

Exhibit No.:
Issue: Class Cost of Service Study, Revenue Allocation, Rate Design
Witness: Kavita Maini
Type of Exhibit: Rebuttal Testimony
Sponsoring Parties: MECCG
Case No.: ER-2019-0374
Date Testimony Prepared: March 9, 2020

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

**In the Matter of The Empire District
Electric Company of Joplin, Missouri for
Authority to File Tariffs Increasing Rates
for Electric Service Provided to
Customers in the Missouri Service Area of
the Company**)
)
)
) **File No. ER-2019-0374**
) **Tariff No. YE-2020-0029**
)
)
)

Rebuttal Testimony and Schedules of

Kavita Maini

On behalf of

MIDWEST ENERGY CONSUMERS GROUP

March 9, 2020



Protecting Your Bottom Line

KM ENERGY CONSULTING, LLC

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

In the Matter of The Empire District Electric)
Company for Authority to File Tariffs Increasing)
Rates for Electric Service Provided to Customers) Case No. ER-2019-0374
in the Company's Missouri Service Area)

STATE OF WISCONSIN)
) SS
COUNTY OF WAUKESHA)

AFFIDAVIT OF KAVITA MAINI

Kavita Maini, being first duly sworn, on her oath states:

1. My name is Kavita Maini. I am a consultant with KM Energy Consulting, LLC. having its principal place of business at 961 North Lost Woods Road, Oconomowoc, WI 53066. I have been retained by the Midwest Energy Consumers' Group ("MECG") in this proceeding on its behalf.
2. Attached hereto and made a part hereof for all purposes are my rebuttal testimony and schedules which were prepared in written form for introduction into evidence in Missouri Public Service Commission Case No. ER-2019-0374
3. I hereby swear and affirm that the testimony and schedules are true and correct and that they show the matters and things that they purport to show.

Kavita Maini

Subscribed and sworn to before me this 9th day of March, 2020

Notary Public

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

_____)
In the Matter of The Empire District)
Electric Company of Joplin, Missouri)
for Authority to File Tariffs Increasing) **File No. ER-2019-0374**
Rates for Electric Service Provided to) **Tariff No. YE-2020-0029**
Customers in the Missouri Service)
Area of the Company)
_____)

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SCHEDULE KM-R4: MECG A&E 6NCP COSS RESULTS SUMMARY

1 **Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?**

2 A. The purpose of my rebuttal testimony is to (a) address issues related to the Company’s
3 and Staff’s COSS methodologies, (b) provide COSS results using Staff’s revenue
4 requirements and (c) address Staff’s rate design recommendations applicable to the LP
5 and SC-P classes. The fact that I do not address any particular issue should not be
6 interpreted as my implicit approval of any position taken by the Company or Staff on
7 that issue.

8
9 **II. SUMMARY**

10
11 **Q. PLEASE SUMMARIZE YOUR REBUTTAL TESTIMONY AND**
12 **RECOMMENDATIONS.**

13 A. The following is a summary of my rebuttal testimony and recommendations:

14
15 **Section III: Class Cost of Service Study Methods Summary**

16
17 **A. Company’s COSS**

- 18
19 a) I support the Company’s use of the average and excess (“A&E”) methodology to
20 allocate fixed production plant related costs with two exceptions:
21
22 • First, the Company uses the average of class non-coincident peaks from all 12 months
23 (“12NCP”) thereby placing equal weight on each of the months. Such an approach
24 dampens cost causation by not recognizing that the primary cost driver for acquiring
25 generation capacity are the highest demands, and also results in under allocating costs
26 to the cost causing weather sensitive loads (pages 7-8).
27
28 • Second, the load factor is calculated incorrectly in the context of the Company’s A&E
29 methodology and results in over-estimating the allocators for classes that are energy
30 intensive and under-estimating the allocators for classes that have higher variability. I
31 recommend that the Company make this correction to its COSS in its surrebuttal
32 testimony (pages 8-9).
33
34 b) While I support the Company’s classification method for certain distribution plant
35 related costs (for FERC accounts 364-368) as customer and demand related, allocating
36 the demand related costs on the basis of 6 class NCPs dampens the primary cost
37 causative factor, i.e., class’ maximum demands, that the Company recognized in the

1 past. I believe that the Company's prior method, which is also my recommended
2 approach and that used by other Missouri utilities such as Ameren, more appropriately
3 recognizes the cost causative drivers and should be implemented (pages 9-10).
4

5 **B. Staff's COSS**

6

- 7 **a) Allocation of Fixed Production Plant Related Costs.** Staff utilizes class
8 contribution to the highest 100 hours, which includes a non-representative load profile
9 for the SC-P class. While I continue to believe that the established and mainstream
10 A&E method such as the one I recommended in direct testimony is the more
11 appropriate approach and should be adopted, if Staff prefers the highest hours
12 approach, I recommend that (a) the SC-P load profile be corrected and (b) the class
13 contribution to the highest 51 hours, representing peak demands within 10% of the
14 system peak, be used (pages 11-13).
15
- 16 **b) Classification of Certain Distribution Plants Related Costs (FERC 364-368).**
17 Staff utilized the Zero Intercept method for classifying certain distribution plant
18 related costs assigned to FERC accounts 364, 366 and 368. There are wide
19 differentials between Staff's results using this statistical method versus the Company's
20 minimum size approach, which uses actual data. This wide disparity is contrary to the
21 NARUC manual which indicates that the differences should be typically small, and
22 symptomatic that Staff may not be considering all the costs. Further, some results are
23 statistically unreliable. I conclude that Staff needs to vet its analysis further and
24 should not utilize it in this case. Staff is relying on the Company's minimum size
25 classification methods for costs assigned to FERC accounts 365 and 367. I
26 recommend that the Company's minimize size classification approach be applied to all
27 applicable distribution plant related costs (pages 13-15).
28
- 29 **c) Miscellaneous and Unassignable Cost Category.** Staff has included several costs
30 items in this category including, but not limited to, general and intangible plant,
31 administrative and general expenses and materials and suppliers. These costs are
32 allocated on the basis of the energy allocator. Allocation on this basis is unwarranted.
33 In the past case, Staff did not consider such costs miscellaneous and allocated them
34 based on factors that were more reflective of cost causation than using the energy
35 allocator. I recommend that Staff use these previous allocators for such categories in
36 this case (pages 15-16).
37

38 **Section IV: Class Cost of Service Study Results Summary**

39

40 After incorporating the recommended adjustments to Staff's COSS models with and
41 without the tax credits, the results¹ indicate the following:
42

¹ In this testimony I attempt to compare Staff's COSS allocation methodologies with my methodologies using Staff's recommended revenue requirement reduction. The COSS results contained in my direct testimony are based upon Company's recommended revenue requirement increase.

- 1 • From a directional standpoint, both Staff and my COSS show class rates of return
2 (“ROR”) higher than the system average for the CB/SH, GP/TEB and LP classes
3 respectively. However, the magnitude varies. For example, my LP class ROR’s are
4 higher than Staff’s results and the revenue reductions needed at equalized ROR are
5 roughly double that of Staff’s results (pages 17-21).
6
- 7 • Similarly, both Staff and my COSS show a residential class ROR that is lower than the
8 system average. Once again, the magnitude varies, as my COSS shows a lower ROR
9 for this class as compared to Staff and the revenue increases needed are substantially
10 higher compared to Staff’s results. In other words, the residential class revenue is
11 significantly below costs to serve under my COSS results (pages 17-21).
12
- 13 • The biggest difference from a directional standpoint is that Staff’s COSS produces a
14 SC-P class ROR that is lower than the system average and my results show a ROR for
15 this class that is above the system average. Consequently, while my COSS shows that
16 this class should get a substantial revenue reduction (similar to the LP class), Staff’s
17 results indicate otherwise (pages 17-21).
18

19 The COSS results using my recommended A&E 6NCP allocator in conjunction with
20 Staff’s recommended revenue requirement, in place of Staff’s highest 51 hours
21 allocator, lead to comparable results.
22

