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MISSOURI PUBLIC SERVICE COMMISSION

CASE No. EO-2015-0055

SURREBUTTAL TESTIMONY

OF

INGRID ROHMUND
APPLIED ENERGY GROUP, INC.

Submitted On Behalf

Of

UNION ELECTRIC COMPANY
d/b/a Ameren Missouri

April 27, 2015

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I. INTRODUCTION

Q. Please state your name and business address.

A. My name is Ingrid Rohmund. My business address is 1259 Blue Sky Drive, Cardiff, CA 92007.

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

A. I am Vice President of Applied Energy Group, Inc. ("AEG") where I lead the Energy Analysis and Planning practice area. AEG is a division of Ameresco, Inc. A statement of my qualifications is attached as Appendix A to this Surrebuttal Testimony.

II. PURPOSE AND SCOPE

Q. What is the purpose of your surrebuttal testimony in this proceeding?

A. My surrebuttal testimony describes the approach we used to perform the Ameren Missouri study, with a particular emphasis on development of customer participation rates and achievable potential, the process we used to engage with and solicit feedback from stakeholders as we performed the potential study, and how the results from the

Ameren Missouri study compare with results from other potential studies we have conducted. I will also address some specific criticisms of the study.

III. WITNESS QUALIFICATIONS

Q. What is your experience conducting potential studies?

A. The team that performed the Ameren Missouri study is an industry leader in potential studies. Over the past five years, we have performed more than 50 potential studies across North America. These were under the auspices of Global Energy Partners, LLC, EnerNOC, Inc. and now Applied Energy Group, since my team moved from one company to the next through acquisitions. The Ameren Missouri study was performed by the Utility Solutions Consulting Services group of EnerNOC.

Our work is frequently referenced by policymakers and other energy-related organizations. For example, the United States Environmental Protection Agency ("EPA") considered several AEG potential studies for technical support to develop achievable emissions reduction guidelines.[1] In fact, of the twelve studies EPA included in its meta-analysis, four were conducted by AEG, more than any other consultancy. Furthermore, we have worked with Edison Electric Institute's Institute for Electric Efficiency ("IEE") to analyze the impact of future codes and standards on national energy

[1] *Greenhouse Gas Abatement Measures.* Technical Support Document for Carbon Pollution Guidelines for Existing Power Plants: Emission Guidelines for Greenhouse Gas Emissions from Existing Stationary Sources: Electric Utility Generating Units. U.S. Environmental Protection Agency. Office of Air and Radiation. June 10, 2014. Docket ID No. EPA-HQ-OAR-2013-0602, http://www2.epa.gov/sites/production/files/2014-06/documents/20140602tsd-ghg-abatement-measures.pdf

use.[2] We apply this knowledge to our potential studies on a routine basis to ensure that the effects of upcoming codes and standards are accounted for in the baseline projections.

We have worked with several utilities in Missouri in addition to Ameren. We have an ongoing relationship with Empire District Electric and have just initiated a DSM potential study to support their next IRP filing. We are designing programs for Kansas City Power and Light, using the results of their most recent potential study. We are also performing an assessment of energy-efficiency, demand response and distributed generation for the Midcontinent ISO and the Eastern interconnection, our second study of this type for them. Figure 1 and Table 1 show our experience across North America.

[2] The three papers (in date order) are available at:
http://www.edisonfoundation.net/IEE/Documents/IEE_RohmundApplianceStandardsEfficiencyCodes1209.pdf
http://www.edisonfoundation.net/iee/Documents/IEE_CodesandStandardsAssessment_2010-2025_UPDATE.pdf
http://www.edisonfoundation.net/iee/Documents/IEE_FactorsAffectingUSElecConsumption_Final.pdf

