Exhibit No.:	_____
Issue(s):	Smart Energy Plan/ Keeping Current/ Coal Power Plants/ CCOS/ Rate Design/ Customer Charge/ Pure Power RECs
Witness/Type of Exhibit:	Marke/Rebuttal
Sponsoring Party:	Public Counsel
Case No.:	ER-2019-0335

REBUTTAL TESTIMONY

OF

GEOFF MARKE

Submitted on Behalf of the Office of the Public Counsel

UNION ELECTRIC COMPANY
D/B/A AMEREN MISSOURI

FILE NO. ER-2019-0335

January 21, 2020

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF THE MISSOURI

In the Matter of the Union Electric Company d/b/a Ameren Missouri's Tariffs to Decrease Its Revenues for Electric Service	)))	File No. ER-2019-0335

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 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.

Geoff Marke
Chief Economist

Subscribed and sworn to me this 21st day of January 2020.

NOTARY PUBLIC NOTARY SEAL STATE OF MISSOURI

JERENE A. BUCKMAN
My Commission Expires
August 23, 2021
Cole County
Commission #13754037

Jerene A. Buckman
Notary Public

My commission expires August 23, 2021.

TABLE OF CONTENTS

REBUTTAL TESTIMONY

OF

GEOFF MARKE

UNION ELECTRIC COMPANY

d/b/a Ameren Missouri

CASE NO. ER-2019-0335

I. INTRODUCTION

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

A. Geoff Marke, PhD, Chief Economist, Office of the Public Counsel ("OPC" or "Public Counsel"), P.O. Box 2230, Jefferson City, Missouri 65102.

Q. Are you the same Geoff Marke that filed direct testimony?

A. Yes.

Q. What is the purpose of your rebuttal testimony?

A. My testimony responds to the direct testimony regarding:

Revenue Requirement:

- Smart Energy Plan: Customer Driven Focus
  - Ameren Missouri witness Warren Wood;
- Keeping Current
  - Consumers Council of Missouri ("CCM") witness Jaqueline A. Hutchinson
- Coal Power Plants
  - Sierra Club witness Avi Allison

Rate Design:

- Class-Cost-of-Service
  - Ameren Missouri witnesses: Thomas Hickman, Michael W. Harding, and Ryan P. Ryterski;
  - Staff witnesses: Robin Kliethermes and Sarah Lange;
  - Missouri Industrial Energy Consumers ("MIEC") witness Maurice Brubaker;
  - Midwest Energy Consumers Group ("MECG") witness Steve W. Chriss;

- Residential Rate Designs: Inclining Block, Time-of-Use, Three-Part Residential, and EV Charging Rates
    - Ameren Missouri witnesses: Steven M. Wills and Ahmad Faruqui, Ph.D.;
    - Staff witnesses: Robin Kliethermes and Sarah Lange;
    - Sierra Club witness Avi Allison; and
    - Missouri Division of Energy ("DE") witnesses Martin R. Hyman;
- Residential Customer Charge
    - Ameren Missouri witness: Steven M. Wills;
    - Staff witnesses: Robin Kliethermes and, Sarah Lange
    - Sierra Club witness Avi Allison; a
- Pure Power RECs
    - Staff witnesses: Robin Kliethermes and, Sarah Lange

My silence regarding any issue should not be construed as an endorsement of, agreement with, or consent to any other party's filed position.

II. REVENUE REQUIREMENT

Smart Energy Plan: Customer Driven Focus

Q. How is Ameren Missouri providing a "Customer Driven Focus?"

A. Ameren Missouri witness Warren Wood highlighted four ways including:

1. Laying the groundwork for the Smart Energy Plan;
2. A $1 million rate reduction;
3. Laying the groundwork for modern rate designs; and
4. A paperless billing incentive

Q. Did Mr. Wood expound on the specific aspects of the Smart Energy Plan?

A. Yes, again he highlighted three examples including:

1. More solar (community, distributed and non-wires alternatives)
2. Grid upgrades; and
3. AMI deployment

Q. Do you agree with Mr. Wood?

A. I would say that the term "customer driven focus" is value-neutral. Whether the pending investment actions articulated by Mr. Wood will result in a net positive outcome for customers or result in needless increases in rates is unknown at the moment. As it stands, I am skeptical.

Q. What causes you to be skeptical of Mr. Wood's testimony?

A. Putting aside the three highlighted future investments within the Smart Energy Plan for a moment.

First, it remains to be seen whether the outcome of this contested case will result in a $1 million reduction or not. Of course, that $1 million reduction (or whatever final number is ordered) should be tempered by the $5 billion addition in "customer driven focus" costs that follow this case.

Second, even under a best-case scenario in Ameren's plan, ratepayers are at least five years removed from experiencing full implementation of "modern rate designs." Customers do not have AMI in placed yet and it will be well after the planned Smart Energy Plan is done before all customers will have AMI. It is also important to note that I have yet to see any plan on how the Company intends on implementing and educating its customer base on modern rates. Instead, the Company suggests pilots with no details on what is to be learned. On this point, I will have more to say later in my testimony under Rate Design.

