

February 18, 2011

**RE: KEMA Response To Stakeholder Comments Dated February 7, 2011**

**Docket Number – EW-2011-0136**

From: Rick Voytas, Manager Energy Efficiency and Demand Response – Ameren Services On Behalf Of Ameren Missouri

Thank you for the opportunity to respond to the report issued by KEMA. As you can tell by reading our response, Ameren Missouri has spent a lot of time analyzing the KEMA report and comparing the statewide study to the Ameren Missouri study. As you read through our response, you will note we are not making our recommendations lightly. We are very concerned with the inaccurate data from the statewide study, and also very concerned unachievable targets and goals will be established using inaccurate data from KEMA's flawed report, and Missouri consumers will ultimately have the burden to pay for these mistakes. Therefore, it is our recommendation the results of the KEMA statewide DSM study be disregarded by the Commission and by Stakeholders.

As a general observation, the KEMA response to stakeholders' comments adds little to our understanding of the KEMA inputs and modeling processes used to estimate Missouri statewide DSM potential. KEMA focused its energy on attacking the validity of the Ameren Missouri study rather than answering questions from stakeholders regarding the KEMA January 15<sup>th</sup> draft report. Ameren Missouri is disappointed that KEMA does not understand the approach that Ameren Missouri's DSM Potential Study contractor used to estimate achievable potential and has mischaracterized it. Key mischaracterizations of the Ameren DSM potential study by KEMA include:

- Presumption that Ameren's DSM potential results are gross rather than net
- Assertion that Ameren's achievable potential estimates are driven by "informed assumption" instead of primary market research
- Treatment of codes and standards
- Assertion that cost effectiveness screening includes full program cost adders
- Allegation that Ameren was unwilling to produce confidential or difficult data items, despite Ameren's offers (and KEMA's declinations) to pursue appropriate means to do so.

The fact that KEMA elected not to discuss their concerns regarding the Ameren Study with anyone at Ameren Missouri subsequent to the January 20<sup>th</sup> workshop prior to mischaracterizing it in their response is more disappointing. Ameren Missouri made it clear at the Commission's January 20<sup>th</sup> workshop that Ameren Missouri would work with

KEMA to clarify whatever issues they may have with the Ameren Missouri DSM Potential study. The dialogue from the January 20<sup>th</sup> workshop transcript is:

5 MR. VOYTAS: Just one second. I  
6 appreciate that, and I've never been involved in a  
7 study with a time frame like this, you know, where I  
8 get a report two days before the meeting that's  
9 several hundred pages and review it. But I  
10 understand that but, please, I -- you know, Dave  
11 Costenaro and I are extremely familiar with the  
12 Ameren Missouri report.  
13 I don't recall having getting any calls  
14 from the KEMA team on this. We would have loved to  
15 sit down and talked with you. Come to our place. We  
16 would've loved -- I don't recall ever having done  
17 that, and that offer was always open, and so to hear  
18 that at this late date, there certainly was no  
19 intention to be nontransparent.  
20 We would've opened all of our files,  
21 books, and given you all the knowledge we have, but I  
22 don't recall that request ever happening --  
23 MR. COITO: Okay.  
24 MR. VOYTAS: -- but going forward, we can  
25 talk.

60

As of today's date, KEMA has still not contacted us to discuss any concerns. KEMA also chose not to contact us regarding Staff's request to insert a comparison of Ameren Missouri and KEMA comparisons into the report.

Of the multiple issues that Ameren Missouri raised about the KEMA January 15<sup>th</sup> statewide report, one fact is certain – the KEMA January 15<sup>th</sup> document reported gross rather than net DSM potential for the state of Missouri. Gross DSM potential overestimates the amount of utility sponsored achievable energy efficiency by the amount of naturally occurring DSM potential. KEMA's acknowledgement of presenting gross savings is in Attachment A, page 6 of their response:

*“Note that KEMA's gross achievable potential estimates are 10% of base usage for the 1-year payback scenario and 7% of base usage for the 3-year payback scenario, which are similar to the Ameren “net” savings.”*

Although we now know that KEMA is reporting gross savings, we still do not know whether the gross savings reported in Table 1-1 of their draft report are the real gross savings or whether those in Table 1-5 are the real gross savings. In the final report, both tables have to be consistent.

