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MISSOURI PUBLIC SERVICE COMMISSION

FILE NO. EO-2015-0055

REBUTTAL TESTIMONY TO NON-UTILITY STIPULATION

OF

RICHARD A. VOYTAS

ON

BEHALF OF

UNION ELECTRIC COMPANY
d/b/a Ameren Missouri

St. Louis, Missouri
July 2015

TABLE OF CONTENTS

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TO NON-UTILITY STIPULATION

OF

RICHARD A. VOYTAS

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I. INTRODUCTION

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" or "Company") as Director of Energy Efficiency/Demand Response. Ameren Services provides various technical and corporate support services for Ameren Missouri and its sister companies in a number of functions, including the area of energy efficiency and demand response.

Q. Are you the same Richard A. Voytas who filed Surrebuttal Testimony previously in this case?

A. Yes, I am.

Q. What is the purpose of your rebuttal to non-utility stipulation testimony in this proceeding?

A. The purpose of my testimony is to address provisions in the Non-Unanimous Stipulation and Agreement regarding the Company's Missouri Energy Efficiency Investment Act ("MEEIA") Cycle 2 ("Non-Utility Stipulation")[1] that would

[1] Now "Non-Utility Joint Position."

result in customers receiving far less net benefits from investments in energy efficiency than they would otherwise have under the Non-Unanimous Stipulation and Agreement proposed by the Company, the Missouri Department of Economic Development - Division of Energy, Natural Resources Defense Council, United for Missouri, Kansas City Power and Light and KCP&L Greater Missouri Operations Company ("June 30 Stipulation")[2]. In fact, the design of the Non-Utility Stipulation actually encourages the Company to be indifferent to net benefits that may accrue to customers in the implementation of its MEEIA 2016-2018 portfolio of programs. For this reason alone, I recommend the Commission reject the Non-Utility Stipulation.

II. PROPOSED PERFORMANCE INCENTIVE MECHANISM

Q. Specifically what is the provision in the Non-Utility Stipulation that encourages the Company to be indifferent towards any net benefits that may accrue to customers from Ameren Missouri energy efficiency programs?

A. The provision is the drastic change proposed for the Company financial performance incentive metric whereby performance of energy efficiency programs is to be based on demand savings at the time of system peak rather than on a combination of energy savings and associated net benefits, as was established in Ameren Missouri's MEEIA 2013-2015. This is also called out in the MEEIA rules in **4 CSR 240-20.093 (1)(Q)**: DSIM utility incentive revenue requirement means the revenue requirement approved by the commission to provide the utility with a portion of annual net shared benefits based on the approved utility incentive component of a DSIM.

[2] Now "June 30 Joint Position."

Q. Why does this change encourage Ameren Missouri to be indifferent towards net benefits?

A. If cost-effective energy efficiency is the goal, then this performance incentive does not align with that goal. The Non-Utility Stipulation would incent Ameren Missouri to achieve demand savings from energy efficiency programs without regard to the net benefits associated with such savings. It states that if the Company achieves 121,100 kilowatt ("kW") coincident peak demand savings, the Company will receive a performance incentive of $37/kW for every kW saved – and that is regardless of cost or benefit to customers. Therefore, in order to align its MEEIA 2016-2018 business implementation model with the financial performance incentive under the Non-Utility Stipulation, the Company would have to be laser focused on energy efficiency measures with the highest kW savings during peak usage periods. It would make no difference if the measure is either marginally cost-effective or significantly cost-effective as long as it has a meaningful peak demand reduction component. The design of this performance incentive mechanism specifically incents the Company to produce peak demand reductions at the time of the system peak rather than to achieve cost-effective energy efficiency savings

Q. What does basing a performance incentive on peak demand reductions for energy efficiency programs mean in terms of the objectives for which the Company designed the MEEIA 2016-2018 portfolio of energy efficiency programs?

A. It would change the objective of Ameren Missouri's proposed portfolio from maximization of the net benefits of energy efficiency to the maximization of the

portfolio of peak demand reductions at the time of the system peak. Consequently, the entire makeup of the portfolio would change.