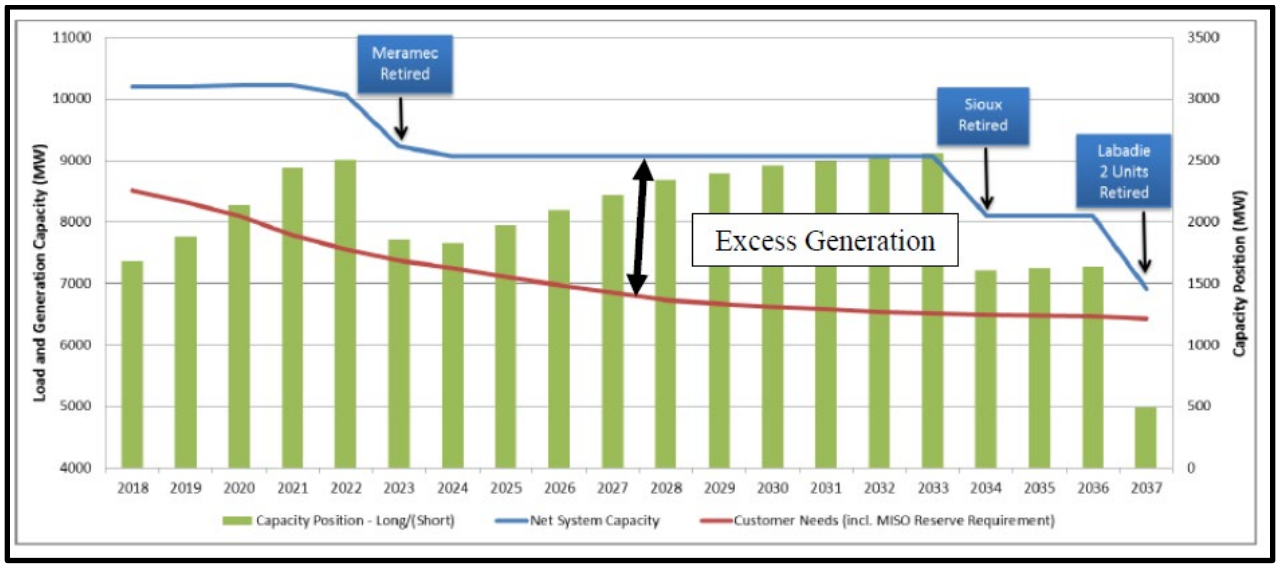
Third, customers can request paperless billing already today. More than 17% of all of Ameren's customers already do. Highlighting an existing option to pay the Company is not a benefit.

Q. What is your response to Mr. Wood highlighting future solar investment as a customer-driven focus within Ameren Missouri's Smart Energy Plan?

A. To state the obvious, Ameren Missouri is very long on capacity. They have zero need to build out more supply-side investment beyond what is required by statute. This can be seen by looking at the delta between customer needs (including Midcontinent Independent

System Operator (MISO) reserve requirement) represented by the lower red line with the Company's net capacity position represented by the higher blue line in Figure 1.

Figure 1: Net Capacity Position—No New Resources (Baseline)[1]



Q. Is there anything about that graph the Commission should be aware of?

A. Yes. The Commission should be aware that the delta between the lines will be even more pronounced in the near future because the graph does not include the 700 MW of wind that the Company is planning and/or in the process of building presently. Nor does it account for the "up to 250 MW" of generation associated with Ameren Missouri's Green Tariff or the 1 MW Community Solar program. All of those investments have Commission-approved Certificates of Convenience and Necessity ("CCNs").

Ameren Missouri needs to address the elephant in the room, namely the Rush Island and Labadie Power Plants. It was Ameren Missouri's managerial decision to not invest in environmental scrubbers and it was the US District Court, Eastern District of Missouri's opinion that because of that managerial decision the Company was in violation of the Clean Air Act's New Source Review Program. Until Ameren Missouri deals with all of their

[1] EO-2018-0038 Chapter 9, Integrated Resource Plan and Risk Analysis p. 3.

investments transparently and holistically, it makes very little sense to continue to build out rate base even further for energy that is not needed to serve its customers or meet capacity reserve requirements.

As to the specific solar investments, Mr. Wood references the community solar and non-wires solar alternative; the former is already in place and predates the Smart Energy Plan and the latter is before the Commission as a separate contested case.[2] I have no frame of reference for the "neighborhood solar" other than the Company has put forward that it is willing to put solar on roofs of customers voluntarily and with their consent.[3] I do know that, to date, there has been no appetite for moving forward with solar investments specifically advocated by OPC such as the low-income commercial non-profit solar option I outlined in EW-2019-0002.[4]

Q. What is your response to Mr. Wood highlighting future grid upgrades as a customer-driven focus within Ameren Missouri's Smart Energy Plan?

A. What are the quantified benefits? Where are the cost-benefit ratios and analysis? What are the performance measures? Where is the risk-informed distribution project evaluation or prioritization?

To date, there has not been a single performance measure offered. No reliability metrics, no O&M savings, no demand response savings, nothing. Instead, the Commission was given a filing that contained a list of projects and a seven-page "report" without any historic or accountable metrics.

I have not seen one cost-benefit analysis on any of the projects. I would, for example, be very interested in how Ameren Missouri has determined it is cost-effective to underground over 300 miles of its distribution system after its most recent IRP said:

[2] Interested readers are directed to the rebuttal testimony of Geoff Marke in Case No: EA-2019-0371 for further information.
[3] Ameren Missouri (2019) Neighborhood Solar Program: Growing Solar Power across Missouri. https://www.ameren.com/missouri/business/clean-energy-customer-programs/solar/neighborhood-solar?wt.mc_id=neighborhood-solar-Press-Release
[4] See GM-1 for a copy of the memorandum.

> 22% of the [distribution system] lines are underground which provide a more aesthetically pleasing experience and are less susceptible to weather **but cost significantly more and take longer to fix.**[5] (emphasis added)

Or how 4kV substation replacement programs will deliver positive benefit-cost ratios or why the Plan omits any Conservation Voltage Reduction when Ameren Illinois estimated a 1.5% drop in energy use from their investment.[6]

Q. Could you provide some illustrative examples of metrics you would like to see?

A. Literally anything would be a good start.

Beyond what I referenced already, one illustrative example could be Ameren Missouri's historic and projected (2013 to 2023) distribution rate base dollar per customer amount against the Company's historic and projected energy sales and system peak and how those numbers compare with US IOU averages. These metrics could be cross referenced with SAIDI, SAIFI, and CAIDI scores to show whether previous distribution investments produced meaningful results.

