Exhibit No. 301

OPC – Exhibit 301
Lena Mantle Testimony
Rebuttal
File No. EO-2023-0136

Exhibit No.:	______________
Issue(s):	FAC Impact on MEEIA Benefits
Witness/Type of Exhibit:	Mantle/Rebuttal
Sponsoring Party:	Public Counsel
Case No.:	EO-2023-0136

REBUTTAL TESTIMONY

OF

LENA M. MANTLE

Submitted on Behalf of the Office of the Public Counsel

UNION ELECTRIC COMPANY
D/B/A AMEREN MISSOURI

CASE NO. EO-2023-0136

** ______________________________ **
Denotes Confidential Information that has been redacted

April 26, 2024

PUBLIC

TABLE OF CONTENTS

REBUTTAL TESTIMONY

OF

LENA M. MANTLE, P.E.

UNION ELECTRIC COMPANY d/b/a AMEREN MISSOURI
FILE NO. EO-2023-0136

Q. What is your name and business address?

A. My name is Lena M. Mantle and my business address is P.O. Box 2230, Jefferson City, Missouri 65102.

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

A. I am employed by the Missouri Office of the Public Counsel ("OPC") as a Senior Analyst.

Q. On whose behalf are you testifying?

A. I am testifying on behalf of the OPC.

Q. Did you file direct testimony in this case?

A. No.

Q. What is your experience, education, and other qualifications?

A. Prior to my employment at the OPC, I worked for the Staff of the Missouri Public Service Commission ("Staff") from August 1983 until I retired as Manager of the Energy Unit in December 2012. During my employment at the Missouri Public Service Commission ("Commission"), I worked as an Economist, Engineer, Engineering Supervisor, and Manager of the Energy Unit. During my time at the Commission, my duties included the review of energy efficiency and demand response programs of electric utilities and the development of the fuel adjustment clauses ("FAC") of the electric utilities in Missouri. A whitepaper that I authored regarding how the FAC operates in Missouri is attached to this testimony as Schedule LMM-R-1.

I began employment at the OPC in my current position as Senior Analyst in August 2014. In this position, I have provided expert testimony on a variety of issues in electric, natural gas, and water cases before the Commission on behalf of the OPC. I am a Registered Professional Engineer in the State of Missouri.

Attached as Schedule LMM-R-2 is a brief summary of my experience with the OPC and Staff, and a list of the Commission cases I filed testimony in, Commission rulemakings I participated in, and Commission reports in rate cases that I contributed to as Staff.

Q. What is the purpose of your rebuttal testimony?

A. According to the Missouri Energy Efficiency Investment Act ("MEEIA")[1] , a demand-side program is

> [A]ny program conducted by the utility to modify the net consumption of electricity on the retail customer's side of the electric meter, including but not limited to energy efficiency measures, rate management, demand response, and interruptible or curtailable load. (Emphasis added)

MEEIA requires the Commission to allow electric utilities to timely recover their costs, a throughput disincentive, and an earnings opportunity for demand-side resource programs they implement.

For customers, MEEIA requires the demand-side programs provide benefits to all customers, participants, and non-participants alike, in the customer class in which the programs are proposed. It also requires the Commission to "fairly apportion the costs and benefits of demand-side programs to each customer class."[2] Assuring these customer protection requirements of MEEIA are achieved is a challenge due to the interactions between MEEIA programs and Ameren Missouri's FAC, which was implemented to protect Ameren Missouri from large variations in fuel and purchased power costs between rate case changes to permanent rates.

[1] Section 393.1075 RSMo.
[2] Section 393.1075.5 RSMo.

P

In his direct testimony, Staff witness J Luebbert recognizes that the FAC complicates the determination of MEEIA program benefits and which customer classes receive the benefits. He states in his testimony:

> Analysis of whether a demand-side program is cost-beneficial must include consideration of the extent to which avoided costs (or facilitated capacity revenues) flow through the Ameren Missouri FAC, which complicates the Commission's statutory directive to fairly apportion the costs and benefits of MEEIA among classes.[3]

In reviewing Mr. Luebbert's testimony I found his conclusions regarding the impact of the interaction between the FAC and MEEIA to be correct. However, his explanation in his testimony at times is not clear and I found his analysis difficult to understand despite my expertise with the FAC and my familiarity with MEEIA. Determining exactly how the FAC impacts MEEIA is complicated and takes an understanding of both Ameren Missouri's FAC and how the Midcontinent Independent System Operator ("MISO") energy and capacity markets function. The purpose of my rebuttal testimony is to provide clarity to Mr. Luebbert's direct testimony through an explanation of terminology and the basics of MISO's energy and capacity markets. I will also provide my alternative analysis, which supports Mr. Luebbert's conclusions.[4]

<u>Definitions</u>

Q. What terms used in Mr. Luebbert's direct testimony require further explanation to better understand the interaction between Ameren Missouri's FAC and MEEIA?

A. With respect to generation, there are two terms that are essential to correctly understand the FAC/MEEIA interaction: capacity and energy.

In the simplest terms, capacity is the maximum output an electricity generator can physically produce, measured in megawatts ("MW").

[3] Page 3.
[4] Page 24.

P

Energy, on the other hand, is the amount of electricity a generator produces over a defined period of time and is measured in megawatt-hours ("MWh"). For example, a generator with a capacity of 100 MW that runs at full capacity for 10 hours generates 1,000 MWh (100 MW x 10 hours = 1,000 MWh) of energy.

Q. Can the terms capacity and energy be used interchangeably?

A. No. They should not be used interchangeably because they are different concepts.

Q. Are capacity and energy interrelated?

A. Capacity and energy are interrelated to the extent that both are influenced by the design of a given generating unit. To clarify, consider an example. There is a sign in the elevator that gives its capacity, *i.e.* how many people the elevator can hold at a given time. This limits the amount of people that can be in the elevator at any given time. However, it gives no information on the number of people that ride in the elevator each day. For example, in a given day the elevator may make 10 trips with 20 people each time, meaning it gives 200 rides (10 x 20) that day. Or, because the building is closed, the elevator may not move that day, resulting in zero rides being given. The elevator's capacity is the same, 20 people, no matter how many rides it gives. However, one cannot determine the number of rides solely using the capacity of the elevator and a given period of time.

Similarly, the capacity of a generating unit is the limiting criteria for the maximum amount of energy it can produce. A unit with a capacity of 100 MW cannot generate 200 MWh/hr in an hour, just as an elevator with a capacity of 20 people cannot hold 40 people in any given trip—they simply would not all fit. However, it is not correct to say that the same plant is producing 100 MWh of energy at every hour of every day, just as that same elevator is not carrying 20 people with every trip.

P

Therefore, the capacity of and energy produced by the generating unit are thus related, in as far as they are dependent on the unit's design, but they are measuring very different things.

Q. You have described capacity and energy as they relate to electric generation or the supply side of the electric utilities. Is similar terminology used on the demand side or the consumption of electricity on the retail customer's side of the electric meter?

A. Yes. On the demand side, a customer uses or "demands" electricity over an increment of time, typically an hour. A customer's demand is typically measured in kilowatts ("kW"). The maximum hourly demand is called the peak demand. The sum of the customer's hourly demands over time is the energy[5] used by the customer and is measured in kilowatt hours ("kWh").

