Response to Comments of Parties

Ameren Missouri – 2011 Integrated Resource Plan

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1.0 Introduction and Background

Procedural History

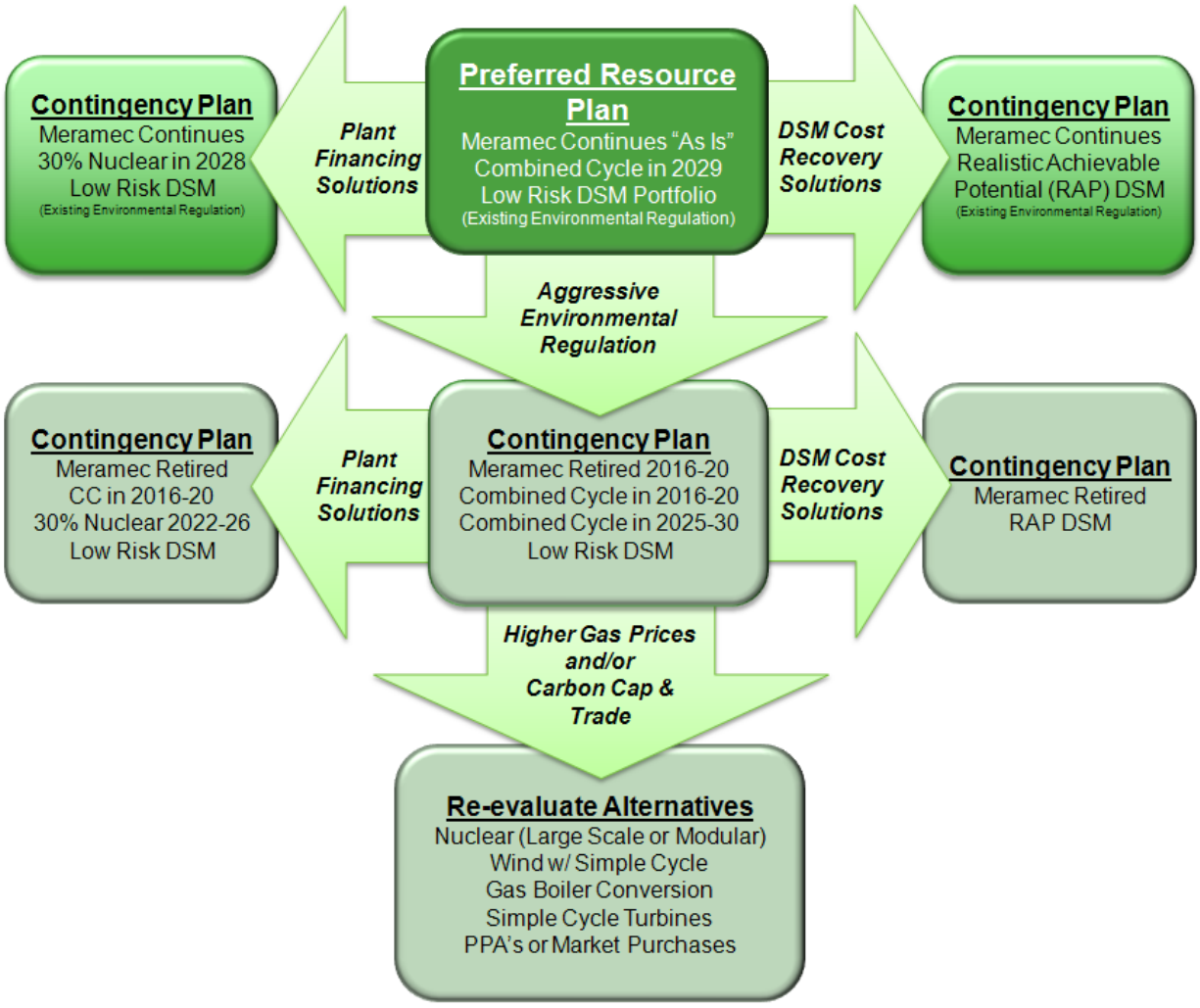
Ameren Missouri filed its Integrated Resource Plan (IRP) in this case (EO-2011-0271) pursuant to 4 CSR 240-22.080(1) on February 23, 2011. The filing represents the culmination of more than 18 months of analysis and presents the Company's resource acquisition strategy as of the time of the IRP filing for the years 2011-2030. In developing the IRP filing, Ameren Missouri conducted a number of stakeholder meetings to review plans, assumptions and analysis results at various stages in the process. These stakeholder meetings were attended by Missouri Public Service Commission Staff ("Staff"), Office of Public Council ("OPC"), Missouri Department of Natural Resources ("DNR"), Missouri Industrial Electric Consumers ("MIEC"), Missouri Energy Group ("MEG"), and others. Subsequent to the filing of its IRP, Ameren Missouri responded to over 300 data requests from the parties. On June 23, 2011, a number of parties filed reports alleging deficiencies in the Company's IRP filing and/or expressing concerns with certain aspects of the filing and underlying analysis. Parties filing reports were Staff, OPC, DNR (including the comments of GDS Associates, Inc., on behalf of DNR), Natural Resources Defense Council, Sierra Club, Renew Missouri, Mid-Missouri Peaceworks, and Great Rivers Environmental Law Center (Collectively, "NRDC") and Grain Belt Express Clean Line LLC ("Clean Line").

On August 8, 2011, Ameren Missouri and the other parties filed a joint pleading indicating that agreement had not been reached on resolution of any issues and listing all the issues raised by the filing parties in their reports, pursuant to 4CSR 240-22.080(8). Ameren Missouri files this report pursuant to that same section of the IRP rules.

Resource Acquisition Strategy

In its IRP filing, Ameren Missouri describes its resource acquisition strategy, including the preferred resource plan, contingency options, and a plan for implementation for 2012-2014. The preferred plan includes continued operation of Ameren Missouri's coal-fired Meramec plant through the planning period, implementation of a "Low Risk" DSM portfolio and installation of a new gas-fired combined cycle plant in 2029. The plan also includes wind, solar and landfill gas resources to meet the requirements of the Missouri Renewable Energy Standard (RES). The Company's contingency planning is based primarily on several key considerations (decision factors) with respect to ratemaking treatment of large baseload generation and DSM implementation and potential environmental regulations that could affect Ameren Missouri's existing coal-fired generation. The preferred plan and key contingency options are summarized in Figure 1.15 in the Executive Summary of the Company's filing and reproduced as Figure 1.1 below.

Figure 1.1 Decision Roadmap



Implementation plans are focused primarily on DSM program rollout and compliance with the Missouri RES. Since there is no need for supply side resources in the near term there are no implementation milestones associated with new supply construction.

A discussion of the key issues and conclusions from the IRP analysis that influenced the selection of Ameren Missouri's resource acquisition strategy can be found in the Executive Summary (Chapter 1) of the Company's IRP filing.

Summary of the Parties' Comments

Comments were filed by five parties alleging deficiencies in the filing under the Commission's IRP Rules and/or expressing concerns with the analysis and documentation filed or otherwise provided by Ameren Missouri. The most noteworthy of the alleged deficiencies and concerns are as follows:

- The absence of specificity regarding the regulatory treatment (cost recovery and incentives) that the Company would require to pursue implementation of the RAP DSM portfolio
- Limitation of potential coal retirements to the Meramec Plant, and assumptions regarding continued operation of Meramec and other coal units
- Evaluation of potential environmental regulations (as decision factors rather than uncertain factors, plans for monitoring changes, assumptions for regulation scenarios, etc…)
- The use of decision factors in selecting the preferred resource plan
- The details of scores, assessments and weights used in the Company's Alternative Resource Plan Screening Scorecard and its Preferred Plan Selection Scorecard (including minimizing PVRR)
- Assumptions regarding wind resources (i.e., cost, capacity factor, tax incentives, and pairing of wind with simple cycle CTG's)
- Prices for natural gas commodity
- Nuclear construction costs and schedules
- Technical details regarding the Company's DSM Market Potential Study, including avoided costs

Other alleged deficiencies and concerns relate to evaluation of specific demand-side measures or portfolios (e.g. Rider L, OPower, IDR, 1% and 2% load reduction), analysis of expected value of better information ("EVBI"), details regarding subjective probabilities for uncertain factors, consideration of distributed generation ("DG") resources, ranges for allowed return on equity ("ROE"), evaluation of PPA's, load forecast assumptions, carbon prices, evaluation of storage options, and accuracy of CRA's models. A cross-reference for this report to the reports of the other parties is attached as Appendix A.

As outlined in a joint filing made by Ameren Missouri and other parties to the case, no agreement has been reached regarding the resolution of any of the issues identified. Ameren Missouri believes that the issues identified are the result of misperceptions regarding the Company's filing and underlying analysis or differences in preference with respect to how analysis should be performed.

In adopting revised Chapter 22 IRP rules earlier this year, the Commission established several new processes for addressing issues that before may have been handled with ad hoc analysis or by specific order of the Commission. These new processes include the Annual Update, in which each utility provides an update to stakeholders and the Commission regarding its ongoing planning efforts and how they compare with its last triennial IRP filing (4CSR 240-22.080(3)). Also included is the Special Contemporary Issues process, in which all parties have the opportunity to suggest issues for consideration by the Commission to be addressed by the subsequent filings of all utilities (4 CSR 240-22.080(4)). In fact, the Commission has already opened a docket for the first Special Contemporary Issues process for Ameren Missouri, File No. EO-2012-0039. The new IRP rules also establish explicit requirements for a stakeholder process, with specific review of certain portions of the utility's analysis during the development of an IRP (4 CSR 240-22.040(5)). Such new processes provide a formal avenue in which to address issues that may remain unresolved.

Ameren Missouri's Efforts to Advance Energy Efficiency

Clearly, energy efficiency issues are a major theme in several of the reports filed by parties in this case. To put the energy efficiency issues in context requires an understanding of the Company's energy efficiency initiatives over the past approximately three years. Ameren Missouri's 2008 IRP (Case No. EO-2007-0409) reflected more aggressive energy efficiency programs than had historically been undertaken by the Company. In the five years prior to the 2008 IRP, the Company spent approximately $4 million in total on energy efficiency programs. Consistent with the 2008 IRP, in 2008 and 2009 Ameren Missouri spent approximately $13.5 million on energy efficiency. In 2010, that investment grew to just over $23 million and in 2011 the Company will invest approximately $33 million. These expenditure levels put Ameren Missouri on track to achieve the MWh savings identified in the Company's 2008 Integrated Resource Preferred Plan.[1]

During this time, the Company has offered both residential and commercial energy efficiency programs and has created substantial momentum in the marketplace with its customers, retailers, manufacturers and trade allies. This momentum includes the more than 300 retail stores which have marketed the Company's energy efficiency lighting programs, the over 230 business trade allies which were trained and who have marketed the Company's programs, and the more than 500 of the Company's business customers who completed two or more energy efficiency projects.

In 2009, the Missouri Energy Efficiency Investment Act (MEEIA) became law. This law contains a goal of achieving all cost-effective energy efficiency and requires the Commission to align the interests of utilities and their customers so that energy efficiency investments are valued in a manner that is equivalent to an investment in supply-side resources. MEEIA also mandates full and timely cost recovery. Not only is the above-mentioned alignment of interests and cost recovery required by Missouri law, but it is a central feature of MEEIA and is critical to achieving the goal reflected in MEEIA.

As the Company has increased its investment in energy efficiency, it has also realized the very real impact that successful programs have on the financial results of the Company. Every MWh saved is a MWh not sold. In fact, the Company estimates that it will experience as much as $50 million in lost revenues because of its first three years of energy efficiency efforts. Obviously this represents a very real economic disincentive for the Company, an impact that was acknowledged by the Commission in its Final Report and Order in the Company's last rate case, File No. ER-2011-0028.[2] To address this issue, in the previously referenced rate case, Ameren Missouri suggested a creative solution to offset the throughput disincentive associated with energy efficiency. Although the Commission declined to address the throughput disincentive as requested by the Company, the Company continues to review the Commission's MEEIA rules to see what solutions can be adopted that will allow it to continue its substantial investment in energy efficiency.

[1] File No. EO-2007-0409, Integrated Resource Plan, Volume II, Executive Summary, p. 1.
[2] *Report and Order*, File No. ER-2011-0028, July 13, 2011, p. 37.

The Role and Purpose of Planning

The Chapter 22 rules governing electric utility resource planning state that the fundamental objective of resource planning is, "to provide the public with energy services that are safe, reliable, and efficient, at just and reasonable rates, in a manner that serves the public interest."[3] The rules themselves are designed to ensure a planning process that is both rigorous and transparent. In supporting this fundamental objective, Ameren Missouri engages in ongoing planning to evaluate its resource needs, options and decisions. The IRP serves as the starting point for such planning and provides a snapshot of resource needs and plans to meet them at the time it is filed.

The Chapter 22 rules clearly reflect a recognition and appreciation for the constant nature of change with respect to the market conditions and business environment in which utilities operate and plan. This is evidenced by the specific focus on short-term implementation plans, the provisions for periodic updates, requirements to monitor key uncertainties, and the direction to characterize "generic" resource options, among others. As such, an IRP serves both as a reasonable guide for short-term actions and a measuring stick and basis for discussion in evaluating other opportunities, both short-term and long-term, rather than locking in resource decisions over a long period of time. Ameren Missouri has prepared its 2011 IRP in compliance with the Commission's Chapter 22 rules and consistent with the principles of good long-range planning in general.

Consistent with the limitations on the Commission's authority to direct and manage the utility's business, the IRP rules are not designed to assume the decision making responsibility of utility management but rather to require the utility to employ a rigorous and transparent planning process. As far back as 1992, in the Commission's Order of Rulemaking for the IRP, the Commission stated that it was "…wary of assuming, either directly or in a de facto fashion, the management prerogatives and responsibilities associated with strategic decision making, preferring to allow utility management the flexibility to make both overall strategy planning decisions and more routine management decisions in a relatively unencumbered framework."[4] This framework has not changed, even with the Commission's newly effective IRP rules (which became effective after the Company filed the current IRP plan). The IRP provides a "snapshot" of need and resources for the next 20 years. It provides a basis for evaluating future long-term opportunities while providing a mechanism to focus upon short-term implementation needs. The IRP rules do not lock in long range resource selections but rather provide multiple opportunities to update, refine and communicate analysis results and decisions to the Commission and to stakeholders.

[3] 4 CSR 240-22.010(2) – version in effect when the Company filed its IRP. The IRP rules currently in effective contain very similar language, "to provide the public with energy services that are safe, reliable, and efficient, at just and reasonable rates, in compliance with all legal mandates, and in a manner that serves the public interest and is consistent with state energy and environmental policies." 4 CSR 240-22.010(2).
[4] *Order of Rulemaking*, Docket No. EX-92-299, December 8, 1992.

2.0 Demand Side Resources

2.1 Ameren Missouri's Approach to Demand Side Resource Analysis

Ameren Missouri has performed its analysis of demand side resources in accordance with the IRP rules and has exceeded their requirements in many respects. In doing so Ameren Missouri has explicitly evaluated demand-side and supply-side resources on a logically consistent and economically equivalent basis. Presented here is a description of Ameren Missouri's planning approach which demonstrates a rigorous and thoughtful process that ensures the equivalent treatment of demand- and supply-side resources required by the IRP rules.

DSM Market Potential Study

As a foundational step in the DSM planning process, Ameren Missouri selected Global Energy Partners (GEP) through a competitive bidding process to conduct a rigorous DSM market potential study. The study employed extensive primary market research of Ameren Missouri customer preferences and attitudes in order to estimate potential energy efficiency and demand response savings and costs. The complete study has been made available to the public and can be found on Ameren Missouri's webpage www.amerenmissouri.com/irp.

One of the primary reasons to conduct the potential study was to have a firm factual basis on which to gauge the reasonableness or aggressiveness of DSM efforts. Key objectives for the study were to:

- Assess and understand technical, economic, achievable and naturally occurring potential for all customer segments in the Ameren Missouri service area from 2009 to 2030.
- Analyze energy savings at various levels of cost.
- Conduct primary market research to collect electricity end-use data, customer demographics and psychographics.
- Understand how customers in the Ameren Missouri service territory make decisions related to their electricity use and energy efficiency investments.
- Develop several scenarios for assessing DSM potential.
- Clearly communicate the DSM Potential in an objective way that is useful for Ameren Missouri senior management, Ameren Missouri stakeholders and Ameren Missouri DSM and IRP staff.

Conducted throughout 2009, the study included significant communication and coordination between Ameren Missouri, the contractor, and stakeholders. Several meetings with Stakeholders were held regarding the development of the Ameren Missouri Demand Side Market Potential Study, which was used as a key input in the development of the Ameren Missouri DSM Portfolios that are analyzed within the IRP.

The study enlightened Ameren Missouri about its customer base and the potential for energy savings and peak demand reductions that are possible through energy-efficiency (EE) and demand response (DR) programs. The key highlights are as follows:

- There is more opportunity for program savings than was estimated using secondary data. Achievable potential is higher than what was assumed for the Ameren Missouri 2008 IRP.
- Concurrent with higher opportunities, budgets to harvest those opportunities would need to reach an annual spend range of $100 million to $200 million by 2015. This range corresponds to roughly 2% to 5% of projected Ameren Missouri revenues, a spending level which would exceed the expenditure levels of nearly all electric utilities in the nation.
- A comprehensive view of measures yielded considerable economic potential. The study considered hundreds of measures and there are very significant savings opportunities.
- Ameren Missouri customers are different than others in the nation. They typically express less interest in DSM investments at this time.

Using a bottom-up, end-use approach, Global Energy Partners assembled models of equipment stock and energy usage throughout the time horizon that were based on the primary market research data of the Ameren Missouri service territory. They then applied EE and DR measures and programs to the model at levels defined by the extensive attitudinal research in order to estimate the potential energy saving effects.

Ameren Missouri believes that its potential study represents the state-of-the art of DSM Potential studies. There should be no doubt that the study has not only met, but exceeded the minimum requirements of the IRP rules. The study depicts reliable estimates of achievable potential in the Company‘s service territory based on primary market research data.

DSM Portfolios

Several demand side management (DSM) portfolios were analyzed and considered during the IRP planning process. The list of all DSM portfolios considered has been enumerated below in ascending order of aggressiveness with respect to energy savings.

- Low Risk Portfolio (Low Risk): reduces current levels of program spending and savings to a level that reflects the Company's growing concerns with the current DSM regulatory framework, especially the inability of the existing framework to adequately address the throughput disincentive caused by lost revenues. This portfolio only slightly escalates these levels over time.
- Capacity Calibrated Portfolio (CCP): includes demand response and energy efficiency levels tuned to meet annual capacity needs during the planning horizon.
- Realistic Achievable Potential Portfolio (RAP): version of the RAP identified in Ameren Missouri's foundational DSM Market Potential Study, updated with the latest information and assumptions from the IRP process.
- Maximum Achievable Potential Portfolio (MAP): version of the MAP identified in Ameren Missouri's foundational DSM Market Potential Study, updated with the latest information and assumptions from the IRP process. This portfolio also represents a 1% Per Year Portfolio (1PPY). Ameren Missouri agreed to analyze a 1PPY portfolio in case ER-2010-0036. The portfolio achieves approximately 1% incremental energy savings every year after 2015.

- 2% Per Year Portfolio (2PPY): extremely aggressive portfolio designed to achieve 2% incremental energy savings every year after 2020. Midway through the planning horizon, this portfolio's savings exceed economic potential as identified by the Ameren Missouri DSM Potential Study, and continue to grow. Consequently, the energy savings in this portfolio is not possible. Nevertheless, Ameren Missouri analyzed the cost-effectiveness of this portfolio (which was found not to be cost effective). Furthermore, Ameren Missouri has exceeded the requirements of the ER-2010-0036 stipulation by including this portfolio in an integrated analysis.

Figure 2.1 Annual Energy Efficiency Utility Spending

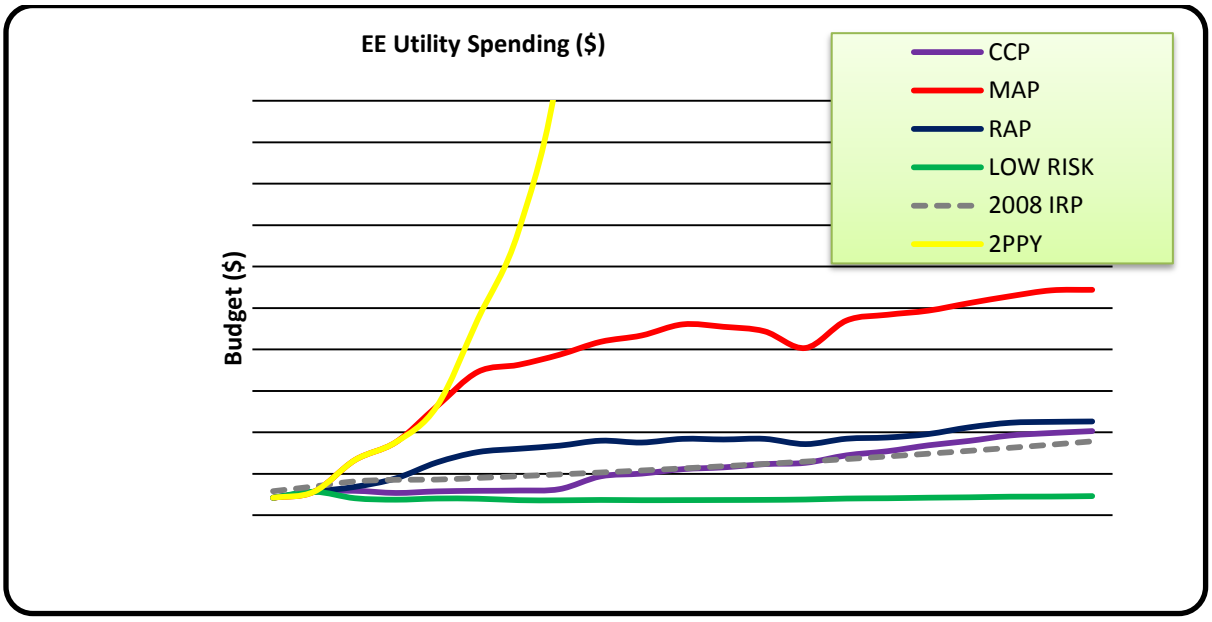
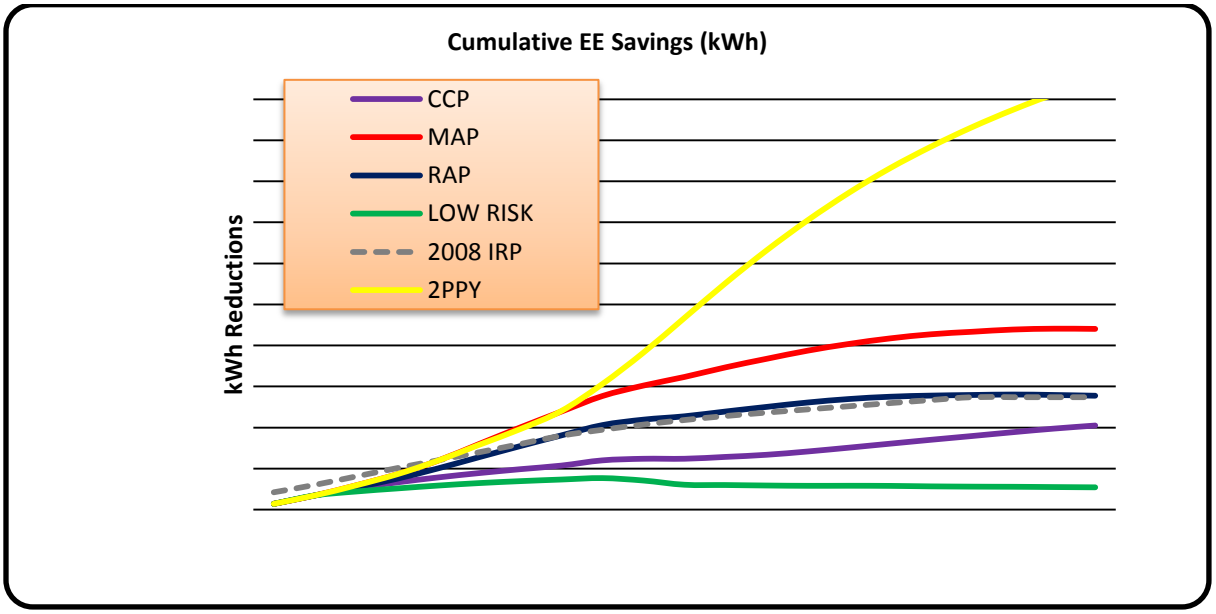


Figure 2.2 Cumulative Energy Savings



Figures 2.1 and 2.2 demonstrate that Ameren Missouri has evaluated a full spectrum of DSM savings levels. In doing so, Ameren Missouri has complied with the IRP rules and the Commission's order from its 2008 IRP to analyze a "more aggressive" DSM portfolio.

The DSM portfolios were used to develop alternative resource plans. Ameren Missouri analyzed 216 alternative resource plans that included the following portfolios: No DSM, Low Risk, RAP, and MAP. The development of alternative resource plans is driven by capacity needs throughout the planning horizon. As demand grows, the Company's existing resources can no longer meet those capacity needs and it must therefore add new resources. The alternative resource plans are a build-up of resources that include existing plant capabilities, cost-effective upgrades to existing plants, and new renewable resources required to meet legal renewable energy requirements. An energy efficiency portfolio was added next. If there were still capacity needs after those additions, new demand response resources were added. Depending on the timing of the resource needs, demand response programs would begin as early as 2016 or as late as 2030. Potential implementation of demand response was delayed specifically because of the expectation for depressed prices for capacity in the near term. New supply-side resources were added only after all energy efficiency and all demand response, from that particular portfolio, were included. Ameren Missouri did not add additional demand response or supply-side resources with the intent to exceed capacity needs and reduce revenue requirements, if possible.

Evaluation of DSM on an Equivalent Basis with Supply Side Resources

At all times resource plans were analyzed on a logically consistent and economically equivalent basis. The IRP rule 4 CSR 240-22.060(4)(D) gives some guidance on what would qualify as a logically consistent and economically equivalent basis: "[…the same types or categories of costs, benefits and risks shall be considered, and that these factors shall be quantified at a similar level of detail and precision for all resource types." Ameren Missouri modeled the resource plans in MIDAS, which is a widely used industry planning tool, to analyze the resource plans. Below are some of the ways in which Ameren Missouri modeled demand-side and supply-side resources on a logically consistent and economically equivalent basis

- The revenues collected in any given year are equal to the costs in any given year for both supply-side and demand-side resources.
- Both costs and benefits of supply-side and demand-side resources are modeled.
- Both supply-side and demand-side resources have been modeled on an hourly basis in regards to the energy being provided and the benefits associated with that energy.
- Capacity benefits have been modeled for both supply-side and demand-side resources.
- The deferral benefits of demand-side resources have been modeled. The generation deferrals are implicit in the modeling while the transmission and distribution deferrals were explicitly modeled as reductions to future capital expenditures.
- Current cost recovery methods for both supply-side and demand-side resources have been modeled.

- Risks around the costs and benefits of both supply-side and demand-side resources were modeled. In fact, project cost (a supply-side risk factor) and DSM costs and impacts (a demand-side risk factor) were determined to be critical independent uncertain factors and are analogous to one another.

The 216 alternative resource plans were screened down to 16 resource plans. Although the screening process was originally designed to rely on a scorecard approach, the results provided clear distinctions that allowed the winnowing of plans without relying on the scorecard, as explained on page 11 in Chapter 9 of the IRP. The remaining 16 plans still contained all the same resource types included in the original 216, so very little information was lost by excluding the 200 plans for further analysis. The 16 plans were used in the sensitivity analysis to determine which uncertain factors were critical to plan performance. With those critical independent uncertain factors added to the scenario probability tree the 16 plans were analyzed as a first stage of a full risk analysis. At this point it was clear that coal with carbon capture and pumped storage were not performing well and could be excluded. It was also clear that the relative performance of the resource types was not affected by whether Noranda's contract expired or continued. For practical purposes, it was important to limit the number of resource types before fully incorporating the Meramec retirement analysis and environmental scenarios.

At this stage Ameren Missouri still had two demand-side only resource plans; one with RAP and one with MAP. It was unnecessary to continue to analyze both plans since the analysis was clear that both were performing similarly and both were lower cost, from a PVRR perspective, than supply-side plans. At this point Ameren Missouri decided to exclude MAP from further analysis. By definition, RAP is the most realistic achievable potential and therefore it is logical to conclude that RAP should continue to represent an aggressive DSM-only resource plan. It is important to understand that MAP, by definition, is a hypothetical upper-boundary of achievable savings potential simply because it presumes conditions that are ideal and not typically observed in real-world experience. Furthermore, by excluding MAP from further analysis, no information is lost since previous stages of analysis provide adequate information on the performance of MAP resource plans.

Ameren Missouri also tested the Capacity Calibrated Portfolio (CCP) as an alternative combination of DSM resources by assuming implementation of all available demand response resources first, then incorporating energy efficiency as needed to just meet capacity needs. This allowed the Company to test, in a fully integrated fashion, whether the additional load reduction provided by the RAP portfolio was cost effective. Results of this analysis showed that comparable RAP plans provided consistently better (lower) PVRRs than CCP plans, thus indicating that further analysis of the CCP portfolio was unnecessary.

Ratemaking Treatment for Demand Side and Supply Side Resources

Integrating the Meramec retirement analysis and environmental scenarios produced 14 candidate resource plans that were analyzed against the full probability tree of scenarios and critical independent uncertain factors. To this point in the IRP analysis, all plans had been analyzed in MIDAS. While MIDAS

is useful for analyzing numerous plans across various scenarios under uncertainty, it can only analyze plans assuming perfect ratemaking. In this context perfect ratemaking is effectively the absence of regulatory lag, which is the difference in time between when costs are incurred and when those costs are included in rates. Because regulatory lag does exist in the real world, its effects then had to be taken into account outside the results of the MIDAS modeling.

There are two main factors that influence when costs are included in rates: rate case filing frequency and historical test year lag. It is impractical for the Company to forecast when it will file rate cases over the entire planning horizon, so for purposes of the analysis it was assumed that a rate case would be filed every other year. The analysis also reflects the assumption that rates would go into effect six months after the end of the test year true-up period. The combination of rate case cycle and test year lag introduces 18 months of overall effective regulatory lag. To emulate regulatory lag in the analysis Ameren Missouri developed spreadsheet models based on MIDAS inputs and outputs to ensure consistency in the analysis. This additional analysis, well beyond the minimum requirements of the IRP rules, was essential to observe the unique differences between supply-side and demand-side resources. On one hand, supply-side resources require large one-time capital investments that could place stress on the Company's financial condition. On the other hand, demand-side resources require continuous investments and the effects of those investments negatively impact the Company's financial results through lost revenues. These effects cannot be adequately observed in MIDAS.

For demand-side resources, the analysis demonstrated that lost revenues are a major obstacle to the aggressive pursuit of energy efficiency. The analysis also included quantification of the lost revenue disincentive as well as a quantitative and qualitative comparison of expense versus capitalization treatment of program cost recovery. The supply-side resources analysis indicated that the moderate environmental control scenario could impose mild stress on Ameren Missouri's financing abilities; however, the aggressive environmental control scenario would have a more serious impact on Ameren Missouri's financing abilities. The supply-side analysis also demonstrated that only the nuclear plans exhibited a short period of mild financial stress late in the planning horizon that could potentially be managed by temporarily shifting investment priorities. This analysis is another example of how Ameren Missouri evaluated demand-side and supply-side resources on a logically consistent and economically equivalent basis.

Ultimately, Ameren Missouri decision makers determined that the regulatory framework and thus financial disincentives and risks associated with implementing the RAP-based resource plan did not allow the Company to select DSM as the preferred resource option. Of course, this decision has been met with some dismay on the part of stakeholders since DSM plans demonstrated the lowest PVRR results in the Company's analysis. For purposes of the analysis required by the IRP rules, however, the Company's IRP satisfies the requirements of the rules because it reflects clear analysis and documentation underlying the Company's decision. Many of the alleged deficiencies seem to stem only from frustration that the Company chose not to select a preferred resource plan with the lowest PVRR regardless of the impact on investors. And while it is true that the Company's analysis shows the DSM-

only plans yield the lowest PVRR it also true that the analysis shows DSM-only plans impose the greatest financial penalty on investors. Furthermore, Ameren Missouri was heavily criticized with respect to its 2008 IRP for selecting a preferred resource plan that required regulatory or legislative action before it could be implemented. In this IRP, if the DSM-only plan were to be selected as the preferred plan, Ameren Missouri may have been subjected to the same criticism because that plan requires specific regulatory action for implementation. Therefore, this IRP analysis and decision reflects lessons learned from previous IRPs, which is should be viewed as a desired outcome.

The clear central issue brought to light in this IRP case is the inadequate financial treatment of demand-side investments under the current regulatory framework. Ameren Missouri did not assume that the regulatory framework was adequately changed in this IRP because necessary regulatory treatment could not be implemented except via mechanisms adopted in a rate case or through other mechanisms allowed under what, at the time of the IRP filing, were potential MEEIA rules that remained in the development and which might or might not provide adequate mechanisms to allow more aggressive pursuit of demand-side investments.. In the meantime the Company had also sought, (in its most recent rate case (ER-2011-0028)) constructive financial treatment to continue funding its current programs. The Company's request was denied by the Commission. Furthermore, Ameren Missouri has been forthright with its objections to some of the provisions in the proposed and now final MEEIA rules that it believes hinder the objectives of MEEIA and that consequently discourage DSM investments in Missouri.

It is obvious that the IRP case cannot solve the issues regarding the ratemaking treatment of demand-side investments that will need to be addressed before more significant demand-side investments can be made. In fact, in the Order from case ER-2011-0028, the Commission has signaled that the MEEIA process is the *only* avenue that can be used to effect a change in the ratemaking treatment of demand-side resources. Ameren Missouri's IRP is compliant with the IRP planning rules because it reflects the analyses required by the IRP rules. So while other parties to this docket might have a desire to "do it differently", the IRP rules do not require Ameren Missouri to rework its analysis on that basis and no amount of "reworking" is going to produce a constructive solution to the central issue of DSM cost recovery. In addition, disputes about the amount of DSM potential are desolate without resolution of the threshold issue of the ratemaking treatment for DSM. It is imperative to prioritize our limited resources and pursue a path that can produce tangible results and benefits for both customers and investors.

