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MISSOURI PUBLIC SERVICE COMMISSION

Case No. EO-2011-0271

SURREBUTTAL TESTIMONY

OF

RICHARD A. VOYTAS

ON

BEHALF OF

UNION ELECTRIC COMPANY
d/b/a Ameren Missouri

St. Louis, Missouri
November, 2011

Table of Contents

SURREBUTTAL TESTIMONY

OF

RICHARD A. VOYTAS

CASE NO. EO-2011-0271

Q. Please state your name and business address.

A. My name is Richard A. Voytas. My business address is One Ameren Plaza, 1901 Chouteau Avenue, St. Louis, Missouri 63103.

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

A. I am employed by Ameren Services Company ("Ameren Services") as Manager, Energy Efficiency and Demand Response in the Corporate Planning Department. I am representing Union Electric Company d/b/a Ameren Missouri ("Ameren Missouri" or "Company") for purposes of this surrebuttal testimony.

Q. Please describe your employment history and qualifications.

A. My employment history and qualifications are attached in Schedule RAV-E1.

Q. What is the purpose of your surrebuttal testimony?

A. The purpose of my testimony is to demonstrate that intervenor allegations that the Company's Demand-Side Management ("DSM") analyses are not in compliance with the Commission's Integrated Resource Planning rules are without merit and should be rejected.

I. DSM POTENTIAL STUDIES AND THE PERTINENT PROVISIONS OF 4 CSR 240-22.050 – DEMAND-SIDE RESOURCE ANALYSIS

Q. Did 4 CSR 240-22.050, at the time the Company's Integrated Resource Plan ("IRP") was filed, explicitly require that the Company perform a Demand-Side Management ("DSM") Potential Study?

A. The rules do not contain the term "DSM Potential Study". However, 4 CSR 240-22.050 (4) states:

> *The utility shall estimate the technical potential of each end-use measure that passes the screening test.*

In addition, 4 CSR 240-22.050 (5) states:

> *The utility shall conduct market research studies, customer surveys, pilot demand-side programs, test marketing programs and other activities as necessary to estimate the technical potential of end-use measures and to develop the information necessary to design and implement cost-effective demand-side programs. These research activities shall be designed to provide a solid foundation of information about how and by whom energy-related decisions are made and about the most appropriate and cost-effective methods of influencing these decisions in favor or greater long-run energy efficiency."*

Q. Do the IRP rules prescribe how the utility should do the studies? Do they prescribe specific approaches, sample design or survey design?

A. The IRP rules do not prescribe any of the above.

Q. Does any intervenor in this case allege that Ameren Missouri did not in fact conduct an Ameren Missouri specific DSM potential study based on extensive market research using 100% Ameren Missouri specific data?

A. No.

Q. Since it is an undisputed fact that Ameren Missouri did conduct an Ameren Missouri DSM Potential study based on extensive market research using 100% Ameren Missouri specific data, what do intervenors allege that Ameren Missouri did that is not in compliance with the Commission's rules?

A. Since the facts are undisputed, many of the intervenors in this case attempt to insinuate without providing any evidence, that Ameren Missouri's study is somehow flawed in its approach. Perhaps National Resource Defense Council, Renew Missouri, Mid-Missouri Peaceworks, and Great Rivers Environmental Law Center (collectively, "NRDC") witness Philip Mosenthal makes the most outrageous and unsubstantiated allegation of all intervenors. Mr. Mosenthal states on page 4 of his rebuttal testimony that *"First Ameren relies upon a potential study that is riddled with unsubstantiated assumptions all of which conspire to underestimate the potential for cost-effective savings."*

Q. Mr. Mosenthal's use of the word "conspire" implies an intention to deceive on the part of Ameren Missouri. How does Ameren Missouri respond?

A. This allegation is completely false. There is not one iota of evidence to substantiate his statement. Ameren Missouri is proud of its industry leading DSM Potential Study. Ameren Missouri has been completely open and transparent with the study and associated data by placing it on the Ameren website for all to review with no restrictions.

Q. How will you proceed with your testimony?

A. I will address allegations of non-compliance with the DSM portion of the IRP filing. I will start with Mr. Mosenthal.

II. REBUTTAL TESTIMONY OF PHILIP MOSENTHAL ON BEHALF OF NRDC.

A. Maximum Achievable Potential ("MAP")

Q. Beginning at the bottom of page 4 in his rebuttal testimony, Mr. Mosenthal states, with regard to the Ameren Missouri DSM Potential study, *"The study begins with a false premise that maximum achievable potential (MAP) is not achievable."* Mr. Mosenthal proceeds to state on page 11 *"Ameren Missouri also argues that the 2% scenario is not achievable. I disagree and believe a proper maximum achievable potential analysis would find it achievable and cost-effective."* Please comment.

A. Since there are multiple aspects to Mr. Mosenthal's allegations concerning MAP, I will segment my responses to address the definition of MAP and then proceed to discuss Mr. Moesenthal's ***belief*** that 2% annual load reductions are achievable and cost effective.

Q. Did Mr. Mosenthal perform any analysis of Ameren Missouri's DSM potential in reaching his belief about an appropriate level for MAP?

A. No.

Q. What is the definition of MAP?

A. The definition of MAP in the Company DSM Potential Study is:

> **Maximum achievable potential (MAP)** takes into account expected program participation, based on customer preferences resulting from ideal implementation conditions. MAP establishes a maximum target for the EE and DR savings that a utility can hope to achieve through its EE and DR programs and involves incentives that represent a substantial portion of the incremental cost combined with high administrative and marketing costs. It is commonly-accepted in the industry that MAP is considered the hypothetical upper-boundary of achievable savings potential

simply because it presumes conditions that are ideal and not typically observed in real-world experience.

Q. Discuss the conditions that would be considered ideal in order to achieve MAP annual energy savings.

A. Ideal conditions include at a minimum:

1. A regulatory framework that:
    a. Removes utility disincentives to implement energy efficiency programs;
    b. Encourages utilities to voluntarily undertake energy efficiency programs;
    c. Ensures appropriate returns on investments in energy efficiency programs; and
    d. Provide sufficient certainty of cost recovery;
2. Government – Executive, Legislative and Regulatory alignment on state energy efficiency policies;
3. Complementary policies by state and local government to utility programs such as appliance efficiency standards, building codes, and tax incentives;
4. Statewide energy efficiency customer information and education coordinated with utility efforts.

Q. Are there any other ideal conditions that would facilitate the achievement of MAP type annual energy savings specified in the National Action Plan For Energy Efficiency ("NAPEE") *"Guide For Conducting Energy Efficiency Potential Studies" (NAPEE Guide)?*

A. Yes. The NAPEE Guide discusses the types of energy efficiency potential in Section 2.4. Section 2.5 discusses results from prior potential studies. Section 2.5 contains the following statement *"Some studies define this as the maximum potential that could be captured **assuming infinite budget** (i.e., 100 percent of incremental efficiency costs covered*

by incentives, as well as aggressive marketing and other supporting initiatives.)" Therefore, another ideal condition for implementing MAP type load reductions is the assumption of an infinite budget. A copy of the NAPEE guide is attached in Schedule RAV-E2.

Q. Who was the contractor that served as the project manager and co-author of the NAPEE Guide?

A. Mr. Mosenthal.

Q. Should the Commission be concerned that while Mr. Mosenthal's testimony states his belief that MAP level savings of 2% of load per year are achievable, Mr. Moesenthal did not mention the cost to obtain that level of savings – specifically the infinite budget assumption?

A. The Commission should take notice of Mr. Moesenthal's rhetoric that is based on nothing more than Mr. Mosenthal's beliefs. Customers ultimately will bear the burden of paying for such rhetoric if not rejected for being unsupportable. Nowhere does Mr. Mosenthal discuss the customer impacts of his beliefs. As the Commission knows, achievable potential must be balanced against other goals such as maintaining low electric rates and customer equity.

Q. In summary, does Missouri currently have the attributes necessary to attempt to achieve MAP level savings?

A. Missouri has few, if any, of the attributes required for Ameren Missouri to achieve MAP levels of savings.

Q. Is it fair to assume that MAP represents sustainable energy efficiency savings from the most consistent, exemplary DSM programs in the nation?

A. Yes. The MAP construct does, in fact, assume the adoption of programmatic best practices and presence of conditions conducive to energy efficiency programs, including suitable program funding, public service messaging, and information flow between program implementers and customers. One can regard MAP as an extrapolation of the savings results of exemplary programs in specific end-use categories throughout the country.

