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**BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI**

In the Matter of Union Electric
Company, d/b/a Ameren Missouri's
Tariff to Increase Its Annual
Revenues for Electric Service

Case No. ER-2011-0028
Tariff No. YE-2011-0116

Rebuttal Testimony and Schedules of

Maurice Brubaker

on Revenue Requirement and
Class Cost of Service Issues

On behalf of

Missouri Industrial Energy Consumers

March 25, 2011



BRUBAKER & ASSOCIATES, INC.
CHESTERFIELD, MO 63017

Project 9371

Downey Exhibit No. 405
Date 5/15/11 Reporter *ALB*
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**Maurice Brubaker
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- 1 6. OPC's proposal to allocate the margin earned from OSS on a demand basis has
2 previously been rejected by the Commission and should continue to be rejected in
3 this case.
- 4 7. Staff's classification of generation system operation and maintenance ("O&M")
5 expense is similar to Ameren Missouri's classification and should be rejected for
6 the reasons explained in my direct testimony. OPC's allocation is closer to mine,
7 but still contains inappropriate allocations of certain costs.

8

CLASS COST OF SERVICE ISSUES

9 **Q HAVE YOU REVIEWED THE TESTIMONY OF COMMISSION STAFF WITNESSES**
10 **MICHAEL SCHEPERLE AND OPC WITNESSES RYAN KIND AND BARBARA**
11 **MEISENHEIMER ON THE SUBJECT OF CLASS COST OF SERVICE?**

12 **A** Yes.

13 **Q DO YOU HAVE REBUTTAL TO THE POSITIONS OF THESE WITNESSES?**

14 **A** Yes, I do. I disagree with the methods which these witnesses have used for the
15 allocation of production and transmission fixed costs and with respect to the
16 allocation of certain other components of the cost of service. The allocation of the
17 generation fixed costs is the largest and most important of these issues, and I will
18 address it first.

19 **OPC's Study**

20 **Q WHAT METHOD HAS OPC USED FOR THE ALLOCATION OF GENERATION**
21 **FIXED, OR DEMAND-RELATED, COSTS?**

22 **A** OPC's recommended method is an A&P allocation method. In particular, OPC uses
23 the four monthly coincident peak demands of each customer class along with each
24 class's annual energy consumption. The energy component is weighted equal to the

1 system's annual load factor. The result is to give only about 43% weighting to the
2 contributions to the four monthly coincident peaks, and 57% weighting to annual
3 energy consumption.

4 **Q DOES OPC EXPLAIN THE BASIS FOR SELECTING THIS ALLOCATION**
5 **METHODOLOGY?**

6 A No. While OPC explains the basis for the use of the four peaks, it does not explain or
7 attempt to justify why this particular averaging method is appropriate for Ameren
8 Missouri.