The Ameren Missouri specific comments to KEMA's February 7<sup>th</sup> responses focus on the following five themes:

## **1. AMEREN MISSOURI PERFORMED A STATE-OF-THE-ART POTENTIAL STUDY**

- Best practice market research
  - Residential customers – online surveys
    - 1,284 Saturation surveys
    - 1,126 Program interest surveys
  - Small and medium C&I customers – online surveys
    - 800 Saturation surveys
    - 750 Program interest surveys
  - Large C&I customers – online surveys
    - 221 Saturation surveys
    - 273 Program interest surveys
  - Complex C&I customers – onsite surveys
    - 145 site visits distributed strategically among campuses/locations of top customers
  - Trade Allies – 40 telephone interviews
- In total **over 4000 surveys**
- Fully funded study
  - \$900,000 overall project cost
    - \$500,000 market research
    - \$400,000 data analysis
- Nationally recognized study project team
  - Global Energy Partners
  - The Brattle Group
  - Momentum Market Intelligence
  - Washington University in St. Louis
- Cutting edge customer “take rate” (for energy efficiency measures) approach
  - Battery of customer probing attitudinal survey questions
  - Data processing and analysis
  - Segmentation and factor analysis
  - Characterization of likely takers and DSM program participants
- Forecast baseline of end-uses by sector
- Robust scenario development addressing the following:
  - New aggressive codes and standards
  - High infrastructure costs, i.e., increased levels of utility spending for compliance with environmental regulations, new generation, Smart Grid

- Prolonged economic recession beyond 2 years

Compare/contrast the Ameren Missouri DSM Potential study approach to the statewide underfunded approach – approximately \$200,000 for a statewide DSM potential study covering both electric and natural gas DSM potential. As a result of the underfunding, the statewide approach relied upon secondary and tertiary data sources rather than current Missouri primary market research data. KEMA relied upon national data from the Energy Information Administration to develop Missouri statewide energy use by sector, used Rhode Island commercial end-use saturations as a proxy for Missouri, relied upon a Colorado study for commercial end use intensities, relied upon unspecified “other” data to estimate commercial floor space, based Missouri end-use industrial sector end use estimates in part on KEMA work done in Colorado in 2004 – to list a few of the workarounds required in an underfunded study.

Another consequence of underfunding is the apparent lack of senior project management made available to the study. The large number of issues on the January 15<sup>th</sup> KEMA draft report raised by stakeholders, glaring data discrepancies in the report, confusion over whether to report gross or net savings on the part of KEMA, clear lack of energy to understand the Ameren Missouri DSM Potential study, failure to respond in an open and transparent manner to stakeholder questions – i.e., failure to provide detail supporting DSM program cost assumptions, failure to show the calculation underlying DSM program market acceptance rates, failure to show the number of CFLs assumed to be added in each year of the study, etc. – are all indicative of a lack of project oversight by KEMA, Staff and DNR leadership. KEMA openly admitted at the January 20<sup>th</sup> workshop that project management was reflective of budget and schedule constraints. The dialogue from the January 20<sup>th</sup> workshop transcript is:

1 MR. COITO: We review it at several  
2 levels. The review is time-dependent, so the more  
3 time we have, the more review we get. There's lots  
4 of numbers in there. We -- we try to -- you know,  
5 first of all, we review the overall results, to start  
6 with.  
7 Results in this study have been, I think,  
8 consistent with other studies we've seen at the big  
9 picture level. I think our gross savings shown, you  
10 know, about 1 percent per year savings for our 75  
11 percent, which is our aggressive scenario. Lines up  
12 pretty well with, you know, what we've seen in some  
13 other states.  
14 Some other states are going to 2 percent  
15 per year savings. We don't, you know, buy into that  
16 completely. You know, our net numbers, you know,  
17 look about, you know, a little -- you know, about --  
18 I would say, you know, much less than one percent per  
19 year savings, so that's the first check.  
20 You know, we -- we start getting back as  
21 far as we can into the weeds given how much time we  
22 have so, you know, the fact that probably -- you  
23 know, looking in our appendices, there was not senior  
24 review over every single number and, you know, we  
25 continue to review. In fact, that's why there

105

1 was some updates between our, you know, economic  
2 potential change and our final report, 'cause  
3 we're -- you know, as time goes, we continue to  
4 review this.  
5 This is a very tight deadline project so,  
6 you know, I would argue that probably the review is  
7 not as -- you know, if we'd have had more time, we'd  
8 have done more review.