B. 2% Annual Load Reduction Targets

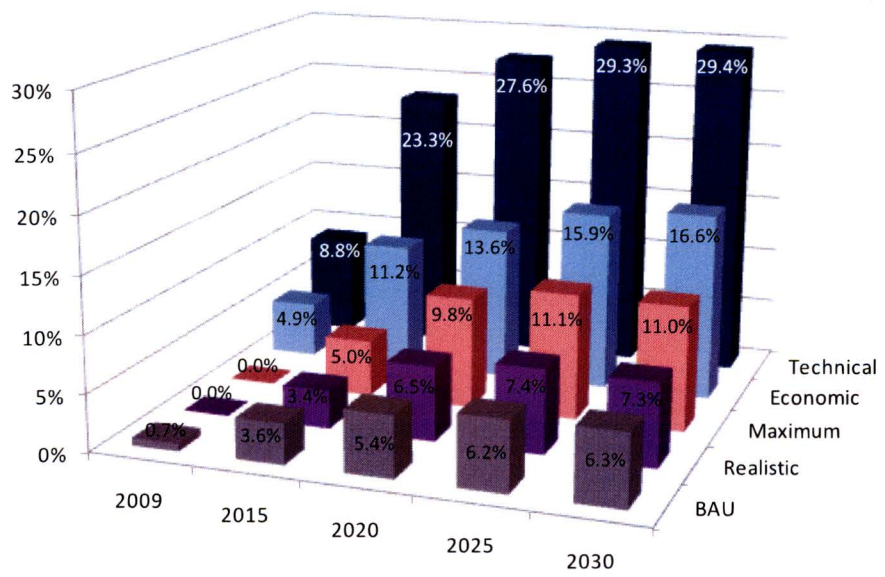
Q. Please discuss Mr. Mosenthal's testimony that 2% annual load reductions are achievable and cost effective.

A. The allegation that Ameren Missouri can achieve sustainable 2% annual load reductions through its DSM programs in a cost-effective manner may be among the most unreasonable of Mr. Mosenthal's allegations.

Q. Please explain.

A. The Ameren Missouri DSM Potential Study begins with an analysis of DSM technical potential. The next step is to apply a cost-effectiveness analysis to technical potential to calculate economic potential. The final step is to apply market acceptance rates to economic potential to estimate achievable potential. The following bar chart was extracted from the Ameren Missouri DSM Potential Study Executive Summary and represents the amounts of technical, economic, realistic and maximum achievable potential over the 2010-2030 IRP planning horizon.

Figure 1 Summary of Energy Efficiency Potential (Savings as % of Baseline)



Q. Please explain technical potential.

A. Technical potential is defined as a theoretical construct that assumes the most energy efficient measures available are adopted by customers regardless of cost or customer preferences. It is based on a bottom-up assessment of the Ameren Missouri market and identifies baseline energy use by end-use, housing characteristics, equipment holdings etc. It is fact based and there are no constraints whatsoever in defining technical potential. The technical potential for the 21-year planning period in the Ameren Missouri DSM potential study for the year ending 2030 is 29.4%. 29.4% divided equally over the 21-year planning horizon yields an average annual technical potential load reduction of approximately 1.4% per year. This is based on Ameren Missouri specific primary market research. Technical potential, by definition has no possibility of being achieved. The notion that Ameren Missouri can achieve a 2% annual load reduction, a level well beyond even annual average technical potential, does not even merit discussion. Mr. Mosenthal's belief that such

reductions are achievable has no basis in fact, and shows that he is completely unfamiliar with the Ameren Missouri service territory characteristics.

Q. Exactly how was technical potential calculated?

A. Technical potential is based on a bottom-up assessment of Ameren Missouri customers using 100% primary market research data. Separate survey instruments were used for the saturation surveys and program interest surveys. A total of 1,284 residential saturation surveys were completed. A total of 1,175 commercial and industrial saturation surveys were completed. To put some context around the robustness of these sample sizes, compare/contrast to the Ameren Missouri load research sample sizes designed around 90% confidence level and 10% accuracy used primarily to estimate individual rate class contributions to peak load. The Ameren Missouri residential load research sample size used for this purpose is 280. The commercial and industrial sample size is 1,240.

The results from the saturation surveys establish the Ameren Missouri baseline of energy efficiency. The next step is to apply the most efficient technologies to the baseline and calculate the maximum possible energy savings – which is the technical potential. Again, technical potential represents a world of perfect energy efficiency which is not achievable in the real world.

Q. What is economic potential?

A. Economic potential is simply the application of the Total Resource Cost ("TRC") test to the technical potential. Energy efficiency measures with a benefit/cost ratio of 1.0 or greater, based on the TRC test, are cost-effective and included in the calculation of economic potential. The economic potential construct assumes customers install 100% of energy efficiency measures that have a benefit/cost ratio of 1.0 or greater. Similar to the

calculation of technical potential, the calculation of economic potential is fact based. Economic potential, as a percent of baseline energy usage, is approximately 50% of technical potential. Figure 1 above shows that for the 21-year planning horizon, economic potential represents a 16.6% cumulative reduction to baseline energy usage.

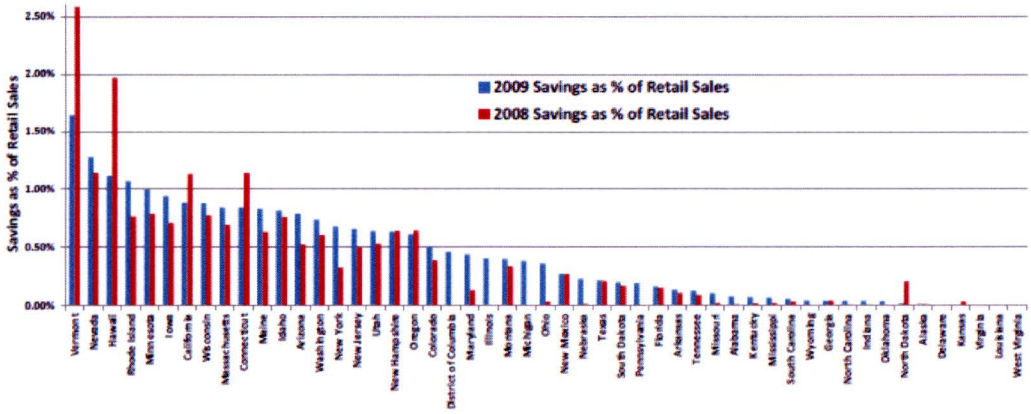
Q. Please discuss Ameren Missouri's economic potential in the context of Mr. Mosenthal's belief that 2% annual load reductions are cost effective and achievable.

A. If we make the unrealistic assumptions that customers have no budget constraints, that energy efficiency is their highest priority and that customers install 100% of the cost-effective electric end uses in their homes and businesses, the conclusion is that customers can reduce electric energy consumption by 16.6% over 21 years or, simply using a straight average, an average annual reduction of 0.79% per year. Unfortunately, like the technical potential estimate, the economic potential estimate has nothing to do with reality. Mr. Mosenthal's belief that 2% is achievable and cost effective is completely unrealistic given the fact that it represents a savings of 2.5 times that of economic potential.

Q. Are there real world examples today where states are achieving 2% load reductions even for 1 year?

A. First, recognize that 1-year and 20-year IRP planning horizons are totally different constructs. That being said, the 2011 ACEEE State Scorecard (attached in Schedule RAV-E3) survey reports the following 2009 electric energy efficiency savings estimates as a percent of baseline for the states:

Figure 4: Electric Energy Savings from Ratepayer-Funded Programs in 2008 and 2009[24]



ACEEE shows that only 5 states achieved between 1.0 and 1.5% electric load reductions in 2009. Most importantly, however, it shows that the leading states have seen precipitous declines in electric energy efficiency load reductions in 2009 relative to 2008.

Q. Is there an explanation for the huge declines in energy efficiency savings for the leading states?

A. Yes. The bulk of energy efficiency savings in 2009 and prior years for most states came from the implementation of programs to market compact fluorescent light ("CFL") bulbs. The Energy Independence and Security Act of 2007 ("EISA") mandated that the bulk of traditional incandescent light bulb manufacturing must be phased out starting in 2012 and ending in 2014. Consequently, many states are attempting to wean themselves off of their traditional CFL energy efficiency programs.