Figure 1 Map of DSM Planning Studies Conducted by AEG in the North America

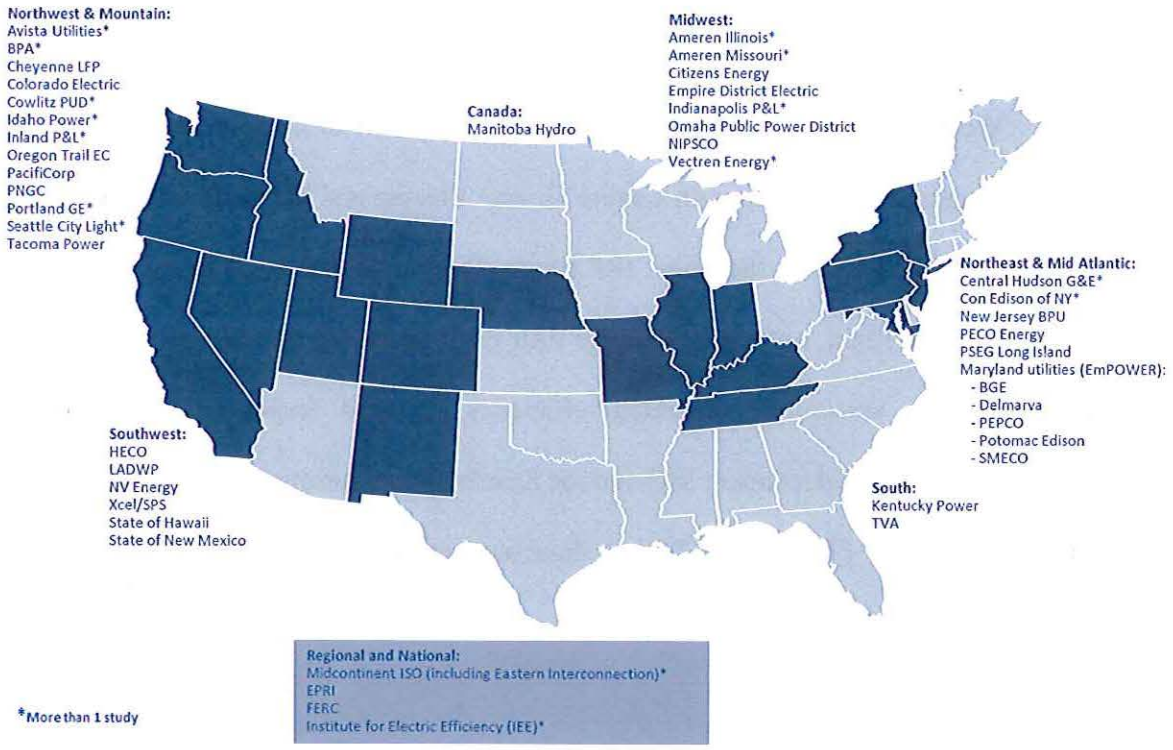


Table 1. Recent DSM Planning Studies Conducted by AEG

Organization/Project Title	Year(s) Completed	Customer Surveys/Research	Baseline End-use Forecast	Measure Database Development	EE Potential	Demand Response Potential	Program Planning/ Program Design	Supply Curve Development	Scenario Analysis	Stakeholder Support	Regulatory Support / Filing	Electricity	Natural Gas	Other Fuels
Missouri Studies														
Ameren Missouri 2013 Potential Study	2013	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Ameren Missouri 2010 Potential Study	2010	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓		
Empire District Potential Study & IRP Support	2015*		✓	✓	✓		✓	✓	✓	✓	✓	✓		
Empire District Electcric Program Plan	2013						✓			✓	✓	✓		
Kansas City P&L Program Design & IRP Support	2014-15*			✓			✓			✓	✓	✓		
Midcontinent ISO EE, DR & DG Potential Study	2015*		✓	✓	✓	✓	✓	✓	✓	✓		✓		
Midcontinent ISO EE & DR Potential Study	2011		✓	✓	✓	✓	✓	✓	✓	✓		✓		
Midwest Studies														
Ameren Illinois DSM Market Potential Study	2013, 2015*	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	
Ameren Illinois Program Design	2012-2015*			✓			✓		✓	✓	✓	✓	✓	
Ameren Illinois IPA Program Analysis	2013-2015*			✓			✓			✓	✓	✓		
Citizens Energy Group EE Action Plan	2012		✓	✓	✓		✓	✓		✓		✓	✓	
Indianapolis P&L EE Potential & Action Plan	2012, 2014		✓	✓	✓		✓	✓		✓		✓		
NIPSCO Potential Study and Action Plan	2014		✓	✓	✓	✓	✓	✓				✓		
Omaha PPD Potential Study and DSM Plans	2014	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓		
Peoples Gas/North Shore Gas Program Plan	2011, 2014			✓			✓			✓	✓		✓	
Vectren Potential Study and Action Plan*	2013, 2014	✓	✓	✓	✓		✓	✓		✓	✓	✓	✓	
Other North America Studies														
Avista CPA Studies (5 studies for 3 states)*	2011-14		✓	✓	✓					✓		✓	✓	
Avista DR Potential Study	2014					✓	✓	✓				✓		
Central Hudson Program Plans	2015*			✓			✓		✓	✓	✓	✓	✓	
Cheyenne Light Fuel & Power Program Plan	2015*		✓	✓	✓		✓	✓				✓	✓	
Black Hills Colorado Electric Potential and Plan	2012, 2015*	✓	✓	✓	✓		✓	✓		✓	✓	✓		
Con Edison of NY 2010 DSM Potential Study	2012, 2010	✓	✓	✓	✓			✓			✓	✓	✓	✓
Cowlitz Public Utility District CPA Studies	2013, '11, '09		✓	✓	✓							✓		
Idaho Power Company Potential Studies	2012, 2015		✓	✓	✓		✓	✓		✓		✓		
IEE Analysis of Codes & Standards	2011, '12, '13		✓						✓			✓		
Inland Power & Light CPA Studies	2011, 2009		✓	✓	✓							✓		
Kentucky Power Potential and Plan	2015*	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
LA Dept. of Water & Power DSM Potential	2011		✓	✓	✓	✓	✓	✓				✓		
Manitoba Hydro DSM Potential	2013		✓	✓	✓	✓			✓			✓	✓	
New Jersey Statewide Potential Study & Plan	2012, 2013		✓	✓	✓		✓		✓	✓		✓	✓	✓
Oregon Trail Energy Coop Business Strategy	2013		✓	✓	✓		✓					✓		
PacifiCorp (EE and DR for five states)	2014		✓	✓	✓	✓		✓	✓			✓		
Portland General DR Potential Studies	2009, '13,'15*					✓						✓		
PNGC Demand Response Assessment	2015*		✓	✓		✓		✓				✓		
PSEG LI DSM Potential Study	2015*	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓		
Seattle City Light CPA Studies	2011, 2013		✓	✓	✓			✓	✓	✓		✓		
State of Hawaii Potential Study	2013		✓	✓	✓		✓		✓	✓		✓		
State of Maryland Potential Study	2015*	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	
State of New Mexico DSM Potential	2011	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	
Tacoma Power CPA	2014, 2015*		✓	✓	✓			✓	✓	✓		✓		
TVA DSM Potential	2012		✓	✓	✓	✓	✓		✓	✓		✓		
Xcel SPS Potential Study Update	2013		✓	✓	✓							✓		

*In progress

^CPA = Conservation Potential Assessment

Q. In conducting potential studies, do you have a position with respect to energy efficiency?

A. As a consultant hired by utilities, state agencies and other organizations to assess energy-efficiency, conservation, demand-response and distributed generation potential, AEG does not have a position. We strive to develop independent and objective estimates of savings using the best data, information and assumptions available at the time. AEG prides itself on presenting clients and the public with actionable results that are methodologically rigorous and transparent. The fact that the savings estimates vary from one client to another is a reflection of the assumptions we developed together with our clients at the time of the study and also any specific rules we need to follow in preparing the studies. When given the option, we prefer to develop a range of achievable potential estimates to give our clients a range of possible outcomes.

IV. ANALYSIS FRAMEWORK

Q. Describe your approach for conducting the Ameren Missouri potential study.

A. As background, we used a rigorous, bottom-up analysis approach to perform the study. The Ameren Missouri study represents a best-in-class implementation of this approach. That is, the study included all the elements recommended for potential studies in the National Action Plan for Energy Efficiency ("NAPEE"), including extensive research with Ameren Missouri customers.[3] AEG conducted the current study using its Load Management and Analysis and Planning tool ("LoadMAP"), an end use model that utilizes a robust analytical framework with stock-accounting algorithms, equipment

[3] National Action Plan for Energy Efficiency (2007). *National Action Plan for Energy Efficiency Vision for 2025: Developing a Framework for Change.* www.epa.gov/eeactionplan

saturations, vintage distributions, results from engineering simulations and other market data.

The first step in estimating the four types of measure-level potential was to develop a characterization of how Ameren Missouri customers used electricity in 2011, the base year of the study. We developed this characterization by sector (residential, commercial and industrial), customer segment (housing type, building type and industry, respectively), end use, technology and building vintage. The primary sources of information were Ameren Missouri billing data and customer surveys we conducted specifically for this study. We supplemented these sources with secondary information from a variety of sources.

Q. Please describe how the potential estimates were determined?

A. LoadMAP analyzed each measure in a building segment based on the attributes defined in the market characterization. LoadMAP used stock accounting algorithms to replace older, less efficient equipment at the end of its useful life with new equipment based on vintage distributions. LoadMAP isolated new construction from existing equipment and buildings and treated purchase decisions for new and existing equipment and buildings separately. All measures were screened for cost effectiveness using the TRC test with territory-specific inputs provided by Ameren Missouri, including avoided costs, line losses and discount rates. We did not include any program administration or delivery costs in the measure-level screening. The economic screening showed each measure's cost effectiveness relative to its baseline condition, which included the effects of codes and standards and naturally occurring conservation, and was conducted for all measures applicable to each building segment and vintage.

Potential savings were estimated for the years 2016 through 2030 for each measure. Following industry best practice, LoadMAP estimates three basic potential scenarios, including technical, economic, and achievable. The total energy use under each case is compared with energy use in the baseline projection. The difference between the two is calculated as the potential for any given scenario.

V. BASELINE PROJECTION

Q. Please describe the baseline projection.

A. We developed a baseline projection for each customer segment, end use and technology using LoadMAP. The 2011 through 2030 baseline projections represent annual electricity consumption without any new utility programs. The baseline projection incorporates the impacts of federal energy codes and standards that come into effect during the study timeframe, as well as electricity price forecasts, customer growth, trends in fuel shares and appliance saturation, and expected naturally occurring efficiency improvements, developed from the Energy Information Administration's ("EIA") Annual Energy Outlook ("AEO") forecast. This important step establishes the foundation to which energy efficiency savings potentials are compared and also insures that we do not double-count savings.

Q. Describe your assumptions for the baseline projection?

A. The baseline projection for this study includes the expected impacts of building codes and appliance standards, the ongoing savings from energy-efficiency measures installed up until the base year of the study, and purchases of energy-efficiency appliances and equipment outside of utility programs and other interventions. The fact that we use this approach for the baseline makes comparison with other potential studies very difficult.

Q. What do you mean by this? Can you give an example?

A. In other states, for example, the baseline is prescribed as a fixed-efficiency baseline. This means that the future purchase decisions without any interventions are fixed at baseline patterns. So, if 0% of the residential customers are purchasing LED lamps in the study base year of 2013, then 0% will be purchasing LED lamps in 2014, 2015, etc. This results in a higher baseline forecast as the starting metric and larger potential savings from interventions relative to that baseline. Unless otherwise required or specified by our clients, most of the AEG/EnerNOC studies use a baseline projection that includes naturally occurring energy efficiency. This would mean that we explicitly recognize, for example, that some people are already purchasing LED lamps without DSM program intervention; and as such, the program cannot claim credit for those savings. As a result, our potential savings across all levels of potential tend to look smaller when compared to other studies.

Q. What does the baseline projection for the Ameren Missouri study show?

A. Using the same example of residential lighting, the study base year is 2011. In this year, 65% of screw-in lamps that burn out are replaced with general service incandescent lamps while 33% are installing CFLs and 3% are installing LED lamps. In 2016, the first year of the potential estimates, 48% of the lamps are replaced with EISA-compliant halogen lamps, 47% are replaced with CFLs and 7% with LEDs. This is the baseline condition against which future potential savings are measured.

Q. How did the study's baseline projection compare with Ameren Missouri's load forecast?

A. When we performed the study, we aligned our baseline projection with the Ameren Missouri load forecast that was available at the time. We used the same assumptions as much as possible. Our resulting projection was not an exact match to the forecast, but it was very close in each year of the forecast.

Q. How does the study treat equipment replacement and energy-efficiency measures at the end of their useful life? Do you assume that customers revert to inefficient options at the end of the useful life?