23 **Section V: Revenue Allocation Summary**

24 Staff’s recommended revenue allocation relies in large part of Staff’s COSS results.
25 However, as discussed in this testimony, Staff COSS model had a number of issues
26 that needed to be addressed. I recommend therefore, that the revenue allocation
27 approach should either rely on Staff’s COSS, as adjusted, consistent with this
28 testimony, or my A&E 6NCP approach. Further, consistent with what I stated in
29 direct testimony, I continue to recommend greater movement towards cost. If there is
30 a rate reduction comparable to that recommended by Staff, then more aggressive steps
31 should be taken to align class responsibility with cost responsibility. If the decrease is
32 smaller, then the Commission should consider, in an effort to bring classes closer to
33 cost of service, not maintaining each class’ portion of the tax rider credits (page 22).
34

35 **Section VI: Rate Design for the LP and SC-P Classes Summary**

36
37 Staff’s limits on decreasing the energy charges are too stringent because while the load
38 weighted and loss adjusted LMPs are about \$0.03/kWh, the recommended energy
39 charges are still much higher. Specifically, Staff’s recommended energy charges in
40 the tail block remain 14-18% above its suggested energy charge limit. Further, Staff
41 recommends a 21% reduction in the customer, demand and facilities charges, which
42 does not result in efficient pricing signals due to (a) existing under recovery of costs
43 through these charges and (b) known forthcoming investments that will raise these
44 charges. As a result of these factors, it makes more sense to maintain these fixed
45 charges at current levels and instead, allocate the entirety of any revenue decrease to

1 lowering the energy charges. I recommend this same approach for the LP and SC-P
2 classes (pages 23-25).

3
4
5 **III. CLASS COST OF SERVICE STUDY METHODS**

6
7 **A. Liberty- Empire's COSS Methodology**

8
9 **Q. ON PAGE 14 OF YOUR DIRECT TESTIMONY, YOU INDICATED THAT**
10 **YOU WOULD ADDRESS ISSUES RELATED TO THE COMPANY'S COSS**
11 **METHDOLOGY. WHAT ARE THESE ISSUES?**

12 A. The two specific issues are the Company's allocators used to allocate: (1) fixed
13 production plant-related costs and (2) certain distribution plant-related costs to
14 customer classes.²

15
16 **Q. PLEASE EXPLAIN THE ISSUES ASSOCIATED WITH THE COMPANY'S**
17 **ALLOCATION OF FIXED PRODUCTION PLANT.**

18 A. The Company uses the Average and Excess demand ("A&E") method, which is used
19 by all Missouri investor owned utilities and is the method that I used to allocate fixed
20 production plant-related costs to classes. The A&E approach considers the load
21 profile of customer classes by incorporating the class maximum demands, load factor
22 and average energy use. To summarize and as indicated on pages 18 and 19 of my
23 direct testimony:

24 The A&E Demand method consists of an average demand
25 component and an excess demand component. The average demand
26 component is calculated by dividing the energy usage of each class
27 by the number of hours in a year (8,760 for a non-leap year). The
28 excess component is calculated as the difference between the
29 customer class' maximum non-coincident peak or peaks and the
30 average demand. The average demand component for each class is

² Since I already addressed the Company's treatment of interruptible load and allocation of SB564 costs in my direct testimony, I do not repeat these issues here.

1 weighted by the system load factor and the excess component for
2 each class is weighted by 1-load factor.

3
4 While I support the Company's use of the A&E approach, there are two exceptions.

5
6 **Q. WHAT IS YOUR FIRST CONCERN WITH THE COMPANY'S A&E**
7 **APPROACH?**

8 A. First, as explained at pages 15-20 of my direct testimony, I calculated my A&E
9 allocator based upon the average class non-coincident peaks for the highest 6 months.
10 This was done because Empire constructs generation to meet system peak and I
11 believe that the 6 monthly peaks within 10% of the highest peak would factor into this
12 construction decision. The peaks in the remaining 6 months would be secondary to
13 the highest six months and should not be used to calculate the A&E methodology. In
14 contrast, the Company uses the average of class non-coincident peaks from all 12
15 months ("12NCP") thereby placing equal weight on each of the months. Such an
16 approach dampens cost causation by not recognizing that the primary cost driver for
17 acquiring generation capacity are the highest demands, thereby resulting in an under
18 allocation of costs to the cost causing weather sensitive loads. As demonstrated in my
19 direct testimony (page 17), Liberty-Empire is a winter and summer peaking and the
20 class demands imposed in both these seasons are the primary cost causing demands to
21 build or acquire more generation and should be given more weight. Further, in
22 contrast to its reliance on 12 monthly peaks for purposes of allocating fixed production
23 costs here, the Company places more importance on just the highest winter peak and
24 the highest summer peak in making generation acquisition decisions in its Integrated
25 Resource Plan. (See Executive Summary, Figure 1.4 in the Company's Resource Plan

1 in docket EO-2019-0049 shown as KM Exhibit – R1). Finally, I also note that with
2 respect to managing generation outages and from an operating reserves standpoint,
3 since the Company is a market participant of the Southwest Power Pool (“SPP”), there
4 should be more efficiency due to reserve sharing within the SPP footprint as well as
5 generation outage coordination. Thus, I believe that instead of 12NCP, my
6 recommended A&E method with the class average of 6NCP in the summer and winter
7 peaking months (with peaks within 10% of the highest peak) appropriately places
8 higher importance on the peaking months and therefore better represents cost
9 causation.

10
11 **Q. WHAT IS YOUR SECOND CONCERN WITH THE COMPANY’S A&E**
12 **APPROACH?**

13 A. With regards to the calculation of the A&E allocation, the Company used an incorrect
14 divisor to calculate the load factor, which is used to weight the average and excess
15 components. As shown in the NARUC manual, the load factor calculation is average
16 demand (which is MWh/8,760 hours) divided by the 1CP or the system peak.³ Instead
17 of using the system peak as the denominator, the Company used the average of the 12
18 coincident peaks.⁴ The Company’s method leads to a load factor of 55% compared to
19 the corrected load factor of 47.35%. The end result is that the average component for
20 each class is weighed more heavily under the Company’s approach than appropriate
21 and results in over-estimating the allocators for those classes that are energy intensive
22 and under-estimating the allocators for those classes that have higher variability.

³ See NARUC Manual, page 82.

⁴ See Company COSS model spreadsheet, Tabs: Demand Data and Demand Allocators.

Table 1 shows the difference in class allocators. I recommend that the Company make this correction to its COSS in its surrebuttal testimony.

Table 1: Company’s A&E12 NCP Corrected for Load Factor

LIBERTY- EMPIRE DATA AND A&E12NCP ALLOCATOR							
	Peak Demand	Average	Excess	Average	Excess	Total	MECG
	12 NCP	Demand	Demand	Demand	Demand	Allocator	Corrected for Load Factor
Rate Class	(MW)	(MW)	(MW)	(%)	(%)	(%)	
RG-Residential	502,707	204,996	297,710	39.90%	56.79%	47.51%	48.79%
CB-Commercial	83,218	38,826	44,391	7.56%	8.47%	7.97%	8.04%
SH-Small Heating	21,343	10,422	10,921	2.03%	2.08%	2.05%	2.06%
GP-General Power	184,960	106,226	78,734	20.67%	15.02%	18.13%	17.70%
SC-P PRAXAIR Transmission	8,421	8,210	211	1.60%	0.04%	0.90%	0.78%
TEB-Total Electric Bldg	78,027	43,933	34,094	8.55%	6.50%	7.63%	7.47%
PFM-Feed Mill/Grain Elev	195	52	143	0.01%	0.03%	0.02%	0.02%
LP-Large Power	147,847	96,700	51,147	18.82%	9.76%	14.74%	14.05%
MS-Miscellaneous	17	17	0	0.00%	0.00%	0.00%	0.00%
SPL-Municipal St Lighting	5,748	2,749	3,000	0.53%	0.57%	0.55%	0.55%
PL-Private Lighting	4,488	1,585	2,904	0.31%	0.55%	0.42%	0.44%
LS-Special Lighting	1,077	94	983	0.02%	0.19%	0.09%	0.11%
Total	1,038,048	513,810	524,238	100.00%	100.00%	100.00%	100.00%

Q. PLEASE EXPLAIN THE ISSUES ASSOCIATED WITH THE COMPANY’S ALLOCATION OF CERTAIN DISTRIBUTION PLANT-RELATED COSTS TO CUSTOMER CLASSES.

