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MISSOURI PUBLIC SERVICE COMMISSION

UTILITY OPERATIONS DIVISION

REBUTTAL TESTIMONY

OF

DANIEL I. BECK

MISSOURI GAS ENERGY

CASE NO. GR-2004-0209

Jefferson City, Missouri
May 2004

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of Missouri Gas Energy's Tariff Sheets Designed to Increase Rates for Gas Service in the Company's Missouri Service Area	))))	Case No. GR-2004-0209

AFFIDAVIT OF DANIEL I. BECK

STATE OF MISSOURI)
) **ss**
COUNTY OF COLE)

Daniel I. Beck, of lawful age, on his oath states: that he has participated in the preparation of the following Rebuttal Testimony in question and answer form, consisting of 18 pages of Rebuttal Testimony to be presented in the above case, that the answers in the following Rebuttal Testimony were given by him; that he has knowledge of the matters set forth in such answers; and that such matters are true to the best of his knowledge and belief.

Daniel I. Beck

Subscribed and sworn to before me this 21st day of May, 2004.

Notary Public

DAWN L. HAKE
Notary Public – State of Missouri
County of Cole
My Commission Expires Jan 9, 2005

My commission expires _____

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REBUTTAL TESTIMONY

OF

DANIEL I. BECK

MISSOURI GAS ENERGY

CASE NO. GR-2004-0209

Q. Please state your name and business address.

A. My name is Daniel I. Beck and my business address is Missouri Public Service Commission, P. O. Box 360, Jefferson City, Missouri 65102.

Q. Are you the same Daniel I. Beck that filed Direct Testimony in this case?

A. Yes, I am.

Q. What is the purpose of your rebuttal testimony?

A. The purpose of my rebuttal testimony is to discuss the Company's proposed Load Attrition Adjustment, the Class Cost of Service studies filed by the other parties and the rate design proposals in this case.

LOAD ATTRITION ADJUSTMENT

Q. Would you summarize your conclusions regarding the Load Attrition Adjustment?

1. The impact of any historical trend in customer usage is already in the test year data and therefore is accounted for.

2. The Load Attrition Adjustment is a unique proposal that has never been proposed previously by MGE. In addition, an adjustment like this has never been proposed by any gas utility to the best of my knowledge. In light of this, much more justification for this unique

adjustment should be required before it is given serious consideration.

3. The Load Attrition Adjustment attempts to explain historical data but one cannot assume that the historical trend will continue.

4. The Load Attrition Adjustment is an out-of-test-period unprecedented adjustment and should be disallowed.

5. The Load Attrition Adjustment should be disallowed because it is incorrectly assigned to both the summer and winter seasons. The summer season trend variable, which accounts for over one-half of the Load Attrition Adjustment, is not statistically significant and therefore all summer Load Attrition Adjustments should be disallowed.

6. The Load Attrition Adjustment, when coupled with significant changes in rate design, can result in extra, undocumented revenue for the Company.

Q. Have you reviewed the Company's Load Attrition Adjustment testimony and workpapers?

A. Yes.

Q. Would you describe in your own words what this adjustment is?

A. The Load Attrition Adjustment is a $1,629,718 adjustment sponsored by the Company that reduces the test year margin revenues. As can be seen on Schedule H-2, which is attached to Company witness Michael R. Noack's Direct Testimony, it is the largest single adjustment made to the Test Year margin revenues. It is basically a reduction to the average usage per customer for each billing month of the year. The

Company applies this adjustment to the Commission Ordered Test Year to account for additional load reductions that it believes will occur in the 15 months after the test year.

Q. Do you support the Company's proposed adjustment to revenues?

A. No. In my opinion, the Company is attempting to use approximately nine (9) years of history to project fifteen (15) months past the end of the test year. At the date of this filing, more than four (4) of their projected fifteen (15) months that have not yet occurred. More importantly, any change in customer usage is already reflected in the test year data.

Q. Can you point to any specific evidence that proves your assertion that the test year data already reflects any historical effects of load attrition?