A. We do not assume that customers revert to inefficient options at the end of the useful life of the measure. Nor, do we assume that customers will install the same level of efficiency that they are replacing. Instead, we assume that customers will make a brand new decision at that time, given the options expected to be available at that time. Most measures have a relatively long life; the useful life of white-goods appliances is typically more than 10 to 15 years. A lot can change over that time frame, including appliance standards, product features, new cost-effective measures, customer preferences, etc. We do not think it is appropriate to assume one extreme or the other when we perform the studies.

In addition, potential study and program designs typically take place every two to four years. This is much shorter than the useful life of most appliances and now even lighting. Utilities often revisit the analysis much sooner than the end-of-useful life assumptions come into play.

VI. ECONOMIC POTENTIAL

Q. Please describe how economic potential was determined.

A. LoadMAP calculates economic potential starting with an assessment of each individual measure for cost effectiveness using the total resource cost ("TRC") test. Economic potential includes all measures that have a benefit-to-cost ("B/C") ratio of 1.0 or greater and assumes that all customers will replace their equipment upon failure with the energy-efficient option. If there is more than one energy-efficient option that has a B/C ratio of 1.0 or higher, economic potential assumes the most efficient option is taken. Again, LoadMAP compared the total energy use under the economic potential case to the baseline projection and the difference between the two is calculated as economic potential.

Q. How do you respond to the criticism that the economic potential results are limited?

A. The economic potential was developed consistent with industry best practice using the best information available at the time of the study. However, several interveners have expressed concerns that AEG systematically underestimated the economic potential results. In particular, Mr. Woolf suggests that the incorrect benefit-cost test used for the cost-effectiveness screen and the avoided costs do not include fossil-fuel benefits and non-energy benefits.[4] Such criticism is unfounded.

Q. Why are these criticisms unfounded?

A. Ameren Missouri must abide by provisions set forth under the Missouri Energy Efficiency Investment Act ("MEEIA"). MEEIA formally establishes the TRC test as the

[4] Rebuttal Testimony of Tim Woolf. EO-2015-0055, p. 22, l. 9-22.

preferred cost-effectiveness test for energy efficiency programs in Missouri.[5] Although there are certain exceptions for low-income and general education programs, efficiency programs generally must pass the TRC test to be eligible for cost-recovery. Given the regulatory environment in Missouri we believe it is appropriate to use the TRC test to determine economic potential.

Furthermore, AEG used the avoided costs obtained from Ameren Missouri to determine economic potential. While proprietary and not published in the study, I can say that Ameren Missouri's avoided costs are among the lowest we have used in a potential study. Lower avoided costs results in fewer cost-effective measures, all else equal. As an independent and objective party, AEG is not in a position nor would it be appropriate to modify avoided costs obtained from the utility to generate a specific outcome.

Nevertheless, the additional non-energy benefits such as water savings would not have affected the outcome since the measures affected, which include low-flow showerheads, faucet aerators, and horizontal-axis washing machines are already cost-effective and included in economic potential. What's more, lighting, the single largest contributor to the electric savings potential, would not be affected at all by these issues. There is a current movement in the industry to include a variety of other elements in avoided costs, but this has not been accepted on an industry-wide basis at this time and was certainly not the case in 2013 when we performed the Ameren Missouri study.

[5] Missouri Energy Efficiency Investment Act. (M. R. S. § 393.1075.1) August 28, 2014.

VII. ACHIEVABLE POTENTIAL

Q. Please describe how achievable potential was determined.

A. To estimate achievable potential, LoadMAP applied market adoption rates to measures selected under the economic potential case. The market adoption rates are defined as the percentage of purchase decisions that are assumed to change from the baseline condition to the efficient condition, and they vary by measure and by customer sector. LoadMAP compared the total energy use under the achievable potential case to the baseline projection and the difference between the two is calculated as achievable potential. For Ameren Missouri, two levels of achievable potential were estimated: maximum achievable potential ("MAP") and realistic achievable potential ("RAP"). The savings calculation between the two levels are different only in the market adoption rates that are used.

Q. How are the market adoption rates applied in the analysis?

A. To explain this fully, Table 2 below provides the purchase shares for residential screw-in lighting for the baseline projection and each of the potential cases in the Ameren Missouri study. The table begins with the purchase shares for the baseline projection, which includes naturally-occurring energy efficiency, as described earlier. In the first year of the potential estimates, 2016, about half the customers choose to purchase the least-efficient option (E2, Halogen) and about half choose to purchase CFLs and LEDs. In 2020, the baseline projection reflects the second-level of the EISA standard and customer purchases shift toward more efficient options.

The next two blocks of data in the table show the customer purchase decisions under technical potential and economic potential. For technical potential, all customers

purchase the most efficient option available, LED lamps. For economic potential, all customers purchase the most efficient, cost-effective option. For this example of residential screw-in lighting, LED lamps are the most efficient, cost-effective option, so economic potential equals technical potential.

The fourth block of data shows the purchase shares for MAP. These purchase shares are calculated using the market adoption rates for MAP. The 44% of customers who choose the most efficient, cost effective option, LED lamps, is taken proportionally from the less efficient options they purchase in the baseline projection. Under MAP, more than 60% of customers are purchasing LED lamps beginning in 2016. The final block of data shows the purchase shares for the realistic achievable potential case. These are calculated in the same way as for MAP, but using the RAP market adoption factors.

Table 2 Market Adoption Model, Residential Single Family Interior Lighting

Residential Single Family - Screw-in Interior Lighting
Baseline that includes Naturally Occurring Energy Effciency

	Label	2011	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
E1	Incandescent (14.3 lm/W)	64.6%										
E2	Halogen (17.4 lm/W)		45.4%	45.4%	45.4%	45.4%						
E3	Halogen (45 lm/W)						45.4%	45.4%	45.4%	45.4%	45.4%	45.4%
E4	CFL (67.2 lm/W)	32.9%	47.7%	47.7%	47.7%	47.7%	47.7%	47.7%	47.7%	47.7%	47.7%	47.7%
E5	LED (70.2 lm/W)	2.5%	6.8%	6.8%	6.8%	6.8%						
E6	LED (157 lm/W)						6.8%	6.8%	6.8%	6.8%	6.8%	6.8%

Technical Potential

	Label	2011	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
E1	Incandescent (14.3 lm/W)											
E2	Halogen (17.4 lm/W)											
E3	Halogen (45 lm/W)											
E4	CFL (67.2 lm/W)											
E5	LED (70.2 lm/W)		100.0%	100.0%	100.0%	100.0%						
E6	LED (157 lm/W)						100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Economic Potential (LED lamps are most efficient, cost-effective option, so same as Technical Potential)

	Label	2011	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
E1	Incandescent (14.3 lm/W)											
E2	Halogen (17.4 lm/W)											
E3	Halogen (45 lm/W)											
E4	CFL (67.2 lm/W)											
E5	LED (70.2 lm/W)		100.0%	100.0%	100.0%	100.0%						
E6	LED (157 lm/W)						100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Maximum Achievable Potential

	Label	2011	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
	Adoption Rate (MAP)==>		44%	45%	45%	46%	46%	47%	47%	48%	48%	49%
E1	Incandescent (14.3 lm/W)											
E2	Halogen (17.4 lm/W)		19.3%	19.0%	18.8%	18.6%						
E3	Halogen (45 lm/W)						18.4%	18.1%	17.9%	17.7%	17.4%	17.2%
E4	CFL (67.2 lm/W)		20.2%	20.0%	19.8%	19.5%	19.3%	19.0%	18.8%	18.6%	18.3%	18.1%
E5	LED (70.2 lm/W)		60.5%	61.0%	61.4%	61.9%						
E6	LED (157 lm/W)						62.4%	62.8%	63.3%	63.8%	64.2%	64.7%

Realistic Achievable Potential

	Label	2011	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
	Adoption Rate (RAP)==>		40%	40%	41%	41%	42%	42%	43%	43%	44%	44%
E1	Incandescent (14.3 lm/W)											
E2	Halogen (17.4 lm/W)		27.3%	27.1%	26.8%	26.6%						
E3	Halogen (45 lm/W)						26.4%	26.1%	25.9%	25.7%	25.5%	25.2%
E4	CFL (67.2 lm/W)		28.6%	28.4%	28.2%	27.9%	27.7%	27.5%	27.2%	27.0%	26.7%	26.5%
E5	LED (70.2 lm/W)		44.1%	44.5%	45.0%	45.5%						
E6	LED (157 lm/W)						45.9%	46.4%	46.9%	47.3%	47.8%	48.3%

