

11. Stakeholder Process

Highlights

- *Ameren Missouri conducts an inclusive stakeholder process to solicit feedback on its assumptions and analysis methods.*
- *Ameren Missouri hosted a stakeholder meeting in April 2017 to present our key assumptions and solicit stakeholder feedback.*
- *Ameren Missouri has addressed Special Contemporary Issues as ordered by the Missouri Public Service Commission.*
- *Ameren Missouri has incorporated comments received from stakeholders in this IRP filing.*

Ameren Missouri conducts an inclusive stakeholder process to solicit feedback on its assumptions and analysis methods used for integrated resource planning. Our stakeholder group includes representatives of state agencies, consumer advocates and environmental advocates. Our process includes the following key elements:

- A stakeholder workshop to review the assumptions and analytical methods used in the analysis of resource alternatives and selection of our preferred resource plan
- Distribution of drafts of certain chapters of our filing and review and incorporation, as appropriate, of stakeholder comments on those drafts
- Addressing Special Contemporary Issues as part of our analysis as suggested by stakeholders and ordered by the Missouri Public Service Commission (Commission)

This chapter describes how these key elements were satisfied pursuant to the Commission's rules and its order on Special Contemporary Issues.

11.1 Stakeholder Group

Ameren Missouri's stakeholder group includes representatives of the following state agencies and private organizations:

- Commission Staff (Staff)
- Office of Public Counsel (OPC)
- Department of Economic Development – Division of Energy (DE)
- Missouri Industrial Electric Customers (MIEC)
- Missouri Energy Group (MEG)
- Natural Resources Defense Council (NRDC)
- Renew Missouri

11.2 Stakeholder Workshop

On April 19, 2017, Ameren Missouri hosted a stakeholder workshop at its general offices in St. Louis to present key assumptions and analytical methods to be used in our analysis of resource choices and decisions necessary to meet the electric energy needs of our customers in a safe, reliable, environmentally responsible and cost-effective manner. The workshop included discussion of assumptions for:

- Forecasts of customer energy consumption and peak demand, which is discussed in detail in Chapter 3
- Potential, including costs and benefits, for utility programs to help customers use energy more efficiently and defer or reduce the need for new sources of electric generation, which is discussed in detail in Chapter 8
- Options, including costs and operating characteristics, for new generation, which are discussed in detail in Chapter 6
- Delivery infrastructure (transmission and distribution) needs and plans and relationships to meeting customers' needs, which are discussed in detail in Chapter 7
- Options and costs, including the expected need for environmental equipment investments, for the operation of our existing generating portfolio, which are discussed in detail in Chapters 4 and 5

We also presented our alternative resource plans from which we would select a preferred resource plan and the planned assumptions and analytical methods we expected to use to evaluate those alternative resource plans. This discussion covered the following topics:

- Alternative resource plans, which are presented in Chapter 9
- Assumptions for key variables that could affect the performance of alternative resource plans, as discussed in Chapters 2 and 9
- Our approach to sensitivity and risk analysis, as discussed in Chapter 9
- Planning objectives and measures used to guide the development of alternative resource plans, as discussed in Chapter 9, and to select the preferred resource plan, as discussed in Chapter 10

Feedback received at the workshop was noted and considered in our continuing analysis to support our IRP filing.

11.3 Stakeholder Comments on Draft Report

Following the stakeholder workshop in February, Ameren Missouri distributed drafts of certain chapters for its filing to stakeholders for review and comment. The following chapters were distributed:

- Chapter 3 – Load Analysis and Forecasting
- Chapter 4 – Existing Supply Side Resources
- Chapter 5 – Environmental Regulation
- Chapter 6 – New Supply Side Resources
- Chapter 7 – Transmission and Distribution

In addition, Ameren Missouri indicated that its Demand Side Management Market Potential Study (DSM Potential Study), finalized in early 2017, would serve as a proxy for a draft of Chapter 8 – Demand Side Resources. The DSM Potential Study serves as the source of key assumptions for use in the development of demand side resource portfolios for inclusion in alternative resource plans. Ameren Missouri conducts a rigorous stakeholder process to review and test its assumptions for the DSM Potential Study as it is being developed.