A. Although I believe that common sense would tell you that the test year reflects the effects of historical usage patterns, one can also look at the regression models in Dr. Cummings' workpapers to prove this assertion. Specifically, on page 11 of Dr. Cummings' Direct Testimony is a table of the coefficients from Dr. Cummings' Load Attrition Models. The table below is a similar table that shows the Heating Degree Day Coefficients from both Dr. Cummings' Load Attrition models and Dr. Cummings' Weather Normalization models:

Customer Class	Region	Load Attrition HDD	Weather Normalization HDD	Percent Difference
Residential	Kansas City	0.162	0.146	10%
	Joplin	0.158	0.140	11.5%
	St. Joseph	0.178	0.154	13.4%
SGS	Kansas City	0.437	0.364	16.7%
	Joplin	0.384	0.331	13.7%
	St. Joseph	0.501	0.419	16.3%
LGS	Kansas City	8.325	5.882	29.3%
	St. Joseph	8.320	5.840	29.8%

Q. Why is the fact that the HDD coefficients are different when comparing one set of models to another important?

A. The Load Attrition Adjustment is based on the concept that the Company is losing base load usage while the temperature sensitive usage remains constant. However, these results support the conclusion that weather sensitive usage is lower for the test year than the 9-year historical period. Therefore, analysis based solely on the test year includes a lower weather sensitive coefficient, reflects a more current estimate of base load usage already and already accounts for any load attrition.

Q. Is a 10% change in the HDD Coefficient really that large?

A. Yes. For the Kansas City Region, MGE proposes to adjust each month of their 15 month projection by 1.51 Ccf per customer per month or a total of 22.65 Ccf per customer which, when price out at $0.11423 per Ccf, would result in an adjustment of $2.59 in current revenues for each residential customer in the Kansas City area. However, if the HDD coefficient from the Load Attrition model were substituted into the weather normalization model for the Residential Kansas City customers, the resulting change in test year actual weather sensitive load would be 82.34 Ccfs per customer or $9.41 per customer. This would be equivalent to raising the customer charge by almost a dollar per month. Obviously, the HDD coefficient from these two models is significantly different and, therefore, the test year data and regression reflects a more current estimate of base load usage. It should be noted that the Residential-Kansas City percent difference is the smallest difference shown in my table. As the percentage difference increases, the difference, both in Ccfs per customer and dollars per customer, between the test year and the nine years of history grows.

Q. Has MGE ever proposed a Load Attrition Adjustment in any previous rate case?

A. No. Not to my knowledge. I have been a Staff member at the Commission longer than MGE has been in existence and this adjustment has not been apart of their previous rate cases. In addition, I cannot recall any natural gas company proposing an adjustment of this kind. The fact that this is a new and unprecedented proposed adjustment, coupled with the fact that this is the largest margin revenue adjustment proposed by the Company, leads me to believe that MGE should be required to provide much more support for this novel concept before it is seriously considered.

Q. Are you sure that the proposed Load Attrition Adjustment projects as far out as September 2004?

A. Yes. On page 15, lines 16-23 of Dr. Cummings Direct Testimony, Dr. Cummings points to the 15 month period between the end of the test year and the operation of law date which is early October, 2004. In addition, the Company's workpaper spreadsheet file titled "Load Attrition" shows 15 months of adjustment starting with July and ending with September. Finally, these 15 months of adjustment are specifically assigned to the test year in the workpaper spreadsheet titled "By Class" which shows that the twelve months of the test year are assigned the first twelve adjustments from "Load Attrition" and also shows that the months of July, 2002; August, 2002; and September, 2002 are also assigned the last three months from the "Load Attrition" spreadsheet.

Based on these facts, the Staff considers the Load Attrition Adjustment to be out-of-period and opposes it on that basis. Please refer to the Rebuttal Testimony of Staff

witness Mark L. Oligschlaeger of the Auditing Department for more discussion of this point.

Q. Has the Company stated the exact causes it believes might result in the need for this adjustment?

A. No. Certainly, there are a lot of witnesses alleging that the Company did not earn its authorized rate of return in recent years. However, since the load attrition adjustment is a projection of future usage and not a request for reimbursement due to past-perceived earnings, this cannot explain or support the proposed load attrition adjustment. Although Company witness Dr. F. Jay Cummings raises issues like base load usage, increased space and water heating efficiencies, and lower usage in the months of July through September, I could not determine any specific value that Dr. Cummings is attributing to any of these issues. Instead, there is simply an unexplained trend factor that is the result of regression analysis.