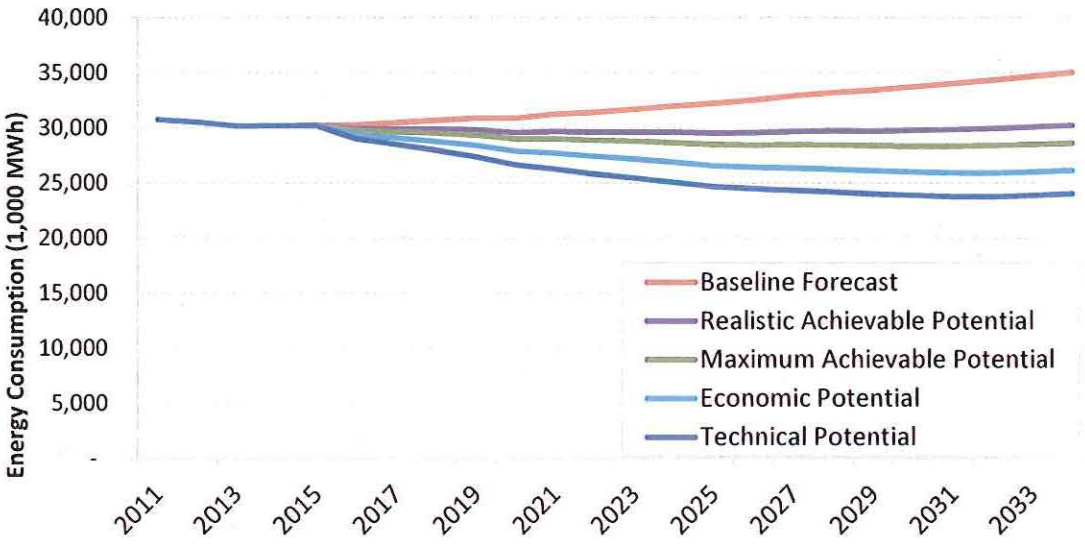
This illustration demonstrates that the amount of potential savings is lower when a dynamic baseline is taken into account. Table 2 shows clearly the amount of naturally occurring energy efficiency that is taking place in the baseline projection and the amount

of additional energy-efficiency activity that takes place in the RAP and MAP cases. By 2018, nearly half residential customers are purchasing LED lamps under the RAP scenario. This is a substantial market share of purchases in that year.

When we apply this approach across all sectors, segments, end uses, technologies and measures, the baseline projection grows by only 0.5% per year as shown in Figure 2 below, which shows the baseline projection developed by AEG for Ameren Missouri along with the four potential scenarios modeled in the study.

Focusing on the realistic achievable potential forecast in Figure 2 shows that sales under this case decline slightly relative to the sales in 2011. Stated differently, the savings expected from measure-level RAP more than offset the expected growth in the baseline projection. The MAP forecast clearly shows that sales decline. Looking at the results of the potential analysis in this way clearly shows the overall impact of the savings estimates on future electricity sales.

Figure 2 Ameren Missouri Baseline Projection



Q. Please describe how you developed the market adoption rates for the Ameren Missouri study.

A. Market adoption rates were developed using the program-interest surveys conducted with Ameren Missouri customers and results from recent Ameren Missouri programs. The approach used to develop the market adoption rates for the Ameren Missouri potential study is described in great detail in the report previously filed with the Commission.[6] In short, the market adoption rates were based on results of a program interest survey of Ameren Missouri customers that was specifically designed to inform the potential study. The survey was designed to test customer acceptance at various payback periods. Respondents, Ameren Missouri residential and business customers, were asked to rate their likelihood of engaging in a given efficient behavior at a given payback period on a 10-point scale. Each scale rating was then discounted based on the probability that the respondent would actually engage in the specified behavior.

As expected, take rates were higher for lower payback periods. The maximum achievable potential represents the most likely takers at a one-year payback level, while the realistic achievable potential represents the likely takers across all customer groups at a three-year payback level.

Q. You mention the responses were adjusted. Why was an adjustment made?

A. The market adoption rates were adjusted to account for the inherent response bias embedded in the survey results. The adjustment factors were based on research

[6] File No. EO-2015-0084, Electric Utility Resource Filing of Union Electric Company d/b/a Ameren Missouri

conducted by YouGov Definitive Insights during 2010 that compared stated intent with actual behavior with respect to purchases of energy-efficient appliances and equipment.

Commonly referred to as the "say-do" problem, the existence of response bias in survey results attempting to predict actual behavior based on stated intent is well-documented and widely accepted among social science researchers. Studies have shown that respondents tend to overestimate their likelihood to engage in specified behaviors, especially socially desirable behaviors such as energy efficiency. Rather than underestimate achievable potential, the adjustment results in a more realistic assessment of potential based on customer attitudes and price sensitivity.

Q. Besides the "say-do" adjustment you describe above, did you make any other adjustments to the take rates based on psychographic segmentation questions, as Mr. Woolf suggests?

A. No. We did not make any downward adjustment based on responses to questions about customer satisfaction or opinions about climate change.

Q. Are there any alternative methods to developing market adoption rates?

A. Yes. There are several alternative methods to developing market adoption rates. A recent paper presented by AEG at the 2014 National Energy Services Conference of the Association of Energy Services Professionals ("AESP") describes the most common approaches for developing market adoption rates.[7] The Ameren Missouri approach combined two of the approaches described in the paper: inferring market adoption rates

[7] Richard Voytas, Ameren Corporation; Ingrid Rohmund, EnerNOC; Dave Costenaro, EnerNOC; Jan Borstein, EnerNOC. "Enter the Human: Estimating Customer Participation Rates" Association of Energy Service Professionals National Conference Proceedings 2014.

from historical program results and estimating take rates from customer surveys. In other studies that do not include market research, we utilize market adoption rates implied by past program results, a Delphi approach, secondary sources or some combination of these three. In some cases, our clients are required to use a specific source for market adoption rates as is the case in the state of Washington where we must use the ramp rates developed by the Northwest Power and Conservation Council.

Q. Is the approach you used to develop the market adoption rates consistent with commonly accepted industry best practices for conducting potential studies?

A. As mentioned above, the market potential study was designed to adhere to the approaches and conventions outlined in the NAPEE guidelines. Although there is well-documented guidance regarding accepted methods for key components of a potential study, there is much less industry consensus with respect to estimating achievable potential. A recent report by the American Council for an Energy-Efficient Economy ("ACEEE") on methodological approaches to potential studies notes that the assumptions and inputs that contribute to achievable potential are often left to professional judgment of the analyst.[8] The complete methodology is fully described in detail in the potential study report previously submitted to the Commission. The reports that AEG (formerly EnerNOC) provides to its clients for potential studies include the market adoption rates. Most other potential studies do not explicitly identify them. In addition, the approach we used for Ameren Missouri is objective and repeatable. AEG believes that the market adoption

[8] American Council for an Energy-Efficient Economy (2014). *Cracking the TEAPOT: Technical, Economic, and Achievable Energy Efficiency Potential Studies*. http://aceee.org/research-report/u1407

rates are methodologically sound and represent the best source for estimating achievable potential for Ameren Missouri.

Q. How do the market adoption rates you used for Ameren Missouri compare with those used in other studies?

A. We have applied this approach to several recent studies, as described below, and compare the results in Figure 3 through Figure 6 below. The figures show market adoption rates for the most important measures from recent studies that are contemporaneous with the Ameren Missouri study that AEG conducted. These include Ameren Illinois (2013), Omaha Public Power District (OPPD) (2014), EmPOWER Maryland for BG&E (study is underway but these estimates were developed in 2014), as well as the previous (2010) Ameren Missouri Potential Study. The figures show the first-year market adoption rates as well as the rates 10 years into the forecast horizon. The market adoption rates for Ameren Missouri are among the highest adoption rates across the four measure categories, which comprise the majority of savings estimated in the study.

