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Sponsoring Party: The Commercial Group
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Case No.: ER-2007-0002
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**BEFORE
THE MISSOURI PUBLIC SERVICE COMMISSION**

CASE NO. ER-2007-0002

Rebuttal Testimony of Kevin C. Higgins

on behalf of

The Commercial Group

Cost-of-Service / Rate Design

February 5, 2007

Commercial
Group Exhibit No. 853
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TABLE OF CONTENTS

Introduction.....	1
Overview and Conclusions.....	1
Revenue Apportionment.....	3
Distribution Cost-of-Service and Customer-Related Costs.....	5
Production Cost of Service Methodology.....	10

1 **REBUTTAL TESTIMONY OF KEVIN C. HIGGINS**

2

3 **Introduction**

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

5 A. Kevin C. Higgins, 215 South State Street, Suite 200, Salt Lake City, Utah,
6 84111.

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

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

11 **Q. On whose behalf are you testifying in this proceeding?**

12 A. My testimony is being sponsored by The Commercial Group. The
13 Commercial Group is comprised of the Missouri locations of Lowe's Home
14 Centers, Inc.; Wal-Mart Stores East, LP; and J.C. Penney Corporation, Inc.

15 **Q. Are you the same Kevin C. Higgins who pre-filed direct testimony in the**
16 **Revenue Requirement phase of this proceeding?**

17 A. Yes, I am.
18

19 **Overview and Conclusions**

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

21 A. My testimony responds to: (1) the revenue apportionment
22 recommendations presented in the direct testimony of Staff witness James A.
23 Busch; (2) the proposals by Office of Public Counsel ("OPC) witness Barbara A.

1 Meisenheimer and AARP witness Ronald J. Binz to ignore customer-related costs
2 in allocating distribution plant for FERC Accounts 364-368; and (3)
3 recommendations to use the Peak and Average method for allocating production
4 cost-of-service, as proposed by Ms. Meisenheimer and Mr. Binz.

5 **Q. What conclusions and recommendations do you offer based on your**
6 **analysis?**

7 A. I offer the following conclusions and recommendations:

8 (1) I recommend that the Commission adopt a revenue apportionment, or rate spread,
9 in this proceeding that moves customer classes toward rates that are closer to cost-
10 of-service. In particular, I recommend that some movement toward cost should be
11 adopted for the LGS class, contrary to Staff's recommendation. The class cost-of-
12 service analyses performed by AmerenUE, Staff, and MIEC witness Maurice
13 Brubaker each demonstrate that the Company is over-recovering costs from the
14 LGS rate class relative to the jurisdictional average; in two of the studies the
15 revenue neutral downward adjustment that is warranted for this class is in excess
16 of 10 percent. This unmistakable pattern indicates that some adjustment toward
17 cost-of-service for this class is warranted.

18 (2) I recommend that the Commission reject the proposals of OPC witness Barbara
19 A. Meisenheimer and AARP witness Ronald J. Binz to ignore customer-related
20 costs in allocating distribution plant associated with FERC Accounts 364-368.
21 The proposed treatment of these accounts by Ms. Meisenheimer and Mr. Binz is
22 inconsistent with the guidelines published by the National Association of

1 Regulatory Utility Commissioners in the “Electric Utility Cost Allocation
2 Manual” and would result in an unwarranted cost shift to commercial customers.
3 (3) I recommend that the Commission reject the proposals of Ms. Meisenheimer and
4 Mr. Binz to use the Peak and Average method for allocating fixed production
5 cost. The Peak and Average method is an analytically-flawed approach that
6 double-counts class demand during peak periods. Instead, I recommend that the
7 Commission approve the adoption of the “Average and Excess Demand” method,
8 versions of which are presented both by AmerenUE and by MIEC witness
9 Maurice Brubaker. The Average and Excess Demand method allocates a portion
10 of fixed production cost on an energy basis – as does Peak and Average – but it
11 does not suffer from the analytical shortcomings of the Peak and Average method.