Q. Please provide an example of a significant portfolio design change brought about by making the primary objective maximization of peak demand reductions.

A. The Residential Lighting Program would be minimized, if not eliminated, from the portfolio. Since residential lighting is used primarily in the evening hours after the Company system peak demand has occurred, lighting has a de minimis peak demand reduction component. If Ameren Missouri is financially incented to perform to achieve peak demand reductions at the time of the system peak, it would be irresponsible to continue to pursue residential lighting programs. The same would be true for all of the Company's current residential programs with the exception of the residential heating, ventilation and air conditioning ("HVAC") program.

III. NET SHARED BENEFITS PERFORMANCE INCENTIVE

Q. Please compare and contrast the performance incentive model for the Company's MEEIA 2013-2015 programs as compared to the proposal in the Non-Utility Stipulation.

A. MEEIA 2013-2015 uses a net shared benefits business model to address the financial performance incentive opportunity for the Company. The net shared benefits business model is a win/win model for both customers and the Company as it encourages the Company to maximize energy efficiency savings while minimizing costs in an attempt to maximize net benefits from energy efficiency programs. Those net benefits are then shared between customers and the Company, with customers receiving

the majority of the net benefits. Under the net shared benefits model in order for the Company to be eligible to earn the opportunity for a financial performance incentive, it must meet two criteria. First, it must achieve a threshold level of energy reductions from its energy efficiency programs. Second, it must generate sufficient net benefits from the programs to be able to receive a portion of the benefit pool in the form of a financial performance incentive.

In stark contrast, the Non-Utility Stipulation performance incentive provision breaks the win/win proposition for customers. The Non-Utility Stipulation incents the Company to achieve kW reduction at the time of the system peak from energy efficiency programs without regard to the magnitude of net benefits accrued to customers.

Q. The Non-Utility Stipulation also calls for a second performance incentive component based on customer participation; is that true?

A. It calls for the performance incentive to have two components: the demand reduction component and a customer participation component. But the designation of the second component as a customer participation component is a misnomer. The Non-Utility Stipulation provides that if the Company spends the full budget of $10,750,000 on the Multi-Family Low Income ("MFLI") program, it is eligible to receive 5%, or $537,500, as a financial performance incentive. A more accurate description of this component of the proposed financial performance incentive would be based on spending 100% of the budget as opposed to being based on customer participation. The most glaring omission here, again, is that both of these mechanisms are devoid of any consideration of the magnitude of net benefits to customers from this program.

Q. The Non-Utility Stipulation also offers an optional performance incentive provision that is energy-related. Please discuss.

A. This optional component of the proposed financial performance incentive is unclear and confusing. It appears the concept is that some type of mediator will determine if additional incremental energy savings are to be added to the MEEIA portfolio for 2017 and 2018 only. If the mediator adds additional megawatt-hours ("MWh") and additional budget to the MEEIA portfolio in 2017 and 2018, and assuming the Commission approves it, then I believe the Non-Utility Stipulation allows for the Company to achieve a possible additional financial performance incentive if it achieves more incremental MWh savings than that identified by the mediator.

Without knowing the make-up of the potential incremental MWh and associated budget, it is not possible to examine this proposal in more detail. Glaringly obvious, however, are the conflicting objectives to base financial performance incentives on system peak demand reductions for one part of the MEEIA energy efficiency portfolio and on energy efficiency reductions for the other.

IV. ENERGY EFFICIENCY IS ENERGY SAVINGS. DEMAND RESPONSE IS DEMAND SAVINGS

Q. Discuss how disjointed it would be to design energy efficiency programs to achieve demand reductions rather than energy efficiency reductions.

A. Energy efficiency, as the name implies and as it is defined in MEEIA, is about energy with ancillary demand reduction benefits. When the Company conducts a Demand Side Management ("DSM") Potential study, there are at least two distinct and separate studies – energy efficiency potential and demand response potential. Because energy efficiency measures can reduce energy consumption over all 8,760 hours in a

year, there may be a handful of hours at the time of system peak when demand is also reduced. However, with energy efficiency, there is no calculated attempt to reduce demand at the time of system peak. It just happens due to the nature of the potential to reduce load over an 8,760 hour time period or some fraction thereof. It may not happen at all in the case of some lighting applications, programmable thermostat applications, some HVAC technology applications, etc., that have little, if any, demand reductions at the time of the system peak. It could be that some energy efficiency measures that attempt to minimize electricity consumption when customers are not home but re-gain a portion of that energy and then, when some customers are home, actually increase system peak demands, even though they save energy.

