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Issues:	Rebuttal to Ameren Missouri
Witness:	John Noller
Sponsoring Party:	Missouri Department of Natural Resources – Division of Energy
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REBUTTAL TESTIMONY
(REVISED)

OF

JOHN NOLLER

MISSOURI DEPARTMENT OF NATURAL RESOURCES

DIVISION OF ENERGY

October 31, 2011

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

UNION ELECTRIC COMPANY (dba AMEREN MISSOURI)

INTEGRATED RESOURCE PLANNING CASE

CASE NO. EO-2011-0271

INTRODUCTION

Q. Please state your name and business address.

A. My name is John Noller. My business address is Missouri Department of Natural Resources ("MDNR"), Division of Energy, 1101 Riverside Drive, P.O Box 176, Jefferson City, Missouri 65102-0176.

Q. By whom and in what capacity are you employed?

A. I am employed as a Planner III in the Energy Policy and Resources Program in the Missouri Department of Natural Resources, Division of Energy. The Missouri Department of Natural Resources is an agency of state government with its executive office located in Jefferson City, Missouri, and is vested with the powers and duties set forth in Section 640.150, RSMo. The Division of Energy is the designated state energy office in Missouri responsible for the administration of the federal Low Income Weatherization Assistance Program (LIWAP) and the federal State Energy Program (SEP) established by the United States Congress in 1978, which is managed nationally by the United States Department of Energy (USDOE). The SEP consists of several statewide energy efficiency programs administered by the MDNR-DE and funded by the USDOE.

Q. On whose behalf are you testifying?

A. I am testifying on behalf of the Missouri Department of Natural Resources ("MDNR,") an intervener in these proceedings.

Q. Please describe your educational background and professional experience.

A. I received a Bachelor of Arts in History and Philosophy from Wabash College, in Crawfordsville, Indiana in 1966; a Master of Arts in American History from Stanford University in Palo Alto, California in 1968; and a Master of Business Administration degree from University of Missouri in Columbia, Missouri in 1984. I also completed all requirements except dissertation to receive a doctorate in United States History at Stanford University in 1969 and to receive a doctorate in Agricultural Economics from the University of Missouri in Columbia, Missouri in 1979. I have served in the policy and resources program of the Missouri Division of Energy since October 1994 and have participated as an analyst or staff lead in the Division's intervention in utility integrated planning compliance filings since 2005.

Q. What is the purpose of your rebuttal testimony in this proceeding?

A. The purpose of my rebuttal testimony is to address the responses of Ameren Missouri ("the company") to the following Deficiencies and Concerns identified by MDNR in comments on Missouri's compliance filing. These deal with decision factors, the decision process, coal price uncertainty, environmental regulation monitoring and planning objectives. The MDNR comments were filed June 23, 2011.

CONCERNS AND DEFICIENCIES RELATED TO DECISION FACTORS AND CRITICAL UNCERTAIN FACTORS

Q What issues did MDNR raise in its June 23 comments regarding the company's identification and analysis of decision factors?

A. MDNR's June 23 Comments identified a number of concerns and deficiencies related to the company's introduction of "decision factors" into its risk analysis and strategy selection and its methodology for identifying and analyzing these "decision factors." MDNR focused in particular on the company's treatment of its "demand side cost recovery decision factor," which the company cites as a constraint that prevented selection of the lowest cost plan as its preferred plan.

The specific deficiencies and concerns cited in the MDNR comments were as follows:

MDNR Concern #1 identified several ambiguities and anomalies in the concept of decision factor, which was introduced by the company in later stages of its stakeholder process and does not appear in either the Commission's planning rules or the waivers that the company submitted for Commission approval.

MDNR Deficiency #1 stated that the company had not identified or demonstrated adherence to a systematic process for screening and identifying decision factors, which the company stated are "critical" in the same sense that critical uncertain factors are "critical" to the performance of alternative resource plans.

MDNR Deficiencies #2 and #3 stated that the company's failure to provide a contingency analysis for the demand side cost recovery factor was a deficiency with respect to two different rule requirements. A contingency analysis would, in words that the company used during a stakeholder meeting, permit the company to "determine what kinds of cost recovery would be required to achieve different levels of demand side savings. First, to comply with requirements for contingency planning in 4 CSR 20-22.070(10), the company should have defined the range of outcomes for this decision factor that define the limits within which the preferred resource plan would remain appropriate and the outcomes for this decision factor and the outcomes that would trigger moving to a different plan Second, because the company cited this decision factor as the constraint that prevented selection of the lowest cost plan, the company was required under 4 CSR 240-

22.010(2)(C) to provide a quantitative analysis demonstrating the outcomes and tradeoffs within which this constraint applied and under which it would no longer apply.

MDNR Concern #2 argued that because decision factors as conceptualized by the company are functionally similar to critical uncertain factors, the company's treatment of decision factors should be comparable in rigor to the treatment that is required for critical uncertain factors. MDNR referenced the issues raised in Deficiencies 1, 2 and 3 as instances in which the company's treatment of decision factors fails to reach this level of rigor and stated its concern that by treating these factors as "decision factors," the company was in effect circumventing the requirements that would have applied if these factors had been identified and analyzed as critical uncertain factors.

MDNR Deficiencies #9 and #10 concern contingency analysis related to critical uncertain factors. In the Commission's rule, the analysis of critical uncertain factors takes center stage in the contingency planning that is to be included in the utility's resource acquisition strategy. In the company's filing, analysis of critical uncertain factors is pushed to the periphery and decision factors take center stage.

In summary, the company introduced a concept ("decision factors") that is not defined or even mentioned in the Commission's rules nor the waivers granted by the Commission in this docket and gave that concept a central role in its risk analysis and strategy selection. In MDNR's view, this created an obligation to adhere to an appropriately rigorous set of ground rules for identifying and analyzing decision factors. This obligation was not acknowledged or met in the company's original filing and it is also not acknowledged or remedied in the company's response to MDNR and other parties in this case.

MDNR CONCERN #1

Q. Do you have any comments on the company's response to MDNR Concern #1?

A. Yes, I do. The company's response combined Concern #1 and Deficiency #1. (Ameren Response, pp.91-3) As previously noted, MDNR's Concern #1 focused on the concept of decision factors itself whereas Deficiency #1 focused on the company's process for screening and identifying decision factors. The company's response focuses on the process issues addressed in MDNR Deficiency #1.