12

13 **Revenue apportionment**

14 **Q. What did Mr. Busch recommend with respect to revenue apportionment, or**
15 **rate spread?**

16 **A.** Mr. Busch reviewed the results of Staff’s class cost-of-service study and
17 noted that the study indicates that the following revenue adjustments would
18 exactly align each class’ revenues with its cost-of-service: Res, -9.50%; SGS, -
19 17.46%; LGS, -14.05%; LPS +5.73%; and LTS, +0.98%. Subtracting Staff’s
20 overall revenue reduction from these results produces revenue neutral rate shifts
21 as follows: Res, +0.44%; SGS, -7.52%; LGS, -4.11%; LPS +15.67%; and LTS,
22 +10.92%.

1 Based on this information, Mr. Busch concludes that only two classes
2 should experience a rate change that differs from an across-the board equal
3 percentage change: SGS and LPS.

4 **Q. Do you agree with this recommendation?**

5 A. No, I do not. In particular, I believe that some effort should be made to
6 move the LGS class closer to its cost-of-service. Mr. Busch concludes that
7 because this class was within 5 percent of its cost-of-service, no movement toward
8 cost is necessary. I note that Staff's study shows LGS as warranting a 4.11 percent
9 reduction on a revenue neutral basis, so it is just within Mr. Busch's threshold.
10 Further, Ameren's class cost-of-service study, which follows nationally accepted
11 standards, shows LGS as warranting a revenue neutral reduction of 10.34
12 percent.¹ In addition, the class cost-of-service study prepared by MIEC witness
13 Maurice Brubaker – which also adheres to nationally recognized standards –
14 shows LGS as warranting a revenue neutral rate decrease of between 10.7 and
15 11.6 percent.² The pattern here is unmistakable: the Company is over-recovering
16 costs from the LGS rate class relative to the jurisdictional average, and some
17 adjustment toward cost-of-service for this class is warranted.

18 **Q. Do you have a specific recommendation in this regard?**

19 A. In my direct testimony I recommended a specific revenue apportionment
20 based on the Company's class cost-of-service study. My recommendation moves
21 classes closer to their respective costs-of-service, while recognizing the value of

¹ See Table KCH-3 in my direct testimony (COS), which summarizes the Company's cost-of-service results.

² Schedule MEB-COS-4 and MEB-COS-5.

1 mitigating the rate impact on the Residential class, which warrants a significant
2 revenue neutral increase according to the Company's study. I continue to
3 recommend that the final revenue apportionment move classes closer to cost-
4 based rates.

5
6 **Distribution Cost-of-Service and Customer-Related Costs**

7 **Q. What aspect of distribution cost-of-service are you addressing in your**
8 **rebuttal?**

9 A. I am addressing the appropriate treatment of customer-related costs in the
10 allocation of distribution plant. Both OPC witness Barbara A. Meisenheimer and
11 AARP witness Ronald J. Binz ignore customer-related costs in allocating
12 distribution plant associated with FERC Accounts 364-368. Instead, each
13 allocates cost responsibility for these accounts strictly on the basis of demand.
14 This treatment is inconsistent with the guidelines published in the Electric Utility
15 Cost Allocation Manual by the National Association of Regulatory Utility
16 Commissioners ("NARUC Manual") and results in an unwarranted cost shift to
17 commercial customers. I recommend that the treatment of these accounts
18 proposed by Ms Meisenheimer and Mr. Binz be rejected.

19 **Q. Do other studies filed in this case recognize that some portion of the plant**
20 **included in Accounts 364-368 is customer-related?**

21 A. Yes. In their respective cost-of-service studies, both AmerenUE and Staff
22 recognize that a portion of distribution plant associated with FERC Accounts 364-
23 368 should be classified as customer-related. I recommend that the Commission

1 adopt the cost allocation treatment of these accounts as proposed either by the
2 Company or Staff.