Figure 3 Commercial Lighting Market Adoption Rate Comparison

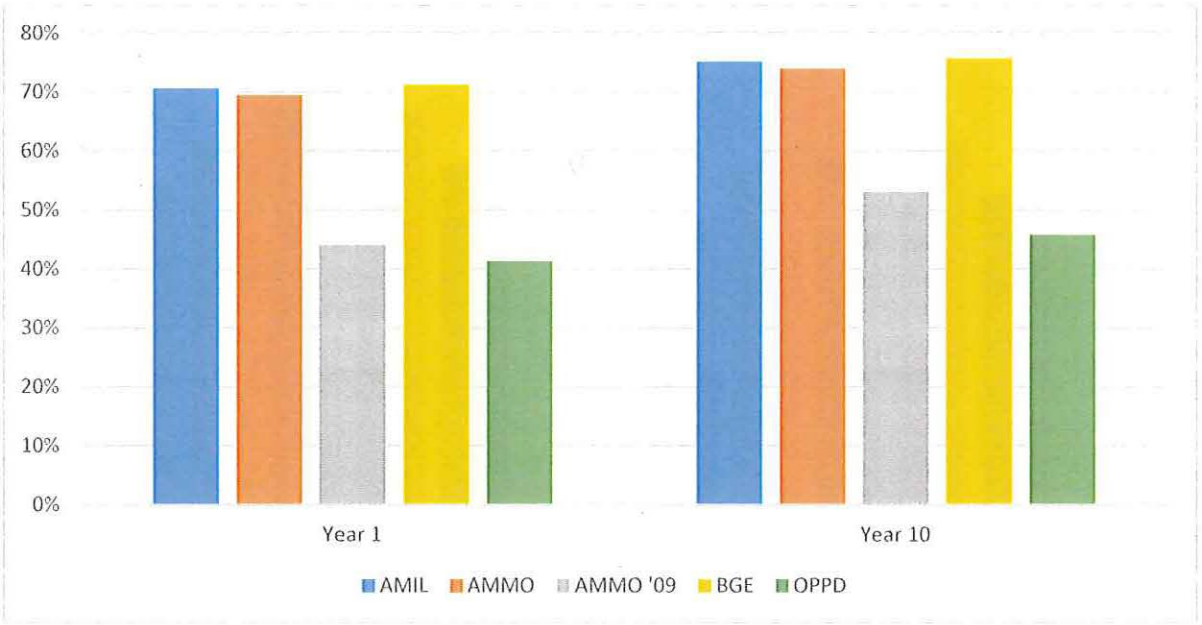


Figure 4 Commercial HVAC and Appliances Market Adoption Rate Comparison

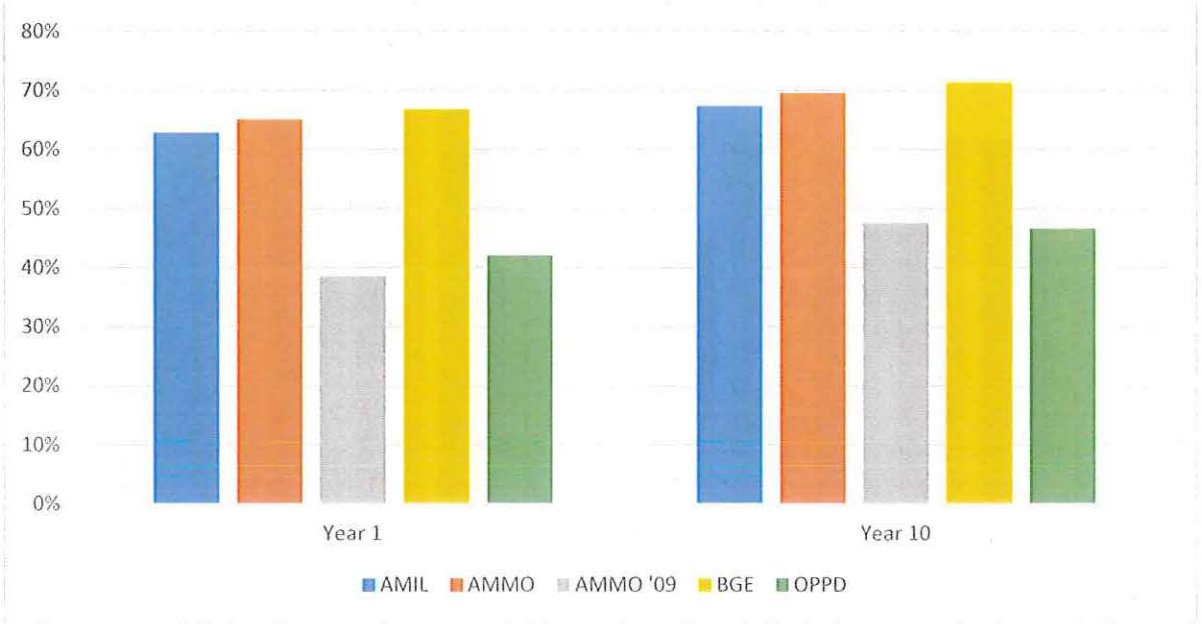


Figure 5 Residential Lighting Market Adoption Rate Comparison

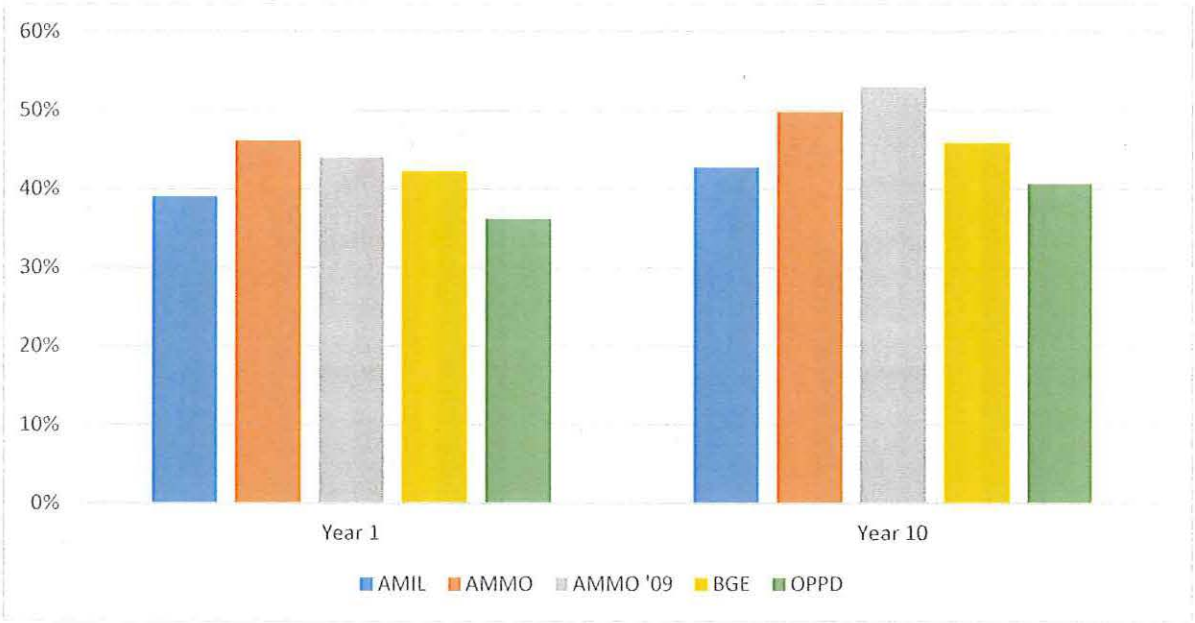


Figure 6 Residential HVAC and Appliances Market Adoption Rate Comparison

Q. How do you respond to other interveners' assertions that the study's market adoption rates are well below documented program participation rates for comparable studies?

A. First, it is very difficult to compare studies. To take the results presented in studies at face value usually results in an erroneous comparison. Nevertheless, I will address several issues raised by Mr. Mosenthal. He states that efficiency programs have increased the market share of ENERGYSTAR products to nearly 90%. We agree with this. ENERGYSTAR has virtually transformed the market and we have reflected this in the baseline projection in the Ameren Missouri study.

Mr. Mosenthal states that participation rates for commercial custom programs targeting larger customers to nearly 90% over 3-4 years. This figure comes from a gas utility program in Ontario, Canada that targets large industrial customers and these results may or may not be transferable to other utilities, particularly electric utilities. I believe a high participation rate can be accomplished, but it depends on how participation rates and larger customers are defined. For example, if the utility is small and/or has only a handful of very large customers and the utility focuses account executive resources on working with those customers to implement even one energy efficiency action, then this outcome of "participation" can be achieved. And while I think it is useful to identify that one or more utilities can achieve this level of participation, it is an entirely different matter to suggest that it is possible to achieve 90% participation across all measures in any customer segment, no matter how it is defined.