The company asserts that the concept of decision factors is clear and unambiguous but provides no discussion or counter-arguments concerning the specific ambiguities and anomalies presented in MDNR's June 23 comments. The one counterargument offered in the company's response is that "the stakeholder reports indicate a crystal clear understanding of the role and effect of decision factors." (Ameren Response, p. 92) The company provides no demonstration of this statement. Moreover, even if the company were to demonstrate that its statement is correct, the demonstration would not resolve the issues raised by MDNR. The issues raised by MDNR concern the clarity of the company's definition of "decision factor," not whether the role of decision factors in the company's analysis is clear and unambiguous.

MDNR DEFICIENCY #1

Q. Do you have any comments on the company's response to MDNR Deficiency #1?

A. Yes, I do. In its June 23 comments concerning Deficiency #1, MDNR presented two specific points: (a) The company has not offered a consistent explanation of how it may be determined whether a factor whose outcome is uncertain at the time of the analysis is a candidate critical uncertain factor or a candidate decision factor; and (b) the company does not demonstrate that it followed a systematic process for identifying possible decision factors and determining which of these should be treated as decision factors that are critical to the performance of alternative resource plans.

With respect to point (a), the company's response states that it "has provided a clear explanation of what distinguishes a decision factor from an uncertain factor" and that "assert[ions] that there is any ambiguity is not supported by the facts." (Ameren Response p. 92) However, the company does not discuss or provide any counterarguments for the specific issues cited by MDNR with respect to determining which of these two categories a specific uncertain factor falls into.

With respect to point (b), the company reiterates its argument that it cannot move forward on demand side investments or large facility investments without regulatory decisions. (Ameren Response, p. 92) However the company does not demonstrate, discuss a systematic process for identifying decision factors or even acknowledge that MDNR has raised this issue.

This is an issue that the company should have addressed through a waiver request. Early in the planning process, the Commission approved waiver language for 4 CSR 240-22.070(2) that provided clear ground rules for screening and identifying critical uncertain factors. However, the company should also have proposed waiver provisions providing for a parallel process for screening and identifying decision factors that are critical to the performance of the resource plan.

Finally, it should be noted that the company's response includes two mischaracterizations of MDNR Deficiency #1.First, the company cites 4 CSR 240-22.070(10) as the pertinent rule. (Ameren Response, p. 91) However, the correct citation for Deficiency #1 is 4 CSR 240-22.070(2). Second, the company's response asserts that MDNR "admit(s) that their concern is 'theoretical.'"(Ameren Response, p. 91) However, the actual statement to which MDNR's refers in its discussion of MDNR Deficiency #1 is that "Because decision factors play a significant role in the filing's decision process and contingency planning, MDNR views this as more than a theoretical concern." (MDNR Comments, p. 9)

In 4 CSR 240-22.070(2), as in the remainder of the planning rules, the relevant requirements refer to critical uncertain factors and there is no specific reference to decision factors. MDNR's rationale for applying the requirements to decision factors is stated in discussion of Concern #2.

MDNR DEFICIENCY #2

Q. Do you have any comments on the company's response to MDNR Deficiency #2?

A. Yes, I do. MDNR's June 23 comment on Deficiency #2 focused specifically on the demand side cost recovery decision factor and the consequences of identifying this decision factor as a constraint on treating minimization of NPVRR as the primary selection criterion when selecting the preferred resource plan. This comment states that the company did not provide the quantitative analysis required by 4 CSR 240-22.010(2)(C) for establishing a constraint. This rule provision requires the utility to provide "if possible" a quantitative analysis demonstrating the outcomes and tradeoffs within which this constraint applies and the outcomes and tradeoffs under which it no longer applies. Ameren's response argues that it demonstrated that selecting the least-cost plan as the preferred plan would result in "significantly impairing the ability of investors to have a reasonable opportunity to earn a fair return" and that therefore it could not select this as the preferred plan without a regulatory change. (Ameren Response, p. 20) In MDNR's view, the demonstration that the company references falls short of the rule requirement.

Q. Why do you think that the demonstration falls short of the rule requirement?

A. First, the company's assertion of a constraint is arbitrary in that it did not apply any well-defined decision criteria for determining how much reduction in financial return to shareholders constitutes a failure to provide a fair return. The company did not provide any such criteria when requested to identify the decision criteria that the company applied "for determining whether a specific plan would result in significantly impairing the ability of investors to have a reasonable opportunity to earn a fair return." (Schedule JN-1, MDNR Data Request 187) Mere demonstration of an impact on shareholders is not sufficient to establish constraint. This point is demonstrated by the company's selection of a preferred plan that contained the "low risk" demand-side portfolio. In response to that data request, the company states that "even the low risk plan was found to result in lost revenue that significantly affects investor return." Nevertheless, the company was not constrained from selecting it as the preferred plan.

Second, even if the company was constrained from selecting a more aggressive demand side portfolio under the current regulatory provisions ("outcomes") related to the cost recovery decision factor, the company was required by 4 CSR 240-22.010(2)(C) to provide a contingency analysis that would indicate how alternative outcomes of the cost recovery decision factor would affect its selection of a plan based on more aggressive demand side resources. During the stakeholder process, a company representative demonstrated that the company had a clear concept of the purpose and analytic framework for such an analysis and was planning to include it in its filing when he said: "we'll look at our potential [demand side] portfolios under different cost recovery mechanisms and be able to determine what kind of cost recovery does it take in order to enable achievement of different levels of demand-side savings." (Schedule JN-2, MDNR Data Request 188)

The rule requires the utility to provide this kind of quantitative analysis “where possible.” Statements by the company support the view that a contingency analysis for the demand side cost recovery decision factor could indeed be formulated and carried out. In response to a data request concerning the contingency analysis that the company described at the September 14 stakeholder meeting, the company states that “Ameren Missouri believed it [the contingency analysis that was described to stakeholders] was possible then, and while Ameren Missouri still believes that this analysis is possible, we have a greater appreciation for the challenges of trying to define a sliding scale of cost recovery for varying levels of energy savings.” (Schedule JN-2, MDNR Data Request 198.)