In short, I would want to see some (or any) justification that ratepayers $5 billion + spend on "customer-driven focus" distribution investments will result in customer benefits and not just gold plating a utility's distribution system. Certainly, PISA accounting treatment can produce benefits beyond paperless billing.

The lack of transparent, robust quantitative data is especially disconcerting given the uncertainty surrounding Ameren Missouri's baseload coal plants, which, separate and aside from PISA, may induce billions of dollars in additional investments. Unfortunately, I have little assurance on that issue as well as the Company never modeled such a scenario in its IRP.

[5] EO-2018-0038 Chapter 7 Transmission and Distribution p. 17-19.
[6] See GM-2.

Q. What is your response to Mr. Wood highlighting future AMI investment as a customer-driven focus within Ameren Missouri's Smart Energy Plan?

A. I do not believe it is a foregone conclusion that AMI investment *is* a prudent investment. Based on the evidence in this case, it appears that ratepayers are going to be asked to start paying a return on and of hundreds of millions of dollars in AMI investment starting in the next case with no ability to realize the meaningful benefits for at least five years. This is because of both a staggered deployment and, to date, a nonexistent plan on how to educate customers on TOU rates. In effect, the only benefit that customers appear to be receiving is "the benefit" of being shut off quicker without a door-knock safeguard.

A recent white paper from the American Council for an Energy-Efficient Economy ("ACEEE") titled "Leveraging Advanced Metering Infrastructure To Save Energy" concludes the value-statement for AMI is questionable at best because utilities do not choose to maximize the benefits available from AMI.[7] In 2019, regulators in Virginia rejected Dominion Energy's proposed smart meter rollout, and utility commissions in New Mexico, Massachusetts and Kentucky all rejected utility proposals.[8] Based on those recent results, it would appear unwise to assume that this would be a prudent investment. Ameren Missouri has offered nothing to assuage those concerns. Again, I question the logic of investing hundreds of millions of dollars in AMI when:

- Multiple state Commissions have rejected AMI proposals;
- The Company has provided no demonstrable benefits or agreed-to performance metrics;
- The Company has provided no plan or commitment on how TOU rates will be rolled-out or at what scale; and

[7] York, D. (2020) Smart meters gain popularity, but most utilities don't optimize their potential to save energy.*ACEEE* https://acee.org/blog/2020/01/smart-meters-gain-popularity-most
[8] Walton R. (2020) Most utilities aren't getting full value from smart meters, report warns. *Utilitydive*. https://www.utilitydive.com/news/most-utilities-arent-getting-full-value-from-smart-meters-report-warns/570249/

- The potential for rate-shock inducing costs hover over the future of the Company's coal power plants.

So, yes, I am skeptical of Mr. Wood's customer-driven focus testimony and have legitimate concerns for Ameren Missouri's ratepayers. My hope is that Ameren Missouri will do the proper analysis before making its investments and provide the empirical and objective justifications prior to seeking recovery. It is much more of a challenge for everyone involved and a greater risk to shareholders and ratepayers alike to raise prudency issues on an investment that is operational.

Just because Ameren Missouri was authorized to increase rates by 15% over 5 years doesn't mean that it should.

Keeping Current

Q. What recommendations did you file in direct testimony regarding Keeping Current?

A. I recommend the following:

1.) A 20% budget variance ($141,200) extension be created and applied from the ratepayer-funded portion of the current budget or that any remaining balance be allocated evenly to the remaining participants' last monthly bill; and

2.) Ameren Missouri should be required to contract with a third-party consultant/researcher to provide a report to the Keeping Current collaborative by October 31, 2020, and subsequently filed in Ameren Missouri's next rate case that includes (at a minimum) the following items:

- A literature review of bill assistance best practices across utilities;
- A proposal that includes increasing the annual budget and removing the pilot status;
- An alternative proposal that focuses on specific targeted bill assistance (e.g., former homeless population,[9] electric space-heating, renters, etc.); and

[9] For example, working with the St. Patrick Center in St. Louis https://stpatrickcenter.org/

- A recommendation on how to leverage existing funding mechanisms to maximize program impact moving forward.

Q. What did CCM witness Hutchinson propose for Ameren Missouri's Keeping Current program?

A. Ms. Hutchinson proposes that the Keeping Current and Keeping Cool programs be set at $5 million annually. Ms. Hutchinson further recommends that the costs be allocated among the customer classes based upon a usage allocation (a volumetric basis).

Q. What is your response?

A. I largely agree with everything Ms. Hutchinson says regarding the affordability crisis and energy burden realized by many of Ameren Missouri's customers. Furthermore, I agree with her that the Keeping Current (and Keeping Cool) programs have largely accomplished what they have set out to do on a small-scale. I also support cost recovery allocation from all customer classes.

Q. Do you support a $5 million annual budget for the program?

A. Before I answer that, I do want to highlight Ameren Missouri's recent actions above and beyond what has materialized out of any rate case. In August 2018, Ameren Missouri announced a three-year, $5 million energy assistance program to help limited income customers. $2.5 million was allocated to energy-assistance partners including Heat-Up St. Louis and Heat-Up Missouri and the remaining $2.5 million was administered to community action agencies for weatherization assistance. All of this money was from corporate earnings.[10] In my mind, Ameren Missouri should be commended for their initiative.

In regards to Ms. Hutchinson's recommendation moving forward, I do not object to raising the budget for the Keeping Current program but I do have concerns with raising the budget

[10] Ameren Missouri (2018) Ameren Missouri announces $5 million program for energy assistance to help limited income customers statewide. http://ameren.mediaroom.com/2018-08-30-Ameren-Missouri-announces-5-million-program-for-energy-assistance-to-help-limited-income-customers-statewide

without an action plan as to how exactly we can best spend down that money. That was the intent behind my recommendations in direct testimony.