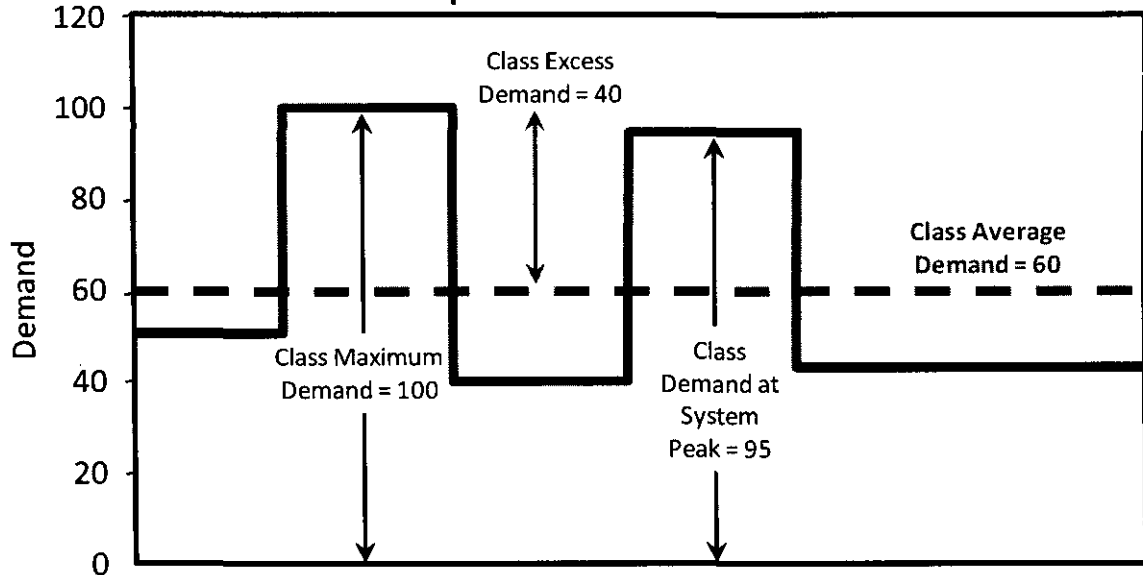
9 **Q HOW DOES THE A&P ALLOCATION METHODOLOGY DIFFER FROM THE**
10 **AVERAGE AND EXCESS ("A&E") METHODOLOGY THAT YOU AND AMEREN**
11 **MISSOURI USED IN YOUR CCOS STUDIES?**

12 A OPC's A&P allocator is constructed by multiplying each class's energy responsibility
13 factor (average demand) times the system load factor, and adding that result to each
14 class's percentage contribution to the class peaks multiplied by the quantity one
15 minus the load factor.

16 Both the A&P and A&E methods are two-step processes. In both methods,
17 the first step is to weight the average demand by the system load factor. The second
18 step is where the difference occurs. This is illustrated in Figure 1.

Figure 1

Components of Allocation Factor



1 Q PLEASE REFER TO FIGURE 1 AND EXPLAIN THE DIFFERENCES.

2 A Figure 1 is a simplified representation of a class load. The maximum demand of this
3 particular class is represented as 100. Its contribution at the time of the system peak
4 is 95, its average demand is 60, and the excess demand (the difference between its
5 peak demand and its average demand) is 40.

6 As explained in more detail beginning at page 24 of my direct testimony on
7 cost of service, the A&E method combines the class average demand with the class
8 excess demand in order to construct an allocation factor that reflects average use as
9 well as the excess of each class's maximum demand over its average demand. The
10 A&E allocation factor is developed using the average demand (60) and the excess
11 demand (40) for this class, along with the corresponding demands for all other
12 classes. (This is shown in detail on Schedule MEB-COS-3 attached to my direct
13 testimony on cost of service.)

1 OPC's A&P method, on the other hand, combines the average demand with
2 the class monthly peak demands. As is evident from Figure 1, the average demand
3 (60) is a component or sub-set of the class peak demand (100) and of the class load
4 coincident with the system peak (95). Accordingly, in the A&P method when roughly
5 equal weighting is given to the average demand and the contribution to system peak
6 demand, the average demand is double-counted. This is a serious error, and has the
7 effect of allocating significantly more costs to high load factor customers than is
8 appropriate.

9 **Q IS THE A&P METHOD A REASONABLE ONE TO USE?**

10 **A** No, it is not. As noted above, this allocation gives more weighting to annual energy
11 consumption than to the class peaks used in the allocation of the investment in
12 generation facilities. Since generation facilities must be designed to carry the peak
13 loads imposed on them, the heavy weighting given to energy consumption in the
14 allocation factor is not related to cost of service at all.

15 Unlike the A&E method, which considers class individual peaks and class load
16 factors, as well as diversity between class peaks and system peak, the A&P method
17 arbitrarily allocates about half of these costs on annual energy consumption.