Moreover, company should have provided the contingency analysis being discussed here not only because it was required by the rule but because it would have provided value in the company’s ongoing planning process. In response to a related staff deficiency (Staff Deficiency #3), the company stated that “a specification in the IRP of the cost recovery desired by the company would have no practical effect” because it would not affect the company’s selection of preferred resource plan in its 2011 compliance filing. (Ameren Response, p. 15) However, during the stakeholder process, the company indicated that it recognized that a contingency analysis, which would indicate the company’s response to different cost structures, would provide value in its ongoing planning and decision making. This issue of the value of contingency analysis is explored at greater length in a later section of this rebuttal.

MDNR DEFICIENCY #3

Q. Do you have any comments on the company’s response to MDNR Deficiency #3?

A. Yes, I do. MDNR's June 23 comment argued that the company was required to provide a contingency analysis of the cost recovery decision factor not only because it had cited this decision factor as a constraint under 4 CSR 240-22.010(2) but also because the company's analysis of the decision factor would fall short of the analytic standard for contingency analysis of critical uncertain factors set forth in 4 CSR 240-22.070(10). The company's response to MDNR Deficiency #3 is not responsive to the deficiency and argument presented in MDNR's June 23 comment. (Ameren Response, pp. 105-106)

In its June 23 comments, MDNR states that the company's filing is deficient with respect to "specification of outcomes of the DSM cost recovery decision factor that would trigger a contingency plan." MDNR further stated that the requirements in 4 CSR 240-22.070(10), applied to decision factors with the same rigor that they apply to critical uncertain factors, would require the utility to provide information and analysis that is much more specific than that included in the company's filing. Specifically, the company would be required to specify "the ranges or combinations of outcomes: for the decision factors that "define the limits within which the preferred resource plan is judged to be appropriate" and the ranges or outcomes for the decision factors that constitute "extreme outcomes" triggering a move to a different plan. The company would also be required to explain "how these limits were determined" and why "these options are judged to be appropriate responses to the specified outcomes."

The company's response fails to acknowledge or respond to the specific issues raised by MDNR and in fact misrepresents MDNR's statement of the deficiency. The company's extremely brief response represents that MDNR Deficiency #3 concerns critical certain factors whereas in fact, as summarized above, it concerns decision factors.(Ameren, p105-6.) MDNR's rationale for applying the requirements of CSR 240-22.070(10), to decision factors is stated in discussion of

Concern #2[1]. This is an issue that the company should have addressed through a waiver request related to 4 CSR 240-22.070(10)(C) and (D) that provided clear ground rules for contingency analysis of uncertain factors parallel to that which the rules require for critical uncertain factors.

Q. Your discussion of MDNR Deficiencies 2 and 3 states that the company was required to provide a contingency analysis for the demand side cost recovery decision factor. Would such an analysis have practical value beyond meeting a rule requirement?

A. Yes, a contingency analysis of the demand-side cost recovery decision factor would have added practical value to the company's ongoing planning process. There are statements in the company's response that appear to dispute this. For example, in its response to a related staff deficiency, the company implied that this kind of contingency analysis would not have added any value to the company's compliance filing because it would not have changed the selection of the preferred plan.(re: Discussion of Staff Deficiency #3, Ameren Response, p. 15)

However, such a response implies an unduly narrow concept of the Commission's planning, an objective that is not supported by the Missouri planning rules. The Commission's planning rules envision utility planning as an ongoing process. This is acknowledged in the company's reference to its "ongoing planning process" (Ameren Response, p. 5) and is implicit in the requirement to adopt a resource acquisition strategy that includes not only a preferred plan but contingency planning. Furthermore, this broader view appears to be reflected in other company statements that recognize the value of such analysis to "quickly assess what level of energy savings the company

1. Although Ameren's statement of Deficiency #3 is not an accurate statement of that deficiency; it is an accurate statement of Deficiency #9. Therefore, a more detailed look at Ameren's response is provided in the discussion of MDNR Deficiency #9.

might be able to achieve under different regulatory structures. (Sept 14 Transcript, pp. 226-8; MDNR DR #198)

MDNR CONCERN #2

Q. Do you have any comments on the company's response to MDNR Concern #2?

A. Yes, I do. MDNR's 2nd concern was that (a) that the company's analysis of decision factors should be comparable to that required for critical uncertain factors; (b) that in several instances the company's treatment of decision factors does not reach this standard of analysis; and (c) that as a result, the analytic process required by the planning rules had been circumvented. The company's response does not mention or discuss these general points or provide any discussion of the specific instances cited by MDNR. Its response is limited to stating that general statement that "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." (Ameren Response, p. 93) However, MDNR's concern is broader than the sum of specific instances.

The treatment of decision factors in this filing is of urgent concern because the company assigns a central role to decision factors and a relatively peripheral role to critical uncertain factors. If a utility chooses to rely on analytic concepts that are not set forth in the Commission's planning rules, the Commission should expect the utility to adhere to analytic standards that are no less rigorous than those expected for analysis of comparable concepts defined in the rules. The rationale for expecting the company to apply comparable standards to the analysis of decision factors and critical uncertain factors is that the two types of factors serve similar functions in the company's planning analysis. Further, the two factors both have a range of possible, uncertain "values" or "outcomes" that can affect what resource acquisition strategy is appropriate to best meet the utility's planning objectives. Put simply, a shift in the factor's values can trigger a shift in the resource acquisition strategy for either "decision factors" or "critical uncertain factors."

The ground rules for identifying and analyzing critical uncertain factors are laid out in 4 CSR 240-22.070. In addition to Paragraphs 2 and 10, already discussed in connection with Deficiencies #1 and #3, these provisions include Paragraphs 3 and 8. The company should have submitted waiver requests setting out ground rules for identifying and analyzing decision factors parallel to those set forth for critical uncertain factors. Given the company's failure to submit such waiver requests, the most appropriate approach is to require the company to meet the same standards that it is required to meet when identifying and analyzing critical uncertain factors. This treatment would assure that rule requirements are not diluted or circumvented.

MDNR DEFICIENCIES #9 AND #10

Q. Do you have any comments on the company's response to MDNR Deficiencies 9 and 10?

A. Yes, I do. In its June 23 comments, MDNR stated that the company had failed to comply with the requirements of 4 CSR 240-22.070(10)(C) [Deficiency #9][2] and 4 CSR 240-22.070(10)(D) [Deficiency #10][3]. (For reference, these two rule provisions are included in footnotes.) Further, MDNR stated that the company had <u>failed to demonstrate any attempt</u> to determine the limits

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[2] 4 CSR 240-22.070(10)(C): "A specification of the ranges or combinations of outcomes for the critical uncertain factors that define the limits within which the preferred resource plan is judged to be appropriate and an explanation of how these limits were determined."