Ameren Missouri's DSM financial analysis, both quantitative and qualitative, unambiguously identified the financial disincentives associated with the implementation of demand-side resources. There is no IRP rule requirement to provide analysis of numerous ways to address those disincentives. Ameren Missouri is required to provide adequate analysis and documentation to support any request for non-traditional ratemaking treatment under the recently adopted MEEIA rules, but such analysis and documentation are part of a MEEIA, not an IRP, filing. In fact, those rules do not require the identification and analysis of numerous options but rather only analysis to support the particular

request made in a MEEIA filing. The MEEIA rules also provide an opportunity for any intervenor in the MEEIA filing docket to present its own proposal, assuming it can meet the same analytical rigor. In addition, even if such analysis were provided in the IRP it would have no bearing on the preferred plan selection or contingency planning. The preferred plan is selected based on the cost recovery in place now. Contingency planning is also dependent on the outcome of any potential request for treatment; that is, without appropriate DSM financial treatment there will be minimal DSM and with the appropriate treatment there will be more aggressive DSM. Again, the IRP case cannot be viewed as a solution to any and every issue. It is best suited for providing a long-term direction while including key short-term implementation tasks. Ameren Missouri has included in its implementation plan the task of continuing to advocate for better alignment of utility financial incentives to ultimately support the state's goal of achieving all cost-effective DSM.

Finally, Ameren Missouri understands there is a great deal of interest in the future of its electric energy efficiency programs, particularly after September 30, 2011. The Company has not yet reached a decision on what course of action to take in the short term,[1] but intends to make a filing under the Missouri Energy Efficiency Investment Act (MEEIA) no later than the end of the first quarter of 2012. The filing will request the regulatory treatment necessary for the Company to invest in all cost-effective energy efficiency while creating the required alignment between the interests of our customers and of the Company, as required by MEEIA.

2.2 Overall Treatment of Demand Side Resources

Alleged Deficiencies and Concerns

Issue 1
Party: Staff
Identifier: Deficiency 3
Reference: Staff Report, page 33
Rule Citation: 4CSR 240-22.010(2)(C), 4CSR 240-22.070(6)(A)
8/8 Joint Pleading Location: Appendix A, page 29

Issue Summary: Staff contends that not indicating the cost recovery needed to select a plan with the RAP DSM Portfolio constitutes a deficiency with respect to the cited sections of the rule. 22.010(2)(C) requires that the utility "explicitly identify and, where possible, quantitatively analyze any other considerations which are critical to meeting the fundamental objective of the resource planning process, but which may constrain or limit the minimization of the present worth of expected utility costs." 22.070(6)(A) requires the utility to select a preferred plan that, "in the judgment of utility decision-makers… strike(s) an appropriate balance between the various planning objectives specified in 4CSR 240-22.010(2)." Staff proposes that this issue could be remedied through a filing by Ameren Missouri

[1] Once the Company makes a decision, the Company may be required to file to amend its choice of preferred plan. If that occurs, the Company will do so, using the rules that were in effect when it made its IRP filing.

under the MEEIA rules or statute or by including an analysis of the cost recovery framework necessary to support a decision by the Company to pursue an aggressive DSM portfolio such as the RAP portfolio evaluated in the Company's IRP filing.

Ameren Missouri's Position and Evidence: Ameren Missouri's preferred plan does in fact reflect the balancing of its planning objectives (referred to as "policy objectives" in the Company's filing) as required by the rules and as restricted by the DSM cost recovery decision factor, a consideration that constrains the minimization of PVRR as provided for in 22.010(2)(C). As the MEEIA rules adopted by the Commission apply to both program approval and the establishment of rate treatment (through a DSIM), a specification in the IRP of the cost recovery desired by the company would have no practical effect, just as specification of the need for CWIP or other alternative ratemaking to support large plant investments would have no effect. Only in a general rate case or in a proceeding that provides for changes in cost recovery outside a general rate case could a change be realized.

This is the primary reason behind the Company's efforts to seek changes in cost recovery related to DSM implementation in its recent rate cases (Cases ER-2010-0036 and ER-2011-0028). As cited in Staff's report, the rules require explicit identification and quantitative analysis of other considerations that are critical to the primary objective but constrain the minimization of PVRR. Ameren Missouri has explicitly identified DSM cost recovery and its impact on financial performance as such a consideration and has quantified the impact in terms of lost revenue and the impact on investor returns. There is no IRP rule requirement, and there would be no practical effect from, further defining within the IRP the manner in which the Company desires the issue to be resolved.
Conclusion: Ameren Missouri has complied with the rules by including in its filing an analysis of the impact of lost revenue under traditional ratemaking. Should Ameren Missouri make a MEEIA filing, no other action by the Company would be necessary to address this issue.

Issue 2
Party: Staff
Identifier: Concern E
Reference: Staff Report, page 43
Rule Citation: MEEIA
8/8 Joint Pleading Location: Appendix A, pages 21-22

Issue Summary: Staff notes that the preferred plan does not meet the statutory goal of achieving all cost-effective demand-side savings.

Ameren Missouri's Position and Evidence: Ameren Missouri notes that its reason for selecting the preferred plan over one with higher demand-side savings is based on its analysis regarding the DSM cost recovery decision factor, and that if such disincentives can be overcome then Ameren Missouri could pursue such a plan. Ameren Missouri has been clear that DSM must be cost-effective for both customers and the Company and its analysis clearly demonstrates the existence of a financial

disincentive to the continued investment in DSM. Staff seems to only be considering cost-effectiveness from a customer's perspective and appears to ignore not only the legitimate perspectives of utility investors, on whom the Company relies for capital, but also the legal considerations associated with the ability of the Company to have a reasonable opportunity to earn a fair return and MEEIA's mandate that the Commission align utility financial incentives with helping customers use energy more efficiently.

Conclusion: Ameren Missouri's preferred plan is compliant with the goals in MEEIA. Should Ameren Missouri make a MEEIA filing, no other action by the Company would be necessary to address this issue.

Issue 3
Party: Staff
Identifier: Concern F
Reference: Staff Report, page 44
Rule Citation: 4CSR 240-22.010(2)
8/8 Joint Pleading Location: Appendix A, page 1

Issue Summary: Staff contends that Ameren Missouri has made very limited effort to achieve a desirable DSM cost recovery solution. Staff cites 22.010(2), which requires that utilities evaluate demand side resources on an equivalent basis with supply side resources.

Ameren Missouri's Position and Evidence: Ameren Missouri has made significant effort in seeking improved rate treatment for DSM investments and has evaluated demand-side resources on an equivalent basis with supply-side resources in its IRP analysis, decisions and documentation. Ameren Missouri notes its support and participation in the development and passage of MEEIA, its active participation in rulemaking proceedings related to MEEIA, its requests in recent rate cases for more supportive rate treatment of DSM, and its collaboration with stakeholders in efforts to identify cost recovery approaches that might gain broad acceptance as evidence that contradicts Staff's assertion. That said, Ameren Missouri is committed to seeking a solution that allows the Company to aggressively pursue potential DSM savings in a way that is beneficial to both customers and investors. A discussion of the steps taken by Ameren Missouri to evaluate demand-side resources on an equivalent basis with supply-side resources can be found in section 2.1 of this report.

Conclusion: Ameren Missouri has evaluated demand-side resources on an equivalent basis with supply-side resources, as required by the IRP rules, and has made significant effort in seeking improved rate treatment for DSM investments.

Issue 4
Party: DNR/GDS
Identifier: Deficiency 8
Reference: GDS Report, page 32
Rule Citation: 4CSR 240-22.010(2)(A), 4CSR 240-22.010(2)(B)

8/8 Joint Pleading Location: Appendix A, page 3

Issue Summary: DNR contends that Ameren Missouri has not considered DSM on an equivalent basis with supply-side alternatives. DNR cites 22.010(2)(A), which establishes the equivalent treatment requirement, and 22.010(2)(B), which requires the use of minimization of PVRR as the primary selection criterion. DNR's primary argument is that Ameren Missouri started by artificially constraining DSM resources as evidenced in its "Low Risk" DSM portfolio included in the preferred resource plan. DNR also takes issue with the weightings used in the Company's scorecards used to evaluate alternative and candidate resource plans. Finally, DNR points to differences between the load forecast used for the development evaluation of plans in the IRP and that used in the development of the DSM potential study.

Ameren Missouri's Position and Evidence: The allegation that Ameren Missouri has artificially constrained energy efficiency is false. While the Low Risk portfolio was designed to mitigate exposure to disincentives of traditional ratemaking, it was only one of a number of DSM portfolios evaluated, which also included RAP and MAP portfolios based on Ameren Missouri's DSM Market Potential Study. Alternative resource plans with each of these three portfolios were evaluated. Candidate resource plans with both the Low Risk Portfolio and the RAP Portfolio were evaluated as part of the 14 candidate resource plans considered in preferred plan selection. This is all that is required by the IRP rules.

The decision to include the Low Risk DSM portfolio was driven by the consideration of DSM cost recovery, with lost revenue being the primary driver of financial disincentive. Scorecard issues are discussed in section 11.4 of this report.

DNR's concerns with differences in the baseline forecast from the Market Potential Study and the base load forecast in the IRP are exaggerated. The Market Potential Study took about one year to complete and several more months to synthesize into the information needed for IRP consumption. Such an extensive timeline is not conducive to synchronization with other IRP components. Still, the magnitude of any differences is well within the risk ranges defined for both the load forecast and the energy savings achieved.

Ameren Missouri's overall IRP load forecast range suggested growth from 0.33% up to 1.68%. The Market Potential Study estimate of 0.6% was well within those bounds. The baseline load forecast from the potential study in 2020 is lower than the IRP forecast by 5%. If one assumed a proportional impact on energy efficiency potential (which is not necessarily the case), the potential in 2020 for the RAP could have conceivably been 140 GWh higher than what it was. However the uncertainty range in the RAP estimate developed in the risk analysis was between plus 420 GWh to minus 660 GWh. So again, the differences generated by the different versions of the load forecast are more than compensated for by the ranges developed in the risk analysis.

DNR/GDS indicated that there was a "potential" issue with regard to the IRP load forecast's consistency with the Market Potential Study baseline forecast. However, based on the similarity in methodologies

between the two forecasts and the fact that the Market Potential Study baseline load and potential estimates fall well within the uncertainty ranges developed in the IRP, it should be concluded that there is not an issue at all. By necessity, pieces of the IRP are updated on different schedules, but any mismatch in timing and in the precise results has not caused any meaningful impact on the broader IRP analysis nor would such a mismatch constitute a deficiency. In fact, this issue has no bearing on the general IRP conclusion that DSM resources have lower PVRRs than supply-side resources.

Conclusion: Ameren Missouri evaluated demand-side resources on an equivalent basis with supply- side resources and used minimization of PVRR as the primary (but not the only) selection criterion, as required by the rules.

Issue 5
Party: DNR
Identifier: Deficiency 2
Reference: DNR Report, page 11
Rule Citation: 4CSR 240-22.010(2)(C)
8/8 Joint Pleading Location: Appendix A, page 6

Issue Summary: DNR asserts that Ameren Missouri is required to provide an analysis of several different DSM financial treatments that the Company would find acceptable to pursue aggressive EE. DNR cites discussion from Stakeholder meetings in which Ameren Missouri described its anticipated analysis approach at that time. DNR cites 22.010(2)(C), which requires that the Company "explicitly identify and, where possible, quantitatively analyze any other considerations which are critical to meeting the fundamental objective of the resource planning process"; the fundamental objective includes the requirement that the provision of service shall be "in a manner that serves the public interest."

Ameren Missouri's Position and Evidence: Ameren Missouri has provided adequate analysis to quantify the economic disincentives associated with energy efficiency. The phrase, "in a manner that serves the public interest," must be interpreted to include members of the public who, directly or indirectly, invest in the securities of the utility company with the promise of a fair return on their investment. Moreover, the public interest is not served if investors have a disincentive to provide the capital utilities need (at a reasonable cost) to invest in their systems (including in DSM) and, among other things, to comply with environmental and other requirements. Obtaining that capital at a reasonable cost is in the long-term interest of the public generally, and customers in particular.

Ameren Missouri explicitly identified the financial harm to investors resulting from lost revenues associated with energy efficiency programs as such a consideration under 22.010(2)(C). Ameren Missouri did provide a quantitative analysis comparing different program cost recovery options and a quantitative analysis regarding Ameren Missouri's financial sensitivity to lost revenues based on different DSM portfolios and varying the time between rate cases. Ameren Missouri provided unambiguous documentation that lost revenues are the major barrier to the adoption of aggressive

energy efficiency. Several parties indicate in their reports that this issue is not only evident, but dominant in the reporting.

As the analysis proceeded it was evident that without recovery of lost revenues the funding levels of DSM would be have to be dramatically reduced to avoid significantly impairing the ability of investors to have a reasonable opportunity to earn a fair return. It was also evident that although Ameren Missouri could analyze several different options, the IRP case would not result in the adoption of any specific DSM financial framework. Therefore Ameren Missouri had an appropriate scope of analysis in its IRP planning process to decide whether or not to adopt an aggressive DSM plan at this time. At that time, the MEEIA rulemaking was ongoing, so specific proposals analyzed could have ultimately been proven to be ruled out through the rulemaking process, as were the proposals to address the lost revenues issue made by the Company in its recent rate case.

DNR expresses frustration about what it perceives to be promises that were made during stakeholder meetings regarding the analysis that would be performed. While Ameren Missouri provided an indication of the kind of analysis that it expected to perform, it never promised a particular analysis and its indication of the kind of analysis it expected to perform was never intended to be constrictive to the analysis it could perform or interpreted to be required by the IRP rules. If stakeholders engage in a practice of interpreting discussions in that manner in forums designed to promote open dialogue such interpretations could have adverse effects on the future conduct of such discussions.

Conclusion: Ameren Missouri's analysis of the financial effects of both cost recovery and lost revenues has exceeded the minimum requirements of the IRP rules.

Issue 6
Party: NRDC
Identifier: Deficiency II-A (subpart 5)
Reference: NRDC Report, page 8
Rule Citation: 4CSR 240-22.010(2)(A)
8/8 Joint Pleading Location: Appendix A, pages 3-4

Issue Summary: NRDC asserts that Ameren Missouri has assumed a “perfect ratemaking” regulatory framework when analyzing supply-side resources but rejects aggressive DSM because a “perfect ratemaking” framework does not exist. NRDC cites 22.010(2)(A), which requires that demand-side resources be considered on an equivalent basis with supply-side resources.

Ameren Missouri’s Position and Evidence: Ameren Missouri has evaluated all of its alternative and candidate resource plans under the same set of ratemaking assumptions at each stage of the analysis. NRDC confuses differences between the analysis at different stages for differences in the treatment of plans that are primarily supply-side and plans that are primarily demand-side. In evaluating both alternative and candidate resource plans, the computation of revenue requirements (i.e. the revenue

required to cover all utility costs including an allowed return on investment) is necessarily based on perfect ratemaking. The additional analysis performed by Ameren Missouri introduces realistic assumptions regarding rate case frequency and the effects of regulatory lag. This analysis was performed for all 14 candidate resource plans, with results presented clearly in Appendix A of Chapter 10 and described on page 10 of Chapter 10 of the IRP.

Conclusion: Ameren Missouri has evaluated demand-side and supply-side resources on an equivalent basis, as required by the rules, and has evaluated all plans under the same ratemaking treatment at each stage of the analysis.

Issue 7
Party: NRDC
Identifier: Deficiency II-C
Reference: NRDC Report, page 15
Rule Citation: MEEIA
8/8 Joint Pleading Location: Appendix A, pages 6-7

Issue Summary: NRDC asserts that Ameren Missouri has refused to acknowledge the existing regulatory framework for energy efficiency.

Ameren Missouri's Position and Evidence: Ameren Missouri has explicitly acknowledged the regulatory framework for energy efficiency in its resource planning. NRDC asserts that Ameren Missouri has ignored numerous legislative and regulatory developments with respect to energy efficiency. First, they cite the Commission's order in Ameren Missouri's 2008 IRP (Case EO-2007-0409) in which the Commission required that the Company "model an even more aggressive approach to encouraging participation in demand-side management programs in its next IRP filing." Ameren Missouri has done so by modeling the RAP and MAP portfolios and also by analyzing the 2% annual load reduction case it agreed to model in a stipulation and agreement with DNR.

Second, NRDC cites the statutory goal of MEEIA of "achieving all cost-effective demand-side savings" and compares the Low Risk DSM portfolio included in Ameren Missouri's preferred resource plan to "the minimum goals articulated in the DSM Rules." Ameren Missouri acknowledges the statutory goal of MEEIA along with the statutory requirements to provide timely cost recovery and opportunities for returns on investments in DSM that align utility incentives in support of that goal. Contrary to NRDC's assertions, Ameren Missouri's analysis of the 2% portfolio included energy savings that exceeded those energy savings goals included in the MEEIA rules. Ameren Missouri also notes that the energy savings goals stipulated in the MEEIA rules are goals, not mandates, as the Commission has clearly recognized in promulgating its rules pursuant to MEEIA.

Ameren Missouri's analysis explicitly accounts for the disincentives created through traditional ratemaking and addressed by MEEIA. Because these rules have not yet been tested, and because of

concerns with certain provisions of the rules that Ameren Missouri has previously expressed, the Company cannot presume supportive treatment of its DSM programs at this time just as it cannot presume supportive treatment of large supply-side investments.

Conclusion: Ameren Missouri has explicitly acknowledged the regulatory framework for energy efficiency in developing its IRP and has conducted its analysis in compliance with the IRP rules.

2.3 Treatment of Specific Demand Side Resources

Alleged Deficiencies and Concerns

Issue 1
Party: Staff
Identifier: Deficiency 1
Reference: Staff Report, page 19
Rule Citation: 4CSR 240-22.050(3)
8/8 Joint Pleading Location: Appendix A, page 18

Issue Summary: Staff contends that Ameren Missouri did not perform a cost-effectiveness screening of its Rider L program with higher customer compensation recommended in an evaluation report prepared for the Company by ADM. Staff also contends that Ameren Missouri should have performed a cost-effectiveness screening for the OPower customer education conservation program.

Ameren Missouri's Position and Evidence: Ameren Missouri did in fact perform a cost effectiveness screening of its Rider L program assuming higher customer compensation. In the 2009 program, peak-time customer participation incentives were set at $300/MWh. In the IRP planning work, a Non-Dispatchable Demand Response ("NDDR") program that represented the upgraded "Rider L" or "Peak Power Rebate " and the legacy Industrial Demand Response or "IDR" program was included in both the RAP and MAP portfolios. This program included a higher incentive that started at $770/MWh (RAP; $1150/MWh MAP) that escalated at 3% per year with inflation. These increased incentive levels are also supported by the market information received from vendors as part of Ameren Missouri's Demand Response RFI. The TRC for the program was calculated as 1.98 for RAP and 1.44 for MAP, which included the higher incentives and higher participation rates. Again, Ameren Missouri did include the NDDR program in its alternative resource plans that contained RAP and MAP and therefore the impact was included in all PVRR evaluations

Regarding the lack of analysis of the OPower customer education program, Staff cites 22.050(3) as the basis for alleging a deficiency. This section states that, "The utility shall evaluate the cost-effectiveness of each end-use measure identified pursuant to section (1)…" 22.050(1) simply requires identification of end-use measures that, "provide broad coverage" of customer classes, significant decision makers, major end uses, and renewable and other energy sources at the point of use. Staff has not indicated

that it believes Ameren Missouri has not complied with 22.050(1). Since the OPower program was not identified pursuant to section (1), it cannot be subjected to a cost-effectiveness evaluation.

The OPower program is in its infancy. Little is known about the performance of the program over a reasonable period of years. Behavior change is especially difficult to model because over time what now may be considered a change in typical behavior might eventually become the norm. The issue is when behavior change is an innovation and when it becomes the baseline. Ameren is actively engaged in work to answer these questions in time to consider OPower as a measure option in its next IRP filing. Ameren Missouri's affiliate electric distribution company, Ameren Illinois, is implementing a pilot program with OPower beginning in 2011. Ameren Missouri will monitor the results from the pilot and evaluate whether it is appropriate to propose a similar pilot in the Ameren Missouri service territory

Conclusion: Ameren Missouri has performed analysis of a modified Rider L program pursuant to the recommendations from the program evaluation report. Ameren Missouri has complied with the rules regarding the identification of end-use measures and has performed a cost-effectiveness screening on all measures identified.

Issue 2
Party: DNR
Identifier: Deficiency 11
Reference: GDS Report, page 41
Rule Citation: 4CSR 240-22.050(1)(D)
8/8 Joint Pleading Location: Appendix A, page 18

Issue Summary: DNR contends that Ameren Missouri failed to consider significant combined heat and power (CHP) potential from its Distributed Generation (DG) potential study, citing 22.050(1)(D), which requires evaluation of energy technologies that substitute for electricity at the point of use.

Ameren Missouri's Position and Evidence: Ameren Missouri's treatment of CHP is appropriate. The GDS report presents a chart of technical potential from the Navigant DG potential study conducted on behalf of Ameren Missouri but ignores the cost effectiveness analysis.) The Navigant study presented the cost-effectiveness of the various DG measures and concluded that only CHP-Recip, Solar photovoltaics (Residential and Commercial), and small wind became cost effective in the 20 year planning horizon and no technologies became cost effective before 2020. However, that analysis included the ubiquitous extension of tax credits. With the expiration of tax credits in 2016, as scheduled, only CHP-Recip would be cost-effective, and not until after 2025. Even if Ameren Missouri were to consider a 50/50 chance that the tax credits would be extended, only the CHP-Recip measure would be cost-effective in the planning horizon and again not until after 2025. It is apparent that carrying forward just one CHP measure for further analysis very late in the 20 year planning horizon does not add substantial value to the implementation plan or the selection of the preferred resource plan.

Conclusion: Ameren Missouri has evaluated distributed generation technologies including CHP and has therefore complied with the requirements of the rule.

Issue 3
Party: DNR
Identifier: Deficiency 12
Reference: GDS Report, page 44
Rule Citation: 4CSR 240-22.050(6)(D)
8/8 Joint Pleading Location: Appendix A, page 21

Issue Summary: DNR contends that Ameren Missouri did not adequately consider DG programs pursuant to the results of its DG potential study, citing 22.050(6)(D), which requires the inclusion of a marketing plan and delivery strategy for potential DSM programs.

Ameren Missouri's Position and Evidence: Based on the fact that only one DG measure was cost-effective, and not until after 2025, there were no programs included for further analysis and therefore no need for a marketing plan or delivery strategy. Further discussion of the DG cost-effectiveness analysis can found directly above in Issue 2, DNR Deficiency 11.

Conclusion: Ameren Missouri has evaluated distributed generation technologies. Since no DG programs were included in DSM portfolios, there is no need for a marketing plan or delivery strategy. Ameren Missouri has complied with 22.050(6)(D) by including a marketing plan and delivery strategy for each of the programs included in its preferred resource plan and has therefore complied with the requirements of the rule.

2.4 Avoided Costs

Ameren Missouri's Approach to Avoided Costs

To estimate the avoided costs of electricity, Ameren Missouri relied on energy market forecasts provided by CRA International's (CRA) MRN-NEEM model projections. CRA performed a model analysis for 10 distinct scenarios based on possible combinations of three critical factors: Carbon Policy, Natural Gas Prices, and Load Growth. Each of the 10 scenarios had an associated market price for electricity. The probability weighted average of the 10 scenarios was used as the avoided energy costs in the Ameren Missouri DSM cost-effectiveness analyses.

It is noteworthy that CRA's MRN-NEEM model has been extensively peer-reviewed by such reputable organizations as the Stanford Energy Modeling Forum, the California Air Resources Board's peer review panel of economists for its analyses of AB32 costs, and (for an earlier version of the model) the International Panel on Climate Change (IPCC). It has been found to represent a best-in-class energy and environmental model capable of producing the integrated projections of key IRP variables essential to resource plan selection.

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Avoided transmission and distribution (T&D) costs come from integrated system effects and are difficult to quantify, as opposed to energy and capacity costs where there are markets with specific prices. To incorporate these customer savings in its modeling, Ameren Missouri correlated the MW impacts of DSM programs with a corresponding reduction in capital expenditures associated with T&D expansion. Avoided T&D costs started with a generic estimate of the marginal cost of system expansion. The estimates also incorporate the fact that Ameren analyzes the system as an aggregate and cannot tell whether load pockets will be deferred by DSM programs. Since DSM programs are not being designed to avoid or offset specific T&D projects, there is no certainty as to which projects will actually be deferred. In addition, Ameren Missouri has factored in the effect that load growth projects cause T&D asset turnover, so if Ameren Missouri does not upgrade or replace a substation because of DSM, then Ameren Missouri will need to spend money on additional maintenance or reliability projects that would have been avoided had new equipment been installed to meet load growth.

The ancillary services market in the Midwest ISO went live on January 6, 2009 as MISO Day 3. The ancillary service market is characterized by three services: regulation reserve, spinning reserve, and supplemental reserve. Since the Midwest ISO ancillary services market is relatively immature and the total ancillary services 2010 year-to-date through October cost was only 16 cents per megawatt hour, no estimate of avoided ancillary services has been included in Ameren Missouri's analysis.

Alleged Deficiencies and Concerns

Issue 1
Party: Staff
Identifier: Concern A
Reference: Staff Report, page 20
Rule Citation: 4CSR 240-22.050(2)
8/8 Joint Pleading Location: Appendix A, page 19

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Figure 2.3 Avoided Capacity Cost (HC)

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Conclusion: Ameren Missouri has complied with the rules requiring the estimation and use of avoided costs. Avoided cost estimates have been applied consistently, and the changes in avoided cost estimates between the early analyses and the rest of the IRP analysis are reasonable.

Issue 2
Party: DNR
Identifier: Deficiency 13
Reference: GDS Report, page 46
Rule Citation: 4CSR 240-22.050(2)
8/8 Joint Pleading Location: Appendix A, page 19

Issue Summary: DNR contends that Ameren Missouri's T&D avoided cost methodology is deficient because it relies on what they characterize as "unsubstantiated adjustment factors". DNR/GDS cites 22.050(2), which, as modified by a waiver approved by the Commission, requires the inclusion of an estimate of avoided transmission and distribution costs.

Ameren Missouri's Position and Evidence: Ameren Missouri has clearly included an estimate of avoided T&D costs and documented it in Table 7.8 in Chapter 7 of its IRP filing. The GDS report takes issue with the methodology and proposes that Ameren Missouri develop a more rigorous approach to developing avoided T&D cost without offering any suggestion as to what that might entail. DNR has not taken issue with the reasonableness of the avoided T&D value. In response to a data request (Ameren-DNR-001

WRD) DNR was unable to provide an alternative methodology it would consider more rigorous. The data request and response are attached as Appendix B.

Ameren Missouri's primary basis for estimating avoided T&D costs is its marginal cost of system expansion. Of this, Ameren Missouri has estimated how much is related specifically to load growth, as opposed to customer additions and reliability and condition projects. For distribution these estimates were explicitly based on budget information. Ameren Missouri sought to estimate how much of the load-growth-related expenditures could be deferred; recognizing that deferral of some growth-related projects would mean an increased need for equipment turnover due to reliability and condition issues. Absent any empirical data to inform this refinement, Ameren Missouri relied on the engineering judgment of distribution planners to determine the percentage of growth-related expenditures that could be avoided. For distribution this factor was 60% and for transmission 70%. This was the only judgmental factor applied to avoided distribution costs.

For transmission, a similar such factor had to be determined to assess the growth-related portion of future expenditures simply because transmission projects support multiple operational objectives and cannot be as explicitly categorized as distribution projects. An additional factor was applied to the transmission avoided costs to account for the fact that not all projects that are growth-related could be deferred because of the geographic distribution of potential demand savings across Ameren Missouri's system (i.e., the load reduction might occur in places other than where the new facilities are needed).

While these factors are admittedly subjective, they are based on the engineering judgment of system planners and account for real effects that limit the opportunities for deferral of system projects. Without reflecting these limitations, the avoided T&D cost would be overstated as would the benefits associated with demand savings from DSM programs.

Conclusion: Ameren Missouri's approach to estimating avoided T&D costs is reasonable and does not violate the rules (as revised by waiver) requiring the inclusion of T&D avoided cost.

2.5 Evaluation of DSM Portfolios

Alleged Deficiencies and Concerns

Issue 1
Party: OPC
Identifier: Deficiency 2
Reference: OPC Report, page 4
Rule Citation: 4CSR 240-22.010(2)(A), 4CSR 240-22.060(3)
8/8 Joint Pleading Location: Appendix A, pages 2-3

Issue Summary: OPC asserts that Ameren Missouri did not develop alternative resource plans that capture the full range of demand-side resources, citing 22.010(2)(A), which requires evaluation of demand-side resources on an equivalent basis with supply-side resources, and 22.060(3), which requires the development of a range of alternative resources plans designed to achieve one or more planning objectives. OPC contends that Ameren Missouri did not consider a sufficient range of demand-side resource portfolios and that the lack of more portfolios to analyze restricts minimization of PVRR. OPC further asserts that the RAP portfolio underestimates the amount of energy savings that could be achieved by assuming what OPC considers to be low financial incentives to participating customers and low awareness of the efficiency programs, two parameters over which it states the Company has control. Finally, OPC contends that Ameren Missouri has not complied with the Commission's order in Ameren Missouri's 2008 IRP (Case EO-2007-0409) which required the Company to "model an even more aggressive approach to encourage participation in demand-side management programs in its next filing."

Ameren Missouri's Position and Evidence: Ameren Missouri has evaluated a broad range of DSM programs and portfolios and has evaluated inclusion of DSM resources on an equivalent basis with supply-side resources. OPC's assertions disregard the fact that the Company evaluated five different DSM portfolios – MAP, RAP, Low Risk, CCP, and 2% load reduction, that all but the Low Risk portfolio result in greater demand and/or energy savings than that included in Ameren Missouri's 2008 IRP, and that a comparison of the RAP and CCP portfolios provided a rigorous test of different mixes of energy efficiency and demand response resources.

Figure 2.4 Cumulative Peak Demand Savings

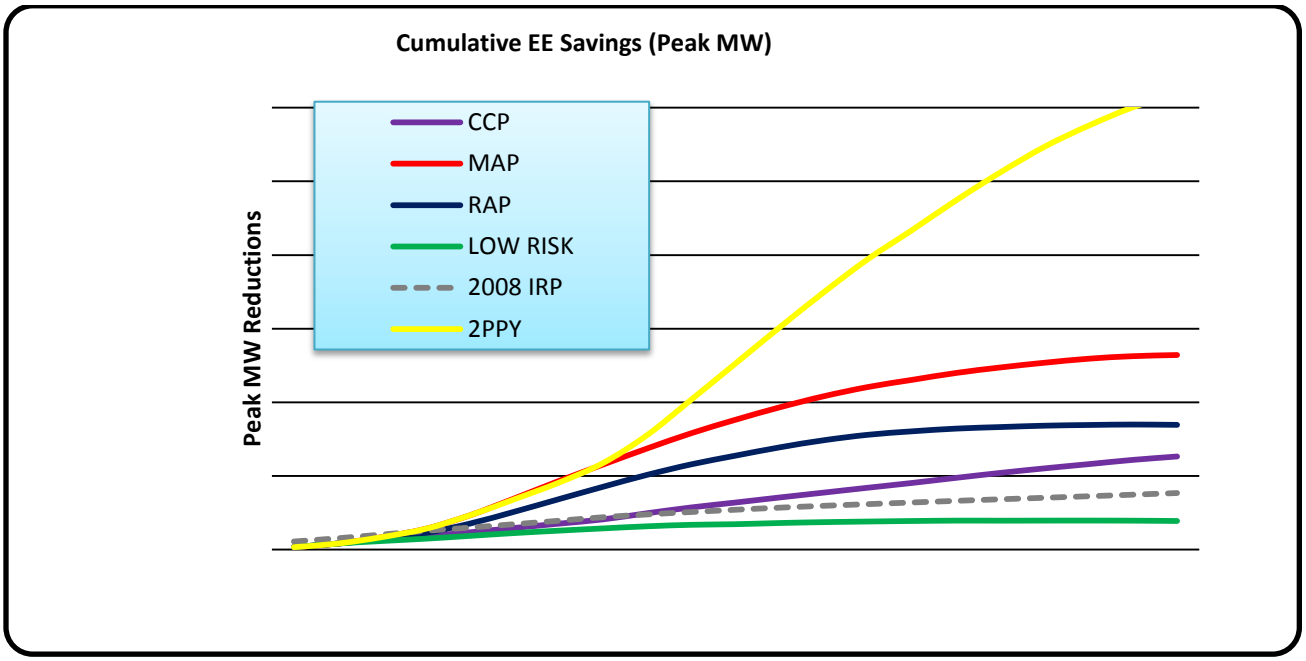


Figure 2.2, presented previously in this report, shows that energy savings for the RAP portfolio are roughly equivalent to those included in Ameren Missouri's 2008 IRP, while energy savings for the MAP and 2% annual load reduction portfolios are significantly higher. Figure 2.4 shows that demand savings are greater for the RAP, MAP, CCP and 2% annual load reduction portfolios than that for the 2008 IRP portfolio.

OPC implies that meeting demand and reserve requirements with resources through alternative resource plans is not enough and that as long as resources will result in a reduction in PVRR they should be added to the Company's portfolio. Following such a philosophy in a way that is consistent with equivalent treatment of both supply- and demand-side resources would mean that the Company should invest not only in more DSM than it needs, but also in generating plant assets that aren't required for meeting native load and reserve requirements, so long as they are expected to reduce PVRR. Ameren Missouri believes this goes beyond the requirements of the IRP rules and introduces the concept of the regulated utility undertaking the role of a quasi-merchant generator on behalf of customers.

Conclusion: Ameren Missouri has evaluated a broad range of portfolios, including several that are more aggressive than that included in the Company's 2008 IRP filing. Ameren Missouri has appropriately limited the inclusion of DSM programs to those needed to meet load and reserve requirements and evaluated the trade-offs between demand response and energy efficiency by evaluating portfolios constructed with different levels of each. In doing so, Ameren Missouri has treated demand-side resources on an equivalent basis with supply-side resources and has developed alternative resource plans in compliance with the IRP rules.

Issue 2
Party: OPC
Identifier: Deficiency 7
Reference: OPC Report, page 9
Rule Citation: Commission Order EO-2007-0409
8/8 Joint Pleading Location: Appendix A, page 22

Issue Summary: OPC contends that Ameren Missouri has not more realistically evaluated its Industrial Demand Response program as directed by the Commission in its order in Ameren Missouri's 2008 IRP (case EO-2007-0409).

Ameren Missouri Position and Evidence: Ameren Missouri did in fact perform an analysis of revised IDR program although the name "IDR" was not used. While the Low Risk portfolio only included direct load control demand response programs, a Non-Dispatchable Demand Response program that represented the "Rider L" or "Peak Power Rebate " and the legacy Industrial Demand Response or "IDR" program was included in both the RAP and MAP portfolios. The TRC for the program was calculated as 1.98 for RAP

and 1.44 for MAP. Again, Ameren Missouri did include the NDDR programs in its alternative resource plans that contained RAP and MAP and therefore the impact was included in all PVRR evaluations.

