January 24, 2011

RE: **Missouri Statewide DSM Potential Study Draft Report Dated 1-15-2011**
Docket Number – EW-2011-0136

From: Rick Voytas, Manager Energy Efficiency and Demand Response – on Behalf of Ameren Missouri

Ameren Missouri appreciates this opportunity to share our comments regarding our concerns with the KEMA DSM Study and hopes this information will be helpful to the Missouri Public Service Commission.

The purpose of this memo is to follow-up on the most substantive comments that the Ameren Missouri energy efficiency team made at the January 20, 2011 MPSC DSM Potential Study Roundtable.

Our comments are necessarily abbreviated because there is simply not enough time to file thorough comments on the voluminous draft report and associated Appendices A-G by 8:00 a.m. on Monday January 24, 2011 as requested by Staff – especially with the Roundtable meeting adjourning at noon on Thursday, January 20th. Similarly, there was insufficient time to review 100% of the 145-page KEMA Statewide draft study and the thousands of numbers in Appendices A-G that were delivered to stakeholders late Saturday evening January 15th in the midst of the Martin Luther King, Jr. holiday weekend. Only portions of January 18th and 19th were left to sift through all the information required to prepare for the January 20th Roundtable. To further complicate matters, the KEMA draft report and Appendices were sent in PDF format which made it difficult to understand or interrogate the numbers cited in the report. These concerns are further stated by the short timeframe of only 120 days being allowed for the study.

ISSUE #1: Net or Gross?

KEMA has issued three draft reports on the various types of DSM potential. The reports were delivered on December 15, 2010, January 5, 2011 and January 15, 2011. There have been significant changes in the various types of DSM potential from report to report. KEMA, however, has not provided either a discussion of the changes or a red-lined version of the draft documents that highlight changes. Stakeholders have been left on their own to discern the underlying causes for the changes. Such a process is time consuming and inefficient.

With that background, between KEMA's January 5th and January 15th draft reports, they substantially increased their estimates of realistic achievable potential "RAP" in 2020 (from 5% to 7%) and maximum achievable potential "MAP" (from 6% to 10%). KEMA also added for the first time in this project a totally new scenario "theoretical maximum" potential of 13% in 2020.

KEMA attributed the substantial increases in their estimates of achievable potential to converting potential estimates of electric energy efficiency savings from a net basis to a gross basis.

KEMA should be presenting net numbers as net numbers represent what utility sponsored programs can truly achieve. Unfortunately, the KEMA draft report has major inconsistencies on how it develops net numbers.

Table 1.1 in the Executive Summary of the draft report shows the following levels of achievable potential.

From KEMA Table 1.1	**RAP/3-year payback**	**MAP/1-year payback**	**75% INCENTIVE ACHIEVABLE POTENTIAL**
GWh savings in 2020	6,601	9,394	11,942
% Reduction in 2020	7.1%	10.1%	12.9%

However, the main body of the KEMA report has Table 1.5 that shows substantially different levels of achievable potential.

From KEMA Table 1.5	**RAP/3-year payback**	**MAP/1-year payback**	**75% INCENTIVE ACHIEVABLE POTENTIAL**
Net GWh savings in 2020	3,281	6,571	7,561
% Net Reduction in 2020	3.5%	7.1%	8.2%
Gross GWh savings in 2020	6,406	9,696	10,185
% Gross Reduction in 2020	6.9%	10.5%	11.0%

What are the real gross GWh savings in 2020 – the numbers in Table 1.1 or in Table 1.5? Furthermore, what are the corresponding net numbers? Perhaps most importantly, what is the KEMA methodology for converting from gross to net? What are the net numbers which should ultimately be included in this report? This is one of many examples where KEMA should provide a detailed EXCEL spreadsheet so that stakeholders can see exactly what the KEMA methodology is.