[3] 4 CSR 240-22.070(10)(D): "A set of contingency options that are judged to be appropriate responses to extreme outcomes of the critical uncertain factors and an explanation of why these options are judged to be appropriate responses to the specified outcomes."

required in (10)(C) or the responses to extreme values required in (10)(D). The company provides a general response and a specific response to MDNR Deficiencies #9 and #10. The company's general response is that the required analyses were completed through the Expected Value of Better Information (EVBI) analysis that is documented in Chapter 10, Appendix C (Ameren Response, pp. 106-7) Its specific response, which appears in its discussion of MDNR Deficiency #3, is that based on this EVBI analysis "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 [one of the three decision factors]." (Ameren Response, pp. 105-6)

Q Do you have any comments on the company's general response to these deficiencies?

A. Yes, I do. The documentation provided with the filing itself did not indicate that the company intended its EVBI analysis to meet both the EVBI requirements and the contingency planning requirements set out in the rule. Chapter 10, Appendix C, which presents the company's EVBI analysis, cites only requirements specifically related to EVBI [4 CSR 240-22.070(8) and 4 CSR 240-22.070(11)(E)]. The appendix does not cite the contingency planning requirements [4 CSR 240-22.070(10)(C) and (D)]. Chapter 10 Section 10.4, which provides a cross-walk between rule requirement and the sections of the filing where the requirements are met, indicates that compliance with the contingency planning requirements is demonstrated in Chapter 10, Section 10.3.2. There is no reference in this section to EVBI. Thus, it appears that identification of EVBI analysis is the methodology for complying with the rule's contingency planning requirements first appears in the company's response to parties.

It is not self-evident that EVBI analysis is an appropriate method for determining the limits for the company's preferred plan or analyzing what the company's response should be if these limits are exceeded. EVBI analysis of critical uncertain factors typically focuses on one uncertain factor at a time, takes only NPVRR into account and reaches its stopping point when the marginal cost of information begins to exceed its marginal value. Contingency analysis may consider the interaction of critical uncertain factors, takes all performance measures into account and explores the "tipping point at which a change in preferred plan is triggered. The company does not explain why EVBI analysis was selected for contingency analysis or document how EVBI analysis was adapted to accomplish the tasks required.

It should be noted that Staff Deficiency #4, which the company discusses in its response, challenges the validity of the company's EVBI analysis. (Ameren Response, 104-5) If Staff's position is correct, it follows that the company's analysis of the limits under which the preferred plan is appropriate would also need to be revised.

Q Do you have any comments on the company's general response to these deficiencies?

A Yes, I do. The company states that there are no values of uncertain factors that would cause the company to select a different plan and that plan selection will be guided instead by decision factors. This is a radical shift from the planning rules. (Ameren Response, pp. 106-7) The analysis of critical uncertain factors required by Paragraphs (10)(C) and 10(D) is at the heart of the Commission's rule provisions for contingency planning. The practical effect of the company's introduction of the demand-side cost recovery decision factor is to undermine the relevance of these provisions.

Q: The company states that it has "has appropriately defined the conditions that could trigger selection of a contingency plan." (Ameren Response, 106) Do you agree with the company's statement?

A: I do not. If the Commission's purpose for including (070)(10)(C) and (D) was to assure robust contingency planning accomplished through analysis of the full range of possible values for critical uncertain factors, that propose is not achieved in the company's filing. Under the company's preferred plan, because decision factors are treated as constraints, contingency planning based on critical uncertain factors is always trumped by contingency planning based on decision factors. Moreover, the company has not identified the "extreme outcomes" or any other possible outcomes for the demand-side cost recovery decision factor and therefore it has not taken even the first step toward applying the requirements of Paragraph (10)(C) and (10)(D) to contingency planning based on this particular decision factor

The company's identification of this particular decision factor as a constraint has operated to insulate the preferred plan from any impact by the critical uncertain factors, and its failure to set ground rules for analyzing this decision factor has insulated the company's contingency analysis from the requirements of Paragraphs (10)(C) and (10)(D. As a result, the company's filing does not provide a robust contingency analysis that identifies the boundaries within which the preferred plan is appropriate and beyond which it is not appropriate. Its preferred plan will remain unchanged regardless of circumstance until the utility judges that outcomes for the decision factor reach some critical point but because the company provides no contingency analysis, that critical point is not defined in the resource acquisition strategy and is known only to the company.

CONCERNS & DEFICIENCIES RELATED TO THE COMPANY'S DECISION PROCESS

Q. What are MDNR's concerns and deficiencies regarding the company's decision process?

A. MDNR has one concern and three deficiencies regarding three different steps in their multi-step decision making process.

MDNR Concern #4 focuses on an early stage of the process, in which the company reduced the number of alternative plan being considered from 126 plans to 16 “candidate alternative resource plans.” MDNR raises issues concerning compliance with the requirement to use minimization of cost as the “primary selection criterion.

MDNR Deficiency #8 focuses on a middle stage, in which the company reduced the number of candidate plans from 16 to 14 by throwing out plans based on a MAP demand-side portfolio. MDNR raises issues with respect to the effect of this change on robustness of the analysis as well as well as the company’s compliance with agreements in place.

MDNR Deficiencies #5 and #6 focus on the final stage. The Commission’s planning rules include provisions with respect to utility consideration of planning objectives, selection criteria, tradeoffs and constraints. DMNR raises issues with respect to the company’s demonstration that upper management took these considerations into account when selecting the company’s preferred plan.

MDNR CONCERN #4

Q. Do you have any comments regarding the company’s response to MDNR concern #4?

A. MDNR’s June 23 comments stated that “When selecting preliminary candidate resource plans, Ameren Missouri assigned weights to competing planning objectives that do not appear to be consistent with the "primary selection criterion" requirement of Chapter 22 selecting preliminary candidate resource plans from the alternative resource plans that were analyzed.” The company’s response states that “placing the highest weighting of any performance measure on PVRR minimization” meets the “primary selection criterion” requirement. (Ameren Response, p. 96) The company’s view can be refuted by demonstrating that it leads to absurd consequences. For example, by the company’s logic, rule requirements would be met by assigning a weight of 10.09 to cost minimization and 9.99 to nine other objectives. The company’s response to MDNR rests on its assertion that “has used minimization of PVRR as its primary selection criterion” (Ameren Response, p. 96) MDNR’s view continues to be that the company’s assertion is not consistent with the company’s assignment of a 75 percent aggregate weight to other objectives.