The sum of a group of customers' hourly demand provides the demands and energy for that group of customers. For example, the energy of the residential class is the sum of all of the energy of all the individual residential customers. When the hourly demands of each of the residential customers is summed in a given hour, the result is the demand for the residential customer class for that hour. Class demand is typically measured in megawatts ("MW").[6] The sum of the class's hourly demands, typically measured in megawatt hours ("MWh"), is the class load. The sum of all the electric utility's customers' loads, adjusted for delivery losses,[7] is the energy and demands that the electric utility must provide to meet the energy requirements of its customers.

[5] A customer's energy is also referred to as usage, consumption, and sales.
[6] One MW = 1,000 kW.
[7] When electrical current travels on a network, some energy is dissipated in the form of heat, and is "lost" due to the electrical resistance in the network. Typically, losses are between 5% to 7% meaning 5% to 7% more generation is needed to meet the energy required at the customers' meters.

Q. Are there other terms you use in this testimony that you would like to define?

A. Yes. Load requirements is described by both peak demand and energy usage over a set period of time. Let's assume two customers that both have energy usage of 1,000 kWh over a span of ten hours. Customer A uses 50 kW in nine hours and 550 kW in one hour for a total energy of 1,000 kWh (50 kW x 9 hours) + (550 kW x 1 hour). This customer requires a generation plant that can meet its peak of 550 kW in one hour and a small amount of energy (50kW) the other nine hours. Customer B uses 100 kWh each hour over the ten hours for a total energy usage of 1,000 kWh (100 kW x 10 hours). This customer requires a much smaller plant to meet its peak (100 kW) but this plant must have the ability to generate 100 kW every hour. These two customers, while having the same energy, have very different requirements. Customer A could not be served by a 100 kW generating plant. Building a 550 kW plant for Customer B is overbuilding. This demonstrates how both energy and peak are important. In this testimony, when I use the word "load requirement" or "load," I am referring to the characteristics of the customer's usage that include both the peak demand and energy of the customer. Likewise, a customer class and all the electric utility's customers combined have load requirements.

Q. Would you summarize the definitions of capacity, energy, demand, and load requirement?

A. Capacity reflects the maximum ability of a generation plant to produce electricity and is measured in MW.

Energy is the amount of electricity generated over time and is also the amount of electricity consumed by customers over a period of time. It is measured in MWh.

Demand refers to the amount of electrical power that customers are consuming over a short period of time - usually an hour. It is measured in MW.

P

The load requirement or load of a customer, a customer class, or all of the utility's customers is the combination of both the energy and peak demand for the customer or the customer class.

Basics of MISO Markets

Q. What MISO markets are important to understand for this MEEIA case?

A. The MISO energy and capacity markets. To understand these markets, it is important to understand the difference between energy and capacity. Again, energy is the amount of electricity generated over time and is also the amount of electricity consumed by customers over a period of time. Capacity reflects the ability of a power plant to produce electricity. MISO assures that its members collectively have the capacity necessary to meet the energy needs of all of its members.

Q. Why is it important to understand the basics[8] of how MISO's energy and capacity markets work?

A. MEEIA programs impact customers' energy usage and demands. These changes, in turn, affect the load requirement that Ameren must serve. The change in load requirements then impacts the cost to meet the energy usage and the capacity required to meet the load.

To properly evaluate MEEIA programs, it is necessary to have a basic understanding of how the MISO energy and capacity markets in which Ameren Missouri participates impact the cost and benefits of the MEEIA programs.

Q. Would you provide a simplistic explanation of the MISO energy market?

A. As a member of MISO that is required to serve load, Ameren Missouri pays for every MWh of energy required to meet its customers' load, at prices set by MISO. The cost per MWh is different for each hour as is the amount of the energy

P

required by Ameren Missouri's customers. The cost of the energy purchased multiplied by the price per MWh is the cost to meet the energy requirements of Ameren Missouri's load.[9] If the usage increases by one MWh, Ameren Missouri pays more. If the usage decreases by one MWh, due to a MEEIA program or a response to weather, Ameren Missouri pays less. The dollar amount paid or saved is different in every hour. Likewise, Ameren Missouri receives payment for each MWh its generating units produce. I will describe this in more detail later in this testimony.

Q. How does the payment to the MISO energy market for every MWh of energy needed affect the cost/benefit of MEEIA programs?

A. Assuming that a customer's energy usage is reduced, Ameren Missouri will pay MISO less because its customers require less energy. If a program leads to less energy usage during a time when market prices on the MISO energy market are high, such as when it is extremely hot, then the benefit of reducing the load by one MWh is greater than if a program induces less energy usage during a mild spring night when energy prices are typically low.

Q. Are additional savings obtained through a reduction in the cost of fuel for Ameren Missouri's generating facilities because load has been reduced?

A. No. Generally, there is no change to Ameren Missouri's fuel costs when its customers do not use a MWh of energy.

Q. Why not?

A. As a member of MISO, Ameren Missouri does not dispatch its generation to meet the load requirements of its own customers. Rather, MISO dispatches Ameren

---

[8] The MISO markets are very complex and have many moving parts. It is not necessary to understand all the complexities of the markets to understand how the markets impact MEEIA.

[9] While this is often referred to as purchasing energy from MISO, it is actually a financial transaction. Electricity is a function of physics and is generally drawn to the closest need regardless of who gives or receives payment or who owns the generating plant.

P

Missouri's generation based on energy market prices and the generation Ameren Missouri offered into the market for that day. At the most simplistic, if Ameren Missouri has bid in a generation resource and the market price offered by MISO is above that bid, then the resource provides electricity (energy) <u>into the MISO system</u> and MISO, in turn, provides revenue to Ameren Missouri based on the offered price. The energy Ameren Missouri's generation provides supports the load requirements of MISO's members.

If Ameren Missouri accurately accounted for the fuel costs when offering its generation into the MISO energy market, the revenues provided by MISO should cover the variable costs of generating the energy, including fuel and variable operation and maintenance costs. For low variable cost generation such as Ameren Missouri's Callaway Nuclear Energy Center, the energy market will provide revenues greater than the variable cost of the generation, making this low variable cost plant a revenue producer for Ameren Missouri. Generation with high variable costs will only be called upon to generate electricity when market prices are high and will provide little, if any positive revenue margin.

Q. Would you provide a further explanation of the basics of generation dispatch in MISO?

A. The dispatch of generation by MISO is complex but the basics are not. Ameren Missouri, like all MISO members with generation, offer in its available generation plants[10] at a price that it is willing to accept for allowing MISO to dispatch those resources. Determining the appropriate price to offer to allow a plant to be dispatched is not always easy. However, the price each plant is offered to MISO should cover the variable costs of running the plant[11] plus startup/shutdown costs.