3 **Q. What type of distribution plant is included in Accounts 364-368?**

4 A. Account 364 covers poles, towers, and fixtures. Account 365 is comprised
5 of overhead conductors and devices; Accounts 366 and 367 are comprised of
6 underground circuits, conductors, and devices, and Account 368 is comprised of
7 line transformers.

8 **Q. What does the NARUC Manual state with respect to the classification of**
9 **these costs?**

10 A. The NARUC Manual is unequivocal on this point. Table 6-1 of the
11 NARUC Manual lists the cost classification components for each distribution
12 plant account. Accounts 364-368 are each identified as having customer-related
13 and demand-related cost characteristics. Regarding the proper recognition of the
14 customer component of these costs, the manual states: "The customer component
15 of distribution facilities is that portion of costs which varies with the number of
16 customers. Thus the number of poles [Account 364], conductors [Accounts 365-
17 367], transformers [Account 368], services, and meters are directly related to the
18 number of customers on the utility's system."³ [Brackets added.]

19 **Q. Do you agree with the prescription in the NARUC manual to classify some**
20 **portion of Accounts 364-368 as customer-related?**

21 A. Absolutely. As the manual states, the greater the number of customers a
22 distribution utility is attempting to serve, the more poles, conductors, and line

³ NARUC Electric Utility Cost Allocation Manual, 1992, p. 90.

1 transformers it is going to require. Failure to recognize this fact will severely
2 distort cost allocation.

3 **Q. How do you respond to Mr. Binz's argument that this approach does not**
4 **account for differences in the density of customers?**

5 A. The fact that distribution costs may differ with varying densities of
6 customer population is not a valid reason for ignoring customer-related costs.
7 Greater or lesser density of customers may affect the amount of the per-customer
8 investment in plant that is required, but it does not alter the fact that a significant
9 portion of distribution plant is built to reach customers – irrespective of the size of
10 these customers. All things being equal, a denser concentration of customers will
11 be reflected in a smaller amount of plant costs to allocate in the first instance; this
12 does not change the fact that the distribution plant – whether serving a relatively
13 dispersed or highly-concentrated population – was built in order to reach
14 individual customers – whether small or large.

15 **Q. Does allocating Accounts 364-368 simply on the basis of demand address Mr.**
16 **Binz's alleged concerns about properly reflecting the density of customers?**

17 A. Not at all. Mr. Binz criticizes the Company's classification of poles,
18 conductors, and transformers as partially customer-related on the grounds that
19 customer density is not properly accounted for in the analysis, but then goes on to
20 classify all of these facilities as entirely demand-related. In so doing, of course,
21 Mr. Binz entirely ignores density issues himself. His remedy bears no relationship
22 to his critique. It is a non-sequitur.

1 **Q. How do you respond to Mr. Binz's criticism that the zero-intercept method**
2 **utilized by the Company is invalid because it is based on a "fictional or**
3 **hypothetical" distribution system?**

4 A. The costs that are allocated to the customer classes in the Company's
5 distribution cost-of-service study are those of the *actual* distribution system. In
6 order to *classify* the costs it is necessary to make analytical assumptions about that
7 system. This is comparable to the process of classifying a portion of the utility's
8 production plant as "energy-related" and another portion as "capacity-related" –
9 an exercise that Mr. Binz engages in without reservation later in his testimony.

10 **Q. Do you have any comments on Mr. Binz's statement that the zero-intercept**
11 **method shifts the Company's revenue requirement away from large**
12 **distribution customers such as Large General Service and Primary General**
13 **Service toward the Residential customer class?**

14 A. I suggest that the attempt to shift costs is originating with Mr. Binz, and he
15 is attempting to shift them in the opposite direction, i.e., from residential to
16 commercial customers. It is simply not credible to maintain that the miles of
17 conductors and numerous line transformers serving a residential subdivision are
18 really somehow caused by the level of distribution demand needed to serve
19 commercial customers.

