Exhibit No.:	_______________
Issue(s)	Levelized Cost of Energy/ Wind in the Southwest Power Pool
Witness/Type of Exhibit:	Marke/Rebuttal
Sponsoring Party:	Public Counsel
Case No.:	EA-2019-0010

REBUTTAL TESTIMONY

OF

GEOFF MARKE

Submitted on Behalf of the Office of the Public Counsel

EMPIRE DISTRICT ELECTRIC COMPANY

CASE NO. EA-2019-0010

** **

Denotes Highly Confidential Information that has been Redacted

February 5, 2019

PUBLIC

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of the Application of The Empire District Electric Company for Certificates of Convenience and Necessity Related to Wind Generation Facilities	))))	File No. EA-2019-0010

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 surrebuttal 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 5th day of February 2019.

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.

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REBUTTAL TESTIMONY

OF

GEOFF MARKE

EMPIRE DISTRICT ELECTRIC COMPANY

CASE NO. EA-2019-0010

I. INTRODUCTION

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

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

Q. What are your qualifications and experience?

A. I have been in my present position with OPC since 2014 where I am responsible for economic analysis and policy research in electric, gas and water utility operations.

Q. Have you testified previously before the Missouri Public Service Commission?

A. Yes. A listing of the cases in which I have previously filed testimony and/or comments before the Missouri Public Service Commission ("Commission") is attached as Schedule GM-1.

Q. What is the purpose of your rebuttal testimony?

A. I respond to the Empire District Electric Company's ("Empire" or "Company") request for Certificates of Convenience and Necessity ("CCN") related to the Company's proposed three wind farms (North Fork Ridge, Kings Point and Neosho Ridge also known collectively as the "Customer Savings Plan," "projects" or "wind farms"). I specifically respond to the direct testimonies of Empire witnesses: Todd Mooney, Timothy N. Wilson and Blake A. Mertens.

Q. What is Empire proposing?

A. Empire is seeking Commission CCN for the three wind generation projects that will be constructed in or near Empire's service territory by Tenaska Matrix Holdings, LLC, Steelhead Missouri Matrix Wind Holdings and Neosho Ridge Wind Joint LLC. Empire is not proposing these wind farms to meet the electricity needs of its customers, but, rather, Empire advances them as a means to profit from excess sales in the Southwest Power Pool ("SPP") energy market. In this respect, the wind farms resemble a speculative merchant generation investment, with the notable distinction that under Empire's proposal, its customers bear the risks normally shouldered by a merchant developer and will pay the additional costs for an increased rate base that ensures Empire's shareholders of recovering their investment plus a profit.

Q. What is OPC's position on Empire's proposal?

A. OPC recognizes that wind generation has many benefits in that it helps diversify Missouri's energy generation mix, offers a renewable energy source, and provides economic benefits in the form of property taxes, land lease payments, and jobs for local communities. However, it is important to balance these benefits against the financial risks such large-scale capital intensive projects impose on ratepayers and the local economy if the electricity the wind generates is not needed to serve load, meet capacity reserves or mandated Renewable Energy Standards ("RES"). OPC has significant concerns with Empire's proposal, and believes Empire's modeling is flawed. OPC recommends that the Commission impose hold harmless conditions to ratepayers upon the CCN that provide meaningful customer protections.

OPC concerns are due to evidence indicating Empire's request to add approximately 600 MW of new generation does not meet the following four of the Commission's five Tartan factors:

- There is no need for this additional generation;
- The assumptions surrounding the economic feasibility of the project are flawed;
- The applicant's financial ability to provide the proposed service are still unknown; and
- The public interest is not furthered by forcing Empire's captive ratepayers to finance and bear the risks of a speculative merchant generation investment.

<u>There is no need for this additional generation</u>

Empire has an excessive planning reserve margin of 33.2% as a member of the Southwest Power Pool. This is 21% more than SPP requires Empire to have, even before adding 600 MW of wind. If the requested CCNs in front of the Commission were for an equivalent amount of coal, natural gas, solar or any other generation source, OPC would have these same concerns. Those concerns include Empire's historic sunk generating resource costs, flat load growth, excess capacity margins, the terms surrounding this project that Empire has put forward, the continued uncertainty surrounding the financing of this project, and the expected wind-rich SPP market conditions from which Empire hopes to obtain plentiful revenues from sales from these wind farms. Ratepayers should not be *the* disproportionate risk taker in a three-party financing agreement amongst Algonquin shareholders and some still yet unknown tax equity partner(s). The requested CCN is not necessary to meet Empire's native load, meet statutorily mandated RES, or necessary to provide service at just and reasonable rates.

<u>There is no economically rational thesis to this application</u>

The Company's Generation Fleet Savings Analysis ("GFSA") assumptions made in Empire's initial Customer Savings Plan have not been updated and continue to not accurately reflect SPP's evolving energy market. Empire's argument for its "Customer Savings Plan" is highly speculative and predicated on a static future where ratepayers are forced to "play the market" based on a dated and narrow set of assumptions that do not accurately model the copious amounts of wind which are set to come online.

<u>An essential part of the financial viability to provide the requested service is still no clearer than it was a year ago</u>

There are no tax equity partners to date, and therefore, the terms of the tax equity partnership are unknown and unknowable.

<u>The application is not in the public interest as proposed</u>

Empire's application is a departure from sound regulation and abandons the very principles historically espoused by the Missouri Public Service Commission:

> The Commission's guiding purpose in setting rates is to protect the consumer against the natural monopoly of the public utility, generally the sole provider of a public

> necessity.[1] [T]he dominant thought and purpose of the policy is the protection of the public . . . [and] the protection given the utility is merely incidental."[2,3]

This case is about profit through asymmetric risk transfer and needlessly increasing rate base. That is, spending money we don't have, for capital projects we don't need, under market conditions that are not reasonably supported and if proven to be incorrect will be borne excessively by captive ratepayers who cannot afford that margin of error on a speculative gamble. Simple math suggests that the approximately 150,000 customer accounts in Empire's service territory cannot absorb a billion dollar mistake as well as could an Ameren Missouri-style utility with over 1 million accounts.

Despite these criticisms, OPC believes that Empire could move forward with these projects without any Commission approval or oversight through a non-regulated affiliate. Pursuing these projects through a non-regulated affiliate is the best option to ensure Empire's ratepayers are held harmless. If Algonquin wants to enter the merchant generation business in SPP like it has recently in MISO, it can do so without Empire's ratepayers bearing the risk that the activity is uneconomic.[4] OPC does not believe Empire's regulated services customers should shoulder the risks of Algonquin's decision to enter the merchant generation business.

If the Commission allows Empire to move forward with a Commission-approved CCN, OPC recommends that the Commission require Empire to hold its customers harmless by imposing the condition that Empire make its customers whole through rates for each year during life of the wind farms when the wind farms do not generate net cash through the Holdcos equal to or greater than the cost to the customers. This would include all costs including: the return of and on the capital investment for these wind farms, all operations, maintenance, administrative and general costs allocated to the wind farms.