MDNR DEFICIENCY #8

Q. Do you have any comments on the company’s response to MDNR Deficiency #8?

A. Yes, I do. After identifying 16 “candidate alternative resource plans” as discussed in MDNR Concern #4, the company eliminated two plans that contained its “MAP” demand-side portfolio. In its June 23 comments, MDNR stated that the company had agreed to include a “MAP” resource plan in its integrated resource analysis and that including the two plans that were eliminated at this stage would have led to a more robust analysis. The company responded that it "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.” (Ameren Response, p. 32) MDNR disagrees.

As part of the stipulation and agreement in File No. ER-2010-0036, the company agreed to design a model that “annually achieves incremental electric energy and demand savings equivalent to 1% (by 2015) …reductions in annual sales.” (Stipulation and Agreement, ER-2010-0036.) On November 30, 2010 MDNR and the company exchanged emails about the calculations to be used to estimate the 1% demand-side portfolio and distributed the email to stakeholders. In that agreement, MDNR stated its understanding that savings levels derived from the company's Maximum Achievable Potential (MAP) portfolio would be used as the 1% savings portfolio. These points are fully documented in the discussion of MDNR Deficiency #7 in MDNR's June 23 comments.

The company also reiterated its argument that it was reasonable to drop the two alternative resource plans containing the MAP demand-side portfolio because their analysis would not have added ` information that was not already captured by analyzing the plans with the RAP portfolio (Ameren Response, p. 33). MDNR had countered that retaining the plans with the MAP portfolio would have led to a more robust analysis because it would have permitted the company to analyze plans with an earlier retirement date for the Meramec plant. In its Response, the company stated that

> "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…. Retiring the plant earlier or later in the planning horizon would not result in a change in supply side resource need with either portfolio "(Ameren Response, p. 33)

In reviewing this argument, MDNR notes that, based on the company's projections of cumulative savings from the MAP and RAP demand-side portfolios, neither portfolio could supply energy savings sufficient to completely offset the retirement of the Meramec plant, which according to public EIA data generated about 5.36 million megawatt hours in 2009. An inspection of the "composition of energy" chart that the company presents for Plan R3, which is based on implementing RAP and retiring Meramec, confirms that retirement of Meramec would result in net reduction of energy from supply side resources in that order of magnitude, even taking into account the modest increases resulting from facility upgrades. (Chapter 9, Appendix A revised, p. 22)

The company projects that cumulative energy savings from RAP would reach [redacted] million MWh in 2022. This level of savings is reached by MAP before 2018. By 2028, the cumulative savings from MAP would reach [redacted] million MWh compared to [redacted] million from RAP.(Workpapers, Portfolio_Rollup_Viewer_MO_2010-12-06.xlsx) [4] Because the MAP portfolio ramps up more quickly and provides larger energy savings than the RAP portfolio, alternative resource plans containing MAP could support earlier or more aggressive retirement scenarios than alternative resource plans containing RAP. Given that the company now sells power it would require additional information that is not available to MDNR to determine the net impact on the company's customers and on other Missouri utilities that currently purchase power from the company.

Finally, the company states that its rationale for excluding the plans with the MAP portfolio included "the consideration that MAP, by definition, is the maximum achievable potential that might be realized under ideal conditions." (Ameren Response, p. 32) While this characterization certainly applies to maximum achievable potential as an abstract concept, it is misleading when applied to the particular portfolio that the company constructed and labeled as its "MAP portfolio."

The company chose to construct two portfolios based on a 3-year payback period and a one-year payback period and chose to label these the “RAP” and “MAP” portfolios. Neither of these represents the theoretical maximum achievable potential. The theoretical maximum achievable potential would be estimated using an instantaneous payback period. Defined thus, the theoretical maximum achievable potential would include all cost-effective demand-side measures with payback less than one year, whereas the portfolio that the company labeled “MAP” excludes these.

MDNR DEFICIENCY #5 AND DEFICIENCY #6

Q. What does MDNR Deficiency #5 and #6 identify?

A. In its July 23 comments, MDNR identified several deficiencies in the narrative that the company presents in Chapter 10 which describes the final stage of its selection process. This final stage of the company’s multi-stage was that in which senior management made the final selection of the preferred resource plan and resource acquisition strategy that are documented in the company’s official approval statement. One function of the narrative should be to demonstrate the company’s compliance with the rules that pertain to the utility’s process for selecting its preferred resource plan.

The key deficiency identified by MDNR Deficiency #5 is that the company’s narrative does not document senior management’s consideration of tradeoffs between planning objectives or state explicitly the considerations on which senior management focused when making their decisions. MDNR Deficiency #6 identified that the company’s narrative does not document senior management consideration of the company’s assertion of a constraint that prevents the company from selecting the low-cost plan that would have been selected as the preferred plan based on

[4] Sources: EIA Form 923; Portfolio_Rollup_Viewer_MO_2010-12-06.xlsx

weighing cost and the other performance measures defined by the company. MDNR Deficiency #6 also identifies that the upper management considered the quantitative analysis that the company is required under 4 CSR 240-22.010 (2)(C) to provide if asserts such a constraint.

In MDNR's view, the company should have recognized its responsibility to demonstrate that in this final stage of the decision process, senior management did in fact comply with the requirements of 4 CSR 240-22.010(B) and (C). However, as MDNR stated in its June 23 comments, the narrative describing this final stage of the company's decision process "provides no transparency concerning whether the senior management recognized this burden, the analytic and regulatory framework in which they discussed the issues involved or the assumptions and information that they considered in resolving it." The company's response does not discuss the specific aspects of upper management's decision process that are identified above.