## **2. THE AMEREN MISSOURI STUDY ENCOURAGED SUBSTANTIAL STAKEHOLDER INPUT**

A number of Stakeholder workshops were held regarding the development of the Ameren Missouri Demand Side Market Potential Study:

**February 4, 2009:** An Introductory Stakeholder Workshop was held that identified the study team members, the study objectives, and tasks to be performed in the study. Stakeholder comments and suggestions were requested and a list of action items was developed and addressed in the following weeks.

**April 7, 2009:** As part of the action items follow-up to the February 4, 2009 meeting, the Measure list inputs were developed and distributed for Stakeholder comment. Stakeholder comments were prepared and received by Ameren Missouri.

**May 20, 2009:** Stakeholder comments on the Measure list inputs were prepared and received by Ameren Missouri, and were incorporated into the final version of the Measure list, as "EE Measures and DR Options\_Ameren Missouri\_2009-05-20.xls".

**June 23, 2009:** A Stakeholder Workshop was held to provide a DSM Market Potential Study Status Update. During the meeting the measure list that would be screened was identified, along with the adjustments to the list as provided by the Stakeholders.

**October 29, 2009:** The next Stakeholder workshop included an update for the Ameren Missouri DSM Market Potential Study related to the Market Research results and the status of the remaining work for the study. The workshop also covered a number of subjects related to current EE program activities as well as the results of a recently completed Ameren Missouri Distributed Generation Market Penetration Assessment. Stakeholder comments and suggestions were accepted during the workshop.

**January 28, 2010:** The Final Report for the Ameren Missouri DSM Market Potential Study (a four volume report showing all steps of the study as well as the results and interpretation of the study results) was distributed to the Stakeholder group.

**February 4, 2010:** The Final Report for the Ameren Missouri Market Potential Study was discussed during a Stakeholder Workshop. The workshop provided an overview of the Study, along with the results of the study. As with the previous workshops, Stakeholder comments and suggestions were accepted during the workshop.

Following this meeting there have been a number of “Post-Study” interactions between the Stakeholders and Ameren Missouri:

**February 11, 2010:** The Missouri Department of Natural Resources (MDNR) submitted a number of questions related to the content of the study, via email. The subject of these questions was:

- Terminology
- Survey samples
- Data and inputs
- Energy potential benefits and supply curves
- Energy savings baselines
- Economic potential in the commercial sector

**March 3, 2010:** Ameren Missouri provided responses to the questions that were presented by the MDNR on February 11, 2010.

**March 11, 2010:** Ameren Missouri hosted a WebEx based discussion between the study contractors and the Stakeholders covering the responses provided on March 3, 2010.

**March 18, 2010:** Ameren Missouri hosted a follow-up teleconference to the March 11, 2010 WebEx, with David Lineweber, who led the market research work for the contractor team that prepared the study, and Mr. Adam Bickford, of the Missouri Department of Natural Resources (MDNR), to specifically address sample design.

**April 1, 2010:** Ameren Missouri issued a follow-up memo to Stakeholders via email that was thought to address all known comments and concerns that had been expressed by the Stakeholder group to date regarding the Ameren Missouri DSM Market Potential Study.

**July 14, 2010:** Mr. Adam Bickford (MDNR) sent memos to Ameren Missouri via email identifying additional concerns with the Ameren Missouri Market Potential Study memo and the market research methodologies used in the study.

**July 15, 2010:** Mr. Adam Bickford (MDNR) presented his concerns from the memos at the Ameren Missouri Regulatory Stakeholder Quarterly DSM meeting

**August 11, 2010:** Ameren Missouri distributed memos addressing Mr. Adam Bickford's concerns that were presented on July 15, 2010.

Ameren Missouri believes that its potential study is one of the best in the country, and with the input of Stakeholders and the robust modeling techniques of the contractor, the study accurately depicts achievable potential in the Company's service territory.

Compare/contrast the level of stakeholder interaction in the development of the Ameren Missouri DSM Potential study to that of the statewide potential study. In the development of the Missouri statewide DSM potential study the Missouri investor owned utilities were excluded from the statewide stakeholder team at the beginning of the study. Consequently, we had no involvement in the development of the scope of work nor did we have firsthand knowledge of the data requirements for the study. It was not until late September 2010 that the Commission directed that the electric utilities be brought into the stakeholder group. Since that time, stakeholder issues, concerns, and questions have been addressed by KEMA in such a cursory manner as to provide little help to stakeholders wishing to understand the basis for the development of their potential estimates.