18 **Q WHAT METHODOLOGY DID STAFF ADVOCATE FOR JURISDICTIONAL**
19 **DEMAND ALLOCATION IN A RECENT KCPL RATE CASE, CASE NO. ER-2006-**
20 **0314?**

21 **A** In that case, KCPL had proposed a 12 monthly coincident peak allocation
22 methodology for dividing costs between the Kansas retail jurisdiction, the resale
23 jurisdiction and the Missouri retail jurisdiction. Staff witnesses presented extensive

1 testimony demonstrating why summer peak demands were more important than
2 demands in other months, and advocated a method which used only demands
3 imposed on the system during the summer months.

4 Staff took a similar position in the current KCPL case, Case
5 No. ER-2010-0355.

6 **Q DO KCPL AND AMEREN MISSOURI HAVE A SIMILAR LOAD PATTERN?**

7 A Yes. This is displayed graphically on Schedule MEB-COS-R-1. Clearly, the load
8 patterns are quite similar, with dominant summer loads. Use of summer peak
9 demands in the allocation is clearly as appropriate in the case of Ameren Missouri as
10 it was in the case of KCPL.

11 **Q ISN'T IT TRUE THAT THE STAFF'S ARGUMENTS IN THE KCPL CASE WERE IN**
12 **THE CONTEXT OF JURISDICTIONAL, AND NOT CLASS, ALLOCATIONS?**

13 A Yes. The issue arose first in the context of revenue requirements, i.e., when
14 considering allocation of costs among jurisdictions. However, the same principles
15 that justify the use of summer peak demands for jurisdictional allocation compel the
16 use of that methodology when allocating among customer classes.

17 In fact, an appropriate identification of cost-causing peaks is even more
18 important at the class level than at the jurisdictional level. This is because the
19 differences among retail customer class load patterns are much greater than the
20 differences between jurisdictional load patterns. Accordingly, a failure to
21 appropriately distinguish these load characteristics at the class level would introduce
22 even more distortions into the results than is true when the regulatory jurisdictions are
23 viewed in total and compared one with another.

1 Q HAVE YOU REVIEWED OPC'S TREATMENT OF NON-FUEL GENERATION
2 SYSTEM O&M EXPENSE?

3 A Yes. Mr. Kind states on pages 3 and 4 of his direct testimony that he followed the
4 "commonly accepted practice in CCOS studies of having expenses follow plant" and
5 then explained that this means that O&M costs are allocated in the same manner as
6 the corresponding plant.

7 Q DID MR. KIND FOLLOW THIS TREATMENT FOR NON-FUEL GENERATION O&M
8 EXPENSE?

9 A No, not entirely. From his workpapers it appears that he did apply this method for the
10 allocation of non-fuel generation O&M expense associated with steam, nuclear and
11 hydro facilities. However, for the category of other generation, he allocated a
12 significant amount of the expenses on the energy factor rather than on the demand
13 allocation factor.

14 I agree with his allocation of generation non-fuel O&M expenses for steam,
15 nuclear and hydro facilities on the demand allocation factor, but disagree with his
16 allocation of the other generation expenses for reasons I explained in my direct
17 testimony on cost of service.

18 Q HOW DID MR. KIND ALLOCATE THE MARGIN EARNED FROM OSS?

19 A He allocated this margin based on class demand allocation factors, which is
20 inconsistent with this Commission's recent findings that this margin should be
21 allocated on the basis of class energy sales.

1 **Staff's Study**

2 **Q WHAT METHOD DID COMMISSION STAFF USE FOR THE ALLOCATION OF**
3 **GENERATION FIXED, OR DEMAND-RELATED, COSTS?**

4 A Mr. Scheperle states that he has used something called the Base, Intermediate and
5 Peaking ("BIP") method. In fact, however, Mr. Scheperle has applied what I think is
6 best described as an alternative version of the BIP method. The BIP method
7 described in the NARUC Cost Allocation Manual and as proposed to be implemented
8 in the KCPL rate case, Case No. ER-2010-0355, develops separate allocation factors
9 for different categories of plant. The BIP method is not an accepted method in the
10 industry and rarely has been used, or even proposed. In fact, the principal proponent
11 of the BIP method in the KCPL rate case was only able to identify one instance in the
12 30 years that he had been proposing the BIP method that it had been adopted by a
13 public service commission.