Conclusion: Ameren Missouri has provided analysis in compliance with the Commission Order.

Issue 3
Party: DNR
Identifier: Deficiency 7
Reference: DNR Report, page 23
Rule Citation: Stipulation and Agreement ER-2010-0036
8/8 Joint Pleading Location: Appendix A, page 24

Issue Summary: DNR (Deficiency 7, page 23) – Contends that Ameren Missouri did not fulfill its agreement in a stipulation and agreement in case ER-2010-0036, which stated in relevant part that Ameren Missouri would "model two demand side management program portfolios for analysis in its next Chapter 22 Resource Planning Filing due February 5, 2011, … that annually achieve incremental electric energy savings equivalent to (A) 1% (by 2015) and (B) 2% (by 2020) reductions in annual sales."

Ameren Missouri Position and Evidence: Ameren Missouri has performed the analysis it agreed to perform, working directly with DNR to establish the assumptions and basis for analysis. It is important to note that the language in the stipulation makes no reference to "alternative resource plans" or "candidate resource plans", both of which had been clearly defined at the time of the agreement through the Company's requested waivers in the current IRP case.

Ameren Missouri and DNR met on September 8th, 2010 to agree on the analysis and assumptions to be performed. The resultant analysis was shared with DNR and then with all stakeholders at a meeting on September 14th. After that meeting, DNR determined that the assumptions needed to be changed and that they would provide guidance on how they thought the basis for analysis should be determined. DNR responded nearly two months later on November 9th, 2010, with an updated view of the basis for determining the energy savings in the 1% and 2% cases. Ameren Missouri and DNR agreed that the MAP portfolio was a reasonable proxy for the 1% per year savings portfolio and that no separate analysis for that portfolio was required.

While Ameren Missouri had already completed all of its analysis of alternative and candidate resource plans, and while Ameren Missouri management had already selected the preferred resource plan, points which had been clearly communicated to DNR during the discussions, Ameren Missouri agreed to perform an integrated analysis of the 2% per year savings case in the same manner in which it had analyzed the alternative resource plans identified earlier in the IRP development and analysis process. Ameren Missouri contacted DNR on December 9, 2010, to reiterate that it was too late in the process to guarantee inclusion of the 2% case analysis in the list of candidate resource plans for consideration, that it would not be selected as a candidate resource plan even if it wasn't too late because of its poor TRC and, more importantly, the fact that the portfolio exceeds the economic potential identified in the

company's DSM Market Potential Study, and that the Company would perform the analysis and make all results available to DNR.

Based on the analysis included in the IRP report (chapter 7, page 120, table 7.41) the 2% per year savings portfolio produced a TRC of just 0.51, and thus would not be passed for consideration as a candidate resource plan. Even so, the Company performed the analysis of the 2% portfolio in MIDAS and included the results in its workpapers. Since the filing of DNR's IRP comments, Ameren Missouri has provided DNR the specific workpaper location that included the PVRR analysis of the 2% portfolio and answered DNR's follow-up questions.

The 2% portfolio cost-effectiveness analysis is included in the workpapers in folder "\Workpapers - HC\KFS - HC\Portfolio Screens\2 percent". The integration analysis results can be found in the workpapers in folder "\Workpapers - HC\SHB - HC\Midas\Model Results\EE 2%" and the file "PVRR-EE 2%.xlsx" in that directory summarizes the results.

Conclusion: Ameren Missouri has exceeded the analysis it committed to and has directed DNR to the specific location of the analysis results.

Issue 4
Party: DNR
Identifier: Deficiency 8
Reference: DNR Report, page 26
Rule Citation: Stipulation and Agreement ER-2010-0036
8/8 Joint Pleading Location: Appendix A, pages 24-25

Issue Summary: DNR asserts that Ameren Missouri's IRP is deficient because it did not evaluate plans including the MAP DSM portfolio as candidate resource plans. DNR cites the same stipulation and agreement cited and summarized in the discussion of Issue 3 in this section.

Ameren Missouri's Position and Evidence: Ameren Missouri is under no obligation to include particular plans for consideration as candidate resource plans and never agreed to include alternative resource plans with the MAP DSM portfolio in its list of candidate resource plans, either in a stipulation or otherwise. The basis for excluding plans with the MAP DSM portfolio go beyond the fact that the risk adjusted PVRR is higher than for RAP DSM plans – it includes the consideration that MAP, by definition, is the maximum achievable potential that might be realized under ideal conditions.

DNR raises a concern with respect to the exclusion of plans with the MAP DSM portfolio from the final list of candidate resource plans, primarily because only one alternative for Meramec (retirement in 2022) was considered in the stage at which the MAP DSM plans were excluded and other Meramec options were considered in the analysis of candidate resource plans. The implication DNR is making is that it was unfair to exclude MAP plans because they might have performed better with other Meramec

options than they did with only 2022 retirement. This is unfounded because under plans with either RAP or MAP DSM, Meramec could be retired without creating the need for a supply side resource. Therefore, there would be no additional benefit for deferral of a supply side resource for MAP plans relative to RAP plans. The fact that the RAP plan PVRR was lower than that for MAP plans with Meramec retired in 2022 bears this out. Retiring the plant earlier or later in the planning horizon would not result in a change in supply side resource need with either portfolio.

Conclusion: Ameren Missouri's candidate resource plans include a diverse set of resource options including the retirement/replacement, natural gas boiler conversion, or the addition of environmental controls for Meramec. Including the RAP plan instead of the MAP plan as the appropriate DSM-only candidate resource plan was the most reasonable option given the definitions of RAP and MAP and based on the performance of these plans in the modeling analysis.

Issue 5
Party: DNR
Identifier: Deficiency 9
Reference: GDS Report, page 37
Rule Citation: 4CSR 240-22.050(5)
8/8 Joint Pleading Location: Appendix A, page 20

Issue Summary: DNR asserts that Ameren Missouri has ignored critical market research findings regarding the potential connection between low customer satisfaction and DSM program participation rates. The GDS report asserts that Ameren Missouri's approach to monitoring and improving customer satisfaction should focus more specifically on energy efficiency participation. DNR cites 22.050(5), which requires that utilities, "conduct market research, studies, customer surveys, pilot demand-side programs, test marketing programs and other activities as necessary to estimate the technical potential of end-use measures and to develop the information necessary to design and implement cost-effective demand-side programs."

Ameren Missouri's Position and Evidence: In conducting its DSM Market Potential Study, Ameren Missouri has developed a solid basis, using primary market data, for estimating potential and designing cost-effective programs, as required by the rules.

With respect to the specific assertion by DNR, they draw a false conclusion of direct causality between customer satisfaction and energy efficiency program participation. They put words in the mouth of Ameren Missouri's consultant Global Energy Partners by restating and paraphrasing as follows: "Instead the conclusion might be restated that if Ameren improved its customer satisfaction ratings in regard to Ameren Missouri as an energy provider, then the market research indicates that it is likely that the willingness of its customers to participate in DSM programs would increase accordingly." The market research makes no claims of direct causality between these factors, but rather recognizes that there are complex interrelationships between customer satisfaction, likelihood for EE program participation,

general customer attitudes, and a host of other factors. On the same page from which DNR has selected choice quotes to build their argument, the counter-argument appears: "Implicitly, it may be the case that attitudinal differences within your customer population are driving these differences [in EE program participation likelihood]." (Vol 2, Chap 4, page 22)

To follow DNR's advice and divert effort and budget toward increasing customer satisfaction because it will raise energy efficiency participation levels would be a classic case of the tail wagging the dog. It is patently obvious that Ameren Missouri already has a strategy in place to monitor and improve customer satisfaction, and has been doing so since long before energy efficiency programs were enacted. This strategy looks primarily at factors such as price, billing and payment, power quality and reliability, and customer service. Energy efficiency program participation is now a consideration in the customer satisfaction strategy, but to suggest that it should be the primary focus and aim is completely unfounded.

Of course, Ameren Missouri's energy efficiency marketing efforts and customer satisfaction efforts will inform and influence each other as the natural course of their activities interact over time, but the market research certainly does not suggest that some wholesale revamping of the customer satisfaction strategy should be studied so it can increase energy efficiency program participation.

Conclusion: Ameren Missouri's DSM Market Potential Study satisfies the requirements of 22.050(5). Any new work that DNR suggests to redefine Ameren Missouri's customer satisfaction strategy such that it would focus primarily on increasing energy efficiency participation is not supported by conclusions from Ameren Missouri's DSM Market Potential Study and does not make business sense.

Issue 6
Party: DNR
Identifier: Deficiency 10
Reference: GDS Report, page 41
Rule Citation: 4CSR 240-22.050(11)
8/8 Joint Pleading Location: Appendix A, pages 18-19

Issue Summary: DNR contends that Ameren Missouri has not documented market studies that are planned or in progress. DNR cites 22.050(11), which requires, "Copies of completed market research studies, pilot programs, test marketing programs and other studies as required by section (5) of this rule and descriptions of those studies that are planned or in progress and the scheduled completion dates;"

Ameren Missouri's Position and Evidence: Ameren Missouri has identified and documented all studies that were used in the development of the IRP, including its DSM Market Potential Study. As far as plans for future studies, Ameren Missouri has not formulated an explicit project plan and schedule as yet for its next triennial IRP filing. Assuming the next triennial filing would occur in 2014, in order to support the development of the DSM portion of that filing, a refresh of the DSM Potential Study would occur in

the 2012 to 2013 time frame. The next such study would be completed in accordance with the MEEIA rules.

Conclusion: Ameren Missouri has not formulated plans for future market studies, so there is nothing additional to document in the IRP.

Issue 7
Party: NRDC
Identifier: Deficiency II-A (subpart 2)
Reference: NRDC Report, page 5
Rule Citation: 4CSR 240-22.010(2)(A)
8/8 Joint Pleading Location: Appendix A, pages 3-4

Issue Summary: NRDC asserts that DSM resources have not been allowed to compete with supply-side resources "on a fair and comparable basis" because the timing of portfolios is predetermined and supply-side resources were added first. NRDC cites 22.010(2)(A), which requires equivalent treatment of demand-side and supply-side resources.

Ameren Missouri's Position and Evidence: Ameren Missouri has evaluated demand-side and supply-side resources on an equivalent basis as required by the rules. A broad range of DSM portfolios were designed and were actually added before new supply-side resources (IRP Chapter 9, page 4). This approach was followed for various combinations of Noranda contract continuation/expiration and Meramec continuation/retirement. For alternative resource plans that included either the MAP or RAP DSM portfolio, no new supply-side resources were needed or included. Regarding the timing of energy savings Ameren Missouri has made reasonable assumptions with respect not only to customer awareness and participation but also with respect to building the requisite capabilities to implement, monitor and manage the programs.

Conclusion: Ameren Missouri has evaluated demand-side and supply-side resources on an equivalent basis, as required by the IRP rules.

Issue 8
Party: NRDC
Identifier: Deficiency II-A (subpart 3)
Reference: NRDC Report, page 5
Rule Citation: 4CSR 240-22.010(2)(A)
8/8 Joint Pleading Location: Appendix A, pages 3-4

Issue Summary: NRDC asserts that Ameren Missouri has assumed widespread use of emerging CCS technology for supply side planning purposes but omitted all emerging technologies from its DSM analysis. NRDC goes on to imply that if CCS technology does not become commercially viable that,

"Ameren will need to continue purchasing larger amounts of renewable energy credits or pay larger financial penalties." NRDC cites 22.010(2)(A), which requires equivalent treatment of demand side and supply side resources.

Ameren Missouri's Position and Evidence: Ameren Missouri has evaluated a range of emerging technologies for its demand side analysis, has not assumed widespread use of CCS technology, and has evaluated demand side resources on an equivalent basis with supply side resources. The assumptions on CCS technology cited by NRDC relate only to potential new coal resources that could be considered, but not necessarily added, by the CRA model. Chapter 2 of the Company's IRP filing (page 19) states, "all of the non-BAU CO2 policy cases envision a prohibition on new coal-fired plants without CCS." Ameren Missouri has not assumed CCS retrofits on any of its existing coal units in any alternative or candidate resource plan. With respect to needs to purchase large amounts of renewable energy credits, Ameren Missouri sees no relevance for such a statement and NRDC provides no support for it.

Regarding the evaluation of technologies for demand-side resources, Ameren Missouri has included consideration of LED lamps, heat pump water heaters, gravity film heat exchangers, ground coupled heat pumps, variable frequency motor drives, and smart strip plug controllers, among others. Ameren Missouri has also assumed a transition from Automated Meter Reading (AMR) technology to Advanced Meter Infrastructure (AMI) beginning in 2015 (IRP Chapter 7, page 50) despite the fact that we currently believe the costs outweigh the incremental benefits (IRP Chapter 6, page 23).

Conclusion: Ameren Missouri has evaluated a range of emerging technologies for demand-side resources and has evaluated demand side resources on an equivalent basis with supply side resources.

2.6 Ameren Missouri's DSM Market Potential Study

Alleged Deficiencies and Concerns

Issue 1
Party: DNR
Identifier: Concern 6
Reference: DNR Report, page 32
Rule Citation: 4CSR 240-22.050(5)
8/8 Joint Pleading Location: Appendix A, pages 20-21

Issue Summary: DNR asserts that Ameren Missouri's DSM Market Potential Study is flawed because it does not rely on the use of "stratified random samples". DNR cites 22.050(5), which requires the utility to conduct market research, customer surveys and other activities in order to determine DSM potential and design cost-effective programs.

Ameren Missouri's Position and Evidence: Ameren Missouri has conducted its market research analysis compliant with the requirements of 22.050(5), which does not specify minimum sampling requirements. The fact is that Ameren Missouri has already used stratified-random sampling and will likely continue to use stratified-random sampling in data collection for its next full demand-side potential study and in similar studies.

The recently adopted MEEIA rules govern the requirements of market potential studies and provide additional guidance on sampling requirements. The MEEIA rules require "A current market potential study. The current market potential study shall use primary data and analysis for the utility's service territory. The determination of whether to conduct a market potential study for the utility's service territory or for all statewide investor-owned electric utilities shall be at the discretion of the electric utility. If the current market potential study of the electric utility that is filing for approval of demand-side programs or a demand-side program plan is part of a statewide investor-owned electric utilities market potential study, *the sampling methodology shall reflect each utility's service territory and shall provide statistically significant results for that utility*. The current market potential study shall be updated with primary data and analysis no less frequently than every four (4) years. To the extent that primary data for each utility service territory is unavailable or insufficient, the market potential study may also rely on or be supplemented by data from secondary sources and relevant data from other geographic regions. The current market potential study shall be prepared by an independent third party with opportunities for commission staff and stakeholder review and input in the planning stages of the analysis including review of assumptions and methodology in advance of the performance of the study and shall include at least the following:" (emphasis added) As the Commission's MEEIA rules specify requirements for potential studies to be used as support for the approval of demand-side programs, there is no need for the Commission to provide additional guidance regarding the conduct of such studies in this case.

Conclusion: Ameren Missouri used a stratified random sample in its DSM potential study, and the MEEIA rules set standards for future potential studies.

Issue 2
Party: DNR
Identifier: Concern 7
Reference: DNR Report, page 32
Rule Citation: 4CSR 240-22.050(5)
8/8 Joint Pleading Location: Appendix A, page 21

Issue Summary: DNR asserts that Ameren Missouri's DSM Market Potential Study is flawed because the basis for take rates used in estimating the maximum achievable potential (MAP) is flawed due to reliance on responses for single measures as representative for multiple measures. DNR again cites 22.050(5) regarding the conduct of research to support DSM potential estimation and program design.

Ameren Missouri's Position and Evidence: Ameren Missouri has conducted its market research analysis compliant with the requirements of 22.050(5), which does not specify a methodology to estimate Maximum Achievable Potential (MAP). The estimates of MAP were completed by industry-leading consultants and were clearly documented. David Lineweber, market research lead for the Study, is a nationally recognized expert on utility market research, as demonstrated by his recent contract with FERC to develop the National Action Plan On Demand Response. Future market potential studies will be completed in accordance with MEEIA requirements; therefore, there is no need for additional Commission guidance in this case.

Ameren Missouri believes that the data collection was well-designed and sufficient. Ameren Missouri survey respondents were asked to rate their likelihood to purchase different energy efficiency measures at a moderate payback. To reduce survey fatigue and research budget, respondents were asked about a higher or lower payback only for a subset of representative measures. Given budgetary and the practical constraints of survey length, Ameren Missouri chose to make strategic and reasonable extrapolations. The market research plan was discussed with stakeholders numerous times throughout the conduct of the DSM Market Potential Study, particularly at the Feb 4, 2009, stakeholder workshop, before any surveys went into the field. The potential impacts of this issue are minor.

Conclusion: Ameren Missouri has conducted its research in compliance with the IRP rules. The data collection strategy used in the DSM Market Potential Study was well-designed and reasonable, and the extrapolation of a small subset of data does not have an appreciable impact on the total study results.

Issue 3
Party: NRDC
Identifier: Deficiency II-A (subpart 1)
Reference: NRDC Report, page 4
Rule Citation: 4CSR 240-22.010(2)(A)
8/8 Joint Pleading Location: Appendix A, pages 3-4

Issue Summary: NRDC contends that Ameren Missouri's DSM potential study is flawed. Specifically, NRDC asserts that Ameren Missouri has indicated that the Maximum Achievable Potential DSM portfolio is not achievable and that Ameren Missouri has artificially constrained the MAP portfolio by assuming slow ramp-up in customer awareness, using budget constraints, using payback assumptions that are not instantaneous, assuming no more than 70% of survey respondents will participate, and assuming a high percentage of opt-out for eligible customers. NRDC cites 22.010(2)(A), which requires equivalent treatment of demand side and supply side resources.

Ameren Missouri's Position and Evidence: Ameren Missouri stands behind its DSM Market Potential Study as a rigorous and evenhanded analysis of the available DSM opportunities available in its service territory based on primary market data. NRDC's attacks are misguided and inaccurate; and even if they

were accurate, their suggested alterations would not appreciably change the IRP results or serve as anything but a distraction from the larger issues at play in the IRP filing.

First, the MAP portfolio is, by definition, what can be achieved under ideal conditions. Ameren Missouri merely uses the definition put forth by the industry, and as such, there is no deficiency by saying that achievement of MAP can only occur in a hypothetical, ideal world.

Second, NRDC alleges that Ameren Missouri's assumed ramp rate of customer awareness is too slow. Ameren Missouri maintains that the ramp rates are reasonable estimates produced by national expert consultants and informed by primary market research. It is intuitive that customer awareness may grow more slowly than national averages, given a region where DSM programming has heretofore been virtually non-existent. When asked to provide the analysis and documentation behind their claims to the contrary, NRDC replied: "No specific analysis or documents were relied on for this statement,"[5] and then gave a few anecdotal and apples-to-oranges examples after the fact. Data request Ameren-NRDC-006 DC is attached as Appendix C.

Third, NRDC's issue regarding budget constraints stems from a misunderstanding of the study's methodology. NRDC says in a response to a data request: "The inclusion of such budgetary constraints is inappropriate in an estimate of maximum achievable potential and represents an inappropriate self-imposed restriction."[6] The budget constraints that they are referring to, however, are actually imposed on the RAP portfolio. The MAP portfolio includes measures and programs that have the study's highest incentive levels and corresponding budgets. The RAP portfolio, by its very nature, restricts and scales back those incentive levels and budgets to achieve a realistic level of spending and program uptake. Data request Ameren-NRDC-005 DC is attached as Appendix D.

Fourth, NRDC claims that Ameren Missouri was wrong to use a range of three payback periods in surveys to gauge customers' interest in energy efficiency measures with three different cases of economic benefits. In particular, they say that the most economically beneficial payback period should have been 0-years (or instantaneous), rather than 1-year. Ameren Missouri maintains that a 1-year payback is sufficiently fast to be very enticing to customers, and that any differences from making the suggested change would be minor.

Fifth, regarding program participation, NRDC implies that Ameren Missouri's participation rates are too low, stating that "many jurisdictions have implemented programs that achieve participation rates of 70% or higher." Ameren Missouri's nationally recognized expert consultants used a methodology that compared actual market research response data and how it translated into documented purchase decisions. The study's participation rates are sound and robust. When asked to provide analysis and documentation to support their statement to the contrary, NRDC stated: "No specific analysis or

[5] MPSC Case No. EO-2011-0271 - No. Ameren-NRDC-006DC
[6] MPSC Case No. EO-2011-0271 - No. Ameren-NRDC-005DC

documents were relied on,"[7] and then proceeded again to give a few anecdotal and apples-to-oranges examples after the fact. Data request Ameren-NRDC-015 DC is attached as Appendix E.

Finally, Ameren Missouri has provided a quantitative analysis of customer opt-out potential as well as a quantification of the impact caused by customers who have already sent notifications to opt-out. The opt-out analysis conducted by Ameren Missouri starts on page 20 of Chapter 7-Demand Side Resources and concludes that 5% of total Commercial and Industrial load has already opted out and at least 36% of Commercial and Industrial load is eligible to opt-out (the midpoint of 20% was used as the base case). This uncertainty was included as an integral part of the overall DSM risk assessment.

Conclusion: Ameren Missouri's DSM potential study provides a solid basis, using primary data, for assumptions regarding DSM potential in its service territory.

[7] MPSC Case No. EO-2011-0271 - No. Ameren-NRDC-015DC

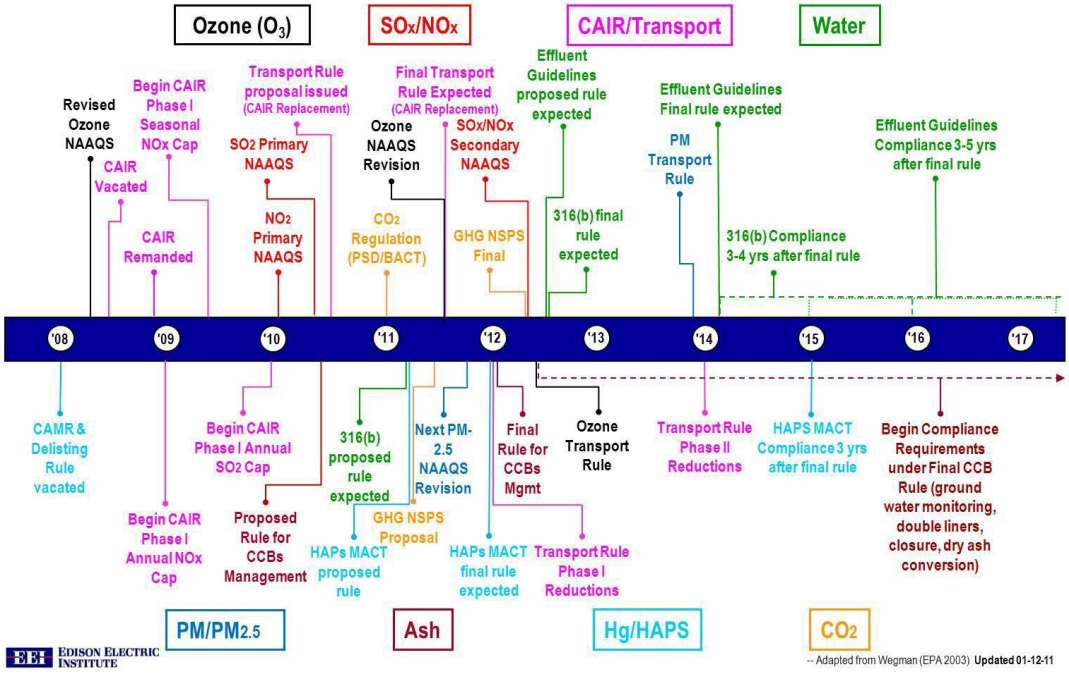
3.0 Environmental Regulation and Ameren Missouri's Existing Fleet

3.1 Ameren Missouri's Approach to Environmental Regulation and Coal Fleet Evaluation

Environmental regulations are an important factor to consider in resource planning. Ameren Missouri's ten planning scenarios included alternative regimes for limiting greenhouse gas emissions. In this IRP, it is assumed that any new coal plant will be built with carbon capture as well as meet other more stringent environmental regulations. However, there is still the question about the impacts of more stringent environmental regulations on Ameren Missouri's existing generation fleet, especially its coal assets.

The Environmental Protection Agency (EPA) is expected to issue new environmental regulations in the next 12 to 24 months related to air emissions, ash waste, and water. Figure 3.1 below provides a summary timeline for the anticipated rollout of these rules.

Figure 3.1 Potential Environmental Regulations



Ameren Missouri synthesized the potential new environmental regulations into two distinct scenarios and corresponding compliance paths characterized by environmental retrofits to its existing coal fleet. The costs and timing of those retrofits are included in the risk analysis and are instrumental to the retirement analysis of Meramec. Ameren Missouri also expanded its financing analysis to evaluate the impact of these large investments on financial metrics. Furthermore, the environmental scenarios act as a signpost for decision making and therefore are an important aspect of the strategy selection.

The Risk Analysis results indicated that under the moderate environmental scenario it is more attractive to continue operating Meramec in the planning horizon. However, considering PVRR only, the Meramec

decision is not clear cut under the aggressive environmental scenario. The natural gas boiler conversion and environmental control options are similar on a cost comparison with a slight advantage to the addition of controls. Considering all scenarios together, the PVRR metric shows the retirement option is slightly more expensive, but under cap and trade carbon regulation the costs are even closer. In fact, the retirement option results in lower cost than other Meramec options when coupled with RAP DSM. With the PVRR results in such a tight range, the cost metric alone is not sufficient to support a decision. Incorporating the other measures in the selection scorecard allows decision makers to consider other factors that influence the Meramec decision, such as the risk of stranded costs and the risk of additional environmental regulations.

Ameren Missouri has been clear from the beginning of this IRP planning process that its intention was to analyze the retirement of Meramec first, and based on the results of that analysis it would determine what future analysis, if any, should be performed for its remaining coal fleet. The PVRR analysis results were not definitive with respect to the retirement of Meramec in the Aggressive environmental scenario. Therefore, it is prudent to continue to analyze the Meramec decision and to only evaluate the other coal plants as a result of changed circumstances in the Meramec analysis. The ongoing capital costs, exclusive of environmental controls, to keep a plant of Meramec's vintage operating safely and reliably will be a key consideration in the eventual retirement decision. Ameren Missouri's implementation plan includes the further investigation of those costs in detail to adequately support the continued analysis of Meramec options.

3.2 Meramec Plant Assumptions and Analysis

Alleged Deficiencies and Concerns

Issue 1
Party: DNR
Identifier: Deficiency 11 / Deficiency 5
Reference: DNR Report, page 29 / GDS Report, page 22
Rule Citation: 4CSR 240-22.040(2)(C) / 4CSR 240-22.040(8)(A)
8/8 Joint Pleading Location: Appendix A, pages 15-16

Issue Summary: DNR contends that Ameren Missouri does not adequately address the upper boundary of costs for generation from its existing coal-fired power plants over the planning horizon. DNR cites 22.040(2)(C), which pertains to selection of critical uncertain factors for O&M costs, and 22.070(2), which provides for a preliminary sensitivity analysis of uncertain factors and lists a number of prescribed candidate uncertain factors for evaluation. DNR asserts that it is necessary to make such estimates as they pertain to the entire Ameren Missouri coal fleet. DNR indicates that adequately addressing the upper boundary of costs related to Ameren Missouri's existing coal-fired fleet would entail 1) assessing uncertainties with respect to coal prices, 2) assessing uncertainties with respect to O&M costs for the existing fleet, and 3) assessing potential future environmental regulations. DNR points out that the

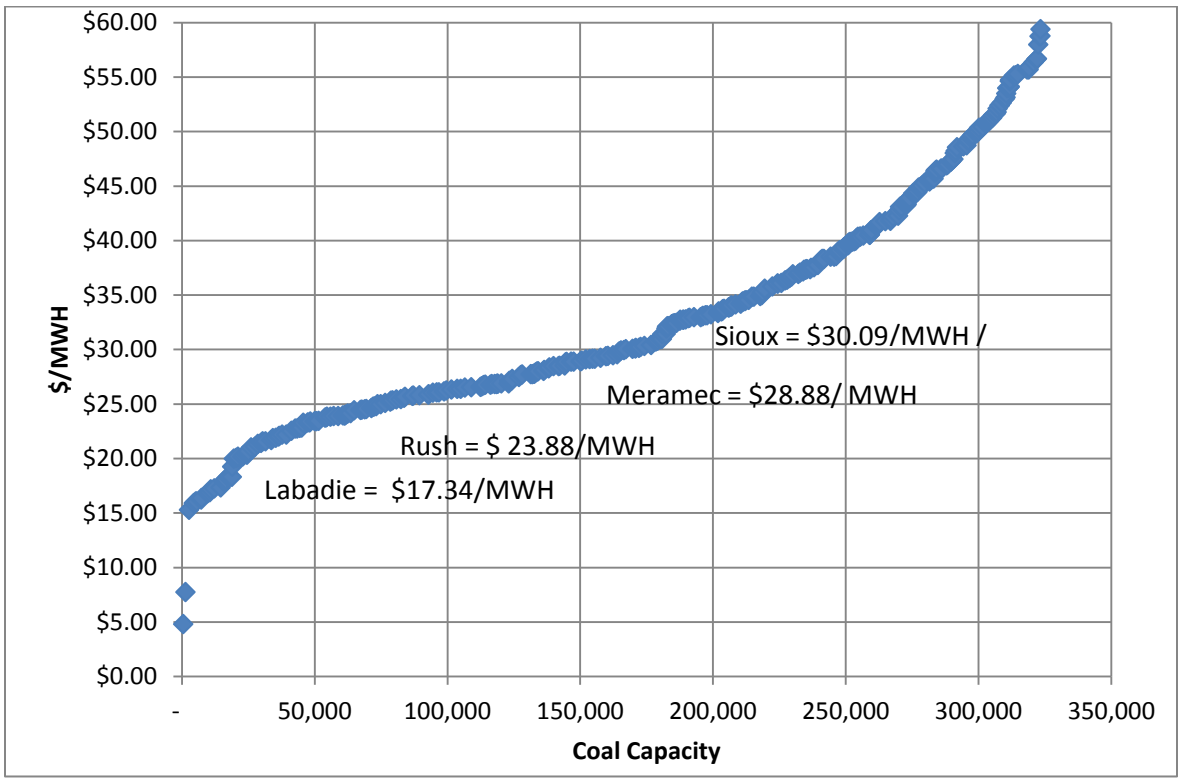
company's consideration of environmental regulation as an uncertain factor was limited to carbon regulation. They also assert that the company did not evaluate coal prices as an uncertain factor.

Ameren Missouri's Position and Evidence: Ameren Missouri's selection and evaluation of uncertain factors is reasonable and was conducted in compliance with the IRP rules. There are no IRP rule requirements associated with analyzing the "upper boundary" of costs. While the development of uncertain factors entails defining value ranges and subjective probabilities, it too does not require an estimation of the "upper boundary" for costs related to any uncertain factors. Although it may seem appealing to some to perform a top-to-bottom analysis of the entire existing coal fleet as though these resources were competing for a place in the Company's resource portfolio on the same basis as new resources, it is an unnecessary and overly complicated undertaking to do so without first evaluating a test case and then applying the lessons learned to other plants.

Ameren Missouri chose the Meramec plant as a test case for a number of reasons, including the fact that it is the Company's oldest coal plant and has been the subject of numerous discussions before the Commission in recent years with respect to its eventual retirement. As has been shown in the Company's IRP filing, environmental regulation would have to become significantly onerous before retirement of the Meramec Plant within the planning horizon would become economic relative to installation of environmental controls. As with any plant of the vintage of Meramec, however, other factors could of course dictate retirement at different point in time than assumed for purposes of the IRP filing.

Recent estimates of future coal retirements due to new environmental regulation have ranged from 10 GW to 80 GW. As shown in Figure 3.2, Ameren Missouri's existing coal-fired generation performs at costs that is lower than a significant portion (more than 100 GW) of the U.S. coal fleet. Clearly, the costs for Labadie and Rush Island indicate that they are among the most cost-competitive plants in the nation. With scrubbers in operation at the Sioux plant, its exposure to additional air regulations is mitigated. That leaves Meramec plant, which was the primary focus of Ameren Missouri's analysis of environmental regulation and mitigation in the IRP.

Figure 3.2 2010 U.S. Coal Plant Average Production Costs (Fuel + O&M)



Source: SNL database

For reasons discussed elsewhere in this report (see Section 3.3, Issue 1), Ameren Missouri evaluated environmental regulation specific to coal-fired generation as part of its Environmental Regulation decision factor. The primary rationale for this approach is that it avoids the inconsistencies that would arise by running plans designed to meet one set of environmental regulations through branches of the probability tree that assume a different set of environmental regulations. Chapter 8 of the Company's IRP filing includes a thorough discussion of a range of potential future environmental regulations affecting coal, including the utility MACT rule cited by DNR in its report.

With respect to coal prices, the scenarios modeled by CRA and described in Chapter 2 reflect a range of prices for both Illinois Basis and Powder River Basin coal consistent with the assumptions that define the different market scenarios. As noted in Chapter 2 of Ameren Missouri's IRP filing, coal prices are specifically calculated based on annual supply and demand:

> "As opposed to being an input, prices for each coal type are endogenously calculated within the model based upon the interaction of electric sector demand and annual coal supply curves. This implies that different levels of coal use in different periods lead to different average coal prices. Such an approach ensures internal consistency between allowance prices and coal prices, unlike other models in which coal prices are effectively fixed regardless of the rate of consumption."

Conclusion: Ameren Missouri's selection and evaluation of uncertain factors is reasonable, and uncertain factors were developed and evaluated in compliance with the Chapter 22 rules. DNR's concerns over evaluations of the existing coal fleet and determination of coal prices are unfounded.

Issue 2
Party: NRDC
Identifier: Deficiency IV-A (subpart 1)
Reference: NRDC Report, page 22
Rule Citation: 4CSR 240-22.040(1)
8/8 Joint Pleading Location: Appendix A, pages 10-11

Issue Summary: NRDC contends that Ameren Missouri has assumed the continued operation of the Meramec coal generating units far past their likely retirement date. NRDC cites 22.040(1), which requires the utility to identify a variety of supply side options, which includes life extension and refurbishment at existing generating plants and enhancement of environmental controls at existing generating plants, among other options.