A. The distribution system associated with equipment designated under FERC accounts 364-368, such as poles and towers, overhead conductors and devices, underground conduit, underground conductors and devices and line transformers, are classified as both customer and demand-related. The Company’s classification approach is reasonable and based on a minimum size system approach to recognize the dual function of the these facilities: being capable of delivering service to customers (customer-related costs) and ensuring that the distribution system is large enough to provide reliable service (demand-related costs). The single exception is that in allocating the demand-related costs to customers, the Company modified its previous method of using the class non-coincident peak (“1NCP”) and instead used the average

1 of six class non-coincident peaks or 6NCP occurring in the months of December
2 through February and June through August. Using the average of 6 class NCPs
3 dampens the primary cost causative factor that drives the sizing of the distribution
4 facilities – customers’ maximum demands. This is because when designing primary
5 and secondary distribution feeders, sufficient conductor and transformer capacity must
6 be available to meet the maximum customer loads at the primary and secondary
7 distribution service levels, whenever the maximum demands occur. By sizing it in this
8 manner, the distribution infrastructure necessarily accommodates all demands lower
9 than the maximum demands. For example, the primary reason that the facility demand
10 is ratcheted in LP rates (i.e., based on the maximum customer demand over a twelve
11 month period) is to recognize that the distribution facilities being used, are sized to
12 accommodate the maximum demands, whenever they occur. Each class’ single non-
13 coincident peak demand is therefore a more reasonable indicator to reflect the cost
14 causing characteristic of building the distribution-related infrastructure discussed
15 above. Therefore, I believe that the Company’s prior method, which is also my
16 recommended approach and that used by other Missouri utilities such as Ameren,
17 more appropriately recognizes the cost causative drivers and should be implemented.

18
19 **B. Staff’s COSS Methodology**

20
21 **Q. WHAT ISSUES DO YOU ADDRESS WITH RESPECT TO STAFF’S COSS**
22 **METHODOLOGY?**

23 A. I address the following:

- 24
25 • Allocation of fixed production plant-related costs to classes;
26
27 • Classification of distribution plant related to FERC accounts 364-368; and

- 1
- 2 • Allocation of costs in category entitled “ Miscellaneous and Unassignable Costs”
- 3
- 4

5 **1. Allocation of Fixed Production Plant-Related Costs**

6

7 **Q. WHAT METHOD DID STAFF USE TO ALLOCATE FIXED PRODUCTION**

8 **PLANT-RELATED COSTS TO CLASSES?**

9 A. Staff used the “highest hours” method, which consists of sorting the system hourly

10 peaks in a year from the highest to the lowest and using class contributions to each

11 hour of a total of 100 hours to derive the fixed production cost allocator. Staff

12 indicated in part, that this method “helps mitigate concerns with the reliability of the

13 hourly load data, as less emphasis is placed on the reliability of a relatively small

14 number of hours than would occur using more simplistic traditional capacity allocation

15 methods.” While Staff considered allocators based on the top 12 hours (representing

16 95% of system peak) to 310 hours (representing 80% of system peak), Staff’s

17 subjective judgement was that using the 100 highest hours was reasonable.

18

19 **Q. PLEASE COMMENT ON STAFF’S RECOMMENDED METHOD FOR TO**

20 **ALLOCATING FIXED PRODUCTION PLANT COSTS TO CLASSES.**

21 A. At the outset, it is important to stress that the traditional capacity allocation methods,

22 such as the A&E method, though less complex in application than Staff’s approach, is

23 a mainstream and well established method that has been widely used and tested over

24 time and has been adopted by utilities in Missouri and elsewhere. The method does

25 not rely on just a few hours. Rather, it incorporates class maximum demands, load

26 factor and average demand or energy usage in calculating a composite allocator by

27 class. Importantly, load factor and average demand are based upon the usage for all

1 hours. Thus, I continue to believe that the A&E approach such as the one I
2 recommended in direct testimony is the more appropriate approach and should be
3 adopted. However, if Staff prefers using the highest hours approach as a result of data
4 reliability issues, I recommend the following:

- 5 • Modify SC-P class load profile to reflect its profile based on billing data; and
- 6 • Use the contribution to the highest 51 hours, which represents system demands
7 within 10% of the system peak demand.

8
9 **Q. PLEASE EXPLAIN YOUR MODIFICATION TO THE SC-P CLASS LOAD**
10 **PROFILE**

11 A. Staff imputed SC-P class hourly load profile based on the hourly load shape of the LP
12 class. However, the load profile of the SC-P is unique and draws no correlation to the
13 load profile of the LP class. While the LP class shows some variability in demand, the
14 SC-P class demonstrates a very flat load profile with load factor over 95%.
15 Consequently, the SC-P hourly load profile cannot be correctly imputed from the LP
16 class load profile. In order to correct for this issue and be conservative, I replaced
17 Staff's data for the SC-P class with the highest demand for each applicable month
18 after adjusting for losses (reflected as the facility demand charge).⁵ Any difference
19 between Staff's imputed profile and my modified profile for this class was then
20 assigned to the LP class in order to limit the impact of this change.

21

⁵ As a practical matter, since SC-P class has a very flat load profile, the difference between the monthly billed demand and facility demand is not significant (See Workpapers of Staff Witness B.Murray for Praxair monthly data).

1 Q. REGARDING YOUR SECOND CONCERN, PLEASE EXPLAIN WHY THE
2 ALLOCATOR SHOULD BE BASED ON THE HIGHEST 51 HOURS.

3 A. The highest 51 hours represent all hours within 10% of the system peak and is
4 therefore consistent with my criteria of using the peaks in the A&E 6NCP method as
5 well as with the NARUC manual.⁶

6
7 Q. PLEASE EXPLAIN HOW STAFF’S HIGHEST HOURS APPROACH WOULD
8 CHANGE IF IT WAS BASED UPON 51 HOURS INSTEAD OF STAFF’S
9 RECOMMENDED 100 HOURS.

10 A. Table 2 shows the comparison of Staff’s recommended allocator (based on the highest
11 100 hours) as well as Staff’s and my allocator using the top 51 hours.

12
13 **Table 2: Staff v. MECCG Allocator Based on Highest Hours**
14

	Hours	Residential	CB/SH	GP/TEB	Large Power	Feed & Grain	SC-P	Lighting
Staff - 87% of Peak	100	48.7664%	10.3855%	26.1872%	13.4408%	0.0098%	1.1171%	0.0931%
Staff - 90% of Peak	51	49.1203%	10.3220%	26.0510%	13.3171%	0.0097%	1.1069%	0.0730%
MECCG- 90% of Peak	51	49.1203%	10.3220%	26.0510%	13.4618%	0.0097%	0.9621%	0.0730%

15
16
17 A comparison of Staff’s allocators using the highest 51 hours (or hours within 10% of
18 the peak) with my modified allocator reinforces that the SC-P profile modification
19 only impacts the allocators for the SC-P and LP classes as described earlier.

20
21 **2. Classification of distribution plant related to FERC accounts 364-368**

22
23 Q. WHAT IS STAFF’S METHOD FOR CLASSIFYING DISTRIBUTION PLANT-
24 RELATED TO FERC ACCOUNTS 364-368?

⁶ The NARUC manual indicates “all hours of the year within 5% or 10% of the system peak demand as a criteria for choosing the number of hours.” See page 46.

1 A. Similar to the Company, Staff also correctly recognizes that the distribution system
2 associated with equipment designated under FERC accounts 364-368 (such as poles
3 and towers, overhead conductors and devices, underground conduit, underground
4 conductors and devices and line transformers) serve a dual purpose of connecting
5 customer to the distribution network (referred to as customer-related) and fulfilling the
6 demand needs of customers (referred to as demand-related). However, unlike the
7 Company's minimum system ("MS") approach of using actual data to classify the
8 costs in each of these FERC accounts as customer and demand-related, Staff utilized a
9 different method called the Zero-intercept (ZI") method, which uses statistical
10 techniques to extrapolate this classification. Staff classified costs in FERC accounts
11 364, 366 and 368 using this methodology. The costs in the two remaining FERC
12 accounts, 365 and 367 appear to have been classified in accordance with the
13 Company's approach.