Q. Do Evaluation, Measurement and Verification ("EM&V") contractors even attempt to measure system peak demand reductions from energy efficiency measures?

A. No. EM&V contractors focus on measuring energy savings from energy efficiency programs. Estimating demand reductions is a mathematical exercise applied to energy savings in most EM&V work. For example, the average demand reduction may be estimated dividing energy saved in a year by hours of operation in a year. Peak demands may be estimated by applying an estimated coincidence factor to energy savings for a given program. Coincidence factor is usually defined as the fraction of peak demand of a population that is on at the time of system peak. Finally, if the Demand Side Management Option Risk Evaluator ("DSMore") cost effectiveness model is used to estimate system peak demand savings for a specific energy efficiency measure, there are a set of embedded individual energy efficiency measure hourly loadshapes from

secondary and tertiary sources derived in the early 1990s that the model uses to estimate demand reductions at the time of system peak. In addition, the DSMore model predicts a future system coincident peak day and time and does not use the actual historical system coincident peak date and time.

Q. Are all individual energy efficiency measure-related demand reductions sustainable for the full, effective useful lives of measures?

A. No. It depends upon federal and/or state building code and appliance efficiency standards changes for the baseline against which incremental kWh and kW savings are estimated. For example, the Energy Independence and Security Act sets the energy consumption baseline for most residential lighting technology in 2020 equivalent to that of compact fluorescent lighting ("CFL"). Therefore, while CFLs may have a small kW incremental savings component in MEEIA 2013-2015, beginning in 2020, those same CFLs installed in MEEIA 2013-2015 will have no incremental kW savings when the new baseline takes effect. This example illustrates again why the residential lighting program has value primarily based on the incremental energy savings it produces rather than any ancillary, and perhaps temporary, incremental system peak demand savings.

Q. It appears that the Non-Utility Stipulation proposes a financial performance incentive metric that if the Company achieved 121,000 kW demand savings at the system peak hour, then the Company could earn $37/kW, or $4,477,000, financial performance incentive. Would that be prudent or in the best interest of customers?

A. No. The Company would earn this performance incentive regardless of the magnitude of benefits to customers.

Energy efficiency programs are designed and managed to reduce energy consumption and not system peak demand reduction. Similarly, energy efficiency programs are evaluated to measure the magnitude of energy savings and are specifically not evaluated to measure demand reductions at the time of the system peak. The focus of energy efficiency programs should be to provide means for customers to reduce usage irrespective of when that usage occurs. That focus, not the demand reduction proposed in the Non-Utility Stipulation, provides the greatest benefits to customers.

Q. What is a demand response program?

A. Unlike energy efficiency, demand response is about reducing demand for a handful of hours each year, usually at system peak periods, rather than during any of the 8,760 hours that occur during a year. Demand response serves primarily a generation reliability function rather than an energy savings function. Demand response is a distinct and separate product from energy efficiency.

Q. Can demand response load reductions be measured with statistical accuracy and precision?

A. Yes. Fifteen-minute interval meters recording the fifteen minute loads for homes and businesses that participate in demand response programs and the load reductions attributable to customer responses to demand response events can be measured.

Q. Would it be appropriate for the Company to have a demand response financial performance incentive component in addition to an energy efficiency

component if cost-effective demand response programs were part of the MEEIA 2016-2018 portfolio?

A. Yes. However, demand response programs are not cost-effective for the Company for MEEIA 2016-2018. The Company has sufficient capacity such that there are no known generation reliability issues for MEEIA 2016-2018.

Q. For the reasons discussed in the prior responses, it appears that a system peak demand metric has little, if any, relevance to the MEEIA 2016-2018 filing. Please comment.

