EXHIBIT

Exhibit No.: ____________
Issue(s): Small Business Direct Install Program/ Multi-Family Low-Income Program/ Third-Party Mediator/ The 2017 & 2018 kWh Performance Incentive
Witness/Type of Exhibit: Marke/Supplemental Direct
Sponsoring Party: Public Counsel
Case No.: EO-2015-0055

SUPPLEMENTAL DIRECT TESTIMONY

OF

GEOFF MARKE

Submitted on Behalf of
the Office of the Public Counsel

UNION ELECTRIC COMPANY D/B/A AMEREN MISSOURI'S

Case No. EO-2015-0055

July 9, 2015

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 GEOFF MARKE

STATE OF MISSOURI)
) ss
COUNTY OF COLE)

Geoff Marke, of lawful age and being first duly sworn, deposes and states:

1. My name is Geoff Marke. I am a Regulatory Economist for the Office of the Public Counsel.

2. Attached hereto and made a part hereof for all purposes is my supplemental direct testimony.

3. I hereby swear and affirm that my statements contained in the attached affidavit are true and correct to the best of my knowledge and belief.

Geoff Marke

Subscribed and sworn to me this 9th day of July 2015.

NOTARY PUBLIC NOTARY SEAL STATE OF MISSOURI

JERENE A. BUCKMAN
My Commission Expires
August 23, 2017
Cole County
Commission #13754037

Jerene A. Buckman
Notary Public

My commission expires August 23, 2017.

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SUPPLEMENTAL DIRECT TESTIMONY

OF

GEOFF MARKE

UNION ELECTRIC COMPANY

d/b/a Ameren Missouri

CASE NO. EO-2015-0055

I. INTRODUCTION

Q. Please state your name, title and business address.

A. Dr. Geoffrey Marke, Economist, Office of the Public Counsel (OPC or Public Counsel), P.O. Box 2230, Jefferson City, Missouri 65102.

Q. Are you the same Dr. Marke that filed rebuttal and surrebuttal testimony in EO-2015-0055?

A. I am.

Q. What is the purpose of your supplemental direct testimony?

A. The purpose of my supplemental direct testimony is to address portions of the "Non-Utility" Non-Unanimous Stipulation and Agreement ("Stipulation") recently filed regarding:

- A small business direct install (SBDI) program.
- A multi-family low-income (MFLI) program and the accompanying customer participation performance incentive.
- Use of a third-party mediator to select a panel of experts to estimate Ameren Missouri's potential energy savings for program year 2017 and 2018.
- A performance incentive opportunity based on the measured and verified results of any additional savings achieved to meet 2017 and 2018 targets recommended by the third-party mediator.

Q. Please describe the change in targeted savings and budget from Ameren Missouri's application filed in December 2014.

A. The Stipulation reflects an increase from Ameren Missouri's Missouri Energy Efficiency Investment Act (MEEIA) Cycle II application filed December 2014 in the targeted cumulative savings and budget which is reflected in table 1 below:

Table 1: Changes in targeted savings and budget

	MWh Savings	MW Savings	Budget
Ameren Cycle II Application	426.3	114	$134m
Non-Utility Stipulation	459.4	121.1	$148.3m
Percentage Increase	10.5%	8.4%	10.6%

The non-utility Stipulation reflects an increase from the original Ameren Missouri Cycle II application of 8.4% in cumulative demand savings and 10.5% in cumulative energy savings. To achieve this total, the Stipulation calls for a substantial increase in the MFLI program offering. The Stipulation also proposes to implement a SBDI program. Both of these programs will be discussed in greater detail later in this testimony. Table 2 details the proposed net incremental energy and demand savings targets and annual budget for all eleven programs as defined in the Stipulation for Ameren's Cycle II portfolio.