Q. Why is it difficult to compare across studies?

A. Each study must estimate the potential for energy efficiency under a unique set of market conditions that can vary greatly by region. Furthermore, as mentioned above, although there are is general industry consensus around certain key elements of potential study methodology, there is still healthy debate over the best methodology to use for estimating achievable potential. The pitfalls of comparing across studies is well-documented and has been recognized by organizations such as the ACEEE[9] and the Regulatory Assistance Project[10].

Q. Are there alternative metrics to try to make more valid comparisons between studies?

A. There is one metric that we think is useful for gaining insight into participation rates across studies. It is a "savings-weighted participation" that reflects the fraction of economic potential that is captured by the achievable potential case. It is calculated simply by dividing achievable potential by economic potential. To illustrate we refer to a table from the Clean Power Plan which presents results for 12 potential studies, recreated below.

[9] American Council for an Energy-Efficient Economy (2014). Cracking the TEAPOT: Technical, Economic, and Achievable Energy Efficiency Potential Studies. http://aceee.org/research-report/u1407

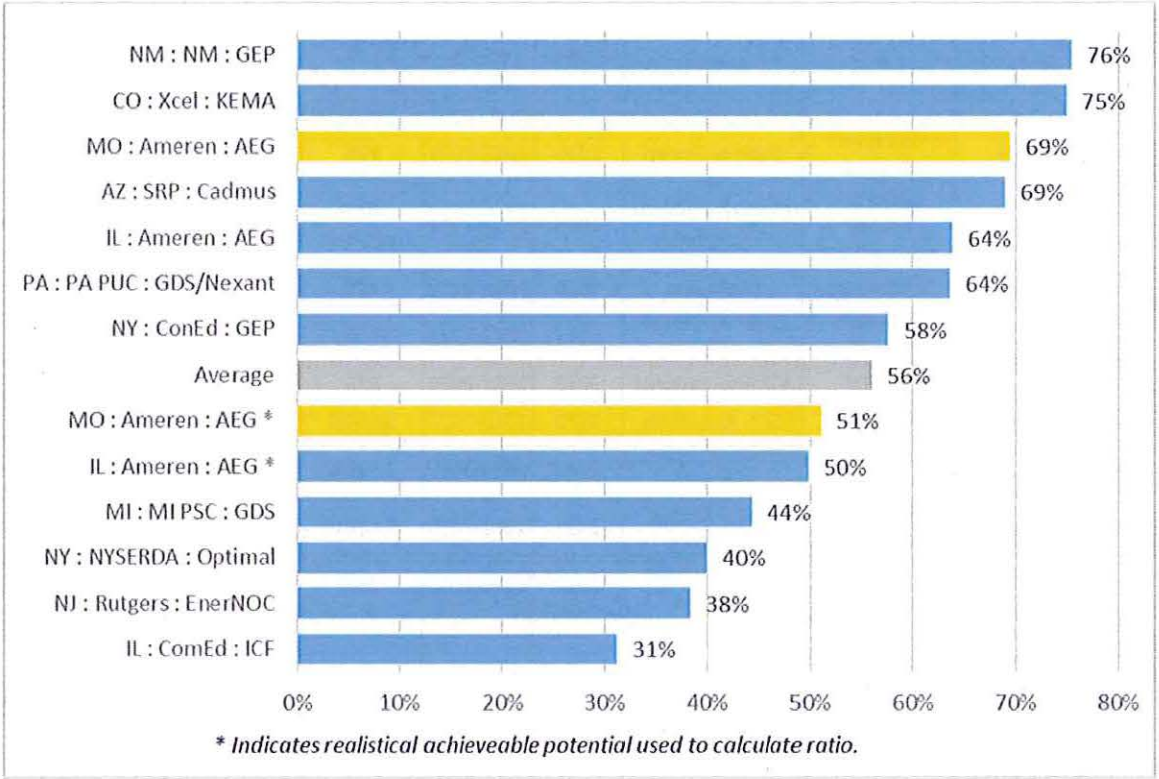
[10] Kramer, C. and Reed, G. "Ten Pitfalls of Potential Studies," Regulatory Assistance Project, 2012.

Table 3 Summary of Recent (2010-2014) Electric Energy Efficiency Potential Studies

State	Client	Analyst	Study Year	Study Period	End-year Projected Potential as % of Baseline Sales		Average Annual Projected Potential as % of Baseline Sales	
					Economic	Achievable	Economic	Achievable
Arizona	Salt River Project	Cadmus Group	2010	2012-2020	29%	20%	3.20%	2.20%
California	California Energy Commission	California Energy Commission	2013	2014-2024	Not reported	9.60%	NA	0.90%
Colorado	Xcel Energy	KEMA, Inc.	2010	2010-2020	20%	15%	1.80%	1.40%
Delaware	Delaware DNR/DEC	Optimal Energy, Inc.	2013	2014-2025	26.30%	Not reported	2.20%	N/A
Illinois	ComEd	ICF International	2013	2013-2018	32%	10%	5.30%	1.70%
Michigan	Michigan PSC	GDS Associates	2013	2013-2023	33.80%	15%	3.10%	1.40%
New Jersey	Rutgers University	EnerNOC Utility Solutions	2012	2010-2016	12.80%	5.90%	1.80%	0.80%
New Mexico	State of New Mexico	Global Energy Partners	2011	2012-2025	14.70%	11.10%	1.10%	0.80%
New York	ConEd	Global Energy Partners	2010	2010-2018	26%	15%	2.90%	1.70%
Pacific Northwest (Idaho, Montana, Oregon, Washington)	US Department of Energy	Lawrence Berkeley National Laboratory	2014	2011-2021	11%	Not reported	1.90%	Not reported
Pennsylvania	Pennsylvania PUC	GDS Associates and Nexant	2012	2013-2018	27.20%	17.30%	4.50%	2.90%
Tennessee	Tennessee Valley Authority	Global Energy Partners	2011	2009-2030	24.80%	19.80%	1.10%	0.90%
			Range					0.8% - 2.9% per year
			Average					1.5% per Year

To the data in this table, we added for three additional studies (NYSERDA, the 2013 Ameren Illinois study and the Ameren Missouri studies) and show the ratio of achievable potential to economic potential in Figure 5 below. The table shows that the Ameren Missouri study estimate of RAP is slightly below the average while MAP is on the high end of the spectrum.

Figure 7 Savings-Weighted Participation Rates (Ratio of average annual achievable potential to average annual economic potential), Selected Studies



VIII. PROGRAM POTENTIAL

Q. Describe your general approach for estimating preliminary program potential.

A. The measure-level potential analysis provides guidance for developing program designs. It is based on rigorous and detailed modeling by sector, segment, end use, technology and measure. The program-design analysis takes place at a higher level and all the detail is rolled up typically into two sectors, residential and business, so that a manageable set of programs can be defined.

Program design reflects utility experience, industry best practices and other external factors. The amount of savings possible through programs is usually different than measure-level potential because it is influenced by many factors, some of which are

shown in the table below along with the expected direction of the impact on measure-level savings. The amount of program potential relative to measure-level potential depends on the relative magnitude of each factor for each individual utility.

Table 4 Directional Impact of Program Design Factors on Program Savings

Factors Considered in Program Design	Example	Directional Impact on Program Savings
Considers measure bundles that include measures that are not cost-effective on a stand-alone basis	Residential low-income program that includes refrigerator replacement as a "loss leader" to incentivize particpation	↑
May include more than one efficiency level for a particular technology	Measure-level potential includes only LED lamps but programs include a mix of both CFLs and LEDs	↓
May exclude some measures that have very small potential or are challenging to implement	Some insulation measures	↓
Addition of program administrative & delivery costs may render certain measures or bundles not cost-effective	Affects measures that are marginally cost-effective in measure-level analysis. Varies by jurisdiction, avoided costs and economics.	↓
May adjust participation rates to reflect priorities	Utility may choose to accelerate or decelerate depending on available budget or other implementation issues	↑↓
May reduce participation rates to reflect short-term constraints in program delivery	A measure is attractive to the utility but the trade-ally network cannot be pursuaded/trained to deliver	↓
May include programs that were not included in measure-level analysis	O Power home-energy report program included based on results of pilot program	↑
May exclude measures that are not delivered by utilities	Consumer electronics	↓
Net to gross and realization rates may affect savings	Differences among upstream lighting programs, mail-delivered home kids, or direct-install programs	↓

Q. What about the program potential estimates for Ameren Missouri? What is your response to stakeholder criticism that the program potential is too low?