A. That is correct. If the Commission places highest priority on system peak demand reductions rather than reductions in energy usage, the Company should re-design the MEEIA 2016-2018 portfolio to be heavy on demand response programs and de-emphasize energy efficiency programs – at least those that do not meaningfully contribute to reduce demand at the time of the system peak.

Q. How could the Company re-design the MEEIA 2016-2018 portfolio to be heavy on demand response if demand response is not cost-effective?

A. The Company would have to work with stakeholders to propose to the Commission higher-avoided capacity costs and longer effective useful lives for demand response programs to artificially make them appear cost-effective. I do not recommend such an approach for many reasons including that it would not be in the best interest of customers.

V. ENVIRONMENTAL IMPLICATIONS WITH THE USE OF A FINANCIAL PERFORMANCE INCENTIVE BASED ON SYSTEM PEAK DEMAND REDUCTIONS

Q. What are potential environmental issues if the Commission ordered the Company to implement an energy efficiency portfolio for which financial performance is based on the magnitude of system peak demand reduction rather than reductions in energy usage?

A. Notwithstanding the knowledge that it is virtually impossible to design an energy efficiency portfolio to maximize system peak demand reductions, doing so would force the Company to focus on energy efficiency measures that have the highest system peak demand reduction potential and either de-emphasize or even remove energy efficiency measures that have little, if any, system peak demand reduction component. Since the emphasis would be on the maximization of system peak demand reduction, the energy usage reduction from the portfolio would drop meaningfully from the levels proposed in the Company's MEEIA 2016-2018 implementation plan. It follows that if the portfolio achieves lower annual energy related load reductions, it will also achieve lower greenhouse gas emission reductions.

Q. Since the Non-Utility Stipulation proposes to base the financial performance incentive on system peak demand reductions that would necessarily result in lower greenhouse gas emissions than if the Company was incented to pursue energy efficiency savings as its primary metric, would that hinder the state of Missouri's ability to comply with the Environmental Protection Agency's proposed Clean Power Plan ("CPP")?

A. Yes.

Q. If the Company focused on developing a portfolio of energy efficiency programs with the primary objective of system peak demand reduction, would the resulting reduction in greenhouse gas emissions be as great as if the primary objective was to maximize net benefits to customers?

A. No. The magnitude of greenhouse gas emissions is a function of the type of fossil-fueled generation supply that is displaced by energy efficiency. For example, natural gas fired generation has slightly less than 50% of the greenhouse gas emissions as coal-fired generation. For the Ameren Missouri system, coal-fired generation is usually the generation source used to produce the last kilowatt-hour ("kWh") during the off-peak hours. However, during times of system peaks or system/regional stresses, natural gas is usually the generation source used to produce the last kWh during the on-peak hours. Therefore, if the Company was ordered to assess the performance of its MEEIA energy efficiency programs on the basis of reduction of system peak demand, it would focus on the energy efficiency opportunities that had the largest peak demand reduction potential at the time of system peaks – which is when natural gas generation is usually displaced.

VI. CONCLUSIONS

Q. What are the implications of the proposed Non-Utility Stipulation's financial performance incentive methodology to measure success on the basis of incremental system peak load reductions?

A. It would be worse for customers financially. Environmental benefits of the MEEIA 2016-2018 plan would be diminished. The proposed financial performance incentive of assessing the MEEIA 2016-2018 energy efficiency portfolio primarily on the basis of system peak demand reduction would result in higher costs and lower benefits to

customers. It would result in higher rather than lower greenhouse gas emissions from the MEEIA 2016-2018 portfolio of programs. It would necessitate the re-design of the MEEIA 2016-2018 portfolio to seek the primary objective of pursuing system peak demand reductions from an energy efficiency portfolio. It would necessitate the design of a MEEIA 2016-2018 demand response portfolio to accompany the MEEIA energy efficiency portfolio. However, to make a MEEIA 2016-2018 demand response portfolio cost-effective would require artificially increasing the Company's avoided capacity costs and making other artificial adjustments to program cost-effectiveness parameters such as effective useful life assumptions. Simply put, the Non-Utility Stipulation asking for the performance of the MEEIA 2016-2018 energy efficiency portfolio to be judged primarily on the basis of system peak demand reduction is ill-conceived, unworkable, and unmanageable.

