of the application of Consumers Energy Company for determination of net stranded costs and for approval of net stranded cost recovery charges,” **Michigan** Public Service Commission, Case No. U-13380. Direct testimony submitted August 9, 2002. Rebuttal testimony submitted August 30, 2002. Cross examined September 10, 2002.

“In the Matter of the Application of Public Service Company of Colorado for an Order to Revise Its Incentive Cost Adjustment,” **Colorado** Public Utilities Commission, Docket 02A-158E. Direct testimony submitted April 18, 2002.

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"In the Matter of the Generic Proceedings Concerning Electric Restructuring Issues," **Arizona** Corporation Commission, Docket No. E-00000A-02-0051, "In the Matter of Arizona Public Service Company's Request for Variance of Certain Requirements of A.A.C. R14-2-1606," Docket No. E-01345A-01-0822, "In the Matter of the Generic Proceeding Concerning the Arizona Independent Scheduling Administrator," Docket No. E-00000A-01-0630, "In the Matter of Tucson Electric Power Company's Application for a Variance of Certain Electric Competition Rules Compliance Dates," Docket No. E-01933A-02-0069, "In the Matter of the Application of Tucson Electric Power Company for Approval of its Stranded Cost Recovery," Docket No. E-01933A-98-0471. Direct testimony submitted March 29, 2002 (APS variance request); May 29, 2002 (APS Track A proceeding/market power issues); and July 28, 2003 (Arizona ISA). Rebuttal testimony submitted August 29, 2003 (Arizona ISA). Cross examined June 21, 2002 (APS Track A proceeding/market power issues) and September 12, 2003 (Arizona ISA).

"In the Matter of Savannah Electric & Power Company's 2001 Rate Case," **Georgia** Public Service Commission, Docket No. 14618-U. Direct testimony submitted March 15, 2002. Cross examined March 28, 2002.

"Nevada Power Company's 2001 Deferred Energy Case," Public Utilities Commission of **Nevada**, PUCN 01-11029. Direct testimony submitted February 7, 2002. Cross examined February 21, 2002.

"2001 Puget Sound Energy Interim Rate Case," **Washington** Utilities and Transportation Commission, Docket Nos. UE-011570 and UE-011571. Direct testimony submitted January 30, 2002. Cross examined February 20, 2002.

"In the Matter of Georgia Power Company's 2001 Rate Case," **Georgia** Public Service Commission, Docket No. 14000-U. Direct testimony submitted October 12, 2001. Cross examined October 24, 2001.

"In the Matter of the Application of PacifiCorp for Approval of Its Proposed Electric Rate Schedules and Electric Service Regulations," **Utah** Public Service Commission, Docket No. 01-35-01. Direct testimony submitted June 15, 2001. Rebuttal testimony submitted August 31, 2001.

"In the Matter of Portland General Electric Company's Proposal to Restructure and Reprice Its Services in Accordance with the Provisions of SB 1149," Public Utility Commission of **Oregon**, Docket No. UE-115. Direct testimony submitted February 20, 2001. Rebuttal testimony submitted May 4, 2001. Joint testimony regarding stipulation submitted July 27, 2001.

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“In the Matter of the Application of APS Energy Services, Inc. for Declaratory Order or Waiver of the Electric Competition Rules,” **Arizona** Corporation Commission, Docket No.E-01933A-00-0486. Direct testimony submitted July 24, 2000.

“In the Matter of the Application of Questar Gas Company for an Increase in Rates and Charges,” **Utah** Public Service Commission, Docket No. 99-057-20. Direct testimony submitted April 19, 2000. Rebuttal testimony submitted May 24, 2000. Surrebuttal testimony submitted May 31, 2000. Cross examined June 6 & 8, 2000.