A $5 million budget is a 276% increase to the current budget ($1,331,000). However, it does not appear as though all of this money would go for bill assistance, as Ms. Hutchison also contemplates funds being allocated to Keeping Current participants for low-income weatherization as well. I support that recommendation as well.

Admittedly, a 276% increase may sound like a lot but context is important. For example, Ameren CEO Warner Baxter's total compensation in 2018 was valued at $8.5 million with additional shares valued at $12.1 million for a total of $20.6 million.[11]

So, the low income bill assistance program for Ameren's most vulnerable, that has not seen an increase in its budget for several years, *is* significantly smaller (or 6.5% of Mr. Baxter's salary) than what Ameren's CEO was awarded in 2018.

Q. What would you recommend?

A. I still maintain my initial recommendations in my direct testimony. I also recommend that the Company increase its contribution to this program. Ameren management and shareholders appears to be doing well and would appear to be in a position to, at a minimum, match what ratepayers are contributing.[12] Finally, I am not opposed to an increase in the overall budget but would want a greater share allocated to low-income weatherization (Keeping Current customers or not).

I support the general spirit of Ms. Hutchinson's recommendation for an increased budget but will defer my specific budgetary recommendations to surrebuttal testimony after I have had an opportunity to review the final copy of the 3rd party evaluation of the Keeping Current program.

[11] Nicklaus, D. (2019) Ameren CEO's pay rises to $8.5 million. *St. Louis Post Dispatch.* https://www.stltoday.com/business/columns/david-nicklaus/ameren-ceo-s-pay-rises-to-million/article_e4b51ecd-4a17-593f-a301-b049988574c6.html

[12] Total budget is currently set at $1,331,000, with $706,000 provided by ratepayers and $625,000 provided by shareholders. An equivalent shareholder match would be an additional $81,000.

Coal Power Plants

Q. What did the Sierra Club file in regards to Ameren Missouri's coal plants?

A. Sierra Club witness Avi Allison provided the following "findings" and recommendations:

Findings:

1. Each of Ameren's Labadie, Rush Island, and Sioux coal units lost more than $20 million relative to the market over the past three years;
2. Ameren's recent and planned coal investment decisions do not sufficiently account for the major environmental compliance costs facing the Rush Island and Labadie plants;
3. Ameren's 2017 Integrated Resource Plan ("IRP") coal unit analyses cannot be relied upon to support continued investment in Ameren's coal units;
4. Ameren's coal commitment practices have led it to incur unnecessary net operational losses on behalf of ratepayers;
5. Ameren consistently offers its coal units into the MISO energy market at prices that are below their variable costs of production;
6. Ameren's current Fuel Adjustment Clause ("FAC") process does not allow for sufficient review of the Company's commitment and dispatch decisions.[13]

Recommendations:

1. The Commission should not allow the recovery of capital costs incurred at the Rush Island, Labadie, or Sioux plants in 2018 or later until Ameren has presented sound analyses that justify those investments in the face of major environmental compliance costs and declining renewable resource costs.
2. The Commission should require Ameren to present rigorous economic assessments of alternative near-term retirement dates for each of the Rush Island, Labadie, and Sioux units by the end of 2020. These forward-looking

[13] ER-2019-0335 Direct Testimony of Avi Allison, p. 3-4

assessments should be presented in a docketed proceeding to enable full Commission oversight and stakeholder review. They should incorporate up-to-date assumptions regarding market prices, resource costs, and environmental compliance costs.

3. The Commission should disallow the recovery of operational costs incurred through the uneconomic commitment and dispatch of Ameren's coal units. I estimate that Ameren incurred at least $861,000 in unnecessary net operational losses in 2018.

4. The Commission should require Ameren to retain the analyses underlying its unit commitment decisions for a period of at least two years. These analyses should clearly specify the costs and revenues that are accounted for within the analyses.

5. The Commission should revise its requirements regarding Ameren's FAC process to enable more thorough and efficient review of the Company's unit commitment and dispatch practices. I recommend that the Commission pursue this goal by providing Staff and other stakeholders with more time to respond to Ameren's FAC adjustment filings and/or setting minimum FAC filing requirements that better enable Staff and stakeholders to review unit commitment and dispatch practices. In addition, I recommend that the Commission structure the FAC process to enable annual, rather than triannual, review of unit commitment and dispatch practices.[14]

Q. Are you going to respond to all of these recommendations?

A. No, OPC witness Lena Mantle will be responding to Mr. Allison's third, fourth and fifth recommendations. I will respond to Mr. Allison's first two recommendation: 1.) to disallow capital costs incurred at the three coal plants in 2018 or later until Ameren can justify those investments; and 2.) to require Ameren Missouri to present a rigorous economic assessment

[14] Ibid, p. 4-5.

of alternative near-term retirement dates for each of the three plants by the end of 2020 in a docketed proceeding before the Commission.

Q. Do you believe that the Commission should disallow capital costs incurred at the three coals plants in 2018 until Ameren Missouri can justify them?

A. I do not know yet, but that is what a rate case can allow. Presumably, Ameren Missouri will file rebuttal testimony in response to Mr. Allison's recommendation that will attempt to justify those investments in light of the factors Mr. Allison raises. For my part, I would like to hear Ameren Missouri's response before I make any formal recommendations on whether or not those investments should be disallowed.

Q. Do you believe that the Commission should require Ameren Missouri to perform a rigorous economic assessment that looks at the feasibility and prudency of an immediate retirement for Labadie, Rush Island and Sioux?

A. Yes. That sounds very similar to the Integrated Resource Planning ("IRP") process.

Q. Would the IRP process be sufficient in your mind?

A. No, I do not think so. I have gradually lost faith in the IRP process over the past two years. I have been an active participate in the IRP filings and each utility has either delayed filings because the results could negatively impact a concurrent filing (See Evergy Metro and Evergy Missouri West MEEIA filings and Empire's Customer Savings Plan) or failed to model seemingly relevant factors (see Ameren Missouri and environmental costs associated with Rush Island and Labadie). The IRP process allows interveners to raise formal concerns or deficiencies; however, all too often the Commission response is for the utility to "do it next time" and often "if the utility wants to." I think there is value in the IRP process but I do not believe it would be sufficient for the magnitude of costs or expediency in timing of Mr. Allison's recommendations here.