14 **Q. WHAT IS THE ZERO-INTERCEPT METHOD?**

15 A. Aside from the minimum system approach, the ZI method is another method
16
17 recognized by the NARUC manual for classifying certain distribution plant. On page
18 92, the NARUC manual provides the following description regarding this method:
19

20
21 The minimum-intercept method seeks to identify that portion of plant
22 related to a hypothetical no-load or zero-intercept situation. This
23 requires considerably more data and calculation than the minimum
24 size method. In most instances, it is more accurate, although the
25 differences maybe relatively small. The technique is to relate
26 installed costs to current carrying capacity or demand rating, create a
27 curve for various sizes of the equipment involved, using regression
28 technique, and extend the curve to a no-load intercept. The cost
29 related to the zero-intercept is the customer component (page 92)
30

1 **Q. PLEASE COMMENT ON STAFF’S RECOMMENDED APPROACH.**

2
3 A. As quoted above, the NARUC manual indicates that the differences in results between
4 the MS and ZI methods should be relatively small. However, in the categories where
5 Staff used the ZI method, the differences are very significant. For example, for
6 Account 364, Staff’s method would classify only 22.6% or \$44 million as customer-
7 related, whereas the Company’s MS method shows that 53.1% or approximately \$104
8 million should be classified as customer-related – the difference is more than two fold.
9 Similarly, in the case of transformer costs in Account 368, Staff estimates that only
10 9.8% of the costs or approximately \$11 million are customer-related versus the
11 Company’s results at 43% or about \$48 million – the different here is more than four
12 fold. Staff analysis is either not incorporating all the costs or is using inconsistent
13 comparisons. For example, regarding Account 368, Staff’s regression analysis shows
14 that the “no-load” number is negative, which suggests that a negative percentage of
15 costs are customer-related.⁷ Such a result is not reliable. Given these observations, I
16 believe that overall, Staff needs to vet its analysis further and should not utilize those
17 results in this case.

18
19 **3. Allocation of costs in category entitled “ Miscellaneous and Unassignable Costs”**

20
21 **Q. WHAT ARE SOME ITEMS THAT STAFF ASSIGNS AS MISCELLANEOUS**
22 **AND UNASSIGNABLE COSTS?**

23 A. While there are several cost categories, some of the largest items are: Intangible and
24 General Plant (\$112.6 Million), Administrative & General (\$43.8 Million), and
25 Materials and Supplies (\$31.6 million).

⁷ See Kliethermes Working Papers, Minimum Study.xlsx (tab 368)

1 **Q. HOW DOES STAFF ALLOCATE THESE COSTS TO CLASSES?**

2

3 A. Staff uses the energy allocator to allocate these costs to classes.

4

5

6 **Q. SHOULD THESE COSTS BE ALLOCATED ON THE BASIS OF THE**
7 **ENERGY ALLOCATOR?**

8 A. No. Staff's overreliance on the energy allocator is unwarranted.⁸ In the past case,
9 Staff did not consider such costs miscellaneous and allocated them based on factors
10 that were more reflective of cost causation than using the energy allocator. Schedule
11 KM-R2 shows a listing of the allocators used for these categories. I recommend that
12 Staff use the previous allocators for such categories in this case.

13

14 **Q. PLEASE SUMMARIZE YOUR RECOMMENDATIONS REGARDING**
15 **STAFF'S COSS?**

16 A. To summarize, I recommend the following modifications to Staff's COSS:

17

- 18 • Utilize the A&E production allocator or, in the alternative, revise Staff's highest
19 hours production cost allocator such that it reflects the adjustment to SC-P class
20 load and uses class contribution to the highest 51 hours;
- 21 • Modify the classification of distribution costs in FERC Accounts 364, 366 and 368
22 to reflect the classification split utilized by the Company;
- 23 • At a minimum, allocate cost categories such General Plant, Administrative &
24 General, and Materials and Supplies using allocator types from Staff's COSS in
25 the previous case in Docket No: ER-2016-0023.

⁸ The reliance on the energy allocator is punitive to high load factor classes such as the LP class that use energy in a more efficient manner (i.e., use a greater number of kilowatt hours for each kilowatt of demand). For example, the residential class has variability in its load profile and the LP class has a much more consistent load profile pattern as shown on Figure 3 of Mr. Timothy Lyons direct testimony on page 7.

1 **IV. CLASS COST OF SERVICE STUDY RESULTS**

2
3 **Q. WHAT IS STAFF'S ADJUSTED REVENUE REQUIREMENT?**

4
5 A. Staff's results indicate that the Company's total cost of service is approximately \$492
6 million, and after netting for the jurisdictional portion of other revenues, the rate
7 schedules should be revised to produce revenues of approximately \$448.9 million, a
8 reduction of \$36.4 million. The Company's current tariffed rates on an annualized and
9 normalized basis produce revenues of \$467.5 million after adjusting for the temporary
10 tax rider related credits of \$17.8 million.

11
12 **Q. DID YOU PREPARE COSS RESULTS USING STAFF'S REVENUE**
13 **REQUIREMENT AND AFTER ADJUSTING STAFF'S COSS WITH YOUR**
14 **RECOMMENDATIONS?**

15 A. Yes, I did. Staff's workpapers included two COSS models in order to show the
16 impacts on each class' rates of return at current tariffed rate revenues, with and
17 without the impact of the temporary tax rider. In order to show an apples-to-apples
18 comparison with Staff's results, I used both models and made adjustments as
19 discussed in Section III. The detailed summary of results from both these models are
20 provided in KM Schedule-R3.

21
22 **Q. PLEASE PROVIDE A COMPARISON BETWEEN STAFF AND YOUR**
23 **RESULTS FOR THE RATES OF RETURN WITH AND WITHOUT THE**
24 **TEMPORARY TAX RIDER IMPACTS.**

25 A. Table 3 shows the comparison. Important findings are as follows:
26

- From a directional standpoint, both Staff and my COSS show class rates of return (“ROR”) higher than the system average for the CB/SH, GP/TEB and LP classes respectively. However, the magnitude varies. For example, my LP class ROR’s are higher than Staff’s results.
- Similarly, both Staff and my COSS show a residential ROR that is lower than the system average. Once again, the magnitude varies, as my COSS shows a lower ROR for this class as compared to Staff.
- The biggest difference from a directional standpoint is that Staff’s COSS produces a ROR for the SC-P class that is lower than the system average and my results show an ROR for this class that is above the system average.

Table 3: Rates of Return Comparison at Tariffed Rates With and Without Tax Credit

	Rate of Return at Tariffed Rates		Rate of Return at Tariffed Rates Reduced by Tax Credit	
	Staff	MECG	Staff	MECG
Residential	6.78%	4.80%	5.53%	3.63%
CB/SH	12.83%	11.79%	11.37%	10.35%
GP/TEB	12.50%	16.19%	11.12%	14.67%
LPS	12.10%	16.80%	10.90%	15.47%
Feed & Grain	-36.17%	-133.54%	-37.28%	-134.99%
SC- P	7.48%	14.22%	6.30%	12.82%
Lighting	30.35%	22.47%	28.70%	20.87%
Total	8.49%	8.49%	8.49%	8.49%

Q. PLEASE PROVIDE A COMPARISON BETWEEN STAFF AND YOUR RESULTS FOR THE CHANGE NEEDED TO BRING EACH CLASS TO COST OF SERVICE, WITH AND WITHOUT THE TEMPORARY TAX RIDER IMPACTS.

A. Tables 4(a) and 4(b) show the changes needed for each class, both with and without the tax credit, in order to bring each class to cost of service.