14 **Q HOW DOES MR. SCHEPERLE'S MODIFIED BIP DIFFER FROM THE BIP**
15 **METHOD DESCRIBED IN THE NARUC COST ALLOCATION MANUAL AND AS**
16 **PROPOSED FOR IMPLEMENTATION IN THE KCPL CASE?**

17 A In Mr. Scheperle's alternate BIP application, he devises a composite allocation factor
18 using a combination of class average demands, class 12 monthly non-coincident
19 peak demands and class three summer month non-coincident peak demands. At
20 each stage of the development of the allocation factor components, he subtracts the
21 demands associated with the previously determined component from the total so as
22 to avoid double counting. The resulting factor is applied to all generation fixed costs.
23 Because of the way that the BIP allocation factor was constructed in this case, the
24 end result is comparable to traditional allocation methods such as the A&E method.

1 Accordingly, while I disagree with the fundamental premise of BIP methods, Mr.
2 Scheperle has implemented it in this case in a way that produces results consistent
3 with generally accepted allocation methods.

4 **Q HOW HAS STAFF CLASSIFIED GENERATION SYSTEM NON-FUEL O&M**
5 **EXPENSES?**

6 A Mr. Scheperle has essentially followed the classification proposed by Ameren
7 Missouri. For reasons discussed in my direct testimony on cost of service, I disagree
8 with this classification.

9 **Symmetry of Fuel and Capital Cost Allocation**

10 **Q DO YOU HAVE ANY DISAGREEMENT WITH THE ALLOCATION OF FUEL AND**
11 **VARIABLE PURCHASED POWER COSTS ON THE BASIS OF CLASS ENERGY**
12 **REQUIREMENTS, ADJUSTED FOR LOSSES?**

13 A In the context of traditional studies like coincident peak and A&E, I do not. However,
14 in the context of the non-traditional studies like A&P and others, which heavily weight
15 energy in the allocation of fixed or demand-related generation costs, it is not
16 appropriate.

17 **Q PLEASE EXPLAIN WHY IT IS NOT APPROPRIATE TO ALLOCATE ENERGY**
18 **COSTS IN THIS FASHION WHEN USING NON-TRADITIONAL STUDIES SUCH AS**
19 **A&P AND OTHERS.**

20 A These studies allocate significantly more generation fixed costs to high load factor
21 customers than do the traditional studies. In other words, the higher the load factor of
22 a class, the larger the share of the generation fixed costs that gets allocated to the

1 class. If the costs allocated to classes under these methods were divided by the
2 contribution of these classes to the system peak demand, or by the A&E demand, the
3 result is a higher capital cost per kW for the higher load factor classes, and a lower
4 capital cost per kW for the low load factor classes. Effectively, this means that the
5 high load factor classes have been allocated an above-average share of capital cost
6 for generation, and the low load factor customer classes have been allocated a below
7 average share of capital costs.

8 Given these allocations of capital cost, it would not be appropriate to use the
9 same fuel costs for all classes. Rather, the fuel cost allocation should recognize that
10 the higher load factor customer classes should receive below average fuel cost to
11 correspond to the above-average capital cost (similar to base load units) allocated to
12 them, and the lower load factor classes should get an allocation of fuel costs that is
13 above the average, corresponding to the lower than average capital cost (i.e.,
14 peaking units) allocated to them.

15 **Q WHY WOULD IT BE APPROPRIATE TO RECOGNIZE A LOWER FUEL COST**
16 **ALLOCATION TO THOSE CLASSES THAT ARE ALLOCATED A HIGHER**
17 **CAPITAL COST?**

18 **A** It is not only appropriate, but it is essential if heavily energy-weighted allocations of
19 generation costs are employed. Failure to make this kind of distinction would give
20 high load factor customers the worst of both worlds – above-average capital costs
21 and average energy costs; and the low load factor customers the best of both
22 worlds – below average capital cost and average fuel cost.