Table 2: Targeted Net Incremental Energy and Demand Savings and Annual Budget

		Net Incremental Energy Savings Targets (GWh)				Net Incremental Demand Savings Targets (MW)				Annual Budget ($ Millions)			
Source	**Programs**	**2016**	**2017**	**2018**	**Total**	**2016**	**2017**	**2018**	**Total**	**2016**	**2017**	**2018**	**Total**
1	**Lighting**	20.2	18.3	22.9	61.4	0.0	0.0	0.0	0.0	$ 4.8	$ 4.7	$ 5.7	$ 15.2
1	**Efficient Products**	5.7	1.9	6.7	14.3	2.1	0.7	2.2	5.0	$ 1.9	$ 1.1	$ 2.0	$ 5.0
1	**HVAC**	19.9	13.9	17.2	51.0	8.9	6.2	7.7	22.8	$ 7.3	$ 6.2	$ 6.9	$ 20.4
1	**Appliance Recycling**	3.0	2.7	4.1	9.8	0.7	0.7	1.0	2.4	$ 0.8	$ 0.7	$ 1.0	$ 2.5
2	**Multi-Family Low-Income**	5.0	4.7	4.0	13.7	1.6	1.5	1.2	4.3	$ 3.8	$ 3.6	$ 3.4	$ 10.8
1	**EE Kits**	6.2	6.2	6.2	18.6	1.0	1.0	1.0	3.0	$ 1.8	$ 1.8	$ 1.8	$ 5.4
	Total Residential	**60.0**	**47.7**	**61.1**	**168.8**	**14.3**	**10.1**	**13.1**	**37.5**	**$ 20.4**	**$ 18.1**	**$ 20.8**	**$ 59.3**
1	**Standard**	22.3	25.3	26.8	74.4	4.0	4.5	4.8	13.3	$ 6.7	$ 7.6	$ 8.0	$ 22.3
1	**Custom**	45.9	52.1	55.1	153.1	16.7	18.9	20.1	55.7	$ 13.4	$ 15.1	$ 16.0	$ 44.5
1	**Recommissioning**	5.7	6.4	6.8	18.9	1.8	2.1	2.2	6.1	$ 2.2	$ 2.5	$ 2.6	$ 7.3
1	**New Construction**	4.3	4.8	5.1	14.2	1.0	1.2	1.2	3.4	$ 1.5	$ 1.7	$ 1.8	$ 5.0
3	**Small Bus. Direct**	6.0	11.4	12.6	30.0	1.0	2.0	2.2	5.1	$ 2.0	$ 3.8	$ 4.2	$ 9.9
	Total Business	**84.2**	**100.0**	**106.4**	**290.6**	**24.5**	**28.7**	**30.5**	**83.6**	**$ 25.8**	**$ 30.7**	**$ 32.6**	**$ 89.0**
	Total Portfolio	**144.2**	**147.7**	**167.5**	**459.4**	**38.8**	**38.7**	**43.6**	**121.1**	**$ 46.2**	**$ 48.8**	**$ 53.3**	**$ 148.3**

Source 1: Table 2.3 of December 22, 2014 Plan Filing
Source 2: Ameren-BATCH_TOOLS_01_Att_Aggregate_07LI MEEIA_Negotiation_2015-06-19
Source 3: Ameren-BATCH_TOOLS_01_Att_Aggregate_14SBDI MEEIA_Negotiation_2015-05-21

Q. Why did the non-utility signatories agree to raise the savings target to a level higher than the target Ameren Missouri had in its original MEEIA Cycle 2 application?

A. Continuing to pursue energy efficiency is in the shared interest of ratepayers, the environment, the state of Missouri, and Ameren Missouri's shareholders. Therefore, in the spirit of compromise and with the support of numerous interveners, the non-utility signatories propose to increase the proposed savings targets to reflect meaningful cost-effective benefits.

Q. The MWh target contained within the Stipulation is not as high as the target that some parties have testified is possible. Are additional energy savings feasible?

A. Perhaps. Ameren Missouri's comparably low targeted savings in their application and the market potential study that served in part as the basis for those targets have been the source of considerable dispute in this case. Recognizing that dispute, and that the limitations inherent in the current market potential study process are legitimate, the signatories propose a mechanism where a third-party mediator will convene a panel of experts to provide a neutral analysis which may serve as the basis for an additional energy savings target and performance incentive opportunity for the Company. The rationale behind this mechanism, potential adjusted target and the additional performance incentive will be discussed in greater detail later in this testimony.

II. SMALL BUSINESS DIRECT INSTALL PROGRAM

Q. Please explain the inclusion of the SBDI program.

A. Small business customers represent a sizable opportunity for ratepayer-funded energy efficiency programs in the Ameren Missouri service territory. This is because the Small General Service (SGS) customer class is the second largest rate class in terms of total customers, with numbers at approximately 146,000. However, gaining the attention of small business customers and getting those customers to invest in efficiency upgrades has proven to be a challenging task. The proposed SBDI program represents a modest, cost-effective approach that provides a program tailored to a traditionally underserved segment. The non-utility signatories have placed a great deal of value on maximizing participation rates both inter- and intra-class, and the inclusion of this program reflects that importance. Moving forward, the non-utility signatories expect that the program will provide not only cost-effective savings, but also valuable insight into how to best target the SGS class for future MEEIA cycles, including the appropriateness of flexible financing options.