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[1] *May Dep't Stores Co. v. Union Elec. Light & Power Co*., 107 S.W.2d 41, 48 (Mo. App. 1937)
[2] *St. ex rel. Crown Coach Co. v. Pub. Serv. Comm'n*, 179 S.W. 2d 123, 126 (Mo. App. 1944).
[3] ER-2007-004 Report and Order p. 7.
[4] Renewables Now (2018) Atlantica, Algonquin to co-invest in 200-MW Illinois wind project. Dec. 14. https://renewablesnow.com/news/atlantica-algonquin-to-co-invest-in-200-mw-illinois-wind-project-636766/

In the rest of this testimony I respond to Empire's application, articulate the basis for OPC's position and finally state and explain the consumer protections that the Commission should impose as a condition to any CCN it grants in this case to ensure Empire's "Customer Savings Plan" does not harm it customers.

II. OPC's POSITION ON RENEWABLE GENERATION

Q. Does OPC oppose renewable generation?

A. No. OPC has supported or not opposed solar and wind projects for both Kansas City Power and Light Company ("KCPL"), KCP&L Greater Missouri Operations Company ("GMO") and Union Electric Company d/b/a Ameren Missouri.[5,6,7] OPC has also filed Special Contemporary Topics related to utilities' Integrated Resource Planning ("IRP") with recommendations to specifically explore emerging battery technology.[8] Finally, although not a renewable asset per se, we also continue to be very active in supporting cost-effective demand-side management programs when they create value for all of the utility's ratepayers.[9]

Q. Despite OPC's past support or non-opposition to renewables, how has Empire framed OPC's positon?

A. Less than a year ago, Algonquin Power and Utilities Corporation CEO Ian Robertson fielded an earnings call question from Mark Jarvi a Director from the CIBC World Markets, the investment banking subsidiary of the Canadian Imperial Bank of Commerce, on OPC's objections in the Customer Savings Plan docket. The transcript of that exchange follows:

> **Mark Jarvi**
>
> Okay. Great. And then going back to Empire. The one, maybe the wrong word, but the centering out the Office of the People's [sic] Counsel, **<u>you have a got a few</u>**

[5] ER-2018-0145 (KCPL Green Tariff)
[6] ER-2018-0146 (GMO Green Tariff)
[7] EA-0216-0207 (Ameren Missouri Solar Subscriber) and ET-2018-0063 (Ameren Missouri Green Tariff)
[8] EO-2019-0066 (Empire District Electric Special Contemporary Topics)
[9] EW-2013-0519 (MEEIA State-Wide Advisory Collaborative Workshop Docket)

<u>**different objections whether it's the timing of when the savings come, exposure to merchant pricing. I guess they are concerned around guaranteed returns. Which one do you think is the biggest obstacle for them?**</u>

And views to whether or not there is concessions you guys have to make to what you thought on the current stipulation to get them on board to get this plan moving?

Ian Robertson

Well, the observation I make, Mark, is that one of the interveners who obviously testified in favor of this project was the major customer group. And so I think we presented a pretty cogent argument that there are net customer saving for consumers, right from the get-go. If you want to start kind of parsing what I think are economically suboptimal assumptions into that, you want to start to create an opportunity, say, well maybe it could cost more. I think you can do that.

But if you look at our initial filing and look at all the assumptions that we made behind that, I am not sure I share the perspective that the higher costs are a practical outcome from this. I think it is a reasonable thing.

<u>**And I will just make the observation that this is a difficult emotional transition for a lot of people in the Midwest to transition away from coal to wind. And that's a challenge politically. It's a challenge emotionally. And so I think we are trying to ease that transition for people.**</u>

But I am not sure that we are actually concerned about the approach that OPC is advocating as something that's going to necessitate further, I will use the word, negotiation.[10] (emphasis added)

[10] Algonquin Power and Utilities' (AQN) CEO Ian Robertson on Q1 2018 Results—Earnings Call Transcript. (2018) May 11, *Seeking Alpha*. https://seekingalpha.com/article/4173068-algonquin-power-utilities-aqn-ceo-ian-robertson-q1-2018-results-earnings-call-transcript?part=single

Note that Mr. Robertson did not directly answer Mr. Jarvi's questions. Mr. Robertson did not speak to the timing of the savings assumptions, the risk exposure to merchant generation or expected guaranteed returns. In fact, he did not directly rebut any of the concerns OPC had voiced. Instead, Mr. Robertson provided a false narrative about the emotional transition of the Midwest coping with losing its identification with coal in favor of wind.

To be crystal clear, this isn't about OPC opposing renewable generation. Renewables are coming online with or without this plan. The irony of this catch-22 policy situation should not be lost.[11] This is because Empire's customers already benefit from increased wind additions in SPP without them being Empire-owned, Commission-regulated assets. Empire's customer already benefit from renewable wind generation by lower prices for energy in the SPP wholesale market due to new wind-powered generation. But under the merchant generation gamble, Empire's ratepayers are less likely to realize benefits from Empire's excessive bet if, in fact, a lot of renewables *do* come online, because the abundant cheap supply of wind generated electricity will surpass the flat demand in the SPP and, thus, depress SPP market prices further.

Q. How is this is a "catch-22" situation?

A. To promote wind generation for Empire *and* for the wind generation to be financially successful you have to hope others are not also promoting wind generation.

To fully understand the situation, consider that the Commission stated the following in the Report and Order it issued in Case No. EO-2018-0092:

> "Empire's proposed acquisition of 600 MW of additional wind generation assets is clearly aligned with the public policy of the Commission and this state."[12]

[11] A catch-22 is a paradoxical situation from which an individual cannot escape because of contradictory rules. The term was coined in the Joseph Heller World War II novel, *Catch-22*, a "catch-22" was applied to a war pilot's problematic situation for which the only solution is denied by a circumstance inherent in the problem or by a rule. That is, if one is crazy, one does not have to fly mission; and one must be crazy to fly. But one has to apply to be excused, and applying demonstrates that one is not crazy. As a result, one must continue flying, either not applying to be excused, or applying and being refused.

[12] EO-2018-0092 Report and Order, p. 20.

In fact, Empire's witness Mr. Mertens cites to that passage as essentially the sole reason for why Empire views granting it CCNs for the wind farms is in the "public interest" and how the CCNs fulfill a "need for the service," when service is in fact not needed for native load, reserve capacity requirements, or RES mandates.[13]

There are no doubt, <u>many</u> people who want to promote renewables in Missouri. Further, OPC favors a diversified generating portfolio.[14] Just last year Missouri IOU's have become considerably more creative in their tariff offerings to promote renewables—offerings which OPC support. However, for Empire's specific renewable application "to work" that is, to *both* successfully promote wind generation *and* to cover the costs of the project, Empire's ratepayers and the Commission will have to hope that *only* Missouri, or better yet, *only* Empire will be promoting wind generation. Because if Arkansas, KCPL, the City of Springfield, Missouri Rural Electric Cooperatives, or wind rich utilities situated in Oklahoma or Kansas etc… all bring on more wind generation, then the ability of these projects to realize the espoused benefits (i.e., revenues generated by selling excess wind for large profits) will be impaired, which will increase the likelihood of the much more predictable scenario of needlessly raising rates and hurting the local economy.