1 **Q HAVE YOU PERFORMED ANY CALCULATIONS AND DEVELOPED A**
2 **SCHEDULE TO ILLUSTRATE THIS?**

3 A Yes, I have. Please refer to page 1 of Schedule MEB-COS-R-2 attached to this
4 testimony. This schedule compares the capacity costs per kW and the energy costs
5 per kilowatthour ("kWh") across classes for the traditional A&E allocation method and
6 the A&P method. To establish a common framework of costs for the analysis, so as
7 to isolate the impacts just of allocation methodology, I used the total generation
8 capacity costs and total generation energy costs from Staff's cost of service study and
9 applied my allocation factors (traditional) as well as OPC's demand and energy
10 allocators to these total amounts. I then divided the results by the A&E capacity kW
11 and by the class megawatthours ("MWh").

12 **Q PLEASE EXPLAIN WHAT THIS SCHEDULE SHOWS.**

13 A The top part of the schedule shows that under traditional allocation methods the
14 capacity costs per kW and the energy costs per kWh allocated to each class are the
15 same.

16 The bottom part shows the allocation results under OPC's A&P method. Note
17 that the impact is to allocate significantly more capital costs, in fact, 21% more to the
18 Large Primary class and 45% more to the Large Transmission class than under the
19 traditional approaches, which allocate average capacity costs to all classes. Note
20 also that fuel costs per kWh are essentially the same for all classes.

21 Page 2 of Schedule MEB-COS-R-2 graphically shows the skewing under the
22 A&P method.

1 **Q YOU INDICATED THAT THE ENERGY COSTS PER KWH ARE THE SAME**
2 **UNDER THESE ALLOCATIONS. HOW DIFFERENT ARE THE ENERGY COSTS**
3 **OF THE DIFFERENT GENERATING FACILITIES?**

4 **A**They are quite diverse. For example, the fuel cost for the Callaway nuclear unit is
5 about 0.6¢ per kWh, the base load coal plants have fuel costs in the range of 1.4¢ to
6 1.9¢ per kWh, the more efficient peaking units have fuel costs of 4¢ to 7¢ per kWh,
7 and other peakers have costs that are 12¢ and higher. (Note: These fuel costs are
8 taken from AmerenUE's 2009 FERC Form 1 report.) Obviously, if some classes are
9 allocated higher capacity costs than others, they should be entitled to at least an
10 above-average share of the energy output from the higher capital cost, more fuel
11 efficient, base load type generating units, which would make their fuel cost per kWh
12 lower than average. The allocation methods advanced by Staff and OPC do not
13 recognize this correspondence, and as a result over-allocate costs to high load factor
14 customers.

15 **Q WHAT SHOULD BE CONCLUDED FROM SCHEDULE MEB-COS-R-2?**

16 **A**This schedule clearly demonstrates that the non-traditional methods like A&P are
17 highly non-symmetrical. They burden high load factor classes with above-average
18 capacity costs, but do not allow them to benefit from the lower cost of energy that
19 goes with the higher capacity costs. No theory supports this result and these flawed
20 studies are entitled to no weight.

1 **FUEL ADJUSTMENT CLAUSE**

2 **Q HAVE YOU REVIEWED THE COMMISSION STAFF REPORTS THAT ADDRESS**
3 **FUEL AND PURCHASED POWER COST RECOVERY ISSUES?**

4 **A** Yes.

5 **Q DOES STAFF PROPOSE ANY CHANGE IN THE LENGTH OF RECOVERY IF**
6 **ACTUAL FUEL COSTS DIFFER FROM FUEL COST IN BASE RATES?**

7 **A** Yes. The FAC is discussed beginning at page 105 of the Staff's Revenue
8 Requirement report. At page 118 of the report, Staff recommends reducing the
9 recovery period from 12 months to eight months in order to "reduce regulatory lag."