Table 4(a): Comparison of Changes Needed to Tariffed Rates at Equal ROR

	\$ Change to Tariffed Rates at equal ROR		% Change to Tariffed Rates at Equal ROR	
	Staff	MECG	Staff	MECG
Residential	\$2,388,332	\$16,983,848	1.07%	7.63%
CB/SH	-\$7,988,723	-\$6,676,789	-14.60%	-12.20%
GP/TEB	-\$18,427,352	-\$28,154,718	-14.32%	-21.88%
LPS	-\$8,947,607	-\$15,685,855	-13.39%	-23.47%
Feed & Grain	\$90,323	\$290,648	109.92%	353.71%
SC- P	-\$45,766	-\$792,220	-1.00%	-17.26%
Lighting	-\$3,453,929	-\$2,349,636	-44.18%	-30.06%
Total	-\$36,384,722	-\$36,384,721	-3.82%	-3.82%

Table 4(b): Comparison of Changes Needed to Tariffed Rates Reduced by Tax Credit at Equal ROR

	\$ Change to Tariffed Rates Reduced by Tax Credit at equal ROR		% Change to Tariffed Rates Reduced by Tax Credit at equal ROR	
	Staff	MECG	Staff	MECG
Residential	\$10,893,974	\$25,493,726	4.89%	11.45%
CB/SH	-\$5,929,498	-\$4,621,938	-10.83%	-8.44%
GP/TEB	-\$13,698,257	-\$23,425,510	-10.65%	-18.21%
LPS	-\$6,790,801	-\$13,529,047	-10.16%	-20.25%
Feed & Grain	\$92,642	\$292,986	112.74%	356.56%
SC- P	\$110,334	-\$636,126	2.40%	-13.86%
Lighting	-\$3,208,829	-\$2,104,526	-41.05%	-26.92%
Total	-\$18,530,435	-\$18,530,434	-3.82%	-3.82%

Important highlights are as follows:

- My results show that with or without tax credits, the dollar and percent changes needed at equalized ROR for the residential class are significantly higher than Staff results. For the changes needed to tariffed rates, Staff’s results show a positive adjustment of \$2.38 million or 1.07% as compared to my results of \$16.98 million or 7.63%. For the changed needed to tariffed rates reduced by the tax credit, Staff’s results show a positive

1 adjustment of \$10.89 million or 4.89% as compared to my results of \$25.49 million or
 2 11.45%.

3 • My suggested change needed for the LP class is roughly double that of Staff’s results.
 4 While Staff shows a negative adjustment of \$8.9 million, my results show the negative
 5 adjustment should be \$15.68 million at tariffed rates. For the change needed to tariffed
 6 rates reduced by the tax credit, Staff’s results show a negative adjustment of \$6.8 million
 7 as compared to my results of \$13.5 million.

8 • Regarding the SC-P class, as has been noted, my COSS shows substantial negative
 9 adjustments compared to Staff’s results at tariffed rates with and without the tax credit.

10

11 **Q. PLEASE PROVIDE A COMPARISON BETWEEN STAFF AND YOUR**
 12 **RESULTS REGARDING THE PERCENT OF OVER OR UNDER**
 13 **CONTRIBUTION AT CURRENT RATES, WITH AND WITHOUT THE TAX**
 14 **CREDIT.**

15 A. Table 5 provides this comparison. The level of over or under recovery is consistent
 16 with the results and comparisons discussed above.

17

**Table 5: Comparison of % Under/ Over Contributions
 at Current Rates with and without Tax Credit**

18

19

	% (Under) Over Contribution at Current Rates		% (Under) Over Contribution at Current Rates Reduced by Tax Credits	
	Staff	MECG - Staff Revised	Staff	MECG - Staff Revised
Residential	-1.06%	-7.09%	-4.67%	-10.28%
CB/SH	17.09%	13.89%	12.15%	9.22%
GP/TEB	16.72%	28.01%	11.92%	22.26%
LPS	15.46%	30.67%	11.31%	25.38%
Feed & Grain	-52.36%	-77.96%	-52.99%	-78.10%
SC- P	1.01%	20.87%	-2.35%	16.09%
Lighting	79.16%	42.97%	69.63%	36.84%
Total	3.97%	3.97%	3.97%	3.97%

20

1 Q. DID YOU ALSO RUN STAFF'S COSS MODEL, AT STAFF'S
 2 RECOMMENDED REVENUE REQUIREMENT USING YOUR A&E 6NCP
 3 PRODUCTION COST ALLOCATOR?

4 A. Yes, I did. While I would have preferred to also show COSS results based on Staff's
 5 updated demand and energy data using my A&E 6NCP approach, Staff's monthly CP
 6 and NCP data showed some inconsistencies.⁹ As a result, I used the allocator I had
 7 developed for the COSS in direct testimony. Using Staff's CCOSS models (with and
 8 without the tax credit), I made the same adjustments to Staff's models as discussed in
 9 Section III, except that I replaced the revised production allocator (based on the top 51
 10 hours) with my A&E6NCP allocator. A detailed summary is provided in KM
 11 Schedule-R4. Table 6 shows the ROR and dollar and percent changes needed to
 12 tariffed rates with and without the tax credit. The results of using the A&E 6NCP are
 13 similar in comparison to the modified COSS results shown earlier. This is not
 14 surprising considering that both production allocators choose peaks that are within
 15 10% of the system peaks.

16 **Table 6: MECG A&E 6NCP Results**

	ROR at Tariffed Rates	ROR at Tariffed Rates Reduced by Tax Credits	\$ Change to Tariffed Rates at Equal ROR	\$ Change to Tariffed Rates Reduced by Tax Credits at Equal ROR
Residential	4.50%	3.34%	\$19,312,911	\$27,822,789
CB/SH	12.51%	11.05%	-\$7,594,891	-\$5,540,041
GP/TEB	17.98%	16.41%	-\$32,587,817	-\$27,858,609
LPS	16.44%	15.12%	-\$15,204,470	-\$13,047,663
Feed & Grain	-110.83%	-111.91%	\$316,498	\$318,838
SC- P	21.24%	19.65%	-\$1,380,218	-\$1,224,123
Lighting	3.82%	2.74%	\$753,260	\$998,371
Total	8.49%	8.49%	-\$36,384,727	-\$18,530,438

17 ⁹ For example, for the SC-P class, the monthly non-coincident peak KW was lower than the monthly coincident peak data for 9 out of 12 months. Since class non-coincident peak is meant to reflect the highest demand, it should necessarily be higher than the class coincident peak demand. Further, according to the hourly data, the highest peak occurs on March 5, 2019 (942,780 KW). However, the monthly coincident peak data shows the highest peak occurs in January 2019 (946,227 KW).

1 **V. REVENUE ALLOCATION**

2
3 **Q. WHAT IS STAFF'S REVENUE ALLOCATION APPROACH?**

4
5 A. Staff bases its revenue allocation on its recommended \$36.4 million reduction and
6 includes a two-step approach:

- 7 • In the first step, Staff recommends that all classes should retain its portion of the
8 temporary tax rider credits, which is approximately \$17.8 million; and
9 • In the second step, Staff recommends that the remaining \$18.6 million reduction
10 should be assigned as follows: 25% to CB/SH, 25% to LP and 50% to GP/TEB.

11
12 **Q. PLEASE COMMENT ON STAFF'S REVENUE ALLOCATION APPROACH.**

13 A. Staff's revenue allocation approach is driven, in large part, by its COSS results and I
14 appreciate that Staff is making efforts to move classes towards cost. However, as
15 discussed above, Staff COSS model had some issues that needed to be addressed.
16 Consequently, I recommend that the revenue allocation approach should either rely on
17 Staff's COSS, as adjusted consistent with this testimony, or my A&E 6NCP approach.
18 As indicated in direct testimony, I continue to recommend greater movement towards
19 cost. If there is a large overall rate decrease as recommended by Staff, more
20 aggressive steps should be taken to align rates with costs. If the decrease is smaller,
21 then the Commission should consider, in an effort to bring classes closer to cost of
22 service, not maintaining each class' portion of the tax rider credits.