MISO, based on the bids offered, the load forecasted, and constraints of the MISO system, determines a price for each hour. This price determines

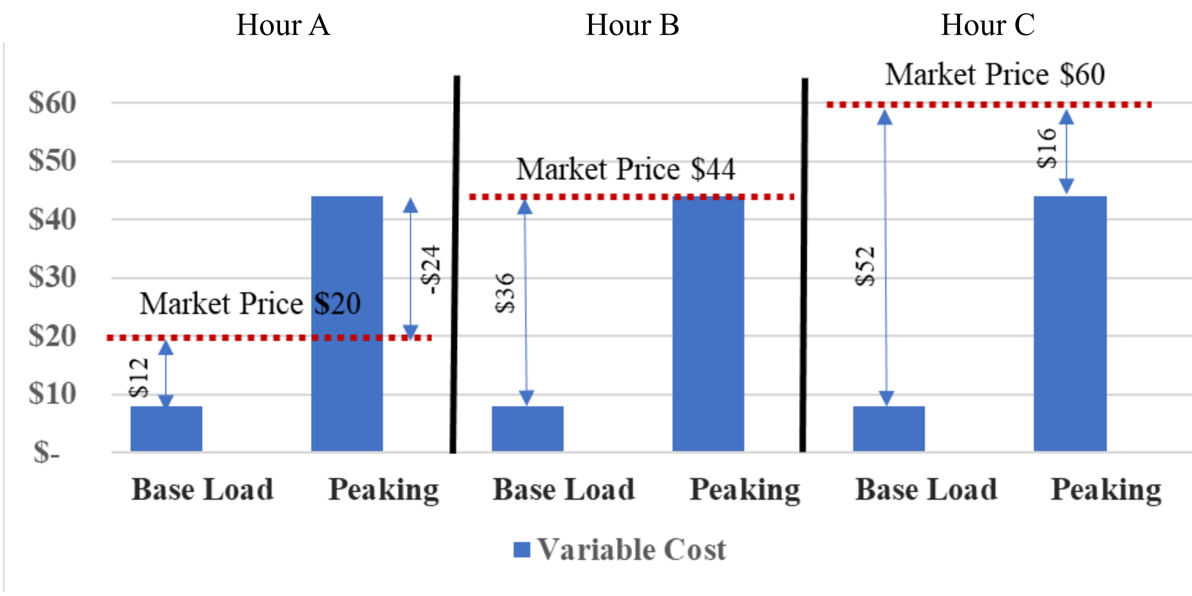
[10] Some generation may not be available due to planned or forced outages.
[11] Fuel cost and variable operations and maintenance costs.

P

whether a resource will be dispatched or not. I created Graph 1 below as a high-level demonstration of how the market price determines whether or not a resource is utilized and how a resource can earn more than its cost to produce electricity.

Graph 1

Energy Market Example



In this example, the variable cost of the base load plant is $8 and for the peaking plant, $44. These are the prices that were bid in for these two plants.

In Hour A, the market price is $20. At this price, the base load plant should be dispatched. For every MWh produced by the base load plant in this hour, the plant generates $20 providing a profit of $12 ($20 - $8) for each MWh. The peaking plant will not be dispatched since it was bid in at $44. The plant would lose $24 ($20 - $44) for every MWh generated if it was dispatched.

In Hour B, the market price is $44. At this price both the base load and the peaking plant would be dispatched. The base load plant would earn $36 ($44 - $8) for each MWh it generates in this hour. The peaking plant would also be dispatched. Its variable cost of $44 would be recovered from MISO but it would

P

generate no revenue above its variable cost to produce electricity for the energy it produced.

In Hour C, the market price is $60. Again, both the base load and the peaking plant would be dispatched. The base load plant would earn $52 ($60 - $8) for each MWh. The market price is above the variable costs of the peaking plant so in this hour, the peaking plant would earn $16 for each MWh it produces ($60 - $44).

Of course this is a simplification of the actual process, but it demonstrates the basics of when MISO dispatches units and how the units can earn revenue or cause additional costs.

Q. Would a decrease in load due to an Ameren Missouri MEEIA program result in a decrease in the generation that Ameren Missouri provides to MISO?

A. It is very unlikely. As Mr. Luebbert explains,[12] the only way that a decrease in customer usage would result in a decrease in Ameren Missouri's generation is if Ameren Missouri's generation is the marginal unit[13] providing electricity <u>to meet the MISO members' load requirements</u>.

Q. Could a MEEIA program result in the extra benefit of delaying or avoiding the addition of an Ameren Missouri generation resource?

A. In theory, it could.[14] One of the requirements of being a load serving member of MISO is that Ameren Missouri must have generation resource capacity to meet its seasonal peaks plus an additional margin. Therefore, in theory, if a MEEIA program reduces a seasonal peak, then it has the potential to avoid or delay the addition of generation resources.

---

[12] Page 28.
[13] The marginal unit is the last unit dispatched by MISO to meet loads. It would have the highest variable cost of all the units dispatched and would not be producing revenue for its owner assuming it was bid in at its variable cost of production.
[14] See the rebuttal testimony of OPC witness Jordan Seaver for a discussion regarding MEEIA programs delaying or avoiding the addition of capacity.

P

Q. Would you please explain?

A. MISO is responsible for keeping cost-effective electricity flowing reliably for its combined membership. To do this, MISO determines a planning reserve margin for each year based upon a probabilistic analysis of being able to reliably serve its seasonal peak demand. This probabilistic analysis utilizes a Loss of Load Expectation ("LOLE") study.[15] The resulting planning reserve margin is a percentage adder above the seasonal peak load.

Q. What is the result of this process?

A. MISO develops a planning reserve margin requirement for each of the ten zones of its footprint. This planning reserve margin requirement is the amount of generation capacity required in that zone for MISO to be able to reliably meet the hourly energy demands of the zone and its footprint. Historically, this was an annual requirement. Beginning with the June 2023 – May 2024 planning period, MISO has developed seasonal requirements for its zones. Table 1 shows the MISO Seasonal Planning Reserve Margin requirements for Ameren Missouri for 2024 through 2028.

Table 1
MISO Seasonal Planning Reserve Margin Requirements[16]

	2024	2025	2026	2027	2028
Summer	7.9%	8.3%	8.8%	9.2%	10.1%
Fall	15.4%	15.8%	16.3%	15.6%	14.8%
Winter	25.3%	25.1%	24.9%	25.1%	25.3%
Spring	24.5%	24.3%	24.1%	23.9%	24.1%

[15] MISO's annual LOLE study calculates the seasonal planning reserve margins such that the summation of seasonal LOLE across the year is one (1) day in ten (10) years, or 0.1 day or 2.4 hours per year. *MISO Resource Adequacy Business Practice Manuel BPM-011-r27*, October 31, 2022. Attached as Schedule LMM-R-3.

[16] EO-2024-002, Ameren Missouri's 2023 IRP Filing, *Chapter 2 – Planning Environment*, page 6.

P

Q. What happens if Ameren Missouri cannot meet these reserve margin requirements?

It can 1) acquire additional resources, 2) participate in the Planning Resource Auction ("PRA"), or 3) pay MISO's capacity deficiency charge.[17] The cost of each of these can be avoided or delayed by MEEIA programs that reduce demand at time of peak. Since the capacity margin requirement is based on the seasonal peak demand, if the program does not reduce demand at the time of a seasonal peak, then it will not avoid any costs for capacity.

Q. You have been discussing a planning capacity auction. Is this the MISO capacity market?

A. Yes. Through this annual auction, MISO load serving members—such as Ameren Missouri—demonstrate to MISO that they have sufficient resources[18] and are allowed to sell capacity, via the planning capacity auction, to other market participants who may expect a shortfall.[19] I have attached MISO's presentation of the results of its PRA for the 2023-2024 planning year to this testimony as Schedule LMM-R-4.