The program will center on direct installment of efficient lighting which will be used as a bridge to additional savings in areas such as refrigeration and HVACs.

Q. Is the program cost-effective?

A. Yes, according to data provided on May 21st, 2015, by Ameren Missouri and screened for cost-effectiveness through its Demand Side Management Option Risk Evaluator (DSMore) the SBDI has a total resource cost test value of 1.29. Based on the data provided, this program is projected to provide an additional 5.1 MW of demand savings and 300 MWh of energy savings. The inclusion of these savings above Ameren's initial application is still below the realistic achievable potential (RAP) identified in Ameren Missouri's Market Potential Study. These savings levels are consistent with the table provided in Ameren Missouri's Non-Unanimous Stipulation on page 4.[1]

III. MULTI-FAMILY LOW-INCOME PROGRAM

Q. Please explain the inclusion of the MFLI program.

A. The proposed MFLI program reflects a significant enhancement over Ameren Missouri's application in order to better serve this hard-to-reach segment. The program enhancements reflect the outcome of a series of five St. Louis metro area conventions in 2014 that included NHT, the Missouri Public Service Commission, OPC and a wide range of stakeholders. The program enhancements are described in the Stipulation and partially include:

- Creating a single point of contact for owners of MFLI properties, which will assist in ensuring that ratepayer's benefits are maximized.
- Providing an additional 25% bonus incentive above the measure incentive in place for MFLI property owners for whole building and common area measures, as well as for in-unit measures not otherwise covered as direct-install measures.
    - In return for the bonus incentive, MFLI property owners must agree that their units can be tracked for at least one year for aggregate energy and demand savings, as well as other applicable non-energy benefits (e.g., customer turnover), to provide a business case analysis for prospective MFLI property owners in future MEEIA cycles.

[1] EO-2015-0055 Non-Unanimous Stipulation and Agreement item No. 100 p. 4

- Conducting energy audits to provide information on savings, recommended energy efficiency measures and typical payback ranges to increase customer understanding and facilitate increased program participation.

Q. Is the program cost-effective?

A. No, according to data provided on June 19th, 2015, by Ameren Missouri and screened for cost-effectiveness through its DSMore program, the MFLI has a total resource cost test of 0.96. However, low-income programs are recognized to have important social benefits and so, need not meet a cost-effectiveness threshold. Adding the MFLI program is projected to provide an additional 4.3 MW of demand savings and 137 MWh of energy savings.

The savings associated with the MFLI program when added to Ameren's initial application are still below the RAP identified in Ameren Missouri's Market Potential Study. Further, the projected savings for this program are consistent with the table provided in Ameren Missouri's Non-Unanimous Stipulation on page 4.[2]

Q. How were the MFLI program enhancements designed?

A. Previous Commission-approved MEEIA applications have included multiple programs impacting customers and those programs have different individual targets and budgets. However, the Company is ultimately indifferent to where the savings are achieved. That is, there is typically only one collective target that matters—the portfolio-wide energy and demand savings. To date, reaching the portfolio-wide target has been realized primarily through residential lighting. Under that model, a kWh saved is the same regardless of the outcomes of individual programs. The utility is indifferent to the source of the energy and demand savings. Such a model can be problematic in that the portfolio of programs is designed, at least in part, to reach all customer classes but savings are achieved by only one or two. If savings are being driven primarily by a couple of programs affecting only one or

[2] Ibid.

two, there is little incentive for the Company to pursue "hard-to-reach" customers which require both more time and overhead, and those classes are not benefiting from the program and will see an increase in both rates and on their bill for nothing. This has been particularly true for low-income customers where cost-effective savings are not easily obtainable despite having a greater portion of their income subject to utility service. For example, according to the 2014 Missourians to End Poverty Coalition:

> On average, low-income households spend 14% of their annual income just on energy costs, whereas middle and higher income families usually pay only 3-6%. This means low-income families often cut back on other necessities, such as prescription medication and food, in order to pay their energy bills. The higher consumption often results from housing stock that lacks insulation or other efficiency measures, and older appliances in the home.[3]

For MFLI ratepayers this is even more of a challenge because they are often subject to a split-incentive barrier that makes any meaningful energy efficiency participation particularly difficult.

Q. What is the split incentive barrier?

A. For example, a property owner may own the cooling equipment that is utilized for a MFLI complex but the tenants will be charged individually for their own usage. In such a scenario, the property owner has no incentive to upgrade the cooling equipment because the property owner is not paying for its usage and the tenants have no control over the efficiency of the unit because they do not own it. Likewise, the tenants have little incentive to invest because they may not reside in that space long enough to realize the benefits out weighing the initial costs of their investment.

