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BEFORE THE IDAHO PUBLIC UTILITIES COMMISSION

IN THE MATTER OF THE)	
APPLICATION OF ROCKY)	CASE NO. PAC-E-07-05
MOUNTAIN POWER FOR APPROVAL)	
OF CHANGES TO ITS ELECTRIC)	Rebuttal Testimony
SERVICE SCHEDULES)	of Mark E. Tucker

ROCKY MOUNTAIN POWER

CASE NO. PAC-E-07-05

October 2007

1 **Q. Please state your name, business address and present position with the**
2 **Company (also referred to as Rocky Mountain Power).**

3 A. My name is Mark E. Tucker. My business address is 825 NE Multnomah, Suite
4 2000, Portland, Oregon 97232, and I am currently employed as a Cost of Service
5 & Pricing Analyst in the Regulation Department.

6 **Q. Are you the same Mark E. Tucker that previously submitted testimony in**
7 **this proceeding?**

8 A. Yes I am.

9 **Purpose of Rebuttal Testimony**

10 **Q. What is the purpose of your rebuttal testimony?**

11 A. In my rebuttal testimony I present the Company's Class Cost of Service Study
12 based on a twelve month historic test period ending December 31, 2006, that has
13 been updated to correspond with the Company's rebuttal filing regarding revenue
14 requirement in this case. Additionally, I respond to the testimony of Monsanto
15 witness Ms. Kathryn Iverson, Idaho Irrigation Pumpers Association (IIPA)
16 witness Mr. Anthony Yankel, Idaho Public Utilities Commission Staff witness
17 Mr. Bryan Lanspery, and Agrium witness Dr. Dennis Peseau.

18 **Summary of Results**

19 **Q. Please explain Exhibit No. 51.**

20 A. Exhibit No. 51 is the summary table from the Company's Class Cost of Service
21 Study for the State of Idaho. It is based on the Company's revised annual results
22 of operations for the State of Idaho presented in the rebuttal testimony of
23 Company witness Mr. Steven McDougal and reflects all of the revisions and

1 corrections described in his testimony and in my rebuttal testimony. Page 1
2 presents results based on the Company's December 2006 rate of return assuming
3 current rate levels. Page 2 shows the results using the return provided by the
4 Company's requested \$15.4 million price increase.

5 **Rebuttal of Ms. Kathryn Iverson**

6 **Q. Do you agree with Ms. Iverson that the cost of service study provided in**
7 **response to Monsanto Data Request 9.6 should be the starting point before**
8 **making any additional adjustments?**

9 A. Yes. The Company agrees with the correction related to the calculation of
10 Monsanto's peak demand in the cost of service study. This adjustment is included
11 in the cost of service study that accompanies my rebuttal testimony.

12 **Q. Do you agree with Ms. Iverson's testimony that the demand and energy**
13 **totals that are used for jurisdictional allocation purposes do not match the**
14 **sum of the class loads used in the cost of service study?**

15 A. Yes. However, the jurisdictional loads and the class loads in the cost of service
16 study are calculated in different ways and will not match exactly. The Company
17 explained this difference in its response to IIPA Data Request 1.3. Two types of
18 data are utilized in the calculations. For the jurisdictional allocation, the
19 jurisdictional load data is derived from measured loads at several metering points,
20 usually at the generation level. For the class allocation in the cost of service
21 study, class peak load data is collected at the sales level and adjusted up to the
22 generation level using historical average annual loss factors. Differences between
23 the two are expected. Both load calculations are accurate for the purposes for

1 which they are used, and it is not necessary for them to match exactly.