Q. What would you recommend?

A. Again, I do not know. I will give Ameren Missouri the opportunity to respond to Mr. Allison before I make any formal recommendations on whether the traditional IRP process, an

investigatory docket, or something else should be opened to examine his recommendations on Labadie, Rush Island and Sioux.

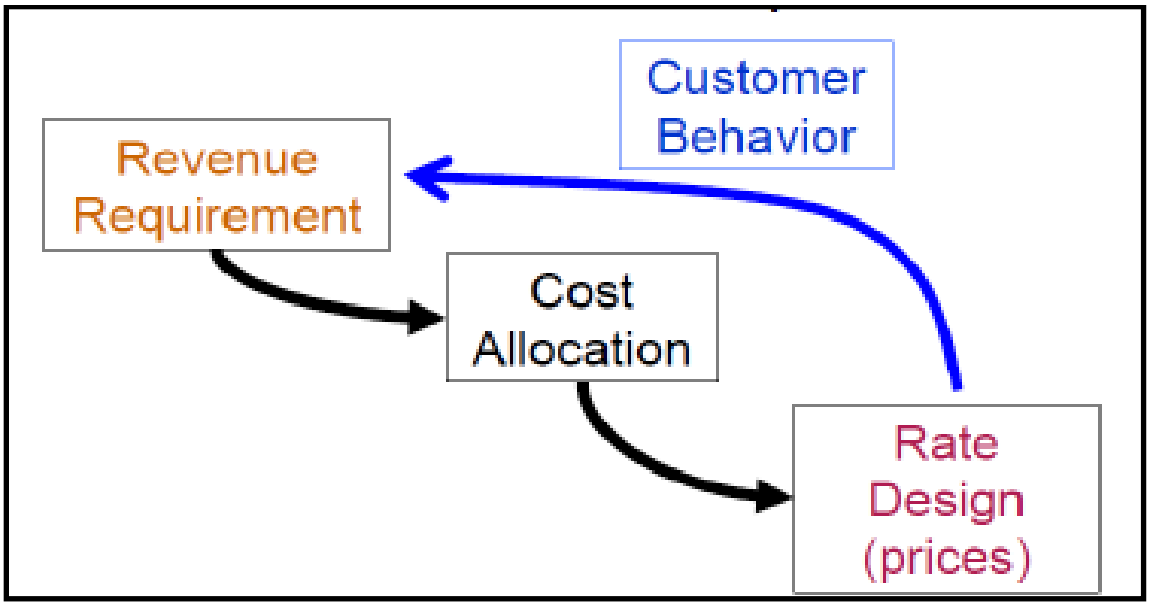
V. RATE DESIGN

Class-Cost-of-Service ("CCOS")

Q. What is a CCOS?

A. It is an analysis that allocates a utility's allowed costs to provide service among its various customer classes. The total cost allocated to a given class represents the costs that class would pay to produce an equal rate of return to other classes. There is no one definitive accepted method. Instead, there are different methodologies (e.g., Average and Peak, Average and Excess, Base-Intermediate-Peak, Capacity-Assigned, etc.) and cost allocation factors that produce different outcomes. If step one in a rate case is determining the revenue requirement then step two is allocating those costs among customer classes. Step three then focuses on designing the rates for appropriate cost recovery. How rates are designed influences future revenue requirements, thus providing a feedback loop on the entire process. Figure 2 provides a simplified, illustrative feedback loop of the rate case process.

Figure 2: The Rate Case Feedback Loop



Q. What were the parties' CCOS positions?

A. Predictably, they all varied.

Q. Did OPC perform a CCOS study?

A. No. There was not enough time or resources available. Additionally, I was less inclined to file a CCOS in a case where it was expected there would be an overall rate reduction.

Q. What CCOS study do you believe the Commission should rely on?

A. I think the Commission should rely on Staff's study. I say "think" because it appears the data underlying Ameren Missouri's load research necessary for the CCOS studies has been called into question.

Q. What do you mean?

A. On page 2 of Staff's CCOS report, footnote 2 states:

> On December 18th Staff became aware that Ameren Missouri was redoing its load research process for approximately half of its test period apparently prompted by Staff DR 517. As indicated on page 49 of Staff CoS Report, Staff was concerned that anomalies existed for certain months of data. The December 18th discussion further undermines Staff's confidence in the reliability of this data. Reliable load research data is integral to a reasonable CCoS.

As it stands, I may have to update my position in surrebuttal.

Q. Putting that aside for the moment, conceptually, which methodology should the Commission rely on?

A. I believe the Commission should endorse Staff's Capacity-Assigned CCOS study. Admittedly, I am still processing the results and rationale, but essentially Staff is arguing that the legacy methods of cost allocation (e.g., those found in the 1992 *Electric Utility Cost Allocation Manual* from the National Association of Regulatory Utility Commissioners ("NARUC")) no longer accurately reflect today's electric utility's cost of service. I agree with that overall sentiment and Staff's arguments are at first-blush, persuasive.

Q. What did Staff conclude?

A. That all classes are contributing revenues in excess of the expenses associated with providing service, and all are contributing to the Company's overall return. Residential, Small General Service ("SGS") and Combined Lighting are each contributing at a greater than 5% positive variance while Large Primary Service ("LPS") is at a greater than 5% negative variance to its cost to serve.