Q. What was the company's response to MDNR Deficiency #5 and #6?

A. The company's response has three main points. First, the company states that "It is clear from reading the reports of various parties that the decision process and how it relates to the rules is clear" (Ameren Response, p. 97) In light of the fact that Staff and OPC have joined MDNR in questioning the company's documentation of this final stage of the company's decision process, that clarity is doubtful[5]. (Ameren Response, pp. 97-9)

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[5] "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." (Ameren Response, p. 107). "OPC asserts that Ameren Missouri provided insufficient and misleading information to critical decision makers in selecting and approving the Preferred Resource Plan." (Ameren Response, p. 109)

Second, the company states that "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." (Ameren Response, p. 97) This misstates MDNR's position with respect to the company's failure to provide the quantitative analysis of the demand side cost recovery decision factor that is required by the rule. MDNR does not state that there is a "simple sliding scale." As discussed with respect to MDNR Deficiency #2, MDNR states that the rule requires the company to do this analysis <u>"if possible"</u> and that in response to a data request, the <u>company agrees</u> that the analysis, while complicated, <u>is possible</u>. Furthermore, the company's filing does not demonstrate that the company's upper management considered the requirements of 4 CSR 240-22.010(2)(C) when selecting a preferred plan that was not the low-cost plan.

Finally, the company states that "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 Response, p. 110) This sweeping statement is open to question on several grounds. In response to a data request, the company indicates that no such unconditional affirmation of "the views expressed regarding plan selection" appears in any statement officially adopted by the Board of Directors. (Schedule JN-10 MDNR Data Request #200) The scope of the affirmation in this statement is certainly broader than that which appears in the official adoption statement presented by the company in its compliance filing. The company sates that "most of Chapter 10 is dedicated to" discussion of plan selection (Ameren Response, p. 110) but does not document or otherwise indicate that all members of senior management involved in the final stage of decision making reviewed Chapter 10 in general or Section 10.2 in particular. In summary, the statement implies an unusually loose standard for determining that an issue has undergone a required review.

In addition to the key deficiencies treated above, MDNR Deficiency #6 states that the company's narrative does not demonstrate that cost minimization was used as the primary selection criterion at this final stage of the decision process. The company's response (Ameren Response, p. 97) reiterates its assertion, already discussed under Concern #4, that it met rule requirements by assigning the highest numeric weight of any performance measure to PVRR minimization. However, the company used numeric weighting only for an early stage in which preliminary candidate resources plans wee determined. Therefore the company's response is not relevant to the issue at hand, which involves the final stage of the decision process in which the preferred plan was selected by senior management. The documentation of the decision process in Section 10l2 provides "scorecards" and other decision tools that staff prepared for senior management but does not provide any documentation but does not provide any documentation by participants in the decision process of the weights or other criteria that they actually used in arriving at their decision. Furthermore, the scorecards do not indicate specific weights were assigned to planning objectives and display primarily qualitative rather than quantitative approaches to scoring scorecards

DEFICIENCY RELATED TO COAL PRICE UNCERTAINTY

Q. Please summarize Deficiency #11 identified in MDNR's June 23 comments.

A. MDNR's comments in Deficiency #11 pertained to the company's "analysis of uncertain factors that affect the upper boundary of future cost of generation at the company's existing fleet of coal-fired power plants." MDNR reviewed the company's treatment of three factors –fuel price, O&M price and the cost of environmental compliance – over the 20-year panning horizon. MDNR identified two specific deficiencies with respect to the company's treatment of coal prices. First, the company did not did identify the critical uncertain factors considered by its consultants (CRA and Norwest) when forecasting coal price as is required by 4 CSR 240-22.040 (8) (C) (2). More generally, the company's filing did not provide an adequate discussion of modeling assumptions and analyses utilized by its consultants to assess uncertainty with respect to future coal prices and did not demonstrate that the company had conducted a review of these issues. Second, the company did not analyze coal price as a candidate critical uncertain factor as is required by 4 CSR 240-22.070(2)(D) causing the company to not undertake any of the analyses that would have been required if coal price had been identified as a critical uncertain factor. Most significantly, the company did not analyze what its response should be to "extreme values" of coal price, as would have been required by 4 CSR 240-22.070(10)(D) if coal price had been identified as a critical uncertain factor.

Q. Please summarize the company's responses to the issues set forth in MDNR Deficiency #11 and MDNR's rebuttal to these responses?

A. The discussion of coal prices in the company's response to MDNR Deficiency #11 does not explicitly acknowledge and respond to either of the two deficiencies previously stated. The company's discussion consists primarily of an excerpt from Chapter 2, Section 2.4.7 stating that the coal prices used in the company's integrated analysis were derived endogenously in CRA's model, varied by scenario and incorporated the variation that the coal prices used by the company vary by scenario and reflected the influence on demand for coal of the three uncertain factors that define the scenarios. (Ameren Response, p. 44)

This response is insufficient for three reasons. First, the company did not provide a response to the specific issues identified by MDNR in our June 23 filing regarding the company's discussion and documentation of modeling assumptions and analyses utilized by its consultants CRA and Norwood to assess uncertainty with respect to future coal prices. Second, the company has yet to comply with 4 CSR 240-22.040 (8) (C) (2) by providing a comprehensive list of the drivers considered by its consultants, even though such a list would provide a foundation for resolving the these deficiencies. In response to a data request seeking the list of drivers used by CRA, the company stated that CRA's model included a number of drivers but identified only three. The three drivers that the company identified were the dependent critical uncertain factors that were previously identified in the filing. (Schedule JN-6, MDNR DR 196) In response to a second data request seeking this list for Norwest, the company objected that this information is proprietary. (Schedule JN-7 & 8, MDNR Data Request 197 and Objection)

Finally, the company's position rests on the premise that all relevant uncertainty affecting coal prices is captured by the CRA model and that is a false assumption.

Q**. Why is the company's premise that all relevant uncertainty affecting coal prices is captured by the CRA model a faulty assumption?**

A. The company describes CRA's forecast of the minemouth coal prices that the consultant delivered to the company in Chapter 2, Section 2.5 of its compliance filing. Based on this description and the company's response to MDNR data requests, MDNR has identified several sources of uncertainty that were not fully captured in the coal minemouth prices that CRA delivered to the company. Because CRA delivered its price estimates as single-point estimates rather than probability distributions, it is fair to conclude that the price estimates delivered to the company did not incorporate the full range of uncertainty inherent in the NEEM forecasting effort. These sources of uncertainty in the coal prices that CRA delivered to the company are both Endogenous and Exogenous.

Q. What are these endogenous sources of uncertainty that were not captured in the minemouth coal prices that CRA delivered to the company?

