

2018 Special Contemporary Issues Ameren Missouri Comments

Introduction and Summary

The Missouri Public Service Commission's (Commission) Chapter 22 rules governing electric utility resource planning include consideration of special contemporary issues {4 CSR 240-22.080(4)} as ordered by the Commission. 4 CSR 240-22.080(4) characterizes special contemporary issues generally as, "evolving regulatory, economic, financial, environmental, energy, technical, or customer issues," that utilities must adequately address in their resource planning. The Commission has provided additional guidance on the assessment of proposed special contemporary issues in its order in File No. EO-2012-0039. The Commission Staff (Staff) and other parties have filed proposed special contemporary issues pursuant to 22.080(4)(A). Ameren Missouri provides these comments pursuant to 22.080(4)(B), which allows the subject utility and other parties to file comments on the proposals of Staff and the other parties no later than October 1, 2018.

In making its decision about what specific issues utilities must address, the Commission must consider the significance and urgency of issues and the time available in which to address them, both individually and in total. As a basic test, such issues must be "special," they must be "contemporary," and they must, in fact, be "issues." This means that the issues must not only meet a threshold of significance in terms of their potential effect on resource decisions, but that the potential effect must also be imminent. The Commission should carefully consider whether inclusion of certain special contemporary issues provides added value or distracts from the analysis of such important emerging issues.

The Company's review of the suggested special contemporary issues proposed by the parties indicates that some of the issues proposed by the parties merit treatment as special contemporary issues by the Commission. For those issues that are determined by the Commission to be special contemporary issues, it is important to define how the Company will address them. Following is a list of the issues suggested by Staff, the Office the of Public Counsel (OPC), the Missouri Department of Economic Development-Division of Energy (DE), the Natural Resources Defense Council (NRDC), and Sierra Club (SC), as well as the Company's recommendation for the Commission's determination as to whether each issue should be treated as a special contemporary issue and how the Company would plan to address those issues determined to be special contemporary issues. Ameren Missouri looks forward to the Commission's decision on this matter.

Issues Proposed by the Parties and the Company's Assessment

Staff Issue A: When complying with 4 CSR 240-22.060(5)(M), include the following as uncertain factors that may be critical to the performance of alternative resource plans:

- (i) Foreseeable demand response technologies, including but not limited to, integrated energy management control systems, linking smart thermostats, lighting controls and other load-control technologies with smart end-use devices;
- (ii) Foreseeable energy storage technologies; and
- (iii) Foreseeable distributed energy resources, including but not limited to, distributed solar generation, distributed wind generation, combined heat and power (CHP), and microgrid formation. Develop and provide a database of information on distributed generation (both utility owned and customer owned) and distributed energy storage (both utility owned and customer owned) for purposes of evaluating current penetration and planning for future increases in the levels of distributed generation and energy storage.

Ameren Missouri's Assessment and Recommendation: The IRP rules require consideration of the effects of improved technologies over the planning horizon – 4 CSR 240-22.050(1)(E). To be clear, consideration of new or developing technologies is best handled as part of identifying and assessing potential resource options, not as an uncertain factor used to evaluate the performance of potential resource options. As part of its past Demand-Side Management (DSM) potential studies, Ameren Missouri considers emerging energy efficiency and demand response technologies. The Company included such an analysis to inform the potential for demand response savings in its 2017 IRP filing. Also included in the 2017 IRP filing are assessments of energy storage technologies and distributed generation technologies. We have included consideration of uncertainty in our evaluation of these technologies to the extent such uncertainty is determined through analysis to be critical to the performance of alternative plans in accordance with the existing IRP rules. Staff has provided no evidence or explanation as to a need to go beyond what is currently analyzed and included in the Company's IRP filings.