Two stakeholder groups provided written comments to Ameren Missouri on its draft report in accordance with the Commission’s IRP rules – Office of Public Counsel and Department of Economic Development – Division of Energy. Their comments and our review of them are discussed in the following sections.

11.3.1 Comments-Department of Economic Development-Division of Energy

The Department of Economic Development–Division of Energy provided written comments on May 15, 2017. Following are the comments and Ameren Missouri’s review of each, as well as an indication of any discussion included in our filing to address each comment.

- A. Does Ameren intend to add ANY new conventional generation (i.e., combustion turbines or nuclear power) in the coming years in response to capacity, cost, or environmental drivers?**

Review and Application – Ameren Missouri's plans for all generation is detailed in the preferred plan identified in the 2017 IRP in chapter 10.

- B. Are the costs of additional conventional generation – or environmental mitigation measures on existing resources – higher than the costs of new non-conventional (e.g., renewables) energy resources (or additional hydroelectric capacity).**

Review and Application – Ameren Missouri has addressed this in section 6.5 of the 2017 IRP and has developed a levelized cost of energy for all resources (Table 6.9) that summarizes these differences.

- C. Can new renewable energy resources provide capacity at needed times, or would backup resources, additional T&D infrastructure, and/or storage be required as well? What are the additional costs of these resources, and how would that additional cost factor into a comparison of the cost of conventional and non-conventional alternatives.**

Review and Application – Ameren Missouri is a member of the MISO market and MISO determines the allowed capacity credit for renewable resources dispatched within its market. The current capacity credit applied to wind resources is 15.6% of rated capacity and 50% for solar resources. All expected costs associated with meeting our customer needs have been included in our evaluation of different potential alternative resource plans. Any unforeseen costs that might develop from the addition of renewable resources will be evaluated when identified by MISO.

- D. Do demand-side resources provide the company with the ability to reduce planned investments in conventional resources and/or make it easier to add new non-conventional resources?**

Review and Application – Ameren Missouri's preferred plan as outlined in Chapter 10 includes the implementation of a demand-side resource program called RAP. The selection of this resource allows Ameren to defer the addition of new generation resources as referenced in chapter 9.

E. Has Ameren sought additional cost-related information about solar or wind since these chapters were drafted?

Review and Application – Ameren Missouri is always monitoring the cost of renewable resources like solar and wind. The requirement to comply with Missouri's Renewable Energy Standard necessitates this ongoing effort.

F. Is the lack of a market for demand response resources in MISO (or the inability to modify coincident peak demand in MISO through voltage reduction) the only impediment to implementing voltage reduction measures?

Review and Application – Ameren Missouri does have a voltage reduction program as outlined in section 7.2.4 but because this operational tool is not identified as a capacity resource the IRP does not consider it for resource planning purposes.

G. What DG solar projects are under consideration by Ameren?

Review and Application – Ameren Missouri identifies this issue in Chapter 6 and currently has solar subscription and solar partnership programs to help promote development of distributed solar generation as also mentioned in Chapter 8.

H. What developments related to microgrids are being monitored by Ameren?

Review and Application – Ameren Missouri is actively exploring opportunities to establish microgrid pilot project(s) with a customer(s) that would include various types of DER, energy storage and load management. Additionally, Ameren Missouri is following three Ameren Illinois pilot projects focused on monitoring, command, aggregation, optimization and dispatch of distributed loads and energy storage. The current phase of work on these AIC facilities is Building Automation Systems (BAS) and include;

- East St. Louis Operating Center
- Jasper St. Operating Center
- Metro-East Training Centers

I. Has Ameren drafted the section on AMR vs AMI at this time?

Review and Application – Ameren Missouri has included this section in Chapter 7.

11.3.2 Comments-Office of Public Counsel

The Office of Public Counsel provided written comments on May 25, 2017. The following are the comments provided and Ameren Missouri's review of each, as well as an indication of any discussion included in our filing to address each comment.

A. Is Ameren expecting any additional AQCS or environmental upgrades to be needed for existing coal units (excluding Meramec)?