Despite these differences, Staff's primary recommendation is for classes to maintain their relative levels of class revenue responsibility. However, Staff does acknowledge that the Commission may want to more properly align rates in this case and thus provides a secondary recommendation set at an overall revenue decrease of $65 million. Those reductions to applicable levels of class revenue responsibility are as follows:

- $5 million decrease to lighting
- $15 million decrease to SGS
- $45 million decrease to Residential

Q. Did Staff file supplemental direct testimony on this subject?

A. They did. On January 9, 2020, Staff witness Sarah Lange filed supplemental direct testimony to the Staff Report amending Staff's initial position, which was designed to recover more revenues than Staff's auditors intended. However, it is not entirely clear to me from the testimony what Staff's recommended revenue requirement is at this point. Further follow-up with Staff is warranted on my end.

Q. Do you have any recommendations now?

A. I recommend an equivalent percentage reduction in rates for the residential, SGS and lighting classes as recommended by Staff aligned with whatever the final overall revenue decrease is.

It is always more difficult for the Commission to move classes toward cost-based rates when the rate increase is much larger than it is when the rate increase is smaller or where there is actually a rate reduction. For this reason, it would definitely be easier for the Commission

to make a larger movement toward cost-based rates in this case rather than making a smaller movement in this case.

I also think it is important to stress the realities of future PISA cost recovery and the impact that will be borne largely by the residential, SGS and lighting classes. Ameren Missouri has announced distribution investment in excess of $5 billion over the next five years.

Per SB 564 (2018), the large power service class has hard caps on the amount of costs it will be responsible for. If cost recovery exceeds those caps, residential, SGS and lighting will be forced to absorb them.

Keep in mind that residential and SGS customers have already been bearing an inequitable amount of costs through MEEIA surcharges for eight years now. Costs that certain LPS customers can "opt-out" of having to pay. Like MEEIA costs, residential and SGS customers will not be able to opt-out or have a "hard cap" to shield them from the expected costs.

With that in mind and based on Staff's CCOS study I support the recommended percentage decrease to residential, SGS and lighting classes based on the overall agreed-to revenue requirement reduction.

Q. Are you concerned about the data underlying the load shapes as raised by Staff?

A. I am, and will monitor that development accordingly. OPC represents all customer classes and will strive to provide an objective, equitable analysis, as such; I reserve the right to amend my recommendation.

Residential Rate Designs: Inclining Block Rate ("IBR"), EV Charging Rate, Three-Part Residential, & Time-of-Use ("TOU") Rate

Q. Can you provide a brief, general summary of the parties' residential rate design positions?

A. Ameren Missouri had four in-house witnesses (across rate design and the CCOS) file testimony and hired arguably the most prominent TOU proponent (Dr. Faruqui) in the

industry as a fifth witness to collectively propose a couple of pilot rates and oppose inclining block rates. Ameren also argued for a tracker for costs related to its pilots.

DE offered up a future framework to evaluate TOU pilots. DE witness Mr. Hyman also stressed that any TOU should be implemented on an opt-in basis as opposed to mandatory or opt-out basis.

Sierra Club opined against Ameren Missouri's three-part tariff pilot due to concerns surrounding the demand charge.

Staff took the position that Ameren Missouri should begin the process of implementing default company-wide TOU rates. Due to the staggered deployment, Staff argues that shadow billing be introduced.as AMI meters are installed.

Q. What is your response?

A. I actually agree with much of the rate design testimony filed on this subject and will address each proposed rate design in turn.

<u>Inclining Block Rates ("IBR"):</u>

Ameren Missouri witness Steve Wills was the only one to file testimony on the potential for residential IBR. He did not support it and went to great lengths to show how an IBR rate was "equitable."

I have opined on the pros and cons of an IBR design in previous cases.[15] The argument for IBR has primarily centered on the perceived public policy position of encouraging and inducing further reductions in energy and demand. Of course, following through with that design will produce tradeoffs that can, among other things, increase the risk exposure of the utility to cover its costs.

[15] See also EW-2017-0245 and/or GM-3.

Although I disagree with Mr. Wills's analysis, I ultimately agree with his conclusion that a residential IBR is inappropriate to pursue in this case in light of the pending TOU and AMI investments.

Three-part Residential Rate:

I agree with Mr. Allison that the three-part residential rate, as designed, is not an optimal rate and should be dismissed. The focus moving forward should center on end-use rate designs (electric vehicles) and TOU rates.

Electric Vehicle ("EV") Charging rate:

I do not take a strong position one way or the other on this design. In general, I support Ameren Missouri's proposed EV pilot rate design. That being said, I am much more interested in how Ameren Missouri intends to educate customers on this rate as that was the subject of a fair amount of testimony in previous dockets. Mr. Hyman's recommendations regarding TOU pilot frameworks are equally valid and should be supported in this context as well. That being said, I suspect that Ameren Missouri will have trouble attracting customers to this rate if the rate design is for the whole house as Ameren Missouri initially anticipates it being. I would recommend that any education or marketing of this rate should be transparent about usage at the whole house level and how it may not be appropriate for all customers.

Time-of-Use ("TOU") Rates:

On this issue, I support Mr. Hyman's evaluation framework but I support all of Staff's recommendations as it pertains to TOU. Staff made a similar argument in the last KCPL/GMO rate case which I did not fully endorse. The issue never went to an evidentiary hearing as parties stipulated to a long, time-intensive pilot process instead. Based on my experience on the west-side of the state and very real possibility that ratepayers may not realize *any* material benefits from AMI for another five years under the best case scenario, I support Staff's proposal to begin the movement to a default TOU.

I see little reason in moving forward with yet another TOU pilot. There are hundreds of TOU pilot studies publically available that can provide all of the information we would need. Putting off Staff's recommendation and reproducing another study would be an enormous waste. I have little doubt that Dr. Faruqui could verbally confirm this to Ameren management without having ratepayers pay for an additional round of written outside expert witness testimony.