[3] Missourians to End Poverty Coalition (2014) State of the State Poverty in Missouri http://www.caastlc.org/pdf/2014Poverty%20ReporteRSRKp.pdf

Q. Please explain how the customer-participation performance incentive accompanying the MFLI program will work.

The Stipulation is designed to address both the utility's indifference to where a kWh is saved and the split incentive barrier that exists between MFLI ratepayers and property owners by providing an enhanced MFLI program aimed at increasing participation rates for both MFLI ratepayers and property owners (as described above) and by creating an additional financial incentive for the Company to target the hard-to-reach segment represented by MFLI ratepayers. The customer-participation incentive allows Ameren Missouri to be eligible to earn 5% of program costs associated with the MFLI program. That is, if the Company is able to fully expend its budget of $10,750,000 over the three-year cycle they will be eligible to receive a bonus of up to $537,500.

Q. Have there been any examples of a Company not fully spending the budget that was allocated for low-income programs in a Commission approved MEEIA?

A. Yes. Although their MEEIA portfolios still have five and a half months remaining, both KCPL and GMO have struggled to date in spending their budgeted amount for MEEIA low-income programs.

IV. THIRD-PARTY MEDIATOR

Q. How have third-party mediators been used in the energy efficiency community?

A. As in other settings, third-party mediators are often deployed to help resolve disputes over highly contentious issues. In the energy efficiency community third-party mediators have often utilized an approach which relies on a panel of experts to arrive at a consensus estimate or group judgment on what is often perceived as contentious issues. It is often an interactive process, in which experts are presented with an issue, supporting data (both quantitative and qualitative), and a questionnaire with both open and closed-ended questions that get at the assumptions behind the appropriate answer. This process is based on the principle that structured responses from experts will be more accurate than unstructured responses from individuals in which a conflict of interest may exist.

Q. Please provide some examples where such a process was utilized.

A. Recent examples where Commissions or energy efficiency advisory groups utilized a mediator and an expert panel process include Michigan,[4] California,[5] Massachusetts,[6] Wisconsin,[7] New Mexico,[8] the Energy Trust of Oregon,[9] and the United Stated Department of Energy.[10,11] It has also been identified as a best practice by the Uniformed Methods Project [12] and by Ameren Missouri's witness Rick Voytas.[13]

Q. Please provide some context for the inclusion of a third-party mediator.

A. As stated earlier, Ameren Missouri's comparably low savings target in their application and the market potential study that served, in part, as the basis for those targets have been the source of dispute in this case. With the exception of the Missouri Public Service Commission Staff (Staff), which has remained silent on the issue, every party which has offered testimony has taken issue with the estimated savings targets and/or methodology utilized to inform

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[4] Cadmus, Navigant, NMR Group (2014) Michigan CFL Net-to-Gross Advisory Panel Final Report http://www.michigan.gov/documents/mpsc/ntg_report_2014_453678_7.pdf

[5] KEMA (2013)Impact Evaluation Report Business and Consumer Electronics Program http://www.calmac.org/publications/WO34_BCE_Impact_Evaluation_Report_-_Phase_1_FINAL_2013-04-15.pdf

[6] NMR Group (2014) Massachusetts Residential New Construction Net Impacts Report http://www.nmrgroupinc.com/wp-content/uploads/2014/09/MA-RNC-Net-Impacts-Final-Report-1-27-14.pdf

[7] Energy Center of Wisconsin (2009) Energy Efficiency and Customer-Sited Renewable Resource Potential in Wisconsin for the Years 2012 and 2018. https://psc.wi.gov/reports/documents/WIPotentialFinal.pdf

[8] The Brattle Group (2011) Energy Efficiency and Demand Response in 2020 http://www.brattle.com/system/publications/pdfs/000/004/697/original/Energy_Efficiency_and_Demand_Response_in_2020_Faruqui_Mitarotonda_Nov_2011.pdf

[9] Apex Analytics (2015) Energy Trust of Oregon Windows Delphi Panel Study. http://assets.energytrust.org/api/assets/reports/ResidentialWindowsDelphiStudy_w_SR.pdf

[10] GAO (2007) Energy Efficiency: Long-standing problems with DOE's program for setting efficiency standards continue to result in forgone energy savings. http://www.gao.gov/new.items/d0742.pdf

[11] Navigant (2013) Impact and Process Evaluation of the U.S. Department of Energy's Powering America Initiative. http://www1.eere.energy.gov/analysis/pdfs/wind_powering_america_evaluation_2013.pdf

[12] National Renewable Energy Laboratory (2014) 3.6 Structured Expert Judgment Approaches. http://ump.pnnl.gov/showthread.php/5273-3.6-Structured-Expert-Judgment-Approaches

[13] Voytas R., et. al (2014) Enter the Human: Estimating Customer Participation Rates http://aespnational2014.conferencespot.org/55547-aesp-1.429084/ap-030-1.429292

those estimates. The issue centers in part on the interpretation of *all* cost-effective demand-side savings and in part on the *process* for addressing concerns related to the market potential study's methodology.