Review and Application – Ameren Missouri has identified environmental investments to be made in existing coal units in Chapter 5 of the 2017 IRP.

B. Does Ameren have CT's listed as black start units or are they relying on hydro as black start capable?

Review and Application – Ameren Missouri has no black start CTs.

C. How does Ameren plan to replace capacity of the CT's projected to be retired in 2022 and 2023?

Review and Application – Ameren Missouri has identified its preferred plan for the 2017 IRP, which outlines how capacity obligations, including the retirement of CTs, will be satisfied.

D. Please provide a copy (or web link) of the referenced 2014 Black and Veatch report on life expectancy of coal fired plants

a. Did Ameren rely on similar existing reports for CT's? If yes, please provide the reference.

Review and Application – Ameren Missouri has included the 2014 Black & Veatch Report in the work papers for the 2017 IRP. There is no similar report for CTs.

E. Has the activated carbon injection technology caused any additional maintenance or other reliability concerns?

Review and Application – The new ACI systems that Ameren Missouri has installed are relatively simple systems but do require some routine maintenance activities like cleaning, filter replacements, blower maintenance and valve replacements. These systems are fairly new and reliability concerns are minimal although some increased maintenance would be expected as they age.

F. Please provide the timing of projected waste water treatment and ash handling systems and associated dollar estimates.

Review and Application – Ameren Missouri has identified all environmental investments to be made in existing coal units in Chapter 5 of the 2017 IRP.

G. Were resources outside of MISO studied as options?

Review and Application – Ameren Missouri has only considered generic resources inside MISO given our membership and participation in the MISO market. This does not preclude the consideration of potential resource opportunities outside MISO as part of implementation.

H. Please modify the IRP analysis to include consideration of the small modular nuclear reactors and processed solid biomass engineered fiber fuel as articulated in the Company's sponsored SB 302 amendments introduced in the most recent legislative session.

Review and Application – Ameren Missouri was not a sponsor of SB 302 and has chosen to screen out SMR technology due to the early untested stages of development and focus on the more mature AP1000 technology. Biomass was considered in the 2017 IRP; however, that technology was screened out due to costs. Consideration of both technologies is discussed in Chapter 6.

11.4 Special Contemporary Issues

Pursuant to its rules on Integrated Resource Planning, the Commission on October 26, 2016, issued an order establishing Special Contemporary Resource Planning Issues (Special Contemporary Issues) for Ameren Missouri to analyze and document as part of its 2017 triennial IRP filing. Following is a restatement of the Special Contemporary Issues included in the Commission's order and a brief discussion of Ameren Missouri's approach to analyzing and documenting its consideration of each issue and where in its triennial filing more detailed information can be found.

A. Include the following as uncertain factors that may be critical to the performance of alternative resource plans in accordance with 4 CSR 240-22.060(5)(M)

- 1) Foreseeable emerging energy efficiency technologies;***
- 2) Foreseeable energy storage technologies; and***
- 3) Foreseeable distributed generation, including but not limited to distributed solar generation, combined heat and power (CHP), and micro grid formation***

Ameren Missouri's Approach – Ameren Missouri has addressed these issues in Chapter 7 and Chapter 8.

- B. Document Ameren Missouri's most recent economic analysis for its system-wide implementation of AMI meters. Provide projected implementation dates and annual budget for AMI implementation and include the capital and operating cost impacts in the integrated resource analysis.**

Ameren Missouri's Approach – Ameren Missouri has addressed these issues in section 7.2.8.

- C. Analyze and document the future capital and operating costs faced by each Ameren Missouri coal-fired generating unit in order to comply with the following environmental standards:**

- (1) Clean Air Act New Source Review provisions;**
- (2) 1-hour Sulfur Dioxide National Ambient Air Quality Standard;**
- (3) National Ambient Air Quality Standards for ozone and fine particulate matter;**
- (4) Cross-State Air Pollution Rule, in the event that the rule is reinstated;**
- (5) Mercury and Air Toxics Standards;**
- (6) Clean Water Act Section 316(b) Cooling Water Intake Standards;**
- (7) Clean Water Act Steam Electric Effluent Limitation Guidelines;**
- (8) Coal Combustion Waste rules;**
- (9) Clean Air Act Section 111(d) Greenhouse Gas standards for existing sources;**
- (10) Clean Air Act Regional Haze requirements; and**
- (11) Clean Power Plan.**

Ameren Missouri's Approach – Ameren Missouri has addressed these environmental issues and investments in Chapter 5.