Development of a database on distributed energy resources (DER) is not a trivial undertaking and cannot be implemented in just a few months. Additionally, Staff proposed resource planning rules on DERs in File No. EW-2017-0245 that recognize the degree of time and effort needed to develop such a database. Staff's draft proposal included a provision for the kind of database referenced in the above suggestion as well as a provision requiring that the proposed new rules take effect with each utility's next triennial IRP filing. Because the Company's next filing is an annual update and its next

triennial IRP filing is not due until 2020, it is pre-mature to require such an analysis even if the draft proposed rules had already been adopted by the Commission.

Based on the foregoing, this should not be considered a special contemporary issue. If the Commission determines that consideration of emerging technologies should be a special contemporary issue, it should not be pre-determined that such considerations necessarily warrant treatment as uncertain factors, because that determination can and should be made based on the specific assessment of the technologies being considered.

Staff Issue B: When complying with 4 CSR 240-22.060(5)(A), analyze and document the impact of electric vehicle usage for the 20-year planning period upon the low-case, base-case and high-case load forecasts.

Ameren Missouri's Assessment and Recommendation: Ameren Missouri understands the interest in the potential demand implications for electric vehicles, particularly in light of the proposed electric vehicle charging station incentive component of its Charge Ahead program in File No. ET-2018-0132. The Company did include estimates of demand for electric vehicles in its low-case, base-case and high-case load forecasts in its 2017 IRP. Because Ameren Missouri's next IRP filing is an annual update, any consideration of electric vehicles is likely to be more qualitative rather than the kind of comprehensive load forecast analysis required for a triennial IRP. Ameren Missouri agrees to consider as a special contemporary issue the inclusion of a discussion regarding electric vehicles in its IRP annual update.

Staff Issue C: Analyze and document the cost of any transmission grid upgrades or additions needed to address transmission grid reliability, stability, or voltage support impacts that could result from the retirement of any existing coal-fired generating unit in the time period established in the IRP process.

Ameren Missouri's Assessment and Recommendation: Utilities are required to analyze the cost and timing of transmission upgrades to maintain a viable transmission system by 4 CSR 240-22.045(3)(A)1. The Company has analyzed and included costs of transmission grid upgrades or additions needed to address transmission grid reliability, stability, or voltage support impacts that could result from retirement of its existing coal plants as part of its analysis for its 2017 IRP. The Staff has provided no evidence or explanation as to a need to go beyond what is currently required or analyzed in this regard. Therefore, this should not be considered a special contemporary issue.

Staff Issue D: Provide the most recent analysis of the costs and benefits of Ameren Missouri’s system-wide implementation of AMI meters. Provide projected implementation dates and annual budget for AMI implementation and – if Ameren Missouri is performing integrated resource analysis - include the capital and operating cost impacts in the integrated resource analysis. If an analysis of AMI costs and benefits does not exist, please provide a detailed explanation of why it does not exist.

Ameren Missouri’s Assessment and Recommendation: Since SB 564 passed, Ameren Missouri agrees that this could be considered a special contemporary issue.

OPC Issue 1: Additive Manufacturing (“AM” or “3D Printing”)

- 1.) Analyze and document the feasibility and cost saving implications (if any) in adopting AM technology to maintain present-day and future supply-side investments.
- 2.) Analyze and document the feasibility and cost saving implications (if any) in adopting AM technology to maintain present-day and future transmission system investments.
- 3.) Analyze and document the feasibility and cost saving implications (if any) in adopting AM technology to maintain present-day and future distribution system investments.

Ameren Missouri’s Assessment and Recommendation: Ameren Missouri does not believe at this point that 3D printing would have a significant impact on resource planning in the near future. As a result, this should not be considered a special contemporary issue.

OPC Issue 2: Stacking Concrete Blocks w/ Cranes

- 1.) Analyze and document the feasibility and cost saving implications (if any) in utilizing concrete blocks and cranes as a battery storage option for resource needs.
 - a. Given the specific nature of this topic, OPC would not be opposed to a singular response/investigation on this topic from all of the IOUs as opposed to four separate responses.