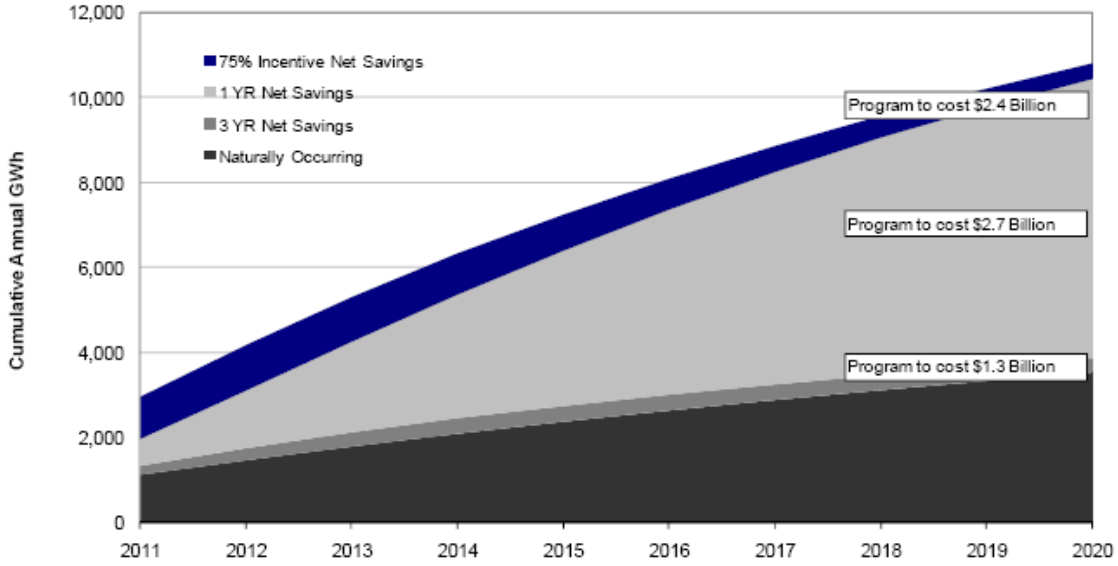
Issue #2: Naturally Occurring Energy Efficiency

Naturally occurring energy efficiency represents the amount of energy efficiency that customers will do on a going forward basis without the benefit of utility sponsored energy efficiency programs. It is a critical component in the development of a base case from which to measure the impact of utility sponsored energy efficiency programs.

The estimation of naturally occurring energy efficiency can be addressed in at least two ways. First, it can be addressed by reducing the base case sales forecast to account for naturally occurring energy efficiency. This is how the Ameren Missouri DSM Potential Study addressed it. Alternatively, it can be addressed by excluding naturally occurring efficiency from the base forecast, in effect "freezing" efficiency penetration at 1st year levels and then adjusting for the effects later in the analysis. KEMA stated that this is the approach that they used, applying the naturally occurring effects at the level of achievable savings.

According to Figure 5-22, the impact of naturally occurring energy efficiency estimated by KEMA is significant – very significant.

Figure 5-22
Achievable Electric Energy-Savings: All Sectors



It is in the 25% to 50% range of total energy efficiency savings depending upon the scenario under consideration.