Ameren Missouri's Position and Evidence: Ameren Missouri has appropriately evaluated a range of options with respect to its Meramec coal-fired units, including life extension, conversion to natural gas boiler operation, installation of additional emission controls, and retirement. NRDC points to the language in 22.040(1) that states that the utility should identify supply side options which it "can reasonably expect to develop and implement," then asserts that Ameren Missouri cannot do this with its existing Meramec units because they are too old based on actuarial analysis included in Ameren Missouri's July, 2009, "Report on Life Expectancy of Coal-fired Power Plants" performed by Black and Veatch. While such an analysis is perfectly valid and useful for assessing plant life expectancy, it is not necessarily the final word on the matter.

Ameren Missouri sought to evaluate specific options with respect to the Meramec units in this IRP based on more detailed engineering studies of the condition of the units and the ongoing budget requirements to operate them at sustained levels of reliability. To support this analysis, Ameren Missouri engaged Burns and McDonnell to evaluate the condition of the Meramec units. NRDC cites the Burns and McDonnell report, "Meramec Condition Assessment Report" prepared in June, 2009, and quotes a small portion of it to support their view that the plant cannot be maintained at a reasonable cost. Specifically, they cite language from section 5.2 of the report, which indicates that operation beyond the 2021-2025 timeframe will require, "increased condition assessment… to keep the Plant operating safely and reliably." This particular quote simply set the stage for the analysis and recommendations made by Burns and McDonnell for long-range budgets to support the retirement dates used in the various scenarios. The Burns and McDonnell study did not address the economics of whether investments in the Plant should be made in view of environmental and other considerations that would impact the economics of the Plant's operation. To the contrary, the Burns and McDonnell study simply addressed

the question of "how much would Ameren Missouri have to spend and invest" if the economics suggested continued operation.
Ameren Missouri's IRP analysis relied on the recommendations from the Burns and McDonnell study based on their engineering expertise. The IRP analysis objectively analyzed the various options based on these and other reasonable assumptions rather than simply assuming a retirement date for the plant based on its age.

Conclusion: Ameren Missouri's evaluation of Meramec options and the assumptions used are reasonable and appropriate and demonstrate specific compliance with the rules requiring the evaluation of such options.

Issue 3
Party: NRDC
Identifier: Deficiency IV-A (subpart 2)
Reference: NRDC Report, page 25
Rule Citation: 4CSR 240-22.040(1)(E)-(J), 4CSR 240-22.040(8)(B)-(C)
8/8 Joint Pleading Location: Appendix A, pages 9-10

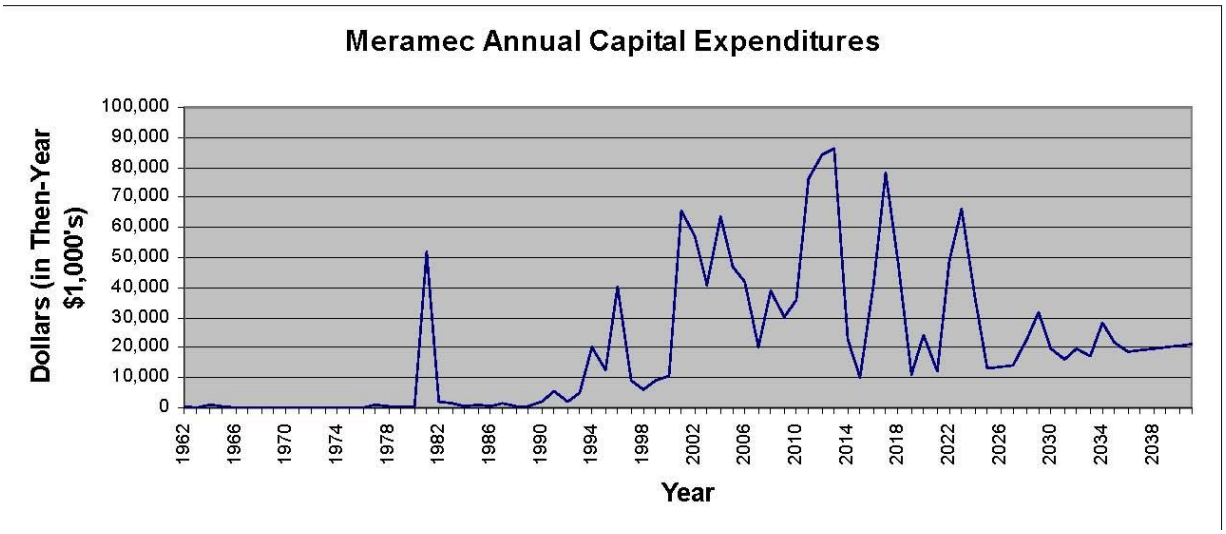
Issue Summary: NRDC contends that Ameren Missouri has failed to consider the effects of aging on the capital requirements and operating performance of its existing coal fleet, citing 22.040(1)(E)-(J), which lay out specific cost and performance data requirements for supply side resources identified by the utility, and 22.040(8)(B)-(C), which require the establishment of uncertain ranges for variables that affect the performance of those same supply side resource options.

Ameren Missouri's Position and Evidence: Ameren Missouri has developed the cost and performance data, including uncertain ranges, required by the rules for each of the supply-side options it identified pursuant to 22.040(1). Ameren Missouri has appropriately evaluated options for its Meramec coal-fired units to test the viability of its existing coal fleet and frame potential decisions with respect to the oldest units in that fleet. The use of Meramec as a test case for the existing coal-fired fleet is discussed in Issue 1 in this section. Ameren Missouri's baseline capital budgets reflected in the IRP modeling implicitly include ongoing capital expenditures for periodic major maintenance and component replacement for its entire generating fleet to sustain reliable levels of performance. Since only the Meramec units were evaluated, there were no differences between plans related to the other coal-fired plants.

NRDC asserts that Ameren Missouri has inappropriately assumed that the capital and operating costs for the Meramec plant will decrease rather than increase as the units age. As shown in Figure 3.3 below, the forecast assumptions for capital costs include specific major projects during the 2011-2025 timeframe, as detailed in the Burns and McDonnell report, and an increasing level of baseline capital expenditures thereafter.

Figure 3.3 Projected Meramec Capex from Burns and McDonnell Condition Assessment

Figure 21 – Projected CAPEX through 2041 (Then-Year $'s)



NRDC questions the future capital and O&M budgets developed by Burns and McDonnell based on comparisons to recent history. This kind of comparison is not valid because Ameren Missouri has made significant investments in major component replacement and refurbishment in recent years that will not have to be made again for the remaining life of the plant. For example, the unit 4 turbine was replaced in 2005 and would not have to be replaced again even in the 2041 retirement scenario. In the Meramec Condition Assessment Report, Burns and McDonnell included a comparison of historical capital and O&M expenditures to forecasts for the scenarios evaluated. They explicitly address the comparison in the following narrative from page 115 of the report:

> "A future CAPEX budget of $22.7MM annually for the 2021 retirement, $20.6MM annually for the 2025 retirement, and $16.5MM annually for the 2041 retirement is recommended. These are the average expenditures from 2015 through the three retirement scenarios. This represents a significant decrease in the Plant's historical and budgeted CAPEX levels from 1993 through 2014 (including those shown in the 2009 Forecast) of $41.5MM. This is an even larger decrease when compared with the 2009 forecasted annual CAPEX of $50.8MM from 2009-2014 only. This lower level of investment is justified due to the amount of large capital expenditures already made that will not be required again for the life of the Plant. The list of recommended projects also includes some large projects; however the amount of work is significantly less than previous work on all of the units. The implementation of the recommended projects will allow the Plant to continue operating with the high levels of Equivalent Availability that it has seen in recent years."

NRDC interprets the lower annual average capital expenditure values for the 2041 retirement scenario to mean that the expenditures from 2015 through 2025 for this scenario would be lower than that for the 2021 or 2025 retirement scenarios for that same period. In actuality, the average for the 2041

retirement scenario is for the period 2015-2041, so this is simply the mathematical effect of averaging the major maintenance projects recommended prior to 2025 with a lower level of ongoing maintenance after 2025. For instance, Unit 2 turbine rotor replacement is recommended in 2017 and would allow the plant to continue operating to any of the three retirement dates; however as the retirement date is further away, averaging the capital expenditure on a longer time period would make the average annual expenditures look lower. Several key pieces of equipment, such as GSU transformers and isophase bus ducts are mostly untouched and recommended to be replaced in the next 10 years. These capital expenditures are included in all three scenarios only once as they would ensure reliable operation of the plant beyond 2041.

NRDC asserts that because the Burns and McDonnell study assumed capacity factors of 30% beyond 2025 and the IRP analysis shows capacity factors of 70% that the capital expenditure and O&M forecasts assumed in the IRP and based on the Burns and McDonnell study are understated. This assertion demonstrates both a lack of understanding of power plant operations and a slapdash review of the study. On page 34 of the Burns and McDonnell report, they state the following with respect to the operating assumptions and the impact on maintenance requirements.

> "It is also assumed that Meramec plant will continue to run at base load through 2021 or 2025, and then be subject to cycling until 2041. The type of cycling assumed will be on/off operation with capacity factors at 30% or less. This is the worst case cycling operation and will impact the need for capital replacements more than cycling the units in a reduced load operation. A reduced load approach would avoid cold starts, while maintaining boiler temperatures and avoiding turbine cool downs. This is a preferred operating mode; however, system conditions do not always allow for such an operation and the assumption for this study is that an on/off operation is necessary."

Based on this insight, it is clear that Ameren Missouri's assumptions for capital expenditures are appropriately conservative.

NRDC's final assertion on this issue is that Ameren Missouri has erroneously assumed no degradation in unit performance during the planning horizon. As indicated in a previous quote from the Burns and McDonnell report, the recommended budgets for each retirement scenario, "will allow the Plant to continue operating with the high levels of Equivalent Availability that it has seen in recent years." The first paragraph in the Recommendations and Conclusions section of the report (page 7-1) indicates, "The projects recommended are intended to keep the equivalent availability and forced outage rate within +/-2% of recent plant averages." Thus, no assumptions of performance degradation are appropriate or necessary.

The following charts show annual coal plant operations and maintenance (O&M) expenses (excluding fuel) and equivalent availabilities for the period 1990 to 2010. A 21 year view was used to help identify

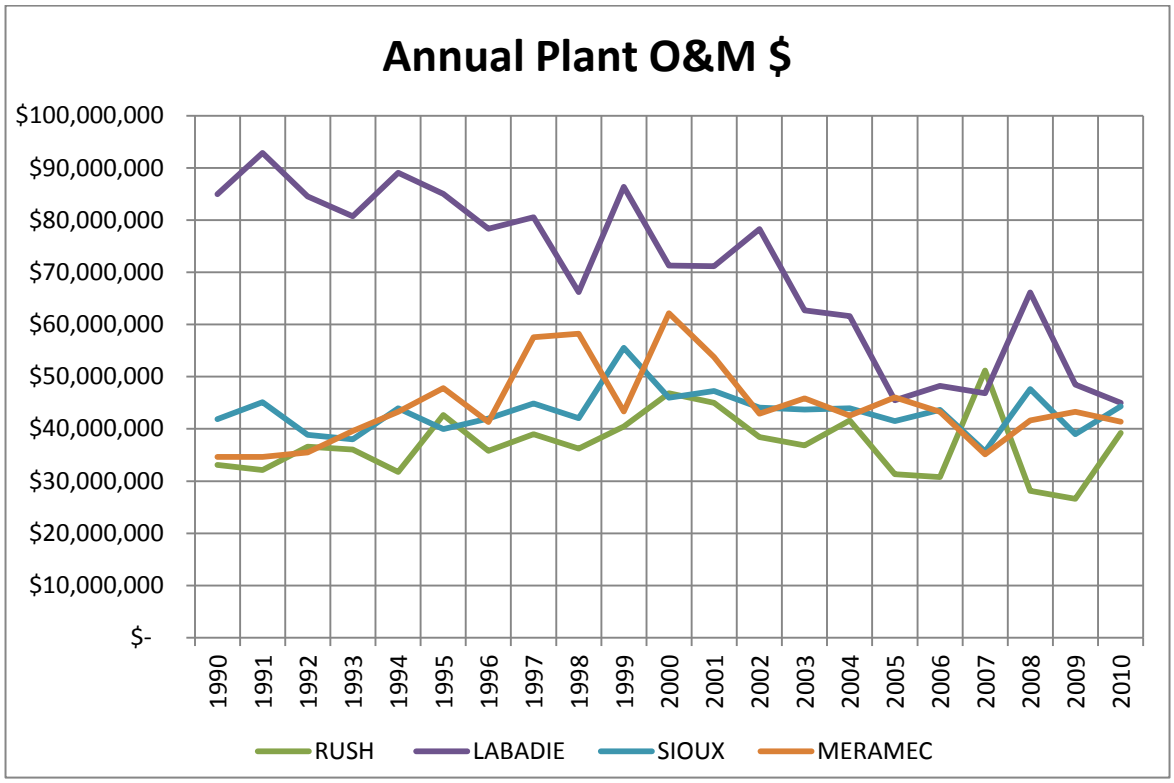
trends associated with aging of the plants. Also, Table 1 lists the commercial operation date for each generating unit and the average age of all the units at each plant as of December 31 2010.

Table 3.1 Ameren Missouri Coal Plant Commercial Operation Dates and Average Age

	Commercial Operation Date				Average age as of 12/31/2010
Plant	Unit 1	Unit 2	Unit 3	Unit 4	
Labadie	04/01/1970	06/01/1971	08/01/1972	08/01/1973	39
Meramec	05/01/1953	07/01/1954	01/01/1959	07/01/1961	54
Rush	03/01/1976	03/01/1977			34
Sioux	05/01/1967	05/02/1968			43

The plant O&M costs were taken from the annual plant operating reports and then normalized to 2010 dollars using the Handy Whitman Index for Total Steam Production Plant. The average annual escalation for the period 1990 to 2010 was 3.2%.

Figure 3.4 Historical Annual O&M for Ameren Missouri Coal Plants (2010$)



One of the key measures used by Ameren Missouri to measure plant performance is the equivalent availabiltiy factor (EAF). The EAF is a measure of how much energy could be produced if the plant is operated at its full capability after taking into account down time for repairs. Down time could be for long term planned outages, short term forced or maintenance outages for minor repairs, or equipment or other limitations that prevent the unit from operating at its rated output. The EAF charts contain a rolling 12 month, a rolling 36 month, and a rolling 72 month trend. The rolling 72 month (6 year) line is

the most approprite line to use because the planned outages, which occur at long intervals, distort the EAF trends produced by the rolling 12 month or rolling 36 month trends.

Figure 3.4 does not indicate any upward trend of "significant" costs which would indicate a deterioration of the plants as they age. The charts of Equivalent Availability Factors on the following pages do not indicate any downward trend in EAF which would indicate a deterioration of plants as they age. Thus, Ameren Missouri maintains that there is no evidence to conclude that O&M costs increase dramatically or that performance decline significantly as the plants age.

Conclusion: Ameren Missouri's assumptions with respect to the ongoing costs and operation of the Meramec plant are reasonable, and Ameren Missouri has complied with the rules governing the development of cost and performance assumptions for supply side resources in accordance with 22.040(1).

Figure 3.5 Labadie Plant Historical Equivalent Availability

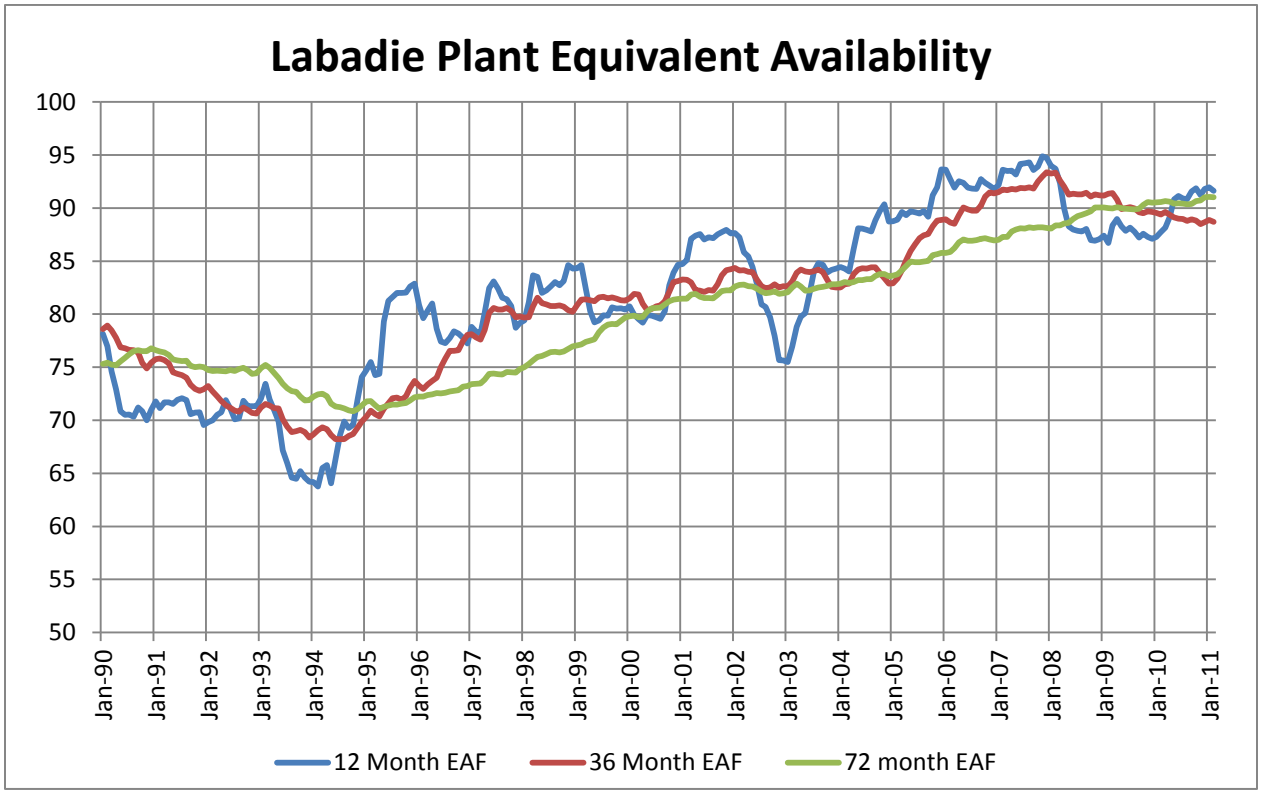


Figure 3.6 Meramec Plant Historical Equivalent Availability

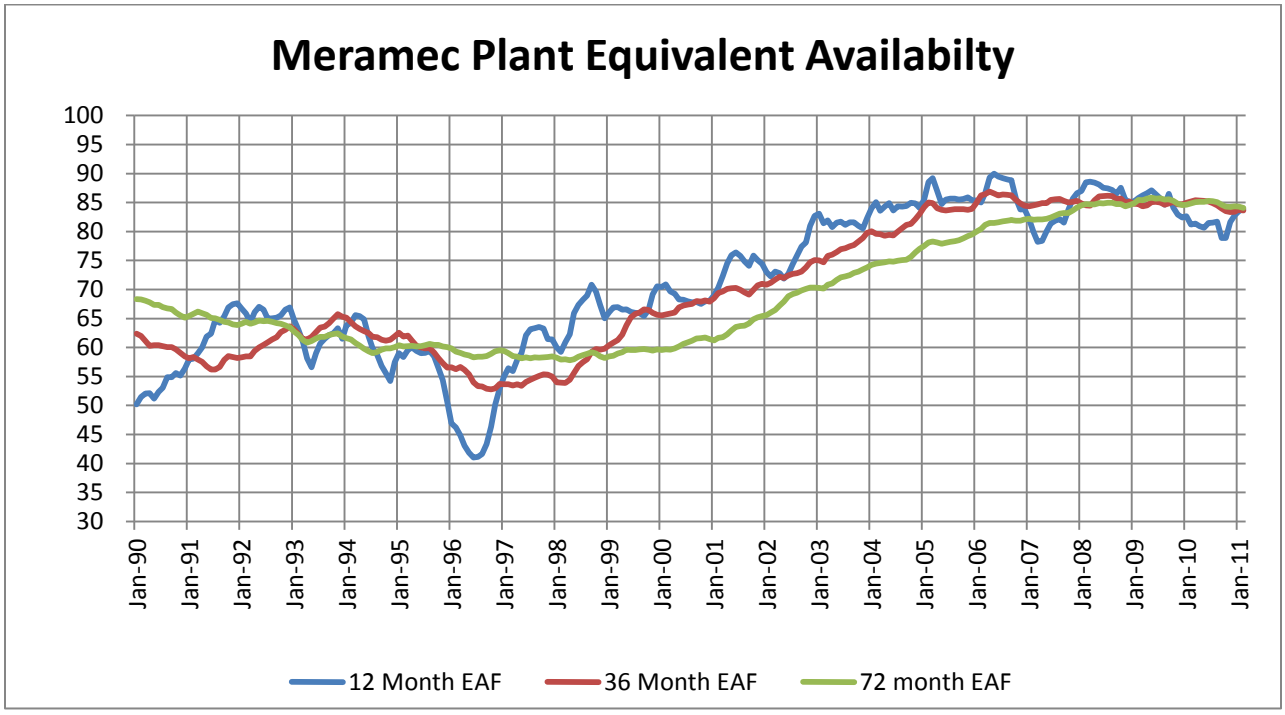


Figure 3.7 Rush Island Plant Historical Equivalent Availability

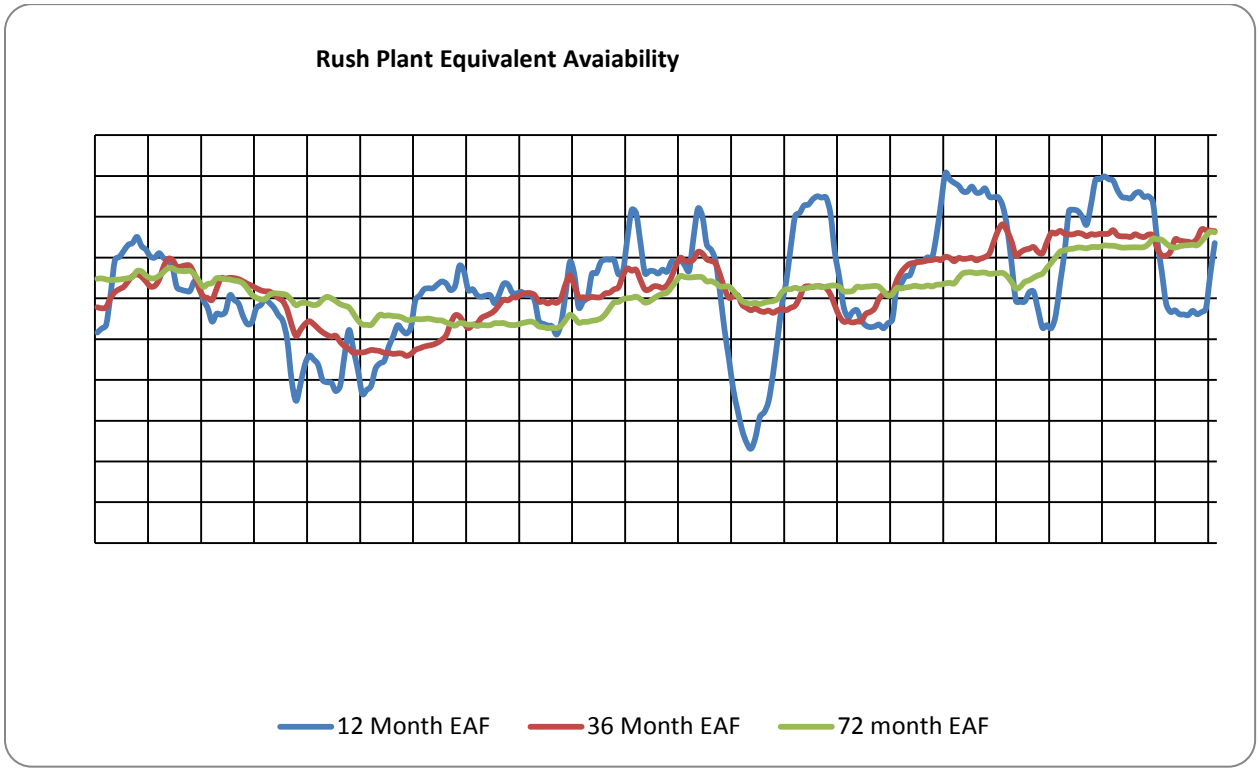
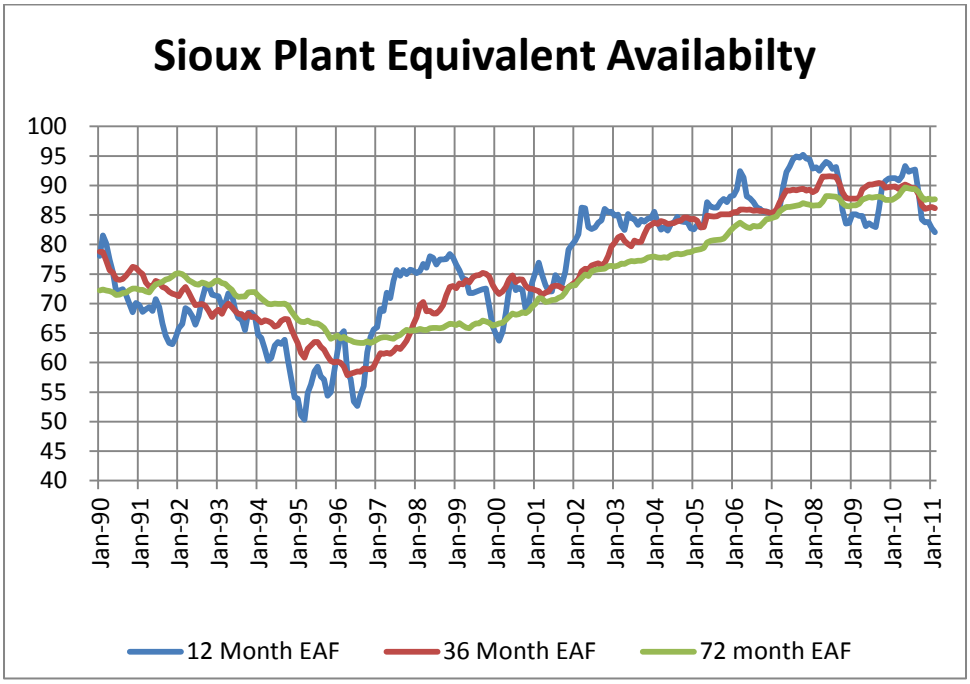


Figure 3.8 Sioux Plant Historical Equivalent Availability



Issue 4

Party: NRDC
Identifier: Deficiency IV-A (subpart 3)
Reference: NRDC Report, page 30
Rule Citation: 4CSR 240-22.040(1)(E)-(J)
8/8 Joint Pleading Location: Appendix A, page 10

Issue Summary: NRDC asserts that Ameren Missouri is required to include an assessment for all of its existing coal-fired generating units similar to that performed for Meramec. NRDC cites 22.040(1)(E)-(J), which simply lists a number of cost and performance variables for which the utility must develop assumptions for the supply side resource options it has identified.

Ameren Missouri's Position and Evidence: Ameren Missouri has appropriately evaluated a robust set of options for its Meramec plant, which provides a reasonable basis for assessing the overall viability of its coal-fired fleet. The rationale for using Meramec as a test case is included in the discussion of Issue 1 in this section, including the comparison of Ameren Missouri coal unit production costs to the U.S. fleet as shown in Figure 3.2. Ameren Missouri finds no compelling reason to spend additional time, money and resources to perform detailed condition assessments of its entire coal fleet for its IRP analysis and finds no requirement in the rules that it do so.

Conclusion: Ameren Missouri has complied with the rules requiring the development of cost and performance assumptions for the supply side resources it has identified pursuant to 22.040(1), and the

Company's evaluation of options for the Meramec plant provides a reasonable assessment of the viability of its existing coal fleet.

Issue 5
Party: NRDC
Identifier: Deficiency IV-B (subpart 5)
Reference: NRDC Report, page 41
Rule Citation: 4CSR 240-22.040(8)(A)
8/8 Joint Pleading Location: Appendix A, pages 13 and 15

Issue Summary: NRDC contends that Ameren Missouri has failed to adequately assess fuel prices and has ignored upward pressure on coal prices driven by increasing production costs for mining and increasing demand for coal exports.

Ameren Missouri's Position and Evidence: Ameren Missouri has accounted for increases in coal exports and increases in mining production costs in its scenario modeling, and the forecasts of coal prices are both reasonable and comply with the requirements of the rules. As indicated in Chapter 2 of the Company's IRP filing, the CRA model, "explicitly models the economy and energy sector in the U.S., but it does also account for foreign imports and exports." In response to data request SC-NRDC 1-0009, Ameren Missouri responded that, "The coal exports assumptions included in CRA's MRN-NEEM model were consistent with the 2010 Annual Energy Outlook. The impact of those exports on coal prices was included in the model since it explicitly models the supply and demand of coal." Data request SC-NRDC1-0009 is attached as Appendix F. Ameren Missouri received no follow-up requests or calls seeking clarification or further information on this subject.

With respect to mine production costs, page 21 of Chapter 2 of Ameren Missouri's IRP filing describes the assumptions behind the supply curves used by the CRA model:

> "For every mine in the nation, Norwest developed models of both production capabilities and minemouth prices per ton of coal production. Using these data along with supplemental information from the EIA, CRA created step-wise supply curves based on tranches. The number of tranches and the quantity of tons within each tranche vary by coal type and are a function of mine capabilities. These annual supply curves indicate the marginal cost of mining an incremental ton of each coal type in each year of the IRP planning horizon."

Further elaboration can be found on page 23, which states:

> "The NEEM model formulates annual supply curves for 22 distinct coal types that represent different regional sources, ranks, and sulfur and mercury contents. These supply curves are based upon detailed information of production capabilities and costs per ton removed at every mine in the U.S. for each year in the planning horizon. As such, they incorporate estimates of

domestic recoverable coal resources and baseline trends in exploration and production (E&P) technological improvements. Coal price levels are endogenously calculated to be consistent with the coal consumption levels implied by the supply curves and with allowance prices.

The profitability and financial condition of producers is a function of the costs of extraction and the prevailing minemouth prices for various coal types. The annual coal supply curves for each of the 22 coal types in the NEEM model reflect the extraction costs facing U.S. coal producers, and, in conjunction with the demand for electricity, also determine coal prices. Moreover, the MRN-NEEM modeling framework incorporates the macroeconomic effects stemming from fluctuations in electricity demand, CO2 prices, and natural gas prices, all of which affect the demand for coal.

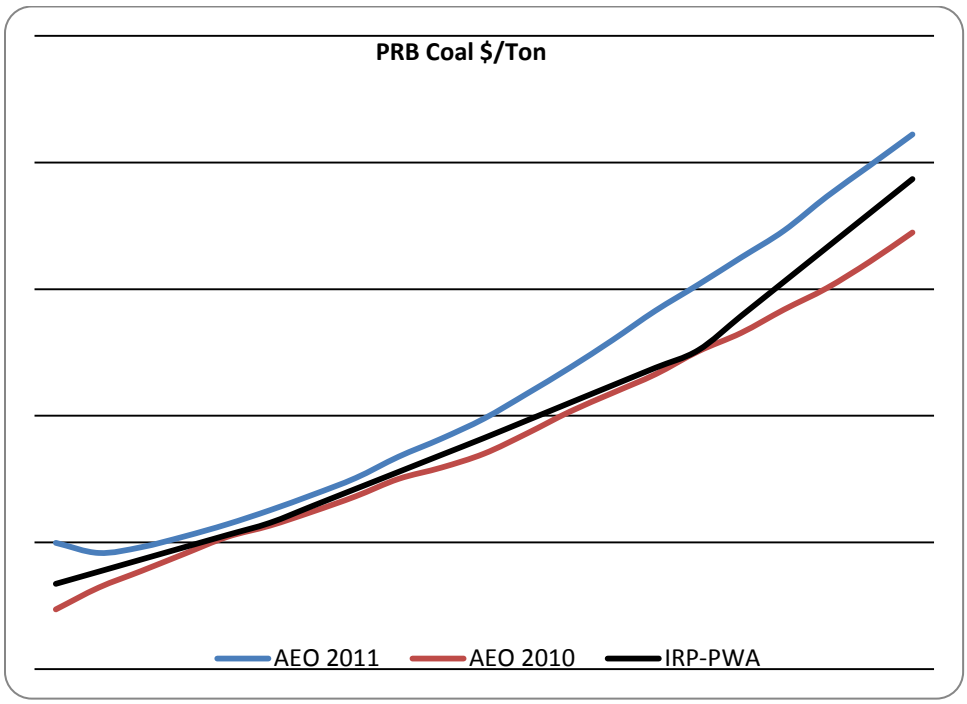
Since coal prices are endogenously computed in each model year based upon flexible supply and demand functions that adjust optimally to market conditions, business-as-usual considerations of environmental factors, competition, and regulation on producers are all implicitly acknowledged by the model."

NRDC proposes that Ameren Missouri, "adjust its coal price forecasts to take into consideration new factors including increased coal exports and revised coal reserve estimates, or document that its model already takes those factors into consideration." Based on the language already included in the Company's IRP filing, there should be no further need for documentation that the model accounts for the factors cited by NRDC.

Ameren Missouri's assumptions for coal prices, based on the modeling by CRA, compare favorably with the EIA's AEO 2010 forecast released around the time the CRA modeling was performed. Figure 3.9 shows a comparison of the IRP prices (probability-weighted average for all planning scenarios) for PRB to both AEO 2010 and AEO 2011, released earlier this year. As the chart shows, Ameren Missouri's assumptions track solidly with both forecasts through 2020, when the AEO 2011 forecast begins to diverge. The difference from that point never becomes greater than $2.60/ton. The Ameren Missouri assumptions begin to trend back toward the AEO 2011 forecast beginning in 2026. On this basis, the price forecasts produced by CRA's model and used by Ameren Missouri in the IRP are reasonable.

Conclusion: Ameren Missouri's approach to the development of coal price forecasts complies with the requirements of the IRP rules and is both thorough and reasonable. Ameren Missouri's modeling has accounted for expectations for coal exports and mining production costs at the time the modeling was performed.

Figure 3.9 Comparison of PRB Coal Price Forecasts



3.3 Environmental Regulation Scenarios (Non-carbon)

Alleged Deficiencies and Concerns

Issue 1
Party: OPC
Identifier: Deficiency 5
Reference: OPC Report, page 6
Rule Citation: 4CSR 240-22.070(2); 4CSR 240-22.070(2)(C), 4CSR 240-22.070(5)
8/8 Joint Pleading Location: Appendix A, page 29

Issue Summary: OPC asserts that the evaluation of future environmental regulations would be better evaluated as an uncertainty on the Company's risk analysis probability tree rather than as discrete paths and as part of candidate resource plans. OPC cites 22.070(2) and (2)(C), which requires the evaluation of uncertain factors, including environmental regulation, and 22.070(5), which, as modified by a waiver approved by the Commission, requires the use of a probability tree for computing the cumulative probabilities of the values of performance measures contingent upon identified uncertain factors and their associated probabilities.