Q. What are the implications of the Non-Utility Stipulation's proposed financial performance incentive methodology to measure success on the basis of customer participation in the proposed MFLI programs?

A. It would be worse for customers financially. The Stipulation and Agreement explicitly requires the Company to spend the $10,750,000 MFLI budget in its entirety. If the Company spends 100% of the budget, the Company shall earn an additional 5%, or $537,500, in financial performance incentives. The financial performance incentive does not require an explicit count of customers participating in the program. The implications are that the Company is incented to spend 100% of the MFLI budget and there are no requirements to achieve a specified level of net benefits.

Q. What are the implications of the Non-Utility Stipulation's proposed financial performance incentive methodology to measure success on the basis of incremental energy savings achieved over and above those specified in the stipulation for program years 2017 and 2018?

A. It is not possible to comment on implications to customers and the environment without knowing the type of programs to be added to the portfolio, the incremental budget associated with the programs, and the associated cost-effectiveness of such programs. However, what is apparent are the confusing and conflicting signals to the Company to manage the lion's share of its portfolio (459,400 MWh) to maximize system peak reductions and then to manage any incremental additions to that portfolio on the basis of incremental energy savings achieved without any regard to system peak demand reductions. The situation would likely result in mass confusion on the part of the implementation team, the evaluation team, trade allies and, most importantly, customers.

Q. Does the Non-Utility Stipulation's proposal represent a step forward or a step backward for energy efficiency for Ameren Missouri customers and the environment?

A. There should be no question that the proposed financial performance incentive represents a significant step backward for customers, the Company, and the environment. The shared net benefits model is specifically designed to be a win/win for both customers and the Company. Under this business model, the Company is incented to maximize energy efficiency benefits to customers at the lowest possible cost. Under the Non-Utility Stipulation's approach, the Company is not incented to either maximize energy efficiency benefits or to achieve energy efficiency savings at the lowest possible

costs. Rather, the Company is incented to make its energy efficiency portfolio do something for which it was not designed. That is, achieve demand reductions at the time of system peak without regard to benefits to customers. For the MFLI program, the Company is incented to spend 100% of the pre-determined budget without regard to the benefits to customers. Rather than pursue the goal of achieving all cost-effective energy efficiency, the proposed approach incents the Company to achieve only energy efficiency that has the largest impact on system peak load reductions and/or to spend pre-determined budgets in their entirety.

Q. Do you have any other observations on the Non-Utility Stipulation's financial performance incentive methodology?

A. Even though the proposed methodology is fundamentally flawed and unworkable, a minor point that should also be noted is that Appendix A has numerous errors and incorrect derivations from DSMore model runs. For example, in Appendix A, units expressed in terms of gigawatts should be megawatts. Some demand reductions are expressed at the Midcontinent Independent System Operator's ("MISO") transmission level rather than at the customer meter level. There are a plethora of DSMore structural modeling issues that would also have to be added or revised in the DSMore model itself to even begin to estimate coincident system peak demand savings for energy efficiency measures, if financial performance is to be based on that metric. Even if all of the major obstacles I have described to the proposed financial performance incentive in the Non-Utility Stipulation could be overcome, these errors would still have to be corrected for the underlying analysis to be useful or meaningful in any way.

Q. Does this conclude your rebuttal to Non-Utility Stipulation testimony?

A. Yes, it does.

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 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 work in the City of St. Louis, Missouri, and I am employed by Ameren Services Company as Director of Energy Efficiency/Demand Response.

2. Attached hereto and made a part hereof for all purposes is my Rebuttal Testimony to Non-Utility Stipulation on behalf of Union Electric Company d/b/a Ameren Missouri consisting of 16 pages and Schedule(s) N/A, 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

Richard A. Voytas

Subscribed and sworn to before me this 15th day of July, 2015.

Beckie J. Eaves

Notary Public

My commission expires:

2-21-18

BECKIE J. EAVES
Notary Public - Notary Seal
State of Missouri
Commissioned for St. Louis City
My Commission Expires: February 21, 2018
Commission Number: 14938572