Q. Why is it important to have specific quantifiable reasons to support the load attrition factor?

A. Since the load attrition factor is a projection of past trends into the future, one must understand the reasons for past trends must be established and analyzed to determine if those trends will continue. To simply assume that a trend will continue into the future is not logical, and often times there are clear reasons that a trend cannot continue indefinitely. For example, the load attrition adjustment cannot realistically reduce the monthly usage to below zero, but in later testimony, you will see that projecting out several years into the future will result in just such a prediction.

To make projections of the load attrition adjustment into the future, one would have to have specific information about appliance efficiencies, appliance saturations,

housing stocks, and other end-use data that could be quantified and projected into the future.

Q. On pages 13-15 of Dr. Cummings Direct Testimony, three reasonableness checks are discussed. What is your opinion of these reasonableness checks?

A. In my opinion, these reasonableness checks call into question the validity of the proposed Load Attrition adjustment instead of supporting it. The first reasonableness check is a comparison of the two groups of models that I just discussed. Dr. Cummings compared the base-load usage for each of the groups of models and determined that the test -year base load results are lower than the nine (9)-year base load regression results and, therefore, determined that this is consistent with his expectations. In my opinion, Dr. Cummings was conducting an apples to oranges comparison. If one truly wants to compare base load usage between these two models, one has to compare the combined effect of the constant term and the Trend term from the nine (9) -year histories to the test-year constant term.

Comparing the Kansas City-Residential models for these two periods reveals much different results. For the test year, while the combined value for the base load usage in the nine (9)-year model would be 6.5665 Ccfs per month per customer, the test year model had a constant term of 13.4239 Ccfs per month per customer. There should not be a significant difference in these two values if the other variable in the model (HDD) was consistent. However, one does not need a statistical test to determine that these values are off by a factor of two.

Q. Dr. Cummings briefly discussed the American Gas Association's (AGA's) "Pattern in Residential Natural Gas Consumption" on pages 14-15 of his Direct

Testimony, which he claims was his second reasonableness check. Doesn't this explain the need for the proposed Load Attrition Adjustment?

A. No. First, I need to point out that Dr. Cummings incorrectly quotes the title to this paper, which is actually "Pattern in Residential Natural Gas Consumption Since 1980". Second, the analysis in this paper is done on the years 1980 through 1997. This means that the time period for this study and Dr. Cummings analysis only overlap by 4 years, which is approximately half of the time period that Dr. Cummings analyzed, and less than one-fourth of the time period that the AGA study, dealt with. Third, the following quote from page six of the AGA paper is most telling:

"Much of the data used in this analysis come from government and AGA surveys. While this information is the best available for national and regional analysis, survey sampling, structure, and/or extrapolation techniques can be flawed, particularly when ascribing results to smaller populations such as regions and states."

Since this study is based on a different time period and cannot be ascribed to smaller populations such as regions and states (much less specific utility service territories), I do not believe that this study supports Dr. Cummings regression analysis.

Q. Dr. Cummings refers to the AGA study's projection of future trends in per customer usage. Do you agree with his conclusion that his regression analysis results fall with the range given by the AGA study?

A. No. Dr. Cummings is simply wrong when he claims that the AGA study provided a "range of 1.25 Ccf per bill to 2.47 Ccf per bill". Instead, the study concluded that the historical trend was 1.25 Ccf per bill and the predicted trend for the 10 years beginning 1997 was 1.22 Ccf. Oddly, Dr. Cummings stated both of these values in his testimony but then concluded that the study supported his range.

Q. Were you able to determine the source of Dr. Cummings range?

A. After reviewing the AGA study and Dr. Cummings testimony, I can only conclude that Dr. Cummings mistakenly added the historical trend to the projected trend to arrive at the value of 2.47 Ccf per bill. While these two numbers do sum to 2.47, it is important to recognize that these are each per bill numbers and should not be added together. Instead, the AGA study provided a very narrow range from 1.22 Ccf per bill to 1.25 Ccf per bill.