Q. Why would an increase in wind generation in SPP diminish Empire's prospects of successfully generating revenues for its ratepayer-funded merchant generation proposal?

A. Because of the law of diminishing returns as intermittent supply begins to exceed flat demand. This problem of diminishing returns is well documented for both wind and solar power generation. Here is how MIT's *Future of Solar* study puts it:

> [A]s a result of basic supply-and-demand dynamics, solar capacity systematically reduces electricity prices during the very hours when solar generators produce the most electricity. **<u>Beyond low levels of penetration, an increasing solar</u>**

[13] EA-2019-0118 Direct Testimony of Blake A. Mertens p. 10, 15-23, p. 11, 1-10.
[14] Of which Empire's represents the most diverse of all of the electric IOUs.

> **<u>contribution results in lower average revenues per kW of installed solar capacity.</u>** For this reason, even if solar generation becomes profitable without subsidies at low levels of penetration, there is a system-dependent threshold of installed PV capacity beyond which adding further solar generators would no longer be profitable.[15] (emphasis added)

The same phenomenon is true for wind.[16] This point cannot be over-emphasized. When considering how an abundant supply suppresses demand, remember that Empire's wind farms are not being proposed to meet the electricity needs of Empire's customers, but rather Empire advances them as a means to profit from sales in the SPP energy market. For ratepayers this is a business proposition whose success is predicated on nobody else (i.e., other market actors) also seeing that same proposition. For shareholders this is a business proposition whose success is predicated on merely getting Commission approval. The fact that not all of the terms of this business proposition are even known yet (i.e., where are the tax equity partners?) only increases the already high risk profile for ratepayers, and makes it more doubtful for success.

Q. How do you respond to the comment that OPC's position is based on some irrational emotional investment in the fossil fuel industry?

A. OPC's vested interests in this case are in making sure Empire's ratepayers are held harmless from unnecessary risks. Just as OPC does not have an emotional investment in the renewable industry, it has no emotional investment in fossil fuels. Virtually no coal is mined in Missouri. As the Missouri Division of Energy routinely notes in filings, we import our coal from Wyoming.[17] If anyone can be accused of somehow being heavily invested in coal it is the previous management in charge of Empire. It was Empire's management alone who decided to invest $112.1 million to extend the useful life of Empire's Asbury coal plant and make it

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[15] MIT Interdisciplinary Studies (2015) Future of Solar. p. 189 https://energy.mit.edu/wp-content/uploads/2015/05/MITEI-The-Future-of-Solar-Energy.pdf
[16] Wiser R. et al. (2017) Impacts of Variable Renewable Energy on Bulk Power System Assets, Pricing, and Costs Berkeley & Argonne National Laboratories.
https://emp.lbl.gov/sites/default/files/lbnl_anl_impacts_of_variable_renewable_energy_final.pdf
[17] See also EA-2019-0021 the Rebuttal Testimony of Martin R. Hyman p. 4, 15 thru p. 5, 5.

more efficient. And it was Liberty utilities alone that assumed that managerial risk as well as the very real possibility of no further, immediate generation investment opportunities into their valuation of its acquisition of Empire when they elected to pay 21% over book value to acquire it.

III. LEVELIZED COST OF ENERGY

Q. Mr. Mooney speaks to the wind farms attractive Levelized Cost of Energy ("LCOE"). What does he mean?

A. The LCOE is a simple metric to capture the cost of energy produced at a supply-side generation source. It attempts to do so not based on short-term costs but on lifetime costs, which is important for providing a fair comparison between different sources of supply. In particular, it provides a better comparison of different sources of supply with different cost structures. For example, a utility-scale solar project will have higher up-front costs but no fuel cost and minimal operating costs while a simple cycle combustion turbine that may be cheaper to build but would have larger operating and fuel costs for the life of asset. The devil is in the details though, as the assumptions surrounding any valuation matter.

Q. If wind has a lower LCOE than another source of energy, does it makes sense to invest in wind?

A. To be clear, the first question an IOU should ask is whether an investment *is* needed to meet its customer's native load or reserve requirements. The answer to both of those questions in this case is "No." But as an exercise let's assume the answer is "Yes." Even then, the LCOE as the foundational metric to inform investment decisions is a very limited tool which can produce misleading results.

Q. What do you mean by "misleading"?

A. If the attributes of all generation sources were homogenous, decision-making by regulators, utilities, and power plant investors would be simple: purchase from or invest in the source with the lowest LCOE. However, power plants have widely varying technical and economic characteristics, and therefore deliver different services, e.g. a natural gas combustion turbine may operate only in the 5% of peak hours in a year, whereas a nuclear plant may operate on a 24x7 basis for the majority of the year. The problem with the LCOE metric is found in its name—the "levelized *cost*…" The cost of the energy, does not necessarily say anything about the *value* of that same energy over the lifetime of the asset. Value depends not solely on the cost of generating energy but the price for which that energy can be sold. According to SPP CEO Nick Brown:

> Wind is currently the least costly fuel source in our region, due in part to production tax credits. Wind is also abundant in our part of the country. The SPP region has been called the "Saudi Arabia of wind." Our footprint boasts nearly 200 windfarms and more than 10,000 turbines whose total output has neared 16,000 MW. SPP holds the record among our North American peers for serving the highest percentage of our load at a given time with wind power: 64 percent in the early morning hours of April 30, 2018.
>
> **You might wonder, given wind's low cost and abundance, why we haven't seen even higher levels. Why can't we meet all of our region's electrical demands with wind?** It's because even with 10,000 turbines capable of producing 16,000 MW, we've seen total wind output for our entire region as low as 147 MW. That's enough to serve just half of one percent of our demand. Likewise, we've had swings in wind output of 3700 MW in one hour, equivalent to about seven large natural gas or coal plants simultaneously ramping up. . . .
>
> Until battery storage is effective and affordable enough to operate at utility-scale, electricity must be generated, distributed and used nearly simultaneously. When the wind stops blowing or the sun goes down, or when unexpectedly rising or dropping temperatures lead to unforeseen electricity use, we can't just let the power to our region lapse. It's not enough to have sufficient wind to serve our load at a given

> moment. We must have other generation ready to replace its loss instantaneously.[18] (emphasis added)

Stated differently, despite what LCOE might lead you to believe, proper valuation and sound investment is not limited to costs alone. LCOE, for example, fails to take into account the time of day during which an asset can produce power, where it can be installed on the grid, its carbon intensity, the associated transmission and distribution upgrades required to make the unit operational, among other variables. Importantly, it also does not take into account the associated resource mix in the area, which will impact the economic viability of a new investment relative to its ability to displace existing resources. When prices vary continuously in increments as small as five minutes, and by location, it's not appropriate to look solely at the LCOE as the north star of supply-side generation metrics—at least not in the merchant generation business where revenue margins are the only thing that matters. Value derives from generating at the times of highest demand when people most need electricity.