“In the Matter of the Application of Columbus Southern Power Company for Approval of Electric Transition Plan and Application for Receipt of Transition Revenues,” Public Utility Commission of **Ohio**, Case No. 99-1729-EL-ETP; “In the Matter of the Application of Ohio Power Company for Approval of Electric Transition Plan and Application for Receipt of Transition Revenues,” Public Utility Commission of **Ohio**, Case No. 99-1730-EL-ETP. Direct testimony prepared, but not submitted pursuant to settlement agreement effected May 2, 2000.

“In the Matter of the Application of FirstEnergy Corp. on Behalf of Ohio Edison Company, The Cleveland Electric Illuminating Company, and the Toledo Edison Company for Approval of Their Transition Plans and for Authorization to Collect Transition Revenues,” Public Utility Commission of **Ohio**, Case No. 99-1212-EL-ETP. Direct testimony prepared, but not submitted pursuant to settlement agreement effected April 11, 2000.

“2000 Pricing Process,” **Salt River Project** Board of Directors, oral comments provided March 6, 2000 and April 10, 2000.

“Tucson Electric Power Company vs. Cyprus Sierrita Corporation,” **Arizona** Corporation Commission, Docket No. E-000001-99-0243. Direct testimony submitted October 25, 1999. Cross examined November 4, 1999.

“Application of Hildale City and Intermountain Municipal Gas Association for an Order Granting Access for Transportation of Interstate Natural Gas over the Pipelines of Questar Gas Company for Hildale, Utah,” **Utah** Public Service Commission, Docket No. 98-057-01. Rebuttal testimony submitted August 30, 1999.

“In the Matter of the Application by Arizona Electric Power Cooperative, Inc. for Approval of Its Filing as to Regulatory Assets and Transition Revenues,” **Arizona** Corporation Commission, Docket No. E-01773A-98-0470. Direct testimony submitted July 30, 1999. Cross examined February 28, 2000.

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"In the Matter of the Application of Tucson Electric Power Company for Approval of its Plan for Stranded Cost Recovery," **Arizona** Corporation Commission, Docket No. E-01933A-98-0471; "In the Matter of the Filing of Tucson Electric Power Company of Unbundled Tariffs Pursuant to A.A.C. R14-2-1601 et seq.," Docket No. E-01933A-97-0772; "In the Matter of the Competition in the Provision of Electric Service Throughout the State of Arizona," Docket No. RE-00000C-94-0165. Direct testimony submitted June 30, 1999. Rebuttal testimony submitted August 6, 1999. Cross examined August 11-13, 1999.

"In the Matter of the Application of Arizona Public Service Company for Approval of its Plan for Stranded Cost Recovery," **Arizona** Corporation Commission, Docket No. E-01345A-98-0473; "In the Matter of the Filing of Arizona Public Service Company of Unbundled Tariffs Pursuant to A.A.C. R14-2-1601 et seq.," Docket No. E-01345A-97-0773; "In the Matter of the Competition in the Provision of Electric Service Throughout the State of Arizona," Docket No. RE-00000C-94-0165. Direct testimony submitted June 4, 1999. Rebuttal testimony submitted July 12, 1999. Cross examined July 14, 1999.

"In the Matter of the Application of Tucson Electric Power Company for Approval of its Plan for Stranded Cost Recovery," **Arizona** Corporation Commission, Docket No. E-01933A-98-0471; "In the Matter of the Filing of Tucson Electric Power Company of Unbundled Tariffs Pursuant to A.A.C. R14-2-1601 et seq.," Docket No. E-01933A-97-0772; "In the Matter of the Application of Arizona Public Service Company for Approval of its Plan for Stranded Cost Recovery," Docket No. E-01345A-98-0473; "In the Matter of the Filing of Arizona Public Service Company of Unbundled Tariffs Pursuant to A.A.C. R14-2-1601 et seq.," Docket No. E-01345A-97-0773; "In the Matter of the Competition in the Provision of Electric Service Throughout the State of Arizona," Docket No. RE-00000C-94-0165. Direct testimony submitted November 30, 1998.