A. CRA's forecasts rely on a model. Any forecasting model, because it abstracts from the real world, provides estimates that are subject to some uncertainty. MDNR identified three specific NEEM model assumptions that introduce uncertainty into the model's price forecasts. The NEEM model assumes that coal-fired operating units acquire coal supply based on a fuel strategy that minimizes the generating unit's NPV fuel supply cost. The NEEM model "assumes away" several barriers to such a strategy that would operate in the real world. These include information barriers, transportation infrastructure barriers and market barriers. In practice, these barriers would operate to impede or prevent operating units from identifying and achieving a "perfect" fuel supply strategy and therefore introduces uncertainty into the model estimates of minemouth coal prices.

The information required to estimate the extent of the uncertainty introduced by the model assumptions described above or to assess CRA's efforts to account for it is not available to MDNR. However, because coal prices delivered to the company were single point estimates by scenario and year, it is certain that the coal prices delivered to the company do not reflect this source of uncertainty.

Q: What are these exogenous sources of uncertainty that may not have been captured in the minemouth coal prices that CRA delivered to the company?

A. MDNR identified two exogenous sources of uncertainty. There are at least two exogenous factors that affect coal prices. These include cost of coal production and cost of coal transportation. Cost of coal production is endogenous to the Norwest model but exogenous to the CRA model. The company's response to MDNR's discussion of coal price issues raised in Deficiency #11 emphasizes that CRA's NEEM model relies on an analysis of supply and demand and that coal prices are derived "endogenously." (Ameren Response, p. 44) The company's description of the NEEM model only partially supports the company's statements that the coal prices delivered to the company were derived "endogenously." While the determination of coal demand appears to be endogenous, the determination of coal supply curves is based on a source that is exogenous to the model. The discussion of coal price forecasts in Chapter 2 Section 2.5.6 states that the Norwest consulting firm provided annual forecasts and other data for "production capabilities and minemouth prices per ton of coal production."

The company states that nearly all the coal burned in the company's coal-fired units is extracted and transported from two of ten coal regions identified by its consultants, the PRB Northern Wyoming region and the PRB Southern Wyoming region. Future production capacity and price of coal from these regions is subject to considerable uncertainty due in part to increasing levels of overburden at existing surface mines. An evaluation of how adequately the Norwest's minemouth coal models account for these uncertainties would require at least a review of the characteristics and assumptions of the Norwest models for PRB Northern Wyoming coal mines and PRB Southern Wyoming coal mines with respect to five specific issues.

Finally, the company may have introduced an additional source of uncertainty exogenous to the CRA NEEM model in its estimates of delivered coal price. The company states, in its filing and in its response to a data request, that the company chose to estimate coal delivery costs rather than rely on delivery costs derived endogenously within the NEEM model. The company's Fossil Fuels group provided delivery costs that were added to the CRA minemouth prices to derive delivered coal prices. (Schedule JN-3, MDNR Data Request 193) The company states on Chapter 2, Page 25 that the Fuels Group used "appropriate" transportation costs." The filing provides no additional information concerning the criteria and methods used by the Fuels group to determine "appropriate" delivery cost.

Q. What are those five specific issues that the Norwest model would need to be evaluated on and did the company do so?

A. The company should have evaluated the Norwest Model to determine if: 1) it incorporates a mine-specific distribution of overburden levels, 2) incorporates a mine-specific distribution of the mine's total recoverable reserves relative to the distribution of overburden levels, 3) forecasts the opening of new mines and/or increases in recoverable reserves, 4) forecasts the introduction and cost of new surface mining extraction technology over the 20-year planning horizon, 5) or makes any assumptions concerning technical or economic limits to the depth of overburden that can be removed through surface mining. None of these issues are addressed in Chapter 2 Section 2.5.6, which provides a single sentence giving a very general characterization of the Norwest model. (Ameren Response, p. 21.) Section 2.5.6 also provides very general information about the data that Norwest provided.

The information required to evaluate the extent to which the Norwest models account for uncertainties facing PRB coal production is not available to MDNR. MDNR requested specification of the data that Norwest delivered and clarification of several of the modeling questions listed above; however, the company protested that the information is proprietary. (Schedule JN-6, MDNR Data Request 196) One of the data requests attempted to determine whether Norwest delivered its data as probability distributions, which would imply that some uncertainty is captured in the data, but the response to this question was also denied as proprietary information.

Q. Do you have any comment on the company's efforts to analyze uncertainty with respect to coal prices used in the company's integrated analysis?

A. In its June 23 filing, MDNR proposed remedies for these deficiencies that involved an active review of the adequacy and completeness of the considerations of risk and uncertainty analysis embedded in the coal prices that the company received from its consultants. The company has neither acknowledged nor responded to the proposals. Further, the company has neither discussed with nor received any analysis from CRA regarding the uncertainty as to the coal minemouth price forecasts and whether the uncertainty is due to modeling assumptions or due to any other factor; (Schedule JN-5 & JN-6, MDNR Data Requests 195 & 196.)

The company has not produced or received any written materials or estimates from CRA or other consultant with respect to uncertainty in the coal minemouth price forecasts and data provided by CRA. Neither the company, CRA or Norwest have discussed or analyzed uncertainty with respect to the forecasts and data provided by Norwest to CRA. There are no materials or estimates produced by the company, CRA or Norwest with respect to uncertainty in the forecasts and data provided by CRA.

In a related deficiency (NRDC Deficiency IV-B, Subpart 5), NRDC argues that increasing coal production costs in the PRB regions is one of several factors affecting coal prices that the company has not adequately analyzed. In response, the company states that its filing adequately describes "the assumptions behind the supply curves used by the CRA model" and that "there should be no further need for documentation that the model accounts for the factors cited by NRDC." (Ameren Response, pp. 53-4.) Based on MDNR's review of the company's filing and the company's apparent failure to investigate or document the five issues previously listed, MDNR questions the company's assertion that its filing adequately describes the coal production cost assumptions underlying the coal supply curves. In MDNR's view, additional analysis of uncertainty related to the physical production factors affecting PRB coal prices should take place and the results of the analysis should be incorporated into the company's risk analysis and contingency planning.

This testimony has demonstrated that here is good reason to believe that the coal prices used in the company's filing embody uncertainties beyond those derived endogenously in the NEEM model. Neither the company's filing, its response to parties or its response to MDNR's data requests demonstrate any active effort by the company to identify or analyze this uncertainty. The company's assertion that it has complied with the rule requirements stated in MDNR #11 is therefore untenable.