20 **Q. Do you have any other observations about Mr. Binz's testimony on this**
21 **subject?**

22 A. Yes. Mr. Binz's discussion of this cost allocation issue is commingled
23 with his discussion of rate design issues, i.e., his preference for smaller customer

1 charges for residential customers. It is important to make a careful distinction
2 between these issues: a preference for a smaller customer charge as a matter of
3 rate design should not be the basis for shifting cost responsibility among customer
4 classes.

5 **Q. Do you have any recommendations as to how this debate can be resolved in**
6 **the longer term?**

7 A. Yes. The development of sophisticated data management tools is now
8 allowing utilities to track the deployment of their distribution plant at a highly-
9 granular level. This tracking, in turn, is providing utilities with the information
10 necessary to directly assign a significant portion of distribution plant cost
11 responsibility to the classes that are using these facilities. This direct assignment
12 can properly be made when the distribution plant inventory is matched with the
13 individual customers being served by the plant in question. For example, a recent
14 study performed by Puget Sound Energy shows that even though most of its line
15 transformers are used by more than one customer, a large portion of individual
16 transformers – approximately 85 percent – are being used exclusively by only one
17 customer class.⁴ This information allows a large proportion of line transformer
18 costs to be directly assigned to the classes that have exclusive use of the
19 transformers, rather than relying on a cost allocation metric such as customer
20 count or class demand.

21 I recommend that AmerenUE be encouraged to develop the data bases
22 necessary to make such direct assignment of plant possible in future cases, which

⁴ These results were presented before the Washington Utilities and Transportation Commission in Docket Nos. UE-040641 and UG-040640, a proceeding in which I participated as a witness.

1 would limit the need to allocate costs to only those facilities that are used jointly
2 by more than one class.

3

4 **Production Cost of Service Methodology**

5 **Q. You stated that Ms. Meisenheimer and Mr. Binz advocate for the use the**
6 **Peak and Average method to allocate fixed production costs across customer**
7 **classes. Can you briefly characterize this method?**

8 A. The Peak and Average method is described in the NARUC Manual, which
9 classifies it as a "Judgmental Energy Weighting" approach. According to the
10 Peak and Average method, fixed production cost is allocated based on a
11 combination of each class' share of energy usage, as well as each class' share of
12 coincident peak demand. In applying this method, class energy consumption is
13 typically expressed as "average demand."⁵ (Average demand is simply annual
14 energy divided by the number of hours in the year.)

15 As I will demonstrate below, the Peak and Average method contains a
16 significant analytical flaw. This flaw results in a double-counting of average
17 demand during the system peak month(s). As a result, the method does not
18 properly assign the cost of the incremental amount of production plant used to
19 serve the system peak to the users at system peak.

