

Docket No. 20000-405-ER-11
Witness: C. Craig Paice

BEFORE THE WYOMING PUBLIC SERVICE
COMMISSION

ROCKY MOUNTAIN POWER

Rebuttal Testimony of C. Craig Paice

May 2012

1 Q. Are you the same C. Craig Paice that presented direct testimony in this
2 proceeding?

3 A. Yes.

4 **Purpose of Rebuttal Testimony**

5 Q. What is the purpose of your rebuttal testimony?

6 A. I present Rocky Mountain Power's (the "Company") revised Class Cost of
7 Service ("COS") Study based on the 12 month forecasted test period ending
8 March 31, 2013, which has been updated to reflect Wyoming results of operations
9 based on the 2010 Protocol as discussed below. I also respond to several
10 statements in the direct testimony of AARP witness Dr. Charles E. Johnson
11 relating to customer class cost allocations.

12 **Summary of Results**

13 Q. Please identify Exhibit RMP__(CCP-1R) and explain what it shows.

14 A. Exhibit RMP__(CCP-1R) is the summary table from the Company's 12 Months
15 Ending March 2013 Class COS Study for the State of Wyoming. The study is
16 based on the Company's updated Wyoming results of operations as presented in
17 Mr. Steven R. McDougal's rebuttal testimony. My study also summarizes, both
18 by customer group and by function, the results of the class COS study for the 12
19 months ending March 2013. Page one presents the summary of results at the
20 Company's target rate of return based on the revised \$56.6 million revenue
21 increase. Pages two and three show class cost of service summary results based on
22 the revised revenue requirement.

1 Q. Please identify Exhibit RMP__(CCP-2R) and explain what it shows.
2 A. Exhibit RMP__(CCP-2R) shows the COS results in more detail by class and by
3 function. Page one summarizes the total cost of service by class and pages two
4 through six contain a summary by class for each major function.
5 Q. How do rebuttal COS study results compare to results from Exhibit
6 RMP__(CCP-3) filed in the direct phase of this proceeding?
7 A. Rebuttal COS study results are similar to those presented in Exhibit
8 RMP__(CCP-3) with revenue requirements declining for all rate schedules.
9 **Cost to Serve Low-Use Customers**
10 Q. Do you agree with Dr. Johnson that the cost of providing service to low-use
11 customers is less than providing service to average-use customers?
12 A. No, I disagree for several reasons. First, Dr. Johnson's assertion is not based on
13 any evidence or analysis that specifically relates to Wyoming customers. Second,
14 there is no clear indication what is meant by "low-use customer" or "average
15 customer" since no specific definitions are provided. Third, the majority of
16 Wyoming distribution system costs allocated to customers in the Company's COS
17 study are joint costs or the cost of facilities (i.e. substations, lines, transformers,
18 etc.) shared by multiple customers. Allocation of joint facility costs among rate
19 classes (schedules) is based on each customer class' relative share of measureable
20 cost-defining service characteristics such as kilowatt-hours or kilowatts of peak
21 demand. Customer class cost responsibility is not determined according to low or
22 average usage.

1 Q. Has the Company conducted any analysis to test the validity of Dr. Johnson's
2 conclusions?
3 A. Yes. Because Dr. Johnson did not present analytical support for his assertion that
4 the cost of providing service to low-use customers is less than providing service
5 to average-use customers, the Company conducted its own analysis. In this
6 analysis the Company reviewed the range of demands typically exhibited by
7 residential customers. Within the load research residential sample, non-coincident
8 peaks for each of the customers in the study during the historic test period ranged
9 from 2 KW to 18 KW. Although this seems like a significant difference, it is
10 important to note that this range is relatively small when compared to the load
11 diversity that exists for large general service customers. A general service
12 customer served under Schedule 46 can have demand less than 1,000 KW while
13 the peak demand for the largest distribution voltage general service customer
14 served under Schedule 46 during the test period was greater than 50,000 KW—a
15 range of 50:1. The range of residential demand is only 9:1.

16 The table below compares estimated average non-coincident peaks for the
17 major distribution voltage rate classes in the cost of service study.

18 Table 1

19 Average Non-Coincident Peak for Major Distribution Voltage Rate Classes

Class	Average NCP (KW)
Residential	7
Schedule 25	4
Schedule 28	94
Schedule 46	1,482
Schedule 40	22

1 Q. Why was this review of residential customer load size variation compared to
2 load size variation for all customer classes significant when discussing cost
3 allocations?