- D. 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 Ameren Missouri coal-fired generating unit in the time period established in the IRP process.**

Ameren Missouri's Approach – Ameren Missouri has included these upgrade issues in section 7.1.5

- E. Develop and analyze at least one alternative resource plan which accelerates the retirement of the Meramec generating plant and, if necessary, additional older generating units such that Ameren Missouri's capacity position after meeting all MISO reserve requirements is less than 10% in each year of the 20-year planning horizon.***

Ameren Missouri's Approach – In the development of Ameren Missouri's alternative resource plans as identified in Chapter 9, the early retirement of both Meramec Energy Center and Labadie Energy Center are evaluated.

- F. Analyze and document the impact of electric vehicle usage for the 20-year planning period upon the high-case load forecasts when complying with 4 CSR 240-22.060(5)(A).***

Ameren Missouri's Approach – Ameren Missouri has included impacts for electric vehicle usage in each of its three load forecast scenarios – base, high and low – as discussed in Chapter 3.

- G. Review the options available to Ameren Missouri for providing customer financing for energy efficiency measures. Discuss Ameren Missouri's current, near term (next three years) and long-term activities and plans for providing customer financing for energy efficiency measures.***

Ameren Missouri's Approach – Ameren Missouri has addressed this issue in Chapter 8.

- H. Describe and document how the preferred plan of the Company's Integrated Resource Plans (IRPs) positions the utility for full or partial compliance with the U.S. Environmental Protection Agency's (EPA) Clean Power Plan (CPP) under Section 111(d) of the Clean Air Act, as released in final form on August 3, 2015, assuming that the rule is upheld by the courts in its current form, except as compliance timelines may need to be modified as a result of the delay in implementation resulting from the U.S. Supreme Court's stay. Please include in this regard:***

- (1) Qualitative and quantitative evaluations of how renewable energy, energy efficiency and other demand-side resources (including combined heat and power) deployed by the Company after January 1, 2013 could contribute to compliance;***
- (2) Qualitative and quantitative evaluations of how renewable energy, energy efficiency and other demand-side resources (including combined heat and power) deployed by the Company after the submission of a final***

State Implementation Plan could qualify under EPA’s proposed Clean Energy Investment Program (CEIP);

(3) A description and quantification of additional investments (in fiscal, capacity, and energy terms by year) which will be required by the Company to meet the targets in the CPP under a trading-ready “mass-based” approach, with and without participation in the CEIP;

(4) Qualitative and quantitative descriptions of the barriers to achieving these additional investments;

(5) The price of carbon used by the Company in the analyses above and a justification for this price;

(6) A description and explanation of the Company’s preferences regarding specific compliance options under a state implementation plan; and

(7) A description of all meetings, analyses, or other efforts made towards preparation for compliance with the CPP (and CEIP, as applicable).

To the extent that any uncertainty is involved in determining compliance pathways under the CPP (and CEIP, as applicable) based on the scenarios provided above, please describe and document the Company’s choices under the most probable compliance scenarios, with an explanation of why the Company believes these scenarios are the most probable.

Ameren Missouri’s Approach – Ameren Missouri has analyzed the performance of its preferred resource plan under the requirements of the CPP using a mass-based approach as part of its contingency analysis discussed in Chapter 10. The Company previously addressed parts 1-6 in its 2016 IRP Annual Update. As a result of the stay of the CPP issued by the U.S. Supreme Court in early 2016 and the subsequent suspension by the Missouri Department of Natural Resources of activities to comply with the CPP, Ameren Missouri’s ongoing consideration of the CPP has been limited. This includes continued tracking of legal issues and court actions, providing comments to the EPA on the CEIP, reviewing studies of CPP compliance by MISO and other organizations, and reviewing alternative allowance allocation methods. Ameren Missouri believes, based on media reports, that it is likely that EPA will initiate rulemakings to both repeal and replace the CPP with substitute regulations.