20 **Q. Please explain the analytical flaw in the Peak and Average method.**

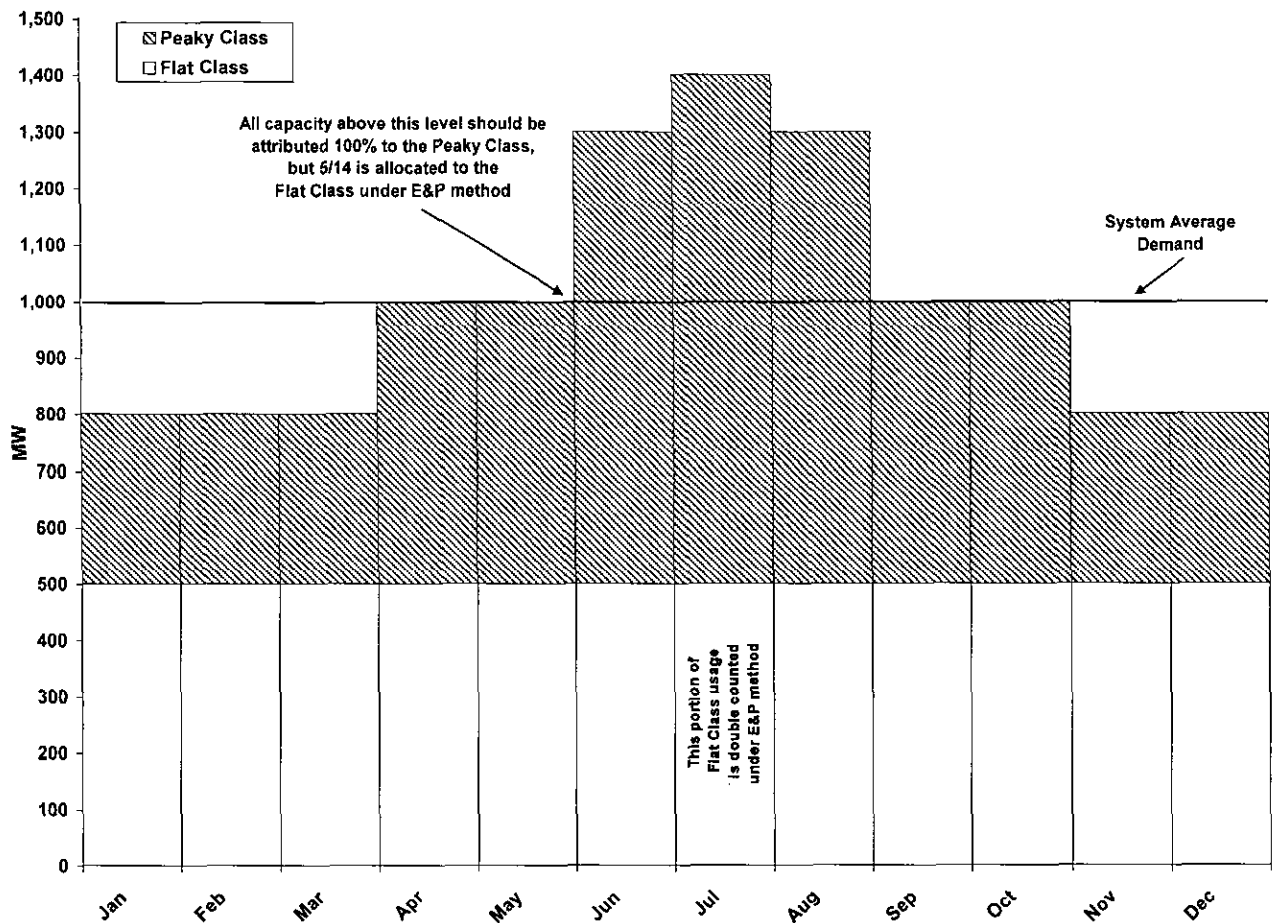
21 A. We can use a simple example to illustrate the Peak and Average method
22 and its fatal flaw. Assume we have two customer classes: Flat and Peaky. To

⁵ This gives rise to the name "Peak and Average."

highlight the underlying drivers of the Peak and Average method, let us assume that the Flat class has a constant load of 500 MW throughout the year. Let us further assume that the load pattern of the Peaky class is as follows: January-March: 300 MW; April-May: 500 MW; June: 800 MW; July: 900 MW; August: 800 MW; September-October: 500 MW; and December: 300 MW. This example is illustrated in Figure KCH-1, below.

Figure KCH-1

Peak and Average Allocation Method: Illustrative Example



1 Figure KCH-1 shows the monthly demand of the Flat class at the bottom
2 of the diagram. The monthly demand of the Peaky class is stacked on top of the
3 Flat class' demand, such that the sum of the two constitutes the total demand for
4 the system. The average demand of each of these classes is 500 MW, resulting in
5 an average demand for this two-class system of 1000 MW. Accordingly, the Peak
6 and Average method will allocate each of these classes 50 percent of the
7 responsibility for the energy, or average demand, portion of costs.