Ameren Missouri’s Assessment and Recommendation: Ameren Missouri does not believe at this point that concrete block energy storage would have a significant impact on resource planning in the near future. As a result, this should not be considered a special contemporary issue.

DE Issue 1: Evaluate the need to upgrade and enhance the utility’s delivery infrastructure in order to ensure and advance system resiliency, reliability, and sustainability. In this evaluation, describe and document the potential job growth that utility investments in delivery infrastructure could create.

Ameren Missouri's Assessment and Recommendation: This has been included in the 2017 IRP filing and is very unlikely to have near-term implications for resource planning. Moreover, passage of SB 564 addresses the need for such investments in delivery infrastructure; therefore, this should not be considered a special contemporary issue.

DE Issue 2: Describe and document how the utility investments in grid modernization, DSM, and distributed energy resources can improve customer energy service options and substitute for supply-side investments under the utility's contingency plan.

Ameren Missouri's Assessment and Recommendation: Grid modernization, DSM, and distributed energy resources have all been discussed in the 2017 IRP filing. There is nothing that indicates conditions have changed significantly in this regard since then. Therefore, this should not be considered a special contemporary issue.

DE Issue 3: Describe and document how the utility's standby service rates, cogeneration tariffs, and interconnection standards facilitate or impede the development of customer-owned distributed generation resources and microgrids. If the utility's standby service rates impede the development of customer-owned generation and microgrids, address plans the utility has for the review of standby service rates and their revision. Document customer and potential customer inquiries and complaints received by the Company through all forms of customer communication, including but not limited to, call center communications, e-mail, social media and others.

Ameren Missouri's Assessment and Recommendation: As was evidenced by the surge in solar rebates in 2012 and 2013 and the subsequent fall-off in net metering applications when rebates were no longer available, the primary constraint on the development of customer-owned distributed generation resources is economics. The Company's stand-by rates were also addressed in Ameren Missouri's last electric rate case.¹ Finally, the potential for combined heat and power (CHP) has been considered as part of the Company's DSM potential study. As a result, the Company does not believe this rises to the level of a special contemporary issue to be addressed in the 2019 IRP annual update.

DE Issue 4: Describe and document how the utility's investments in grid modernization, DSM, and renewable energy will ensure that the public interest is adequately served and that other

¹ In 2017, the Company, in collaboration with Missouri Division of Energy, developed a new standby service rate rider to replace the existing Supplementary Service rider. This effort was the result of an agreement pursuant to a prior rate case (File No. ER-2016-0179). This Standby Service Rider, like the Supplementary Service Rider it replaced, provides customers with a rate design that will allow them to utilize their own generation to primarily serve their load with Ameren providing the backup service. Ameren currently has no customers on the new Standby Service Rider and one customer on the original supplementary service rate.

policy objectives of the state are met (see 4 CSR 240-22.010). For example, please describe and document the potential for job creation and economic development.

Ameren Missouri's Assessment and Recommendation: As evidenced by DE's citation of the IRP rules, utilities are already required as a basic element of IRP analysis to conduct resource planning that ensures the public interest is met, including the consideration of state policy objectives. This was addressed in the Company's 2017 IRP. Also, the Company has routinely included economic development considerations and job creation estimates as part of its preferred plan selection process. As a result, the Company does not believe this should be considered a special contemporary issue as part of its 2019 IRP Annual Update.

DE Issue 5: Describe and document the benefits and detriments for integrated resource planning to requiring achievement of targets under MEEIA, either based on those targets found in the MEEIA rules or other targets determined feasible by the utility. If the utility chooses to use targets other than those found in the MEEIA rule, state why the utility chose such targets and why those found in the rule are infeasible.

Ameren Missouri's Assessment and Recommendation: Establishment of savings targets is handled through the Commission's process for approving MEEIA programs and cost recovery and incentive mechanisms. The suggested targets in the Commission's MEEIA rules were revisited when those rules were revised, including the question of whether they should be mandatory targets. The Commission concluded that they should remain guidelines rather than mandatory targets. DE cites no change in circumstances that could alter this conclusion. There appears to be no real value in revisiting the issue at this time. As a result, this should not be considered a special contemporary issue.