### **3. KEMA DID NOT CONSULT WITH AMEREN MISSOURI EXPERTS THOUGH THEY WERE INVITED REPEATEDLY TO DO SO**

The point has been well documented that Ameren Missouri repeatedly invited KEMA to discuss any issues, questions, or requests for additional data about the Ameren Missouri DSM potential study. The opening paragraph to this memo cites the transcript from the January 20<sup>th</sup> workshop repeating that offer. For whatever reason, KEMA elected not to seek understanding but choose to misrepresent and mischaracterize the Ameren Missouri study.

KEMA made a bold, but inaccurate, statement in its Appendix A, page 5 about Ameren Missouri declining to fulfill a KEMA data request early in the study. The quote is "KEMA requested Ameren's underlying data in a format that could be manipulated, a request Ameren declined to fulfill."

Ameren Missouri's understanding of this request was to extract data from the Ameren Missouri study and put it into a format that would be compatible with the KEMA models. While we were happy to provide any data that we possessed, we did not have the resources to develop new tables from new data for KEMA. Nor could Ameren release to

KEMA the proprietary model of a competitor, Global Energy Partners. Our understanding was that KEMA engaged a subcontractor, GWM Associates, for data collection and analysis – to handle tasks exactly like this. Part and parcel of Ameren’s responses to KEMA’s data requests were the offers to discuss further if KEMA had questions. KEMA did not elect to follow up on offers to discuss further. The actual data requests and the Ameren responses are public information.

#### **4. KEMA’S RESPONSES ARE NOT ON POINT AND DO NOTHING TO INCREASE OUR CONFIDENCE IN THEIR RESULTS**

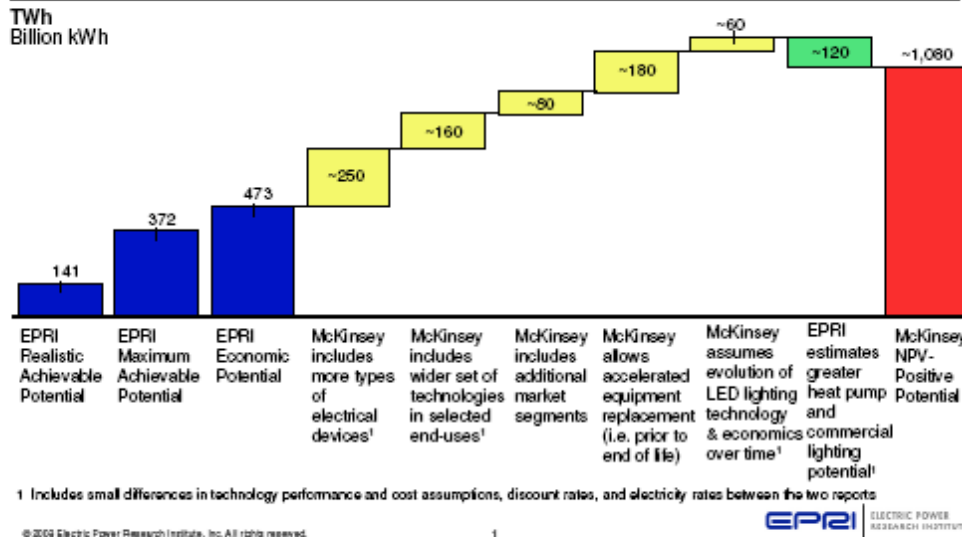
After receiving KEMA’s February 7<sup>th</sup> response, Ameren Missouri still has concerns that the KEMA statewide DSM potential study is seriously flawed and therefore not indicative of achievable levels of DSM potential. The following points illustrate these flaws in KEMA’s response:

- KEMA achievable potential estimates are based on gross rather than net savings
- KEMA only summarily addressed the high level modeling approach differences between the KEMA and Ameren Missouri studies. In doing so, KEMA completely mischaracterized the Ameren Missouri study. We expected KEMA to initiate discussions and develop a more quantitative approach – one that the Commission can readily understand. We would have hoped for a quantitative analysis similar to that prepared jointly by EPRI and McKinsey in comparing their two totally different national DSM potential studies and outcomes. The result of the EPRI/McKinsey comparison was presented in the following format:



## Comparison between EPRI and McKinsey energy efficiency potential values, year 2020

2020 Electricity Energy Efficiency Potential  
(Relative to AEO 2008 Reference Case)



- KEMA provided evidence that their estimates of DSM potential are overestimated in the Missouri statewide study. Key areas for concern include:
  - KEMA acknowledged that they underestimated refrigerator recycling costs by a multiple of five and overestimated the remaining useful lives of recycled refrigerators by almost a multiple of four thereby significantly increasing the potential estimates and decreasing the cost estimates for these substantive programs.
  - KEMA acknowledged that they overestimated the savings persistence of customer behavior feedback programs, which is shown in their report Appendix E at 5 years. They will reduce this useful life to 1 year.
  - KEMA claims to be conservative in its estimates of DSM potential using best practice program designs. The customer behavior feedback program is a prime example of KEMA *not* using best practice program designs – thereby overestimating DSM program potential. KEMA references the ACEEE publication “Energy Efficiency Resource Potential In The Midwest” in their February 7<sup>th</sup> response. Page 18 of this very publication opines that customer behavior change programs should not be included in DSM Potential studies, as follows:
    - “Behavior change is especially difficult to model because over time what now may be considered a change in typical behavior

*might eventually become the norm. The issue is when a behavior change is an innovation, and when it becomes part of the baseline. This issue, too, needs further research.”*

- KEMA includes utility infrastructure measures such as street lights in their estimate of energy efficiency potential, which overstates what utilities can achieve with customer sponsored programs.
- KEMA acknowledged the need to change the analysis of dehumidifiers, which will likely result in the KEMA benefit/cost ratio for this measure going from 30+ to less than 1.0.
- KEMA appears to have only addressed the small sampling of measures that were brought to KEMA’s attention by Ameren Missouri as part of our expedited, limited review. The concern is that the KEMA measure database is outdated and there may be hundreds of other measures that are similarly misrepresented in terms of incremental cost, incremental savings, and effective useful lives.
- KEMA acknowledged that they are using an assumption that all energy efficiency measures have a normalized useful life of 20 years. After several high-level explanations by KEMA, this process is still unclear. Perhaps a sample calculation would be clarifying. It seems that if the measure life is less than 20 years, as in CFLs with effective useful lives in the 6 to 9 year range, KEMA assumes that those measures will be replaced with like measures at no additional cost as many times as needed throughout the 20 years – thereby underestimating the costs and overestimating the impacts of DSM potential.
- KEMA’s technical and economic potentials should be noted and understood to be overstated to the extent that they immediately install all possible instances of the most technically advanced energy efficiency measures, rather than assuming a stock turnover installation method where new energy efficiency measures are added as existing measures reach the end of their useful lives. The technical and economic potentials are also overstated as they encompass the effects of naturally occurring energy efficiency and codes & standards. The technical and economic potential attributable to utility programs should not include these effects.
- Stakeholders voiced concerns that avoided costs may be more than double current levels of avoided costs. KEMA stated that they merely used the avoided costs that Staff had instructed them to use. The impacts of using avoided costs that are too high is too overstate the benefits of DSM programs by, among other things, including energy efficiency measures which would otherwise not be cost effective using lower avoided costs. It would have been helpful if KEMA chose to utilize their professional experience and judgment and opined on levels of avoided costs used in other KEMA engagements over the past six months.