Q. **

A.

[18] Brown, N. (2018) How renewable energy, electricity markets and constant change affect our mission to keep the lights on. TB&P. https://talkbusiness.net/2018/10/how-renewable-energy-electricity-markets-and-constant-change-affect-our-mission-to-keep-the-lights-on/

**

Q. Does the new overall project LCOE have any other impact on ratepayers or shareholders?

A. Yes. Accounting for adjustments made in reducing the capacity of the farms from 800 MW to 600 MW, ratepayers will be paying more in shareholder earnings for these wind projects, because operations expenses per MWh are reduced, but capital expenses per MW have increased.

Q. Are there any other cost factors the Commission should consider?

A. Yes, there is no doubt a cost concern surrounding the regulatory and opportunity expense associated with these wind farms. As Commissioner Hall said during the Case No. EO-2018-0092 evidentiary hearing:

> CHAIRMAN HALL: And that actually segues right into my next question. Why isn't this a CCN proceeding? Why wouldn't that have been the most simple way to address this, just file for a CCN, and then we could have made a decisional prudence decision and you guys could be off and running? Why—this seems unduly complicated.[19]

Empire's proposed wind farms are more expensive today than they otherwise should be because of the Empire's hesitation to move forward without "preapproval" or "directional guidance" from the Commission. OPC witness John Robinett explains this point in his rebuttal testimony. And, again, even now, more than one year removed, Empire still has no tax equity partner(s) committed to any of these projects, as construction still waits to begin.

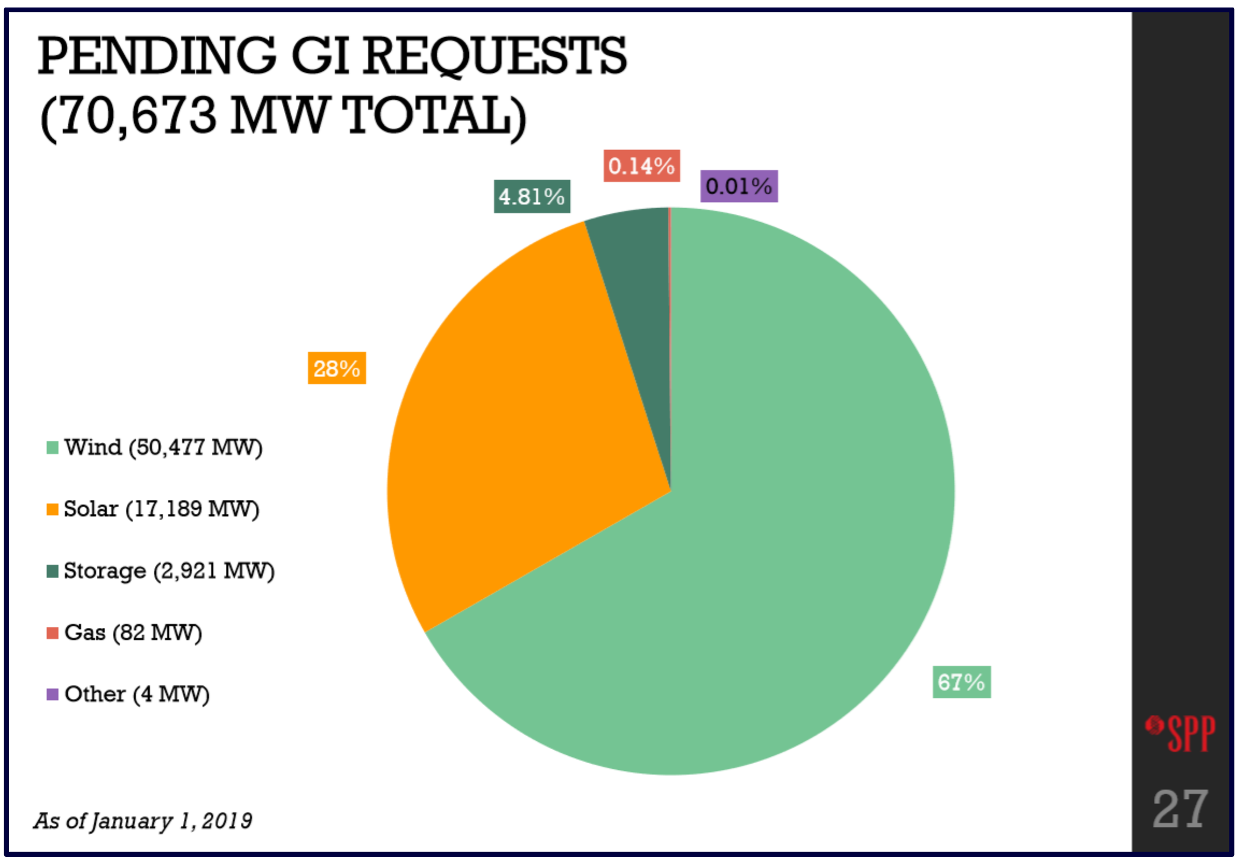
[19] EO-2018-0092, Transcript-Volume 3 (Evidentiary Hearing 5-9-18) p. 61.

IV. WIND IN THE SPP MARKET

Q. How much wind generation is currently installed in SPP's footprint and how much is expected to come on line?

A. According to SPP's, *SPP 101: An Introduction to Southwest Power Pool* uploaded to SPP's website on January 9th, 2019 there are approximately 20 GW of wind online and approximately 10 GW of unbuilt wind with signed interconnection agreements.[20] Moreover, according to that same document there are over 70 GW of pending generation interconnection ("GI") requests, of which 50 GW (or 67%) are for future wind farms as reprinted here in Figure 1.

Figure 1: Pending GI Requests in SPP (January 1, 2019)[21]



[20] SPP Documents and Filings (2019) Fast Facts, Annual Reports & Corporate Metrics, Introduction to SPP Slideshow, https://www.spp.org/spp-documents-filings/?id=18171 January 9

[21] Ibid.

Q. How much wind did Empire model in its "high wind" scenario?

A. The probability-weighted capacity assumed under Empire's high wind or "worst case" scenario accounted for 6.5 GW of additional wind coming online or 3.5 GW less than what has already been sanctioned with interconnection agreements by SPP today.

Q. What does that mean?

A. Given that current wind farm interconnection agreements exceed Empire's "high wind" scenario by 54%, at a minimum, it means that Empire should have updated its sensitivity analysis before moving forward with a billion dollar investment dependent on there actually being a demand rich market into which it will sell its excess wind energy.