4 A. The purpose of cost allocation is to determine the cost responsibility of all classes.
5 Because there is significant diversity in load sizes for customers classes included
6 in the COS study, the size of fixed distribution facilities serving RMP's customers
7 varies considerably in terms of both size and cost. However, this review illustrates
8 that residential customers do not exhibit the same range of size that is present with
9 some other customer classes, leading to the conclusion that costs of smaller sized
10 distribution facilities may not vary significantly based on customer size.

11 Q. Can you provide a specific example that supports the conclusion that costs of
12 fixed distribution facilities serving residential customers may not vary
13 greatly with customer size?

14 A. Yes. A review of installed distribution line transformer costs supports this
15 conclusion. Distribution transformers typically serve a small number of residential
16 customers. An average of five residential customers are served from a single line
17 transformer in the state of Wyoming. While this is an average, it is not uncommon
18 for a line transformer to be dedicated to a single residential customer in the
19 Company's largely rural service territory. The cost of installing smaller individual
20 line transformers to serve either a single residential customer or a small group of
21 residential customers does not increase proportionally to the installed capacity of
22 that transformer. For example, two of the smallest sized pole-mount transformers
23 (10 KVA and 25 KVA) in the Company's standards have average installed costs

1 of \$2,871 and \$3,148, respectively. Although a 25 KVA transformer provides two
2 and a half times the demand capacity of a 10 KVA transformer, it only costs about
3 10 percent more. Comparing the two smallest sized pad-mount transformers in the
4 Company's standards shows a similar relationship. A 25 KVA pad-mount
5 transformer has an average installed cost of \$5,152, and a 50 KVA pad-mount
6 transformer has an average installed cost of \$5,432. The cost difference is only
7 five percent despite the larger transformer providing double the capacity. Clearly,
8 these examples show that, aside from the overall price difference between pad
9 mount and pole transformers, the cost of transformers serving residential
10 customers do not vary much at all with load, but are costs necessary to serve
11 customers.

12 Q. Based on the Company's analysis, how should Dr. Johnson's observation
13 regarding low-use customers imposing fewer costs on the distribution system
14 be viewed?

15 A. The Company's analysis demonstrates that Dr. Johnson's claim is not valid. He
16 has provided no analysis or evidence in support of his conclusion, and his position
17 should be dismissed.

18 **Bias Toward Recovery Of Demand-Related Charges**

19 Q. Please comment on Dr. Johnson's statement on page 13 of his direct
20 testimony which states "...there is a relationship between energy usage and
21 demand usage, but no relationship whatsoever between demand usage and
22 any other aspect of being a customer."

23 A. His "usage" arguments ignore cost-causation as the relevant factor in determining

1 why the Company incurs costs to serve its customers. The cost-causation principle
2 is implemented in COS studies such that costs are classified based on cost-
3 defining service characteristics that are the same or similar to those employed by
4 utility engineers when they make investment decisions. The chief distribution
5 system characteristics which the Company's design engineers respond to are (1)
6 peak demand and (2) number of customers served. Subsequently, the COS study
7 classifies distribution costs accordingly. These classifications comport with the
8 National Association of Regulatory Utility Commissioners (NARUC) *Electric*
9 *Utility Cost Allocation Manual*, at page 89, which states:

10 ...all costs of service can be identified as energy-related, demand-
11 related, or customer-related. Because there is no energy component
12 of distribution-related costs, we need consider only the demand
13 and customer components.

14 Generally, costs classified as either demand or customer-related are
15 considered to be fixed since they do not materially vary once the investment
16 decision and installation of related facilities have been made. This contrasts with
17 energy-related costs which are considered variable because costs vary with the
18 production of kWh of electricity. Thus, the cost-causation principle establishes a
19 more appropriate relational basis (i.e., fixed versus variable) for aggregating
20 classified costs to be used for rate design purposes.

21 **Q. Should Dr. Johnson's conclusion regarding a "bias" toward usage-related**
22 **charges be viewed as appropriate?**

23 A. No. Dr. Johnson's viewpoint is based on non cost-causative considerations and
24 lacks supporting analytical analysis or evidence. Dr. Johnson's conclusion should
25 be disregarded.

1 **Summary**

2 **Q. Please summarize your rebuttal testimony.**

3 A. My rebuttal testimony presents discussion and analysis showing that Dr.
4 Johnson's two cost-related conclusions (1) the cost to serve low-use customers is
5 less than other customers, and (2) there is no relationship between demand usage
6 and other aspects of being a customer are not supportable and should be
7 dismissed.