Q. Did Dr. Cummings' results for the residential class fit within the real range that the AGA study provided?

A. No. One has to conclude that values of 1.51 Ccfs per bill, 1.45 Ccfs per bill and 2.07 Ccfs per bill are significantly different than the narrow range provided by the AGA study. Therefore, the AGA study actually brings Dr. Cummings regression results into question instead of supporting them.

Q. Have you reviewed the calculation of the trend factor?

A. Yes. Although there are specifics of the calculations that raise concerns, I believe that the best way to discuss this trend factor is to use simple common sense to determine the appropriateness of the resulting trend factor. To do this, I would direct the Commission's attention to the graph on Schedule FJC-1, which is attached to Dr. Cummings Testimony. Dr. Cummings states, "In each of these three non-weather sensitive months, residential gas usage consistently declines over the nine year period." [Cummings, Direct page 15, lines 7-9] This statement leaves the impression that the estimated trend factor is also supported by this graph and, indeed, Dr. Cummings represents that these graphs are his third reasonableness check. However, this graph,

when combined with the resulting trend factor, actually brings into doubt the validity of the trend factor.

As Dr. Cummings testimony shows in several places, the projected decline in residential usage per bill is 1.51 Ccf for Kansas City, 1.45 Ccf in Joplin and 2.07 Ccf in St. Joseph. Since the Kansas City area accounted for approximately 80% of MGE's residential customers, an estimate of 1.5 Ccf per bill would be a conservative estimate of the projected decline the total Company's service territory. If the 1.5 Ccf per bill adjustment were then applied to the first year's (1994's) data point for the month of August, which is 22.17 Ccfs per bill, the following estimates of average usage per bill would result:

1994 22.17 Ccfs per bill (Actual)

1995 20.67 Ccfs per bill

1996 19.17 Ccfs per bill

1997 17.67 Ccfs per bill

1998 16.17 Ccfs per bill

1999 14.67 Ccfs per bill

2000 13.17 Ccfs per bill

2001 11.67 Ccfs per bill

2002 10.17 Ccfs per bill

However, when one attempts to match these estimates do not match with the actual values actually experienced, and, in fact, each estimate is well below the value that was actually experienced. In fact, the last four estimates would not even show up on the graph since 16 Ccfs per bill is the lowest point on the Y-axis. Clearly, the same gap between actuals and estimates also occur for the months of July and August.

Another common sense check of the estimates is to see just how low a projection into the future would go. It doesn't take long to reach the totally unrealistic value of negative usage:

2003 8.67 Ccfs per bill

2004 7.17 Ccfs per bill

2005 5.67 Ccfs per bill

2006 4.17 Ccfs per bill

2007 2.67 Ccfs per bill

2008 1.17 Ccfs per bill

2009 -0.33 Ccfs per bill

Q. How can this gap between actuals and estimates consistently occur if the estimate was based on regression analysis?

A. The regression analysis assumed that the trend factor did not vary based on the time of the year. However, based on the comparison of the actual and estimated values, this assumption is clearly flawed. Since the projections for July, August and September are clearly flawed, I performed regression analysis on the Company's data by splitting the trend variable into two variables, summer trend and winter trend.

Q. What were the summer and winter periods in your model?

A. I defined the summer as the billing months of May, June, July, August, September and October. This is consistent with the Company's definition of summer and winter in its proposed tariffs and proposed rate design. Of course, winter was the remaining months of November, December, January, February, March, and April.

Q. And what were the results of your analysis?

A. The regression analysis showed that for a majority of rate classes and districts, the summer trend variable was not statistically significant. The definition of what is or is not statistically significant is a matter of opinion. Dr. Cummings defined statistically significant as a 90% degree of confidence while I personally prefer a 95% degree of confidence. By my definition, all nine-customer class/district combinations showed a summer trend factor that was not significant. By Dr. Cummings definition, the Joplin Residential and the St. Joseph Residential Summer trend factors were marginally significant while the other seven summer trend factors were not significant.

Q. Why is it important that the summer trend factor was not significant?

A. First, it begins to explain why Dr. Cummings trend factor differed from the actuals experienced in July, August and September. Second, it impacts revenues because the Company's calculations made a larger adjustment to the summer months than it did to the winter months. Finally, the Company's proposal to implement an entirely different rate design, the weather mitigation rate design, could impact revenue levels if seasonal and blocked rates are implemented.