Q. Are there other reasons for the precipitous declines in energy efficiency savings achieved by states?

A. Yes, there are multiple reasons for a decline in annual load reductions attributable to energy efficiency initiatives post 2009. There are already dozens of higher energy efficiency standards imposed by federal legislation. There are new federal motor

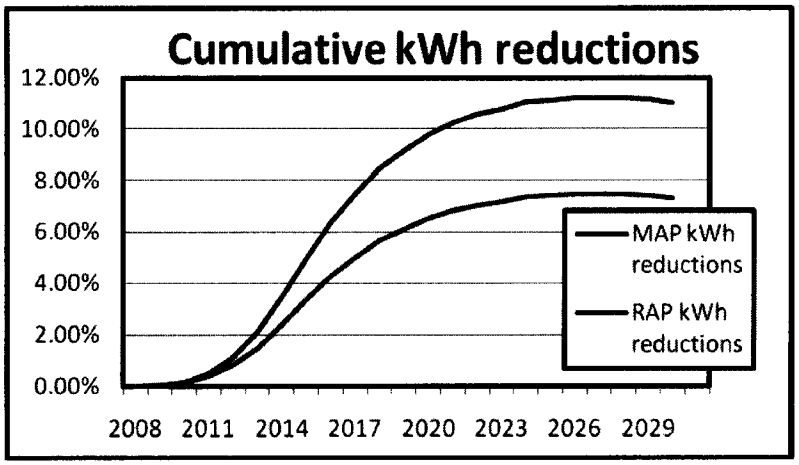
energy efficiency standards. There are new lighting standards for the most ubiquitous business light and fixture, T12s, which preclude utilities from implementing programs to replace T12s. Last, but not least, the American Reinvestment and Recovery Act of 2007 ("ARRA") invested over $200 million in energy efficiency in Missouri in the 2010-2012 period, -the impact of which should be shown in future ACEEE State Scorecards.

Q. Are there other common sense reasons that indicate the extent to which Mr. Mosenthal is unrealistic in his belief that 2% annual electric load reductions are both achievable and cost effective?

A. Yes. Most people are familiar with the law of diminishing returns. The concept as it applies to energy efficiency is that additional investments in energy efficiency yield less energy savings over time. As an example, consider the incandescent light bulb. The traditional 60 watt incandescent light bulb, as a result of the EISA legislation, will soon be replaced by an equivalent 13 watt CFL. Expectations are that over time the 13 watt CFL will be replaced with even higher efficiency technology - light emitting diode ("LED") technology. If the LED equivalent of a 13 watt CFL is in the range of an 8 watt LED, the incremental savings would be 5 watts. This pales in comparison to the savings in going from a 60 watt incandescent bulb to a 13 watt CFL – a savings of 47 watts.

Q. How is the law of diminishing returns shown in the Ameren Missouri DSM Potential study?

A. The following graph depicts the ramp rates for RAP and MAP over the IRP planning horizon:



At the time of the fastest program ramp-up in 2015, RAP is actually achieving 1.0% savings per year, and MAP is at 1.5% per year. Granted the timing of when the ramp may occur may be different now than when the curve was developed in 2009. However, the important point to note is that even with Ameren Missouri's plans for phased introduction of advanced technologies, annual load reductions necessarily taper off. Customer segments and opportunities must at some point become saturated, and incremental impacts will become smaller and smaller as energy efficiency improvements reach theoretical limits (i.e. efficiencies can become no higher than 100%).

Q. How difficult would it be to approximate what it would cost Ameren Missouri's customers to install the most energy efficient equipment for all end uses – regardless of cost effectiveness or customer preferences?

A. It would be impossible. In the impossible construct of Ameren Missouri attempting to achieve perfect energy efficiency for its customers in the form of sustainable annual load reductions that exceed even technical potential, how would Ameren Missouri and the Commission be able to force all customers to purchase the most energy efficient equipment possible – equipment that they may not want, need or be able to afford? At a minimum, Ameren Missouri would have to purchase and install the equipment at each

customer premise. Consider, as one example, Ameren Missouri homes with electric resistance heat. There are approximately 300,000 such homes. The most efficient electric heating technology is Ground Source Heat Pumps. The installed cost of a Ground Source Heat Pump for the typical home is in the $20,000 range. Recognizing that electric heat is but one electric end-use in the typical home, Ameren Missouri customers would have to pay $6 billion (300,000 homes x $20,000 per home) to attempt to achieve the technical energy savings potential for just the electric heat end use!

C. Energy Efficiency Regulatory Framework in Missouri

Q. On page 14 of his rebuttal testimony, Mr Mosenthal addresses the regulatory framework for energy efficiency in Missouri. He states *"Ameren admits it started the IRP process with desired outcome based on inappropriate regulatory concerns and therefore did not engage in a good faith effort to understand and analyze the options available to determine a least cost solution to providing energy services, as required by the IRP rules."* Please comment.

A. It is obvious from his testimony, that Mr. Mosenthal is not knowledgeable of the regulatory framework concerns regarding energy efficiency in Missouri. Regulatory framework concerns are serious enough that there are legal challenges by several parties to the Commission's Missouri Energy Efficiency Investment Act ("MEEIA") rules. The outcome of on-going court challenges could have a tremendous impact on the Missouri investor owned utilities' ability to pursue customer energy efficiency initiatives. While it is obvious that Mr. Mosenthal is unfamiliar with Missouri rules and regulations, what is even more surprising is how equally unfamiliar Mr. Mosenthal is with national energy efficiency advocacy groups who have studied and assessed the Missouri energy efficiency regulatory

framework. I'm speaking specifically of the American Council for an Energy-Efficient Economy ("ACEEE") and their August 2011 report titled "Missouri's Energy Efficiency Potential: Opportunities For Economic Growth and Energy Sustainability." ("ACEE Report") A copy of the ACEEE Report is attached in Schedule RAV-E3.

Q. What does the ACEEE Report state about the regulatory framework in Missouri?

A. Page v in the Executive Summary of the ACEEE Report has the following statement:

> *Despite the clear intent of SB 376 to boost utility energy efficiency efforts by addressing fundamental financial barriers to utility investments in energy efficiency, initial plans filed by the utilities call for reduced spending on customer energy efficiency programs. This contrary result stems in part from the utilities viewing the new rules as not effectively addressing fundamental barriers. To achieve the amount of energy savings through utility programs outlined in this report requires a regulatory framework that effectively aligns utility financial interests with saving energy through successful customer energy efficiency programs. The initial impacts stemming from recent rate cases and related proceedings before the PSC suggest that such a framework has yet to be established."*(Emphasis added.)

Q. What does the ACEEE report state concerning cost recovery?

A. ACEEE addresses cost recovery on page 29 of their report as follows:

> *Missouri presently provides that utilities may recover the cost of prudent energy-efficiency investments through the DSIM. However, cost-recovery decisions are made after-the-fact and utilities must front funds in anticipation of future cost-recovery.* ***Missouri is one of the only states that amortizes program expenses, which creates a time lag for recovery and also creates a "regulatory asset" (essentially a regulatory accounting asset, not a physical/capital asset such as a power plant).***(Emphasis in orginal.)

Q. What does the ACEEE report state concerning lost revenue recovery?

A. ACEEE addresses lost revenue recovery on page 20 of their report as follows:

> *Lost revenue is an important issue to the state's utilities. Recognizing this, the Missouri PSC allows utilities to recover the fixed cost portion of sales "lost" to energy efficiency programs. In the MEEIA rules, lost revenues are defined as the net reduction in revenues that occurs when a utility's approved efficiency programs cause a drop in net system retail kWh delivered to its customers below the level used to the electricity rates. Utilities are not happy with this last provision because growing sales have typically provided utilities with extra revenues absent energy- efficiency programs and this last provision can cut into this revenue stream.*

Q. In summary, is there any doubt that the regulatory framework concerns in Missouri with or without the Commission's MEEIA rules are substantial barriers to energy efficiency?

A. There should be no doubt. The regulatory framework is a major concern that Ameren Missouri will address extensively in its first MEEIA filing. The Commission may or may not approve Ameren Missouri's MEEIA filing. Regardless of the Commission's decision, the legal challenges to the Commission's MEEIA rules could nullify or substantially alter the Commission's approval of the Ameren Missouri MEEIA filing.

D. Ameren Illinois

Q. Mr. Mosenthal contrasts Ameren Missouri's pursuit of achievable potential with that of Ameren Illinois. Mr. Mosenthal states on page 12 of his rebuttal testimony "*I also note that other leading utilities are already cost-effectively capturing these levels of savings elsewhere, and in fact Ameren Illinois is currently ramping up to these levels consistent with Illinois statute.*" Please comment.