Q. Did Empire update its sensitivity analysis to reflect this?

A. No. OPC did attempt to get that answer by OPC DR-2001. That question and Empire's subsequent response are as follows:

> <u>Question:</u>
>
> Please provide the most recent update to Empire's Generation Fleet Analysis that Blake A. Mertens references in his direct testimony at page 4, lines 15-19. If no such update has occurred since Case No. EO-2018-0092, please provide a narrative explanation of why not.
>
> <u>Response:</u>
>
> The most recent modeling by ABB / Charles River Associates related to the GFSA / CSP was completed as part of the settlement negotiations in Docket EO-2018-0092. No update has been performed since then since the ultimately executed contracts LCOE's for the portfolio of wind projects (Kings Point, North Fork Ridge and Neosho Ridge) were at or below the $23.89 contemplated in that docket.
>
> Responsible person(s): Todd Mooney[22]

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[22] See GM-2.

Q. Do you agree with Empire that further sensitivity analysis was not warranted because the LCOE bids came in at or under what Empire initially modeled?

A. No. Again, LCOE focuses on one input, cost, and ignores other pertinent variables that are necessary for the benefits of this merchant generation gamble to materialize in savings for ratepayers.

I think a good rule of thumb is that further sensitivity analysis should always be performed for any speculative investment when any sufficient level of funds are at stake, but especially one that involves investment in excess of a billion dollars.

Consider the example of an entrepreneur investing in a new pizza restaurant. If the entrepreneur only looks at the overhead and supply costs relative to those same costs for a comparable burrito restaurant, he is only capturing part of his risk exposure. If he is ignorant to the fact that the number of available food options has tripled and the number of pizza options has doubled in a city where the number of possible patrons has remained the same, then he will likely struggle to cover his costs no matter the quality of his product. In a rapidly changing market, it does not matter if it was immediately cheaper to build the pizza restaurant versus another type of restaurant.

The difference between the pizza entrepreneur and Empire's investment opportunity is ultimately who bears the risk if it is wrong.

Remember, Empire does not need this wind energy (or any additional energy) to meet its native load. Empire's customers are being asked to finance three wind farms based on the premise that the wind farms will not only pay for themselves but will result in excess revenues which will collectively lower Empire's customers' bills from what they otherwise would be without the wind farms. A low LCOE is good, but it is the *value* of that energy—specifically what price that excessive wind energy can generate in revenues that is the only relevant output which can make this project work. The fact that there are 54% more wind projects with secured generation interconnection agreements from SPP than Empire modeled in its "worst case" scenario suggests that Empire's ability to secure a low LCOE is not particularly unique at the moment, and that its GFSA grossly overstates the benefits and understates the financial liability of investing in these wind farms.

Q. To be clear, Empire's last generation market modeling was conducted over a year ago with even older fuel and market data assumptions?

A. Yes.

Q. And the combined dollar amount of these wind farms approaches $1.1 billion dollars, correct?

A. Yes.

Q. And according to SPP there is more wind, potentially <u>much</u> more wind, coming online than Empire ever contemplated in its modeling?

A. Yes.

Q. And if more wind comes online in SPP than Empire modeled, then Empire's modeled savings begin to erode, or are even eliminated?

A. Yes

Q. Will shareholders be financially harmed if Empire's modeling proves to be incorrect?

A. No.

Q. Will Empire's tax equity partner(s) be financially harmed if Empire's modeling proves to be incorrect?

A. Again, there are no tax equity partners yet, but the testimony put forward demonstrates that the tax equity partners would be made whole and shielded from harm (i.e., "the hedge"). So, no they would not be harmed.

Q. Will Empire's ratepayers be financially harmed if Empire's modeling proves to be incorrect?

A. Most likely. It is Empire's captive ratepaying customers who bear *the* risks in this proposal. If Empire's modeling is overoptimistic, it is they who are exposed to economic harm. Both Empire and its tax equity partners are insulated from economic harm.

Q. Could ratepayers and the Commission have benefitted from more modeling and more recent data to confirm or refute such a large financial risk?

A. Yes.

Q. Is there anything else the Commission should know about the modeling?

A. OPC has taken many issues with Empire's modeling. Rather than rewriting them, I have included my rebuttal, surrebuttal and affidavit from Case Non. Eo-2018-0092 which are found in attached Schedules GM-3, GM-4 and GM-5, respectively, which I hereby adopt as part of my rebuttal testimony in this case, and where I discuss these issues in detail.

Q. Do you have any final comments to make on Empire's decision to not update its models?

A. I think it is clear why Empire elected to not update its models and I fear the negative impact that not updating them will have on ratepayers if the Commission grants Empire the CNNs as it request them these applications.

V. UNCERTAINTY AND COST CONSIDERATIONS

Q. Are utility financial conditions and the macroeconomic environment stable, or are we likely to experience substantial change?

A. Anyone who follows the utility sector is aware that the technology required to provide service is rapidly evolving. Costs are falling for renewables, as well as for natural gas and for coal. Environmental and conservation regulations are in-flux, and the FERC is adapting RTO/ISO market rules for battery storage and the FERC is struggling with how to properly value capacity. Additional uncertainty is present at the distribution level where the smart grid, value-added services, cyber security and equity concerns pose considerable dilemmas for utilities and regulators alike. The very real threat of infusing large capital investments in a path dependent resource comes with considerable risk that those managerial decisions will be incorrect, imprudent and/or needlessly raise rates while tying up capital that could have gone to more beneficial projects.

Additionally, utilities and regulators should be cognizant of risk exposure they place on captive customers. What is the immediate and long-term impact on customers and the local economy if utility managerial decisions induce rate shock? We are now more than ten years removed from the last recession; to suggest that the economy is posed to experience another financial shock is not out of the realm of reason.

Q. Do you believe the next year presents the only near-term opportunity to take advantage of cheap renewable energy because of the expiring production tax credits ("PTCs")?

A. No. The PTCs have clearly done their part in driving down the price of wind generation. The numbers coming out of SPP are a testimony to that. But to suggest that this window of time is the last chance to ever take advantage of federal subsidies or that technological advancements in renewables have somehow hit its peak seems naïve. I think it is more than reasonable to assume a scenario where there is some combination of new federal subsidies, greater technological advancements, and/or continued drop in prices where the costs of a comparable wind farm (or some other technology) is cheaper in six years than it is today.

Those are the risks merchant generators take when they decide to play the market. Creative destruction is such that a new technology, such as cost-efficient storage could erase the expected margins their investment hoped to make. If Empire goes forward with its plan, Empire's ratepayers will have to hope that the market will not be saturated with better, cheaper, more efficient technological advancement over the thirty-year life of these investments. Because, even under Empire's optimistic modeling, financial benefits from these wind farms are not to be realized until well into the future. Given these aforementioned impediments and uncertainties, for ratepayers, it would seem a bad time to depart from traditional cost of service regulation and put their dollars in the merchant generation business.

Q. When was Empire last before this Commission in a general rate case?

A. This Commission last determined Empire's general rates for Empire in September of 2016. From that case, and the ten years preceding it, Empire's ratepayers have experienced a compounded increased in their rates of 62.3% as shown in Table 1.