10 **Q DO YOU AGREE WITH THIS CHANGE?**

11 **A** No, I do not. Staff has not provided any support for changing this 12-month period.
12 The 12-month period for recovery/refund was developed as a joint recommendation
13 of the parties in the case in which the FAC was first approved for Ameren Missouri. It
14 has the benefit of moderating the adjustment by spreading out any recovery/refund
15 over a full calendar year. Since there is no way to know in advance during what
16 months of the calendar year over- or under-recoveries will occur, a 12-month
17 recovery period is neutral and avoids concentrating this reconciliation in a shortened
18 period where some classes could have a disproportionate share of usage.

1 amortization that was stipulated to in the rate case for the second group of
2 expenditures. For the additional expenditures being addressed in this case, it is
3 appropriate to apply a ten-year amortization period, for the reasons discussed
4 beginning at page 14 of my direct testimony on revenue requirement issues.

5 **Q WHAT IS STAFF'S BASIS FOR THE SIX-YEAR AMORTIZATION OF ALL DSM**
6 **EXPENDITURES?**

7 A At page 45 of the Staff's Revenue Requirement report, this recommendation is
8 attributed to Staff witness Rogers.

9 **Q HAVE YOU REVIEWED MR. ROGERS' BASIS FOR THIS RECOMMENDATION?**

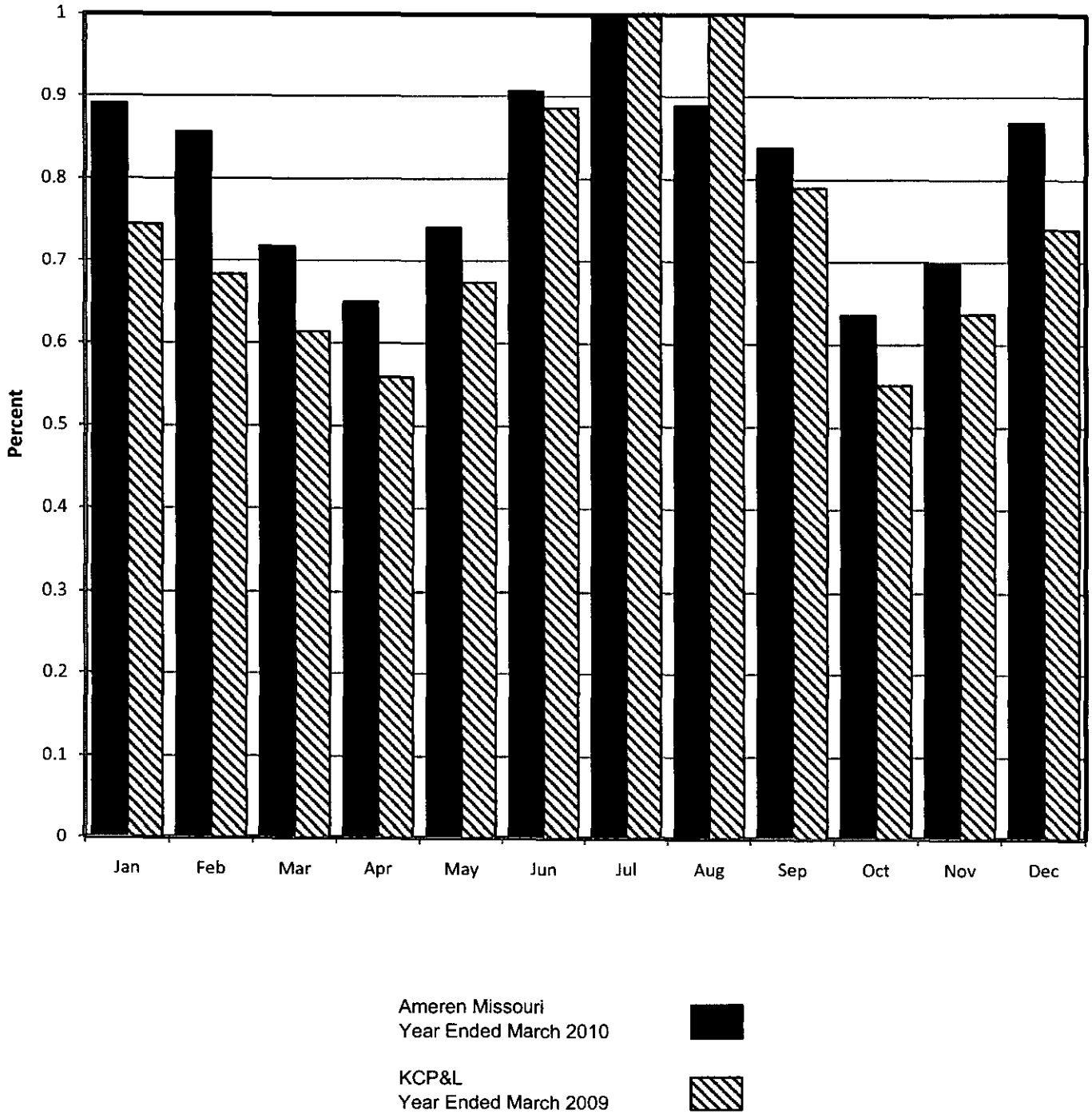
10 A I looked for a justification, or even a discussion, attributed to Mr. Rogers (or any other
11 Staff member) for this amortization period but could not find any such discussion.
12 Accordingly, Staff has not supported its recommendation.