Ameren Missouri's Position and Evidence: Ameren Missouri analyzed carbon policy as an uncertain factor and included it in the scenarios modeled by CRA and used as the basis for risk analysis. A similar evaluation of specific environmental regulation related to existing coal-fired plants is not appropriate,

precisely because consideration of such regulation would involve decisions that potentially alter the existing resource mix and thus the future need for resources within alternative resource plans.

Ameren Missouri analyzed two distinct potential futures with respect to coal-related environmental regulation primarily to evaluate decisions with respect to the Meramec plant. In its Technical Report (page 6) OPC acknowledges that Ameren Missouri has "exerted considerable effort analyzing the economics of controlling, converting, operating or closing Meramec". Because the two scenarios for environmental regulation require different mitigation at different times, and because some of the various mitigation options evaluated for Meramec have significantly different impacts on resource need than others, the only way to avoid conflicts between the plans being evaluated and the environmental regulations being considered is to include the mitigation and associated resource impacts as part of alternative or candidate resource plans.

To illustrate, consider an evaluation of plans in which Ameren Missouri includes measures to comply with the Aggressive environmental regulation scenario. Such plans could include any of several mitigation measures for the Meramec Plant, including retirement or installation of control technology, for example. In either plan the mitigation measure would have to be in place by January 1, 2016, under the assumptions of the Aggressive environmental scenario. If, as OPC suggests, environmental regulation were included as a two-branch node on the probability tree, with one node for moderate environmental regulation and the other for aggressive environmental regulation, the analysis for the plans considered in this example would be nonsensical for half the results on the tree.

Similarly, evaluation of plans in which mitigation measures are based on moderate environmental regulation would yield useless results for the half of the tree that assumes aggressive environmental regulation. It would be necessary to exclude the moderate branch for evaluation of plans designed to comply with aggressive environmental regulation and to exclude the aggressive branch for evaluation of plans designed to comply with moderate environmental regulation. The end result would be that plans would be evaluated only for the environmental regulations for which they were designed to comply and across the branches for all other uncertainties, which is equivalent to what Ameren Missouri did.

Ameren Missouri has used a probability tree for its evaluation, as required by the rules and as modified by a waiver approved by the Commission. The probability tree can be found in Chapter 9 of the Company's IRP filing on page 20, Figure 9.12.

Conclusion: Ameren Missouri has evaluated carbon emission regulation as an uncertain factor and has used a probability tree for its risk analysis, as required by the rules. Ameren Missouri's treatment of environmental regulation scenarios is appropriate, and OPC's desire to perform the analysis differently does not constitute a deficiency.

3.4 Carbon Regulation Scenarios

Alleged Deficiencies and Concerns

Issue 1
Party: NRDC
Identifier: Deficiency IV-C
Reference: NRDC Report, page 43
Rule Citation: 4CSR 240-22.040(2)(B), 4CSR 240-22.010(2)(C)(2)
8/8 Joint Pleading Location: Appendix A, page 12

Issue Summary: NRDC asserts that Ameren Missouri has underestimated the value of carbon emission reductions. NRDC cites 22.040(2)(B), which requires the inclusion of probable environmental costs for supply-side resources, and 22.010(2)(C)(2), which requires the evaluation of the risk of new or more stringent environmental regulations as a consideration that may constrain the or limit the minimization of PVRR. NRDC does not assert that Ameren Missouri has not performed any analysis required by the rules.

Ameren Missouri's Position and Evidence: Ameren Missouri has evaluated the risk of future regulation of carbon emissions through the development and use of a range of regulation scenarios. These scenarios were developed through discussions with internal experts who are involved in the legislative process. The process used to develop the scenarios is described in detail in Appendix A to Chapter 2 of the Company's IRP filing.

NRDC attempts to support an allegation of a disconnect between a statement in Ameren's 2010 10-K filing that indicates that greenhouse gas limitations are "increasingly likely" and the fact that not all carbon regulation scenarios specify a price for CO_2. This completely dismisses the potential for regulation of carbon emissions through legislative mandates that lead to reductions in carbon emissions without a specific price on CO_2. Ameren Missouri included such a scenario among its four potential scenarios for carbon regulation with a 57% probability, as described in Appendix A to Chapter 2.

NRDC also takes issue with the CO_2 prices included in the Cap-and-Trade Scenario, which carries a 33% probability, comparing the Ameren Missouri assumptions to forecasts generated by Synapse Energy Economics. In the technical report filed by OPC in this case, and co-authored by Synapse Energy Economics, they conclude that, "UE's proposed price for 2015 ($7.50/metric ton) is significantly less than that in the Synapse 2011 forecast, but otherwise the prices used by UE are within the band considered reasonable."

NRDC also compares the carbon prices used in the IRP to those used by Black and Veatch for its study of coal and gas resource options conducted on behalf of Ameren Missouri in 2009. The CO_2 price curve used at that time was consistent with a view that regulation of carbon emissions through cap-and-trade

was imminent, a view that was widely held at that time. Ameren Missouri's scenario development for the main portion of the IRP analysis was conducted in 2010 and reflected a view that was shifting away from, and softening the carbon price expectations for, cap-and-trade, while still accounting for it as a significant probability (33%).

Conclusion: Ameren Missouri has included probable environmental costs and evaluated the risk of more stringent environmental regulations, as required by the IRP rules. Ameren Missouri's assumptions for regulation of carbon emissions are reasonable and are appropriately based on the informed judgment of its experts at that time.

4.0 Renewable Resources

4.1 Ameren Missouri's Approach to Renewable Resources

Ameren Missouri's approach to renewable resources is detailed in Chapter 4 of its IRP filing. In summary, the approach taken by Ameren Missouri involved the following key steps:

- Evaluation of potential for renewable resource development within the state of Missouri conducted on behalf of Ameren Missouri by Black and Veatch, including estimation of cost and performance characteristics for specific biomass, hydro, and landfill gas projects
- Development of generic cost and performance characteristics for wind resources, including discussion of technology trends such as rotor hub heights
- Evaluation of compliance with the Missouri RES, including analysis of the effect of the 1% rate cap provision
- Evaluation of compliance with a potential Federal RES based on recent legislative proposals
- Inclusions of additional wind resources as supply side options for evaluation in alternative resources plans (further discussed in Chapter 9)

Regarding the evaluation of wind as a supply side option, it was necessary to include additional supply side resources in the plans that included wind as a supply side option since the capacity credit for wind in MISO is 8% of nameplate capacity. Without additional supply side resources, over 5000 MW (nameplate) of wind resources would have to be added to meet load and reserve margin requirements. Ameren Missouri chose to include simple cycle CTG units as the additional supply side resource based on their low capital cost.

Ameren Missouri also assumed that the costs for large-scale grid expansion to integrate intermittent renewable resources are not borne by wind projects, but rather allocated to MISO market participants, as established in MISO's cost allocation method for so-called "Multi-Value Projects" or "MVP's".

4.2 Wind Resource Assumptions and Analysis

Alleged Deficiencies and Concerns (OPC 3, DNR/GDS 6/7, NRDC 16/17, Clean Line comments)

Issue 1
Party: OPC
Identifier: Deficiency 3
Reference: OPC Report, page 5
Rule Citation: 4CSR 240-22.040(1)
8/8 Joint Pleading Location: Appendix A, page 8

Issue Summary: OPC asserts that Ameren Missouri's characterization and modeling of renewables, particularly wind, is improper in a number of ways. First, the inclusion of 346 MW of simple cycle CTG capacity with every 800 MW (nameplate) of wind is inappropriate because wind resources can be evaluated for energy production alone and because Ameren Missouri already has a large fleet of CTG's. Second, the use of "build thresholds" for supply side resources (205 MW for wind) is inappropriate because wind resources can be installed in smaller increments (OPC suggest 50-100 MW at a time), implying that the assumption of installing 800 MW of wind at once will in some way bias the analysis results against wind. Third, the average capital cost assumption of $2000/kw and average capacity factor assumption of 37.5% are inappropriate because some projects might be available at lower cost and/or higher capacity factors. OPC cites 22.040(1), which simply requires the identification of a variety of potential supply side resources and generic cost and performance characterization, and 22.060(3), which requires the development of alternative resource plans designed to achieve one or more planning objectives, as the basis for alleging a deficiency.

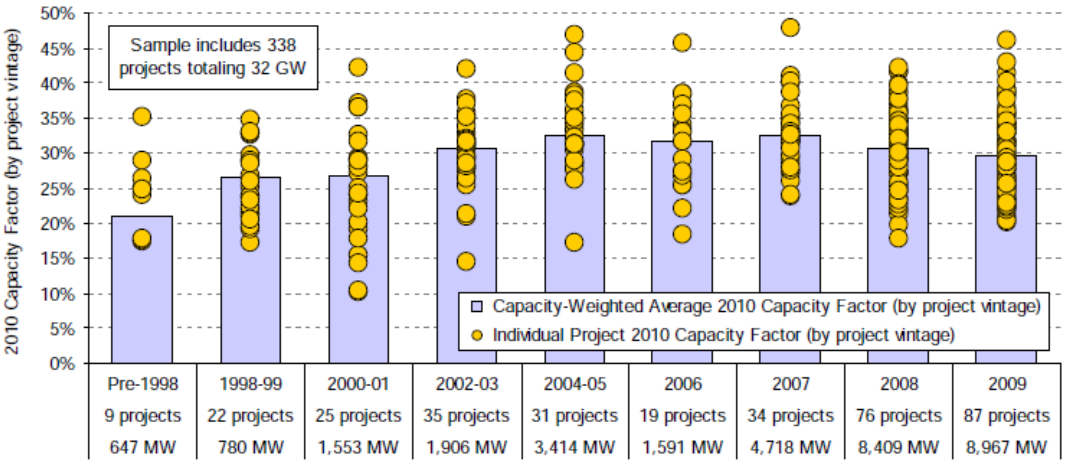
Ameren Missouri's Position and Evidence: By using average costs and capacity factors, Ameren Missouri has characterized a generic wind resource, as required by 22.040(1). Further, Ameren Missouri has included a range of capital costs for wind as part of the project cost uncertainty factor in its risk analysis and also evaluated wind achieved capacity factor as a potential uncertain factor, as shown in Table 9.10 in Chapter 9 of the IRP filing; that uncertainty was determined not to be critical to the decision making, as mentioned in Chapter 9 of Ameren Missouri's IRP filing. The results of the sensitivity analysis including this factor are discussed on pages 18-20 in Chapter 9.

Regarding the specific assumptions for average wind resources, which OPC acknowledges are reasonable as an average, Ameren Missouri's assumptions are in line with recent reports from the U.S. DOE (2010 Wind Technologies Market Report, June 2011; EIA's AEO 2011, April 2011). Clean Line provided these reports in response to a data request from Ameren Missouri. AEO 2011 reported installed wind cost of $2400/kw in 2011 (2009$) declining to $1940 in 2035 (2009$) with a US average capacity factor of 33%. The Wind Technologies Market Report indicates that the average installed cost of wind projects in 2010 was about $2155/kw and was similar to that seen in 2009. It also reported that 2010 capacity factors for projects installed in 2009 averaged just under 30% (33.2% for the Heartland region). The report also showed weighted average capacity factors in 2010 by project vintage. Figure 4.1 shows this comparison and illustrates that Ameren Missouri's assumption of a 37.5% capacity factor places its generic wind resource in the upper tier of performance as compared to those installed in 2009.

It is not practical to estimate how much wind is available at what capacity factors with what specific transmission constraints and incorporate the fact that wind is being developed in a competitive landscape where the most economically attractive sites are developed first. Ameren Missouri's simplifying assumption was that, on average, its wind portfolio would achieve a 37.5% capacity factor. Assuming an average project is also reasonable in the context of the marketplace, in which other players could not be expected to wait on the sidelines while Ameren Missouri takes the best prospects for itself,

particularly given that Ameren Missouri's need for non-solar resources for RES compliance is not until 2019.

Figure 4.1 2010 Wind Project Capacity Factors by Vintage



Source: Berkeley Lab

Figure 34. 2010 Project Capacity Factors by Commercial Operation Date

It is not practical to estimate how much wind is available at what capacity factors with what specific transmission constraints and incorporate the fact that wind is being developed in a competitive landscape where the most economically attractive sites are developed first. Ameren Missouri's simplifying assumption was that, on average, its wind portfolio would achieve a 37.5% capacity factor. Assuming an average project is also reasonable in the context of the marketplace, in which other players could not be expected to wait on the sidelines while Ameren Missouri takes the best prospects for itself, particularly given that Ameren Missouri's need for non-solar resources for RES compliance is not until 2019.

With respect to the use of build thresholds, there is no evidence that modeling wind in large amounts biases the results against wind. Ameren Missouri has not asserted or implied that building wind in large amounts disadvantages the resource economically or operationally. If the wind resources were spread over a period of time, with some before the mass install date and some after, the results would be largely the same. Modeling a mass installation of wind simply allowed for analysis without adding unnecessary complexity. Certainly, if wind resources were determined to be a preferred resource, the implementation would necessarily provide for beneficial staging and specific evaluation of the economics of each project, just as would be the case with other resources, such as simple cycle CTG's or combined cycle units.

Regarding the inclusion of simple cycle CTG's and evaluation of wind as energy only resources, Ameren Missouri has made assumptions that are reasonable for evaluation of wind as a supply resource while meeting load and reserve requirements in the alternative resource plans that include wind. Since wind

resources currently receive a capacity credit of 8% of the installed nameplate capacity, the 800 MW of wind modeled by Ameren Missouri in alternative resource plans provides only 64 MW of capacity toward the MISO resource adequacy requirement. Ameren Missouri assumed 346 MW of simple cycle peaking capacity to fill the remaining need.

If the Company were to instead assume enough wind to meet the capacity requirement without other resources, that amount would have to be over 5000 MW. If implemented in 100 MW annual increments, it would take 50 years to install this amount. As an energy only resource, Ameren Missouri's analysis of the Missouri RES requirements has indicated that wind is not cost-effective and that the ability to meet the RES energy requirements is restricted by the 1% rate cap, as discussed in Chapter 5, section 5.5.1, of Ameren Missouri's IRP filing.

Finally, Ameren Missouri's use of average cost and performance parameters in the IRP in no way restricts the company from seeking and pursuing wind projects that can be shown to be cost effective. Such projects can be evaluated on an individual basis as they become known and available.

Conclusion: Ameren Missouri's assumptions regarding wind resources are reasonable and appropriate and comply with the requirements of 22.040(1) to characterize generic resources..

Issue 2
Party: DNR
Identifier: Deficiency 6
Reference: GDS Report, page 23
Rule Citation: Stipulation and Agreement in Case EO-2007-0409
8/8 Joint Pleading Location: Appendix A, page 17

Issue Summary: DNR contends that Ameren Missouri failed to address several critical wind energy factors in a Stipulation and Agreement in Case EO-2007-0409[8], in which Ameren Missouri committed to 1) demonstrate that its assumptions regarding capacity factors are consistent with the most recent data on capacity factors for the best commercially available wind sites; 2) demonstrate that its assumptions regarding the timing of transmission capacity upgrades, and the allocation of the costs associated with those upgrades, are based on the most recent system planning studies and currently effective transmission cost allocation principles, 3) present scenarios for acquiring wind resources that identify the region being considered utilizing multi-county areas, with a characterization of the wind resources available for each, including estimates at various turbine heights (e.g. 80, 100, or 120 meters, where practical) of wind density, transmission upgrades required and the levelized cost of energy per MWh under a Purchase Power Agreement and/or an ownership arrangement.

Ameren Missouri's Position and Evidence: Ameren Missouri's analysis of wind is appropriate and satisfies the requirements of the stipulation and agreement. Ameren Missouri used a multi-state region

[8] The GDS report errantly references Stipulation Agreement EO-2009-0437.

to characterize wind resources, including Kansas, Nebraska, and the Dakotas, where wind resources are most abundant and would include some of the most promising commercially available sites. A discussion of the cost and performance assumptions Ameren Missouri used and how they compare to cost and performance data reported by U.S. DOE is included in the discussion of Issue 1 in this section.

Ameren Missouri reflected the investment of $25 billion in transmission in the MISO footprint to deliver vast wind resources to load regions and the allocation of 90% of these costs to all load-serving entities and the other 10% to all generators within MISO. As such, no additional transmission costs were included in the wind project cost estimates beyond a nominal amount for interconnection to the grid. Assumptions regarding MISO projects to support renewable generation and associated allocation methods are discussed in Chapter 6 of the IRP filing.

It is noteworthy that the IRP analysis was completed before FERC approved MISO's cost allocation method for the MVP projects in December, 2010. The FERC approved method assigns 100% of the costs to the load. In the IRP analysis only 10% was allocated to the generators, and since Ameren Missouri's load and generation share in MISO are similar, the change in method would only slightly reduce the amount allocated to Ameren Missouri compared to the assumptions at the time of the IRP analysis. Furthermore, these costs are common to all resource plans and therefore do not affect relative plan performance.

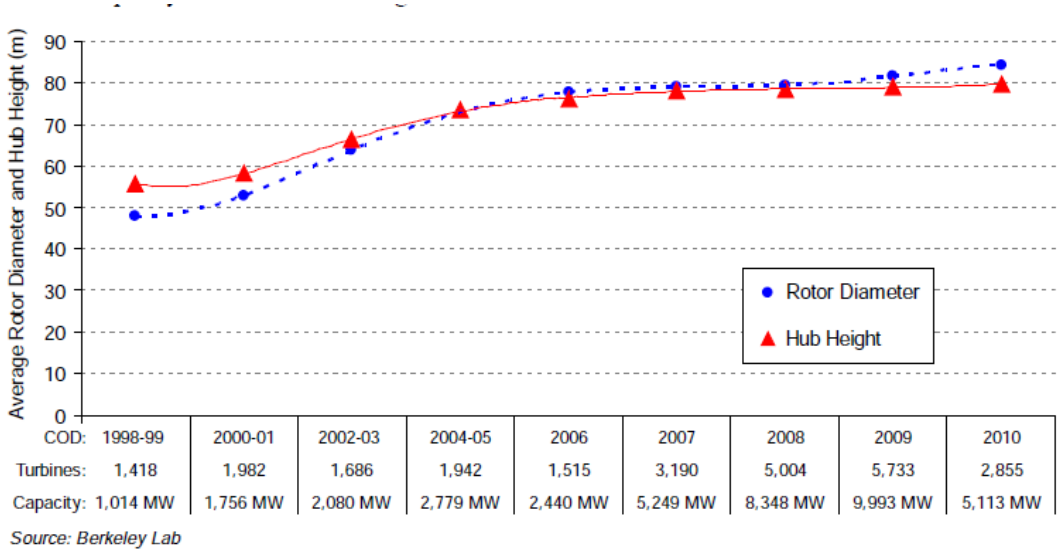
It is highly impractical to first develop a detailed transmission expansion plan over the 20 year planning horizon and then determine precisely how that plan will affect specific wind resources. Ameren Missouri's transmission build-out assumption was generic as it represents an amount of investment that would alleviate relevant transmission constraints for any wind resources. Furthermore, it represents a favorable assumption that wind resources will not be burdened by additional transmission costs. As specific wind sites are evaluated it will be necessary to understand the specific transmission requirements at the time.

Ameren Missouri included a brief discussion on the consideration of 100 meter hub heights in Chapter 5 of its filing, which concluded that the levelized cost of wind would only decrease modestly after considering the increased capital cost compared to the increased output. Furthermore, there are several complicating factors when moving from 80 meters to 100 meters that make the decision to move to the higher installations more than just strictly an economic analysis decision. There are potentially greater hurdles to overcome with regard to permitting the larger towers that include local opposition due to visual appeal, FAA limitations at the higher hub heights, and even issues regarding potential bird and bat migratory path limitations. Additionally, the equipment to install the larger towers is limited and can potentially affect the timing and/or cost of any installation.

It is also evident from the 2010 Wind Technologies Market Report, June 2011, that 80 meters is clearly the predominate hub height given that in 2009 there were no installations above 80 meters and 99.2% of the 2010 installations were at 80 meters. The 17 wind turbines installed in 2010 with a hub height of

100 meters totaled 38.5 MW of nameplate capacity. Figure 4.2 below, from the DOE report, shows the trend for hub heights and rotor diameters over the past decade. As the chart shows, both average hub heights and average rotor diameters have plateaued in the past few years.

Figure 4.2 Average Rotor Diameter and Hub Height Installed During Period



COD:	1998-99	2000-01	2002-03	2004-05	2006	2007	2008	2009	2010
Turbines:	1,418	1,982	1,686	1,942	1,515	3,190	5,004	5,733	2,855
Capacity:	1,014 MW	1,756 MW	2,080 MW	2,779 MW	2,440 MW	5,249 MW	8,348 MW	9,993 MW	5,113 MW

Source: Berkeley Lab

Figure 17. Average Rotor Diameter and Hub Height Installed During Period

All new wind resources included in alternative and candidate resource plans were assumed to be owned by Ameren Missouri. Black and Veatch performed a comparative analysis of utility ownership versus a purchase power agreement in its July 2009 Renewable Portfolio Study for Ameren Missouri. That report concluded that the two ownership options would have similar costs and risks. Black and Veatch's conclusion further supports Ameren Missouri's contention that analysis of purchase power options is not necessary because in the absence of specific proposals it is reasonable to assume they would be cost based. As stated elsewhere in this report, this would not restrict in any way the possibility of identifying more economically favorable projects for implementation.

Finally, wind achieved capacity factor was evaluated as a candidate uncertain factor as part of the sensitivity analysis conducted and described in Chapter 9 of the IRP (Table 9.10, page 18). A low value of 31.4% and a high value of 43.5% were used to define the uncertain range tested. It is noteworthy that the entire range evaluated is above the average capacity factor performance shown for 2009 projects in Figure 4.1 and that the range covers most of the above-average projects. The sensitivity analysis showed that wind capacity factor was not critical in the evaluation of resource plans. . Furthermore, it is clear that a 37.5% capacity factor far exceeds the 33% Heartland region capacity factor as identified in Table 4.1 below.

Table 4.1 Capacity-Weighted Average 2010 Capacity Factors

Table 7. Capacity-Weighted Average 2010 Capacity Factors by Region and Commercial Operation Date

Capacity Factor	East	Northwest	New England	Great Lakes	Texas	California	Mountain	Heartland	Hawaii
Pre-1998	-	-	28.8%	-	-	20.8%	-	-	-
1998-99	-	34.8%	-	18.2%	-	29.7%	26.3%	25.4%	-
2000-01	16.7%	18.5%	-	19.8%	30.7%	-	30.6%	36.7%	-
2002-03	29.1%	27.3%	-	20.9%	28.1%	30.2%	31.6%	32.6%	-
2004-05	27.7%	30.9%	-	31.1%	30.9%	28.1%	42.0%	35.7%	-
2006	31.6%	26.1%	20.2%	-	35.6%	30.7%	35.8%	35.2%	45.7%
2007	27.8%	28.1%	32.8%	31.5%	34.2%	-	34.0%	35.7%	-
2008	24.5%	24.5%	36.0%	29.6%	30.2%	39.8%	32.3%	32.6%	-
2009	25.3%	27.2%	25.2%	28.5%	31.3%	31.3%	28.9%	32.9%	-
Total	**25.6%**	**26.5%**	**28.1%**	**29.1%**	**31.2%**	**27.2%**	**32.2%**	**33.2%**	**45.7%**

Sample	East #	East MW	Northwest #	Northwest MW	New England #	New England MW	Great Lakes #	Great Lakes MW	Texas #	Texas MW	California #	California MW	Mountain #	Mountain MW	Heartland #	Heartland MW	Hawaii #	Hawaii MW
Pre-1998	0	0	0	0	1	6	0	0	0	0	8	642	0	0	0	0	0	0
1998-99	0	0	1	25	0	0	2	20	0	0	5	194	4	58	10	482	0	0
2000-01	6	81	4	472	0	0	2	32	4	672	0	0	3	97	6	199	0	0
2002-03	3	161	2	137	0	0	1	50	1	160	4	287	4	512	20	599	0	0
2004-05	2	349	4	431	0	0	1	54	5	1,197	3	130	2	200	14	1,053	0	0
2006	1	26	3	573	2	1	0	0	1	124	2	188	2	150	7	499	1	30
2007	4	169	5	964	2	44	4	626	6	1,055	0	0	4	776	9	1,086	0	0
2008	6	613	3	303	2	29	8	765	18	3,036	2	69	6	446	31	3,148	0	0
2009	11	955	20	1,126	3	143	8	1,480	13	2,143	2	270	9	908	21	1,943	0	0
Total	**33**	**2,353**	**42**	**4,031**	**10**	**221**	**26**	**3,028**	**48**	**8,386**	**26**	**1,780**	**34**	**3,146**	**118**	**9,010**	**1**	**30**

Source: Berkeley Lab

Conclusion: Ameren Missouri has complied with the provisions with the Stipulation and Agreement in Case EO-2007-0409.

Issue 3

Party: DNR

Identifier: Deficiency 7

Reference: GDS Report, page 28

Rule Citation: 4CSR 240-22.040(1)

8/8 Joint Pleading Location: Appendix A, page 9

Issue Summary: DNR asserts that Ameren Missouri's IRP filing is deficient because it excludes consideration of development by IPP's of renewable projects that are not utility scale (i.e. less than 2 MW according to the definition used by Ameren Missouri and applied by Black and Veatch in its assessment of renewable energy potential for Ameren Missouri). DNR cites 22.040(1) and emphasizes the inclusion of purchased power from independent power producers on a list of potential options to be considered.

Ameren Missouri's Position and Evidence: Ameren Missouri has appropriately excluded very small renewable resources that it would not likely implement on its own. DNR overlooks language in the same rule they cite that generally defines the options to be considered as those "which the utility can reasonably expect to develop and implement solely through its own resources or for which it will be a major participant." Ameren Missouri does not believe this requires utilities to consider developing

projects that are of such small magnitude as those being suggested by DNR and that our exclusion of such options is appropriate.

DNR goes on to discuss the potential benefits of such resources for their value in meeting the Missouri RES requirements. While this may be true, it is much more practical to evaluate this value in the context of a market for the REC's that can be used to satisfy the RES rather than on a resource-by-resource basis. While Ameren Missouri has assumed implementation of owned resources (with some SREC's in the case of the solar requirement), this does not preclude acquisition of REC's that may prove to be more economic for actual compliance with the standard.

Ameren Missouri's renewable resource analysis indicated that there is approximately 1,100 GWh of renewable energy potential in Missouri. However many of those projects are costly, namely the projects over $200/MWh. Excluding the higher cost projects would leave approximately 540 GWh of renewable energy potential. For comparison, Ameren Missouri expects to need over 500 GWh of new renewable energy in 2019 and almost 4,500 GWh in 2021 to meet the renewable energy requirements of the Missouri RES. It seems unrealistic to expect non-utility scale renewable resources will provide substantial cost-effective opportunities to bridge the gap between 540 GWh of reasonably priced utility-scale projects and 4,500 GWh of renewable resource needs. Based on NREL's wind resource data there is over 433,000 MW of wind potential in the Midwest which would be over 1.4 million GWh of energy potential at an average capacity factor of 37.5%. With so much potential it was assumed that wind would be the most promising resource available to meet Ameren Missouri's renewable energy requirements.

Conclusion: Ameren Missouri has appropriately excluded non-utility-scale renewable resources that it could not reasonably implement on its own, as provided for in 22.040(1).

Issue 4
Party: NRDC
Identifier: Deficiency V-B
Reference: NRDC Report, page 56
Rule Citation: 4CSR 240-22.040(1), Stipulation and Agreement in Case EO-2007-0409 item 14
8/8 Joint Pleading Location: Appendix A, page 16

Issue Summary: NRDC contends that Ameren Missouri has not included wind at 100 meters in the IRP analysis.

Ameren Missouri's Position and Evidence: Ameren Missouri has provided an analysis of wind at 100 meters. This issue is included in the discussion of Issue 2 in this section.

Conclusion: Ameren Missouri's analysis of wind resources is appropriate.

Issue 5
Party: NRDC
Identifier: Deficiency V-C
Reference: NRDC Report, page 57
Rule Citation: 4CSR 240-22.040(2)
8/8 Joint Pleading Location: Appendix A, page 16

Issue Summary: NRDC contends that Ameren Missouri has failed to justify its elimination of wind as a stand-alone resource. NRDC cites 22.040(2), which requires a preliminary screening analysis of supply side resource options identified pursuant to 22.040(1). NRDC expresses particular concern with the pairing of wind and simple cycle CTG's.

Ameren Missouri's Position and Evidence: Ameren Missouri has performed the preliminary screening analysis required by the rules, and has appropriately analyzed wind in both its Missouri RES compliance analysis and as an additional supply side resource in alternative and candidate resource plans. The results of the screening analysis required by 22.040(2) are presented in Chapter 4 – Appendix B. Discussion of the pairing of wind with simple cycle CTG's is included in the discussion of Issue 1 in this section. Also discussed in that same issue is the evaluation of wind as an energy resource as part of the Missouri RES compliance analysis.

Conclusion: Ameren Missouri's analysis of wind resources is appropriate and reasonable, and Ameren Missouri has performed the preliminary screening analysis required by the rules.

Issue 6
Party: Clean Line
Identifier: Concerns with Wind Assumptions and Analysis
Reference: Filed Comments, pages 3-6
Rule Citation: none

Issue Summary: Clean line expresses concerns with Ameren Missouri's assumptions for wind resources. Specifically, they state that 1) assumed wind capacity factors are too low, 2) assumed wind capital costs are too high, 3) Ameren Missouri did not include extension of renewable investment tax credits, and 4) technologies assumed are out of date. Clean line does not allege that Ameren Missouri's analysis does not comply with the Commission's Chapter 22 rules.

Ameren Missouri's Position and Evidence: Ameren Missouri's wind assumptions are reasonable, and the analysis performed for the IRP complies with the Commission's Chapter 22 rules. The issues regarding costs and capacity factors are addressed in the discussion of Issue 1 in this section, which includes references to reports from the U.S. DOE that were provided by Clean Line in response to a data request from Ameren Missouri.

Ameren Missouri explicitly considered whether extension of the existing renewable investment tax credit was reasonable and whether any reasonable extension would impact the IRP analysis. Based on the Company's analysis for Missouri RES compliance, which showed no need for new non-solar renewable resources until 2019, and based on the inclusion of wind resources beyond 2020 as primary supply side resources in alternative plans, Ameren Missouri concluded that reasonable extension of the existing renewable investment tax credit would not impact the analysis.

Issues regarding wind turbine technology, including hub heights and rotor diameter, are included in the discussion of Issue 2 in this section.

Conclusion: Ameren Missouri's wind assumptions are reasonable, and the analysis performed for the IRP complies with the Commission's Chapter 22 rules.

5.0 Gas-fired Resources

5.1 Natural Gas Prices

Alleged Deficiencies and Concerns

Issue 1
Party: Staff
Identifier: Concern D
Reference: Staff Report, page 43
Rule Citation: 4CSR 240-22.070(3)
8/8 Joint Pleading Location: Appendix A, pages 28-29

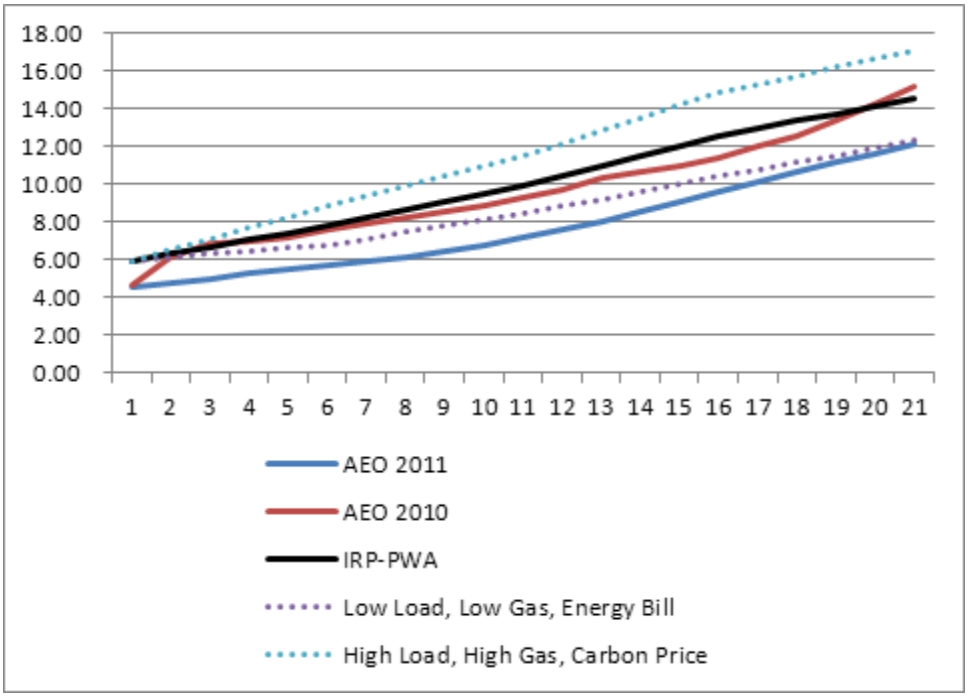
Issue Summary: Staff notes that forecast gas prices from EIA (AEO 2011; issued in early release in December, 2010, and in final form in April, 2011) are lower than those used by Ameren Missouri in its analysis.

Ameren Missouri's Position and Evidence: Ameren Missouri acknowledges that major shifts have recently occurred in natural gas markets and that price forecasts have changed dramatically since the IRP analysis was performed. Ameren Missouri notes that its gas price forecasts are reasonably in line with the EIA forecast (ARO 2010) available during the development of the IRP. Figure 5.1 shows a comparison of the gas prices used by Ameren Missouri in the IRP and the prices included in EIA's AEO 2010 and AEO 2011 reports. As this chart shows, Ameren Missouri's base forecast for natural gas prices are reasonably close to the AEO 2010 forecast, which was published around the time CRA performed its modeling for Ameren Missouri.

Ameren Missouri also notes and acknowledges that updates to its gas price forecasts should reasonably be expected as part of its future filings, including the first annual update due in April, 2012.

Conclusion: Ameren Missouri's plan to monitor changes in gas prices and other uncertain factors and the processes provided for in the Commissions revised Chapter 22 rules allow for timely and reasonable updates to gas price assumptions and analysis of the implications on resource selection. Ameren Missouri plans to include an update of its natural gas price assumptions in its 2012 IRP Annual Update.