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

9 A. Yes.

BEFORE THE WYOMING PUBLIC SERVICE
 COMMISSION

ROCKY MOUNTAIN POWER

Exhibit Accompanying Rebuttal Testimony of C. Craig Paice
 Cost of Service Results Summary

May 2012

Rocky Mountain Power
 Exhibit RMP (CCP-1R)
 Docket No. 20000-405-ER-11
 Witness: C. Craig Paice

Rocky Mountain Power
 Cost Of Service By Rate Schedule
 State of Wyoming
 12 Months Ending March 31, 2013
 2010 Protocol
 7.882% = Target Return on Rate Base

A	B	C	D	E	F	G	H	I	J	K	L	M	
Line No.	Schedule No.	Description	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	2	Residential	100,981,147	6.66%	1.11	115,043,918	60,323,208	14,678,427	32,471,343	6,202,300	810,881	9,052,771	8.55%
2	25	Small General Service	27,432,125	5.67%	0.93	31,088,466	18,290,520	4,417,462	7,167,409	1,000,234	212,851	3,656,342	13.33%
3	28	General Service	100,169,792	6.86%	1.15	108,138,831	71,366,963	16,271,574	19,693,261	63,809	753,223	7,659,029	7.96%
4	46	Large General Service	126,912,399	5.82%	0.90	140,674,776	109,143,632	22,035,892	10,695,104	34,517	664,743	13,762,318	10.84%
5	46T	Large General Service Transmission	154,185,812	4.97%	0.83	176,247,732	143,672,161	30,849,387	6,894,499	35,438	999,781	22,051,962	14.31%
6	40	Irrigation	1,224,768	7.33%	1.19	1,363,546	848,133	190,171	395,784	8,843	9,615	88,758	0.95%
7	15/50	Street/Area Lighting	2,439,868	9.62%	1.52	2,439,461	618,933	66,340	1,560,373	123,736	20,669	(406)	-0.02%
8	210	Irrigation	374,211	6.76%	1.13	290,842	194,036	43,598	56,769	510	2,008	22,731	8.28%
9	207,211,213	Street & Area Lighting	501,959	10.23%	1.71	484,569	73,661	12,591	393,406	10,520	4,391	(17,330)	-3.46%
10	213	Traffic Signs, Outdoor Lgt	7,159	1.53%	0.26	8,871	5,390	889	1,657	891	44	1,712	23.81%
11	Total	State of Wyoming	610,170,270	5.98%	1.00	675,787,175	402,137,703	89,395,841	72,985,616	7,590,589	3,677,326	56,607,896	10.00%

Footnotes:

- Column C: Annual Present Revenues based on March 2013 forecast.
- Column D: Calculated Return on Ratebase per March 2013 forecasted Embedded Cost of Service Study
- Column E: Rate of Return Index. Rate of return by rate schedule, divided by Wyoming Jurisdiction's normalized rate of return.
- Column F: Calculated Full Cost of Service at Jurisdictional Rate of Return per the March 2013 forecasted Embedded COS Study.
- Column G: Calculated Total Generation Cost of Service at Jurisdictional Rate of Return per the March 2013 forecasted Embedded COS Study.
- Column H: Calculated 2010 Protocol Rate Mitigation Adjustment at Target Rate of Return per the March 2013 forecasted Embedded COS Study.
- Column I: Calculated Transmission Cost of Service at Jurisdictional Rate of Return per the March 2013 forecasted Embedded COS Study.
- Column J: Calculated Distribution Cost of Service at Jurisdictional Rate of Return per the March 2013 forecasted Embedded COS Study.
- Column K: Calculated Misc. Distribution Cost of Service at Jurisdictional Rate of Return per the March 2013 forecasted Embedded COS Study.
- Column L: Total Increase or Decrease Required to Move from Present Annual Revenue to Full Cost of Service Dollars.
- Column M: Total Percentage Increase or Decrease Required to Move from Present Annual Revenue to Full Cost of Service Percent.

Rocky Mountain Power
Cost Of Service By Rate Schedule
State of Wyoming
12 Months Ending March 31, 2013
2010 Protocol
5.98% = Earned Return on Rate Base