Q. What is Ameren Missouri's strategy regarding the MISO PRA?

A. Ameren Missouri, in its monthly FAC reports, provides the following explanation of its strategy in the MISO PRA.

** ____
____
____ ,
____
______________________ ______________________
____

---

[17] *MISO Resource Adequacy Business Practice Manuel BPM-011-r27*, October 31, 2022. Schedule LMM-R-3.

[18] In MISO, resources that qualify as Planning Resources must submit generation verification test capacity ("GVTC") results to qualify as a Planning Resource for the upcoming Planning Year. GVTC can be completed by completing a real power test or based on operational data. *Id.*

[19] This is the PRA described on pages 4 – 6 in the direct testimony of Staff witness Jordan T. Hull.

P

**[20]

Q. How does MISO's capacity market process impact MEEIA?

A. At a high level, if a MEEIA program reduces one of Ameren Missouri's seasonal peak demands, then its planning reserve requirement is also reduced by that amount plus a corresponding percentage of the reserve margin. Further, if prior to the implementation of the MEEIA program, Ameren Missouri has generation capacity above the planning reserve margin requirement, then the MEEIA program will provide additional capacity that Ameren Missouri can offer into the capacity auction. If, however, Ameren Missouri does not have enough generation capacity, then the MEEIA program will reduce the amount of capacity that Ameren Missouri must acquire either through building additional generation or from the capacity market.

Q. What in particular in the MISO PRA results presentation that is attached as Schedule LMM-R-4 is important to the MEEIA process?

A. This presentation shows the current uncertainty in MISO's resource adequacy process and the volatility of the prices in the planning resource auction market. MISO states on the bottom of slide 9 that "[u]rgent reforms to MISO's resource adequacy and market designs are necessary to ensure continued reliability."

Slide 10 contains a list of issues that MISO is facing including the impact of the changing resource fleet driven by member decarbonization strategies, the need for reliability planning that considers more than just the annual peak demand, the accuracy of forecasts (both of load and intermittent generation abilities), and increased reliance on the gas industry.

[20] BFMR-2024-0711, "Ameren Missouri FAC Reporting Jan 2024 – CONF.xlsx", sheet 5G.

P

The table on page 23 of Schedule LMM-R-4 demonstrates the volatility of the MISO capacity market clearing prices from 2015 through 2023. Ameren Missouri's load is in Zone 5 on this table.[21] A graph of the clearing prices for Zone 5 is provided below.

Graph 2

MISO Historical Clearing Price Comparison for Zone 5

Importantly, these prices directly impact the benefits of MEEIA programs. Determining whether a program is cost effective is very different for each of these prices. If Ameren Missouri uses a high clearing price in the development of its MEEIA programs, those programs in the design phase may appear cost effective. However, once implemented, they may not be cost effective if the market clearing price drops. Similarly, a MEEIA program that met the criteria of cost-effective for all customers when designed and initially implemented, may no longer meet the criteria after a year or two, thus not meeting the MEEIA statute requirement that was included to protect customers from having to pay for ineffective demand-side programs.

[21] Ameren Missouri's load is in Missouri. In addition Ameren Missouri owns some natural gas combustion turbine generation in Illinois which is Zone 4.

P

Q. Do you agree with Mr. Luebbert that the new seasonal construct for MISO's PRA complicates the determination of the cost-effectiveness of a MEEIA program?[22]

A. Yes. To demonstrate, I have copied the 2023-2024 Seasonal Auction Clearing Prices from page 24 of Schedule LMM-R-4 below.

Table 2
<u>2023-2024 Seasonal Auction Clearing Prices</u>

<table>
<tr><th>PY</th><th>Zone 1</th><th>Zone 2</th><th>Zone 3</th><th>Zone 4</th><th>Zone 5</th><th>Zone 6</th><th>Zone 7</th><th>Zone 8</th><th>Zone 9</th><th>Zone 10</th><th>ERZs</th></tr>
<tr><td>Summer</td><td colspan="11">$10.00</td></tr>
<tr><td>Fall</td><td colspan="8">$15.00</td><td>$59.21</td><td colspan="2">$15.00</td></tr>
<tr><td>Winter</td><td colspan="8">$2.00</td><td>$18.88</td><td colspan="2">$2.00</td></tr>
<tr><td>Spring</td><td colspan="11">$10.00</td></tr>
</table>

This table shows that, for the 2023-2024 planning year, the best seasonal peak to reduce through MEEIA programs is the fall peak. The fall clearing price for zone 5 is $15 while the spring and summer price is $10. The benefits from a MEEIA program that only impacted winter peak would be the lowest since the clearing price in the winter is $2.

However, prior to this 2023-2024 planning year, MEEIA programs should be designed to reduce the summer peak since the MISO planning reserve margin was based solely on the summer peak.[23] There was no consideration for the other seasonal peaks. The MISO planning resource auction prices for MISO's 2015 through 2022 planning years are shown in Table 3.[24]

---

[22] Page 31.
[23] Staff witness Jordan T. Hull direct testimony, "Prior to 2022, MISO's PRA was held to meet peak summer load." (pg. 4 n.3)
[24] Page 23 of *Planning Resource Auction Results for Planning Year 2023-2024* attached as Schedule LMM-R-4.

P

Table 3

<u>Historical Auction Clearing Price Comparison</u>

<table>
<tr><th>PY</th><th>Zone 1</th><th>Zone 2</th><th>Zone 3</th><th>Zone 4</th><th>Zone 5</th><th>Zone 6</th><th>Zone 7</th><th>Zone 8</th><th>Zone 9</th><th>Zone 10</th><th>ERZs</th></tr>
<tr><td>2015-2016</td><td colspan="3">$3.48</td><td>$150.00</td><td colspan="3">$3.48</td><td colspan="2">$3.29</td><td>N/A</td><td>N/A</td></tr>
<tr><td>2016-2017</td><td>$19.72</td><td colspan="6">$72.00</td><td colspan="3">$2.99</td><td>N/A</td></tr>
<tr><td>2017-2018</td><td colspan="10">$1.50</td><td>N/A</td></tr>
<tr><td>2018-2019</td><td>$1.00</td><td colspan="9">$10.00</td><td>N/A</td></tr>
<tr><td>2019-2020</td><td colspan="6">$2.99</td><td>$24.30</td><td colspan="4">$2.99</td></tr>
<tr><td>2020-2021</td><td colspan="6">$5.00</td><td>$257.53</td><td>$4.75</td><td>$6.88</td><td>$4.75</td><td>$4.89-$5.00</td></tr>
<tr><td>2021-2022</td><td colspan="7">$5.00</td><td colspan="3">$0.01</td><td>$2.78-$5.00</td></tr>
<tr><td>2022-2023</td><td colspan="7">$236.66</td><td colspan="3">$2.88</td><td>$2.88-236.66</td></tr>
<tr><td>Summer 2023-2024</td><td colspan="11">$10.00</td></tr>
</table>

Any MEEIA programs designed using the $236.66 price signal in the 2022-2023 year would not likely impact the fall peak that had the highest price signal in the 2023-2024 year. Expecting benefits of $236.66/MW from the MISO PRA would result in many MEEIA programs appearing to be cost-effective. However, the actual benefits realized by the programs in the next summer only benefited $10/MW or about 4% of what was expected. Very few, if any, of the programs implemented based on analysis using $236.66/MW were actually cost-effective.