2 **Q. Do you agree with Ms. Iverson's proposal that the estimated class loads be**
3 **adjusted up so that they match the metered loads used for jurisdictional**
4 **allocations?**

5 A. No. In the past, the Company has adjusted class peak loads in some jurisdictions
6 to match the jurisdictional loads, as recommended by Ms. Iverson, but stopped
7 doing so after a Load Research Working Group investigated this issue in 2001-
8 2002. The Working Group, which was convened by order of the Utah Public
9 Service Commission in Docket 01-035-01, included the Company and multiple
10 intervenor groups in Utah. It concluded that adjusting the class loads in the cost
11 of service study created new problems and that the practice should be
12 discontinued. Concerns raised by the Working Group centered on the fact that
13 only the estimated load customers were affected by the adjustments. Members
14 agreed that the variance between the jurisdictional loads and the class cost of
15 service loads could be caused by the estimated load data, the metered
16 jurisdictional load data, or the census data, and that adjusting just one of these
17 components was inappropriate. The assumption that the variance was due to the
18 load research estimates could not be supported after a thorough review of the data.
19 The adjustments in some cases created large swings in cost allocation and this
20 placed unfair cost burdens on some customer classes. A copy of the Load
21 Research Working Group final report is provided as Exhibit No. 52.

22 Making the adjustment that Ms. Iverson proposes would increase the loads
23 assigned to the estimated classes (residential, irrigation and general service)

1 which would lower costs allocated to the other classes, especially Monsanto.
2 However, while this adjustment would produce better results for Monsanto, it
3 would not necessarily result in a more accurate or equitable cost allocation. The
4 Company believes the class load data in the cost of service study is the most
5 accurate data available and should continue to be relied upon.

6 **Q. Please explain Ms. Iverson's proposal to change the way the Revised Protocol**
7 **Rate Mitigation Cap is allocated to the classes.**

8 A. Rather than view the impacts of the Rate Mitigation Cap as a reduction in the
9 Company's return on rate base, she views the Cap as a reduction in the allocation
10 of generation and transmission costs to Idaho. She recommends that the \$3.2
11 million Rate Mitigation Cap impact be reflected as a reduction to generation and
12 transmission revenue requirement.

13 **Q. Do you agree?**

14 A. Not necessarily. The Rate Mitigation Cap does not reduce the allocation of costs
15 to Idaho; it limits the total revenues the Company is allowed to collect. This in
16 turn, lowers the rate of return the Company will actually realize in Idaho. Under
17 the Rate Mitigation Cap, the Company has agreed to accept less than the full
18 revenue requirement it might otherwise claim, which should be viewed as a
19 reduction in the return to shareholders. It is appropriate under those terms to
20 reduce the rate of return equally across all functions as the Company has done.
21 The Company's cost of service study reflects the impact of the Rate Mitigation
22 Cap by incorporating the lower "effective" return on rate base it produces.

23 The stipulation signed by all parties, including Monsanto, in the Multi-

1 State Process (MSP) docket (Case No. PAC-E-02-3) states that the Cap will be
2 applied to “the Company’s Idaho revenue requirement to be used for the purpose
3 of setting rates for Idaho customers.” Similarly, the final Commission order in
4 the MSP docket refers to the cap being applied to “Idaho rates” and “revenue
5 requirement calculations.” The concept of applying the cap to specific functional
6 areas does not appear in the stipulation or order. The Company’s method of
7 applying the Cap used in this case is consistent with past practice in Idaho and
8 Utah, which has a similar Cap in place. Ms. Iverson’s approach is a departure
9 from the traditional view that all business functions are producing the same rate of
10 return. Because Idaho does not have unbundled rates, the Company has
11 functionalized costs but not functionalized revenue. We have calculated
12 functionalized revenue for our cost of service studies in such a way that all
13 functions produce the same rate of return.

14 **Q. What is the impact of Ms. Iverson’s adjustment?**

15 A. I prepared a cost of service study that calculated the increase using the full
16 Revised Protocol increase, then functionalized the Rate Mitigation Cap as a credit
17 to the generation and transmission functions using the PT (Production and
18 Transmission Plant) functional factor, and allocated it to classes using the F10
19 (System Coincident Peak) factor. The overall increase remained the same, but
20 about \$896,000 of the Cap credit shifted from Distribution, Retail and
21 Miscellaneous to Generation and Transmission. This resulted in a decrease to
22 Monsanto’s revenue requirement of about \$335,000 and a decrease to Agrium of
23 about \$23,000; the residential class saw a revenue requirement increase of about

1 \$206,000 and the irrigation class increased by about \$160,000. The other classes
2 were affected to a lesser degree. Page 1 of Exhibit No. 53 shows the Functional
3 Summary sheet from this revised cost of service study. Line 67 shows the Rate
4 Mitigation Cap credit and the amount allocated to each function. Page 2 shows
5 the Summary page from the cost of service study.