13 **Q WHAT DOES MDNR PROPOSE FOR DSM COST RECOVERY?**

14 A At page 11 of her testimony, MDNR witness Laura Wolfe proposes to expense DSM
15 costs. She wants to "encourage" utilities to spend money on DSM and proposes
16 expensing, pending the availability of a demand-side program investment mechanism
17 ("DSIM") under the rules adopted by the Commission pursuant to the Missouri Energy
18 Efficiency Act ("MEEA").

Ameren Missouri

Comparison of Ameren Missouri and Kansas City Power & Light Company Analysis of Monthly Peak Demands as a Percent of the Annual System Peak



AMEREN MISSOURI

**CUSTOMER CLASS GENERATION CAPACITY COSTS PER KW
AND ENERGY COSTS PER KWH UNDER TRADITIONAL METHODS
MIEC AS COMPARED TO OPC PROPOSAL**

MIEC COST OF SERVICE STUDY

<u>Customer Class</u>	<u>Traditional Avg. & Excess CCOS</u>			
	<u>Capacity Rev Req.</u>		<u>Energy Rev Req.</u>	
	<u>Capacity Costs \$ per KW</u>	<u>% Difference From System Avg.</u>	<u>Energy Costs ¢ per kWh</u>	<u>% Difference From System Avg.</u>
Total	124		2.88	
Res	124	0%	2.88	0%
SGS	124	0%	2.88	0%
LGS/SPS	124	0%	2.88	0%
LPS	124	0%	2.88	0%
LTS	124	0%	2.88	0%
Lighting	124	0%	2.88	0%

OFFICE OF PUBLIC COUNSEL COST OF SERVICE STUDY

<u>Customer Class</u>	<u>OPC Avg. and Peak CCOS</u>			
	<u>Capacity Rev Req.</u>		<u>Energy Rev Req.</u>	
	<u>Capacity Costs \$ per KW</u>	<u>% Difference From System Avg.</u>	<u>Energy Costs ¢ per kWh</u>	<u>% Difference From System Avg.</u>
Total	124		2.88	
Res	115	-7%	2.90	0%
SGS	112	-10%	2.90	0%
LGS/SPS	129	4%	2.90	0%
LPS	150	21%	2.90	0%
LTS	180	45%	2.90	0%
Lighting ¹	N/A	N/A	N/A	N/A

¹ OPC Cost of Service Study did not allocate lighting costs to a Lighting class.

Ameren Missouri
Illustration of Skewed Allocation of Capital Costs and
Energy Costs Under OPC's Allocation Proposal.