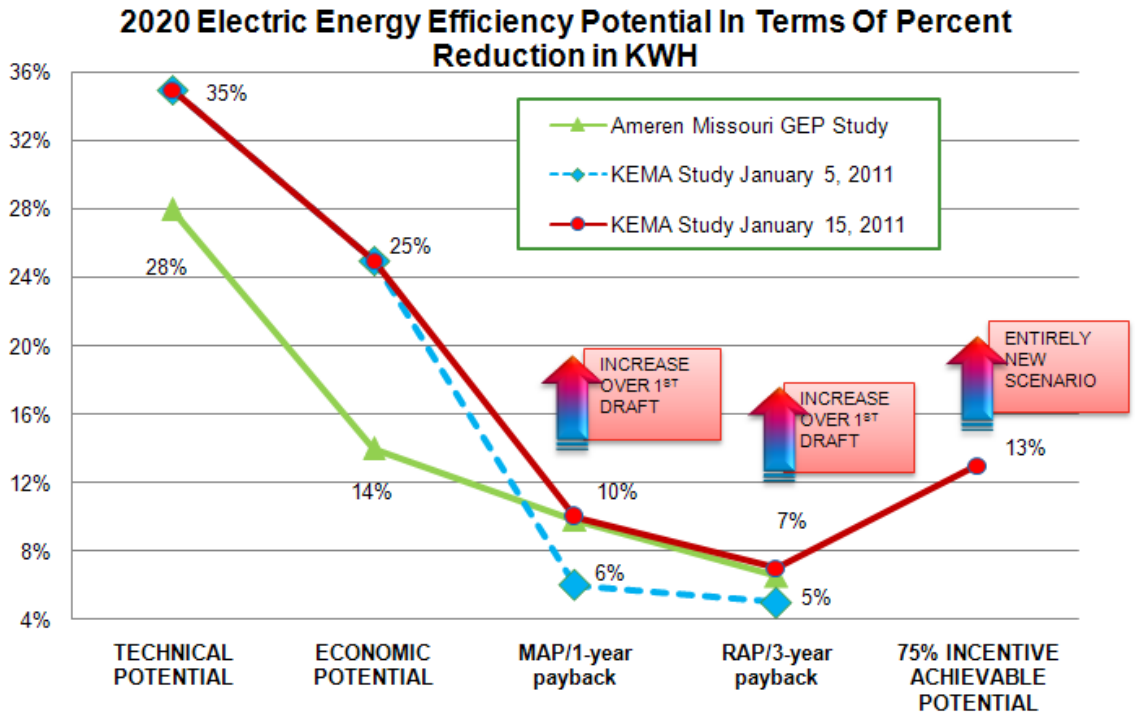
When asked to explain how KEMA estimated naturally occurring energy efficiency – the response was that naturally occurring energy efficiency is an output of the KEMA model. It is critically important to this study for KEMA to articulate in writing, supported by documentation, exactly how they estimate naturally occurring energy efficiency. The implications are significant. First, understanding the process by which KEMA estimates

naturally occurring energy efficiency and how KEMA then uses the output to adjust energy efficiency measure level and program level estimates of achievable potential are the essence of the KEMA study. We need to know how naturally occurring energy efficiency is applied to every measure or program in the KEMA study. Residential lighting, specifically CFLs, is a prime example because the Energy Independence and Security Act of 2007 effectively legislates that incandescent light bulbs can no longer be manufactured after 2014. It is important to see and understand the bulb count, gross kWh savings and net (program-driven) kWh savings that KEMA ascribed to CFLs for every year of the study.

Figure 5-22 and the level of naturally occurring energy efficiency should raise a multitude of energy efficiency policy issues with the Commission – if the KEMA estimates of naturally occuring energy efficiency are truly indicative of where the energy efficiency market is. If naturally occurring energy efficiency represents 25% to 50% of all achievable energy efficiency potential, that indicates that the market for energy efficiency products and services is significantly, albeit not completely, transformed. According to Figure 5-22, it appears that utility sponsored DSM programs that KEMA projects to cost $1.3 billion over ten years will only add a miniscule increment to the overall levels of energy efficiency savings in the state.

Issue #3: Technical and Economic Potential Estimates

The following graph illustrates the significant differences in estimates of both technical and economic potential between the Ameren Missouri electric DSM potental study and the KEMA statewide electric portion of the DSM potential study. The differences are problemmatic because there are succint, quantitative methods to estimate technical and economic potential. Two studies completed within 12 months of each other in the same state should produce much closer estimates. Estimating achievable potential, in contrast, involves a high degree of subjectivity if estimates are not based on primary market research. The achievable estimates derived by KEMA, based on penetration/adoption curves, have not been described or documented in detail at the measure level in any way other than a general listing of illustrative curves in Appendix A.



The ultimate type of DSM potential that the KEMA study estimates is achievable potential. Achievable potential is a function of economic potential which is a function of technical potential. Errors in the estimation of technical and economic potential necessarily impact the estimate of achievable potential. The graph illustrates the magnitude of the differences in technical potential (35% vs. 28% - a 25% difference) and in economic potential (25% vs. 14% - a 79% difference).

Staff made the point that the schedule to complete the final KEMA study is fixed, which precludes time to do a thorough gap analysis between the Ameren Missouri and KEMA statewide studies in order to understand those signficant differences.

One possible reason for the large discrepancy between the KEMA and Ameren Missouri technical and economic potentials would be the aforementioned issue of naturally occuring energy efficiency. Ameren Missouri's estimates build naturally occuring efficiency into the baseline forecast, and exclude those kWh from all subsequently analyzed potentials. KEMA, on the other hand, makes their adjustment at the achievable potential level, thus leaving a large amount of naturally occuring energy efficiency built into the technical and economic potential, as they precede the achievable analysis.