The fact is, I am already skeptical about the value proposition of AMI; however, I struggle to find a scenario where AMI could ever be justified if only 1 to 2% of customers are actually using TOU rates. As it stands, I strongly recommend that Staff's proposal be adopted.

Residential Customer Charge

Q. What is the customer charge?

A. A fixed charge to customers each billing period, typically to cover metering, meter reading and billing costs that do not vary with size or usage. Also known as a basic service charge or standing charge.

Q. What kind of costs should be recovered in the customer charge?

A. To state the obvious, customer-related costs should be recovered in the customer charge. These should be costs sensitive to connecting a customer irrespective of the customer's load (e.g., meter, billing). That is, customer-related costs exist even when kW demand and kWh are zero.

When having one or more customers on the system raises the utility's cost regardless of how much the customer uses (billing is an example) then a fixed charge to reflect that additional fixed cost the customer imposes on the system makes perfect economic sense. Utilities can justify a customer charge recovering these basic costs because they are directly related to the number of customers receiving an essential monopoly service. The idea that each household has to cover its customer-specific fixed cost also has obvious appeal on grounds of equity. This

is contrasted with system-wide "fixed" costs, such as maintaining the distribution network, which do not change if one customer were to drop off the system.

Q. What is the end-result of raising or lowering the customer charge?

A. An increase to the customer charge positively impacts above-average use customers and negatively impacts below-average use customers. On the other hand, a decrease to the customer charge positively impacts below-average use customers and negatively impacts above-average use customers.

Stated differently, "in general," a lower customer charge tends to favor, low-income customers, renters, and customers who have invested in energy efficiency and solar (or plan on investing in those items).[16] In contrast, a higher customer charge favors affluent customers and electric space-heating customers. It also provides greater revenue certainty for the utility.

Q. What do parties propose regarding the residential customer charge?

A. There are three options currently in front of the Commission as seen in Table 1 below:

Table 1: Residential Customer Charge recommendations and percentage change

	Recommended amount	**Percentage increase/decrease from current**
Ameren Missouri	$11.00	+22.22%
Staff[17]	$9.00	No change
Sierra Club	$7.90	-12.22%

[16] I say in general, as there will be affluent customers who have below average use and low-income customers with above-average usage.

[17] It is not entirely clear if Staff supports a $9.00 customer charge or not. The recommended TOU rates were modeled on the customer charge remaining as is. As such, I am interpreting $9.00 to be Staff's position.

Q. How did stakeholders reach such different conclusions?

A. Different methodologies utilized in their CCOS studies produce different results. However, this specific issue comes down to how FERC Accounts 364-368, or the fixed distribution investments, are allocated.

The appropriate allocation of these costs are not a new problem. In his 1961 seminal work, *Principles of Public Utility Rates*, James Bonbright concludes that there is no sound basis for the allocation of these costs as either customer or demand:

> But if the hypothetical costs of a minimum-sized distribution system is properly excluded from the demand-related costs for the reasons just given, while it also denied a place among the customer costs for the reason stated previously, to which cost function does it belong then? **The only defensible answer, in my opinion, is that it belongs to none of them. Instead, it should be recognized as a strictly unallocable portion of total costs**. And this is the disposition that it would probably receive in an estimate of long-run marginal costs. But the fully-distributed cost analyst dare not avail himself of this solution, since he is the prisoner of his own assumption that "the sum of the parts equals the whole." **He is therefore under impelling pressure to "fudge" his cost apportionments by using the category of customer costs as a dumping ground for costs that he cannot plausibly impute to any of his other cost categories** (emphasis added).[18]

Q. Is the allocation process involved in the fixed distribution costs arbitrary?

A. Like Bonbright, I believe so. If the allocation can be dramatically changed by replacing one persuasive allocation criterion by another with no less plausibility, then the process ultimately functions as suggestive "guideposts" for the Commission to consider when setting how revenue will be collected. Economist William J. Baumol concurred:

[18] Bonbright, J., et al. (1988) *Principles of Public Utility Rates* p. 492

> No form of cost allocation can pretend to be compatible, generally, with efficiency in resource allocation, no matter how sophisticated its derivation.[19]

It is also unfair to allocate these cost increases uniformly because any standard of "uniformity" inherently handicaps one class of customers to the benefit of another. As Economist Richard L. Schmalensee notes:

> It is not a matter of improving cost studies or methodologies; costs that do not vary with the volume of service cannot be allocated on a cost-causative basis to individual services. Indeed, any allocation of fixed costs is necessarily arbitrary. . . . Shippers of diamonds, coal and feathers would prefer that the railroad allocate the fixed common costs of the railroad tracks on the basis of volume, value, and weight respectively, but none of these allocators is objectively better than the others. Since these fixed costs do not vary with the volume shipped, there is no objectively 'reasonable share of the joint and common costs of facilities' to allocate, and yet each party has a passionate stake in the outcome of the allocation.[20]

Q. If allocations are in part arbitrary, what should the Commission rely on?

A. I suggest that the Commission be cognizant that reasonable minds can and will differ over the appropriate allocation of the distribution system. Moreover, the Commission is not bound to set the customer charge based solely on the results of any CCOS. Cost studies (both marginal and embedded) rely on a host of simplifying assumptions in order to produce workable results. Since one objective of regulation is to serve as a proxy for competition, to impose upon a single provider the disciplines of competitive markets, it is reasonable to consider the structure of prices in competition when pricing monopoly services. Two relevant facts emerge. The first is that goods and services in competition are invariably available and priced on a unit basis. And

[19] Baumol, W.J. & D. Fischer (1986) Superfairness: Applications and Theory. Cambridge. p. 146
[20] Qtd in (1999) Federal Communications Commission filings found in: http://apps.fcc.gov/ecfs/document/view;jsessionid=yRkfTYLdrdGzpzSNVhHML9FcznF98ppyPfQ1vMgvSky3cDnL14LY!1281169505!1675925370?id=1319580003

the second is that the extent to which more restrictive pricing schemes exist is a measure of the lack of competition in that particular market. In competition, a consumer who does not consume a product or service does not nevertheless pay for the mere ability to consume it. Thus, as a general matter, prices should be structured so that, if a consumer chooses not to purchase a good or service, he or she has no residual obligation to pay for some portion of the costs to provide that good or service. In this sense, from the consumer's perspective, costs should be "avoidable."[21]