Line No.	Schedule No.	Description	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 Revenue
1	2	Residential	105,981,147	6.66%	1.11	102,331,349	55,434,695	12,306,337	28,597,474	6,226,462	836,790	(2,589,759)	-3.44%
2	25	Small General Service	27,432,125	5.57%	0.93	27,863,109	16,628,274	3,732,519	6,286,658	893,812	211,855	(430,885)	-1.57%
3	28	General Service	100,169,792	8.85%	1.15	95,877,873	65,268,733	13,733,479	17,136,714	89,931	750,616	(3,191,919)	-3.19%
4	45	Large General Service	126,912,309	5.92%	0.90	127,159,354	67,427,943	19,348,653	9,493,048	30,319	661,462	246,955	0.19%
5	46T	Large General Service-Transmission	154,185,832	4.97%	0.83	159,632,856	131,925,535	26,012,568	647,643	50,862	905,289	5,447,024	3.53%
6	40	Inspiration	1,274,789	7.13%	1.19	1,221,510	777,657	160,474	265,240	8,666	9,572	(53,178)	-4.17%
7	15/58	Street & Area Lighting	2,420,608	6.37%	1.02	2,218,631	975,378	80,470	1,441,783	123,229	18,171	(220,035)	-9.02%
8	210	Inspiration	274,211	6.76%	1.13	266,541	177,652	35,753	48,633	484	2,019	(7,650)	-3.86%
9	207,211,212	Street & Area Lighting	601,650	10.53%	1.71	438,585	68,915	19,802	344,832	10,467	4,269	(63,274)	-12.83%
10	313	Traffic Signs, Outdoor Lgt	7,159	1.53%	0.26	8,170	5,030	748	1,461	897	44	1,011	14.12%
11	Total	State of Wyoming	519,179,279	5.98%	1.00	519,179,279	398,369,614	75,425,870	64,109,695	7,533,139	3,662,295	(0)	0.00%

Footnotes:
 Column C Annual Present Revenues based on March 2013 forecast.
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 Column J Calculated Retail Cost of Service at Jurisdictional Rate of Return per the March 2013 forecasted Embedded COS Study
 Column K Calculated Misc Distribution Cost of Service at Jurisdictional Rate of Return per the March 2013 forecasted Embedded COS Study
 Column L Total Increase or Decrease Required to Move from Present Annual Revenue to Full Cost of Service Dollars.
 Column M Total Percentage Increase or Decrease Required to Move from Present Annual Revenue to Full Cost of Service Percent.

Rocky Mountain Power
Cost Of Service By Rate Schedule
State of Wyoming
12 Months Ending March 31, 2013
2010 Protocol
7.85% = Target Return on Rate Base

Line No.	Schedule No.	Description	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 Revenue
1	2	Residential	105,981,147	6.66%	1.11	113,943,919	59,223,264	14,578,427	32,477,243	6,287,338	810,521	9,062,771	8.55%
2	25	Small General Service	27,432,125	5.57%	0.93	31,088,466	18,380,529	4,417,462	7,167,488	1,899,224	232,831	3,856,342	13.33%
3	28	General Service	100,169,792	6.88%	1.16	108,118,831	71,380,863	16,271,874	18,651,261	97,899	753,223	7,969,039	7.96%
4	45	Large General Service	126,912,309	5.92%	0.99	140,674,778	105,143,632	22,926,892	10,605,194	34,217	864,743	13,782,379	10.84%
5	46T	Large General Service-Transmission	154,185,832	4.97%	0.82	170,247,762	143,672,107	30,845,967	3,070,119	65,428	939,741	22,981,960	14.31%
6	40	Inspiration	1,274,789	7.12%	1.09	1,203,546	849,122	189,171	209,784	8,843	9,515	92,738	7.36%
7	15/58	Street & Area Lighting	2,420,608	8.07%	1.32	2,439,461	619,833	66,349	1,560,573	123,226	23,068	(406)	-0.02%
8	210	Inspiration	274,211	6.76%	1.13	290,842	184,026	43,598	56,769	510	4,028	22,731	8.29%
9	207,211,212	Street & Area Lighting	601,650	10.23%	1.71	486,589	71,651	17,561	383,496	10,829	4,391	(17,369)	-3.46%
10	313	Traffic Signs, Outdoor Lgt	7,159	1.53%	0.26	9,971	2,205	889	1,557	881	44	1,712	23.91%
11	Total	State of Wyoming	519,179,279	5.98%	1.00	579,767,176	402,137,783	89,345,541	72,965,616	7,590,559	3,277,325	50,697,896	10.96%