A. Mr. Mosenthal's statements about Ameren Illinois do not tell the entire story. The fact of the matter is that Ameren Illinois statutory annual load reduction goals are coupled with statutory rate caps which preclude the annual load reduction goals from being met. The truth is that Ameren Illinois' annual load reduction estimates filed in its most recent 3-year DSM implementation plan decline in each successive year of the plan representing 0.8% and declining to a 0.6% of throughput.

Q. Are there any special circumstances that the Missouri Commission should also be aware with regard to the Ameren Illinois 2011-2013 DSM Implementation plan filing?

A. Yes. Ameren Illinois operates in a different regulatory construct than Ameren Missouri. A major difference is thatAmeren Illinois is a distribution only utility whereas Ameren Missouri is a vertically integrated utility. Ameren Illinois also collects a much higher percentage of its fixed costs through its customer charge. These differences between the two utilities have an impact on the magnitude of lost revenues, meaning Ameren Illinois would experience much lower lost revenues than Ameren Missouri, even if both utilities were generating the exact same level of energy efficiency savings. Other differences include the fact that the Illinois Power Agency Act allows Ameren Illinois to collect its costs

for implementing energy efficiency programs contemporaneously via a rider (Missouri's ability to do the same is currently at risk as it is subject to a legal challenge by the OPC.) Ameren Illinois calculates the cost-effectiveness for electric energy efficiency programs by accounting for both avoided natural gas and avoided electric costs. Missouri does not include natural gas benefits in the cost effectiveness analyses of electric energy efficiency programs. Ameren Illinois uses a forward looking test year in rate cases, allowing it to adjust billing units to account for the MWh savings its energy efficiency programs will achieve. Ameren Missouri uses a historical test year and was denied its request in its last rate case to make a similar adjustment to its billing units.

E. DSM Potential Study Surveys

Q. On page 5 of his rebuttal testimony Mr. Mosenthal cited another of his beliefs that the Ameren Missouri DSM Potential study was deficient because it assumed that *"no more than 70% of respondents will participate regardless of actual survey results."* Please comment.

A. Mr. Mosenthal appears to be addressing the methodology that the Ameren Missouri DSM Potential study used to generate realistic estimates of customer likelihood to participate in DSM programs. This specific research was led by Dr. David Lineweber. Dr. Lineweber is an expert in this area and has been conducting market research for electric and gas utilities for 20 years. In fact, Dr. Lineweber's work on electric utility market research was referenced multiple times in FERC's National Assessment of Demand Response Potential, issued in June 2009.

Q. What is the specific issue with generating realistic estimates of the likelihood of customers participating in DSM programs?

A. Market researchers have long recognized that customers tend to over-estimate their likelihood of participating in new programs and services within the context of a market research study. This means that it has been recognized that some customers who say that they would be "certain" to participate in a given program in a survey will, in reality, not participate.

Q. Please explain the methodology Dr. Lineweber used to adjust stated likelihood-to-participate ratings into more realistic estimates of likely customer response.

A. Dr. Lineweber used a basic method for applying these adjustments that has been used in market research for more than 20 years. Originally developed by Proctor and Gamble for adjusting stated intent for products that require "consideration" (i.e., the person has to think about the purchase; it is typically not a snap decision), this adjustment recognizes that if respondents rate a given program as a "10" ("extremely likely to participate") then realistically only about 70% of those people will sign up for the program. At the other end of the scale, it recognizes that anyone who rates their likelihood to participate as "7" or lower is unlikely to do so at all.

Q. Are similar say/do conflicts recognized nationally in the evaluation, measurement and verification ("EM&V") of energy efficiency programs?

A. Yes. Similar customer surveys are used to estimate free ridership for energy efficiency programs. A battery of questions is asked about whether the participant would have purchased the measure or adopted the behavior without the influence of the program. It

is universally recognized that customer self-reporting is fraught with the potential for bias. There are protocols to make the appropriate adjustments. Ignoring this measurement correction is simply poor research technique.

F. Emerging Technologies in the DSM Potential Study

Q. On page 13 of his rebuttal testimony, Mr. Mosenthal alleges that the Ameren Missouri DSM Potential study did not consider emerging DSM technologies. Please comment.

A. Mr. Mosenthal is wrong. The DSM Potential Study contains a list of measures that were screened. Since Mr. Mosenthal did not participate in the multiple meetings with Ameren Missouri stakeholders on the review of energy efficiency measures during the development of the DSM Potential study, he is likely not aware of the multiple changes to the measures list as a direct result of stakeholders' input. Mr. Mosenthal also appears to be unaware of the declining cost algorithms in the study which lowered the cost of emerging technologies over time.

Q. Please list some of the cutting edge, emerging energy efficiency technologies considered in the Ameren Missouri DSM Potential study.

A. They include:

Residential

1. Outdoor lighting, photovoltaics
2. Clothes dryer heat recovery
3. Microwave clothes dryer
4. Multiple drawer refrigerators
5. Home Energy Management System
6. Ductless, mini-split AC systems

Commercial

1. Hot water – variable flow system

2. Energy Star servers
3. Microwave Sulfur Lamps
4. Thermal Energy Storage
5. Variable Air Volume Systems
6. Variable Refrigerant Flow

Industrial

1. Air Conditioner – Packaged, Ductless Variable Refrigerant flow

Q. Please explain how these measures were vetted with stakeholders.

A. The list of measures was vetted with stakeholders on multiple occasions. Stakeholders provided guidance on whether to retain or eliminate certain measures. 31 measures changed from "fail" to "pass" for cost-effectiveness due to input from stakeholders. 23 additional measures were left unchanged after clarifications were provided by the Ameren Missouri contractor to stakeholders.

Q. If Mr. Mosenthal or NRDC had concerns with the measures analyzed in the Ameren Missouri DSM Potential study, why did they not raise their concerns and provide a list of additional measures to Ameren Missouri at the beginning of the DSM Potential study like the other stakeholders?

A. I do not know. But I do know that the stakeholder collaborative process is undermined to the point of being of no value if Mr. Mosenthal and NRDC prefer to defer their comments on inputs used in such studies until after the study is complete. NRDC should have and could have raised any concerns with measures that were screened in the study in a constructive manner at the beginning of the study but failed to do so

Q. In terms of providing constructive feedback on any emerging energy efficiency technologies that the Ameren Missouri DSM Potential study may not have included, did Mr. Mosenthal provide a list of emerging technologies that he thought should have been included?

A. No. In fact, in response to Ameren Missouri data request Ameren-NRDC-052 (attached as Schedule RAV-E6) that *"NRDC has not developed a list, nor analyzed cost-effectiveness of such a list, of DSM technologies that it considers "emerging technologies."*

G. Concluding Remarks on the Rebuttal Testimony of Philip Mosenthal

Q. Please summarize your review of Mr. Mosenthal's entire testimony in regard to the Ameren Missouri DSM Potential study.

A. Mr. Mosenthal's testimony is without merit, as explained in detail earlier in my surrebuttal testimony. The facts are that Ameren Missouri went above and beyond both the spirit and intent of the Commission IRP rules in its full compliance with the demand-side management provisions of the rules. Mr. Mosenthal's use of inflammatory language to infer that Ameren Missouri conspired to deceive or had preconceived notions about the potential for DSM is nothing more than an attempt to divert attention from the fact that Ameren Missouri followed a robust process, including extensive stakeholder involvement, to address demand-side potential. It is unfortunate that Mr. Mosenthal and NRDC chose not to voice their concerns with the Ameren Missouri DSM Potential study during the multiple stakeholder collaborative meetings during the development of the study.

III. REBUTTAL TESTIMONY OF TIM WOOLF ON BEHALF OF OPC

A. Other States' Saving

Q. Beginning at the bottom of page 6 in his rebuttal testimony, Mr. Woolf attempts to show that Ameren Missouri estimates of RAP and MAP energy efficiency savings are too low by contrasting energy savings achieved by five states in the October 2011 ACEEE State Energy Efficiency Scorecard which reflected 2009 state results. Please comment.

A. The Commission should be skeptical of comparisons of past results to projected future DSM program performance. The Commission should be especially skeptical if the details of the comparisons are not presented. ACEEE does a commendable job of putting together the information for the State Scorecards. Typically, the annual energy savings estimates obtained by ACEEE are provided on a gross basis. Ameren Missouri DSM Potential Study results are reported on a net basis. ACEEE is usually not able to discern if the annual energy savings reported by states are on an *ex ante,* or before evaluation basis, or on an *ex post,* or after evaluation basis. Beyond these nuances, which have a tremendous impact on the magnitude of the actual final percentage of annual savings achieved, the greatest danger in comparing past results to projected future performance is the impact of new federal and state codes and standards on future performance - which make comparisons meaningless.