Q. What would be the impact on revenues of simply removing the Company's proposed Load Attrition Adjustment from the summer months if the current rate design remained in place?

A. The proposed Load Attrition Adjustment for the summer months is ($922,208). Since the total Load Attrition Adjustment is ($1,629,718), the summer months account for 56.6% of the adjustment. The reason that more than one-half of the adjustment would be eliminated is that the 15-month shift in the annual periods includes a double movement of the months of July, August and September; this means that eliminating the summer months would essentially eliminate nine months of adjustments,

not just six. Therefore, over one-half of the adjustment would be eliminated by throwing out the summer load attrition adjustments, no matter what the final rate design is.

Q. Why would a rate design proposal have any impact on revenues?

A. Rate design proposals would impact revenues if there were a shift in rates between seasons or blocks. Even assuming that Staff supported an out of test year adjustment (which, of course, Staff does not), my analysis concludes that Dr. Cummings trend factor adjustment would incorrectly remove Ccfs from the summer months. This would result in incorrect revenue adjustments proportional to the difference in the summer and winter rates.

Since the Company's proposed weather mitigation rate design would shift rates both between seasons and between blocks, the interaction between the proposed weather mitigation rate design and the proposed load attrition adjustment could have significant impact on the revenue calculations. However, the real impact of the rate design cannot be determined until the revenue requirements are determined and the rate designs subsequently set.

CLASS COST OF SERVICE

Q. Have you reviewed the Class Cost of Service Study filed in this case?

A. Yes. Probably the most noticeable difference between the studies is that the total amount of required revenue is significantly different. This difference is simply a reflection of the differences in revenue requirement between the Company, Staff, and the Office of the Public Counsel (OPC). Although one would prefer that these totals were the same in all three studies, there are still ways to compare the resulting class revenue responsibilities. Probably the simplest way to compare the results is to determine the

percent of revenue responsibility for each class. The table below shows the resulting percent of class revenue requirement for the three studies:

Party	Residential	SGS	LGS	LVS
Company	73.80%	18.44%	1.04%	6.72%
Staff	72.03%	18.87%	1.03%	8.27%
OPC	62.95%	21.79%	1.43%	13.83%

Once the results are converted to percentages, it becomes apparent that there is a large amount of agreement between the studies.

Q. How do the results of Staff's study compare to the Company's results?

A. Despite the large difference in the total revenue requirement, the percentages of class revenue responsibility are very similar. For the Residential Class, which clearly has the largest revenue responsibly in all studies, the difference between Staff and the Company is 1.73%. While there are many specific differences in the allocation of specific accounts, the overall percentage difference of 1.73% for the residential class' revenue responsibility is negligible.

Q. Why is it important that the differences are negligible?

A. Quite simply, if revenues are going to be shifted between classes, the largest class, the Residential Class, almost has to be involved if the shifts are going to be meaningful.

Q. How do the results of the Staff and OPC studies compare?

A. Clearly the differences between the two studies are larger than the differences between the studies of Staff and the Company. After comparing these two studies, I have determined that the primary difference is due to the allocation of mains.

Q. Why does the allocation of mains account for most of the difference?

A. Mains are a joint cost. By joint cost, I mean that an investment in mains generally will benefit multiple customers and these customers will likely be members of multiple customer classes. In contrast, some investments, such as a meter, can be assigned to a specific customer and may not be suitable to serve some classes. To allocate joint costs, an analyst must use their judgment.

Q. The OPC's allocation of mains uses the twelve monthly peaks to allocate mains. Does this account for the allocation of mains differences between the Staff and OPC?

A. Yes, in large part. To test this, I substituted the OPC's RSUM allocator into the peak demand portion of Staff's mains allocator. This one change explained approximately half of the differences between the two mains allocators.

Q. Is there some merit to using twelve monthly peaks instead of a single peak?

A. Yes. A main is in place 365 days a year, not just the peak day. Many customers receive natural gas that traveled through the mains all 365 days a year. Therefore, an allocator that looks at more than just the peak day of the year has merit.