Q. Please explain what you mean by *all* cost-effective demand-side savings.

A. This term is taken from the MEEIA statute which states:

> The commission shall permit electric corporations to implement commission-approved demand-side programs proposed pursuant to this section **with a goal of achieving all cost-effective demand-side savings**. Recovery for such programs shall not be permitted unless the programs are approved by the commission, result in energy or demand savings and are beneficial to all customers in the customer class in which the programs are proposed, regardless of whether the programs are utilized by all customers. (emphasis added).[14]

Q. Please explain what you mean by a *process* for addressing concerns.

A. Work on Ameren Missouri's market potential study began in 2012 and was completed at the end of 2013. In a general sense, the study utilized historical data, primary data collected in 2013, and proprietary data from a subcontractor. OPC has taken issue specifically with the proprietary data from the subcontractor which has been expressed in both rebuttal and surrebuttal testimony. Other parties have taken issue with the potentially low RAP results when compared with other states. Putting aside both the appropriateness of utilizing unsubstantiated secondary data to alter primary data and the overall lower results of the study, consider that it is not until 2015 that testimony has been allowed to have been entered into a docket to raise these issues before the Commission. Moreover, the Commission, Company, stakeholders, and ratepayers are supposed to rely on this study and assume a static world as the basis for appropriate operating metrics until 2019. This approach is

[14] Missouri Energy Efficiency Investment Act of 2009 §393.1075, RSMo.

inappropriate to deal with a case in which the budget and impact on ratepayers and shareholders amounts to hundreds of millions of dollars.

Based on the issues raised in Ameren Missouri's market potential study in 2013, stakeholders have been working on addressing appropriate mechanisms to facilitate transparent and cost-effective market potential studies in the future through the MEEIA rulemaking workshop. Unfortunately, those efforts will have no impact on the outcome of this case.

Given the myriad of reasons raised by stakeholders in testimony to date, the limitations inherent in relying on increasingly stale data and the dynamic regulatory environment in which Ameren Missouri operates, the Stipulation offers the third-party mediator process as a bridge towards rectifying, in part, some of these issues.

Q. Please explain the proposed third-party process.

A. The Stipulation calls for Ameren Missouri to issue a request for proposal (RFP) by October 31st, 2015, for a third-party mediator who shall select a panel of experts to recommend possible increases in the projected kWh savings of the total portfolio for program years 2017 and 2018. Staff, given its neutral regulatory position, and because it filed no testimony regarding the results of the potential study, will provide input to Ameren Missouri's RFP and selection of the third-party mediator.

The panel of experts may rely on primary data from Ameren Missouri's market potential study, historical activity to date, industry trends and best practices from similar or comparable jurisdictions as the foundation for their estimates. The third-party mediator shall rely on these results as the basis for recommending a kWh savings target in a report to the Commission by April 15, 2016. Interested parties shall have the opportunity to file comments responding to this report prior to any Commission order adjusting projected kWh savings.

The Commission may issue an order adjusting the projected kWh savings of the total portfolio for program years 2017 and 2018 with an additional performance incentive related to exceeding the Commission-approved energy savings target pending the results of a full

EM&V. All prudent activity for the study will be funded through Ameren Missouri's EM&V budget.

The results of the report and any potential Commission ruling will not change the kW savings target set forth in the non-utility stipulation and which would go into effect in 2016 through 2018. In effect, this new kWh target would be a different potential performance incentive stream for the utility.

V. THE 2017 AND 2018 kWh PERFORMANCE INCENTIVE

Q. Please explain the kWh performance incentive.

A. A potential kWh performance incentive, based on the Commission ruling of the kWh savings targets as a result of the third-party mediator process may be made available to the company for superior performance following a full EM&V. The performance incentive amounts for the abridged two years of the cycle will be as follows:

- 105% = $2 million
- 130% = $3 million
- 150% = $ 5 million.

Q. Does this conclude your testimony?

A. Yes.