Table 1: Empire rate case history 2007-2016

Case Number	Dollar Value	Percent Increase
ER-2006-0315	$29,300,000	9.96%
ER-2008-0093	$22,040,395	6.70%
ER-2010-0130	$46,800,000	13.90%
ER-2011-0004	$18,685,000	4.70%
ER-2012-0345	$27,500,000	6.85%
ER-2014-0351	$17,125,000	3.88%
ER-2016-0023	$20,400,000	4.46%
Total Dollars	$181,850,395	
Total Compounded Increase		62.23%

Moving forward, Empire will likely be filing a rate case this year to continue its Fuel Adjustment Clause ("FAC"), and will then have to file a rate case immediately following that the conclusion of that case to capture its wind farm investments if the Commission grants it CCNs for them in this case. **

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Q. Have any large customers left since the Liberty acquisition of Empire?

A. Yes, the cities of Mount Vernon and Monett plan to sever their wholesale power contracts with Empire on June 1, 2020 and join the Missouri Association of Municipal Utilities. The loss of these two customers will free up approximately 77MW of load.[23] Of course, that loss of load further negates the argument for Empire to invest further in excess supply-side resources.

Q. Who are Empire's most economically challenged customers and how do they compare to the rest of Missouri?

A. On a whole, Empire's service territory has a lower median household incomes and higher rates of poverty then the rest of Missouri as seen in Table 2. If a county scores above the Missouri average I italicized the data to emphasize that.

[23] Matyi, B. (2017) Public power cities move forward with new Missouri power pool. https://www.publicpower.org/periodical/article/public-power-cities-move-forward-with-new-missouri-power-pool

Table 2: Empire District Electric Economic Characteristics relative to the rest of Missouri

Area	Median Household Income[24]	Poverty Level[25]	Childhood Poverty Level[26]	No Insurance[27]	Food Insecurity[28]
Missouri	**$51,700**	**14.0%**	**19.2%**	**12.0%**	**16.0%**
Barry	*$38,100*	*21.4%*	*31.3%*	*14.0%*	*18.0%*
Barton	*$40,300*	*16.1%*	*24.4%*	*16.0%*	*15.0%*
Cedar	*$36,000*	*19.8%*	*19.6%*	*14.0%*	*15.0%*
Christian	*$44,200*	10.7%	14.4%	10.0%	11.0%
Dade	*$37,900*	*17.5%*	*28.7%*	*15.0%*	*15.0%*
Dallas	*$36,200*	*18.6%*	*29.3%*	*16.0%*	*17.0%*
Greene	*$42,800*	*16.5%*	18.1%	*16.0%*	*13.0%*
Hickory	*$33,600*	*19.3%*	*33.4%*	*17.0%*	*17.0%*
Jasper	*$44,700*	*17.5%*	*22.2%*	*14.0%*	15.0%
Lawrence	*$41,900*	*14.9%*	*23.3%*	*14.0%*	15.0%
McDonald	*$37,600*	*21.4%*	*32.3%*	*14.0%*	*21.0%*
Newton	*$46,200*	*14.3%*	*21.4%*	*13.0%*	14.0%
Polk	*$44,400*	*14.0%*	*24.8%*	*16.0%*	14.0%
St. Clair	*$35,700*	*20.7%*	*32.7%*	*17.0%*	*17.0%*
Stone	*$43,100*	12.9%	*26.0%*	*15.0%*	*16.0%*
Taney	*$38,300*	*17.0%*	*27.3%*	*17.0%*	*18.0%*

[24] Median Household Income is the income where half of households in a county earn more and half of households earn less. County Health Rankings. Missouri (2016) Median household income http://www.countyhealthrankings.org/app/missouri/2015/measure/factors/63/description

[25] 2018 Missouri Poverty Report (2018) Missouri Community Action Agency http://www.communityaction.org/poverty-reports/

[26] Number of related children under age 18 who live in families with incomes below the U.S. poverty threshold, as defined by the Bureau of the Census. The 2011 poverty threshold was $22,350 for a family of four. For counties with a population of less than 20,000, an estimate based on county-PUMA ratio is reported.Children in poverty in Missouri (2016) Annie E. Casey Foundation https://datacenter.kidscount.org/data/tables/1989-children-in-poverty?loc=27&loct=2#detailed/5/4149-4263/false/870/any/4182,17337

[27] Uninsured is the percentage of the population under age 65 that has no health insurance coverage. County Health Rankings. Missouri (2015) http://www.countyhealthrankings.org/app/missouri/2014/measure/factors/85/data

[28] Food insecurity: Is the percentage of the population who did not have access to a reliable source of food during the past year. This measure was modeled using information from the Community Population Survey, Bureau of Labor Statistics, and American Community Survey. County Health Rankings. Missouri (2015) http://www.countyhealthrankings.org/app/missouri/2018/measure/factors/139/data

VI. HOLD HARMLESS CONDITION

Q. Is OPC making any recommendations that would allow OPC to support CCNs for these wind farms?

A. Yes, if the Commission grants Empire one or more of the CCNs it requests, then OPC recommends that the Commission require Empire to hold its customers harmless by imposing the condition on each CCN that Empire make its customers whole through rates for each year during life of the wind farms when the wind farms do not generate net cash through the Holdcos equal to or greater than the cost to the customers. This includes all costs including, but not limited to, the return of and on the capital investment for these wind farms and all operations and maintenance costs and administrative and general costs allocated to the wind farms. If the Commission grants Empire one or more CCNs in this case, including this condition is imperative to protect customers because the potential risk of the "savings" Empire touts not materializing is so significant, without this condition the harmful impact on customers and Southwest Missouri could be substantial.

Q. Do you have any final comments?

A. Life is filled with risks, and most of them skew to the downside: losing a job or getting hit by a car is much more likely than winning the lottery. As the state agency charged with protecting the interests of captive ratepayers and minimizing their utility-related financial risks, the OPC believes the risk to ratepayers is skewed dangerously towards the downside. The Commission should not lightly depart from traditional cost of service regulation by excessively and needlessly increasing rate base on the shaky premise that in a decade these merchant generation units will produce a windfall of revenue, when overwhelming empirical evidence suggest otherwise. The financial and economic risks in these applications outweigh the probability of the espoused benefits, especially as more clean generation comes online and market prices fall even further.

Q. Does this conclude your testimony?

A. Yes.

CASE PARTICPATION OF
GEOFF MARKE, PH.D.