A. As the report states, the main factors that caused program potential to be lower than measure-level potential are as follows:

First, measure-level potential for schools and offices was reduced by 25% to reflect potential associated with the public sector which is not served by Ameren programs.

Second, participation rates of some measures were reduced because of relatively low benefit-cost ratios after program administration and delivery costs were applied. The most significant of these measures is linear LED lamps. At the time of the analysis in mid-2013, linear LED lamps were only beginning to appear in the marketplace as viable options and they were still very expensive. Our analysis assumed that the cost would come down over time but we did not anticipate that costs would come down as much and as quickly as they have. In the studies we are performing now, these linear LED lamp systems are already cost effective. LEDs have become a disruptive technology in this regard.

The third factor is Ameren's program experience. We reviewed the programs that Ameren had at the time and received high-level information from Ameren about past program costs. The net effect of this information was to reduce the preliminary program potential.

I would like to add that we always take our clients' recent program experience into account when we develop preliminary program potential. We also take into account information from other jurisdictions, including best practices, and studies we've performed to develop program designs. However, our analysis for Ameren Missouri was at a relatively high level and more cursory than a detail program-design effort. Ameren staff prepared the detailed program designs after the study was completed.

Q. What was your approach to developing information specific to Ameren Missouri?

A. The Ameren Missouri study included comprehensive market research with its customers. Further, it included separate surveys to explore physical customer characteristics, including appliance and equipment saturations, dwelling and building characteristics, demographics/firmographics, and occupant behavior related to energy use, as well a customer interest in purchasing energy-efficient appliances and equipment through utility programs. The surveys yielded the following number of responses:

- Residential customers — 743 online saturation surveys and 761 online program interest surveys
- Small and medium commercial and industrial customers — 800 online saturation surveys and 798 online program interest surveys
- Largest commercial and industrial customers — 100 onsite surveys

By fielding two separate surveys, we were able to collect a lot of information about Ameren customers, more than we have collected for any other study we've performed. As such, the Ameren Missouri study is a best-in-class. Finally, the fact that Ameren routinely performs extensive customer surveys to support its potential studies in Missouri and Illinois has provided a positive example to the industry. We have pointed to the Ameren studies as the "right" way to approach potential studies and have convinced several clients to perform customer surveys to support their potential studies.

Q. What was the process you used for soliciting input and feedback for the Ameren Missouri potential study?

A. Ameren took the lead on engaging with external stakeholders throughout the study. In my experience, the engagement with external stakeholders was extensive. This is our preference because we like to address feedback in real time rather than after the study is completed. EnerNOC's interaction with stakeholders began with a webinar that introduced the study to stakeholders. We described the scope of the study and outlined our approach for performing it. During this meeting, one stakeholder recommended that we expand the market research to address the issue of rental properties. As a result, the market research was expanded to include focus groups with rental property owners explicitly. Then, we provided the list of proposed energy-efficiency measures to the stakeholders and requested their feedback on this list. Next, we reviewed preliminary market research results with stakeholders. In this webinar, we described our approach for estimating customer participation rates and presented preliminary estimates. Then, we presented preliminary measure-level, energy-efficiency potential estimates and solicited feedback. Even though we communicate with stakeholders all along the way, this step, when we present the preliminary estimates of potential, is the most important interaction with stakeholders because it is often easier for them to provide feedback to the preliminary estimates of savings than to other aspects of the study. We take this part of the process very seriously because we want stakeholders to understand how we developed the estimates and to provide us with specific feedback about changes they would like the study to consider. We received verbal feedback during the webinar and Ameren also received feedback in writing to which Ameren and we responded in writing.

Q. What type of feedback did you receive from the stakeholders regarding the preliminary measure-level potential estimates?

A. Some of the stakeholders focused on the level of achievable potential, stating that the potential was too low. Further discussion, led these same stakeholders to assert that our market adoption rates are too low and that we should be considering aggressive delivery strategies, such as those used in Vermont, to estimate maximum achievable potential. We offered to develop a sensitivity case around market adoption rates using more aggressive rates that reflect activity Vermont and other areas with high reported savings. Because these stakeholders appear to be very familiar with the results in these states, we requested that they provide us with the market adoption rates for this sensitivity analysis. They did not provide them nor were we able to figure them out on our own. I mention this specifically because this has occurred with other studies and not just the Ameren Missouri study. Our preliminary estimates are criticized as being too low but when we ask for information to support higher estimates or to perform sensitivity analyses, that information is not forthcoming.

Q. Do you think the potential savings estimates from the Ameren Missouri study are consistent with recent potential studies in the Midwest?

A. In general and as I stated previously, care must be taken when comparing results of one potential study to another. Studies vary considerably in a number of ways: definition of the baseline (which may or may not include codes and standards and/ or naturally occurring conservation), the amount of load growth assumed in the baseline; the avoided cost forecast; the scope of the assessment; the timeframe for the analysis; and the type of potential being compared (measure-level vs. program potential, just to name a few.

However, we are able to easily compare the measure-level savings from Ameren Missouri study and the most recent Ameren Illinois study. A side-by-side comparison of measure-level potential is provided below. The analysis approach for estimating measure-level potential was very similar between the two studies. Both had a base year of 2011. The baseline projection included naturally occurring efficiency and the projection had slightly negative growth for the period 2011-18.

There are also some differences between the two studies. The Illinois study estimated potential for 2014-2016 only, while the Missouri study estimated potential for 2016 through 2030, with an emphasis on 2016-18. The Missouri study included preliminary estimates of program potential for purposes of developing supply curves and final programs for the filing were developed by Ameren staff. The Illinois study included program plans developed by AEG under a separate contract with Illinois.

The table below explains the difference between measure-level MAP and RAP for the two studies. First, the Missouri study horizon is later than Illinois so the federal standards have had a greater impact on reducing savings possible through utility programs. Second, economic potential for the Illinois study is higher than for Missouri in the first three years of the study, which results in higher achievable potential.

Table 5 Potential Study Comparison of Ameren Illinois and Ameren Missouri

	Ameren Illinois 2013	Ameren Missouri 2013
Study period	2011-16	2011-30
Base year	2011	2011
Baseline projection includes naturally-occurring efficiency?	Yes	Yes
Increase in load from 2011-16	-1.6%	-0.2%
Time horizon for EE savings estimates	2014-16	2016-30
First three years of study	2014-16	2016-18
Average savings in first 3 years for Economic Potential	2.47%	2.10%
Average savings in first 3 years for RAP	1.00%	0.87%
Average savings in first 3 years for MAP	1.33%	1.27%
Average savings in first 10 years for RAP	n/a	0.84%
Average savings in first 10 years for MAP	n/a	1.16%
Average savings in first 10 years for RAP	n/a	0.78%
Average savings in first 10 years for MAP	n/a	1.06%
Average avoided cost in first 3 years		
Residential measure with highest savings	Interior screw-in lighting	Interior screw-in lighting
Market adoption rate for MAP in 2016 (Single-family homes)	49%	44%
Market adoption rate for RAP (Single-family homes	41%	40%
Commercial measure with highest savings	High-efficiency lighting	High-efficiency lighting
Market adoption rate for MAP in 2016 (Single-family homes)	72%	71%
Market adoption rate for RAP (Single-family homes	51%	47%

IX. CONCLUSION

Q. Please summarize your testimony.

The potential study conducted for Ameren Missouri is best-in-class. Our methodology rests on a solid foundation of industry best practices and our approach is guided by years of experience conducting similar studies for a wide variety of clients. As a professional utility consulting firm that performs studies for state governments, utilities and other organizations, AEG does not advocate for a specific position with respect to energy efficiency. Rather, we strive to provide our clients with reliable, objective results based on transparent and well-reasoned assumptions.