DE Issue 6: Identify and evaluate the quantifiable non-energy benefits ("NEBs") which could be included in the utility's demand-side management ("DSM") portfolio planning process. This should be done for the purposes of IRP planning under the Commission's recently revised Missouri Energy Efficiency Investment Act ("MEEIA") rules and with reference to either primary or secondary research conducted by the utility. Additionally, evaluate the impact of a NEBs percentage "adder" on the utility's DSM portfolio planning process for the purposes of IRP planning. Discuss the utility's preference for either a study to determine NEBs or the use of a NEBs percentage adder.

Ameren Missouri's Assessment and Recommendation: The Company has been including Non-Energy Benefits as part of its plan selection criteria since its 2011 IRP (economic activity, environmental/emissions impacts, finance issues, risk, etc.). Furthermore, non-energy benefits are currently being discussed in the Company's MEEIA filing and were discussed in the Company's previous MEEIA filing. The use of non-energy benefits as part of the plan selection process in the IRP is more appropriate because those non-energy benefits are applied and assessed to both demand-side and supply-side resources whereas, it seems the Division of Energy is seeking special

attention be given to demand-side resources. Because this issue has been and continues to be addressed extensively in other forums, this should not be considered a special contemporary issue.

DE Issue 7: Describe and document the roles that energy storage, conservation voltage reduction, and customer generation could play in the utility's system planning, particularly with regards to extreme weather situations, DSM, and distributed energy resources.

Ameren Missouri's Assessment and Recommendation: Ameren Missouri has included this analysis in its 2017 IRP filing; therefore, Ameren Missouri does not believe this should be considered a special contemporary issue.

DE Issue 8: Describe, document, and evaluate potential DSM programs which could address the needs of customers that have or might otherwise "opt out" of participation in MEEIA. In this evaluation, describe and document potential participation and savings (both energy and demand), as well as program costs and cost-effectiveness. Additionally, please describe and document the impacts of additional customer "opt-outs" on the MEEIA charges to customer classes and the ability to achieve estimated savings targets.

Ameren Missouri's Assessment and Recommendation: The Company's 2017 IRP explicitly included a range of outcomes associated with opt-out as part of the risk assessment to future DSM potential. Discussion of potential program designs/rules to attract opt-out customers is a topic better suited for the Statewide Energy Efficiency Collaborative than a long-term IRP analysis. If such a discussion were to occur, it should include the voice of opt-out customers (or a designated representative) to gain specific insights into the primary drivers of opt-out. Because the Company has already analyzed the risk to achieving savings targets and short-term program design considerations are outside the scope of the IRP, this should not be considered a special contemporary issue.

DE Issue 9: Evaluate, describe, and document the feasibility, cost-reduction potential, and potential benefits of joint DSM programs, marketing, and outreach with water utilities.

Ameren Missouri's Assessment and Recommendation: Co-delivery of programs was discussed as part of the 2017 IRP and is required by Commission rule. No party suggested the co-delivery discussion was an area of concern or deficiency. While the Company continues to seek co-delivery opportunities with water utilities, there are very few cost effective measures that result in water savings and the avoided cost of water is relatively small compared to other primary benefits. Given the size of the Company's DSM portfolio and relative amount of water saving measures, it is already clear that cost savings from co-delivery with water utilities are minimal and therefore does not warrant further quantitative effort. Instead, the Company will continue its efforts for co-delivery with water utilities; thus eliminating the need for consideration as a special contemporary issue.

DE Issue 10: Evaluate the potential demand and energy load associated with electric vehicles within the utility's service territory, discuss how the preferred plan addresses the additional demand and energy load requirements, and evaluate potential means for shifting the additional demand and energy load to off-peak periods. Describe all current and planned electric vehicle initiatives undertaken by the utility, including how such initiatives have been affected by the Western District Court of Appeals' ruling in WD80911.