Figure 5.1 Comparison of Gas Price Forecasts (Nominal $/MMBtu)



Issue 2

Party: NRDC
Identifier: Deficiency IV-B (subparts 1 and 2)
Reference: NRDC Report, page 32
Rule Citation: 4CSR 240-22.040(8)(A)
8/8 Joint Pleading Location: Appendix A, pages 13-14

Issue Summary: NRDC contends that Ameren Missouri's natural gas price forecast assumptions are unreasonably high and underestimate the significance of increased gas production through unconventional technologies. NRDC cites 22.040(8)(A), which sets out the requirement to forecast fuel prices.

Ameren Missouri's Position and Evidence: Ameren Missouri has developed the fuel price forecasts required by 22.040(8)(A). As discussed in Issue 1 in this section, Ameren Missouri acknowledges that significant changes in gas markets have occurred since the time the Company's gas price forecast assumptions were developed and used for analysis. Ameren Missouri continues to monitor changes in gas prices and other critical uncertain factors in accordance with the rules and intends to update such assumptions for use in the 2012 Annual Update pursuant to the revised IRP rules adopted by the Commission earlier this year. Ameren Missouri notes that it will also need to update its avoided costs used for DSM cost-effectiveness testing to reflect the downward pressure on gas prices and their impact on power prices.

Conclusion: Ameren Missouri's plan to monitor changes in gas prices and other uncertain factors, as provided for in the IRP rules, and the processes provided for in the Commissions revised Chapter 22 rules allow for timely and reasonable updates to gas price assumptions and analysis of the implications on resource selection. Ameren Missouri plans to include an update of its natural gas price assumptions, and its impact on the avoided costs used in the cost-effectiveness evaluation of DSM programs, in its 2012 IRP Annual Update.

5.2 Natural Gas Resources

Alleged Deficiencies and Concerns

Issue 1
Party: NRDC
Identifier: Deficiency IV-B (subpart 3)
Reference: NRDC Report, page 39
Rule Citation: 4CSR 240-22.040(8)(A)
8/8 Joint Pleading Location: Appendix A, page 13

Issue Summary: NRDC characterizes Ameren Missouri's inclusion of environmental retrofits as a hedge against natural gas price volatility. NRDC asserts that converting simple cycle CTG's to efficient combined cycle technology will reduce exposure to changing natural gas prices. They also assert that Ameren Missouri could purchase excess capacity available from numerous existing combined cycle facilities based on their low capacity factors. NRDC cites 22.040(8)(A), which requires the development of fuel price forecasts.

Ameren Missouri's Position and Evidence: Ameren Missouri has developed the fuel price forecasts required by 22.040(8)(A). Ameren Missouri has performed its IRP analysis in a way that evaluates numerous options in an equivalent fashion and has not based resource decisions on simple characterizations of gas price volatility. NRDC's assertions defy even a basic understanding of power markets. The assertion that converting simple cycle peakers to combined cycle operation, which will significantly increase efficiency, operating hours, and the gas volumes needed to run the units, will actually reduce exposure to changes in gas prices is just plain wrong.

Regarding NRDC's claims about the availability of excess capacity from existing combined cycle units, they cite an analysis from Energy Ventures Associates entitled, "Outlook for Natural Gas Demand for 2010-2011 Winter." Ameren Missouri reviewed this report and found that the numbers cited by NRDC are indeed capacity factors as they state. This, however, is not an indication of excess capacity. Rather, it is simply a statistic that indicates how many hours of the year these plants run. As such plants would be dispatched to the market, they are most likely already fully utilized during times of peak demand.

Conclusion: Ameren Missouri has not ignored reasonably available resource options and has not made its resource decisions based on simple statements regarding the volatility of natural gas prices.

6.0 Nuclear Resources

6.1 Nuclear Construction Cost and Schedule

Alleged Deficiencies and Concerns

Issue 1
Party: OPC
Identifier: Deficiency 4
Reference: OPC Report, page 6
Rule Citation: 4CSR 240-22.040(8), 4CSR 240-22.070(2)
8/8 Joint Pleading Location: Appendix A, page 12

Issue Summary: OPC asserts that Ameren Missouri failed to identify the full range of likely construction times or project costs for potential nuclear units and failed to conduct sensitivity analysis of these critical uncertain factors. OPC cites 22.040(8), which requires the development of ranges of values and subjective probabilities for uncertain factors related to supply side resources, and 22.070(2), which requires a preliminary sensitivity analysis to identify critical uncertain factors.

Ameren Missouri's Position and Evidence: Ameren Missouri identified both project cost and project (construction) schedule as candidate uncertain factors, developed the required ranges of values and probabilities, and subjected them to the preliminary sensitivity analysis required by 22.070(2). All of this is presented in detail in Chapter 9 of the Company's IRP filing.

Ameren Missouri's assumptions for nuclear resources are reasonable, and Ameren Missouri has performed the referenced sensitivity analysis. Ameren Missouri evaluated both project costs and project schedule as potential uncertain factors for potential supply side resources, including nuclear. Project cost was determined to be a critical independent uncertain factor and was included in the risk analysis. This is shown in Table 9.6 in Chapter 9 of the IRP.

Regarding the specific assumptions on cost and performance, Ameren Missouri used $4222/kw (2009$) as the base value with low and high values of $3563/kw and $5000/kw, respectively, for the capital cost range and 8 years as the project schedule (from final permitting to commercial operation) with low and high values of 7 and 9 years, respectively. The base value of 8 years includes two years from final permitting to first safety-related concrete pour, leaving 6 years from first concrete to commercial operation. Areva's most recent New Build Field Report indicates that the COD for Olkiluoto 3 is currently expected to be January of 2013, 7.25 years from the first concrete pour and the COD for Flamanville 3 is expected to be June of 2014, 6.5 years from the first concrete pour. Taishan 1 is expected to go online in 2013, which would result in a construction schedule of 4-5 years. Ameren Missouri's assumptions fall near the middle of the range based on these three initial projects, and it is expected that schedule delays will drop as more construction experience is gained.

U.S. DOE, in its AEO 2011 report, indicates that nuclear capital costs in 2025, the earliest date in which Ameren Missouri has included a nuclear resource coming online in its alternative resource plans or candidate resource plans are expected to range from $2985/kw to $5064/kw with a base value of $4316/kw (expressed in 2009 dollars), which are largely consistent with Ameren Missouri's assumed range. Furthermore, AEO 2011 shows a range of $2514/kw to $4694/kw for commercial operation in 2030 with a base value of $3868/kw (all in 2009 dollars). It is noteworthy that the contingency plan with nuclear and moderate environmental regulation included new nuclear in 2028.

Conclusion: Ameren Missouri has developed the ranges of values and probabilities required by 22.040(8) and has performed the preliminary sensitivity analysis required by 22.070(2). Ameren Missouri's estimates of nuclear capital costs and schedule are reasonable as is its uncertainty analysis.

Issue 2
Party: NRDC
Identifier: Deficiency IV-E
Reference: NRDC Report, page 51
Rule Citation: none
8/8 Joint Pleading Location: Appendix A, page 8

Issue Summary: NRDC asserts that Ameren Missouri has underestimated the risk of nuclear construction cost overruns and delays. NRDC includes no reference to any section of the IRP rules in its report and no specific allegation of deficiency with respect to the rules.

Ameren Missouri's Position and Evidence: Ameren Missouri's assumptions regarding nuclear costs and construction are reasonable. NRDC cites Figure 4.13 from the Company's IRP filing and implies that Ameren Missouri has assumed only a 35% chance that the capital cost could be higher than the base value. In doing so, they have misused this information and ignored further analysis performed in the development of the uncertain range discussed in Chapter 9 and presented specifically in Table 9.9. This table shows the overnight cost in 2009 dollars of $6.755 billion as the base value, which means it is at the 50th percentile in the probability distribution. By definition, this means that there is a 50 percent probability that costs will be higher than this value. Table 4.13 merely presents the assumptions used to determine the shape of the probability distribution. As pointed out in the discussion of Issue 1 in this section, Ameren Missouri's range for nuclear costs show a larger cost range above the base value than below it.

NRDC points out that no EPR has been completed or operated anywhere in the world, implying that Ameren Missouri would be subject to the same uncertainty regarding the cost of the design and uncertainties regarding schedule as are those currently constructing such units. However, Ameren Missouri's candidate resource plans with a nuclear plant show commercial operation beginning in 2025 (with aggressive environmental regulation) or 2028 (with moderate environmental regulation). With a

project schedule of 8 years, this means that construction would have to begin in 2017 or 2020, well after the first units have been placed into commercial service. By that time, significant lessons regarding the construction of these units will have been learned.

NRDC cites current experience in the U.S. (PPL) and overseas (Finland, France and China) as evidence that Ameren Missouri has underestimated the cost and project schedule. Regarding the schedule, NRDC indicates that current expectations for completion of Olkiluoto 3 in Finland is 2013, for a total construction duration of 7-8 years, and that for Flamanville 3 the expected commercial operation date is in 2014, or about 6-7 years duration. As noted in the discussion of Issue 1 in this section, Ameren Missouri's estimated project duration is 8 years, with 6 years from first concrete to commercial operation, roughly consistent with the actual experience cited.

Regarding costs, NRDC cites current construction of PPL's Bell Bend reactor, with an estimated cost of $13-15 billion including escalation, financing costs, initial nuclear fuel and reserves. Clearly this is intended to be a conservative and all-encompassing estimate. Ameren Missouri's installed cost, as modeled with escalation and financing costs, was $13 billion for a 2025 in service date.

NRDC recounts the history of nuclear construction cost overruns in the 1960's and 1970's, implying that important lessons were not learned and the same experience is unavoidable in the future. This ignores significant key changes that have occurred since that time. First, standard designs have been developed by vendors to mitigate the risks associated with design changes. Second, the licensing process has been streamlined to include both construction and operation licensing in the same process at the same time. Third, engineering and constructions practices have changed to include much more detailed design prior to construction. Fourth, utilities have taken steps to mitigate exposure to increases in costs of labor and materials through fixed-price contracts and currency hedging.

Conclusion: Ameren Missouri's assumptions for nuclear construction costs and schedule are reasonable. NRDC has not cited any rule for purposes of alleging a deficiency.

7.0 Evaluation of PPA's

7.1 Elimination of PPA's from Consideration as Supply Side Resources

Alleged Deficiencies and Concerns

Issue 1
Party: DNR
Identifier: Deficiency 3
Reference: GDS Report, page 20
Rule Citation: 4CSR 240-22.040(1), 4CSR 240-22.040(5)
8/8 Joint Pleading Location: Appendix A, page 9

Issue Summary: DNR contends that Ameren Missouri has not provided sufficient rationale for eliminating PPA's from consideration as supply side resources in alternative and candidate resource plans. DNR cites 22.040(1), which requires the identification of a variety of potential supply side resource options and the development of generic cost and performance information for each potential resource. DNR further cites 22.040(5), which requires consideration of potential opportunities for new long-term power purchases or sales.

Ameren Missouri's Position and Evidence: Ameren Missouri's exclusion of PPA's from consideration as supply side resources is appropriate. As part of the development of its 2008 IRP, Ameren Missouri conducted a request for information (RFI) seeking potential PPA opportunities for evaluation as potential supply side resources. The information received was not reliable for assessing any PPA opportunities, primarily because parties were reluctant to indicate terms and pricing through such generic means and with no probable prospects for signing a contract.

Early in the process of developing its 2011 IRP, Ameren Missouri indicated to stakeholders, including DNR, that based on its experience with the 2008 IRP that it would not attempt to seek such information regarding potential PPA's in the same way. At that stakeholder meeting (in November, 2009), OPC suggested that Ameren Missouri rely on its trading organization to determine whether any real prospects for PPA's were available. Ameren Missouri did just that and found there to be no reasonable opportunities for PPA's to include in the supply side analysis.

In considering the potential for a "generic" PPA resource, the question of the characterization of the underlying resource became relevant. Ameren Missouri concluded that a "generic" PPA could be constructed for any given potential supply side resource and that a PPA construct would simply serve as a financing or ownership option for the underlying resource. Consequently, the option for a generic PPA was eliminated from consideration as such PPA's would perform in accordance with the performance of the underlying resources already under consideration.

DNR's citation of 22.040(5), which requires consideration of potential opportunities for new long-term power purchases or sales, suggests that potential significant opportunities for long-term purchases and/or sales have been ignored. Based on the rationale outlined above and in its 2011 IRP filing, Ameren Missouri eliminated the option of long-term PPA's from further analysis. Consideration of long-term sales agreements might be useful in circumstances where a utility holds a long capacity position for an extended period with no visible capacity market, either through an auction or bilateral agreements. Ameren Missouri has assumed that it balances its capacity position at the prevailing market price for capacity (the values used for avoided capacity cost and presented in Chapter 7), so short positions are purchased and long positions are sold in every alternative resource plan. As Ameren Missouri would have no basis for assuming contract pricing different from its projection for capacity prices, there is no practical reason for separately evaluating long-term sales.

Conclusion: Ameren Missouri has appropriately considered purchase power options.

8.0 Evaluation of Storage Options

8.1 Selection of Storage Resources for Alternative Resource Plans

Alleged Deficiencies and Concerns

Issue 1
Party: NRDC
Identifier: Deficiency V-A
Reference: NRDC Report, page 56
Rule Citation: 4CSR 240-22.040(2)(C), 4CSR 240-22.040(9)(A)(3)
8/8 Joint Pleading Location: Appendix A, pages 16-17

Issue Summary: NRDC contends that Ameren Missouri's selection of pumped storage as a supply side resource for alternatives plans over compressed air energy storage is inappropriate. NRDC cites 22.040(2)(C), which requires the ranking of supply side resource options based on utility costs and an indication of which supply side options are considered to be candidate options for inclusions in alternative resource plans, and 22.040(9)(A)(3), which requires an explanation of the reasons why any supply side options rejected were not included as candidate resource options.

Ameren Missouri's Position and Evidence: Pumped hydro storage was selected as the most reasonable energy storage option to be developed by Ameren Missouri in the 20-year planning horizon. As context, there are only two compressed air energy storage ("CAES") facilities world-wide in operation. The Huntorf plant, located in North Germany, was commissioned in 1978 as the world's first CAES plant (290 MW). Second, is the McIntosh CAES plant commissioned by Alabama Electric Company in 1991 (110 MW). In contrast, there are 42 pumped hydro storage plants in operation in the U.S. totaling over 20,800 MW of capacity. EPRI is coordinating CAES demonstration projects in which NYSEG and PG&E bid for DOE cost sharing with a goal of exploring the viability of advanced CAES technology. Ameren Missouri will continue to monitor CAES research and development for future resource planning analysis.

Conclusion: Ameren Missouri's selection of pumped hydro as a supply side resource for alternative resource plans is reasonable.

9.0 Load Forecast

9.1 Load Forecast Assumptions

Alleged Deficiencies and Concerns

Issue 1
Party: DNR
Identifier: Deficiency 1
Reference: GDS Report, page 8
Rule Citation: 4CSR 240-22.030(2)(A)
8/8 Joint Pleading Location: Appendix A, page 7

Issue Summary: DNR asserts that Ameren Missouri's choice and handling of driver variables in its forecasting process is suspect. DNR cites 22.030(2)(A), which requires the utility to identify appropriate driver variables as predictors of the number of units for each major class or subclass.

Ameren Missouri's Position and Evidence: Ameren Missouri has performed the identification of driver variables required by 22.030(2)(A), and Ameren Missouri's selection of driver variables is appropriate.

First, GDS claims that Ameren Missouri is deficient because it did not update its forecast with the latest data from its economic forecasting consultant Moody's Analytics. While it is true that updates to the economic drivers became available before the IRP was filed, GDS fails to understand the realities of a process as large and interrelated as an IRP. Ameren Missouri's load forecasting process had to be completed by early June in order for the integration analysis, risk analysis, strategy selection, and all other phases of the IRP to be completed on time. There were many months of work that went into developing the load forecast, which consisted of 11 scenarios, each with forecasts of 12 different customer classes. To suggest that at the last moment, Ameren Missouri should have updated 132 load forecast models and then reprocessed all of the hourly load calculations is, at a minimum, unrealistic. By necessity, inputs to the IRP must be locked down at a point in time. Continually updating throughout the process would be not only burdensome, but in fact counter-productive, as the integration results would constantly be in flux and decision makers would have to adjust their frame of reference continually all while trying to synthesize the vast amount of data that is produced throughout the analysis. The fact is that there will be opportunities to update the load forecast, given the Commission's new rule requiring an annual update. The Commission should reject the argument that this is a deficiency, as the facts are clear that a robust process necessitates an approach that simply cannot adjust as frequently as some stakeholders would appear to desire. Given the conclusion of the IRP, that no supply side resources are needed in the implementation period, it is unlikely that a load forecast update would have produced any meaningful change in the selection of the preferred plan.

Second, GDS claims that Ameren Missouri erred in using Moody's Analytics forecast of households to create its income per household variable. Instead, they suggest that Ameren Missouri's internal

customer forecast should have been used as the divisor of the calculation. This suggestion is based on multiple misunderstandings of the actual data and forecasting process utilized by Ameren Missouri. The economic driver forecast that Ameren Missouri purchases from Moody's Analytics come at the county level with quarterly observations over the historical and forecast time horizons. The quarterly county level data from Moody's for each driver is based off of their own data collection, synthesis and analysis methods. Since most economic data is not measured or published at the county level, Moody's necessarily uses a proprietary method to synthesize those data series. Ameren Missouri then adds up the observed or forecasted driver values for the counties within its service territory (with appropriate weighting where Ameren Missouri does not serve the entire county) and interpolates the quarterly data into monthly data. It is not surprising, therefore, that the household count that is synthesized by Moody's and interpolated by Ameren Missouri does not precisely match the residential customer count of Ameren Missouri, which is based on a measurement of the population each month (accounts billed). However, there are two points here that are important to note which make GDS' suggestions inappropriate for Ameren Missouri's forecast. First, Moody's provides the county level income data that is the numerator of the income per household variable as well as household variable that becomes the denominator. Whatever methods they are using to synthesize the county level economic data, they are certainly more likely to be internally consistent than using a Moody's synthesis of income and matching it up with Ameren Missouri's customer count.

In addition, this data is put into a regression equation for forecasting purposes. Notwithstanding previous arguments, to the extent that there is bias in the Moody's synthesis of households relative to Ameren Missouri's customer counts, as long as that bias is systematic in both the history and forecast, the regression equation will compensate. On page 12 of their report, GDS concludes that the household forecast being 10% low in the income per household calculation for 2030 will result in kWh being overstated by a commensurate amount in that year. That is mechanically untrue. If Ameren Missouri had used its customer count as the denominator of the income per household calculation, it would have done so in both the historical and forecast time periods. Therefore the regression coefficients would have been estimated at a different level and most likely produced a similar energy forecast in 2030.

Finally, GDS indicates that the choice of driver variable for the industrial class forecast may not have been correct. Ameren Missouri in its IRP document identified the driver choice for the industrial class as a key uncertainty. GDS indicates that the driver choice "may not be the correct choice." (GDS HC report, page 14) Indeed they are correct that it might not be the correct choice. That is in fact why it was identified as a key uncertainty. On the other hand, it is also possible that it is the correct choice. Either way, the risk analysis accounted for this possibility, as the low load growth scenarios utilized the forecast driver GDS would have preferred. However, it is not as simple of a case as GDS suggests selecting the manufacturing employment variable for the forecast driver. GDS indicates that this driver has a higher correlation with historical industrial sales than manufacturing output. While this may or may not be true, Ameren Missouri's IRP documentation clearly laid out the rationale for the use of both output and employment as a driver. Moody's Analytics was forecasting a divergence between these variables in the forecast horizon that did not exist in the past. Moody's suggested that manufacturing output would

increase over the forecast horizon while employment fell. There are a small number of possibilities for how this can happen in reality. One is that labor is replaced with energy consuming capital equipment, which will allow increased productivity from fewer employees. The second is that the mix of goods being manufactured changes to less input intensive goods. It is certainly not clear which of these scenarios is the basis of Moody's forecast divergence, but both are entirely plausible scenarios. Using the output growth case for the high load growth scenarios and the employment case for the low load growth scenarios in fact was a rather artful way to encompass each of these possibilities. While Ameren Missouri believes its choice of drivers was in fact a strength of the analysis rather than a weakness, it is certainly possible for other parties to disagree. That said, one cannot credibly make the case that Ameren Missouri did not document the rationale for its choice of driver variable, which is what the cited rule requires. So under no circumstances would it be reasonable to conclude that this is a deficiency. It is worth noting that the industrial growth rate of 1.38%, which GDS concludes may have been too high, is only 0.2% different for what the EIA was forecasting for the West North Central region over the same time horizon.

Conclusion: Ameren Missouri's choice of driver variables is reasonable and its choice has been adequately documented in accordance with the IRP rules.

Issue 2
Party: DNR
Identifier: Deficiency 2
Reference: GDS Report, page 15
Rule Citation: 4CSR 240-22.030(3)(B)(2)
8/8 Joint Pleading Location: Appendix A, pages 7-8

Issue Summary: DNR asserts that the fact that air conditioning makes up 80% of the residential class load at the time of system peak in Ameren Missouri's forecast is unreasonably high. DNR cites 22.030(3)(B)(2), which requires the utility to estimate end-use monthly energies and demands at the time of monthly system peaks for each end use.

Ameren Missouri's Position and Evidence: Ameren Missouri has developed the estimates of end-use monthly energies and demands at the time of monthly system peaks for each end use as required by the rules.

With respect to the specific assumption referenced in the GDS report, they use two arguments to support their claim. First they calculate the air conditioning use per customer implied by Ameren Missouri's peak forecast. Then the compare that use per customer to a similar value found in an EPRI report, as well as to a back of the envelope reasonableness check that they appeared to invent on the fly, that was fraught with unsupported and unrealistic assumptions.

The first problem with GDS's analysis is that they do not account for losses that were inherent in Ameren Missouri's forecast. GDS's calculation indicates that Ameren Missouri's implied air conditioning use per customer is 3.03 kW at the time of peak. This is true, if you include transmission and

distribution losses in the customer loads. The end-use peak values in the load analysis appendix are reported at the system level, meaning they have all been adjusted for line losses that will be incurred serving the load. This causes GDS to use a number that is 9.2% higher than the actual forecast load at the customers' premise. It is unclear whether the EPRI report values cited include losses, but the back of the envelope analysis that is presented in GDS's report clearly does not. This adjustment to GDS analysis is an essential starting point to improving their comparisons, but there are further flaws and additional comparisons that should be considered. Ameren Missouri, in an attempt to further understand the reasonableness of the peak air conditioning contribution, has performed an additional analysis that provides some perspective on the forecast. The actual 2009 and 2010 residential class peaks were analyzed to determine an estimate of the air conditioning load at those times. The air conditioning load was isolated by comparing the peak residential load to the residential load at the same hour of the day at its lowest point in the year. The lowest residential loads occur on mild days in the spring and fall, when neither air conditioning nor heating equipment is typically needed. It is logical to assume that the utilization of other end uses (i.e. washing machines, lights, t.v.'s, etc) are not particularly weather sensitive and don't exhibit a large amount of seasonality. So by comparing the lowest level of residential load that occurs on during the year in the hour between 4 and 5 pm (normal system peak load time) and comparing it with the residential load at the time of system peak, one can attribute an overwhelming majority of the difference in load to air conditioning. Ameren Missouri's estimate of air conditioning load at the time of peak in the IRP forecast was 3,115 MW for 2010. In 2010, the analysis just described suggests air conditioning load (calculated as the difference between peak and minimum residential 5 pm load) of 3,235 MW. A similar analysis of 2009 produces an estimate of 2,907 MW, in a summer where the peak temperature was quite close to the normal peak temperature used by Ameren Missouri for the forecast. Using the value that EPRI calculated for residential air conditioning use per customer for the Midwest multiplied by the Ameren Missouri customer count and then by the appropriate line loss percentage produces an estimated air conditioning peak load of 2,289 MW. Given the analysis of Ameren Missouri's actual peak load and the estimate of air conditioning contribution just described, it is the EPRI result that looks more unrealistic. GDS had stated that Ameren Missouri did not provide convincing evidence that our end-use load profiles were appropriate for its service territory. Ameren Missouri contends that the detailed workpapers showing the rigorous method used to calibrate the end-use shapes to its own class level load research speak for themselves as among the most detailed attempt at such work that it is aware of going on in the industry. GDS has not demonstrated that a superior method even exists to developing the end-use load shapes. The EPRI analysis certainly does not appear to produce a more realistic estimate of Ameren Missouri's air conditioning load.

Lastly, there are several additional flaws with GDS' back of the envelope analysis that represents their final attempt to shoot holes in Ameren Missouri's forecast. GDS states that using assumptions of a 2.5 ton air conditioning with SEER 10 efficiency, a typical customer would use about 3 kW when the unit runs. They then use a study that suggests typically only half of air conditioners are running at any given time on days over 90 degrees. The implication is that Ameren Missouri is unrealistically forecasting that every single air conditioner in the entire service territory is running all out at the time of system peak. However, there are a number of flaws with their analysis. First, there is absolutely no evidence

presented that Ameren Missouri customers on average have a 2.5 ton air conditioning system as GDS assumes. In fact, that is a critical assumption in this analysis that is probably understated. Next, the study that was used to suggest that only half of air conditioning units are running was based in Wisconsin. It should be plain to see that air conditioning utilization on days over 90 in Wisconsin will be different than utilization in Missouri, a much warmer climate where air conditioning use is more ubiquitous to begin with, on peak load days when the temperature typically climbs to the upper 90s or even 100 degrees. But using these assumptions that either have no evidence behind them, or that have evidence that undermines their applicability, GDS produces an estimate that the Commission should place no reliance on. In fact, the evidence above along with the detailed analysis provided in the IRP workpapers should serve to alleviate concerns with this estimate and support the recognition of the fact that the load forecast followed an extremely innovative and robust methodology.

In addition to the concern over the residential air conditioning contribution to system peak, GDS makes a very similar point about the Commercial class end use mix at the peak time. In support of this, they simply use the EPRI study mentioned in the residential air conditioning discussion as well as KEMA's statewide market potential study for Missouri. Again, the methodology Ameren Missouri followed was very robust and well-documented. The analysis of the residential concern demonstrated that the forecast of Ameren Missouri was likely significantly more in line with actual experience than the other references GDS came up with. There is no reason to think the other references are any more valid for the commercial class than they were for residential.

Conclusion: Ameren Missouri has developed the estimates of end-use monthly energies and demands at the time of monthly system peaks for each end use as required by the rules. Ameren Missouri's assumptions for air conditioning are reasonable.

10.0 Integration and Risk Analysis

10.1 Ameren Missouri's Approach to Integration and Risk Analysis

Ameren Missouri's approach to integration and risk analysis is detailed in Chapter 9 of its IRP filing. In summary, the Company's approach included the following key steps:

- Development of alternative resource plans – Ameren Missouri developed 216 alternative resource plans
- Integrated analysis of alternative resource plan performance across Ameren Missouri's ten planning scenarios (discussed in detail in Chapter 2 of the IRP filing)
- Development of candidate uncertain factors and sensitivity analysis to determine which are critical uncertain factors – Ameren Missouri identified three critical uncertain factors in addition to the three critical uncertain factors represented by the ten planning scenarios
- Selection of candidate resource plans from the 216 alternative resource plans – Ameren Missouri selected 16 initial candidate resource plans
- Risk analysis of the 16 initial candidate resource plans using a probability tree that incorporated the ten planning scenarios and other critical uncertain factors
- Incorporation of environmental regulation scenarios into 14 final candidate resource plans
- Risk analysis of the 14 final candidate resource plans

The integration and risk analysis provided a robust scope and depth of information and insights on which Ameren Missouri's senior management relied to select its resource acquisition strategy.

10.2 Evaluation of Uncertain Factors

Alleged Deficiencies and Concerns

Issue 1
Party: Staff
Identifier: Concern C
Reference: Staff Report, page 42
Rule Citation: 4CSR 240-22.070(1)
8/8 Joint Pleading Location: Appendix A, page 26

Issue Summary: Staff contends that joint probabilities for two sets of independent uncertain factors were calculated incorrectly by Ameren Missouri. Specifically, they indicate that the correct approach to calculating joint probability for two independent variables requires the separate computation of each combination of variable values and then summation of the values across the desired ranges (i.e., high, base and low). Staff cites 22.070(1), which requires documentation of the subjective probabilities assigned to uncertain factors.

Ameren Missouri's Position and Evidence: Ameren Missouri has documented the subjective probabilities assigned to uncertain factors and has correctly represented the joint probabilities of the variables in question because they are dependent on one another rather than independent. Staff correctly presents the methodology that should be used for calculating the joint probability for a pair of independent uncertain factors. However, this is not relevant to the variables in question because it ignores the conclusion that the factors within each pair of uncertain factors are actually dependent on one another. Since they were determined to be interdependent with one another, the joint probability of the combined pair of two factors retained the probability distribution of each factor.

Interest rates and allowed ROE were determined to be dependent on one another, while remaining independent of other uncertain factors. This means that the two variables were assumed to be perfectly correlated while other independent uncertain factors were assumed to have no correlation at all. In fact, the probabilities for the pairs of variables at the high and low levels were developed together, as if they were one variable; therefore, it would be inappropriate to treat the combination as Staff proposes. For example, as interest rates rise, so to do allowed ROE's, and vice versa. This precludes combinations such as high interest rates and low ROE's, a combination that would be considered possible if Staff's method for calculating the joint probability is employed. Similarly, DSM costs and performance were determined to be dependent on one another since greater success means both higher costs and higher energy savings, and vice versa.

Conclusion: Ameren Missouri has documented the subjective probabilities assigned to uncertain factors in accordance with the IRP rules. Ameren Missouri's representation of the probabilities for the pairs of uncertain factors in question is appropriate.

Issue 2
Party: DNR
Identifier: Deficiency 4
Reference: GDS Report, page 21
Rule Citation: 4CSR 240-22.040(8)(A)(2)
8/8 Joint Pleading Location: Appendix A, pages 12-13

Issue Summary: DNR contends that Ameren Missouri did not present any discussion of the historic forecast accuracy of previous fuel price forecasts produced by Charles River Associates' MRN-NEEM model. DNR cites 22.040(8)(A)(2), which requires that the utility consider the accuracy of previous forecasts as an important factor in selecting providers of fuel price forecasts.

Ameren Missouri's Position and Evidence: Ameren Missouri has considered the accuracy and reasonableness of CRA's forecasting models in selecting them to perform the scenario modeling used as the basis for fuel price forecast assumptions. Ameren Missouri has provided appropriate information to support the reliability of the modeling performed by CRA. DNR acknowledges the discussion of peer

reviews included in Chapter 2 of the company's IRP filing. Specifically, the report states that, "CRA's MRN-NEEM model has been extensively peer-reviewed by such reputable organizations as the Stanford Energy Modeling Forum, the California Air Resources Board's peer review panel of economists for its analyses of AB32 costs, and (for an earlier version of the model) the International Panel on Climate Change (IPCC). It has been found to represent a best-in-class energy and environmental model capable of producing the integrated projections of key IRP variables, including natural gas prices, essential to sound resource plan selection."

The Stanford Energy Modeling Forum includes participants such as MIT, Duke Energy, Ford Motor, London School of Business, Lawrence Livermore National Laboratory, and other academic, corporate, and public entities involved in the energy industry. The organization meets periodically to discuss issues and analytical approaches with goals that include improving the evaluation of energy policy and issues through modeling. More about the organization and its goals can be found at http://emf.stanford.edu/.

As the MRN-NEEM model is used to simulate myriad potential futures under a range of economic and political conditions for numerous clients and for various purposes, there is no single forecast that could be compared to historic prices. Ameren Missouri has previously benchmarked the results of the MRN-NEEM models to our own MIDAS model used for developing forward price curves and found the results to be in reasonable agreement.

Conclusion: The discussion of CRA's modeling credentials adequately satisfies the requirements of the IRP rules to consider the accuracy of forecasts in selecting providers of fuel forecasts.

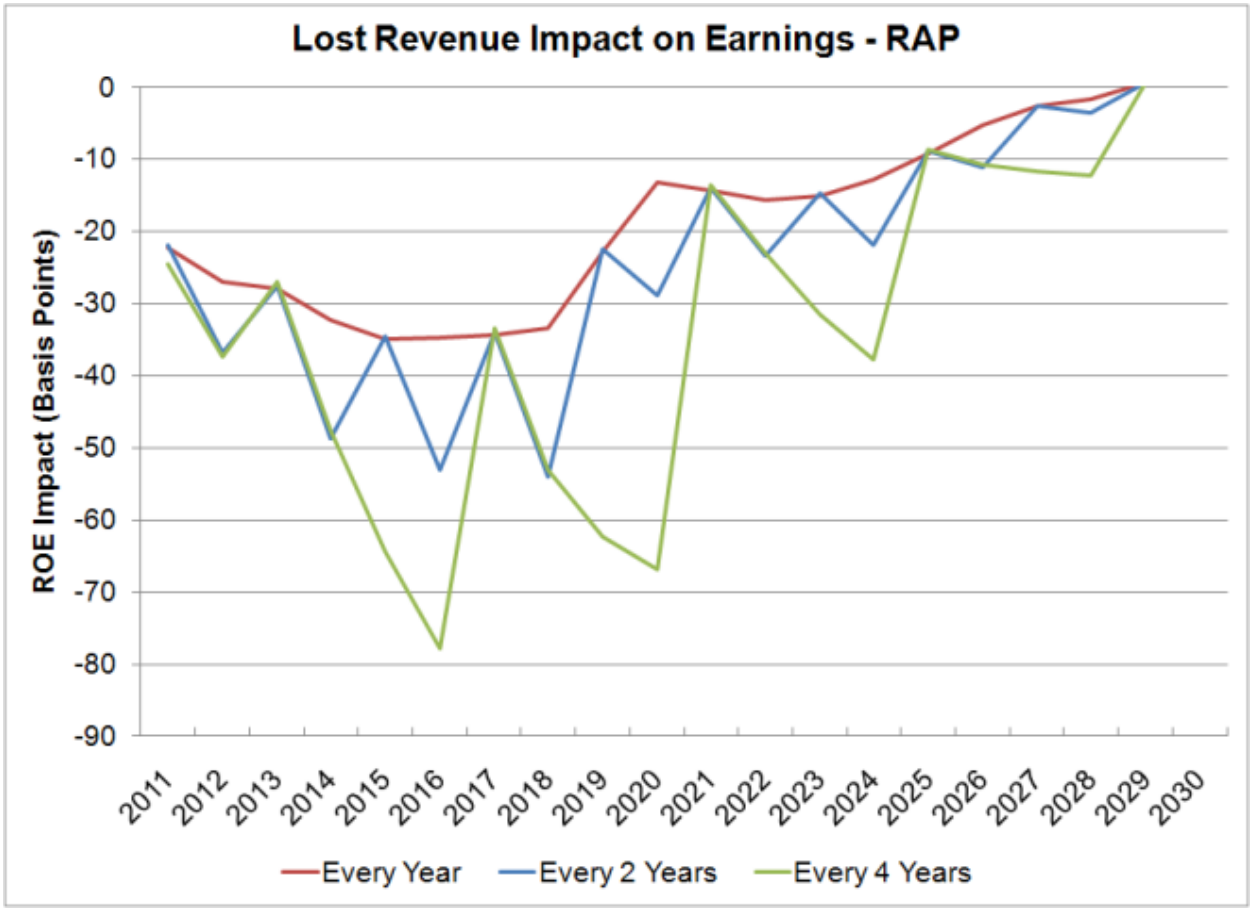
Issue 3
Party: NRDC
Identifier: Deficiency II-D
Reference: NRDC Report, page 19
Rule Citation: 4CSR 240-22.070(1), 4CSR 240-22.070(2), Stipulation and Agreement EO-2007-0409 item 34
8/8 Joint Pleading Location: Appendix A, page 31

Issue Summary: NRDC asserts that Ameren Missouri has not proven that lost revenues would result in ROE deterioration, that the Company is required to seek alternative rate treatment under MEEIA and that the ranges used for allowed ROE in the IRP analysis were chosen to bias the analysis against energy efficiency. NRDC cites 22.070(1), which requires the documentation of subjective probabilities for uncertain factors and the use of a probability tree, 22.070(2), which requires the performance of a preliminary sensitivity analysis to identify critical uncertain factors, and Stipulation and Agreement EO-2007-0409 item 34, which required that Ameren Missouri provide detailed documentation supporting the values and associated probabilities for uncertain factors.