"Hearings on Pricing," **Salt River Project** Board of Directors, written and oral comments provided November 9, 1998.

"Hearings on Customer Choice," **Salt River Project** Board of Directors, written and oral comments provided June 22, 1998; June 29, 1998; July 9, 1998; August 7, 1998; and August 14, 1998.

"In the Matter of the Competition in the Provision of Electric Service Throughout the State of Arizona," **Arizona** Corporation Commission, Docket No. U-0000-94-165. Direct and rebuttal testimony filed January 21, 1998. Second rebuttal testimony filed February 4, 1998. Cross examined February 25, 1998.

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“In the Matter of Consolidated Edison Company of New York, Inc.’s Plans for (1) Electric Rate/Restructuring Pursuant to Opinion No. 96-12; and (2) the Formation of a Holding Company Pursuant to PSL, Sections 70, 108, and 110, and Certain Related Transactions,” **New York** Public Service Commission, Case 96-E-0897. Direct testimony filed April 9, 1997. Cross examined May 5, 1997.

“In the Matter of the Petition of Sunnyside Cogeneration Associates for Enforcement of Contract Provisions,” **Utah** Public Service Commission, Docket No. 96-2018-01; “In the Matter of the Application of Rocky Mountain Power for an Order Approving an Amendment to Its Power Purchase Agreement with Sunnyside Cogeneration Associates,” Docket Nos. 05-035-46, and 07-035-99. Direct testimony submitted July 8, 1996. Oral testimony provided March 18, 2008.

“In the Matter of the Application of PacifiCorp, dba Pacific Power & Light Company, for Approval of Revised Tariff Schedules and an Alternative Form of Regulation Plan,” **Wyoming** Public Service Commission, Docket No. 2000-ER-95-99. Direct testimony submitted April 8, 1996.

“In the Matter of the Application of Mountain Fuel Supply Company for an Increase in Rates and Charges,” **Utah** Public Service Commission, Case No. 95-057-02. Direct testimony submitted June 19, 1995. Rebuttal testimony submitted July 25, 1995. Surrebuttal testimony submitted August 7, 1995.

“In the Matter of the Investigation of the Reasonableness of the Rates and Tariffs of Mountain Fuel Supply Company,” **Utah** Public Service Commission, Case No. 89-057-15. Direct testimony submitted July 1990. Surrebuttal testimony submitted August 1990.

“In the Matter of the Review of the Rates of Utah Power and Light Company pursuant to The Order in Case No. 87-035-27,” **Utah** Public Service Commission, Case No. 89-035-10. Rebuttal testimony submitted November 15, 1989. Cross examined December 1, 1989 (rate schedule changes for state facilities).

“In the Matter of the Application of Utah Power & Light Company and PC/UP&L Merging Corp. (to be renamed PacifiCorp) for an Order Authorizing the Merger of Utah Power & Light Company and PacifiCorp into PC/UP&L Merging Corp. and Authorizing the Issuance of Securities, Adoption of Tariffs, and Transfer of Certificates of Public Convenience and Necessity and Authorities in Connection Therewith,” **Utah** Public Service Commission, Case No. 87-035-27; Direct testimony submitted April 11, 1988. Cross examined May 12, 1988 (economic impact of UP&L merger with PacifiCorp).

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"In the Matter of the Application of Mountain Fuel Supply Company for Approval of Interruptible Industrial Transportation Rates," **Utah** Public Service Commission, Case No. 86-057-07. Direct testimony submitted January 15, 1988. Cross examined March 30, 1988.

"In the Matter of the Application of Utah Power and Light Company for an Order Approving a Power Purchase Agreement," **Utah** Public Service Commission, Case No. 87-035-18. Oral testimony delivered July 8, 1987.

"Cogeneration: Small Power Production," **Federal Energy Regulatory Commission**, Docket No. RM87-12-000. Statement on behalf of State of Utah delivered March 27, 1987, in San Francisco.