Because of the limited nature of ongoing consideration of the CPP, by both state agencies and owners of affected sources, we have not undertaken substantive further consideration of the issues listed in parts 1-4 and part 6. Our consideration of carbon prices is addressed in Chapter 2, which describes the inclusion of a carbon price in a majority of the scenarios used for our risk analysis described in Chapter 9.

With respect to part 7, because activities to implement the rule have been suspended since the issuance of the stay, and because numerous issues regarding Missouri's plans for implementation of the rule remained unanswered, Ameren Missouri has not made preparations for compliance beyond the limited activities mentioned above, which have been focused on understanding the rule and its provisions rather than on actual compliance. As a result of the contingency analysis described in Chapter 10, and because we are committing to significant voluntary reductions in CO₂ emissions as part of our preferred plan, Ameren Missouri believes it will have been able to comply with CPP targets had that regulation been implemented. Until such time as EPA issues a replacement rule regulating carbon emissions from EGUs, Ameren Missouri is unable to evaluate specific compliance mechanisms.

I. 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 Approach – Ameren Missouri has addressed this issue in Chapter 8.

J. Describe, document, and evaluate potential DSM programs which could address the needs of customers that might otherwise "opt out" of participation in MEEIA.

Ameren Missouri's Approach – Ameren Missouri has addressed this issue in Chapter 8.

K. Evaluate the potential demand and energy load associated with electric vehicles within the Company's Missouri 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 Company.

Ameren Missouri's Approach – Ameren Missouri has addressed this issue in Chapter 3.

- L. Describe and document the roles which energy storage and conservation voltage reductions could play in the Company's system planning, particularly with regards to DSM and distributed energy resources.***

Ameren Missouri's Approach – Ameren Missouri has addressed energy storage in Chapter 6 and Chapter 7, and conservation voltage reduction in Chapter 7 and Chapter 8.

- M. Evaluate the need to upgrade and enhance the utility's delivery infrastructure in order to ensure and advance system resiliency, reliability and sustainability.***

Ameren Missouri's Approach – Ameren Missouri has addressed this issue in Chapter 7.

- N. Separately describe and document how the utility's investments in grid modernization, DSM (as evaluated in the current or most recent IRP) and renewable energy will ensure that the public interest is adequately served and that other policy objectives of the state are met (see 4 CSR 240-22.010).***

Ameren Missouri's Approach – Ameren Missouri has addressed grid modernization in Chapter 7, DSM in Chapters 8 and 10, and renewables in Chapters 9 and 10. Chapter 10 in particular discusses our approach to satisfying the primary objective of resource planning, including consistency with state policy objectives.

- O. Describe and document how the utility's standby rates, cogeneration tariffs, and interconnection standards facilitate the development of customer-owned distributed generation resources and microgrids.***

Ameren Missouri's Approach – This issue has been addressed in Chapter 8.

- P. Study feasibility of providing all customers with interval meter data. Review the options available to provide customers with real-time, building level data, sub-meter, line and device level data.***

Ameren Missouri's Approach – Ameren Missouri has addressed this issue in Chapter 7.

- Q. Review plans to make Time of Use rates available to all customers.***

Ameren Missouri's Approach – Ameren Missouri has addressed this issue in Chapter 8.

R. Discuss plans to increase deployment of distributed generation resources, including, but not limited to, net metering limitations, interconnection procedures, and billing practices for solar customers.

Ameren Missouri's Approach – This issue has been addressed in Chapter 8.

11.5 Post-Filing Activities

To assist stakeholders in the review of Ameren Missouri's IRP filing, Ameren Missouri plans to host a workshop in the fourth quarter of 2017 to provide an overview of the filing and to answer questions stakeholders may have after having had time to begin reviewing the filing. Ameren Missouri will work with stakeholders to ensure understanding of the assumptions, analyses, conclusions and decisions presented in its IRP filing.