Additionally, Ameren Missouri did a cursory review of several key energy efficiency measure benefit/cost assumptions in the KEMA study. The results indicated that the economic potential ascribed to many individual energy efficiency measures in the KEMA study appear inconsistent with measure level savings, useful lifetimes, and cost assumptions confirmed by evaluation, measurement and verification of actual field installations. Correcting these inconsistencies would bring the KEMA estimates of economic potential closer to the Ameren Missouri DSM potential study estimates.

Ameren Missouri has questions regarding the KEMA assumptions for at least the following specific measures:

1. **Refrigerator recycling** – KEMA ascribes a benefit/cost ratio to this measure of 26.42 based in part on an assumption of an incremental cost of $25. The incremental measure cost to recycle a refrigerator (pick-up, recycle the plastics, glass and refrigerant) is closer to $100. Additionally, the measure life used by KEMA is much longer than that researched and used by Ameren Missouri (19 years vs 6 years).
2. **Energy Star Dehumidifier** – KEMA ascribes a benefit/cost ratio to this program of 36.11. The Energy Independence and Security Act of 2007 (see citation below) mandates that all dehumidifiers meet Energy Star standards effective October 2012. Consequently, efficiency programs should move away from incentivizing dehumidifiers.

SEC. 311. ENERGY STANDARDS FOR HOME APPLIANCES.

(a) APPLIANCES.—

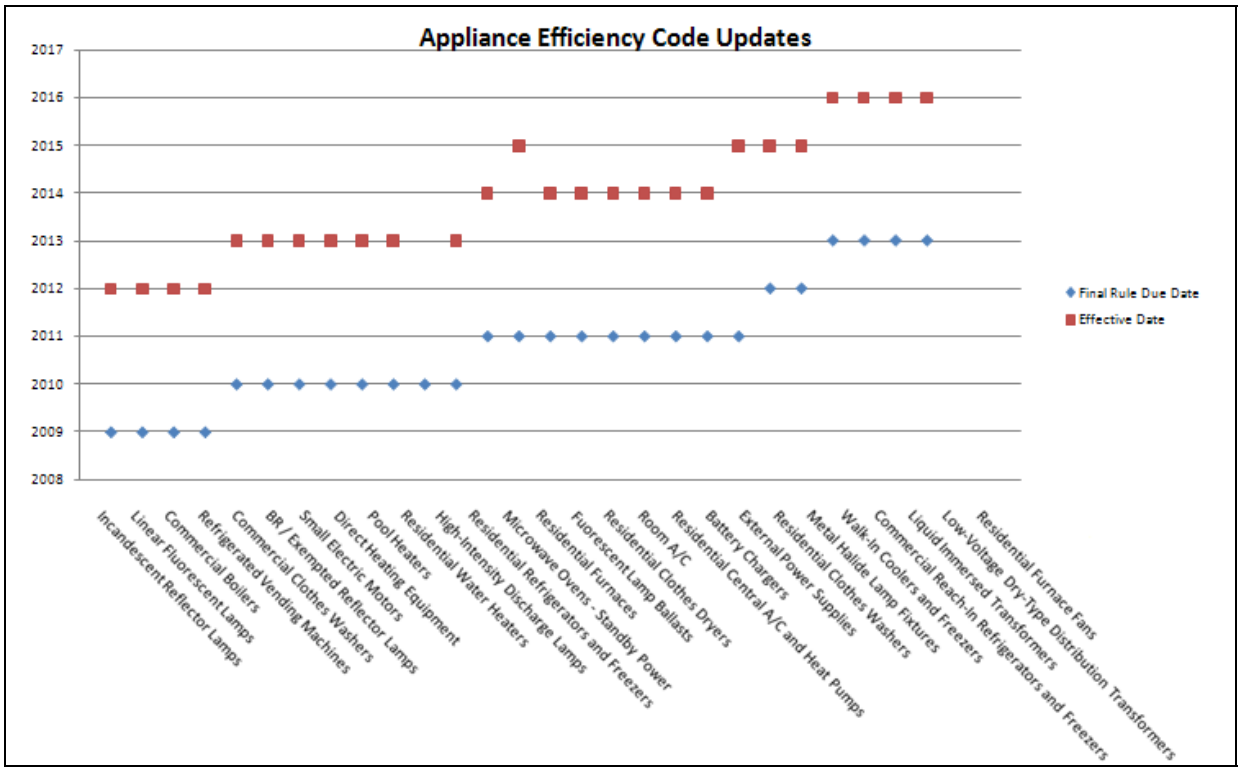
(1) DEHUMIDIFIERS.—Section 325(cc) of the Energy Policy and Conservation Act (42 U.S.C. 6295(cc)) is amended by striking paragraph (2) and inserting the following:

''(2) DEHUMIDIFIERS MANUFACTURED ON OR AFTER OCTOBER 1, 2012.—Dehumidifiers manufactured on or after October 1, 2012, shall have an Energy Factor that meets or exceeds the following values:

''Product Capacity (pints/day): Minimum Energy Factor (liters/ kWh)

Up to 35.00 ..... 1.35 35.01–45.00 ..... 1.50 45.01–54.00 ..... 1.60 54.01–75.00 ..... 1.70 Greater than 75.00 ...2.5.''.

3. **Appliances in general** – similar to dehumidifiers, there are a multitude of appliances for which federal rulemaking and associated increased efficiency standards are known and measureable. A baseline forecast should include the associated reduction in electric sales. Regardless, a potential study's cost effectiveness screening should be based on known and measureable standards. A partial list of the new standards is shown below:



4. **LED lighting** - There are a number of LED measures in the KEMA study that replace an incandescent bulb. After 2014, EISA will be the baseline, so an incandescent baseline is incorrect and overstates the incremental savings.
5. **Duplicative measures** – In the industrial measures, there appear to be many overlapping fan and pump measures presumably being applied to the same system. The possible issue is double counting of the same savings multiple times for duplicative measures like: replace motor, correct motor sizing, motor practices, install controls, system optimization.
6. **CFLs** – it is unclear in the KEMA study as to the percent of energy savings in each year of the study attributable to CFLs after applying the appropriate net-to-gross ratios. On Page 5-1, KEMA states that their technical potential and economic potential estimates include all CFLs through 2020, even though federal legislation will move the market naturally. Because of EISA 2007, the Ameren Missouri study includes the effects of those CFLs in the base sales forecast, not the potential estimates. It appears that KEMA may be in essence double counting the effects of CFLs.
7. **Behavior modification** – Behavior modification or indirect feedback, which is the term used by KEMA in its study, is listed in the top 20 KEMA cost-effective measures. Behavior modification programs are similar to recently introduced pilot scale customer energy consumption feedback reports that have been piloted by a handful of utilities nationally. Evaluation, measurement and verification reports of the handful of studies completed to date indicate that there is a persistence issue with this program. Studies show that customers can reduce their annual energy consumption by as much as 2% if they receive reports on a bi-monthly basis. However, once the reports stop, the customers revert to their prior

energy consumption patterns. This means that the program has a persistence or expected useful life of 1-year. Yet, the global assumption in the KEMA study appears to use a 20-year normalized life for all measures. The assumption is that measures are re-installed as many times as necessary by the customer at the customer's sole expense at no cost to the utility - if the measure life is less than 20-years. If our understanding is correct, such an assumption will have a tremendous impact on improving the economics of an indirect feedback program.

8. **20-year Normalized Measure Life** – It goes without saying that a global energy efficiency measure life assumption of 20-years will also have an influence on increasing the estimate of energy efficiency potential and decreasing the estimate of associated costs of achieving energy efficiency potential across a large percentage of cost effective energy efficiency measures with expected useful lives of less than 20-years. Ameren Missouri would like clarification on how this concept is applied, and would like to verify that renewed efficiency measures are not allocated to the achievable potentials at zero program cost. The workpapers received to date have not made this observation possible.

Issue #4: DSM Program and Portfolio Cost Estimation

As important as the process for estimating energy savings attributable to utility sponsored energy efficiency programs is, so too is the process for estimating the associated costs of implementing programs to install cost effective energy efficiency measures.

The KEMA draft report provides scant, if any, information on cost allocation.