6 **Q. Is this a reasonable adjustment?**

7 A. Yes. Should the Commission desire to mitigate the impacts of the movement to
8 full cost of service for the special contract customers, this adjustment provides a
9 reasonable basis for doing so and the Company would support it for that purpose.

10 **Rebuttal of Mr. Anthony Yankel**

11 **Q. Do you agree with Mr. Yankel's testimony that the impact of the irrigation**
12 **load control program is not fully represented in the Company's load**
13 **research sampling?**

14 A. No. While the irrigation class is particularly hard to sample due to crop rotations
15 and weather patterns that cause the class as a whole and individual farms to vary
16 their usage greatly from year to year, the Company believes that the load data in
17 the current cost of service study accurately reflects the loads placed on the system
18 by the irrigation class. A site that was selected as representative of a certain user
19 type in one year may have completely different characteristics the following year,
20 and even different characteristics the year after that. The load control program
21 has similar complications since participants only sign up for one season at a time,
22 and continuing participants may not be curtailed at the same day and time from
23 year to year, or may not choose to participate from one year to the next.

1 Notwithstanding these challenges, PURPA standards for load research
2 specify that load research samples be designed to achieve plus or minus 10
3 percent precision at a 90 percent confidence level. All of the Company's load
4 research samples meet this standard. The Company also performs statistical
5 checks to ensure that the load research data comports with known energy use. In
6 addition, the Company has produced three cost of service studies in Idaho since
7 2004 using the current sample sites and methodology, and the studies have shown
8 consistent results for the irrigation class in terms of their cost of service. This
9 indicates the data and our methods are statistically accurate and reliable.

10 **Q. Do you agree with Mr. Yankel's conclusions and analysis regarding the**
11 **amount of curtailment included in the load research sample?**

12 A. No. As stated in the Company's response to IIPA Data Request 1.20, the
13 irrigation load control program is well-represented in the load research sample;
14 about 20 percent of the irrigation class participates in the program, while about 33
15 percent of the load sample sites are load control program participants. Further,
16 the stratified random sampling procedure that the Company uses produces results
17 that are designed to be analyzed as a whole. One cannot produce statistically
18 meaningful results by pulling out subsets of data and analyzing them in isolation
19 as Mr. Yankel does.

20 The load sample was designed to measure the load that the entire irrigation
21 class places on the system at the time of system peak, and the sample is designed
22 to do that within PURPA standards. It is an accurate measure of the load on the
23 system at the time of system peak, and any curtailment in effect at that time is

1 reflected in the load sample estimates within PURPA specifications.

2 **Rebuttal of Mr. Bryan Lanspery**

3 **Q. Do you agree with Staff witness Mr. Lanspery that the Company's load**
4 **sampling is inadequate for non-demand metered customers?**

5 A. No. Our current samples have been designed to meet PURPA standards for load
6 research sample data as discussed earlier in my testimony. The Company has
7 agreed to add new load sampling meters to its residential load sampling program
8 by the end of this year, and to start rotating residential and irrigation load sample
9 locations starting in 2008. However, this should not be taken as an indication that
10 our current load sample does not meet PURPA standards. All of the load research
11 sample data presented in this case meets these standards. Load research sample
12 points are updated and rotated periodically in the normal course of business. Our
13 current load research data is accurate and reliable.

14 **Rebuttal of Dr. Dennis Peseau**

15 **Q. Do you agree with Dr. Peseau's assertion on page 8 of his direct testimony**
16 **that the Company's cost of service study is "quite different from any cost of**
17 **service studies recently offered in other proceedings before this Commission,**
18 **and also very different from the cost of service studies originally developed**
19 **by PacifiCorp in the 1970s - 1990"?**

20 A. No. Dr. Peseau is referring to the Company's use of an unweighted 12 CP
21 allocation method to allocate demand-related generation and transmission costs.
22 The Company has used unweighted 8 CP and 12 CP allocation methods in Idaho
23 since at least 1984 (Docket U-1009-137) and perhaps longer than that. In the

1 Company's 1990 rate reduction case (UPL-E-90-1) the Commission stated a
2 preference for 8 CP and 12 CP methods and rejected the 1 CP approach preferred
3 by Nu-West because "it does not accurately reflect cost causation on UP&L's
4 system throughout the year and has the potential, if not the tendency, to produce
5 erratic results." The Company's methodology in this case is certainly not new
6 either to the Company or to this Commission.