However, it is not as simple as designing programs that reduce demand in a single season. As Mr. Luebbert points out: "The determination of capacity required for each season and the availability of existing Ameren Missouri generation resources is distinct for each season."[25] All of this plus the history of volatility in MISO's capacity clearing prices significantly increases the complexity of including the MISO capacity market in designing cost-effective MEEIA programs.

[25] Page 31.

P

<u>MEEIA, the FAC, and the MISO Markets</u>

Q. The tables Mr. Luebbert includes in his direct testimony to demonstrate how the FAC complicates the determination of MEEIA benefits show fuel costs, purchased power costs, and purchased power revenues.[26] How do these correspond to the costs and revenues of the MISO energy market?

A. Fuel costs are the costs incurred by Ameren Missouri when MISO dispatches these resources. What Mr. Luebbert calls "purchased power revenues" is the revenue that Ameren Missouri receives from MISO for the energy its generation resources provide to MISO.[27]

Q. Would Ameren Missouri's fuel costs or the revenues it receives from the MISO energy market be impacted by a MEEIA program?

A. As explained above, it is very unlikely that a change in the load of Ameren Missouri's customers would impact the fuel costs it incurs or the revenue it receives from MISO for the energy supplied by its generation. These costs and revenues are mostly independent from the load requirements of Ameren Missouri's customers because of Ameren Missouri's participation in the MISO markets.

Q. Mr. Luebbert also includes "purchased power costs." What are these costs with respect to the MISO energy market?

A. Mr. Luebbert uses the term "purchased power costs" to refer to the amount MISO charges for load,[28] *i.e.,* what Ameren Missouri pays MISO for each MWh of load required by its customers.[29]

---

[26] Tables are on pages 22, 23, and 25.
[27] Luebbert direct, page 22.
[28] *Id*.
[29] Energy provided through bilateral purchased power contracts from generation owned by other entities is also referred to as purchased power. However, Mr. Luebbert only uses this term for the payments made to MISO for the energy needs of customers.

P

Q. Would this amount be impacted by MEEIA programs?

A. Yes. This amount will change with the level of MWh Ameren Missouri's load requires. If a MEEIA program reduces the load requirement or changes when customers use energy, the amount MISO charges Ameren Missouri for the load requirements of Ameren Missouri's customers will also change. As described later in this testimony, MEEIA programs could increase or decrease the costs incurred by customers depending on when the program induces customers to change how they are using electricity.

Q. You have discussed the energy market. Did Mr. Luebbert's simple example include costs and revenues from the MISO *capacity* market?

A. Mr. Luebbert did not include the costs or revenues from the capacity market in his examples. He defines his purchased power cost to be "the cost of obtaining the energy at wholesale to serve its load" and purchased power revenues to be the revenue Ameren Missouri received from meeting MISO's generation dispatch instructions.[30]

Q. Could costs and revenues from the MISO capacity market have been included in his example?

A. Yes. Capacity purchase costs and revenues from capacity sales of one year or less are included in Ameren Missouri's FAC. Because the MISO Planning Resource Auction is an annual auction, the costs and revenues from the MISO Planning Reserve Auction—the capacity market—are included in the FAC.

Ameren Missouri also receives the market price for the capacity it offers into MISO capacity auction. The revenues it receives could have been included in Mr. Luebbert's "purchased power revenues." Including capacity costs and revenues would have made the explanations more complex.

[30] Page 22.

P

Q. Is Mr. Luebbert's table showing how the FAC base factor is calculated on page 22 of his direct testimony a good representation of a simplistic calculation of the FAC base?

A. It is a simplistic representation in that it contains a limited number of the charge and revenue types included in Ameren Missouri's FAC.[31] For ease of discussion in my testimony, I have duplicated his table below.

Table 4
Mr. Luebbert's Calculation of the FAC Base Factor

Fuel Cost	$ 1.50
Purchased Power Costs	$ 2.00
Purchased Power Revenue	$ (1.65)
Total/Net	$ 1.85
Energy Sales	100
FAC Base Factor:	$ 0.01850

In my opinion, Mr. Luebbert's representation is simplistic and accurate but confusing.

Q. Would you provide an alternative example?

A. Yes. The table below provides an alternative simplistic but accurate calculation of how the FAC base factor ("BF") is calculated in a rate case.

[31] All of the detailed FAC cost and revenue components are not necessary to understand how the FAC complicates the cost benefit analysis of MEEIA programs.

P

Table 5
Determination of FAC Base Factor

Normal Fuel Costs	$1,500.00	
Normal Generation Revenue	($1,650.00)	
Normal Net Market	($150.00)	
Normal Load Cost	$2,000.00	
Normalized Cost	**$1,850.00**	
Normalized load	100,000	kWh
Base Factor (BF)	**$0.01850**	**$/kWh**

I relabeled the components of Mr. Luebbert's example to be more representative of what the component is. I used the term "Generation Revenues" instead of Mr. Luebbert's title of "Purchased Power Revenues" and "Load Cost" instead of "Purchased Power Costs." I also multiplied his numbers by 1,000 to make the example easier to understand.

The normalized cost in my example of $1,850 is the net of the fuel costs and generation revenues received ($1,500 + ($1,650) = ($150)) net of the load cost (($150) + $2,000 = $1,850). These are the normalized costs and revenues that are included in setting permanent rates in the rate case. The Base Factor is the normalized cost divided by the normalized load ($1,850 ÷ 100,000 kWh).[32]

This calculation results in the same base factor found in Mr. Luebbert's testimony[33] but follows the methodology used in general rate cases to determine the base factor.

Q. What does the base factor represent?

A. The base factor is the amount of normalized FAC costs and revenues that are included in revenue requirement in the rate case divided by the annualized and

[32] The normalized load for the FAC is the same as the normalized load used to determine billing determinates in the rate case where the base factor is determined.
[33] Page 22.

P

normalized usage determined in the rate case. In other words, it is the normalized FAC cost per kWh of usage.

Q. Mr. Luebbert, in his example on page 23 of his direct testimony shows the calculation of a new FAC rate. Is this an accurate example?

A. No. Mr. Luebbert's method of calculating the FAC rate is inconsistent with practice and the FAC rate that he calculates is based on actual usage and not normalized usage. His table is duplicated below.

Table 6
Mr. Luebbert's Calculation of New FAC Rate

	Base Factor		Actuals
Fuel Cost	$ 1.50		$ 1.20
Purchased Power Costs	$ 2.00		$ 1.90
Purchased Power Revenue	$ (1.65)		$ (1.26)
Total/Net	$ 1.85		$ 1.84
Energy Sales	100		95
		Net Energy Cost:	$ 0.01937
		Difference from Base Factor:	$ 0.00087
		New FAC Rate:	$ 0.00083

The FAC rate in Missouri is calculated as 95% of the difference between actual net costs incurred and the costs included in the permanent rates divided by the expected energy sales.[34] This is not how Mr. Luebbert calculated the FAC rate in this table.

[34] True-up and prudence adjustments are also included but are not pertinent to this discussion.