1 **VI. LP AND SC-P RATE DESIGN**

2
3 **Q. WHAT IS STAFF’S RATE DESIGN RECOMMENDATION FOR THE LP**
4 **AND SC-P CLASSES?**

5 A. It is my understanding that for both the classes, Staff’s recommendation consists of
6 two steps. In the first step, Staff determines a limit on decreasing the energy charges
7 and, after adjusting for the energy charge decreases, an equal percent decrease is
8 applied to all remaining components of the bill. Staff considered the following
9 average load weighted and loss adjusted LMPs in developing its limit for the energy
10 charge decreases:

- 11 • LGS transmission: \$0.02918 / kWh
- 12 • LGS Primary: \$0.029847 / kWh
- 13 • LGS Secondary: \$0.030472 / kWh

14
15
16 **Q. WHAT ARE STAFF’S RESULTING RECOMMENDATIONS FOR THE LP**
17 **CLASS?**

18 A. Table 6 shows Staff’s recommendation based on Staff’s revenue decrease for the LP
19 class. As can be observed, Staff’s limits on any energy charge decreases results in
20 lower percent decreases for the energy charges as compared to the other charges.

21
22 **Table 6: Staff Recommended Rate Design for LP Class**

23

	Current Charges	Current Net of Taxes	Staff Recommendation	% Change Compared to Current	% Change Compared to Current Net of Taxes
Customer Charge	\$283.55	\$283.55	\$223.74	-21%	-21%
Summer Demand	\$15.69	\$15.69	\$12.38	-21%	-21%
Winter Demand	\$8.66	\$8.66	\$6.83	-21%	-21%
Facilities Demand	\$1.88	\$1.88	\$1.48	-21%	-21%
Summer 1st 350 HU	\$0.06809	\$0.06511	\$0.06002	-12%	-8%
Summer Add. HU	\$0.03683	\$0.03385	\$0.03536	-4%	4%
Winter 1st 350 HU	\$0.06048	\$0.05750	\$0.05402	-11%	-6%
Winter Add. HU	\$0.03552	\$0.03254	\$0.03432	-3%	5%

24
25

1
2 Staff has a similar approach for the SC-P class with more specificity in the time of use
3 rate related relationships between on peak, off peak and shoulder peak rates.
4

5 **Q. PLEASE COMMENT ON STAFF'S RECOMMENDED RATE DESIGN**
6 **APPROACH.**

7 A. I believe that Staff's limits on decreasing the energy charges are too stringent because
8 while the load weighted and loss adjusted LMPs are about \$0.03/kWh, the
9 recommended energy charges are still much higher. Specifically, Staff's
10 recommended energy charges in the tail block remain 14-18% above its suggested
11 energy charge limit. Further, Staff recommends a 21% reduction in the customer,
12 demand and facilities charge, which does not result in efficient pricing signals for
13 several reasons:

14 First, the Company's evidence indicates that a significant amount of fixed
15 costs are currently collected through variable charges (the energy charge) instead of
16 through a fixed charge (the demand or facilities charge). Thus, the Company's
17 proposal is to decrease the energy charges even with a proposed overall rate increase
18 because of significant under-recovery of fixed costs from both the billing demand and
19 facility demand charges.

20 Second, it is my understanding that the Company is expected to file a rate case
21 soon after the current case is completed in order to recover significant investment in
22 wind generation. The addition of this wind generation will have the effect of
23 increasing fixed costs and reducing variable costs. As a result, the demand charges
24 should increase in that case. I question whether the Commission should reduce

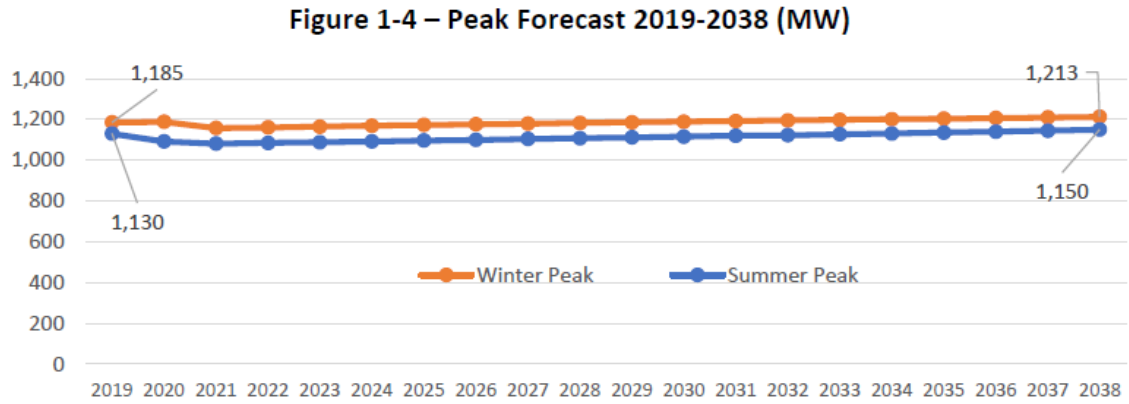
1 demand charges, as recommended by Staff, simply to increase those charges in the
2 next case to reflect increased investment.

3 As a result of these factors, it makes more sense to retain the current fixed
4 charges and instead, allocate the entirety of any revenue decrease to lowering the
5 energy charges. I recommend this same approach for the LP and SC-P classes.

6
7 **Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?**

8 A. Yes.

Liberty – Empire Forecasted Peak Requirements



Source: Liberty-Empire Resource Plan, docket EO-2019-0049, Page Vol 1-16

Allocators from Previous Case for Some Items Categorized
as Miscellaneous in Current Case

KM Schedule - R2

CURRENT CASE	Description	Allocation Number	2016 CASE: ER-2016-0023	Description	Allocation Number
INCOME STATEMENT					
	OPERATION-ADMIN. & GENERAL EXP.			OPERATION-ADMIN. & GENERAL EXP.	
920.000	Administrative & General Salaries	13-Misc. & Unassignable	920.000	Administrative & General Salaries	64-PAYROLL - INC. STATEMENT
921.000	Office Supplies & Expenses	13-Misc. & Unassignable	921.000	Office Supplies & Expenses	62-O & M EXPENSES LESS ADMIN. & GEN. EXPENSES
922.000	Administrative Expenses Transferred - Credit	13-Misc. & Unassignable	922.000	Administrative Expenses Transferred - Credit	62-O & M EXPENSES LESS ADMIN. & GEN. EXPENSES
923.000	Outside Services Employed	13-Misc. & Unassignable	923.000	Outside Services Employed	64-PAYROLL - INC. STATEMENT
925.000	Injuries and Damages	13-Misc. & Unassignable	925.000	Injuries and Damages	64-PAYROLL - INC. STATEMENT
926.000	Employee Pensions and Benefits	13-Misc. & Unassignable	926.000	Employee Pensions and Benefits	64-PAYROLL - INC. STATEMENT
928.000	Regulatory Commission Expenses	13-Misc. & Unassignable	928.000	Regulatory Commission Expenses	6-Sales @ Generation
929.000	Duplicate Charges - Credit	13-Misc. & Unassignable	929.000	Duplicate Charges - Credit	19-Cust. Billing Other
930.000	General Advertising Expense	13-Misc. & Unassignable	930.000	General Advertising Expense	62-O & M EXPENSES LESS ADMIN. & GEN. EXPENSES
931.000	Admin & General - Rents	13-Misc. & Unassignable	931.000	Admin. & General - Rents	54-NET PLANT
	MAINT., ADMIN. & GENERAL EXP.			MAINT., ADMIN. & GENERAL EXP.	
935.000	Maintenance of General Plant	13-Misc. & Unassignable	935.000	Maintenance of General Plant	55-GROSS P,T,D PLANT
	TOTAL MAINT., ADMIN. & GENERAL EXP.			TOTAL MAINT., ADMIN. & GENERAL EXP.	
PLANT					
	TOTAL INTANGIBLE PLANT	13-Misc. & Unassignable		TOTAL INTANGIBLE PLANT	55-GROSS P,T,D PLANT
	TOTAL GENERAL PLANT	13-Misc. & Unassignable		TOTAL GENERAL PLANT	55-GROSS P,T,D PLANT
SUMMARY					
	Materials and Supplies	13-Misc. & Unassignable		Materials and Supplies	54-NET PLANT