Ameren Missouri's Position and Evidence: Ameren Missouri has documented the subjective probabilities for uncertain factors as required by 22.070(1), has performed the preliminary sensitivity analysis required by 22.070(2), and has documented the values and probabilities for uncertain factors as ordered by the Commission in EO-2007-0409. A discussion of the uncertain factor ranges is presented in Chapter 9 of Ameren Missouri's IRP filing, beginning on page 15. NRDC's connection of requirements for evaluation of uncertain factors to the Company's analysis of lost revenue is nonsensical.

Ameren Missouri has clearly established through explicit analysis the harmful financial effects of lost revenues and has set an appropriate range for allowed ROE for the planning horizon. NRDC's assertion that the Company has not proven that lost revenues would result in ROE deterioration completely ignores the results of the Company's explicit analysis of this issue presented in Chapter 10 of the IRP filing and supported by detailed workpapers. Figure 10.1 below shows the impact on ROE due to lost revenues under a plan that includes the RAP DSM portfolio for several different assumptions of rate case frequency.

Figure 10.1 Lost Revenue Impact on Earnings by Rate Case Frequency



As can be seen, the impacts on ROE can be significant even with annual rate cases. This same chart was presented in the Company's IRP filing in both Chapter 1 (Figure 1.10, page 17)) and in Chapter 10 (Figure

10.2, page 5). Even without the analysis, it should be clear that losses in fixed cost recovery through volumetric rates will have a negative financial impact on the Company. This fact was not disputed in Ameren Missouri's recent rate case (File No. ER-2011-0028). In fact, the Commission found that lost revenue is a real disincentive to utility investment in energy efficiency, stating on page 37 of the order:

> "The throughput disincentive results from the traditional regulated utility business model in which a utility earns revenues by selling electricity. Under that model, the more electricity it sells, the more revenue the utility earns to cover its fixed costs and to provide a profit for its shareholders.79 Energy efficiency programs are designed to reduce electricity sales. Thus, by implementing energy efficiency programs, the utility is knowingly causing financial harm to itself. Understandably, utility companies are reluctant to reduce their earnings, resulting in a strong incentive for the company to spend as little as possible on energy efficiency programs."

NRDC's assertion that the Company is required to make a MEEIA filing is false. The Commission has clearly indicated that filings under MEEIA are voluntary, not compulsory and that, "MEEIA does not contain any language that requires utilities, or allows the Commission to require utilities, to spend any particular level of dollars on energy efficiency, or to achieve any particular amount of MWh savings through energy efficiency." (Commission order ER-2011-0028, page 44).

Finally, NRDC's assertion that Ameren Missouri has purposefully selected a range of allowed ROE designed to bias the results against energy efficiency is not only completely false, but also illogical. Ameren Missouri's range of ROE is designed to reflect expectations for financial markets over the planning horizon, so recent history regarding allowed ROE's in Ameren Missouri rate cases or elsewhere is irrelevant. Ameren Missouri relied on research from Macroeconomic Advisors with respect to long-term interest rates and correlated the range of interest rates to a range of allowed ROE. Given that a higher ROE means that capital will be more costly, such an assumption actually favors less capital intensive resources and serves as a detriment to higher capital cost resources such as nuclear.

Conclusion: Ameren Missouri has provided adequate quantitative and qualitative analysis regarding the economic disincentives associated with DSM and has complied with the rules governing the selection, characterization and evaluation of uncertain factors.

Issue 4
Party: NRDC
Identifier: Deficiency IV-D
Reference: NRDC Report, page 48
Rule Citation: 4CSR 240-22.010(2)(C), 4CSR 240-22.070(2)
8/8 Joint Pleading Location: Appendix A, pages 5-6

Issue Summary: NRDC contends that Ameren Missouri has not adequately accounted for the risk to ratepayers caused by the Company's overreliance on coal generation. They cite 22.010(2)(C), which requires the evaluation of other considerations that may constrain the or limit the minimization of PVRR, and 22.070(2), which requires a sensitivity analysis of uncertain factors.

Ameren Missouri's Position and Evidence: Ameren Missouri has performed a rigorous analysis of its resource options in the context of a number of risks that affect coal-fired generation. These risks include the potential for carbon regulation, as developed in Chapter 2 and analyzed in Chapter 9 and the potential for non-carbon regulation of coal emissions, as developed in Chapter 8 and analyzed in Chapters 9 and 10. Ameren Missouri conducted a thorough investigation and analysis of alternatives for the Meramec plant to represent the Company's coal-fired fleet.

NRDC cites a risk that the "operating costs of its existing coal-fired units will increase significantly as they age and/or the units' performance will degrade." As shown in section 3.2, Issue 2, in this report, Ameren Missouri has included explicit assumptions for the cost of maintaining the Meramec plant with the same high level of safety and reliability that it has exhibited in recent years. Ameren Missouri has also shown that the performance of the Meramec plant and the entire coal fleet has improved over recent years as the plant has aged.

NRDC cites examples of other companies that have made decisions to retire coal-fired generation. While these announcements are noteworthy, they are not a substitute for rigorous analysis of Ameren Missouri's plants under the circumstances faced by, and the opportunities available to, Ameren Missouri and its customers.

Conclusions: Ameren Missouri has explicitly accounted for the risks faced by its coal-fired generation in its IRP analysis and has performed its analysis of uncertain factors in compliance with the IRP rules.

11.0 Strategy Selection

11.1 Ameren Missouri's Approach to Strategy Selection

Ameren Missouri's approach to strategy selection is described in detail in Chapter 10 of its IRP filing. In summary, the Company's approach included the following key elements:

- Identification of policy objectives (or planning objectives)
- Identification of measures to support the identified policy objectives
- Development of a scorecard based on the identified measures to facilitate selection of the preferred resource plan
- Analysis of other key considerations ("decision factors") that significantly influence decisions and for which decisions must be based on complete and accurate information
- Discussion and deliberation on all analysis performed (risk analysis, decision factors, scorecards, etc.) to arrive at the selection of the preferred resource plan and acquisition strategy
- Selection by Ameren Missouri senior management of the preferred resource plan and acquisition strategy
- Approval by the Ameren Missouri Board of Directors of the preferred plan and resource acquisition strategy

It is important to point out that much is made by the other parties in this case of the development and use of scorecards in Ameren Missouri's strategy selection process. Some parties even go so far as to recast the scorecard analysis and results using their own preferences for scores and weightings. While scorecards are unavoidably subject to various pitfalls and are by no means a foolproof method on which to solely base decisions, they do provide a useful framework for discussion and deliberation of the key issues and analysis that must be considered in decision making. Ameren Missouri fully understands the limitations of scorecards and has based its decisions on a thorough discussion and understanding of the underlying analysis.

11.2 Ameren Missouri's Policy Objectives (Planning Objectives)

Alleged Deficiencies and Concerns

Issue 1
Party: DNR
Identifier: Deficiency 4
Reference: DNR Report, page 18
Rule Citation: 4CSR 240-22.010(2), 4CSR 240-22.060(1), 4CSR 240-22.070(6)(A)
8/8 Joint Pleading Location: Appendix A, pages 1-2

Issue Summary: DNR asserts that Ameren Missouri has not adequately described its planning objectives. DNR cites 22.010(2), which requires explicit identification and quantitative analysis of other considerations that constrain the minimization of PVRR, 22.060(1), which provides that the utility "may identify additional planning objectives," and 22.070(6)(A), which provides for decision makers to strike an appropriate balance between its various planning objectives.

Ameren Missouri's Position and Evidence: Ameren Missouri has provided an explanation of its policy (planning) objectives in its Executive Summary (Chapter 1 of the IRP filing). Although more explanation may have provided some additional prose for the write-up, the objectives in concert with the measures selected to represent them are self-explanatory and the relative importance of each is evident with the subjective weights. In most cases, the objective and evaluation of associated performance measure(s) is implicitly defined in relative terms.

For example, even though a specified level of economic development is not defined for that objective, the impact of alternative resource plans on economic development can be, and was, measured in relative terms between plans. This is true for customer satisfaction, environmental impact, portfolio diversity, energy savings, and financial impacts. A supplemental filing, as proposed by DNR, would not be productive as it would neither provide explicit definition of numerical targets for the identified policy/planning objectives and associated measures nor change the effect or outcome of the IRP.

Conclusion: Ameren Missouri has provided adequate documentation of its planning objectives and has used them in a manner explicitly provided for in the IRP rules.

11.3 Decision Factors

Alleged Deficiencies and Concerns

Issue 1
Party: DNR
Identifier: Deficiency 1 / Concern 1
Reference: DNR Report, page 9 / DNR Report, page 8
Rule Citation: 4CSR 240-22.070(10)(D), 4CSR 240-22.070(10)
8/8 Joint Pleading Location: Appendix A, pages 26 / 27

Issue Summary: DNR asserts that Ameren Missouri did not provide adequate definition for, or explanation of, decision factors or subject the selection of decision factors to the same rigor as the identification of uncertain factors. DNR cites 22.070(10), which requires the specification of ranges for which the preferred resource plan is appropriate and identification of contingency options that are judged to be appropriate responses to extreme values of uncertain factors. DNR also provides some quotes from stakeholder meeting transcripts which they believe support the case that the Company's process was ambiguous. They also admit that their concern is "theoretical".

Ameren Missouri's Position and Evidence: Ameren Missouri has provided a clear explanation of what distinguishes a decision factor from an uncertain factor and has identified the circumstances under which the preferred plan may become inappropriate and the contingency options that would constitute reasonable responses to those circumstances. This is reflected clearly in the resource acquisition strategy summarized in Figure 1.1 in this report.

Based on the EVBI analysis performed by Ameren Missouri and discussed in Issue 1 of section 11.5 of this report, there are no values of uncertain factors that would cause the Company to select a different plan as the preferred plan. Rather, contingency options could be triggered by circumstances that Ameren Missouri evaluated as decision factors – DSM cost recovery, large plant financing, and environmental regulation.

For DSM, it is possible and necessary to get a Commission ruling on the exact financial treatment of future DSM investments before Ameren Missouri commits to a particular investment level. The fact is that the Company will know how much energy efficiency to pursue only after the Commission has ruled on an appropriate DSM financial framework.

The discussion about large investment financing is very similar to that of DSM financial treatment in that the Company will know whether to move forward with a large investment only after such treatment has been made available. The retirement/environmental decision factor is also very similar in that Ameren Missouri has considered environmental scenarios with varying degrees of stringency. The analysis provided adequate information to determine the preferred fate of the Meramec plant in the event environmental regulations are more or less stringent. As supply side resource decisions would depend on the specific environmental regulations promulgated, it is important that Ameren Missouri maintain contingency options such as an Early Site Permit for new nuclear generation.

As explained in section 3.3, Issue 1, this report, the use of decision factors is more logical than using a scenario approach because it avoids analytical inconsistencies and therefore supports better decision making. It should be noted that Ameren Missouri developed this construct in some ways as a response to criticisms of its 2008 IRP that it chose a plan it could not implement without additional financing. If Ameren Missouri were to adopt an aggressive DSM plan without proper financial treatment then that would be no different than adopting a nuclear plan that requires CWIP.

The use of decision factors does not cause any loss of information or analysis for decision makers, stakeholders, or the Commission. In fact, the stakeholder reports indicate a crystal clear understanding of the role and effect of decision factors as the company has used them in its decision process. To assert that there is any ambiguity is not supported by the facts.

Conclusion: Ameren Missouri has provided adequate documentation as to the definition and effect of decision factors and has clearly presented in its resource acquisition strategy the circumstances that could trigger the pursuit of contingency options and what those options are.

Issue 2
Party: DNR
Identifier: Concern 2
Reference: DNR Report, page 12
Rule Citation: 4CSR 240-22.070(10)(D)
8/8 Joint Pleading Location: Appendix A, pages 27-28

Issue Summary: DNR contends that the Company has circumvented the rules governing the identification and analysis of uncertain factors by creating the new category of decision factors. DNR expresses considerable angst over the fact that decision factors are not defined in the Chapter 22 rules and then references other of its alleged deficiencies as support for the stated concern.

Ameren Missouri's Position and Evidence: Ameren Missouri's use of decision factors is appropriate and not in violation of the Chapter 22 rules. Since DNR ties its concern to a number of its alleged deficiencies, we must assume that addressing the cited alleged deficiencies simultaneously addresses the stated concern. These issues are discussed elsewhere in this section of the report in response to the other alleged deficiencies and concerns that DNR references in this concern.

Conclusion: Ameren Missouri has exceeded the minimum requirements of the IRP rules. The use of decision factors is entirely appropriate and provides a decision making construct that is superior to relying solely on the uncertain factor analysis identified in the IRP rules.

Issue 3
Party: DNR
Identifier: Concern 3
Reference: DNR Report, page 17
Rule Citation: 4CSR 240-22.070(10)(C)
8/8 Joint Pleading Location: Appendix A, pages 23-24

Issue Summary: DNR expresses concern over the use of terms not defined in the Chapter 22 rules. The terms at issue are "decision factors", considered elsewhere in this section of the report for issues specific to that term, "policy objectives", and "decision criteria". DNR cites 22.070(10)(C), which requires a specification of the ranges of critical uncertain factors that could trigger the selection of a contingency option.

Ameren Missouri's Position and Evidence: Ameren Missouri's resource acquisition strategy clearly presents the circumstances under which a contingency option may become preferential to the preferred

resource plan, as discussed in Issue 1 in this section, and hence indicates the value of maintaining resource options for the future. Ameren Missouri's use of terms is clear from the context in which they are used. DNR correctly likens the term "policy objectives" to the term "planning objectives" which is defined in the rules, and the term "decision criteria" to "selection criteria", also defined in the rules.

Conclusion: The documentation of these terms is adequate and do not violate any rule.

11.4 Evaluation of Alternative and Candidate Resource Plans

Alleged Deficiencies and Concerns

Issue 1
Party: Staff
Identifier: Deficiency 2
Reference: Staff Report, page 33
Rule Citation: 4CSR 240-22.010(2)(B), 4CSR 240-22.070(6)(A)
8/8 Joint Pleading Location: Appendix A, page 4

Issue Summary: Staff asserts that "primary" necessarily means more than 50%. Staff cites 22.010(2)(B) and 22.070(6)(A) as the basis for alleging a deficiency. 22.010(2)(B) states that the utility shall "use minimization of the present worth of long-run utility costs as the primary selection criterion in choosing the preferred resource plan;"

Ameren Missouri's Position and Evidence: Ameren Missouri has used minimization of PVRR as its primary selection criterion in choosing its preferred resource plan by placing the highest weighting of any performance measure on PVRR minimization. The plain and ordinary meaning of the term "primary" is "of first importance." It does not mean "weighted more than 50%."i PVRR minimization has the highest weight of any selection criteria, meaning that it's weighting is of first importance which in turn means it was the "primary criterion". 22.070(6)(A) states that "In the judgment of utility decision-makers, the preferred plan shall strike an appropriate balance between the various planning objectives specified in 22.010(2)". These planning objectives include the aforementioned minimization of PVRR along with "other considerations that are critical to meeting the fundamental objective of the resource planning process" (22.010(2)(C)).

Ameren Missouri management has identified such other considerations as part of its policy objectives (planning objectives) and has documented "the process and rationale used by decision makers to assess the trade-offs and determine the appropriate balance between minimization of expected utility costs and these other considerations," which may include risks related to uncertain factors, risks associated with new environmental laws, rate increases associated with alternative plans, or other considerations that decision makers believe are appropriate in satisfying the primary objective of resource planning. Ameren Missouri's management has done just that through the policy objectives (or planning

objectives) it identified and the weightings and scores assigned to each candidate resource plan for each measure supporting these policy objectives.

It should be noted that using the "at least 50%" interpretation would not result in selection of a different alternative resource plan as the DSM cost recovery decision factor constitutes a constraint on minimizing PVRR in the eyes of the Company's decision makers. This was similarly the case with the 2008 IRP (Case EO-2007-0409), in which the ability to finance a nuclear plant under existing regulation served as a constraint on the minimization of PVRR.

Furthermore, in the initial scorecard Ameren Missouri included a 25% weighting for PVRR and a 15% weighting for rate increases for a total of 40%. In the final scorecard, Ameren Missouri included a 30% weight for PVRR and a 20% weight for rate increases for a total of 50%. While PVRR is a measure of total cost, rate increases also measure the change in total cost over the planning horizon.

Conclusion: Ameren Missouri has complied with the requirement to treat minimization of PVRR as the primary selection criterion as required by the rules.

Issue 2
Party: OPC
Identifier: Deficiency 1
Reference: OPC Report, page 3
Rule Citation: 4CSR 240-22.010(2)(B)
8/8 Joint Pleading Location: Appendix A, page 4

Issue Summary: OPC contends that "primary" means at least 50% with respect to the weighting on PVRR, citing 22.010(2)(B), just as Staff does.

Ameren Missouri's Position and Evidence: Ameren Missouri has used minimization of PVRR as its primary selection criterion in choosing its preferred resource plan by placing the highest weighting of any performance measure on PVRR minimization, as discussed in Issue 1 of this section.

OPC appears to further imply that minimization of PVRR is the only thing that matters in plan selection by suggesting that significant consideration of any other factors "undermines one of the fundamental goals of IRP". However, this ignores two important facts. One is that the decision makers must balance this and other considerations, so consideration of tradeoffs is both prudent and inevitable. The other is that throughout the Company's analysis leading up to the selection of the preferred plan, minimizing PVRR plays a central role. This is evident in resource screening analysis that places high value on levelized costs and on the screening of alternative resource plans, which excludes higher cost plans from further consideration.

If the Commission intended that utilities be strictly required to pick the plan with the lowest PVRR, they would not provide in the rules for consideration of other factors in the decision-making process. OPC further contends that Ameren Missouri's concerns regarding lost revenues resulting from implementation of energy efficiency programs are unwarranted because there are rules in place for approval of cost recovery mechanisms and that those rules have not yet been tested, implying that it should be assumed that cost recovery requested to mitigate or eliminate the effects of lost revenue will be approved until it is shown otherwise. However, it is precisely because such rules have not been tested that the Company is unwilling to commit to a path toward aggressive energy efficiency at this time. This is consistent with the direction from the Commission in Ameren Missouri's 2008 IRP, in which the Commission expressed concern with the selection of a preferred resource plan that required ratemaking treatment that had not yet been established. The Company's resource acquisition strategy includes an option to move to an aggressive DSM path once supportive cost recovery is assured.

Conclusion: Ameren Missouri has complied with the requirements to treat minimization of PVRR as the primary selection criterion and to assess tradeoffs between PVRR minimization and other factors that are critical to meeting the fundamental objectives of the resource planning process.

Issue 3
Party: DNR
Identifier: Concern 4
Reference: DNR Report, page 19
Rule Citation: 4CSR 240-22.010(2)(B)
8/8 Joint Pleading Location: Appendix A, pages 4-5

Issue Summary: DNR contends, as other parties do, that "primary" as it describes the use of PVRR as a selection criterion necessarily means that a weight of at least 50% must be used for that measure.

Ameren Missouri's Position and Evidence: Ameren Missouri has used minimization of PVRR as its primary selection criterion in choosing its preferred resource plan by placing the highest weighting of any performance measure on PVRR minimization, as discussed in Issue 1 of this section.

Conclusion: Ameren Missouri has complied with the requirement to treat minimization of PVRR as the primary selection criterion.

Issue 4
Party: DNR
Identifier: Deficiency 6
Reference: DNR Report, page 21
Rule Citation: 4CSR 240-22.010(2), 4CSR 240-22.080
8/8 Joint Pleading Location: Appendix A, page 2

Issue Summary: DNR contends, as other parties do, that "primary" as it describes the use of PVRR as a selection criterion necessarily means that a weight of at least 50% must be used, that the IRP narrative describing the decision process is insufficient, and that the tradeoffs considered by Ameren Missouri management have not been adequately described.

Ameren Missouri's Position and Evidence: Ameren Missouri has used minimization of PVRR as its primary selection criterion in choosing its preferred resource plan by placing the highest weighting of any performance measure on PVRR minimization, as discussed in Issue 1 of this section.

DNR also asserts that the narrative in the filing describing the decision process in insufficient to meet the requirements of the rules, particularly with respect to the DSM cost recovery decision factor (described as an "other consideration" pursuant to 22.010(2)(C)). DNR accurately describes how the Company navigated its decision process through the various relevant sections of the rule while claiming that it is impossible to describe or even follow because the discussion does not hold the hand of the reader and tell them at each step in the narrative what the relevant rules are and how they were considered.

As Staff describes in its report, Ameren Missouri has taken a new approach to this IRP filing by walking the audience through the decision process with a narrative story that flows logically rather than walking them through the rules and jumping around between storylines and decisions. Ameren Missouri has provided a detailed guide as part of its filing to indicate how the requirements of the rule have been satisfied, with a compliance index for each chapter and a compliance checklist with specific references to the relevant discussions in the filing. It is clear from reading the reports of various parties that the decision process and how it relates to the rules is clear, whether they agree with the Company's analysis and conclusions or not.

DNR further asserts that the Company has not adequately described the tradeoffs between minimization of PVRR and other considerations. The implication is that there must be a sliding scale from which a reader can determine exactly how much DSM the company is willing to implement for any given level of mitigation for cost recovery issues. This ignores the fact that full resolution of lost fixed cost recovery is necessary to pursue any level of aggressive DSM and that there are any number of ways to accomplish this. As the filing provides analysis and discussion of this and other cost recovery issues and how they affect the decisions of Ameren Missouri's management, the Company has complied with the relevant sections of the rule including those cited by DNR.

Conclusion: Ameren Missouri has complied with the requirement to treat minimization of PVRR as the primary selection criterion and has clearly and sufficiently documented its decision process and rationale.

Issue 5

Party: NRDC
Identifier: Deficiency II-B
Reference: NRDC Report, page 9
Rule Citation: 4CSR 240-22.010(2)(B), 4CSR 240-22.010(2)(C), 4CSR 240-22.060(2), 4CSR 240-22.060(4)
8/8 Joint Pleading Location: Appendix A, page 5

Issue Summary: NRDC contends that Ameren Missouri has not placed appropriate weight on minimization of PVRR as the primary selection criterion, that Ameren Missouri has made outright rejections of the requirement to consider PVRR minimization as the primary decision criterion, and that Ameren Missouri's selection of planning objectives violates the rules. In addition to citing 22.010(2), as others do, NRDC cites 22.060(2), which provides that utility decision makers "may also specify other measures that they believe are appropriate for assessing the performance of resource plans relative to the planning objectives identified in 4 CSR 240-22.010(2)," and 22.060(4), which requires that plan performance be assessed according to all measures, including those identified in 22.060(2).

Ameren Missouri's Position and Evidence: Ameren Missouri has used minimization of PVRR as its primary selection criterion in choosing its preferred resource plan by placing the highest weighting of any performance measure on PVRR minimization, as discussed in Issue 1 of this section.

Ameren Missouri's selection of planning objectives is reasonable and is entirely the prerogative of Ameren Missouri's management. 4CSR 240-22.060(1) states that "The utility may identify additional planning objectives that alternative resource plans will be designed to serve," in addition to those specified in 22.010(2). While there is no explicit restriction stated in the rules pertaining to the scope of such additional planning objectives, Ameren Missouri has sought to include objectives that it believes are in the public interest. It is also important to note that the role of the scorecards is not to make decisions but to provide one piece of information that supports decision making by Ameren Missouri's management. As such, it is important to avoid placing too much significance on the development and results of the scoring.

NRDC goes into some detail to support their notion that certain planning objectives are inappropriate or that the Company has not defined or measured them in the way that NRDC would prefer. They indicate that inclusion of a specific objective for Energy Efficiency is unjustified, and then state that the weighting assigned is too low. NRDC points to the 10% weighting as an indication that Ameren Missouri's analysis is biased against energy efficiency, even though the Company did not include a similar explicit objective for supply-side resources.

NRDC takes issue with Ameren Missouri's use of carbon emissions as a measure for the Environmental planning objectives, indicating that numerous other coal-related emissions are not considered. Since nearly all carbon emissions from Ameren Missouri's existing fleet come from coal-fired units (only a small portion comes from oil and gas fired peaking units), carbon emissions provide a reasonable proxy

for all coal related emissions and allowed the Company to keep the evaluation of alternative resource plans simple.

NRDC takes further issue with Ameren Missouri's use of the Environmental planning objective, indicating that the Company has not given any credit to Energy Efficiency for improving the diversity of Ameren Missouri's generation portfolio. This ignores the fact that while Ameren Missouri's customers may use less energy as a result of utility programs, the Company's fleet of efficient generation will continue to provide energy into the MISO market, and thus its generation mix is unchanged.

NRDC expresses frustration with Ameren Missouri's consideration of other financial and regulatory factors besides free cash flow as part of its Financial/Regulatory planning objective. Free cash flow was selected for use at the screening phase because it provided a single measure that could be easily calculated for each of the 216 alternative resource plans (across 10 scenarios each). For evaluation of the final 14 candidate resource plans it was important to assess the plans in more depth and cover a range of financial measures and regulatory considerations, including the potential for stranded cost.

NRDC indicates their assumption that "stranded cost" means "regulatory lag". What it actually means is the potential for incurring costs that may not be recoverable through rates. Ameren Missouri included consideration of stranded cost potential for both large capital investments and for demand-side investments that may be deferred through a capitalize-and-amortize approach to program cost recovery as is currently used for Ameren Missouri's existing programs.

NRDC indicates that the "DSM rules" (i.e. the Commission's MEEIA rules) encourage utilities to propose lost revenue recovery mechanisms. Even if such mechanisms were eventually deemed by the Commission to be desirable, Ameren Missouri cannot presume approval of such mechanisms in assessing the viability of plans any more than it can presume the allowance of CWIP in ratebase to support supply side investments.

NRDC's final issue with respect to planning objectives is with the Economic Development measure. They express confusion regarding the connection between economic development and the goals of resource planning and regarding the possibility that nuclear plant construction and operation could generate more jobs than DSM, without offering any evidence to the contrary. NRDC goes on to indicate that the Company should have included indirect economic benefits, as Staff has suggested, as well as specific consideration of impacts on low-income customers and consideration of "revenue outflows" related to the purchase of coal. Clearly, there is no end to the considerations that could be made in assessing the economic impact of resource decisions, so the benefit to the overall decision process must be the limiting factor. Ameren Missouri has evaluated the first-level impacts of plans on economic development as indicative of the relative economic intensity of the different resource types. The economic development measure was one of six measures, producing 10% of the score on a scorecard that served as one of a number of pieces of analysis and information on which Ameren Missouri management relied to make its resource decisions.

Conclusion: Ameren Missouri's selection of planning objectives is appropriate, is provided for in the rules, and includes PVRR minimization as the primary selection criterion with the single largest weighting of all measures on the scorecard.

Issue 6
Party: OPC
Identifier: Deficiency 6
Reference: DNR Report, page 7
Rule Citation: 4CSR 240-22.060(4), 4CSR 240-22.070(6), 4CSR 240-22.080(6)
8/8 Joint Pleading Location: Appendix A, page 23

Issue Summary: OPC contends that the evaluations of alternative and candidate resource plans are flawed based on specific issues with the scorecards used by Ameren Missouri to evaluate plans. OPC cites 22.060(4), which requires evaluation of plan performance with respect to the measures identified pursuant to 22.060(2), 22.070(6), which requires the selection of a preferred resource plan that strikes an appropriate balance between the various planning objectives in the judgment of utility decision makers, and 22.080(6), which provides for the filing of reports by Staff and other intervenors to identify alleged deficiencies in the utility's IRP.

Ameren Missouri's Position and Evidence: Ameren Missouri has analyzed the performance of plans based on the measures identified pursuant to 22.060(2) and has selected its preferred plan in accordance with 22.070(6).

Ameren Missouri acknowledges that there is subjectivity in the use of scorecards, but such subjectivity cannot be escaped and it is up to the decision makers charged with managing the company on behalf of both customers and investors to determine what the trade-offs should be and how they are assessed.

Ameren Missouri also notes that the use of scorecards, while helpful tools in informing decision-making, cannot themselves be the primary determinant for decisions and says as much in its IRP filing (Chapter 10, page 14). While OPC and other parties go to great lengths to illustrate what the scorecard results would be if they substituted their own preferences for those of Company management, in the end it is the management of the Company that must make the decision based on all the available information, as recognized in the IRP rules. As detailed in Chapter 10 of Ameren Missouri's IRP filing, the senior management of Ameren Missouri was provided a vast scope and depth of information over a period of several months on which to base its final decision, the scorecard being just one such piece of information.

Conclusion: Ameren Missouri has evaluated its plans based on the measures identified pursuant to 22.060(2) and has selected its preferred resource plan in accordance with 22.070(6). Ameren Missouri's

use of scorecards is appropriate, reflects the views of management with respect to tradeoffs, does not violate any Commission rule, and serves simply as one of a number of tools to inform decision making.

Issue 7
Party: Staff
Identifier: Concern G
Reference: Staff Report, page 45
Rule Citation: 4CSR 240-22.070(6)
8/8 Joint Pleading Location: Appendix A, page 30

Issue Summary: Staff contends that any evaluation of economic impact must necessarily include evaluation of the indirect impacts as well as the direct. Staff cites 22.070(6), which requires that utility decision makers select a preferred resource plan which, in their own judgment, strikes an appropriate balance between the various planning objectives.

Ameren Missouri's Position and Evidence: Ameren Missouri management has selected its preferred resource plan as provided for in 22.070(6). Ameren Missouri's use of its economic development measure is appropriate and reasonable. While it would not be invalid at all to include consideration of indirect impacts, it would not necessarily add anything to the assessment of alternative plans and would add a layer of complexity to the analysis that would be difficult to justify.

Staff asserts that Ameren Missouri should include indirect economic benefits for the differences in PVRR between plans, specifically citing the PVRR advantage of the RAP DSM plan (Plan R0) over the preferred plan. Such a refinement might also need to account for the incremental costs incurred by program participants to effect the energy savings, the benefits of which have already been accounted for in the direct jobs assessment. One could also consider the relative quality of jobs involved, including relative pay levels and relative impact on demand for other services. There is no end to how elaborate such an analysis could become, so the value of information gained must be a limiting factor. Ameren Missouri has shown that both large plant construction and operation and aggressive pursuit of energy efficiency could result in significant job creation and economic development. In the IRP, this is the extent of the valuable information required to support proper decision making.

Conclusion: Ameren Missouri management has selected its preferred resource plan as provided for in 22.070(6). Ameren Missouri's use of its economic development measure is appropriate and reasonable and does not violate any Commission rule.

Issue 8
Party: Staff
Identifier: Concern H
Reference: Staff Report, page 46
Rule Citation: 4CSR 240-22.070(6)
8/8 Joint Pleading Location: Appendix A, page 30

Issue Summary: Staff contends that the scoring used in the Preferred Plan Selection Scorecard is not logically consistent, primarily because the candidate resource plans include both plans with moderate environmental regulation and plans with aggressive environmental regulation. Staff again cites 22.070(6), which requires selection of a preferred resource plan which strikes an appropriate balance among planning objectives in the judgment of utility decision makers.

Ameren Missouri's Position and Evidence: Ameren Missouri management has selected its preferred resource plan as provided for in 22.070(6). Ameren Missouri has appropriately used its scorecard results to inform decision making. While the concern raised by Staff does present a valid consideration in using scorecards in any context, Ameren Missouri is comfortable with the scoring given its use of the scorecard as one piece of information used in the preferred plan selection process and the fact that decisions between plans (the preferred plan and contingency plans) were necessarily and clearly bifurcated with respect to environmental regulations. This is evident in the Company's resource acquisition strategy as summarized in figure 10.6 of the IRP filing, and reproduced as figure 1.1 in this report, which demonstrates that contingency plans are needed for both levels of potential environmental regulation and highlights the importance of maintaining resource options.

Conclusion: Ameren Missouri management has selected its preferred resource plan as provided for in 22.070(6). Ameren Missouri has appropriately used its scorecard results to inform decision making.

Issue 9
Party: NRDC
Identifier: Deficiency II-A (subpart 4)
Reference: NRDC Report, page 5
Rule Citation: 4CSR 240-22.010(2)(A)
8/8 Joint Pleading Location: Appendix A, pages 3-4

Issue Summary: NRDC contends that the selection criteria used by Ameren Missouri discount the effects of energy efficiency and undermine the objective of minimizing PVRR. NRDC contends, as other parties do, that "primary" as it relates to PVRR as a selection criterion requires a weighting "much higher than 25%". NRDC further asserts that Ameren Missouri has selected a preferred resource plan that "generates less than optimal free cash flow" and that customer rates should not be used as a measure because they are not closely related to customer satisfaction. NRDC cites 22.010(2)(A), which requires that demand side resources and supply side resources be treated on an equivalent basis.

Ameren Missouri's Position and Evidence: Ameren Missouri has complied with the requirements to treat demand side resources on an equivalent basis with supply side resources and to treat minimization of PVRR as the primary selection criterion, and its approach to scorecards is reasonable as one of several tools to support decision making, as discussed in Issue 1 in this section.