Ameren Missouri's Assessment and Recommendation: As with Staff Issue B, the evaluation of different levels of EV penetration have already been evaluated in the Company's 2017 IRP. However, the Company can include a discussion of any further developments regarding EVs and the Company's planned initiatives.

DE Issue 11: Describe and document the utility's current distribution system planning process. Additionally, evaluate the benefits of requiring distribution system planning that facilitates customer usage of distributed energy resources.

Ameren Missouri's Assessment and Recommendation: Ameren Missouri has included its current distribution planning process in its 2017 IRP filing. There is also a Commission case, File No. EW-2017-0245, to look into distributed energy resources and how it can impact distribution planning. Since there are on-going efforts around this issue already, this should not be considered a special contemporary issue.

DE Issue 12: Describe and document the utility's coordination with the State Emergency Management Agency to ensure readiness for physical and cyber security threats.

Ameren Missouri's Assessment and Recommendation: Ameren Missouri recently assisted State Emergency Management Agency (SEMA) in updating their essential functions related to utility and its practices. It is referred to as ESF #12 Energy and it applies to all hazards including physical and cybersecurity threats. Ameren Missouri also filed comments with the PSC regarding its protocols for informing/involving the PSC when physical and/or cyber events occur. The Company also has participated in PSC workshops to discuss physical infrastructure security and cybersecurity, and has provided comments, which include comments on ESF #12 in File No. AW-2015-0206 in July 2017. Ameren Missouri does not believe an IRP filing is the right forum for this discussion; therefore, this should not be considered a special contemporary issue.

DE Issue 13: Describe and document the extent to which federal investment, production, and other tax credits reduce the costs for utility plant.

Ameren Missouri's Assessment and Recommendation: Ameren Missouri routinely includes consideration of various tax and other incentives associated with resource options. These include investment tax credits, production tax credits, and availability of

loan guarantees or other special financing. All such effects on resource costs were considered in the Company's 2017 IRP. Therefore, this should not be considered a special contemporary issue.

DE Issue 14: Describe and document the extent to which each of the utility's generating assets is or is not competitive within the utility's applicable Regional Transmission Organization or Independent System Operator.

Ameren Missouri's Assessment and Recommendation: This is a very broad issue and the evaluation of existing resources has been included in the 2017 IRP filing, including evaluation of plans reflecting early retirements of coal plants. DE has not provided any reason or explanation as to why further analysis is urgently needed; therefore, this should not be considered a special contemporary issue.

DE Issue 15: Describe and document the utility's plans regarding the authorities and requirements contained in Senate Bill 564 (2018), including, but not limited to, the following sections of the legislation:

- a. Section 386.266, RSMo. (Rate Adjustments Outside of General Rate Proceedings, Surveillance Monitoring Report);
- b. Section 393.170, RSMo. (Certificate of Convenience and Necessity);
- c. Sections 393.1400 and 393.1655, RSMo. (Plant-in-Service Accounting, Capital Investment Plan, Rate Base Increase Regulatory Liability and Limitations);
- d. Section 393.1610, RSMo. (Investments in Small Scale and Pilot Projects);
- e. Section 393.1640, RSMo. (Discounted Electric Rates); and,
- f. Section 393.1665, RSMo. (Utility-Owned Solar Facilities).

Ameren Missouri's Assessment and Recommendation: Items "a-e" are rate-making issues rather than resource planning issues; therefore, they should not be considered special contemporary issues. Item "f" might warrant treatment as a special contemporary issue since it might affect resource planning decisions.

DE Issue 16: Describe and document the utility's efforts to address the corporate social responsibility and/or renewable energy purchasing goals of commercial, industrial, institutional, and public sector customers for increased access to renewable energy and distributed generation resources.