MECG ADJUSTED STAFF COSS RESULTS SUMMARY

Description	MO Adjusted Jurisdictional	Residential	CB/SH	GP/TEB	LPS	Feed & Grain	Contract Transmission	Lighting	Total	Check MO Adjusted Jurisdictional less Total
TOTAL RATE BASE	\$1,370,195,948	\$726,527,318	\$143,510,783	\$311,098,141	\$162,346,733	\$206,610	\$11,185,879	\$15,320,483	\$1,370,195,947	\$1
TOTAL RETURN ON RATE BASE	\$97,777,183	\$51,844,989	\$10,240,929	\$22,199,963	\$11,585,063	\$14,744	\$798,224	\$1,093,270	\$97,777,182	\$1
TOTAL OPERATING & MAINT. EXPENSE	\$387,719,959	\$205,292,477	\$41,551,148	\$87,506,601	\$44,990,249	\$361,897	\$3,424,188	\$4,593,395	\$387,719,956	\$3
TOTAL INCOME TAXES	\$22,012,584	\$8,726,869	\$2,079,242	\$6,417,769	\$4,256,030	\$2,329	\$362,785	\$167,561	\$22,012,585	-\$1
TOTAL DEFERRED INCOME TAXES	-\$10,835,182	-\$4,295,598	-\$1,023,458	-\$3,158,996	-\$2,094,931	-\$1,145	-\$178,572	-\$82,479	-\$10,835,179	-\$3
ADDITIONAL CURRENT TAX REQUIRED	-\$4,404,696	-\$2,372,515	-\$467,578	-\$970,786	-\$493,480	-\$410	-\$30,471	-\$69,455	-\$4,404,695	-\$1
TOTAL EXPENSES	\$394,492,665	\$207,351,233	\$42,139,354	\$89,794,588	\$46,657,868	\$362,671	\$3,577,930	\$4,609,022	\$394,492,667	-\$2
TOTAL REVENUE (RATE REVENUE + OTHER REVENUE)	\$510,800,284	\$242,212,374	\$59,057,072	\$140,149,269	\$73,928,786	\$86,767	\$5,168,374	\$8,051,928	\$528,654,570	-\$17,854,286
CLASS COST OF SERVICE	\$492,269,848	\$259,196,222	\$52,380,283	\$111,994,551	\$58,242,931	\$377,415	\$4,376,154	\$5,702,292	\$492,269,849	-\$1
OTHER REVENUE	\$25,498,301	\$19,619,697	\$4,321,652	\$11,489,477	\$7,102,938	\$4,596	\$579,486	\$234,741	\$43,352,587	-\$17,854,286
CLASS COST OF SERVICE LESS OTHER RATE REVENUE	\$466,771,547	\$239,576,525	\$48,058,631	\$100,505,074	\$51,139,993	\$372,819	\$3,796,668	\$5,467,551	\$448,917,262	\$17,854,285
RATE REVENUE	\$485,301,983	\$222,592,677	\$54,735,420	\$128,659,792	\$66,825,848	\$82,171	\$4,588,888	\$7,817,187	\$485,301,983	
CURRENT RATE OF RETURN (TOTAL REVENUE)	8.4884%	4.7983%	11.7885%	16.1861%	16.7979%	-133.5386%	14.2183%	22.4726%		
CURRENT RATE OF RETURN (ONLY RATE REVENUE)	6.6275%	2.0978%	8.7771%	12.4929%	12.4228%	-135.7631%	9.0378%	20.9404%		
CLASS TOTAL REVENUE ABOVE OR BELOW TOTAL COST OF SERVICE	\$18,530,436	-\$16,983,848	\$6,676,789	\$28,154,718	\$15,685,855	-\$290,648	\$792,220	\$2,349,636	\$36,384,721	-\$17,854,285
% CHANGE NEEDED TO BRING CLASS RATE REVENUE EQUAL TO CLASS COST OF SERVICE	-3.8183%	7.6300%	-12.1983%	-21.8831%	-23.4727%	353.7114%	-17.2639%	-30.0573%		
% UNDER OR OVER-RECOVERY	3.9699%	-7.0891%	13.8930%	28.0132%	30.6724%	-77.9596%	20.8662%	42.9742%		

MECG ADJUSTED STAFF COSS RESULTS SUMMARY

Description	MO Adjusted Jurisdictional	Residential	CB/SH	GP/TEB	LPS	Feed & Grain	Contract Transmission	Lighting	Total	Check MO Adjusted Jurisdictional less Total
									\$0	\$0
TOTAL RATE BASE	\$1,370,195,948	\$726,430,217	\$143,611,099	\$311,095,546	\$162,346,704	\$206,143	\$11,185,993	\$15,320,244	\$1,370,195,946	\$2
TOTAL RETURN ON RATE BASE	\$97,777,183	\$51,838,060	\$10,248,088	\$22,199,778	\$11,585,061	\$14,710	\$798,232	\$1,093,253	\$97,777,182	\$1
TOTAL OPERATING & MAINT. EXPENSE	\$387,719,959	\$205,303,642	\$41,539,615	\$87,506,899	\$44,990,253	\$361,950	\$3,424,174	\$4,593,422	\$387,719,956	\$3
TOTAL INCOME TAXES	\$22,012,584	\$8,726,869	\$2,079,242	\$6,417,769	\$4,256,030	\$2,329	\$362,785	\$167,561	\$22,012,585	-\$1
TOTAL DEFERRED INCOME TAXES	-\$10,835,182	-\$4,295,598	-\$1,023,458	-\$3,158,996	-\$2,094,931	-\$1,145	-\$178,572	-\$82,479	-\$10,835,179	-\$3
ADDITIONAL CURRENT TAX REQUIRED	-\$4,404,696	-\$2,372,515	-\$467,578	-\$970,786	-\$493,480	-\$410	-\$30,471	-\$69,455	-\$4,404,695	-\$1
									\$0	\$0
TOTAL EXPENSES	\$394,492,665	\$207,362,398	\$42,127,821	\$89,794,886	\$46,657,872	\$362,724	\$3,577,916	\$4,609,049	\$394,492,667	-\$2
TOTAL REVENUE (RATE REVENUE + OTHER REVENUE)	\$510,800,284	\$233,706,732	\$56,997,847	\$135,420,174	\$71,771,980	\$84,448	\$5,012,274	\$7,806,828	\$510,800,283	\$1
									\$0	\$0
CLASS COST OF SERVICE	\$492,269,848	\$259,200,458	\$52,375,909	\$111,994,664	\$58,242,933	\$377,434	\$4,376,148	\$5,702,302	\$492,269,849	-\$1
OTHER REVENUE	\$25,498,301	\$11,114,055	\$2,262,427	\$6,760,382	\$4,946,132	\$2,277	\$423,386	-\$10,359	\$25,498,300	\$1
CLASS COST OF SERVICE LESS OTHER REVENUE	\$466,771,547	\$248,086,403	\$50,113,482	\$105,234,282	\$53,296,801	\$375,157	\$3,952,762	\$5,712,661	\$466,771,549	-\$2
RATE REVENUE	\$485,301,983	\$222,592,677	\$54,735,420	\$128,659,792	\$66,825,848	\$82,171	\$4,588,888	\$7,817,187	\$485,301,983	\$0
										\$0
CURRENT RATE OF RETURN (TOTAL REVENUE)	8.4884%	3.6265%	10.3544%	14.6660%	15.4694%	-134.9918%	12.8228%	20.8729%		
CURRENT RATE OF RETURN (ONLY RATE REVENUE)	6.6275%	2.0966%	8.7790%	12.4929%	12.4228%	-136.0964%	9.0378%	20.9405%		
										\$0
CLASS TOTAL REVENUE ABOVE OR BELOW TOTAL COST OF SERVICE	\$18,530,436	-\$25,493,726	\$4,621,938	\$23,425,510	\$13,529,047	-\$292,986	\$636,126	\$2,104,526	\$18,530,434	\$2
										\$0
% CHANGE NEEDED TO BRING CLASS RATE REVENUE EQUAL TO CLASS COST OF SERVICE	-3.8183%	11.4531%	-8.4441%	-18.2073%	-20.2452%	356.5567%	-13.8623%	-26.9218%		\$0
% UNDER OR OVER-RECOVERY	3.9699%	-10.2761%	9.2229%	22.2603%	25.3844%	-78.0969%	16.0932%	36.8397%		\$0