7 **Q. Does the Company allocate all demand-related generation costs using this**
8 **unweighted 12 CP method?**

9 A. No. The Company recognizes, as Dr. Peseau points out, that utilities incur greater
10 costs to serve during peak periods. For this reason, under the MSP Revised
11 Protocol approved by the Idaho Commission in Order No. 29708, our generation
12 resources are separated into system resources and seasonal resources and these
13 groups of resources are allocated to states and to classes separately.

14 **Q. Please explain the difference between system resources and seasonal**
15 **resources.**

16 A. System resources are those resources that are used to meet most of the load across
17 the Company's integrated system. This is the bulk of the Company's generation
18 and it represents base and intermediate load plants. The cost of operating these
19 assets does not vary greatly throughout the year, and it is therefore appropriate to
20 allocate the costs associated with them on an unweighted 12 CP basis. Seasonal
21 resources, on the other hand, are resources such as simple-cycle combustion
22 turbine "peaker" plants and contracts that are only in effect for certain months out
23 of the year. These are resources that are used to meet the Company's peak load.

1 The costs associated with these resources are assigned to the months in which the
2 resource dispatches, and to the classes based on their share of total usage in those
3 months. In this way, the costs associated with those resources needed to meet
4 peak load are allocated more heavily on the classes that have higher loads in the
5 peak months.

6 **Q. Why do you say that an unweighted 12 CP allocation method is most**
7 **appropriate for allocating system resources? Isn't RMP a summer-peaking**
8 **utility?**

9 A. RMP is a summer-peaking utility, but costs are allocated based on the entire
10 integrated system because that is how our system is planned and dispatched. The
11 Company has used a 12 CP allocator for system demand costs since the Pacific
12 Power – Utah Power merger. During the MSP docket (PAC-E-02-3) the
13 Company revisited the stress factor analysis that was employed at the time of the
14 merger to determine if a 12 CP allocation method is still the most appropriate
15 method for the Company to use. The results indicate that all months contribute to
16 the system peak in some way and should be included in cost allocation. This
17 same issue was raised in the Company's 2001 case involving Monsanto's contract
18 rate (PAC-E-01-16), and Staff witness Mr. David Schunke endorsed the
19 Company's approach, stating on page 16 of his direct testimony, "A 12 CP
20 generation and transmission allocator better represents the actual system
21 operation. It recognizes that each of the monthly peaks is of importance."

22 In addition, we believe it is appropriate for the allocation methods to be
23 consistent for inter-jurisdictional allocations and for class cost of service

1 allocations. 12 CP is used for the allocation of system resources in the JAM as
2 agreed to in adopting the MSP Revised Protocol and should continue to be used
3 for class cost of service allocations.

4 **Q. Do other Idaho utilities use similar allocation methods?**

5 A. In his direct testimony, Dr. Peseau refers to the weighting methodology that Idaho
6 Power uses as an example of a superior allocation method. In the past, Idaho
7 Power has used marginal generation cost in each month to weight the coincident
8 peaks in order to place more weight on loads occurring in the more expensive
9 months. However, in its current rate case (IPC-E-07-8) Idaho Power is proposing
10 to do away with this method, because, as cost of service witness Mr. Timothy
11 Tatum states on page 14 of his direct testimony, “There is potential to
12 disproportionately allocate fixed base and intermediate generation costs that do
13 not vary greatly between the summer and non-summer seasons to the higher cost
14 summer months.” Mr. Tatum offers several allocation alternatives, all of which
15 use a combination of unweighted 12 CP for base and intermediate resources along
16 with a separate allocator for resources needed to meet peak loads, similar to the
17 method the Company employs.

18 Shifting fixed costs to the summer months would benefit Dr. Peseau’s
19 client, but it would hurt the classes that are heavier summer users, particularly the
20 irrigation class. Dr. Peseau’s proposed allocation methods would place
21 disproportionate weight on the summer months and could result in more volatile
22 results from year to year.