Ameren Missouri's Assessment and Recommendation: Ameren Missouri has sought approval for programs that allow customers to source more of their energy needs from renewable resources, including the Company's Renewable Choice Program. The Company continues to look for ways to better meet the desire of its customers for cleaner and more fuel diverse sources of energy. While not necessarily a special contemporary

issue, the Company is happy to summarize its continuing efforts in this regard as part of its IRP annual update.

DE Issue 17: Describe and document the potential impacts of the U.S. District Court of Appeals for the District of Columbia Circuit’s decision in *Utility Solid Waste Activities Group, et al., v. Environmental Protection Agency* (“EPA”) regarding rules pertaining to coal combustion residuals. Additionally, include the utility’s assessment of the potential impacts of this ruling when considered in conjunction with the Federal Water Infrastructure Improvements for the Nation Act and state Senate Bill 659 (2018). In so doing, identify all landfills and ponds currently or previously used by the utility or its predecessors for the disposal of coal combustion residuals and include information such as, but not limited to, disposal site age, usage status, liner type, hazard assessments, and ground and surface water monitoring results.

Ameren Missouri’s Assessment and Recommendation: As part of its on-going resource planning process, Ameren Missouri assesses the need for mitigation for environmental regulation compliance and includes its assessment and any updates to costs of mitigation in the triennial/annual IRP filings. It should also be noted that the CCR rule requires the Company to post compliance information on a publically available website. Ameren Missouri has established pages on Ameren.com to meet that requirement and all of the required information is posted to the website in compliance with the regulation. This should not be considered a special contemporary issue.

DE Issue 18: Describe and document the potential impacts on the utility of the EPA’s proposed Federal Affordable Clean Energy rule, including, but not limited to, the following aspects of the rule:

- a. The use of on-site efficiency upgrades as the best system of emission reduction for reducing carbon dioxide emissions;
- b. Changes to the New Source Review permitting program; and,
- c. Changes to the implementation of Section 111(d) of the Clean Air Act regarding EPA’s emission guideline issuance and state plan development and submission.

Ameren Missouri’s Assessment and Recommendation: As part of its on-going resource planning process, Ameren Missouri assesses the need for mitigation for environmental regulation compliance and includes its assessment and any updates to costs of mitigation in the triennial/annual IRP filings. Ameren Missouri intends to include its analysis and discussion of the Affordable Clean Energy rule in its annual IRP update.

NRDC Issue 1: In addition to the exercise prescribed in 4 CSR 240-22.045, Ameren should analyze integrated distribution planning as a way to manage the distribution grid in a manner that reduces peaks and fills valleys in load profiles and lowers overall system costs with a combination of energy efficiency, demand response, electric vehicles, distributed generation, storage, advanced metering, and pricing strategies such as time-of-use rates (TOU) and inclining block rates (IBR).

Ameren Missouri's Assessment and Recommendation: A comprehensive integrated distribution planning effort as described is not feasible for the next annual update, which is due in March 2019. There is a rule-making docket (File No. EW-2017-0245), which seeks to address the need for integrated distribution planning and the appropriate extent of such efforts. Therefore, this should not be considered a special contemporary issue.

NRDC Issue 2: Analyze and assess the use of mechanisms such as green tariffs and community solar to increase the availability of distributed generation for large and small customers.

Ameren Missouri's Assessment and Recommendation: The Company continues work to implement its Renewable Choice and Community Solar programs. To the extent that the Company has identified additional such mechanisms, they can be included in a discussion in the IRP annual update. Aside from that, we will begin assessing the effectiveness of the two programs being implemented.

NRDC Issue 3: Analyze and document the prospects for using securitization to advance the retirement of coal generation assets and channel the savings into more economical investments such as demand-side management, building wind and solar generation, and satisfying corporate renewable energy goals to attract new business to the service territory. Securitization is essentially a lower cost, long-term loan that ratepayers take out and pledge to repay using a portion of their future electricity bills using a long-term, lower-cost bond that will save customers money, some of which can be used as new capital.