Looking at how energy markets operate, it is apparent that the marginal cost of electricity generation goes up at higher-demand times, and all generation gets paid during those high peak prices. That means extra revenue for Ameren Missouri's baseload plants above its marginal costs, and those revenues can go to pay the fixed costs of said plants. The same argument goes for transmission lines, where price differentials between locations means that the transmission line generates revenue above its marginal cost (which is effectively zero), and can go to pay the fixed cost of transmission lines. In fact, the fixed costs of generation and transmission should generally be covered without resorting to increased fixed monthly charges.

Likewise, distribution costs are driven by demand, number of customers, and energy needs. This is true both in the short and long runs. Utilities are continually investing in distribution plants—new facilities, upgrades, and replacements—in response to changes in load, and therefore costs can be avoided. Collecting this revenue through a fixed customer charge suggests that on-peak consumption is less costly than in fact it is.

An efficient price signal recognizes resource allocation is most efficient when all goods and services are priced at marginal cost. For efficient electricity investments to be made, the marginal cost should be based on the appropriate timeframe. Bonbright states:

> I conclude this chapter with the opinion, which would probably represent the majority position among economists, that, as setting a general basis of

[21] Weston F. (2000) Charging for distribution utility services: issues in rate design. The Regulatory Assistance Project.http://www.oca.state.pa.us/cinfo/DistributedResourcesWorkshop/DistributionUtilityIssues/DistributionUtilityRateDesign.pdf

> minimum public utility rates and of rate relationships, the more significant marginal or incremental costs are those of a relatively long-run variety—of a variety which treats even capital costs or "capacity costs" as variable costs.[22]

A fixed charge including long-run marginal costs provides no price signal relevant to resource allocation, since customers cannot reduce consumption enough to avoid the charge. In contrast, an energy charge reflecting long-run marginal costs will encourage customers to consume electricity efficiently and, thereby avoiding inefficient future utility investments.[23]

Q. What is your recommendation?

A. Historically, distribution costs have been recovered through the energy charge in light of economic and public welfare characteristics. More recently, an emphasis on public policy goals focusing on energy efficiency and environmental stewardship have reinforced those decisions. I see very little reason to deviate from that rationale. This is especially true in light of Ameren Missouri's MEEIA Cycle III compensation and reward.

I recommend that the Commission adopt the Sierra Club's recommendation of a 12.22% decrease to the residential customer charge.

Pure Power RECs

Q. What is Ameren Missouri's Pure Power program?

A. Pure Power is a program that provides customers the voluntary option to purchase renewable energy credit ("REC") certificates.

A REC certificate represents positive environmental attributes associated with 1,000 kWh of electricity generated by renewable energy sources such as: solar, wind, hydroelectric, geothermal, landfill gas, biomass, biodiesel used to generate electricity, agricultural crops

[22] Bonbright, J., et al. (1961) *Principles of Public Utility Rates* (New York: Columbia University Press) p. 336
[23] Whited, M. et al. (2016) Caught in a fix Synapse Energy Economics http://www.synapse-energy.com/sites/default/files/Caught-in-a-Fix.pdf

or waste, all animal and organic waste, all energy crops and other renewable resources deemed to be Green-e Certified by the Center for Resource Solution's Green-e Standard.

Interested customers have three payment options, which are added to their monthly bill at one of three possible increments including:

1.) 1.00 cents per metered kWh;

2.) $5.00 per 500 kWh block; or

3.) $10.00 per 1,000 kWh block

Ameren Missouri utilizes a contractual partner, 3 Degrees Inc., to purchase these RECs but the title to the RECs rests with the Company who "retires" the RECs on behalf of the customers who paid for them.

Q. What is Staff proposing to do with the Pure Power tariff?

A. Staff notes that there is currently a discussion on the future status of this program and that the current Pure Power tariff is set to expire on June 30, 2020. Without taking a position as to whether the Pure Power program should be continued or not, Staff filed placeholder testimony to explore a framework to potentially record future Pure Power revenue as an offset to rate base.

Q. What is your response?

A. I do not support the Pure Power Program and do not anticipate recommending that our Office continue its support. Furthermore, I do not see why the issue could not have been addressed in this rate case.

Q. What is your objection to Pure Power?

A. I am at a loss as to why Ameren Missouri wants to continue to support a third-party REC program now that it has started to offer both community solar and Green Tariff options to its customers. The Pure Power program is an inferior and over-priced option for customers who want to support renewable growth.

Customers who want to support *new* renewable energy growth can actually do so directly through the Ameren Missouri's community solar or Green Tariff programs. Customers who

do not want to support actual renewables but rather reward *existing* renewables with a monetary compensation can do so by purchasing the same RECs at one-tenth the cost through the free market today. To be clear, Ameren's Pure Power is not providing a new service. They are merely offering a service that costs more. Ameren Missouri should not get in the way of their own superior "green" customer options.

Q. What is your recommendation regarding Pure Power?

A. I do not support Staff's tentative framework because I do not support Ameren's Pure Power program. The Company should have the good sense to let the tariff expire and direct interested customers to programs that increase renewable generation rather than subsidize existing renewable generation.

It is unlikely that Pure Power will be a contested issue in this rate case as there is already a separate docket (Case No: ET-2020-0042) in place that has "stalled" while this rate case takes precedence. As such, my recommendation is for the Company to withdraw its Pure Power application in ET-2020-0042 and let the program expire on June 30, 2020.

Q. Does this conclude your testimony?

A. Yes.