Company Name	Employed Agency	Case Number	Issues
Empire District Electric Company	Office of Public Counsel (OPC)	EA-2019-0010	**Rebuttal:** Levelized Cost of Energy, Wind in the Southwest Power Pool
Empire District Electric Company /Kansas City Power & Light & KCP&L Greater Missouri Operations Company/Union Electric Company d/b/a Ameren Missouri	OPC	EO-2019-0066 EO-2019-0065 EO-2019-0064 EO-2019-0063	**Memorandum:** Additive Manufacturing and Cement Block Battery Storage (IRP: Special Contemporary Topics)
Rule Making Workshop	OPC	AW-2018-0393	**Memorandum:** Supplemental Response to Staff Questions pertaining to Rules Governing the Use of Customer Information
Union Electric Company d/b/a Ameren Missouri	OPC	ET-2018-0132	**Rebuttal:** Line Extension / Charge Ahead – Business Solutions / Charge Ahead – Electric Vehicle Infrastructure **Supplemental Rebuttal:** EV Adoption Performance Base Metric
Union Electric Company d/b/a Ameren Missouri	OPC	EO-2018-0211	**Rebuttal:** MEEIA Cycle III Application **Surrebuttal:** Cost Effectiveness Tests / Equitable Energy Efficiency Baseline
Union Electric Company d/b/a Ameren Missouri	OPC	EA-2018-0202	**Rebuttal:** Renewable Energy Standard Rate Adjustment Mechanism/Conservation **Surrebuttal:** Endangered and Protected Species
Kansas City Power & Light & KCP&L Greater Missouri Operations Company	OPC	ER-2018-0145 ER-2018-0146	**Direct:** Smart Grid Data Privacy Protections **Rebuttal:** Clean Charge Network / Community Solar / Low Income Community Solar / PAYS/ Weatherization/Economic Relief Pilot Program/Economic Development Rider/Customer Information System and Billing **Rebuttal:** TOU Rates / IBR Rates / Customer Charge / Restoration Charge **Surrebuttal:** KCPL-GMO Consolidation / Demand Response /

			Clean Charge Network / One CIS: Privacy, TOU Rates, Billing & Customer Experience
Union Electric Company d/b/a Ameren Missouri	OPC	ET-2018-0063	**Rebuttal:** Green Tariff
Liberty Utilities	OPC	GR-2018-0013	**Surrebuttal:** Decoupling
Empire District Electric Company	OPC	EO-2018-0092	**Rebuttal:** Overview of proposal/ MO PSC regulatory activity / Federal Regulatory Activity / SPP Activity and Modeling / Ancillary Considerations **Surrebuttal** Response to parties **Affidavit** in opposition to the non-unanimous stipulation and agreement
Great Plains Energy Incorporated, Kansas City Power & Light Company, KCP&L Greater Missouri Operations Company, and Westar Energy, Inc.	OPC	EM-2018-0012	**Rebuttal:** Merger Commitments and Conditions / Outstanding Concerns
Missouri American Water	OPC	WR-2017-0285	**Direct:** Future Test Year/ Cost Allocation Manual and Affiliate Transaction Rules for Large Water Utilities / Lead Line Replacement **Direct:** Rate Design / Cost Allocation of Lead Line Replacement **Rebuttal**: Lead Line Replacement / Future Test Year/ Decoupling / Residential Usage / Public-Private Coordination **Rebuttal**: Rate Design **Surrebuttal**: affiliate Transaction Rules / Decoupling / Inclining Block Rates / Future Test Year / Single Tariff Pricing / Lead Line Replacement
Missouri Gas Energy / Laclede Gas Company	OPC	GR-2017-0216 GR-2017-0215	**Rebuttal:** Decoupling / Rate Design / Customer Confidentiality / Line Extension in Unserved and Underserved Areas / Economic Development Rider & Special Contracts **Surrebuttal:** Pay for Performance / Alagasco & EnergySouth Savings / Decoupling / Rate Design / Energy

			Efficiency / Economic Development Rider: Combined Heat & Power
Indian Hills Utility	OPC	WR-2017-0259	**Direct:** Rate Design
Rule Making	OPC	EW-2018-0078	**Memorandum:** on cogeneration and net metering - Disclaimer Language regarding rooftop solar
Empire District Electric Company	OPC	EO-2018-0048	**Memorandum:** Integrated Resource Planning: Special Contemporary Topics Comments
Kansas City Power & Light	OPC	EO-2018-0046	**Memorandum:** Integrated Resource Planning: Special Contemporary Topics Comments
KCP&L Greater Missouri Operations Company	OPC	EO-2018-0045	**Memorandum:** Integrated Resource Planning: Special Contemporary Topics Comments
Missouri American Water	OPC	WU-2017-0296	**Direct:** Lead line replacement pilot program **Rebuttal:** Lead line replacement pilot program **Surrebuttal:** Lead line replacement pilot program
KCP&L Greater Missouri Operations Company	OPC	EO-2017-0230	**Memorandum** on Integrated Resource Plan, preferred plan update
Working Case: Emerging Issues in Utility Regulation	OPC	EW-2017-0245	**Memorandum** on Emerging Issues in Utility Regulation / **Presentation**: Inclining Block Rate Design Considerations **Presentation**: Missouri Integrated Resource Planning: And the search for the "preferred plan." **Memorandum**: Draft Rule 4 CSR 240-22.055 DER Resource Planning
Rule Making	OPC	EX-2016-0334	**Memorandum** on Missouri Energy Efficiency Investment Act Rule Revisions
Great Plains Energy Incorporated, Kansas City Power & Light Company, KCP&L Greater Missouri Operations Company, and Westar Energy, Inc.	OPC	EE-2017-0113 / EM-2017-0226	**Direct**: Employment within Missouri / Independent Third Party Management Audits / Corporate Social Responsibility

Union Electric Company d/b/a Ameren Missouri	OPC	ET-2016-0246	**Rebuttal**: EV Charging Station Policy **Surrebuttal**: EV Charging Station Policy
Kansas City Power & Light		ER-2016-0156	**Direct:** Consumer Disclaimer **Direct:** Response to Commission Directed Questions **Rebuttal:** Customer Experience / Greenwood Solar Facility / Dues and Donations / Electric Vehicle Charging Stations **Rebuttal:** Class Cost of Service / Rate Design **Surrebuttal:** Clean Charge Network / Economic Relief Pilot Program / EEI Dues / EPRI Dues
Union Electric Company d/b/a Ameren Missouri	OPC	ER-2016-0179	**Direct:** Consumer Disclaimer / Transparent Billing Practices / MEEIA Low-Income Exemption **Direct**: Rate Design **Rebuttal:** Low-Income Programs / Advertising / EEI Dues **Rebuttal:** Grid-Access Charge / Inclining Block Rates /Economic Development Riders
KCP&L Greater Missouri Operations Company	OPC	ER-2016-0156	**Direct:** Consumer Disclaimer **Rebuttal:** Regulatory Policy / Customer Experience / Historical & Projected Customer Usage / Rate Design / Low-Income Programs **Surrebuttal:** Rate Design / MEEIA Annualization / Customer Disclaimer / Greenwood Solar Facility / RESRAM / Low-Income Programs
Empire District Electric Company, Empire District Gas Company, Liberty Utilities (Central) Company, Liberty Sub-Corp.	OPC	EM-2016-0213	**Rebuttal:** Response to Merger Impact **Surrebuttal:** Resource Portfolio / Transition Plan
Working Case: Polices to Improve Electric Regulation	OPC	EW-2016-0313	**Memorandum** on Performance-Based and Formula Rate Design
Working Case: Electric Vehicle Charging Facilities	OPC	EW-2016-0123	**Memorandum** on Policy Considerations of EV stations in rate base
Empire District Electric Company	OPC	ER-2016-0023	**Rebuttal:** Rate Design, Demand-Side Management, Low-Income