P

Q. Would you show the calculation using the methodology in Ameren Missouri's FAC tariff sheets and provide what the FAC rate would be given your numbers?

A. Yes. Table 7 below shows the calculation of the FAC rate given fuel costs of $1,200; generation revenues of $1,260; load cost of $1,900; and an actual load of 95,000 kWh.[35]

Table 7
Calculation of FAC Rate After an Accumulation Period

Actual Fuel Costs	$1,200.00	
Actual Generation Revenue	($1,260.00)	
Actual Net Market	($60.00)	
Actual Load Cost	$1,900.00	
Actual Net Energy Costs (ANEC)	**$1,840.00**	
Actual Load	95,000	kWh
Net Base Energy Cost (NBEC)	**$1,757.50**	
FAC rate for next period		
ANEC - NBEC	$82.50	
Customer's share (95%)	$78.38	
Company's share (5%)	$4.13	
Projected Load	100,000	kWh
FAC rate	**$0.00078**	**$/kWh**

In this example, like Mr. Luebbert's example, the fuel costs, generation revenues, and load costs were all lower than the normalized costs estimated in the rate case, which were shown in Table 5. While the actual net energy costs were $10 ($1,850 - $1,840) lower than the amount set in the rate case, as shown in Table 5, the energy costs recovered in permanent rates were $1,757.50[36] or $82.50 lower than the actual costs incurred of $1,840. This means that the utility did not

[35] Again, just 1,000 greater than the numbers used by Mr. Luebbert.
[36] BF x Actual usage = $0.0185/kWh x 95,000 kWh = $1,757.50.

P

recover $82.50 of the actual costs incurred through permanent rates billed customers.

The design of Ameren Missouri's FAC requires a sharing between the company and customers of the difference between the net and actual energy costs. Under this sharing mechanism customers are responsible for 95% of the difference and Ameren Missouri is responsible for 5%. Therefore, in my example shown in Table 7, the company's share of the difference is $4.13 ($82.50 x 0.05), and it is allowed to collect the remaining $78.38 ($82.50 x 0.95) from its customers through the FAC rate. To calculate the FAC rate, one divides $78.38—the customer's share—by the projected load of 100,000 kWh, resulting in an FAC rate after this accumulation period of $0.00078/kWh.[37]

Q. Mr. Luebbert testifies: "Through operation of the FAC, unless the avoided energy sales are of above-average cost per kWh, the avoided energy sales will result in an increase in the FAC rates, which will offset the benefits received by all customers."[38] Do you agree?

A. Yes, with some clarification. I agree if "average cost per kWh" is defined as the average load cost included in the calculation of the base factor in the rate case. This is the definition I use in this testimony. This average would only change in a general rate case. This average does not change day-to-day or across seasons. It is not tied to the actual energy market prices. It is based on the normalized market prices used in the general rate case.

[37] Mr. Luebbert used actual kWh to calculate the FAC rate instead of the projected usage amount. This would only be appropriate if a "new" normalized usage of the same amount had been forecasted. In my examples I assume normalized usage estimates do not change between rate cases.
[38] Page 24.

P

Q. What analysis did you conduct to determine if Mr. Luebbert's testimony is correct?

A. I calculated the benefits to the participant, the non-participants, and the company in three different scenarios. Each scenario results in a different average cost saved. They are:

Table 8
Scenarios

Scenario	The MEEIA Program saves energy at a time when market cost of energy:	Avg in Base Factor		Avg when Energy Saved
1	equals the average cost in the base factor	$0.02/kWh	=	$0.02/kWh
2	is above the average cost in the base factor	$0.02/kWh	<	$0.03/kWh
3	is below the average cost in the base factor	$0.02/kWh	>	$0.01/kWh

In my analysis, for each of these scenarios I looked at the benefits of MEEIA programs from the FAC[39] for participants, non-participants, and Ameren Missouri across four accumulation periods.

I looked at the FAC impact of MEEIA programs that reduced energy over four FAC accumulation periods.[40] In the first accumulation period ("AP 1"), the costs, revenues, and usage were equal to the normalized costs, revenues, and usage used in the rate case. In the second, third, and fourth accumulation periods (AP 2, AP 3, and AP 4 respectively) I assumed a reduction in actual load of 1,000 kWh; 5,000 kWh; and 3,000 kWh respectively due to the participation in a MEEIA program of a single customer. This means that any savings or costs shown in the analysis are due to the MEEIA program since everything else was held the same in each accumulation period.

[39] No MEEIA program costs or benefits outside of the FAC were included in my analysis.

[40] FAC net costs are aggregated over a set time period and compared to the normalized costs included in permanent rates. This time period over which costs and revenues are accumulated is called an accumulation period.

My analysis is shown on Schedules LMM-R-5 (average at base factor), LMM-R-6 (above average base factor), and LMM-R-7 (below average base factor) respectively. Table 9 below gives a summary of the cost/benefit results of my analysis.

Table 9
Analysis of Cost/(Benefit) of MEEIA Program

	AP 1	AP 2	AP 3	AP 4
Participant				
Average	$0.00	($18.50)	($92.55)	($55.99)
> Average	$0.00	($18.50)	($93.05)	($59.35)
< Average	$0.00	($18.50)	($92.10)	($52.70)
Non-Participants				
Average	$0.00	$0.00	($0.90)	($6.30)
> Average	$0.00	$0.00	($9.90)	($49.50)
< Average	$0.00	$0.00	$7.20	$36.00
Company				
Average	$0.00	($0.08)	($0.38)	($0.23)
> Average	$0.00	($0.58)	($2.88)	($1.73)
< Average	$0.00	$0.43	$2.13	$1.28

As shown in Table 9 and the attached schedules, the participant always benefits from the MEEIA program. This is true because he or she paid for less electricity regardless of whether the kWh saved was at the time the market price was the same as the average, above the average, or below the average cost used in setting the base factor.

The non-participants, however, only saved when the kWh saved was at a time when the market price matched the price used in setting the base factor or at a time when the market price was above the price used in setting the base factor. However, non-participants did not see a benefit until they were charged the lower FAC rate, which began in AP 3. In the scenario where the kWh saved by the participant was at a market price below what was included in the base factor, the

P

cost for non-participants increased. This means that the MEEIA program was not cost-effective for non-participants. In fact, the program increased the FAC cost for the non-participants.

Q. Would you please walk through your calculations for AP 3 for the three different scenarios?

A. I will start with the calculation of the Actual Net Energy Cost (ANEC) and Net Base Energy Cost (NBEC) of each of the three scenarios shown below in Table 10.

Table 10
Calculation of ANEC and NBEC

	Scenario		
	Average	**> Average**	**< Average**
Normalized Load Cost ($/kWh)	$0.02000	$0.02000	$0.02000
Cost of Load Saved ($/kWh)	$0.02000	$0.03000	$0.01000
Fuel Costs	$1,500.00	$1,500.00	$1,500.00
Generation Revenue	($1,650.00)	($1,650.00)	($1,650.00)
Net Market	($150.00)	($150.00)	($150.00)
Load Cost	$1,900.00	$1,850.00	$1,950.00
Actual Net Energy Costs (ANEC)	**$1,750.00**	**$1,700.00**	**$1,800.00**
Actual Load	95,000	95,000	95,000
Net Base Energy Cost (NBEC)	**$1,757.50**	**$1,757.50**	**$1,757.50**
% Reduction in Load	**5.0%**	**5.0%**	**5.0%**
% Reduction in Load Cost	**5.0%**	**7.5%**	**2.5%**

For all three scenarios, the Net Market amount is revenue to Ameren Missouri of $150. This means that Ameren Missouri received $150 above the fuel cost for the generation resource that was dispatched. Keeping this amount the same in each

P

scenario is consistent with my testimony above that fuel costs and generation revenues are independent from a change in load.