- Although discussed at length in prior workshops, the KEMA study does not account for provisions in Missouri Senate Bill No. 376 that allow certain classes of customers to opt out of participation and payment of utility sponsored DSM programs. Failure to account for this impact, further overstates the amount of achievable DSM potential in Missouri
- KEMA has a perspective on the impacts of appliance and building codes and standards that is liberal and out-of-touch with reality and which will result in overestimating DSM potential in Missouri. On Page 7 of the KEMA response KEMA states *“Experience has shown that as standards shift, the prevalence of higher efficiency equipment increases and the price goes down. The net effect of federal standards and market actions is that a relatively constant differential in efficiency and cost is preserved between baseline equipment and efficient equipment.”* This is patently false. We would point to common examples of measures impacted by codes and standards to illustrate the counterpoint; that is: efficiency improvements have diminishing returns due to physical realities. One example compares the delta between incandescents and CFLs (60W – 15W = 45W delta) with the much smaller, next-generation delta between CFLs and LEDs. (15W – 8W = 7W delta). Another example would be the change in refrigerator appliance efficiency standards that have taken the baseline usage from 1900 kwh to 400 kwh per year. There are very few kwh savings left to be obtained relative to the latest models.
- Our understanding is that the scope of the Missouri statewide DSM potential study covers a 20-year period from 2010-2030. Ameren Missouri has not seen any of the KEMA DSM Potential analysis from 2020-2030. Without seeing any data or analysis, we cannot comment on the 2030 DSM Potential estimates. Suffice it to say that if DSM Potential results are overstated through 2020 it is likely that results will continue to be overstated through 2030.
- The quality and accuracy of a DSM Potential study is a function of budget, schedule and scope. An underfunded study requires reduced scope and schedule and additional workarounds relative to data acquisition depending on how underfunded the study is. Quality and accuracy suffer as a result. KEMA is hedging the validity of the study due to the study time constraints and limited budget. On Page 11 of the KEMA February 7<sup>th</sup> response KEMA states *“KEMA asserts that the data used as input for this study are consistent with best practices for this type of study and that the time frame provided was sufficient to accomplish the study objectives as originally constituted.”* KEMA appears to have chosen their words carefully. It could be that because KEMA chose to bid on an underfunded study that they used their best efforts to acquire data from whatever sources were readily available and did an expedited analysis in the tight timeframe with limited KEMA senior leadership review of the overall analysis process and results.

While KEMA may assert that it takes a conservative approach in its DSM Potential studies, there are numerous facts presented above which indicate that the KEMA

approach uses liberal modeling assumptions that overstate rather than understate achievable DSM potential in Missouri.

## **5. THE KEMA STUDY RESULTS SHOULD BE DISREGARDED BY THE COMMISSION AND STAKEHOLDERS**

For the reasons stated in this memo, it should be apparent that there are numerous and significant issues with the KEMA draft report that call into question its validity. The lack of transparency with the KEMA study is particularly worrisome. When stakeholders ask a simple question such as to provide a list of annual CFL sales assumed in the annual achievable potential estimates, KEMA should be able to readily respond to that request with numbers. When stakeholders ask for the methodology and ensuing quantitative analysis that KEMA uses to assign DSM program administration, marketing, and incentive costs both at the program and portfolio levels, KEMA should be able to respond with their quantitative analyses.

When the Commission requested an easy to understand comparison of major differences between the Ameren Missouri and the KEMA studies, KEMA provided a high level analysis that mischaracterized the Ameren Missouri study - not taking the time to discuss modeling issues with Ameren Missouri.

When stakeholders requested benchmarking analyses with other reports, KEMA merely attached a copy of a list of other reports compiled by ACEEE. The devil is always in the details. It does little to move the discussion when comparing studies that have different parameters. It is essential to understand the list of measures included in each study. For example, is combined heat and power potential included? Is fuel switching considered a measure? Are utility infrastructure improvements included? Of course the timing of comparison studies and the avoided cost assumptions are critical in developing benchmarks.

The fact that KEMA increased their estimates of both realistic and maximum achievable potential in their January 15<sup>th</sup> draft report to almost exactly match those in the Ameren Missouri study appears to be nothing more than a serendipitous event where KEMA simply switched from a net basis to a gross basis for estimating potential. The fact that the resulting comparison is an apples-to-oranges type comparison should not go unsaid.

On January 15<sup>th</sup> KEMA introduced a totally new (new to Stakeholders) concept called the KEMA Norm that attempted to ascribe energy efficiency if incentives were set at 75% of incremental costs. KEMA described this in the report as “theoretical maximum levels of program effort.” The KEMA Norm potential is about 30% higher than the maximum achievable potential level. KEMA has not provided reference to states or programs that utilize this approach. Consequently, the Commission should seriously question the validity of utilizing an unvetted “theoretical maximum level of program effort” in this report.

As we stated in our comments at the January 20<sup>th</sup> workshop, energy efficiency and rulemakings around it are enormously important issues for Missouri. We are concerned that unachievable targets and goals will be established using inaccurate data from KEMA's flawed report, and Missouri consumers will ultimately have the burden to pay for these mistakes.

Ameren Missouri appreciates the opportunity to provide input toward this very important issue, and remains dedicated to being helpful in any way we can to make studies like this accurate and useful for further policy development. As always, Ameren Missouri would welcome discussion with KEMA on any matters relevant to this work.