			Weatherization **Surrebuttal:** Demand-Side Management, Low-Income Weatherization, Monthly Bill Average
Missouri American Water	OPC	WR-2015-0301	**Direct:** Consolidated Tariff Pricing / Rate Design Study **Rebuttal:** District Consolidation/Rate Design/Residential Usage/Decoupling **Rebuttal**: Demand-Side Management (DSM)/ Supply-Side Management (SSM) **Surrebuttal:** District Consolidation/Decoupling Mechanism/Residential Usage/SSM/DSM/Special Contracts
Working Case: Decoupling Mechanism	OPC	AW-2015-0282	**Memorandum:** Response to Comments
Rule Making	OPC	EW-2015-0105	Missouri Energy Efficiency Investment Act Rule Revisions, Comments
Union Electric Company d/b/a Ameren Missouri	OPC	EO-2015-0084	Triennial Integrated Resource Planning Comments
Union Electric Company d/b/a Ameren Missouri	OPC	EO-2015-0055	**Rebuttal**: Demand-Side Investment Mechanism / MEEIA Cycle II Application **Surrebuttal**: Potential Study / Overearnings / Program Design **Supplemental Direct:** Third-party mediator (Delphi Panel) / Performance Incentive **Supplemental Rebuttal:** Select Differences between Stipulations **Rebuttal:** Pre-Pay Billing
The Empire District Electric Company	OPC	EO-2015-0042	Integrated Resource Planning: Special Contemporary Topics Comments
KCP&L Greater Missouri Operations Company	OPC	EO-2015-0041	Integrated Resource Planning: Special Contemporary Topics Comments
Kansas City Power & Light	OPC	EO-2015-0040	Integrated Resource Planning: Special Contemporary Topics Comments
Union Electric Company d/b/a Ameren Missouri	OPC	EO-2015-0039	Integrated Resource Planning: Special Contemporary Topics Comments
Union Electric Company d/b/a Ameren Missouri	OPC	EO-2015-0029	Ameren MEEIA Cycle I Prudence Review Comments

Kansas City Power & Light	OPC	ER-2014-0370	**Direct** (Revenue Requirement): Solar Rebates **Rebuttal:** Rate Design / Low-Income Weatherization / Solar Rebates **Surrebuttal:** Economic Considerations / Rate Design / Cyber Security Tracker
Rule Making	OPC	EX-2014-0352	**Memorandum** Net Metering and Renewable Energy Standard Rule Revisions,
The Empire District Electric Company	OPC	ER-2014-0351	**Rebuttal:** Rate Design/Energy Efficiency and Low-Income Considerations
Rule Making	OPC	AW-2014-0329	Utility Pay Stations and Loan Companies, Rule Drafting, Comments
Union Electric Company d/b/a Ameren Missouri	OPC	ER-2014-0258	**Direct:** Rate Design/Cost of Service Study/Economic Development Rider **Rebuttal:** Rate Design/ Cost of Service/ Low Income Considerations **Surrebuttal:** Rate Design/ Cost-of-Service/ Economic Development Rider
KCP&L Greater Missouri Operations Company	OPC	EO-2014-0189	**Rebuttal:** Sufficiency of Filing **Surrebuttal:** Sufficiency of Filing
KCP&L Greater Missouri Operations Company	OPC	EO-2014-0151	Renewable Energy Standard Rate Adjustment Mechanism (RESRAM) Comments
Liberty Natural Gas	OPC	GR-2014-0152	**Surrebuttal:** Energy Efficiency
Summit Natural Gas	OPC	GR-2014-0086	**Rebuttal:** Energy Efficiency **Surrebuttal:** Energy Efficiency
Union Electric Company d/b/a Ameren Missouri	OPC	ER-2012-0142	**Direct:** PY2013 EM&V results / Rebound Effect **Rebuttal:** PY2013 EM&V results **Surrebuttal:** PY2013 EM&V results **Direct:** Cycle I Performance Incentive **Rebuttal:** Cycle I Performance Incentive
Kansas City Power & Light	Missouri Public Service Commission Staff	EO-2014-0095	**Rebuttal:** MEEIA Cycle I Application testimony adopted
KCP&L Greater Missouri Operations Company	Missouri Division of Energy (DE)	EO-2014-0065	Integrated Resource Planning: Special Contemporary Topics Comments
Kansas City Power & Light	DE	EO-2014-0064	Integrated Resource Planning: Special Contemporary Topics Comments

The Empire District Electric Company	DE	EO-2014-0063	Integrated Resource Planning: Special Contemporary Topics Comments
Union Electric Company d/b/a Ameren Missouri	DE	EO-2014-0062	Integrated Resource Planning: Special Contemporary Topics Comments
The Empire District Electric Company	DE	EO-2013-0547	Triennial Integrated Resource Planning Comments
Working Case: State-Wide Advisory Collaborative	OPC	EW-2013-0519	**Presentation:** Does Better Information Lead to Better Choices? Evidence from Energy-Efficiency Labels **Presentation:** Customer Education & Demand-Side Management
Independence-Missouri	OPC	Indy Energy Forum 2014	**Presentation:** Energy Efficiency
Independence-Missouri	OPC	Indy Energy Forum2015	**Presentation:** Rate Design
NARUC – 2017 Winter, Washington D.C.	OPC	Committee on Consumer Affairs	**Presentation:** PAYS Tariff On-Bill Financing
NASUCA – 2017 Mid-Year, Denver	OPC	Committee on Water Regulation	**Presentation:** Regulatory Issues Related to Lead-Line Replacement of Water Systems
NASUCA – 2017 Annual Baltimore,	OPC	Committee on Utility Accounting	**Presentation:** Lead Line Replacement Accounting and Cost Allocation
NARUC – 2018 Annual, Orlando	OPC	Committee on Consumer Affairs	**Presentation:** PAYS Tariff On-Bill Financing Opportunities & Challenges

The Empire District Electric Company
Missouri Public Service Commission
Case No. EA-2019-0010
Response to Office of Public Counsel's Data Request 2001-2014

Response provided by:	Todd Mooney
Title:	Vice President, Finance and Administration
Company Response Number:	OPC 2001
Date of Response:	November 20, 2018

Question:

Please provide the most recent update to Empire's Generation Fleet Analysis that Blake A. Mertens references in his direct testimony at page 4, lines 15-19. If no such update has occurred since Case No. EO-2018-0092, please provide a narrative explanation of why not.

Response:

The most recent modeling by ABB / Charles River Associates related to the GFSA / CSP was completed as part of the settlement negotiations in Docket EO-2018-0092. No update has been performed since then since the ultimately executed contracts LCOE's for the portfolio of wind projects (Kings Point, North Fork Ridge and Neosho Ridge) were at or below the $23.89 contemplated in that docket.

Responsible person(s): Todd Mooney

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