1 **Q. Is the Company's allocation method an acceptable way to allocate demand**
2 **costs?**

3 A. Yes it is. The 12 CP method the company uses allocates demand costs in a way
4 that treats all classes equitably and should be retained in this case.

5 **Workpapers**

6 **Q. Have you included your workpapers?**

7 A. Yes. An electronic copy of the cost of service model underlying the summary
8 tables in Exhibit No. 51 has been provided to all parties on CD.

9 **Q. Does this conclude your rebuttal testimony?**

10 A. Yes.

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Witness: Mark E. Tucker

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BEFORE THE IDAHO PUBLIC UTILITIES COMMISSION

ROCKY MOUNTAIN POWER

Exhibit Accompanying Rebuttal Testimony of Mark E. Tucker

Cost of Service Summary by Rate Schedule

October 2007

Summary

PacificCorp
 Cost Of Service By Rate Schedule
 State of Idaho
 12 Months Ending December 2006
 MSP Protocol
 6.17% = Earned Return on Rate Base

Line No.	Schedule No.	Description	C	D	E	F	G	H	I	J	K	L	M
			Annual Revenue	Return on Rate Base	Rate of Return Index	Total Cost of Service	Generation Cost of Service	Transmission Cost of Service	Distribution Cost of Service	Retail Cost of Service	Misc Cost of Service	Increase (Decrease) to = ROR	Percentage Change from Current Revenues
1	01	Residential	29,653,369	6.57%	1.06	29,316,431	15,656,696	799,098	8,476,260	4,019,725	364,653	(336,938)	-1.14%
2	36	Residential - TOD	21,362,235	7.06%	1.14	20,836,812	12,773,266	611,766	5,457,556	1,821,029	173,196	(525,423)	-2.46%
3	06	General Service - Large	18,609,425	10.54%	1.71	16,525,088	12,786,802	623,035	2,906,698	163,313	45,241	(2,084,337)	-11.20%
4	08	General Service - Medium Voltage	130,255	10.08%	1.63	117,240	92,384	4,642	19,668	286	259	(13,015)	-9.99%
5	09	General Service - High Voltage	5,061,143	13.19%	2.14	4,282,292	4,072,232	185,323	17,288	7,984	9,465	(768,851)	-15.19%
6	10	Irrigation	39,404,679	6.14%	1.00	39,437,085	25,342,197	1,095,275	12,456,736	430,490	112,387	32,406	0.08%
7	07,11,12	Street & Area Lighting	326,298	-17.88%	(2.90)	561,517	76,172	2,421	414,308	61,659	6,957	235,219	72.09%
8	12	Traffic Signals	15,526	14.41%	2.34	12,750	7,287	330	2,971	1,906	225	(2,796)	-18.01%
9	19	Space Heating	635,620	12.11%	1.96	540,828	400,819	20,044	104,345	13,240	2,380	(94,792)	-14.91%
10	23	General Service - Small	10,711,252	11.71%	1.90	9,191,350	5,696,809	285,201	2,437,350	692,372	79,618	(1,519,902)	-14.19%
11	SPC	Contract 1	3,998,852	4.04%	0.65	4,227,070	3,955,407	204,856	59,157	182	7,467	228,218	5.71%
12	SPC	Contract 2	48,668,727	2.58%	0.42	53,518,938	50,990,537	2,392,094	49,367	(4,032)	90,972	4,850,211	9.97%
13	Total	State of Idaho -	178,577,381	6.17%	1.00	178,577,381	131,850,618	6,224,085	32,401,703	7,208,155	892,820	0	0.00%

Footnotes:

- Column C : Annual revenues based on 12-2006.
- Column D : Calculated Return on Ratebase per 12-2006 Embedded Cost of Service Study
- Column E : Rate of Return Index. Rate of return by rate schedule, divided by Idaho Jurisdiction's normalized rate of return.
- Column F : Calculated Full Cost of Service at Jurisdictional Rate of Return per the 12-2006 Embedded COS Study
- Column G : Calculated Generation Cost of Service at Jurisdictional Rate of Return per the 12-2006 Embedded COS Study.
- Column H : Calculated Transmission Cost of Service at Jurisdictional Rate of Return per the 12-2006 Embedded COS Study.
- Column I : Calculated Distribution Cost of Service at Jurisdictional Rate of Return per the 12-2006 Embedded COS Study.
- Column J : Calculated Retail Cost of Service at Jurisdictional Rate of Return per the 12-2006 Embedded COS Study.
- Column K : Calculated Misc.Distribution Cost of Service at Jurisdictional Rate of Return per the 12-2006 Embedded COS Study.
- Column L : Increase or Decrease Required to Move From Annual Revenue to Full Cost of Service Dollars.
- Column M : Increase or Decrease Required to Move From Annual Revenue to Full Cost of Service Percent.

PacifiCorp
 Cost Of Service By Rate Schedule
 State of Idaho
 12 Months Ending December 2006
 MSP Protocol
 8.11% = Target Return on Rate Base

Line No.	A Schedule No.	B Description	C Annual Revenue	D Return on Rate Base	E Rate of Return Index	F Total Cost of Service	G Generation Cost of Service	H Transmission Cost of Service	I Distribution Cost of Service	J Retail Cost of Service	K Misc Cost of Service	L Increase (Decrease) to = ROR	M Percentage Change from Current Revenues
1	01	Residential	29,653,369	6.57%	1.06	31,951,704	16,847,122	1,227,959	9,540,481	4,089,271	465,870	2,298,335	7.75%
2	36	Residential - TOD	21,362,235	7.06%	1.14	22,699,988	13,546,837	944,674	6,148,094	1,842,822	217,562	1,337,753	6.26%
3	06	General Service - Large	18,609,425	10.54%	1.71	18,017,911	13,571,457	960,854	3,271,102	165,228	49,270	(591,514)	-3.18%
4	08	General Service - Medium Voltage	130,255	10.08%	1.63	127,679	98,153	7,145	21,823	290	269	(2,576)	-1.98%
5	09	General Service - High Voltage	5,061,143	13.19%	2.14	4,635,196	4,309,897	287,001	20,623	8,031	9,644	(425,947)	-8.42%
6	10	Irrigation	39,404,679	6.14%	1.00	42,979,196	26,753,552	1,694,249	13,967,224	437,771	126,399	3,574,517	9.07%
7	07,11,12	Street & Area Lighting	326,298	-17.88%	(2.90)	592,147	79,683	3,860	436,969	62,592	9,044	265,849	81.47%
8	12	Traffic Signals	15,526	14.41%	2.34	13,793	7,719	511	3,337	1,935	290	(1,733)	-11.16%
9	19	Space Heating	635,620	12.11%	1.96	590,825	425,942	30,880	117,785	13,428	2,790	(44,795)	-7.05%
10	23	General Service - Small	10,711,252	11.71%	1.90	10,050,218	6,053,311	439,016	2,757,165	701,275	99,450	(661,034)	-6.17%
11	SPC Contract 1		3,998,852	4.04%	0.65	4,562,561	4,181,964	307,308	65,531	146	7,612	563,709	14.10%
12	SPC Contract 2		48,668,727	2.58%	0.42	57,752,676	53,939,588	3,673,064	51,898	(4,640)	92,768	9,083,949	18.66%
13	Total	State of Idaho -	176,577,381	6.17%	1.00	193,973,895	139,615,223	9,576,521	36,402,032	7,298,150	1,081,968	15,396,514	8.62%

Footnotes:

- Column C: Annual revenues based on 12-2006.
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- Column K: Calculated Misc. Distribution Cost of Service at Jurisdictional Rate of Return per the 12-2006 Embedded COS Study.
- Column L: Increase or Decrease Required to Move From Annual Revenue to Full Cost of Service Dollars.
- Column M: Increase or Decrease Required to Move From Annual Revenue to Full Cost of Service Percent.