Ameren Missouri's Assessment and Recommendation: While there may not be enough time to fully analyze benefits and issues from securitization, Ameren Missouri can make a qualitative assessment and potential and include in its annual IRP update.

SC Issue 1: Analyze and screen electric vehicle charging infrastructure as a candidate resource option in light of the Court of Appeals Western District's decision in *KCP&L v. PSC*, No. WD80911 (Aug. 7, 2018), that such an investment may be recoverable in rate base.

Ameren Missouri's Assessment and Recommendation: Ameren Missouri is currently seeking approval of tariffs to incentivize the deployment of EV charging infrastructure. SC provides no rationale as to why additional analysis by the Company is necessary. Therefore, this should not be considered a special contemporary issue.

SC Issue 2: Analyze and develop as candidate resource options the satisfaction of municipal and corporate renewable energy goals. The St. Louis Board of Aldermen is formulating a plan to have the City's electricity sector be met entirely by efficiency and renewable resources by 2035. Once enacted by ordinance such a plan will be a legal mandate subject to the planning requirements of 4 CSR 240-22.060(3)(A). Other cities within Ameren's service territory have pledged to meet similar goals. Regardless of whether such goals amount to a legal mandate, they present alternatives that need to be modeled.

Ameren Missouri's Assessment and Recommendation: This is similar to DE Issue 16. Ameren Missouri is happy to discuss current efforts to address customers' energy-related goals in its 2019 IRP annual update.

SC Issue 3: Analyze, document and screen renewable energy + battery storage as an alternative to existing coal-fired generation, comparable to Xcel Energy's proposed Colorado Clean Energy Plan in Colorado PUC Docket No. 16A-0396E.

Ameren Missouri's Assessment and Recommendation: Ameren Missouri evaluated renewable and storage technologies as part of its 2017 IRP. SC provides no evidence to suggest that conditions have materially changed such that the results of the Company's analysis would change. Therefore, this should not be considered a special contemporary issue.

SC Issue 4: Developing and documenting for use in all economic modeling and resource planning low, base, and high projections for natural gas prices, CO₂ prices, and coal prices.

Ameren Missouri's Assessment and Recommendation: Ameren Missouri regularly includes estimates of CO₂ prices for use in its IRP risk analysis and did so in its 2017 IRP. Because relevant conditions have not materially changed since the filing of the 2017 IRP, and SC has not claimed that they have, this should not be considered a special contemporary issue.

SC Issue 5: The prospects for the future price of electricity in the wholesale market, and the impact of any changes in wholesale market prices on Ameren's ability to generate revenue through off-system sales.

Ameren Missouri's Assessment and Recommendation: Ameren Missouri regularly includes multiple scenarios for wholesale electricity prices in its IRP risk analysis and did so in its 2017 IRP. Because relevant conditions have not materially changed since the filing of the 2017 IRP, and SC has not claimed that they have, this should not be considered a special contemporary issue.

SC Issue 6: Analyzing and documenting low, base, and high scenarios of projected off-system sales revenues under a range of assumed natural gas prices, CO₂ prices, and coal prices.

Ameren Missouri's Assessment and Recommendation: Ameren Missouri's IRP analysis assesses off-system sales for every alternative resource plan and for every scenario for gas, coal, and electric power prices and prices for carbon dioxide. SC has not provided any evidence to suggest that conditions have materially changed, and has not even made such a claim. Therefore, this should not be considered a special contemporary issue.