"In the Matter of the Investigation of Rates for Backup, Maintenance, Supplementary, and Standby Power for Utah Power and Light Company," **Utah** Public Service Commission, Case No. 86-035-13. Direct testimony submitted January 5, 1987. Case settled by stipulation approved August 1987.

"In the Matter of the Application of Sunnyside Cogeneration Associates for Approval of the Cogeneration Power Purchase Agreement," **Utah** Public Service Commission, Case No. 86-2018-01. Rebuttal testimony submitted July 16, 1986. Cross examined July 17, 1986.

"In the Matter of the Investigation of Demand-Side Alternatives to Capacity Expansion for Electric Utilities," **Utah** Public Service Commission, Case No. 84-999-20. Direct testimony submitted June 17, 1985. Rebuttal testimony submitted July 29, 1985. Cross examined August 19, 1985.

"In the Matter of the Implementation of Rules Governing Cogeneration and Small Power Production in Utah," **Utah** Public Service Commission, Case No. 80-999-06, pp. 1293-1318. Direct testimony submitted January 13, 1984 (avoided costs), May 9, 1986 (security for levelized contracts) and November 17, 1986 (avoided costs). Cross-examined February 29, 1984 (avoided costs), April 11, 1985 (standard form contracts), May 22-23, 1986 (security for levelized contracts) and December 16-17, 1986 (avoided costs).

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#### **OTHER RELATED ACTIVITY**

Participant, Oregon Direct Access Task Force (UM 1081), May 2003 to November 2003.

Participant, Michigan Stranded Cost Collaborative, March 2003 to March 2004.

Member, Arizona Electric Competition Advisory Group, December 2002 to present.

Board of Directors, ex-officio, Desert STAR RTO, September 1999 to February 2002.

Member, Advisory Committee, Desert STAR RTO, September 1999 to February 2002. Acting Chairman, October 2000 to February 2002.

Board of Directors, Arizona Independent Scheduling Administrator Association, October 1998 to present.

Acting Chairman, Operating Committee, Arizona Independent Scheduling Administrator Association, October 1998 to June 1999.

Member, Desert Star ISO Investigation Working Groups: Operations, Pricing, and Governance, April 1997 to December 1999. Legal & Negotiating Committee, April 1999 to December 1999.

Participant, Independent System Operator and Spot Market Working Group, Arizona Corporation Commission, April 1997 to September 1997.

Participant, Unbundled Services and Standard Offer Working Group, Arizona Corporation Commission, April 1997 to October 1997.

Participant, Customer Selection Working Group, Arizona Corporation Commission, March 1997 to September 1997.

Member, Stranded Cost Working Group, Arizona Corporation Commission, March 1997 to September 1997.

Member, Electric System Reliability & Safety Working Group, Arizona Corporation Commission, November 1996 to September 1998.

Chairman, Salt Palace Renovation and Expansion Committee, Salt Lake County/State of Utah/Salt Lake City, multi-government entity responsible for implementation of planning,

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design, finance, and construction of an \$85 million renovation of the Salt Palace Convention Center, Salt Lake City, Utah, May 1991 to December 1994.

State of Utah Representative, Committee on Regional Electric Power Cooperation, a joint effort of the Western Interstate Energy Board and the Western Conference of Public Service Commissioners, January 1987 to December 1990.

Member, Utah Governor's Economic Coordinating Committee, January 1987 to December 1990.

Chairman, Standard Contract Task Force, established by Utah Public Service Commission to address contractual problems relating to qualifying facility sales under PURPA, March 1986 to December 1990.

Chairman, Load Management and Energy Conservation Task Force, Utah Public Service Commission, August 1985 to December 1990.

Alternate Delegate for Utah, Western Interstate Energy Board, Denver, Colorado, August 1985 to December 1990.

Articles Editor, Economic Forum, September 1980 to August 1981.

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**EXHIBITS**

**102, 103, 104, and 105**

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