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Exhibit No. 52

Witness: Mark E. Tucker

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ROCKY MOUNTAIN POWER

Exhibit Accompanying Rebuttal Testimony of Mark E. Tucker

Load Research Working Group Report to the Utah Public Service Commission

October 2007

Load Research Working Group

Report To The

Utah Public Service Commission

1 July 2002

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Introduction

In its November 2, 2001 Stipulation Order in PacifiCorp general rate case Docket No. 01-035-01, the Utah Public Service Commission (Commission) established a Utah Load Resource Working Group (Working Group). Membership was to be drawn from PacifiCorp (Company), the Division of Public Utilities (Division), the Committee of Consumers Services (Committee), and other interested parties. The Committee was assigned to chair the group. The Commission directed the Working Group to review PacifiCorp's current and planned load research and studies and submit its report of findings and recommendations by 1 July 2002.

The Load Research Working Group met five times between January 2002 and June 2002. Representatives of the following parties participated at some or all of those meetings: Commission Staff, the Committee, Crossroads Urban Center, the Division, Hill Air Force Base, Salt Lake Community Action Program, PacifiCorp, and the Utah Farm Bureau.

The Load Research Working Group addressed the following issues:

- The techniques used to collect load research data as well as some of the practical problems associated with gathering reliable data.
- The quality and reliability of the load research data as it relates to calibration/adjustments that have been performed on this data.
- The use of the load research data to help design residential rates for customers that use more than 1,000 kWh per month during the summer months.
- The need to develop alternatives to the use of historical irrigation load research data for rate case purposes on a going forward basis.

There was agreement within the Working Group on all issues that were fully reviewed. For those issues that were not fully reviewed, there was general agreement on progress achieved and what the data means that has been reviewed thus far. Although some issues were not fully investigated because of time and other constraints, the Working Group has been able to better define and clarify these issues so as to make future discussions regarding these matters more focused with a clearer point from which to begin.

Executive Summary

In the Commission's Order of November 2, 2001 it adopted a Stipulation that was presented regarding PacifiCorp Docket No. 01-035-01. As a part of that Order and as a part of the Stipulation a Load Research Working group was established to review the current and planned PacifiCorp load research efforts. Although the Stipulation and the Order did not specify concerns to be addressed, the Working Group focused upon many of the concerns that were raised during the rate case that are associated with load research data. The areas reviewed included:

- The quality and reliability of the load research data.

It was decided that with the addition of a large number of sample points for the Residential Class in early 2000, that the quality and reliability of the load research data has been increased. There is still a question about quality and reliability related to the fact that there is wholesale movement of sample customers between stratum boundaries on a monthly basis. This is not to say that there is a problem, merely a concern that needs further investigation.

- The calibration of load research data in order to match assigned Utah Jurisdictional load with the sum of census data plus load research data.

It was decided that the Company would no longer calibrate load research data in this manner, thus removing some of the concerns that were raised in the last two rate cases. This agreement only addresses the impact upon load research data, but does not address the jurisdictional question regarding the appropriateness of the assignment of jurisdiction demand and energy values.

- The appropriateness of developing a good sample for the Irrigation Class.

It was decided that the Company should not establish a new sample for Irrigation Customers. Instead of using load research data, the Irrigation Class should simply be given the jurisdictional average change in rates.

- The use of the load research data for rate design purposes as well as cost allocation purposes.

It was decided that load research data could be used to better define cost of service boundaries within the Residential Class regarding tailblock pricing during the summer months. More work should be done in this area before specific recommendations are made.

Description of Load Research Techniques

Techniques used by the Company to develop the load research sample design are appropriate. The load research protocol is designed to produce a sample that is accurate within +/- 10 percent on 90 percent of the observations. Although the sample design is aimed at producing an accurate sample, there are practical problems that require constant review and vigilance in order to insure that the expected level of accuracy is achieved. The Working Group addressed three areas where possible improvements could be made in the load research program:

1. The number of residential load research samples being collected could have been below an acceptable number of samples necessary to produce the desired precision and accuracy of the sample. This potential problem has been corrected with the addition of a number of new residential sample sites during early 2000.
2. Sample customers are grouped according to size (usage) into what are referred to as Strata. Weightings are then assigned to the various Strata in order to reflect the relative percentage of the population as a whole that is represented by customers within that Strata (usage range). A concern has been raised with respect to sample migration with sample customers moving from one stratum to another while the data being collected from that customer continues to be assigned to the original stratum. It is also recognized that the electricity usage of the population as a whole varies from month to month. Much of this sample migration could simply mimic the overall change in usage of the general population. Since the Company is still gathering data on the migration issue, this Working Group has not had an opportunity to review the data prior to the deadline for this report. However, the identification of the concern should help to insure consideration of the issue in future load research efforts.
3. A concern was also raised regarding how the Company checks the accuracy of its load research data against the total population billed energy usage. At present, an initial adjustment is made to the load research data if its derived energy levels differ from the general population by more than +/- 10 percent. The Company is checking to see if each sample stratum is also found to be within +/- 10 percent of its respective portion of the general population, however, the Company has stated that the design precision levels are developed for the whole sample and are not applicable to the individual strata. The identification of the concern should help to insure that future load research efforts will be more aware of possible large discrepancies in usage between the various stratum and the portion of the general population they represent.

Quality of Load Research Data and Calibration Adjustments

In the last two PacifiCorp general rate cases concern has been raised regarding the impact of calibrations that have been made to the Company's load research data. The

specific calibrations of concern are the ones that come about when the summation of the Company's load research data and the directly measured census data do not equal the Utah Jurisdictional assigned load or "Jurisdictional Border Load" in any given hour. The Working Group has generally agreed that any one of three components (load research data, census data, and/or Utah Border Load data) could have an error that impacted these calibration factors.

The Working Group agreed on several points with respect to these calibrations that had historically been applied to the load research data:

- The general conclusion was that there is something occurring within the Utah Border Load that is more likely the source of the calibration problem than the load research data or the census data. The Working Group agreed that the Company should discontinue the practice of calibrating Utah load research data.
- Although the above agreement solves the problem of the large and biased calibration factors that have been placed upon load research data in recent rate cases, it does not address the source of these high calibration factors or why measured/sampled retail loads in Utah (plus expected losses) do not equal the Utah Border Load. It was concluded that the reason for this discrepancy was a result of the losses associated with wholesale and other system transactions that get assigned to the retail jurisdictions. Since this is an important issue, but beyond the scope of this Working Group, it is recommended that these losses be addressed in another forum.

Use of Load Research Data to Develop Residential Rate Design

The review of the Company's load research data resulted in an analysis of the usage characteristics of the sample customers and how that usage fits the definition of the various stratum boundaries. It was observed that during the summer months, residential customers using over 1,000 kWh per month were more coincident with the system peak than were smaller residential customers. This suggested that, during the summer months, generation and transmission costs were higher for the larger customers and could support an inverted rate block pricing structure. At the same time it was noted that the larger customers had higher non-coincident peak load factors than the smaller residential customers. It was recommended that a cost of service study be prepared for the summer months that separated the residential class into customers over 1,000 per month and customers using less than 1,000 kWh per month. A preliminary study was prepared on an annual basis (not just the 4-summer months) which segregated the residential class between those customers using more than 12,000 kWh per year and those using fewer than 12,000 kWh per year. On an annual basis the study results showed that the generation and transmission component cost of service was higher per kWh for the larger residential customers. However, this difference was more than offset by a lower cost of service per kWh for the distribution and retail components. This suggests that, on an annual basis, an inverted rate was

not supported. It is important to note that the study did not segregate costs by season. Without a detailed cost of service analysis it is impossible to determine how significant the difference in cost of service during the summer months actually is.

While this analysis was discussed, it is agreed by the Working Group that this is a pricing design issue and not a load research issue.

Irrigation Load Research

From a load research perspective the Irrigation Class has historically been a difficult group to sample. The Utah Irrigation Class represents only about one percent of the jurisdiction's total customers and one percent of the jurisdiction's energy requirement. Compared to its size, however, the Irrigation Class is expensive to sample. Furthermore, Irrigation Customers can drastically change usage from one year to the next which could mean that sample meters that are installed one year may not produce results during the next year, or only during a portion of the irrigation season.

The Company recognizes that its irrigation load research data is stale and some alternative needs to be found for future rate cases. The Working Group recommends that the Company not develop a new load research sample for Utah Irrigation Customers. The Working Group also recommends that whenever rates are changed for the Utah Jurisdiction as a whole, the Irrigation Customers should get the jurisdictional average percentage rate change.