SC Issue 7: Analyzing and documenting the future capital and operating costs faced by each Ameren coal-fired generating unit in order to comply with all existing, pending, or potential environmental standards, including, until they have been finally withdrawn or replaced:

- a. Clean Air Act New Source Review provisions;
- b. 1-hour Sulfur Dioxide National Ambient Air Quality Standard;
- c. National Ambient Air Quality Standards for ozone and fine particulate matter;
- d. Cross-State Air Pollution Rule, in the event that the rule is reinstated;
- e. Clean Air Interstate Rule;
- f. Mercury and Air Toxics Standards;
- g. Clean Water Act Section 316(b) Cooling Water Intake Standards;
- h. Clean Water Act Steam Electric Effluent Limitation Guidelines;
- i. Coal Combustion Waste rules;
- j. Clean Air Act Section 111(d) Greenhouse Gas standards for existing sources;
- k. Clean Air Act Regional Haze requirements.

Ameren Missouri’s Assessment and Recommendation: Ameren Missouri includes a comprehensive assessment of environmental regulations and the probable environmental costs associated with compliance as part of its triennial IRP planning process. To the extent conditions have materially changed with respect to a particular regulation, Ameren Missouri will address such changes as part of its 2019 IRP annual update.

SC Issue 8: Analyzing and documenting the cost of any transmission grid upgrades or additions needed to address transmission grid reliability, stability, or voltage support impacts that could result from the retirement of any existing Ameren coal-fired generating unit.

Ameren Missouri’s Assessment and Recommendation: This is similar to Staff Issue 2. As stated in response to that issue, the Company has already assessed the cost of transmission upgrades associated with all of its coal-fired generators and under multiple alternative resource plans with various retirement dates. Therefore, this should not be considered a special contemporary issue.

SC Issue 9: Analyzing and documenting the criteria by which units are assigned various operational designations (e.g., “must run”) for use in all Company economic modeling and resource planning.

Ameren Missouri’s Assessment and Recommendation: How units are assigned operational designations has been addressed extensively in prior cases. It is not a new consideration, and SC has offered no evidence that conditions have changed materially such that a wholesale reassessment of such designations is warranted. Therefore, this should not be considered a special contemporary issue.

SC Issue 10: Analyzing and documenting on a unit-by-unit basis the net present value revenue requirement of the relative economics of continuing to operate each Ameren coal-fired generating unit versus retiring and replacing each such unit in light of all of the environmental,

capital, fuel, and O&M expenses needed to keep each such unit operating as compared to the cost of other demand side and supply side resources.

Ameren Missouri's Assessment and Recommendation: The Company included extensive analysis of its coal-fired fleet as part of its 2017 IRP analysis, including multiple alternative resource plans reflecting the advancement of retirement for coal-fired units by up to 20 years. SC has provided no evidence that conditions have materially changed since the time of that analysis. Therefore, this should not be considered a special contemporary issue.

SC Issue 11: Analyzing and documenting the technical, maximum achievable, and realistic achievable energy and demand savings from demand side management, and incorporating each level of savings into Ameren resource planning process.

Ameren Missouri's Assessment and Recommendation: Ameren Missouri included multiple alternative resource plans reflecting varying levels and combinations of energy efficiency and demand response in its 2017 IRP analysis. The Company currently has a pending application before the PSC for approval of its third cycle of demand-side programs under MEEIA. SC provides no evidence that conditions have materially changed such that the Company's evaluation of demand-side resources would yield different conclusions. Therefore, this should not be considered a special contemporary issue.

SC Issue 12: Analyzing and documenting the levels of achievable combined heat and power and incorporating such achievable CHP into Ameren's evaluation of demand side management.

Ameren Missouri's Assessment and Recommendation: This is similar to portions of DE issue 3. Based on the Company's response to that issue, this should not be considered a special contemporary issue.

SC Issue 13: Analyzing and documenting cost and performance information sufficient to fairly analyze and compare utility-scale wind and solar resources to other supply-side alternatives.

Ameren Missouri's Assessment and Recommendation: Ameren Missouri agreed to work with parties to evaluate cost and performance assumptions for wind and solar resources to resolve alleged deficiencies in the Company's 2017 IRP. By rule, the Company is required to assess its progress related to resolution of issues in its annual update report. While not a special contemporary issue, the Company will address it in its report.