MECG A&E 6NCP COSS RESULTS SUMMARY

Description	MO Adjusted Jurisdictional	Residential	CB/SH	GP/TEB	LPS	Feed & Grain	Contract Transmission	Lighting	Total	Check MO Adjusted Jurisdictional less Total
TOTAL RATE BASE	\$1,370,195,948	\$732,084,947	\$141,320,004	\$300,519,839	\$163,495,396	\$268,298	\$9,782,823	\$22,724,625	\$1,370,195,932	\$16
TOTAL RETURN ON RATE	\$97,777,183	\$52,241,582	\$10,084,595	\$21,445,096	\$11,667,031	\$19,146	\$698,102	\$1,621,629	\$97,777,181	\$2
TOTAL OPERATING & MAINT. EXPENSE	\$387,719,959	\$207,291,495	\$40,763,147	\$83,701,705	\$45,403,420	\$384,085	\$2,919,513	\$7,256,589	\$387,719,954	\$5
TOTAL INCOME TAXES	\$22,012,584	\$8,726,869	\$2,079,242	\$6,417,769	\$4,256,030	\$2,329	\$362,785	\$167,561	\$22,012,585	-\$1
TOTAL DEFERRED INCOME	-\$10,835,182	-\$4,295,598	-\$1,023,458	-\$3,158,996	-\$2,094,931	-\$1,145	-\$178,572	-\$82,479	-\$10,835,179	-\$3
ADDITIONAL CURRENT TAX REQUIRED	-\$4,404,696	-\$2,388,119	-\$461,427	-\$941,086	-\$496,705	-\$583	-\$26,532	-\$90,243	-\$4,404,695	-\$1
TOTAL EXPENSES	\$394,492,665	\$209,334,647	\$41,357,504	\$86,019,392	\$47,067,814	\$384,686	\$3,077,194	\$7,251,428	\$394,492,665	\$0
TOTAL REVENUE (RATE REVENUE + OTHER)	\$510,800,284	\$242,263,318	\$59,036,990	\$140,052,305	\$73,939,315	\$87,334	\$5,155,514	\$8,119,797	\$528,654,573	-\$17,854,289
CLASS COST OF SERVICE	\$492,269,848	\$261,576,229	\$51,442,099	\$107,464,488	\$58,734,845	\$403,832	\$3,775,296	\$8,873,057	\$492,269,846	\$2
OTHER REVENUE	\$25,498,301	\$19,670,641	\$4,301,570	\$11,392,513	\$7,113,467	\$5,163	\$566,626	\$302,610	\$43,352,590	-\$17,854,289
CLASS COST OF SERVICE LESS OTHER REVENUE	\$466,771,547	\$241,905,588	\$47,140,529	\$96,071,975	\$51,621,378	\$398,669	\$3,208,670	\$8,570,447	\$448,917,256	\$17,854,291
RATE REVENUE	\$485,301,983	\$222,592,677	\$54,735,420	\$128,659,792	\$66,825,848	\$82,171	\$4,588,888	\$7,817,187	\$485,301,983	
CURRENT RATE OF RETURN (TOTAL REVENUE)	8.4884%	4.4979%	12.5103%	17.9798%	16.4356%	-110.8289%	21.2446%	3.8213%	-34.3395%	
CURRENT RATE OF RETURN (ONLY RATE REVENUE)	6.6275%	1.8110%	9.4664%	14.1889%	12.0848%	-112.7533%	15.4525%	2.4896%	-57.2601%	
CLASS TOTAL REVENUE ABOVE OR BELOW TOTAL COST OF SERVICE	\$18,530,436	-\$19,312,911	\$7,594,891	\$32,587,817	\$15,204,470	-\$316,498	\$1,380,218	-\$753,260	\$36,384,727	-\$17,854,291
% CHANGE NEEDED TO BRING CLASS RATE REVENUE EQUAL TO CLASS COST OF SERVICE	-3.8183%	8.6763%	-13.8756%	-25.3287%	-22.7524%	385.1697%	-30.0774%	9.6359%	311.4479%	
% UNDER OR OVER-RECOVERY	3.9699%	-7.9837%	16.1112%	33.9202%	29.4538%	-79.3887%	43.0153%	-8.7890%	26.3391%	

MECG A&E 6NCP COSS RESULTS SUMMARY

Description	MO Adjusted Jurisdictional	Residential	CB/SH	GP/TEB	LPS	Feed & Grain	Contract Transmission	Lighting	Total	Check MO Adjusted Jurisdictional less Total
TOTAL RATE BASE	\$1,370,195,948	\$731,987,846	\$141,420,320	\$300,517,244	\$163,495,367	\$267,831	\$9,782,937	\$22,724,386	\$1,370,195,931	\$17
TOTAL RETURN ON RATE BASE	\$97,777,183	\$52,234,653	\$10,091,754	\$21,444,911	\$11,667,029	\$19,112	\$698,110	\$1,621,612	\$97,777,181	\$2
TOTAL OPERATING & MAINT.	\$387,719,959	\$207,302,660	\$40,751,613	\$83,702,003	\$45,403,423	\$384,140	\$2,919,500	\$7,256,617	\$387,719,956	\$3
TOTAL INCOME TAXES	\$22,012,584	\$8,726,869	\$2,079,242	\$6,417,769	\$4,256,030	\$2,329	\$362,785	\$167,561	\$22,012,585	-\$1
TOTAL DEFERRED INCOME	-\$10,835,182	-\$4,295,598	-\$1,023,458	-\$3,158,996	-\$2,094,931	-\$1,145	-\$178,572	-\$82,479	-\$10,835,179	-\$3
ADDITIONAL CURRENT TAX	-\$4,404,696	-\$2,388,119	-\$461,427	-\$941,086	-\$496,705	-\$583	-\$26,532	-\$90,243	-\$4,404,695	-\$1
TOTAL EXPENSES	\$394,492,665	\$209,345,812	\$41,345,970	\$86,019,690	\$47,067,817	\$384,741	\$3,077,181	\$7,251,456	\$394,492,667	-\$2
TOTAL REVENUE (RATE REVENUE + OTHER REVENUE)	\$510,800,284	\$233,757,676	\$56,977,765	\$135,323,210	\$71,782,509	\$85,015	\$4,999,414	\$7,874,697	\$510,800,286	-\$2
CLASS COST OF SERVICE	\$492,269,848	\$261,580,465	\$51,437,724	\$107,464,601	\$58,734,846	\$403,853	\$3,775,291	\$8,873,068	\$492,269,848	\$0
OTHER REVENUE	\$25,498,301	\$11,164,999	\$2,242,345	\$6,663,418	\$4,956,661	\$2,844	\$410,526	\$57,510	\$25,498,303	-\$2
CLASS COST OF SERVICE LESS OTHER REVENUE	\$466,771,547	\$250,415,466	\$49,195,379	\$100,801,183	\$53,778,185	\$401,009	\$3,364,765	\$8,815,558	\$466,771,545	\$2
RATE REVENUE	\$485,301,983	\$222,592,677	\$54,735,420	\$128,659,792	\$66,825,848	\$82,171	\$4,588,888	\$7,817,187	\$485,301,983	
CURRENT RATE OF RETURN (TOTAL REVENUE)	8.4884%	3.3350%	11.0534%	16.4062%	15.1164%	-111.9086%	19.6488%	2.7426%	-43.6060%	
CURRENT RATE OF RETURN (ONLY RATE REVENUE)	6.6275%	1.8097%	9.4678%	14.1889%	12.0848%	-112.9704%	15.4525%	2.4895%	-57.4772%	
CLASS TOTAL REVENUE ABOVE OR BELOW TOTAL	\$18,530,436	-\$27,822,789	\$5,540,041	\$27,858,609	\$13,047,663	-\$318,838	\$1,224,123	-\$998,371	\$18,530,438	-\$2
% CHANGE NEEDED TO BRING CLASS RATE REVENUE EQUAL TO CLASS COST OF SERVICE	-3.8183%	12.4994%	-10.1215%	-21.6529%	-19.5249%	388.0174%	-26.6758%	12.7715%	335.3132%	
% UNDER OR OVER-RECOVERY	3.9699%	-11.1107%	11.2613%	27.6372%	24.2620%	-79.5089%	36.3806%	-11.3251%	-2.4036%	