Table 1-5 in the KEMA report shows the following cost allocations for electric energy efficiency programs:

Result - Programs	3 YR Payback	1 YR Payback	75% Incentive
Gross Energy Savings - GWh	6,406	9,696	10,185
Gross Peak Demand Savings - MW	1,175	2,259	2,169
Net Energy Savings - GWh	3,281	6,571	7,561
Net Peak Demand Savings - MW	779	1,863	1,801
Program Costs - Real, $ Million			
Administration	$193	$246	$317
Marketing	$223	$223	$221
Incentives	$597	$2,148	$1,723
Total	$1,013	$2,617	$2,260
PV Avoided Costs	$2,797	$6,196	$6,771
PV Annual Program Costs (Adm/Mkt)	$334	$377	$433
PV Net Measure Costs	$927	$2,331	$1,977
Net Benefits	$1,536	$3,488	$4,361
TRC Ratio	2.22	2.29	2.81

Ameren Missouri cannot find documentation describing the methodology by which KEMA estimated program level costs. Nor can we discern how KEMA accounted for portfolio level costs for critical components such as evaluation, measurement and verification, portfolio level customer information and education, portfolio level marketing etc. It would also be useful to understand the process by which KEMA benchmarked its cost estimates to actual costs that Missouri investor owned utilities have incurred to implement its programs. Helpful metrics would be levelized cost per unit of energy saved, or a year-by-year cost per first-year-installed kWh or therms.

In addition, we need to understand the cost components that KEMA ascribes to achieving maximum levels of energy efficiency potential. The definition of maximum achievable potential (" MAP") is generally along the lines of the maximum penetration of cost effective energy efficiency measures that would be adopted given unlimited funding, and assuming a concerted, sustained campaign involving highly aggressive programs and market intervention.

MAP presumes no impediments to the effective implementation and delivery of programs. For example, the regulatory framework to encourage energy efficiency is in place. Customers, legislators, regulators and utilities are on the same page as to the prioritization of energy efficiency opportunities. State run programs are aligned and leveraged with IOU programs. In essence, MAP assumes the regulatory/legislative/state-utility cooperation model described in EPACT 2005 is in place. The pertinent section of EPACT 2005 is attached.

Concluding Observations

The project management over the KEMA statewide DSM potential study has and continues to increase our levels of concern with the reasonable accuracy and usefulness of the statewide report. Of the many project management issues, perhaps the lack of transparency in the development of information contained in the KEMA draft report is the predominant issue. As we've stated, KEMA has not provided a roadmap or description of changes it has made to its analysis from draft report to draft report. When information is given to Missouri stakeholders, the information is in PDF format or another format that does not show the formulas and logic used to develop numbers in the report. Ameren Missouri has spent significant man-hours, but in very short condensed spurts to comply with unreasonable turnaround times, in reviewing the KEMA draft reports. Our reviews led to questions for which we have not received answers.

The project review and quality control process employed by KEMA has been limited by budget and schedule considerations. The truth is that there has been little review and quality control over the draft reports that have been sent to Missouri stakeholders. The issues described in this memo hopefully illustrate that point effectively. KEMA themselves admitted the 120 day timeline limited their ability to provide in-depth review over product sent to stakeholders.

There are a myriad of issues in doing a Missouri statewide DSM potential study using secondary and tertiary data sources and relying on data based on metrics in such states as Rhode Island, Connecticut, and Colorado. Even more troublesome is the possibility that KEMA may be using a non-applicable or outdated dataset of energy efficiency measure energy savings and costs.

Finally, there appears to be a rush to the finish line to complete the study no later than the date listed in the Missouri and KEMA contract. If so, the issue is quality versus schedule compliance; but the two are incongruent. It appears that schedule will rule. The KEMA study will do little, if anything, to move the optimal implementation of energy efficiency forward in Missouri. It may do the opposite.

Energy efficiency and rulemakings around it are enormously important issues for Missouri. Ameren Missouri is concerned unachievable targets and goals will be established using inaccurate data from KEMA's report, and Missouri consumers will ultimately have the burdened 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. There were several times during this process, Ameren Missouri compared data from KEMA's study to the Ameren Missouri DSM study. If further comparison is beneficial, the Company will be more than happy to provide any detail required.