The ANEC is different in each of the three scenarios. The ANEC is the Net Market amount of ($150) plus the actual load cost. The actual load cost is calculated as the average energy cost in the base factor ($0.02/kWh) multiplied by the normalized load (100,000 kWh) minus the reduction in usage (5,000 kWh)[41] multiplied by the cost of load saved ($0.02/kWh, $0.03/kWh, and $0.01/kWh for the three scenarios respectively). The ANEC for each scenario is calculated as:

Scenario 1: ($150) + (($0.02 x 100,000) – (5,000 x $0.02)) = $1,750
Scenario 2: ($150) + (($0.02 x 100,000) – (5,000 x $0.03)) = $1,700
Scenario 3: ($150) + (($0.02 x 100,000) – (5,000 x $0.01)) = $1,800

Like the Net Market amount, the NBEC is also consistent across all three scenarios. The NBEC is the amount of net FAC costs that is included in permanent rates. It is calculated as the Base Factor ($0.0185/kWh) multiplied by the kWh of energy used (95,000 kWh).

Q. How is the FAC rate calculated?

A. The calculation of the FAC rate for the three different scenarios is shown below in Table 11.

Table 11
FAC Rate Calculation for Next Period

	Scenario		
	Average	**> Average**	**< Average**
ANEC - NBEC	($7.50)	($57.50)	$42.50
Customer's share (95%)	($7.13)	($54.63)	$40.38
Company's share (5%)	($0.38)	($2.88)	$2.13
Projected Load	100,000	100,000	100,000
FAC rate	($0.00007)	($0.00055)	$0.00040

[41] Again, for AP3 I assumed the participant reduced his or her energy usage by 5,000 kWh reduction in actual load and non-participants did not change their energy usage.

P

Average Scenario

The difference between the actual costs incurred (ANEC) and the amounts billed in permanent rates (NBEC) is calculated to determine the costs over- or under-billed. In the first scenario, where the market price of the saved energy is the same as the average market price included in the base factor, there is a difference between the ANEC and the NBEC. This is because the net market revenues stayed constant but the energy usage decreased. As I explained above, the generation that the company offers and receives revenue for does not change when the load requirements of the customers change. Only the load cost changed and it changed at the same rate that was included in the base factor. [42]

The sharing mechanism of the FAC means that only 95% of the difference is returned to customers so of the $7.50 that was overbilled in the first scenario,[43] the company gets to keep 5% or $0.38. The FAC rate is the amount Ameren Missouri billed in excess of the actual cost that will be returned to customers—$7.13—divided by the projected load of 100,000 kWh. In this first scenario, the FAC rate is ($0.00007)/kWh.

> Average Scenario

It is easier to understand why a reduction in load at a time when cost is higher than the average cost used in the base factor results in the ANEC being less than the NBEC. Put simply, the company avoided having to pay MISO a higher cost than what was in the base factor. In the scenario provided, the ANEC was $57.50[44] less than what was billed in permanent rates (NBEC). In other words,

[42] In the calculation of the base factor, the Net Market portion is $150 divided by the normalized usage of 100,000 kWh reducing the base factor by $0.0015/kWh. The NBEC for AP 3 only includes $142.50 of the Net Market (95,000 kWh x $0.015). Customers were billed for a Net Market of $142.50 even though the Net Market was $150. It is this $7.50 that is to be 95% returned to customers and 5% kept by the company in this example.

[43] Actual costs incurred (ANEC) was $1,750.00 and cost recovered in permanent rates (NBEC) was $1,757.50.

[44] $50 less for native load cost (5,000 kWh *($0.03/kWh – $0.02/kWh)) and $7.50 for Net Market costs not considered.

the company billed its customers $57.50 for FAC costs above what it incurred. Through the FAC, it is required to return to customers 95% of the overbilled amount or $54.63 and Ameren Missouri gets to keep 5% or $2.88. The FAC rate in this scenario is ($0.00055)/kWh or $54.63 divided by 100,000 kWh.

< Average Scenario

The increase in costs for non-participants and the company shown in the third scenario are not intuitive. In this scenario the actual cost incurred (Net Market plus Load Cost) is greater than the costs included in permanent rates. This is because the amount not paid in permanent rates for load cost was $0.02/kWh or $100 (5,000 kWh x $0.02/kWh) but the average cost saved was actually $0.01/kWh or $50 (5,000 x $0.01/kWh).[45] Reducing energy at time of low market prices raises the actual average price paid to be above the normalized average price used in the calculation of the base factor. In this scenario, the sharing mechanism allows 95% of the cost not billed or $40.38 to be used to determine the FAC rate. The FAC rate is $0.00040/kWh, calculated by dividing $40.38 by the forecasted load of 100,000 kWh. The company does not recover $2.13 of net FAC costs incurred.

Q. Given these three scenarios, what are the benefits or costs that are realized through the FAC due to MEEIA programs for the participant, non-participants, and company in AP 3?

A. The benefits and costs for these entities are shown in Table 12 below for the three scenarios for AP 3.

[45] $7.50 of Net Market was not credited to customers as in the first scenario reducing the increase to $42.50.

P

Table 12
AP 3 (Benefit)/Cost

	Scenario		
	Average	**> Average**	**< Average**
Participant	($92.55)	($93.05)	($92.10)
Non-Participants	($0.90)	($9.90)	$7.27
Company	($0.38)	($2.88)	$2.13

Q. How did you calculate the benefits and costs of MEEIA programs through the FAC determined for the company that are shown in Table 12 above?

A. The company's benefits or costs attributable to the MEEIA programs are simply the 5% share of the difference between the actual costs incurred (ANEC) and the costs recovered in permanent rates (NBEC). For the three example scenarios, the company received a benefit when energy was reduced during a time when the market price was at the average or above the average market price used in setting the base factor. MEEIA programs are detrimental to the company when the programs induce customers to reduce energy usage when market prices are below the average price used to calculate the base factor.

Q. How did you calculate the benefits and costs to the participant and non-participants shown in Table 12?

A. Determining the benefits and costs for the participant and the non-participants first required the calculation of how much each would have been charged absent an FAC charge (meaning that the company collects only in permanent rates) and prior to the participant reducing his or her energy usage.[46] The charges are calculated as the usage (as shown in the attached schedule, I assumed 10,000 kWh for the participant and 90,000 kWh for the non-participants) multiplied by the FAC base factor ($0.01850/kWh). This results in a charge of $185.00 for the

[46] Shown as AP 1 on Schedules LMM-R-5, LMM-R-6, and LMM-R-7.

P

participant and $1,665.00 for the non-participants. This is consistent across all three scenarios.