Q. Please explain.

A. ACEEE's 2011 State Scorecard reports Vermont as the number one state in terms of energy efficiency savings as a percent of electricity sales in 2009. The majority of Vermont's energy savings in 2009 came from the sale of CFLs. Due to the Energy

Independence and Security Act of 2007, the manufacture of the majority of incandescent light bulbs will be phased out from 2012 to 2014. The market for efficient lighting is expected to be transformed by federal law. This means that the number one efficiency measure, not only in Vermont but in almost all investor-owned utility portfolios for the past 20-years, either will no longer be available or will become a minor part of most utility energy efficiency portfolios in 2012 and beyond.

Q. Are there other energy efficiency measures that utilities marketed aggressively in 2009 that will no longer be available in 2012 and beyond?

A. Yes. The most ubiquitous light for the commercial and industrial customers in 2009 was the T12 fluorescent light and fixture. A Department of Energy rulemaking in 2009 effectively phases out general service fluorescent lamps in July of 2012 and old inefficient ballasts were phased out by Energy Policy Act of 2005. New federal codes and standards have done the same thing to T12s that were done to incandescent light bulbs. Another new federal standard implemented after 2009 is the requirement that most new commercial and industrial motors be more efficient National Electrical Manufacturers Association, otherwise known as NEMA, Premium motors. In addition, there are new appliance energy efficiency standards covering a variety of appliances including de-humidifiers, electric hot water heaters, and refrigerators just to name a few.

Q. How will these developments impact DSM performance in the future?

A. The new federal codes and standards will either eliminate many of the most ubiquitous measures deployed by utilities in 2009 or increase the baseline efficient measure energy consumption to much higher levels thereby limiting the amount of energy savings

which can be obtained. This is the primary reason why a comparison of other states 2009 performance to Ameren Missouri DSM potential for 2012 and beyond is meaningless.

Q. What else must be known to properly compare the energy efficiency savings reported by states?

A. States define energy efficiency savings differently. For example, some states include utility infrastructure energy efficiency improvements in their totals. Some states include combined heat and power installations in their totals. Some states include fuel switching, i.e., electric hot water heat to natural gas hot water heat, in their totals. Some states are allowed to take credit for demand response initiatives in their reporting of energy efficiency savings. Some states are allowed to take credit for prior year energy efficiency savings.

Q. Does Ameren Missouri have other unique challenges relative to realistic achievable energy efficiency potential?

A. Definitely. The MEEIA statute has provisions for large commercial and industrial customers to opt-out of participation in utility sponsored energy efficiency programs. The ability for Ameren Missouri's largest customers to opt out of participation in Ameren Missouri's DSM programs is a significant barrier to achieving realistic achievable energy savings.

Q. Are there any other unique circumstances that will limit the achievable DSM Potential in 2012 and beyond relative to 2009?

A. Yes. ARRA will lower the achievable potential for utility sponsored DSM programs. In fact, ACEEE estimates that the ARRA funds implemented by Missouri's Department of Natural Resources will result in estimated savings of about 0.3% of electricity

needs in Missouri. This is documented on page 10 of ACEEE's August 2011 report on Missouri's Energy Efficiency Potential.

Q. At what costs are the ARRA related savings being achieved in Missouri?

A. The DNR implementation plan has several components. The *Energize Missouri* Communities program distributes $43 million to cities and counties (19% of ARRA funding), for public building energy efficiency retrofits, street lighting, and traffic signals, and water and wastewater treatment. Over half (54%) of the ARRA funding, or $128 million, goes to the state's Low-Income Weatherization Assistance Program through the *Energize Missouri* Housing Initiative, which focuses on improving energy efficiency in homes of Missouri low income families. In April 2010, Missouri rolled out its *ENERGY STAR* appliance rebate program - $5.6 million (2%) - which provided rebates for numerous appliances. The State Energy Program (SEP) received $57 million, or 24% of ARRA funding, for a variety of energy efficiency programs covering homeowners, industries and farmers.

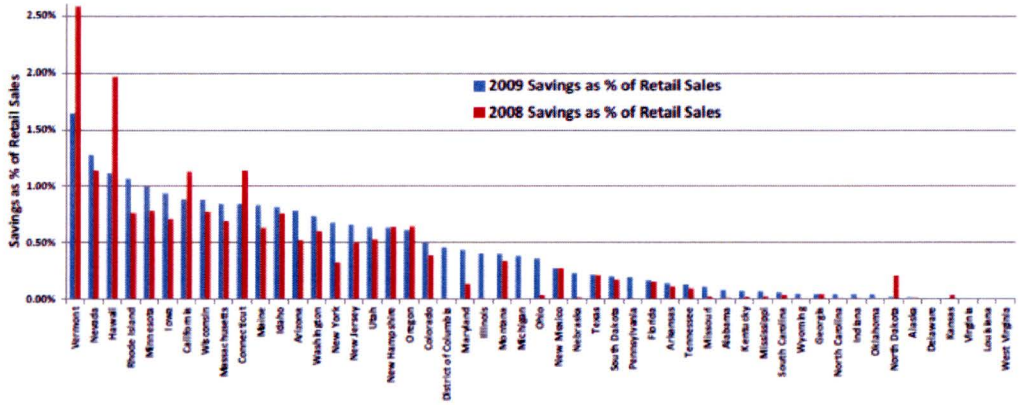
Q. Earlier in your surrebuttal of Mr. Mosenthal, you described in detail the "ideal" conditions necessary to achieve MAP type energy savings. Do the five states that Mr. Woolf alludes to have most, if not all, the MAP ideal components that you describe?

A. Yes. It is fair to say that Vermont, Nevada, Hawaii, Rhode Island, and Minnesota have the regulatory framework, the government/regulatory alignment, the statewide communication plans, and complimentary policies that enable utility sponsored energy efficiency programs to succeed.

Q. In the graph that Mr. Woolf extracted from the ACEEE 2011 State Scorecard, did he alter it from what ACEEE presented?

A. Yes. ACEEE presented the information as follows:

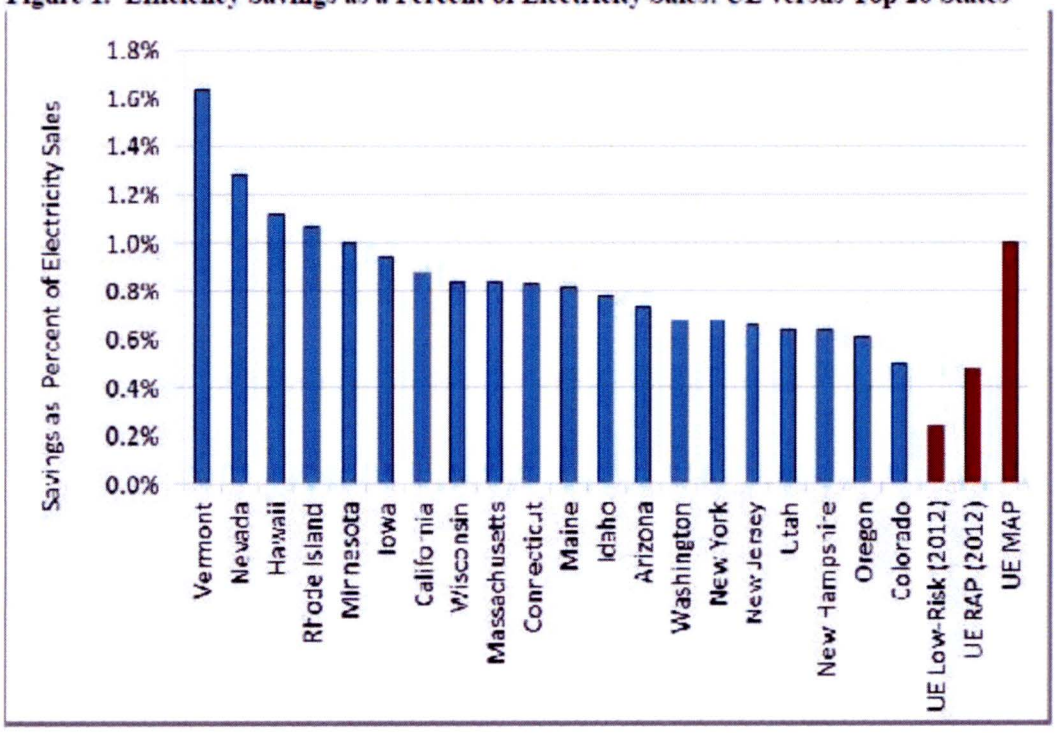
Figure 4: Electric Energy Savings from Ratepayer-Funded Programs in 2008 and 2009[24]



Q. How did Mr. Woolf present the information in his rebuttal testimony?

A. Mr. Woolf presented the information as follows:

Figure 1. Efficiency Savings as a Percent of Electricity Sales: UE versus Top 20 States[2]



Q. Please comment on the information that Mr. Woolf chose to exclude from the ACEEE graph.

A. Mr. Woolf excluded the 2008 energy efficiency load reductions achieved by the leading states. He also excluded states that did not rank in the top 20 states.