With respect to the comment that the preferred resource plan "generates less than optimal free cash flow", it is not clear what is meant by this as NRDC neither establishes a basis for what constitutes "optimal free cash flow" nor offers support for the statement. Ameren Missouri acknowledges in the IRP filing, as NRDC notes, that free cash flow is higher for aggressive DSM plans than for supply side only plans. This was reflected in the scoring presented in Chapter 9 of the IRP and used in the alternative resource plan screening stage, where it was necessary to limit the number and types of measures to those that could be calculated from the model results for 216 plans across 10 scenarios each (2,160 observations of 30 years of comprehensive operational and financial results). The scorecard used to support the selection of the preferred resource plan, presented in Chapter 10, prudently includes measures other than just free cash flow. The measures used at that stage for candidate resource plan evaluation also included ROE, stranded cost risk and recovery risk, among others.

Regarding the use of customer rates as an indicator of customer satisfaction, Ameren Missouri believes there is a close relationship between customer satisfaction and rates, reliability and other influential factors. While DSM program participants may very well exhibit higher levels of customer satisfaction, non-participants will not immediately realize such benefits and will actually shoulder a larger share of the burden for fixed costs recovered through volume-based rates than will program participants. Ameren Missouri has included a measure at the plan screening stage that provides credit for aggressive energy efficiency plans with a 10% weighting. This was done to ensure inclusion of aggressive energy efficiency plans were they not to perform as well on other measures. To the extent there are customer satisfaction benefits for program participants, this effect is more than captured by this measure.

Conclusion: Ameren Missouri has complied with the requirements to treat demand side resources on an equivalent basis with supply side resources and to treat minimization of PVRR as the primary selection criterion, and its approach to scorecards is reasonable as one of several tools to support decision making.

11.5 Preferred Plan Sensitivity and Expected Value of Better Information (EVBI)

Alleged Deficiencies and Concerns

Issue 1

Party: Staff
Identifier: Deficiency 4
Reference: Staff Report, page 39
Rule Citation: 4CSR 240-22.070(8)
8/8 Joint Pleading Location: Appendix A, pages 29-30

Issue Summary: Staff contends that Ameren Missouri did not properly analyze EVBI because plans with lower PVRR than the preferred plan were excluded from the analysis. Staff cites 22.070(8) as the basis for alleging a deficiency. 22.070(8) states that "The utility shall quantify the expected value of better information concerning at least the critical uncertain factors that affect the performance of the preferred resource plan, as measured by the present value of utility revenue requirements."

Ameren Missouri's Position and Evidence: Ameren Missouri has performed the required analysis of EVBI and has done so in a way that appropriately supports decision making. Ameren Missouri holds that EVBI analysis including the RAP DSM plan would be essentially useless since we already know that this plan results in lower PVRR and that the constraint was not the value of a particular uncertain factor but the DSM cost recovery decision factor. Knowing that the company "could" spend hundreds of millions of dollars to find an acceptable cost recovery framework for DSM is not useful, since there is clearly an opportunity here that does not require expenditures anywhere close to the level of magnitude of the potential savings.

Figure 11.1 EVBI Results

14 Final Candidate Resource Plans	Without Better Info	Load			Gas Prices			Carbon				DSM			Project Cost			Interest Rate & ROE		
		Low	Base	High	Low	Base	High	BAU	EPA	Mandates	Cap&Trade	Low	Base	High	Low	Base	High	Low	Base	High
B1 - Meramec Continues As Is, Combined Cycle	61,259	58,025	59,489	64,886	62,406	59,489	60,505	59,754	59,476	59,327	65,133	61,411	61,240	61,164	60,862	61,239	61,715	58,381	61,124	64,540
B2 - Meramec Continues As Is, Nuclear 30%	61,568	58,347	59,811	65,180	62,805	59,811	60,722	60,089	59,796	59,731	65,275	61,726	61,545	61,480	61,045	61,539	62,180	58,554	61,429	64,999
B3 - Meramec Continues As Is, Simple Cycle	61,161																			
B4 - Meramec Continues As Is, Wind w/Simple Cycle	61,403	58,178	59,648	65,018	62,611	59,648	60,585	59,918	59,634	59,526	65,178	61,561	61,380	61,313	60,948	61,371	61,955	58,498	61,268	64,713
C1 - Combined Cycle, Meramec Controlled	64,403	61,180	62,588	68,030	65,557	62,588	63,652	62,854	62,574	62,482	68,272	64,571	64,371	64,330	63,590	64,349	65,380	61,215	64,257	68,031
C2 - Combined Cycle, Meramec Gas Conversion	64,875	61,535	63,511	68,518	65,660	63,511	64,392	63,705	63,501	63,119	68,321	65,022	64,849	64,807	64,206	64,829	65,682	61,787	64,732	68,392
C3 - Combined Cycle, Meramec Retired	65,356	62,035	63,954	68,988	66,119	63,954	64,905	64,157	63,943	63,626	68,768	65,505	65,335	65,270	64,546	65,296	66,346	62,214	65,209	68,939
H1 - Meramec Retired, CC, Nuclear 30%	65,596	62,284	64,221	69,213	66,487	64,221	65,010	64,439	64,210	63,984	68,796	65,744	65,569	65,527	64,615	65,534	66,762	62,302	65,438	69,362
H2 - Meramec Retired, CC, Simple Cycle	65,198	61,867	63,821	68,834	65,975	63,821	64,726	64,014	63,810	63,447	68,639	65,337	65,171	65,138	64,426	65,141	66,139	62,084	65,050	68,752
H3 - Meramec Retired, CC, Wind w/Simple Cycle	65,420	62,104	64,043	69,042	66,269	64,043	64,877	64,252	64,032	63,760	68,703	65,576	65,397	65,332	64,523	65,354	66,515	62,258	65,270	69,031
R0 - Meramec Continues As Is, RAP DSM	59,661																			
R1 - RAP DSM, Meramec Controlled	62,867	59,663	61,068	66,472	64,150	61,068	61,984	61,338	61,054	61,036	66,575	63,390	62,836	62,439	62,163	62,819	63,718	59,695	62,722	66,475
R2 - RAP DSM, Meramec Gas Conversion	63,358	60,030	62,018	66,984	64,277	62,018	62,738	62,214	62,008	61,689	66,647	63,917	63,317	62,926	62,700	63,333	64,092	60,229	63,219	66,905
R3 - RAP DSM, Meramec Retired	63,101	59,746	61,799	66,746	64,038	61,799	62,454	61,987	61,789	61,436	66,372	63,604	63,030	62,812	62,481	63,083	63,777	60,061	62,960	66,565
Minimum PVRR among plans		58,025	59,489	64,886	62,406	59,489	60,505	59,754	59,476	59,327	65,133	61,411	61,240	61,164	60,862	61,239	61,715	58,381	61,124	64,540
Plan with Minimum PVRR		B1	B1	B1	B1	B1	B1	B1	B1	B1	B1	B1	B1	B1	B1	B1	B1	B1	B1	B1
Subjective Probability		45%	10%	45%	45%	10%	45%	1%	10%	57%	33%	20%	60%	20%	20%	60%	20%	20%	60%	20%
PVRR with Better Info		61,259			61,259			61,259				61,259			61,259			61,259		
Expected Value of Better Info		0			0			0				0			0			0		

What was of importance was knowing, under the constraint of the DSM cost recovery decision factor, whether any of the remaining plans would become more desirable than the preferred plan under extreme values of uncertain factors. As shown in the Company's EVBI analysis, which appears in

Appendix C of Chapter 10in the IRP filing and is reproduced here as Figure 11.1, the preferred plan produces the lowest PVRR of all remaining plans.

Staff also produces its own versions of the EVBI analysis conducted by the company, changing the assumptions about which plan is used as the reference for determining the value of better information. While these alternative views may be interesting, they go beyond what is required by the rules and do not provide any additional useful information about the performance of the preferred resource plan.

Staff also relies on the analysis methods used by Ameren Missouri to conduct its EVBI analysis, which seems to endorse the methodology and further indicate that the company has complied with the requirements of the rule. Regardless of the preferences of Staff with respect to how to conduct an EVBI analysis, the company has complied with the rule in a way that provides useful information for planning and avoids unnecessary work.

Conclusion: Ameren Missouri has performed the required analysis of EVBI and has done so in a way that appropriately supports decision making. Staff proposes that Ameren Missouri conduct its EVBI analysis correctly in the future, which Ameren Missouri plans to do.

Issue 2
Party: DNR
Identifier: Deficiency 3
Reference: DNR Report, page 14
Rule Citation: 4CSR 240-22.070(10)(C)
8/8 Joint Pleading Location: Appendix A, pages 26-27

Issue Summary: DNR asserts that Ameren Missouri did not specify the ranges or combinations of outcomes for the uncertain factors that define the limits within which the preferred resource plan is judged to be appropriate, as required by 22.070(10)(C).

Ameren Missouri's Position and Evidence: Ameren Missouri has analyzed the relative performance of the preferred plan under the range of uncertain factors and has appropriately defined the conditions that could trigger selection of a contingency plan. Based on the EVBI analysis performed by Ameren Missouri and discussed in Issue 1 of this section, there are no values of uncertain factors that would cause the company to select a different plan as the preferred plan.

Rather, the decision factors defined by the Company would guide the selection of contingency plans should circumstances change with respect to large plant financing, DSM cost recovery (including mitigation of lost revenue), or changes in environmental regulation. As the states for these decision factors do not correspond to a numeric scale, but rather to generalized conditions that must be evaluated prior to a decision, it is inappropriate to attempt to define numerical limits.

Figure 1.1, presented earlier in this report, summarizes Ameren Missouri's resource acquisition strategy. It specifically shows that the retirement of Meramec would be preferred if environmental regulations were as stringent as those identified in the "Aggressive" scenario. Furthermore, in Section 10.3.2 of its IRP filing, Ameren Missouri determined that it is important that the options be preserved to pursue DSM, nuclear, and/or natural gas combined cycle resource options. Ameren Missouri also provided explanation, and clearly indicated in its resource acquisition strategy, that the contingency plans become viable options if supportive ratemaking treatment is adopted.

Conclusion: Ameren Missouri has analyzed the relative performance of the preferred plan under the range of uncertain factors as required by the rules and has appropriately defined the conditions that could trigger selection of a contingency plan.

Issue 3
Party: DNR
Identifier: Deficiency 9
Reference: DNR Report, page 28
Rule Citation: 4CSR 240-22.070(10)(C)
8/8 Joint Pleading Location: Appendix A, page 25

Issue Summary: DNR contends that Ameren Missouri has not specified the outcomes of critical uncertain factors that would trigger a contingency option, as required by 22.070(10)(C).

Ameren Missouri's Position and Evidence: Ameren Missouri has analyzed the relative performance of the preferred plan under the range of uncertain factors as required by the rules and has appropriately defined the conditions that could trigger selection of a contingency plan. The supporting rationale is discussed in Issue 2 in this section.

Conclusion: Ameren Missouri has analyzed the relative performance of the preferred plan under the range of uncertain factors as required by the rules and has appropriately defined the conditions that could trigger selection of a contingency plan.

Issue 4
Party: DNR
Identifier: Deficiency 10
Reference: DNR Report, page 28
Rule Citation: 4CSR 240-22.070(10)(D)
8/8 Joint Pleading Location: Appendix A, pages 25-26

Issue Summary: DNR contends, in a similar fashion to that expressed in Issue 3 above, that contingency options that would be triggered by extreme outcomes of critical uncertain factors have not been specified, citing 22.070(10)(D).

Ameren Missouri's Position and Evidence: Ameren Missouri has analyzed the relative performance of the preferred plan under the range of uncertain factors as required by the rules and has appropriately defined the conditions that could trigger selection of a contingency plan. The supporting rationale is discussed in Issue 2 in this section.

Conclusion: Ameren Missouri has analyzed the relative performance of the preferred plan under the range of uncertain factors as required by the rules and has appropriately defined the conditions that could trigger selection of a contingency plan.

Issue 5
Party: DNR
Identifier: Concern 5
Reference: DNR Report, page 31
Rule Citation: 4CSR 240-22.070(2)(C), 4CSR 240-22.070(10)(D)
8/8 Joint Pleading Location: Appendix A, page 28

Issue Summary: DNR contends that a plan for monitoring changes in environmental regulations (other than carbon) should be included in plans for monitoring critical uncertain factors. DNR cites 22.070(2), which requires the performance of a preliminary sensitivity analysis of uncertain factors identified, including future changes in environmental laws, and 22.070(10)(D), which requires the identification of contingency options that would be appropriate responses to extreme changes in critical uncertain factors.

Ameren Missouri's Position and Evidence: Ameren Missouri has performed the preliminary sensitivity analysis required by 22.070(2) and identified contingency options in its resource acquisitions strategy along with the conditions under which those options may become viable, including changes in environmental regulation other than those that might govern greenhouse gas emissions. The practical rationale for evaluating non-carbon environmental regulations as a decision factor rather than as an uncertain factor is discussed in Issue 1 in section 11.3. The analytical rationale for treating these environmental regulations in this manner is detailed in the discussion of Issue 1 in section 3.3. In short, this was done to avoid analytical inconsistencies between alternative and candidate plans and the probability tree through which plans were evaluated. Ameren Missouri's plans for monitoring critical uncertain factors is presented in Chapter 10 of the IRP filing beginning on page 19.

Ameren Missouri is necessarily monitoring developing environmental regulations as a basic requirement of its business and does not imply that such monitoring should not be done by omission from the plans to monitor critical uncertain factors. As discussed elsewhere in this report, environmental regulation (other than carbon emissions) was analyzed as a decision factor. Evaluation of changes in environmental regulation and the mitigation options to comply is necessarily ongoing. The Company expects to update its expectations with respect to environmental regulation in conjunction with the

development of its 2012 Annual Update and anticipates that this issue will be identified through the Special Contemporary Issues process under the revised Chapter 22 rules as an issue to be addressed by all utilities in upcoming Chapter 22 filings.

Conclusion: Ameren Missouri has documented its plan for monitoring critical uncertain factors as required by the rules. Ameren Missouri is necessarily monitoring developing non-carbon environmental regulations and expects to include an updated evaluation of environmental compliance in its 2012 Annual Update.

11.6 Selection of the Preferred Resource Plan and Resource Acquisition Strategy

Alleged Deficiencies and Concerns (Staff 4 c2, OPC 8, DNR 3/9/10)

Issue 1
Party: Staff
Identifier: Concern B
Reference: Staff Report, page 41
Rule Citation: 4CSR 240-22.060, 4CSR 240-22.070(1)-(5)
8/8 Joint Pleading Location: Appendix A, page 23

Issue Summary: Staff expresses concern that Ameren Missouri decision makers were provided incomplete and inaccurate information on which to base a decision on the preferred resource plan and acquisition strategy. Specifically, Staff is concerned that the Ameren and Ameren Missouri Boards of Directors were not presented with the full list of candidate resource plans from which Ameren Missouri management selected the preferred resource plan. Staff is also concerned with the use of the term "Lowest Cost Resource Plan" to describe the preferred resource plan in a presentation to the Ameren Board. Staff cites 22.060, which governs the entire integrated analysis, and 22.070(1)-(5), which governs the entire risk analysis leading up to the selection of the preferred resource plan.

Ameren Missouri's Position and Evidence: Ameren Missouri provided complete and accurate information to decision makers and supported communication of management decisions to the Ameren and Ameren Missouri Boards of Directors. Staff's concern is one of misperception based on a review of only those documents provided by Ameren Missouri to the Ameren and Ameren Missouri Boards of directors without consideration of the vastly more detailed information provided to Ameren Missouri senior management (and provided in response to OPC data request 2006), who made the final decisions on the resource acquisition strategy prior to presenting them for review. It also misses the fact that most members of the Ameren Missouri Board were present at meetings of Ameren Missouri's Senior Leadership Team in which all candidate resource plans were discussed and final selection of the preferred resource plan was made.

As described in chapter 10, decision makers had several tools at their disposal in addition to the meetings in which selection of the preferred plan was discussed. There seems to be a misperception that the Ameren Missouri Board selected the preferred resource plan when in fact it was the Ameren Missouri Senior Leadership Team who selected the preferred resource plan and subsequently presented their selection to the Ameren Missouri Board. Ameren Missouri presented its resource acquisition strategy for Board approval, documented in Appendix D of Chapter 10, as evidence that the Company had officially adopted its resource acquisition strategy.

Regarding the characterization of the preferred resource plan and contingency plans in materials provided to the Ameren Board and the Ameren Missouri Board, the term "Lowest Cost Resource Plan" was used only in materials presented to the Ameren Board. Any differences in characterization were purely driven by the context of the discussion. Ameren Missouri has stated in a document distributed to various policymakers (and available to the public on Ameren.com) that its preferred resource plan is the "lowest cost resource plan for our customers under Missouri's current regulatory framework" (Integrated Resource Plan Summary page 10). The Ameren Board presentation materials reflect this same context.

Conclusion: Ameren Missouri decision makers received complete and accurate information on which to base the decision made by Ameren Missouri's Senior Leadership Team, which was then approved by the Ameren Missouri Board of Directors.

Issue 2
Party: OPC
Identifier: Deficiency 8
Reference: OPC Report, page 9
Rule Citation: 4CSR 240-22.080(6)
8/8 Joint Pleading Location: Appendix A, page 31

Issue Summary: OPC asserts that Ameren Missouri provided insufficient and misleading information to critical decision makers in selecting and approving the Preferred Resource Plan. Specifically, OPC alleges that the Company demonstrated a clear bias against energy efficiency in presentations to the Ameren and Ameren Missouri Boards by labeling the preferred plan (which includes the Low Risk DSM portfolio and a new combined cycle plant in 2029) the "Lowest Cost Resource Plan". OPC cites 22.080(6), which provides for review and comment on utility IRP filings by Staff and other intervenors.

Ameren Missouri's Position and Evidence: Ameren Missouri has not violated 22.080(6), nor can Ameren Missouri determine how that could be possible. Ameren Missouri provided complete and accurate information to decision makers. Ameren Missouri responded to several OPC data requests seeking materials that were shared with Ameren's Executive Leadership Team (ELT), Ameren Missouri's Senior Leadership Team (AMSLT), The Ameren Board of Directors and the Ameren Missouri Board of Directors.

The preferred resource plan was explicitly labeled as the "Preferred Resource Plan" in materials provided to the Ameren ELT, the Ameren Missouri SLT, and the Ameren Missouri Board of Directors. For the Ameren Board, the messaging was crafted to show that the preferred resource plan was the lowest cost plan that did not require some kind of specific regulatory or legislative action on rate treatment to support its implementation. As discussed in Issue 1 in this section, this same messaging was used in a summary document provided to the public. All presentations included an aggressive energy efficiency plan with the RAP DSM portfolio and characterized that plan as one of the "top plans" or a "contingency plan" which could become viable if a solution to financial disincentives, including lost revenue, is achieved.

Conclusion: Ameren Missouri provided complete and accurate information to decision makers and has not violated 22.080(6).

Issue 3
Party: DNR
Identifier: Deficiency 5
Reference: DNR Report, page 20
Rule Citation: 4CSR 240-22.070(11)
8/8 Joint Pleading Location: Appendix A, page 28

Issue Summary: DNR asserts that Ameren Missouri has not provided adequate documentation of the decision process used to select the preferred resource plan, citing 22.070(11).

Ameren Missouri's Position and Evidence: Ameren Missouri has sufficiently described and presented its decision process. Ameren Missouri assumes that the specific reference is to part (F), which requires that the Company provide "A discussion of the process used to select the preferred resource plan, including the relative weights given to the various performance measures and the rationale used by utility decision makers to judge appropriate trade-offs between competing planning objectives and between expected performance and risk;"

Most of Chapter 10 of the Company's IRP filing is devoted to just this kind of discussion. DNR exhibits a clear grasp of the materials and analysis that were provided to management, including scorecards with relative weights and descriptions of the rationale for scoring, plan dashboards with a host of relevant plan information including numerical results for the performance measures for each plan, and analysis related to decision factors for plant financing, DSM cost recovery and environmental regulation.

DNR states that "it is impossible to conclude whether the considerations cited in the narrative were stated by senior management or reflect Ameren Missouri staff interpretation." As the IRP filing is directed, reviewed and approved by Ameren Missouri management, it follows that the views expressed regarding plan selection are those of senior management, whether based on analyst suggestions or not.

Ameren Missouri Response Report Cross-Reference for Alleged Deficiencies/Concerns by Party

Staff Alleged Deficiencies

- Deficiency #1 – Section 2.3, Issue 1, Page 21
- Deficiency #2 – Section 11.4, Issue 1, Page 93
- Deficiency #3 – Section 2.2, Issue 1, Page 15
- Deficiency #4 – Section 11.5, Issue 1, Page 103

Staff Concerns

- Concern #A – Section 2.4, Issue 1, Page 25
- Concern #B – Section 11.6, Issue 1, Page 107
- Concern #C – Section 10.2, Issue 1, Page 83
- Concern #D – Section 5.1, Issue 1, Page 68
- Concern #E – Section 2.2, Issue 2, Page 16
- Concern #F – Section 2.2, Issue 3, Page 16
- Concern #G – Section 11.4, Issue 7, Page 100
- Concern #H – Section 11.4, Issue 8, Page 101

OPC Alleged Deficiencies

- Deficiency #1 – Section 11.4, Issue 2, Page 94
- Deficiency #2 – Section 2.5, Issue 1, Page 28
- Deficiency #3 – Section 4.2, Issue 1, Page 58
- Deficiency #4 – Section 6.1, Issue 1, Page 72
- Deficiency #5 – Section 3.3, Issue 1, Page 54
- Deficiency #6 – Section 11.4, Issue 6, Page 99
- Deficiency #7 – Section 2.5, Issue 2, Page 30
- Deficiency #8 – Section 11.6, Issue 2, Page 108

DNR Alleged Deficiencies

- Deficiency #1 – Section 11.3, Issue 1, Page 90
- Deficiency #2 – Section 2.2, Issue 5, Page 18
- Deficiency #3 – Section 11.5, Issue 2, Page 104
- Deficiency #4 – Section 11.4, Issue 1, Page 89
- Deficiency #5 – Section 11.6, Issue 3, Page 109
- Deficiency #6 – Section 11.4, Issue 4, Page 95
- Deficiency #7 – Section 2.5, Issue 3, Page 30
- Deficiency #8 – Section 2.5, Issue 4, Page 31
- Deficiency #9 – Section 11.5, Issue 3, Page 105
- Deficiency #10 – Section 11.5, Issue 4, Page 105
- Deficiency #11 – Section 3.2, Issue 1, Page 41

DNR Concerns

- Concern #1 – Section 11.3, Issue 1, Page 90
- Concern #2 – Section 11.3, Issue 2, Page 92
- Concern #3 – Section 11.3, Issue 3, Page 92
- Concern #4 – Section 11.4, Issue 3, Page 95
- Concern #5 – Section 11.5, Issue 5, Page 106
- Concern #6 – Section 2.6, Issue 1, Page 36
- Concern #7 – Section 2.6, Issue 2, Page 37

GDS (for DNR) Alleged Deficiencies

- Deficiency #1 – Section 9.1, Issue 1, Page 78
- Deficiency #2 – Section 9.1, Issue 2, Page 80
- Deficiency #3 – Section 7.1, Issue 1, Page 75
- Deficiency #4 – Section 10.2, Issue 2, Page 84
- Deficiency #5 – Section 3.2, Issue 1, Page 41
- Deficiency #6 – Section 4.2, Issue 2, Page 61
- Deficiency #7 – Section 4.2, Issue 3, Page 64
- Deficiency #8 – Section 2.2, Issue 4, Page 17
- Deficiency #9 – Section 2.5, Issue 5, Page 32
- Deficiency #10 – Section 2.5, Issue 6, Page 34
- Deficiency #11 – Section 2.3, Issue 2, Page 23
- Deficiency #12 – Section 2.3, Issue 3, Page 23
- Deficiency #13 – Section 2.4, Issue 2, Page 27

NRDC Alleged Deficiencies

- Deficiency #1 (NRDC Report II-A-1) – Section 2.6, Issue 3, Page 38
- Deficiency #2 (NRDC Report II-A-2) – Section 2.5, Issue 7, Page 34
- Deficiency #3 (NRDC Report II-A-3) – Section 2.5, Issue 8, Page 35
- Deficiency #4 (NRDC Report II-A-4) – Section 11.4, Issue 8, Page 101
- Deficiency #5 (NRDC Report II-A-5) – Section 2.2, Issue 6, Page 20
- Deficiency #6 (NRDC Report II-B) – Section 11.4, Issue 5, Page 97
- Deficiency #7 (NRDC Report II-C) – Section 2.2, Issue 7, Page 20
- Deficiency #8 (NRDC Report II-D) – Section 10.2, Issue 3, Page 85
- Deficiency #9 (NRDC Report IV-A-1) – Section 3.2, Issue 2, Page 44
- Deficiency #10 (NRDC Report IV-A-2) – Section 3.2, Issue 3, Page 45
- Deficiency #11 (NRDC Report IV-A-3) – Section 3.2, Issue 4, Page 51
- Deficiency #12 (NRDC Report IV-B-1) – Section 5.1, Issue 2, Page 69
- Deficiency #13 (NRDC Report IV-B-2) – Section 5.1, Issue 2, Page 69
- Deficiency #14 (NRDC Report IV-B-4) – Section 5.2, Issue 1, Page 70

- Deficiency #15 (NRDC Report IV-B-5) – Section 3.2, Issue 5, Page 52
- Deficiency #16 (NRDC Report IV-C) – Section 3.4, Issue 1, Page 56
- Deficiency #17 (NRDC Report IV-D) – Section 10.2, Issue 4, Page 87
- Deficiency #18 (NRDC Report IV-E) – Section 6.1, Issue 2, Page 73
- Deficiency #19 (NRDC Report V-A) – Section 8.1, Issue 1, Page 77
- Deficiency #20 (NRDC Report V-B) – Section 4.2, Issue 4, Page 65
- Deficiency #21 (NRDC Report V-C) – Section 4.2, Issue 5, Page 66

Clean Line Concerns

- All Concerns – Section 4.2, Issue 6, Page 66

No. Ameren-DNR-001WRD

Data Information Request
From Union Electric Company d/b/a Ameren Missouri
MPSC Case No. EO-2011-0271

Requested From: Missouri Department of Natural Resources
Requested By: Wendy Tatro
Date of Request: June 29, 2011

Information Requested:
Please provide all documentation and analysis for all alternative avoided transmission and distribution cost estimation methodologies considered to be "more rigorous and well documented" compared the methodology used in Ameren Missouri's 2011 IRP. Also, please explain in detail how each alternative methodology is considered to be "more rigorous and well documented". Each alternative methodology should include sample calculations in spreadsheet form with formulas intact.

Response:

The “more rigorous and well documented” approach referred to in the GDS Review of Ameren Missouri’s 2011 Utility Resource Filing was not based on a comparison of Ameren Missouri’s methodology to alternative methodologies.

Regarding the need for better documentation, it is the opinion of GDS that Ameren Missouri has not provided sufficient documentation to support the adjustment factors that were applied in its calculation of avoided T&D costs. Analysis of alternative avoided transmission and distribution cost estimation methodologies was not necessary to conclude that the adjustment factors used by Ameren Missouri in their methodology have a significant impact on the avoided cost calculation (as discussed on p. 47 of the GDS Report). GDS finds that the documentation to support these key factors was not sufficient to determine if the appropriate values were used.

Regarding the need for greater rigor in Ameren Missouri’s methodology for calculating avoided T&D costs, GDS was referring to the inability of this approach to appropriately assess the value of targeted DSM (including distributed generation and demand response). This fact is acknowledged by Ameren Missouri in their response to DNR Data Request 0097, in which Ameren Missouri states that its DSM planners are “working with Ameren Missouri distribution system planners in the review and analysis of new tools, such as the DataRaker software, that can interface with the Transformer Load Management system to identify specific areas where targeted DSM opportunities might exist.”

Data Information Request From Union Electric Company d/b/a Ameren Missouri MPSC Case No. EO-2011-0271 - No. Ameren-NRDC-006DC

Requested From: Natural Resources Defense Council
Requested By: Wendy Tatro
Date of Request: June 29, 2011

Information Requested:

Regarding Page 2 of Attachment 1 to the Comments of NRDC, et al.: Please provide all analysis and documentation to support the assertion that the ramp-rate of customer awareness used in the Ameren Missouri DSM potential study is "slow" given a region where DSM programming has heretofore been virtually non-existent.

Response:

First, this statement is based on professional experience having planned, designed, reviewed, evaluated and monitored the effectiveness of numerous efficiency programs throughout North America. No specific analysis or documents were relied on for this statement. Ameren Missouri has been offering DSM programming for over two years, a short period of time compared to many other states, including Iowa and WisconsinOther jurisdictions have seen savings from nascent DSM programs ramp-up at a greater rate than those projected by the Ameren Missouri estimate of RAP implying a correspondingly rapid increase in "awareness". For example, ComED's C&I prescriptive program in Illinois area was over-scribed within the first three months of offering its programs to customers. As a result, ComEd was forced to funnel some customers through its custom program and establish a waiting list in order to manage to budgets. Despite being the first year of program efforts and turning away numerous potential projects, ComEd achieved higher annual savings in this first program year than Ameren MO plans for each year of its IRP period under its "low risk scenario."

Response Provided By: Philip Mosenthal_____ Date: July 19, 2011_____

Data Information Request From Union Electric Company d/b/a Ameren Missouri MPSC Case No. EO-2011-0271 - No. Ameren-NRDC-005DC

Requested From: Natural Resources Defense Council
Requested By: Wendy Tatro
Date of Request: June 29, 2011

Information Requested:

Regarding Page 2 of Attachment 1 to the Comments of NRDC, et al.: Please refer to the following statement regarding the subsequent questions: "Even if Ameren's premise that maximum achievable potential is not achievable is taken at face value, the methodology used to reduce the estimate of MAP to what is deemed "realistic" undermines the remainder of the analysis by arbitrarily reducing savings estimates with little substantiation and inappropriate self-imposed restrictions."

a. Please provide all analysis and documentation that qualifies the statement that the realistic estimate of energy efficiency potential has "little substantiation."

b. Please describe each "inappropriate self-imposed restriction" and provide all explanation, analysis, and documentation of why each is inappropriate.

Response:

a. Generally, this statement is based on a detailed review of Ameren's potential study and its IRP filed in this docket. The "realistic achievable potential" was based on arbitrary assumptions about budget constraints and program designs and awareness levels that were imposed by Ameren without regard for whether additional funding or more aggressive program designs could provide additional savings at lower PVRR than other resource options. In addition, in response to data request NRDC_1-NRDC_1_011 regarding the development of "awareness" factors, Ameren stated the following:

> *Since the Potential Study's market research effort could only take a snapshot of customer psychographics at one point in time, our contractors (Global Energy Partners and Momentum Market Intelligence) relied on their decades of industry experience in jurisdictions across the nation with varying levels of DSM activity to forecast the rate of change of customer awareness in response to Ameren Missouri DSM efforts.*

In NRDC's opinion, this represents inadequate substantiation for an assumption that reduces the MAP savings by approximately 45% over the 2012 – 2014 period.

b. The "inappropriate self-imposed restriction" as described in Attachment 1 relates to the

inappropriate assumption that “take-rates” should be reduced to the 3-year payback levels. In AmerenUE Demand Side Management Market Potential Study, it is stated that “AmerenUE is not likely to offer incentives across all programs that will result in a one-year payback as doing so would lead to substantial budgetary requirements that would cause significant regulatory disruption.” The inclusion of such budgetary constraints is inappropriate in an estimate of maximum achievable potential and represents an inappropriate self-imposed restriction. Rather than impose such a restriction, potential studies identify the limits of all cost effective potential resources that could be acquired. While actual DSM portfolio plans may ultimately be constrained due to budgetary/rate impacts and plan to pursue only a fraction of the total achievable potential, the IRP process is intended to fully analyze all possible resources and identify the least cost options. Therefore, it is inappropriate and undermines the intent of the IRP to arbitrarily constrain the analysis of possible cost-effective resources at the beginning of the process. Rather, any budgetary limitations should only be introduced after a full analysis, based on appropriate policy and planning decisions.

Response Provided By: ___Matthew Socks_____ Date: ____July 19, 2011_____

Data Information Request From Union Electric Company d/b/a Ameren Missouri MPSC Case No. EO-2011-0271 - No. Ameren-NRDC-015DC

Requested From: Natural Resources Defense Council
Requested By: Wendy Tatro
Date of Request: June 29, 2011

Information Requested:

Regarding Page 5 of Attachment 1 to the Comments of NRDC, et al.: The methodology used in the Ameren Missouri DSM Potential Study to correct for customer survey bias in development of customer take rates is described in Volume 2 on Page 54 of 185. This method uses actual data comparing how market research responses translate to documented purchase decisions. NRDC implies that the take-rates are too low, stating that "many jurisdictions have implemented programs that achieve participation rates of 70% or higher."

a. Please provide all analysis and documentation supporting this statement.

b. Please provide all analysis and documentation supporting the implied claim that utilities specifically in the Midwest with young DSM programs should be able to achieve DSM program participation rates of 70% or higher.

Response:

These statements are based on extensive professional experience in North America throughout numerous jurisdictions, development of numerous potential studies, and general review and knowledge of program effectiveness and the DSM literature. No specific analysis or documents were relied on. However, we note that there are numerous examples of programs that have achieved participation rates in the 70-80% level of eligible participants. The Hood River project done by BPA in the 1980s is a well-known example. Other examples include many direct install programs that often achieve 70-80% implementation rates. For example, small commercial direct installation programs in Massachusetts, Rhode Island and Vermont have routinely achieved these levels of implementation rates, and sustained them over many years. See, for example, Mosenthal and Wickenden, *The Link Between Program Participation and Financial Incentives in the Small Commercial Retrofit Market,* Proceedings of the 1999 International Evaluation Professionals Energy Efficiency Conference, August, 1999.

Response Provided By: Philip Mosenthal_____ Date: July 19, 2011_____

Ameren Missouri
Response to NRDC Data Request
MPSC Case No. EO-2011-0271
Union Electric Company d/b/a Ameren Missouri's 2011 Utility Resource Filing pursuant to 4 CSR 240 - Chapter 22

Data Request No.: SC-NRDC 1-009

Please specify what assumptions the Company is making in its coal price forecasts concerning future coal exports and the impact of those exports on coal prices.

RESPONSE: (do not edit or delete this line or anything above this)
Prepared By: Bill Davis
Title: Sr. Load Research Specialist
Date: 5/20/2011

The coal exports assumptions included in CRA's MRN-NEEM model were consistent with the 2010 Annual Energy Outlook. The impact of those exports on coal prices was included in the model since it explicitly models the supply and demand of coal.