Next, I calculated the charge for the participant's and non-participants' usage for the third accumulation period (AP 3). For the scenario where the average market price saved is the same as the average market price in the FAC, I calculated this using the base factor of $0.01850/kWh and the FAC rate from AP 2 of ($0.00001)/kWh for a rate of $0.01849/kWh. This charge is multiplied by the usage in AP 3 of 5,000 kWh for the participant and 90,000 kWh for the non-participants. This results in a charge of $92.45 (5,000 kWh x $0.01849/kWh) for the participant and $1,664.10 (90,000 kWh x $0.01849) for the non-participants.

Therefore, for the scenario where the participant saved energy at a time when the average market price matched the market price used in the base factor, the benefit of the MEEIA program through the FAC is a savings of $92.55 ($185.00 minus $92.45) for the participant and $0.90 ($1,665.00 minus $1,664.10) for the non-participants.

Q. Is this all the costs and benefits of a MEEIA program to participants and non-participants?

A. No. The cost of the MEEIA programs paid by participants and non-participants are not included in my analysis. Incentives paid to the participants are also not included. My calculations here are merely the benefits/costs realized through the FAC.

Q. Why is this exercise in how the FAC complicates the evaluation of MEEIA programs important in this case?

A. It is important to understand that, because of Ameren Missouri's participation in the MISO energy markets and the design of the FAC, the actual market price when there is a reduction in energy usage is critical to a determination of whether or not a MEEIA program provides benefits to non-participants and Ameren

P

Missouri. A reduction in energy during a high-cost hour will benefit both participants and non-participants through a reduction in the FAC rate. A reduction in energy usage during a time where the market price is below the average price used in setting the FAC base factor will provide a benefit for the participant, as shown in Table 12, but result in a higher FAC rate that is charged to both the participant and the non-participants, as shown in Table 11.

This effect makes it critical to understand the MISO energy market and to accurately forecast it in the design of MEEIA programs. One simply cannot assume that the avoided cost of energy (the cost of the saved energy) is the average annual market price because, again, the market price at the time the saved energy occurs affects whether benefits exist. Careful program design is needed and a thorough understanding of when all of the benefits and costs are realized is required to meet the statutory objective that the MEEIA programs result in energy savings that are beneficial to all customers regardless of whether or not the program is utilized by all customers.[47]

Finally, the benefits that Ameren Missouri receives from the 5% sharing of savings in the FAC should be included in the MEEIA cost benefit studies to offset some of the program costs. These are program benefits that have not been taken into consideration but exist because of Ameren Missouri's FAC.

__**FAC and Socialization of Benefits**__

Q. Do you agree with Mr. Luebbert that "[t]hrough the operation of the FAC, even if the avoided energy sales reduce (rather than increase) the FAC rates, those benefits are socialized across all customers"?[48]

A. Yes. The MEEIA statute states that MEEIA programs are to be beneficial to all customers in the class in which the programs are proposed.[49] Between general

[47] Section 393.1075.4 RSMo.
[48] Page 27.
[49] Section 393.1075.4 RSMo.

P

rate cases, the benefits of a MEEIA program that results in lower energy usage is realized through lower FAC rates if the market price of the "saved" usage is higher than the average market price used to set rates in the rate case.

However, the FAC is not designed to allocate the benefits of MEEIA programs to particular classes. The purpose of the FAC is to recover from or return to customers the prudently incurred fuel and purchase power costs.[50] It is based on an average cost per kWh, *i.e.* base factor, determined using normalized FAC costs and revenues. There is no distinction in the calculation of the FAC charge as to which class caused the changed cost.[51] Therefore, every customer class sees the benefit of changes to the energy costs due to the implementation of a MEEIA program through the FAC regardless of whether or not the customers pay for the MEEIA program.

Q. Does the fact that all customers may receive benefits mean that the customer class in which the programs were approved does not receive benefits?

A. No. If benefits exist because of Ameren Missouri's FAC, all customers receive benefits. However, because the majority of the benefits of reduced energy usage are realized through Ameren Missouri's FAC, it is important in the cost/benefit analysis of MEEIA programs[52] to realize that the class for which the program is proposed will receive only a portion of the benefits.

Therefore, in the analysis of a MEEIA program, only the portion of the benefits that the class will actually receive should be assigned to the customer class in which the programs are proposed.[53] Again, it is critical that this be considered in the design of MEEIA programs to assure that all customers,

[50] 20 CSR 4240-20.090(1)(I) and (L).
[51] The FAC rate is the same for all customers. A voltage expansion factor is applied based on the voltage that the customers take electricity. The voltage expansion factor is based on the transmission and distribution system losses, not based on who caused an increase or reduction in costs.
[52] Both pre- and post-implementation.
[53] A potential method of assigning benefits to the classes would be to apply allocation factors based on energy usage of the classes.

P

participants and non-participants alike, receive benefits greater than the costs they are required to pay.

Q. Do you agree with Mr. Luebbert that "[r]eductions in capacity can cause new capacity revenues through the integrated marketplace, but those revenues are generally socialized through all customers through the FAC"?[54]

A. Yes. The MISO capacity market revenues Ameren Missouri receives are included in its FAC. MEEIA programs that reduce the need for capacity may result in greater capacity revenues.[55] This impacts the actual net energy costs used to calculate Ameren Missouri's FAC rates. The change in cost and revenues are not specifically assigned to any class in Ameren Missouri's FAC but are realized by all customers.

<u>Conclusion</u>

Q. Why is it important to consider the FAC in this MEEIA case?

A. An important customer protection in the MEEIA statute is that MEEIA programs must be <u>cost-effective and beneficial to both participants and those customers who are required to pay for the programs</u>.[56] In his direct testimony in this case, OPC witness Dr. Geoff Marke wrote testimony regarding his skepticism that Ameren Missouri's proposed MEEIA programs will actually result in the savings Ameren Missouri claims. This is due to multiple considerations such as the principal-agent problem, the rebound effect, the Inflation Reduction Act, the potential for aggregators of retail choice, the impact of rate design, and building energy codes and standards. To build on this, in this testimony, I described how the realization of benefits is not straightforward. Accurate design and cost-benefit

[54] Page 30.
[55] These increased capacity revenues result because, as explained above, Ameren Missouri sells its excess capacity into the MISO capacity market. This leads to an increase in capacity revenues.
[56] Section 393.1075.4 RSMo.

P

analysis is complex and should take into consideration all these factors. All of this should cause the Commission to pause and rethink the role of MEEIA.

Q. Does this conclude your rebuttal 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 4th Filing to Implement Regulatory Changes in Furtherance of Energy Efficiency as Allowed by MEEIA	)))))	Case No. EO-2023-0136

AFFIDAVIT OF LENA M. MANTLE

STATE OF MISSOURI)
) **ss**
COUNTY OF COLE)

Lena M. Mantle, of lawful age and being first duly sworn, deposes and states:

1. My name is Lena M. Mantle. I am a Senior Analyst for the Office of the Public Counsel.

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

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

Lena M. Mantle
Senior Analyst

Subscribed and sworn to me this 26th day of April 2024.

TIFFANY HILDEBRAND
NOTARY PUBLIC - NOTARY SEAL
STATE OF MISSOURI
MY COMMISSION EXPIRES AUGUST 8, 2027
COLE COUNTY
COMMISSION #15637121

Tiffany Hildebrand
Notary Public

My Commission expires August 8, 2027.