Q. What does a comparison of 2008 to 2009 in terms of energy efficiency load reduction trends show for the top five states?

A. The comparison made in the 2011 ACEEE State Scorecard shows a precipitous decline in the energy efficiency savings as a percent of retail sales for two of the top five states, Vermont and Hawaii, from 2008 to 2009.

Q. Why is the exclusion of this information significant?

A. Mr. Woolf attempts to make the point that Ameren Missouri understated MAP. The fact that two of the top five states have experienced precipitous declines in energy efficiency savings speaks to the fact that there are forces in the marketplace that are contributing to a decline in annual savings rather than an increase.

Q. Has Mr. Woolf done any analysis of the details of the energy savings achieved by states that he identified in Figure 1 of his rebuttal testimony?

A. No. In response to Data Request No. Ameren-OPC-023 (Attached as Schedule RAV-E5), Mr. Woolf stated that he had not created any documents containing analysis that he performed of the factors in each state that might explain the differences between the energy savings presented in Figure 1 of his testimony.

Q. Please summarize your review of Mr. Woolf's testimony in regardcomparing 2009 estimates of state energy savings to Ameren Missouri DSM RAP and MAP levels of energy efficiency for 2012 and beyond.

A. The comparison of Ameren Missouri's DSM RAP and MAP levels of energy efficiency and for 2012 and beyond to estimates of efficiency savings achieved by states in 2009 is meaningless for the reasons laid out in my testimony. The facts show that Ameren Missouri's DSM Potential study likely overestimated DSM potential due to subsequent events including the passage of Missouri SB 376, the passage of ARRA, and the passage of new federal energy efficiency codes and standards.

IV. REBUTTAL TESTIMONY OF RANDY GROSS ON BEHALF OF STAFF

A. OPOWER

Q. Mr. Gross states that the Ameren Missouri DSM plan is deficient because it did not conduct a cost effectiveness analysis of one specific customer education program known as OPOWER. Please comment.

A. It is true that Ameren Missouri did not do a cost effectiveness analysis of OPOWER, one of the newest customer education programs on the market. It is also true that the Commission rules do not require that this particular pilot program be analyzed. In fact, the Commission rules do not require Ameren Missouri to evaluate any and every "known" demand-side measure.

Q. Why was the cost-effectiveness analysis not done?

A. The program is not the typical energy efficiency program, i.e., getting the same utility and comfort from a device while using less energy. Rather, OPower is a conservation program whereby customers use less energy but also receive less utility and less

comfort. In other words, the results of energy conservation activities usually require that customers be less comfortable, and use less of a product, i.e., drive an automobile less frequently.

Q. Is OPower not an energy efficiency measure?

A. That's correct. It is not like a central air conditioner where there is a baseline model and an efficient model with which to measure the incremental cost and incremental savings. Rather, OPower is a customer energy consumption behavior modification program. Participants receive monthly reports comparing their level of energy usage to that of similar, but more efficient, households. Measurement of energy savings is based on a subjective analysis of billing records from groups of customers who participate in the program compared to customers who do not participate.

Q. Even with the comparison of OPower participant billing records to non-participant billing records to estimate very subjective energy savings, are there concerns with savings estimates?

A. Yes. Estimates of average annual residential energy savings attributable to OPower pilot programs from preliminary studies generally are in the 1-2% range. Savings of this small magnitude are outside the statistical validity of most sampling methodologies. In addition, there are concerns about "double dipping". Double dipping refers to the fact that OPower participants may be driven to participate in other utility energy efficiency programs thereby having both OPower and the other programs claiming the same energy savings.

Q. Can the potential energy savings attributable to OPower type programs be estimated in a DSM Potential study?

A. No. OPower is not an end use of electricity that can be measured or counted in establishing baseline characteristics for a DSM Potential study.

Q. Have national energy efficiency organizations, such as ACEEE, expressed any views on customer behavior programs?

A. ACEEE states on page 18 in their August 2009 white paper titled "Energy Efficiency Resource Potential in the Midwest" (attached in Schedule RAV-E4):

> *Behavior change is especially difficult to model because over time what now might be considered a change in typical behavior might eventually become the norm. The issue is when behavior change is an innovation and when it becomes part of the baseline. This issue, too, needs further research.*

Q. What are Ameren Missouri concerns with OPower?

A. Ameren Missouri has multiple concerns including: persistence of results of the program with current data showing a 1-year persistence; impact on customer satisfaction since the program basically attempts to encourage customers to use less energy by comparing a customer's usage to a similar but more efficient group of customers; the ability of the program to provide the equivalent of a long-term supply-side resource; and redundancy with the Ameren Missouri Personal Energy Report which is currently issued on an annual basis to Ameren Missouri residential customers.

Q. Please explain the term "persistence" in the context of energy efficiency.

A. Persistence refers to the amount of time that energy efficiency measures, or in this case – conservation, stay in place and remain operational.

Q. What is the issue with persistence relative to OPower?

A. The preliminary evidence on OPower points to a persistence of 1 year. This means that as soon as customers stop receiving their monthly energy reports from OPower they revert to their prior energy consumption behavior.

Q. With a persistence of 1 year, what are the implications for including an OPower type program in an Ameren Missouri DSM portfolio?

A. The implications are relatively straightforward. If Ameren Missouri were to include an OPower type program in its portfolio as a pilot for, using an example, approximately 50,000 residential customers, an estimate of pilot program costs including evaluation, measurement and verification may be in the $1 million per year range. To maintain whatever level of energy savings that the 50,000 pilot program participants may achieve in the first year, Ameren Missouri customers would be required to pay $1 million per year ad infinitum to maintain first year savings for 50,000 customers.

Q. Is there any guarantee that customers would not eventually grow weary of receiving monthly or semi-monthly energy reports and eventually ignore them?

A. This is a valid question which is currently unanswered..

Q. Do you expect energy efficiency measures and programs designed to encourage more energy conscious decisions on the part of customers to evolve significantly from OPower type customer behavior modification programs?

A. Yes. My perception is that OPower type programs represent a baby step in two-way customer communication. The logical end state for two-way customer communication will revolve around the technological innovations embodied by the concepts underlying the smart grid. Dynamic price signals, real-time information on electricity

consumption and cost, smart appliances – these are the technological advances that should provide the persistence necessary to help customers meaningfully manage their daily energy consumption.

Q. Mr. Gross reiterates claims from OPower marketing about how well the OPower program performs. Please comment.

A. I have yet to have a conversation with a Sales/Marketing representative for a product or service who did not claim the product or service they were selling was the best value in the industry. OPower is no different. The proof is in independent evaluation, measurement and verification where OPower has no involvement in any aspect of the evaluation. For that reason alone, it would be imprudent on the part of Ameren Missouri to do a cost-effective analysis of OPower using OPower provided data.

Q. Is there anything unique about OPower marketing efforts?

A. In my opinion, OPower is more aggressive than most marketers. In Missouri, OPower representatives have attended Commission rulemaking workshops and attempted to divert considerable attention from rulemaking concerns to a discussion of the merits of their product.

Q. When will Ameren Missouri have independent OPower evaluation results with which to run a cost-effectiveness analysis?

A. Ameren Illinois is currently conducting a pilot program of OPower. They expect to have results from the evaluation of the program to use for cost effectiveness screening prior to the completion of Ameren Missouri's next IRP filing.

Q. If Ameren Illinois' pilot program evaluation proves OPower to be cost-effective, will Ameren Missouri include OPower or its equivalent pilot program in its next DSM implementation plan?

A. Not necessarily. The concerns that both ACEEE and Ameren Missouri have with OPower type programs need to be vetted with the Ameren Missouri stakeholder advisory group.

Q. Mr. Gross recommends the Commission find Ameren Missouri in non-compliance with 4 CSR 240-22 and order Ameren Missouri to analyze a customer education program such as OPower for its next annual update. Do you agree?