Each of the potential cases presented in the report were developed using a rigorous, bottom-up analysis approach and through close collaboration with utility staff and industry stakeholders. The baseline and potential scenarios utilized state-of-the-art techniques to produce savings estimates that accurately reflect market conditions including the impact of federal and state regulatory requirements and naturally occurring energy efficiency. The study is grounded in customer research that was specifically designed to inform this particular study. Using the results of the survey to develop market adoption rates ensures that potential estimates reflect the propensity of Ameren Missouri customers to participate in efficiency programs. In conclusion, we believe that the study provides a thorough, comprehensive and unbiased assessment of the energy efficiency potential within the Ameren Missouri service territory.

Q. Does this conclude your surrebuttal testimony?

A. Yes, it does.

APPENDIX A

STATEMENT OF QUALIFICATIONS
INGRID ROHMUND

Ms. Rohmund is Vice President of Utility Consulting Services at Applied Energy Group. She is an industry leader in DSM analysis and planning. She directs DSM-related projects that include market assessments, end-use forecasting, resource potential assessment, program design, strategic planning, and business strategy. She has been the project director on more than 50 potential studies conducted by AEG, EnerNOC and Global Energy Partners in the past five years, including studies for Seattle City Light, Los Angeles Department of Water and Power, TVA, Ameren, PacifiCorp, the State of New Jersey, and the State of Hawaii.

Ms. Rohmund has more than 25 years of experience modeling and performing statistical analysis of energy use at the national, regional, and utility service-area levels to understand how customers use energy today and to estimate how that is likely to change as a result of demographics, technology advances and innovation, building codes and equipment standards, and utility programs. In support of these analyses, she has executed dozens of large-scale market research efforts for utilities across the U.S. Ms. Rohmund has also directed development of several software tools, including end-use forecasting models, energy-analysis software, building simulation software and technology assessment software.

Ms. Rohmund received her M.B.A. degree from the University of California, Irvine.

PROFESSIONAL BACKGROUND

Applied Energy Group, Inc. (formerly EnerNOC)	2014 – Present
EnerNOC, Inc. (formerly Global Energy Partners)	2011 – 2014
Global Energy Partners, LLC	2007 – 2011
Energy Insights	2006 - 2007
EPRI Solutions (formerly Primen)	2005 – 2006
Primen	2000 – 2004
Regional Economic Research (now ITRON)	1986 – 1999

CURRENT POSITION

Ms. Rohmund is Vice President of Utility Consulting Services at AEG. She also leads the Energy Analysis and Planning practice, a position she also held at EnerNOC and Global Energy Partners. AEG is a management consulting firm that serves the needs of the utility industries primarily in the areas of energy services, strategic planning, diversification studies, forecasting, innovative rate designs, customer service, reengineering, and business plan development. Prior to 2007, she served as Director of the Energy Use and Customer Strategies subscription services at Energy Insights, Vice President of Knowledge Development at EPRI Solutions and Primen and was an economist at Regional Economic Research.

AFFILIATIONS

Association of Energy Services Professionals (AESP)

RECENT ARTICLES & PUBLICATIONS

- Seattle City Light Conservation Potential Assessments, January 2014 and May 2012
- Ameren Missouri DSM Market Potential Study, December 2013
- "Factors Affecting Electricity Consumption in the U.S. (2010-2035)," *IEE Report,* March 2013. http://www.edisonfoundation.net/iee/Documents/IEE_FactorsAffectingUSElecConsumption_Final.pdf
- Avista Utilities Electricity Conservation Potential Assessment, May 2013 and August 2011; Avista Utilities Natural Gas Conservation Potential Assessment, April 2012
- Ameren Illinois DSM Market Potential Study, May 2013
- Vectren Electric Energy Efficiency Market Potential Study and Action Plan, January 2013
- Indianapolis Power & Lighting Energy Efficiency Market Potential Study and Action Plan, December 2012
- Citizens Energy Group Natural Gas Energy Efficiency Market Potential Study and Action Plan, December 2012
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- State of New Jersey Energy Efficiency Market Potential Assessment. 2012.
- EE and DR Potential Study for Midwest ISO, November 2011
- State of New Mexico Potential Study, June 2011
- "Assessment of Electricity Savings in the U.S. Achievable through New Appliance/Equipment Efficiency Standards and Building Efficiency Codes (2010 - 2025)", *Institute for Electric Efficiency, May 2011*
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- Commercial Market Segmentation Study, Reliant Energy, August 2001
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- Commercial and Industrial Study, Florida Power & Light, May 1996
- Commercial End-Use Survey—Load Shapes and Final Report, PG&E, April 1996
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- C&I Data Development and COMMMEND Implementation, New England Electric System, March 1995
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- 1988 Commercial Survey Analysis, Wisconsin Electric Power Company, April 1990

- Commercial Cooking Market Potential, SCE, April 1989
- "Cool Storage and Cogeneration Options in Commercial Buildings", *EPRI* June 1988
- "Commercial End-Use Data Development Handbook", *EPRI EM-5703*, April 1988

ENERGY ANALYSIS SOFTWARE

- *LoadMAP,* Load Management Analysis and Planning tool, for end-use forecasting and DSM planning, 2007 - present
- *EnergySim*, Energy analysis and simulation tool for commercial facilities.
- *EnergyShape*, EPRI Solutions' web-based load shape library and toolkit. Ongoing
- COMMEND, EPRI's Commercial End-Use Energy Forecasting Model, 1986 - 1995
- REEPS, EPRI's Residential End-Use Energy Planning System, 1990-1995
- SitePro, RER's Site Analysis Software, 1993-1998
- COOLAID and COMTECH, EPRI's technology screening tools for cool storage and HVAC systems, 1986 – 1994

MULTICLIENT RESEARCH REPORTS

- "Customer Concerns about Climate Changes", *Energy Insights,* Framingham, MA, EI208237, August 2007
- "Crossing the Void: Customers Logging on to Utility Web Sites for Power Outage Information, EI207641, July 2007
- "Time-Based Pricing Programs: Creating a Favorable Customer Response", *Energy Insights,* Framingham, MA, EI207309, June 2007
- "Desire for Predictability Driving Adoption of Fixed Bills", *Energy Insights,* Framingham, MA, EI206470, May 2007
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EDUCATION

University of California, Irvine, M.B.A.
University of California, San Diego, B.A., Economics and Political Science

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of Union Electric Company d/b/a Ameren Missouri's 2nd Filing to Implement Regulatory Changes in Furtherance of Energy Efficiency as Allowed by MEEIA.	))))	File No. EO-2015-0055

AFFIDAVIT OF INGRID ROHMUND

STATE OF CALIFORNIA)
) **ss**
COUNTY OF SAN DIEGO)

Ingrid Rohmund, being first duly sworn on her oath, states:

1. My name is Ingrid Rohmund. I work in the City of Encinitas, California, and I am employed by Applied Energy Group, Inc., as Vice President.

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 39 pages and Schedule(s) _____, 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.

IR 4/25/15
Ingrid Rohmund

Subscribed and sworn to before me this 25 day of April, 2015.

Notary Public

My commission expires:

Notarial Certificate Attached
Date 4/25/2015

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document, to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document

CALIFORNIA JURAT WITH AFFINITY STATEMENT CIVIL CODE § 8202

[X] See Attached Document (Notary to cross out lines 1 - 6 below)

[ ] See Statement Below (Lines 1 - 6 to be completed only by document signer[s], not Notary)

1. .....
2. .....
3. .....
4. .....
5. .....

Signature of Document Signer No. 1 _____ Signature of Document Signer No. 2 (if any)

State of California

County of San Diego

Subscribed and sworn to (or affirmed) before me

On this 25th day of April, 2015,

by

(1) Ingrid Rohmund
Name of Signer

proved to me on the basis of satisfactory evidence to be the person who appeared before me (.) (,)

(and

(2) _____
Name of Signer

proved to me on the basis of satisfactory evidence to be the person who appeared before me.)

AMY N. STEVENS
Commission # 1959395
Notary Public - California
San Diego County
My Comm. Expires Nov 5, 2015

Signature _____
Amy N. Stevens, Notary Public

Place Notary Seal Above

OPTIONAL

Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to an another document.

RIGHT THUMBPRINT OF SIGNER #1	RIGHT THUMBPRINT OF SIGNER #2
Top of thumb here	Top of thumb here

Further Description of Any Attached Document

Title or Type of Document: Affidavit of Ingrid Rohmund

Document Date: _____ Number of Pages: _____

Signer(s) Other Than Named Above: _____

Notary performed at PostalAnnex+ of Cardiff • 2033 San Elijo Ave. Cardiff, CA 92007 • (760)753-4875