RATE DESIGN

Q. Have you reviewed the Company's Rate Design Proposal?

A. Yes. Based on a review of the Company's testimony, I have determined that the Weather Mitigation Rate Design appears to be the most important rate design issue from the Company's perspective. This proposal is based on the Weather Mitigation Rate Design that is currently in place for Laclede Gas Company.

Q. Do you have personal knowledge of the Weather Mitigation Rate Design that was implemented in Case No. GR-2001-0629?

A. Yes. I filed testimony in that case on the issues of Large Customer Adjustments, Class C-O-S Allocators, and Rate Design. I also testified on the determination of billing units to set rates. I have always thought of Laclede's Weather Mitigation Rate Design as an experiment. I believe that the language in the Stipulation and Agreement which reserves the rights of the parties to propose the elimination or modification of the rate design in future proceedings was based on the view that this is an experiment.

Q. Do you have any concerns with expanding this experiment to MGE's service territory also?

A. Yes. First, some of the concerns that Staff raised in that case are also a concern for implementing this rate design for MGE. Some of those concerns were related to the Purchased Gas Adjustment (PGA). These concerns that were expressed by Staff witness David M. Sommerer were the ability of this rate design to properly collect the PGA costs and the ability to audit the PGA in the ACA process.

In addition, after the Stipulation and Agreement was signed by the parties, a controversy arose regarding the calculation of normalized blocked Volumes (measured in Ccfs in MGE's service territory). This eventually required a hearing and Commission Order to resolve this issue. As the Staff witness in that hearing, I can honestly say that the controversy occurred because the weather mitigation rate design places more importance on each Ccf in the first block. When I say more importance, I mean that each Ccf is approximately at least five times more important to the Company's bottom line when compared to a Ccf in more standard rate design.

Q. Will the level of Ccfs in the first block be any clearer in MGE's proposed rate design?

A. No. I believe that the proper level of first block volumes is even less certain in this case since MGE does not currently have a blocked rate in effect for the Residential Class.

Q. Is the level of first block sales really that important?

A. In the Laclede case, the controversy arose over the volumes in just one winter month, November, yet it was valued at approximately one million dollars. While MGE is about 75% or 80% the size of Laclede, the possibility of having multiple months of disagreement could literally mean that there could be a disagreement of millions of dollars related to the proper level of first block volumes.

Q. Laclede's weather mitigation rate design has been in effect for over a year. Isn't that enough time to thoroughly analyze the program?

A. No. The data from the first ACA period is available, but has not been audited. In addition, in theory, the weather mitigation rate design, in theory, has advantages for ratepayers in winters that were both colder and warmer than normal. There has not been enough time to track this program for several winters to determine if it indeed has advantages for ratepayers.

Q. In the Laclede Stipulation and Agreement, the following statement was included in the weather mitigation rate design section: "It is also understood that the impact of such weather mitigation rate design on the Company's risk has been given consideration in the settlement of the issues in this case." Do you believe this statement has relevance when considering the MGE weather mitigation rate design proposal?

A. Yes. I believe that MGE's risk is clearly related to this issue. I contend that weather mitigation rate design, weather normalization, load attrition, and rate of return are all related issues.

Q. How could all these issues be dealt with in this case?

A. The most obvious way is that these issues are dealt with in a global settlement.

Q. Is there another alternative that would address some of the concerns of Staff?

A. Yes. I would propose that a declining blocked rate structure be implemented for the Residential Class. First, this proposal would not impact the PGA/ACA process. Since I would propose that this blocked rate have a moderate differential, this would give the Company more fixed revenue and would allow the Company to collect a good history of blocked data for the Residential Class.

Q. Wouldn't the creation of the blocked rate still make the determination of first block volumes an important issue?

A. While all issues concerning a Company's revenue requirement have some level of importance, the cost per Ccf is simply the difference between the first and second block. When I say a moderate differential, I am talking about a differential of two or three cents per Ccf. Dr. Cummings' weather mitigation rate design results in a differential of $0.21839 cents per Ccf before any increased revenue requirement is implemented. Using these values, each Ccf is seven times more valuable under Dr. Cummings proposal when compared to my proposal.

Q. Does this conclude your rebuttal testimony?

A. Yes, it does.