A. No. First, there is no wording in the IRP planning rules that require investor owned electric utilities to analyze conservation programs. Nor is there any provision in the Commission's IRP rules to analyze any and every known demand-side measure. Second, new pilot programs such as OPower, which are conservation-based rather than efficiency-based, are totally different from traditional energy efficiency programs. There is currently insufficient data to analyze OPower with any degree of confidence. The issues about the persistence of OPower and its place in long-term integrated resource planning are equally daunting. Consequently, there should be no question that Ameren Missouri's path to defer analysis of OPower type programs until more data is available is both prudent and in compliance with the IRP rules. Ameren Missouri expects to have more pertinent data from its Ameren Illinois affiliate to analyze OPower in the next Ameren Missouri IRP. However, as ACEEE indicates, behavior change is especially difficult to model. Should OPower be cost effective with a one year persistence, it will take meaningful discussions with the

Ameren Missouri stakeholder advisory group to reach consensus on the long-term viability of such programs in future Ameren Missouri DSM portfolios.

V. REBUTTAL TESTIMONY OF ROBERT FRATTO ON BEHALF OF DNR

A. Customer Satisfaction

Q. Mr. Fratto makes the statement on page 8, line 167 of his testimony that *"instead of acknowledging that low satisfaction with Ameren Missouri as an energy provider may explain why take rates for its DSM programs are lower than those of many other utilities, Ameren Missouri states that DNR is advising that it divert effort and budget toward increasing customer satisfaction because it will raise energy efficiency participation and claims that this would be a classic case of the 'tail wagging the dog'."* Please comment.

A. It would appear that Mr. Fratto is confused regarding the role, if any, that customer satisfaction plays in the determination of market acceptance rates for the Ameren Missouri DSM Potential study.

Q. What was the role of customer satisfaction in the development of market acceptance rates by Ameren Missouri's DSM Potential study contractors?

A. Customer satisfaction is one of several factors that influence the likelihood of customers to adopt energy efficiency measures. Other key factors include: payback period, measures most likely to be adopted by customers, upfront investment, demographic group and general attitudinal differences. Taken together, these factors are used in the estimation of market acceptance rates. Customer satisfaction, by itself, does not drive the likelihood of customers to adopt energy efficiency measures.

Q. What is the importance of understanding customer attitudinal differences?

A. A key output of the customer program interest survey work was the development of a customer segmentation model to assist Ameren Missouri in future marketing efforts to maximize achievable energy efficiency potential.

Q. Please describe the Ameren Missouri Potential study market segment distribution.

A. The Ameren Missouri residential market can be described as being comprised of six distinct customer segments. Ameren Missouri's DSM Potential study assigned descriptive names to each segment:

- Green Idealists
- Cost-focused conservers
- Practical idealists
- Affluent Conservers
- Comfort is King
- Low interest, little action

Q. Once the residential market is segmented into the six distinct groups, how is the program interest survey information used?

A. The information is used to prioritize the various segments, assess potential marketing efforts, identify potential load impacts, ascertain receptivity to future energy efficiency programs, and make general marketing recommendations going forward.

B. Combined Heat and Power and Distributed Generation

Q. On page 9, line 185 of his rebuttal testimony, Mr. Fratto stated *"Ameren Missouri failed to consider significant combined heat and power (CHP) and distributed generation (DG) potential in its preferred resource plan."* What metrics did Ameren Missouri and its contractors use to estimate the cost effectiveness of CHP and DG?

A. Ameren Missouri used the standard Total Resource Cost ("TRC") metrics. They are:

- Avoided energy costs
- Avoided capacity costs
- Avoided distribution costs
- Avoided transmission costs
- Program costs paid by the customer
- Program costs paid by Ameren Missouri
- Tax Credits where applicable

Q. Are there additional metrics that Ameren Missouri may consider in the analysis of the cost effectiveness of DG technologies in the future?

A. Yes. Ameren Missouri is monitoring and will continue to monitor the development of the MISO ancillary services market. When sufficient MISO market data is available to quantify the value of ancillary services, we will incorporate ancillary services benefits in future DG Potential studies. In addition, we will account for potential reduced transmission and line losses, if any.

Q. What benefits did Mr. Fratto allege that Ameren Missouri did not consider in its cost effectiveness analysis of DG?

A. Mr. Fratto cites the following potential benefits:

- Reduced transmission and distribution losses
- Enhanced reliability
- Improved stability and power quality
- Provisions of ancillary services/VAR support

- Environmental benefits compared to central station facilities
- Thermal load provided in CHP applications
- Increased responsiveness to load growth resulting from DG's modularity and scale
- Lower market prices for power
- Increased employment and tax revenue
- National security benefits associated with reduced security risk to grid
- Net metering benefits
- Market transformation impacts (such as greater acceptance and increased demand for DG facilities and reduced system costs, both material and installation)

Q. What is your assessment of these potential benefits?

A. I have multiple concerns with the list provided by Mr. Fratto. First of all, the list does not represent best practice in DG cost effectiveness analysis and does not represent the state of the industry. Attempting to quantify such benefits could possibly enable the DG consulting industry to be in a full employment mode for the foreseeable future. The probability of most of these benefits coming to fruition is small. The expected benefit is a function of the probability of occurrence. Do events with such small probabilities of occurrence warrant the costs to attempt to quantify them? The majority of the potential benefits cited are highly subjective. Consequently, I would expect significantly different answers from different consultants. Many of these potential benefits may actually be costs rather than benefits. For example, natural gas fueled DG installations may increase rather than decrease the market price for ancillary services. My last concern is that if these benefits apply to DG they also apply to energy efficiency and demand response measures. Are Ameren Missouri customers served by doing a multi-faceted, probabilistic study to attempt to estimate each of these nebulous parameters and then apply them to all facets of demand-side management?

Q. Is Ameren Missouri opposed to considering additional benefits for its entire demand-side management portfolio of programs?

A. Absolutely not. As I noted earlier, I would expect that the benefits cited by Mr. Fratto apply equally to energy efficiency and demand response. The real question for the Commission is to assess whether customers are best served to incur the costs to study the nebulous and low probability benefits described by Mr. Fratto.

Q. Should the Commission find that Ameren Missouri is not compliant with the DG provisions of the IRP rule?

A. Definitely not. Ameren Missouri and its contractor followed national best practices in its analyses of DG opportunities. The nebulous and subjective nature of the potential benefits cited by Mr. Fratto, coupled with the cost to estimate them and the fact that Ameren Missouri has relatively little DG activity in its service territory, do not warrant further study nor the costs to conduct further studies.

Q. On page 3, line 49 of his rebuttal testimony, Mr. Fratto states that Ameren Missouri is not in compliance with the Commission's IRP rules because *"it failed to document its plans for future market studies."* Please comment.

A. 4 CSR 240-22.050 (11) (E) regarding DSM reporting requirements states"

> *Copies of completed market research studies, pilot programs, test marketing programs and other studies as required by section (5) of this rule and descriptions of those studies that are planned or in progress and the scheduled completion dates.*

Ameren Missouri has reported its market research studies. Ameren Missouri does not have pilot programs or test marketing programs to report on. Consequently, none have been filed. Ameren Missouri has not made any decisions regarding future studies nor pilot programs nor

test marketing programs. Consequently, Ameren Missouri has no description of those studies nor does it have a schedule developed to complete those studies.

Q. Do the Commission's rules require that each of the studies mentioned in (11) be done and that future studies be documented?

A. No – only to the extent available, if available. Ameren Missouri is in full compliance with this provision of the rule and has supplied all of the market research that it relied upon to complete the DSM analysis for its 2011 IRP filing

VI. REBUTTAL TESTIMONY OF JOHN NOLLER ON BEHALF OF DNR MAP

Q. Please comment on page 23, line 1 of Mr. Noller's rebuttal testimony where he states:

The company chose to construct two portfolios based on 3-year and a one-year payback period and chose to label these the "RAP" and "MAP" portfolios. Neither of these represents the theoretical maximum achievable potential. The theoretical maximum achievable potential would be estimated using an instantaneous payback period. Defined thus, the theoretical maximum achievable potential would include all cost-effective demand-side measures with payback less than one year, whereas the portfolio that the company labeled "MAP" excludes these.

Mr. Noller's testimony contains inaccuracies about the definition of MAP and about how Ameren Missouri defined both RAP and MAP. In addition, I disagree with his conclusions regarding MAP. I will address each of these issues below.

Q. Is it true that the theoretical maximum potential would include all cost effective measures estimated using an instantaneous payback?