8 The system peak demand of 1400 MW occurs in July. It is clear in this
9 example that all of the incremental capacity required above the system average of
10 1000 MW demand is attributable to the needs of the Peaky class – after all, the
11 load of the Flat class is, of course, flat. But the Peak and Average method will not
12 allocate the full cost of this incremental capacity to the Peaky class. Instead, it
13 will allocate these incremental costs in accordance with the share of each class'
14 demand during the peak month of July; that is, the Flat class will be allocated 5/14
15 of the incremental cost and the Peaky class will be allocated 9/14 of the
16 incremental cost. Put another way, even though all of the Flat class' usage during
17 July has already been accounted for in the allocation of average demand, the Flat
18 class will be allocated an additional 5/14 of the costs of the incremental capacity
19 above system average demand when the July peak demand is apportioned. This
20 additional allocation occurs because the Peak and Average method allocates
21 capacity costs based on total demand during July – not just the excess above
22 average demand, even though average demand has already been fully allocated in
23 the first step. This additional allocation is the double-counting to which I referred

1 previously in my testimony. In my opinion, this double-counting amounts to a
2 fatal analytical flaw in the Peak and Average method.

3 **Q. How can this double-counting be avoided?**

4 A. This problem can be avoided through the use of the Average and Excess
5 Demand method, which uses the same allocation treatment of energy, or average
6 demand, as the Peak and Average method, but treats differently the incremental
7 capacity requirements above average demand. Under the Average and Excess
8 Demand method, the incremental amount of production plant that is required to
9 meet loads that are above average demand is properly assigned to the users who
10 create the need for the additional capacity.

11 **Q. How does the Average and Excess Demand method apportion responsibility**
12 **for incremental production plant that is required to meet loads that are**
13 **above average demand?**

14 A. The Average and Excess Demand method allocates the cost of capacity
15 above average demand in proportion to each class' excess demand, where excess
16 demand is measured as the difference between each class' individual peak
17 demand⁶ and its average demand. By focusing on excess demand, this method
18 avoids the double-counting of average demand that occurs in the Peak and
19 Average method.

20 **Q. How would the Average and Excess Demand method allocate the capacity**
21 **above average demand in your illustrative example?**

⁶ A class' individual peak demand is often referred to as "Class Non-Coincident Peak Demand" or "Class NCP."

1 A. The capacity above excess demand would be allocated in proportion to
2 each class' share of excess demand. In this example, the individual peak of the
3 Flat class is the same as its excess demand; that is, its excess demand is zero. The
4 individual peak for the Peaky class is 900 MW, which translates into a class
5 excess demand of 400 MW (i.e., 900 MW - 500 MW), which, of course, is also
6 the entirety of the excess demand on this system. Thus, the Peaky class is
7 allocated all of the cost associated with incremental capacity above average
8 demand.

9 **Q. What is your recommendation to the Commission on this issue?**

10 A. I recommend that the Commission reject the proposals of Ms.
11 Meisenheimer and Mr. Binz to use the Peak and Average method for allocating
12 fixed production cost. The Peak and Average method is an analytically-flawed
13 approach that double-counts class demand during peak periods. Instead, I
14 recommend that the Commission approve the adoption of the "Average and
15 Excess Demand" method, versions of which are presented both by AmerenUE
16 and by MIEC witness Maurice Brubaker. The Average and Excess Demand
17 method allocates a portion of fixed production cost on an energy basis – as does
18 Peak and Average – but does not suffer from the analytical shortcomings of the
19 Peak and Average method.

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

21 A. Yes, it does.

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

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.

Case No. ER-2007-0002

AFFIDAVIT OF KEVIN C. HIGGINS

STATE OF UTAH

COUNTY OF SALT LAKE

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

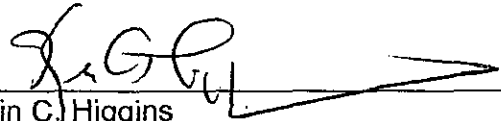
1. He is a Principal with Energy Strategies, L.L.C., in Salt Lake City, Utah;
2. He is the witness who sponsors the accompanying testimony entitled

"*Rebuttal* 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 12 day of December, 2006,
by Kevin C. Higgins.


Notary Public

My Commission No.: 7

My Commission Expires: 3-28-10

(SEAL)