Line No.	Schedule No.	Description	Total Cost of Service	NON-ECAM Cost of Service	ECAM Cost of Service	Generation Cost of Service	NON-ECAM Own Cost of Service	ECAM Own Cost of Service	Transmission Cost of Service	NON-ECAM Trans. Cost of Service	ECAM Trans. Cost of Service
1	2	Residential	113,943,919	89,116,647	34,927,271	69,623,266	29,406,876	31,516,393	14,626,427	11,165,548	3,410,879
2	25	Small General Service	31,088,466	20,764,158	10,324,308	18,290,520	9,039,689	9,250,831	4,417,462	3,379,007	1,038,455
3	28	General Service	108,118,831	89,812,223	42,526,208	71,380,863	37,619,699	36,714,204	18,271,574	12,459,331	3,812,043
4	45	Large General Service	140,674,778	74,889,672	65,785,106	100,143,632	48,058,976	60,284,759	22,926,892	17,086,445	5,828,447
5	46T	Large General Service-Transmission	170,247,762	85,902,848	82,344,947	143,672,107	61,639,704	82,032,402	30,845,967	23,517,472	7,312,514
6	40	Inspiration	1,274,789	849,516	514,029	849,122	399,711	469,389	189,171	145,324	66,546
7	15/58	Street & Area Lighting	2,420,608	3,002,462	437,059	619,833	209,437	410,476	65,149	65,768	25,892
8	210	Inspiration	274,211	179,645	117,047	184,026	87,174	105,855	41,548	33,568	18,233
9	207,211,212	Street & Area Lighting	486,589	430,897	53,672	71,651	22,812	51,789	13,581	9,889	2,323
10	313	Traffic Signs, Outdoor Lgt	8,171	4,845	3,325	5,390	1,681	3,709	889	668	221
11	Total	State of Wyoming	675,787,175	311,823,353	243,963,822	407,137,763	179,389,825	277,876,678	89,345,541	69,109,892	21,082,648

Footnotes:
 Column C Annual Present Revenues based on March 2013 forecast.
 Column D Calculated Return on Ratebase per March 2013 forecasted Embedded Cost of Service Study
 Column E Rate of Return Index Rate of return by rate schedule, divided by Wyoming Jurisdiction's normalized rate of return
 Column F Calculated Full Cost of Service at Jurisdictional Rate of Return per the March 2013 forecasted Embedded COS Study
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 Column J Calculated Distribution Cost of Service at Jurisdictional Rate of Return per the March 2013 forecasted Embedded COS Study
 Column K Calculated Retail Cost of Service at Jurisdictional Rate of Return per the March 2013 forecasted Embedded COS Study
 Column L Calculated Misc Distribution Cost of Service at Jurisdictional Rate of Return per the March 2013 forecasted Embedded COS Study
 Column M Total Increase or Decrease Required to Move from Present Annual Revenue to Full Cost of Service Dollars.
 Column N Total Percentage Increase or Decrease Required to Move from Present Annual Revenue to Full Cost of Service Percent.
 Column O Calculated Total NON-ECAM Cost of Service at Jurisdictional Rate of Return per the March 2013 forecasted Embedded COS Study
 Column P Calculated Total ECAM Cost of Service at Jurisdictional Rate of Return per the March 2013 forecasted Embedded COS Study
 Column Q Calculated Total NON-ECAM Generation Cost of Service at Jurisdictional Rate of Return per the March 2013 forecasted Embedded COS Study
 Column R Calculated Total NON-ECAM Transmission Cost of Service at Jurisdictional Rate of Return per the March 2013 forecasted Embedded COS Study
 Column S Calculated Total NON-ECAM Distribution Cost of Service at Jurisdictional Rate of Return per the March 2013 forecasted Embedded COS Study
 Column T Calculated Total NON-ECAM Retail Cost of Service at Jurisdictional Rate of Return per the March 2013 forecasted Embedded COS Study
 Column U Calculated Total NON-ECAM Misc Distribution Cost of Service at Jurisdictional Rate of Return per the March 2013 forecasted Embedded COS Study

Rocky Mountain Power
 Exhibit RMP__(CCP-2R)
 Docket No. 20000-405-ER-11
 Witness: C. Craig Paice

BEFORE THE WYOMING PUBLIC SERVICE
 COMMISSION

ROCKY MOUNTAIN POWER

Exhibit Accompanying Rebuttal Testimony of C. Craig Paice
 Cost of Service by Rate Schedule All Functions

May 2012

Cost of Service by Rate Schedule All Functions

Cost of Service by Rate Schedule All Functions
 May 2012
 Rocky Mountain Power

Category	A	B	C	D	E	F	G	H	I	J	K	L	M
Account	Account	Account	Account	Account	Account	Account	Account	Account	Account	Account	Account	Account	Account
Account	Account	Account	Account	Account	Account	Account	Account	Account	Account	Account	Account	Account	Account
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**THIS EXHIBIT IS VOLUMINOUS
AND IS PROVIDED UNDER
SEPARATE COVER**