A. Not necessarily. The MAP construct considers paying up to the full incremental cost of the measure rather than the absolute full incremental cost. However, if there is primary market research data, as in the case of Ameren Missouri, that indicates that it is not necessary to pay incentives equal to 100% of incremental cost, then the net effect of

paying incentives based on 100% of incremental costs is simply to increase the budget for incentives needlessly. Ultimately, customers would end up paying more for energy efficiency programs than is necessary.

Q. Is the MAP construct about more than the percentage of incremental cost?

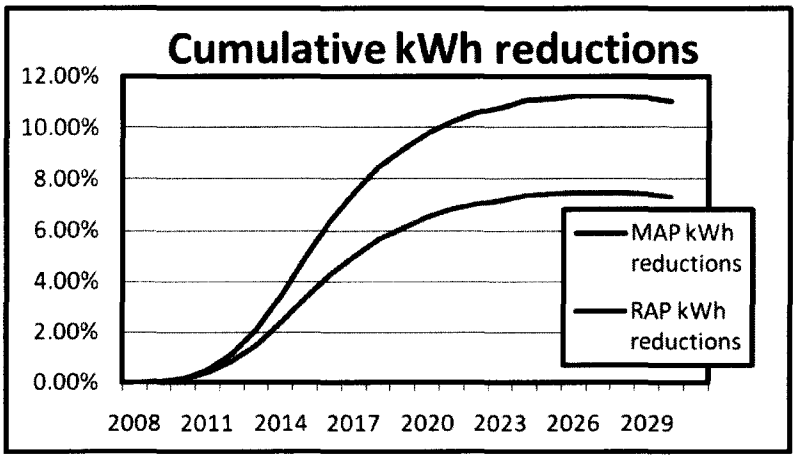
A. Yes. The MAP construct, in fact, assumes the adoption of programmatic best practices and the presence of conditions conducive to energy efficiency programs, including suitable program funding, public service messaging, and information flow between program implementers and customers. One can regard the Maximum Achievable Potential as an extrapolation of the savings results of exemplary programs in specific end-use categories throughout the country.

Q. With regard to annual load reduction savings results of exemplary programs throughout the country, has there been evidence presented in this docket attesting to what those levels of load reductions might be?

A. Yes. Mr. Woolf presented evidence from the 2011 ACEEE State Scorecard which shows that *"by 2009 five states have already achieved efficiency savings equal to roughly one percent of annual sales per year."* I provided additional evidence that new energy efficiency federal codes and appliance efficiency standards, the impact of ARRA funded energy efficiency programs, as well as the statutory MEEIA provisions allowing large commercial and industrial customers to opt-out of participation in utility sponsored energy efficiency programs, among other things would contribute to lowering expectations of annual achievable load reductions experienced by the exemplary programs from the top five states identified in the ACEEE 2011 scorecard.

Q. With that context, are the Ameren Missouri estimates of MAP reasonable?

A. Yes. The following chart depicts the level of both MAP and RAP as derived from the Ameren Missouri DSM Potential study:



At the time of the fastest program ramp-up in 2015, RAP is actually achieving 1.0% savings per year, and MAP is at 1.5% per year. Granted the timing of when the ramp-up may occur may be different now than when the curve was developed in 2009. However, the important point to note is that even with Ameren Missouri's plans for phased introduction of advanced technologies, aggressive annual load reductions necessarily taper off. Customer segments and opportunities at some point become saturated, and the incremental impacts will become smaller and smaller as energy efficiency improvements reach theoretical limits (i.e. efficiencies can become no higher than 100%).

Q. Mr. Noller states that "The company chose to construct two portfolios based on a 3-year payback period and a one-year payback period and chose to label these the "RAP" and "MAP" portfolios." Please comment.

A. Both the estimations of MAP and RAP are about much more than the assessment of payback periods but the Company believes its assessment is reasonable.

Ameren Missouri clearly stated the definitions of MAP and RAP in the definition section of of the Executive Summary of its DSM Potential Study. It is true that Ameren Missouri's DSM Potential study used the metric of payback period to help determine the likelihood of participation by customers. It is also true that the Company's program interest research identified how likely customers within each customer segment are to participate in various energy efficiency programs. This led to an estimation of the energy efficiency measures that offer the highest likely participation rates. In conclusion, Ameren Missouri's DSM Potential study's depiction of both MAP and RAP reflect the definitions of MAP and RAP identified in the study and are informed by multiple primary market studies on customers' interests in specific groupings of energy efficiency measures.

Q. Does this conclude your surrebuttal testimony?

A. Yes, it does.

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In re: Union Electric Company's	)	
2011 Utility Resource Filing Pursuant	)	Case No. EO-2011-0271
To 4 CSR 240 – Chapter 22.	)	

AFFIDAVIT OF RICHARD A. VOYTAS

STATE OF MISSOURI)
) **ss**
CITY OF ST. LOUIS)

Richard A. Voytas, being first duly sworn on his oath, states:

1. My name is Richard A. Voytas. I am employed by Ameren Services Company ("Ameren Services") as Manager, Energy Efficiency and Demand Response in the Corporate Planning department.

2. Attached hereto and made a part hereof for all purposes is my Surrebuttal Testimony on behalf of Union Electric Company, d/b/a Ameren Missouri, consisting of 43 pages and Schedules RAV-E1 through RAV-E6, all of which have been prepared in written form for introduction into evidence in the above-referenced docket.

3. I hereby swear and affirm that my answers contained in the attached testimony to the questions therein propounded are true and correct.

Richard A. Voytas

Subscribed and sworn to before me this 29th day of November, 2011.

Mary Hoyt
Notary Public

My commission expires: 4-11-2014

Mary Hoyt - Notary Public
Notary Seal, State of
Missouri - Jefferson County
Commission #10397820
My Commission Expires 4/11/2014

STATEMENT OF QUALIFICATIONS

My name is Richard Voytas. My business address is One Ameren Plaza, 1901 Chouteau Avenue, St. Louis, Missouri 63103. I am the Manager, Energy Efficiency and Demand Response for Ameren Services Company ("Ameren Services").

I earned a Bachelor of Science degree in Mechanical Engineering from the University of Missouri-Rolla in 1975 and a Masters In Business Administration from St. Louis University in 1979. I am a registered professional engineer in the State of Missouri. I served as Ameren's representative on the Leadership Group of the National Action Plan For Energy Efficiency ("NAPEE"), the Ameren representative on the Executive Board of the Association For Demand Response and Smart Grid ("ADS"), and the National Electric Reliability Council ("NERC") Resource Issues Subcommittee where I served a term as the Chair of the NERC Demand Side Influence on Reliability Task Force. I also recently completed two terms as Chair of the Electric Power Research Institute ("EPRI") Demand Response systems subcommittee. I also have 37 years of extensive professional work experience with Ameren Services Company and the former Union Electric Company.

I was employed full time by Union Electric Company ("Union Electric") beginning in May of 1975. Effective with the merger of Union Electric Company and Central Illinois Public Service Company into Ameren Corporation ("Ameren"), I assumed employment with Ameren Services. My work experience started at Union Electric as an Assistant Engineer in the Engineering and Construction function. I worked as an Assistant Engineer from 1975 to 1977. In 1977 I was promoted to Fuel Buyer in the Supply Services Function. In 1981 I transferred to the Engineering Department at Union Electric's Rush Island Plant. In 1982 I accepted a position in the coal marketing department at Cities Service Company in Tulsa,

Oklahoma. In late 1982 I left Cities Service Company and returned to Union Electric as an Engineer in the Corporate Planning Department. From 1982 through 1992 I worked as an Engineer in the Corporate Planning Department, Engineer in the Quality Improvement Department and Engineer in the Rate Engineering Department. In 1993 I was promoted to Senior Engineer in the Corporate Planning Department. In 1995 I was promoted to Supervising Engineer in the Demand-Side Management section of Corporate Planning. In July 1998 the Resource Planning, Forecasting, Load Research and Demand-Side Management sections were combined into one section of Corporate Planning and I was named Supervisor of that section known as the Corporate Analysis Department. In October 2001 I was promoted to Manager of Corporate Analysis. Effective September 1, 2007 I was named Manager, Energy Efficiency and Demand Response which is part of the Strategic Initiatives department.

My duties as Manager, Energy Efficiency and Demand Response include the following: energy efficiency/demand response policy and planning, DSM potential study development, program design, high level implementation planning, program evaluation, measurement and verification design, and development of centralized data collection and information systems for energy efficiency programs.

I have submitted testimony before the Missouri Public Service Commission, the Illinois Commerce Commission, and the Federal Energy Regulatory Commission