MDNR notes that the Commission, in Case EO-2012-0039, has ordered the company to "Evaluate coal price uncertainty as an independent uncertain factor to generally reflect uncertainties that could drive the cost of coal to Ameren Missouri.

Q. The company questions MDNR's reference in Deficiency #11 to the "upper boundary of future cost" in Deficiency 11. Can you explain that?

A. The company's response questioned MDNR's reference to the upper boundary of future cost of generation at the company's existing fleet of coal-fired power plants, stating that "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." (Ameren Response, pp. 42-3)

While there is no specific reference to the "upper boundary" of costs in the planning rules, MDNR's use of this term is based on the requirements of 4 CSR 240-22.070(10)(C) and 4 CSR 240-22.070(10)(D) which require "a specification of the ranges or combinations of outcomes for the critical uncertain factors that define the limits within which the preferred resource plan is judged to be appropriate " and "a set of contingency options that are judged to be appropriate responses to extreme outcomes of the critical uncertain factors and an explanation of why these options are judged to be appropriate responses to the specified outcomes." This rule provision requires the utility to provide "a set of contingency options that are judged to be appropriate responses to extreme outcomes of the critical uncertain factors."

In order to meet the requirements of 4 CSR 240-22.070(10)(D), the utility must assure that the high values and low values in the probability distribution that the utility has defined for each critical uncertain factor provide a sufficiently wide range of values to assure a robust contingency analysis. This would be a moot point if the utility defined a continuous probability function;

however, the practice of the company and other Missouri utilities has been to define discontinuous probability distributions that are truncated at the upper and lower end.

The upper and lower boundary of the outcomes for a critical uncertain factor, as this term is used in Deficiency #11, are the high and low values in the discontinuous probability function and determine the "extreme values" for that uncertain factor. The upper boundary of costs, as the term is used in Deficiency #11, refers to the high values of the uncertain factors that are components of production cost, considered individually or in combination.

CONCERN RELATED TO MONITORING REGULATORY CHANGE

Q. Do you have any comments regarding the company's response to MDNR Concern #5?

A. Yes, I do. MDNR stated that the company's filing failed to provide a plan for monitoring changes in environmental regulations (other than carbon) and that such a plan should be included in plans for monitoring critical uncertain factors. (Ameren Response, p. 107) The company's response to Concern #5 was that "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." (Ameren Response, p. 107) The Commission, in Case EO-2012-0039, has ordered the company to "Evaluate the need and options for mitigation to comply with current and pending EPA rules based on currently available assessments of the rule requirements and costs of mitigation measures including ranges of uncertainty for capital costs for large retrofits." If the company's report in the annual update includes, in the evaluation ordered by the Commission, a reasonably detailed description of responsibilities within the company for ongoing monitoring of potential changes in environmental requirements, MDNR would view this as a satisfactory resolution of its concern.

DEFICIENCY RELATED TO IDENTIFICATIO OF PLANNING OBJECTIVES

Q. Do you have any comments on Ameren's response to MDNR Deficiency #4?

A. Yes, I do. MDNR stated that when identifying planning objectives, the company provided two- to four-word phrases that are insufficient to serve as planning objectives because the company failed to provide a statement of the outcome that the company desires with respect to these categories. The company responded that "the objectives in concert with the measures selected to represent them are self-explanatory." (Ameren Response, p. 90) MDNR disagrees that the objectives are self-explanatory and I will explain why they are insufficient planning objectives.

Creating an actual statement of what is desired, rather than simply providing a category is be of value to both the planner (particularly if the planner is an organization) and external parties. The exercise of putting what is desired can clarify the planner's understanding of what is desired. Even if the meaning of the combination of a category and performance measure is self-evident to the individual formulated the plan, it will not necessarily be interpreted in the same way by other members for the planner's organization or by external parties. To provide a simple example, if Farmer Jones writes "trees" as his objective and "number of trees" as his performance measure, Farmer Jones may know that what he wants is fewer trees in his fields and more trees around his house, but his partners or his banker may not know that.

Performance measures are too risky to be relied upon to give objectives meaning. Objectives that define desired outcome should establish the context for screening and selecting performance measures that are linked to the desired outcomes. In the context of planning for an organization, if an objective is vague, there is a risk that performance measures will usurp its role and begin to drive organizational planning or activity.

Q. Did the company respond to your request for a supplemental filing with more specific planning objectives?

A. Yes, they responded that "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." (Ameren Response, p. 91)

Q. How do you respond to that?

A. Several months ago, MDNR proposed that the company clarify its planning objectives through a supplemental filing. The company's planning objectives should be clarified in a venue that is accessible to and clearly communicates the objectives to the Commission and stakeholders. Depending on the Commission's resolution of issues in this case, a supplemental filing may be the best venue in which this occurs but is not necessarily the only acceptable venue for this to occur.

The company's statement implies that the clear statement of an objective is not productive unless the statement provides numeric targets. In MDNR's view, the statement of an objective is not intended to provide numeric targets; rather; it is intended to provide the context for defining relevant numeric targets. In general, objectives are likely to outlive numeric targets and one objective may serve as the basis for setting a series of numeric targets.

The company's statement also implies that the clarification of objectives would not be productive because it would not change the outcome of the IRP. This is based on a narrow understanding of the role of objectives in the planning process. In MDNR's view, the role of planning objectives is to drive the ongoing planning process and this role does not begin and end with the initiation or conclusion of any specific regulatory process or docket.

The response of the company to a data request indicates that the company shares this view: "Ameren Missouri intends to continue to rely on policy/planning objectives to guide its resource planning efforts. While the policy objectives and measures used to evaluate the performance of plans in satisfying them may evolve, the objectives themselves are likely to remain largely unchanged from those presented in the IRP." (Schedule JN-9, MDNR Data Request 198)

Q. Does this conclude your testimony?

A. Yes it does.

Ameren Missouri
Response to MDNR 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.: DNR 0187– Sarah Mangelsdorf

The company's response states that its filing demonstrates compliance with the requirements of 010(2) (C) to "explicitly identify…any other considerations…that may constrain" selection of the least cost alternative plan." The company states that its selection of a preferred plan other than the low-cost plan was necessary "to avoid significantly impairing the ability of investors to have a reasonable opportunity to earn a fair return." A. Please identify any statements in the company's filing that explicitly state the decision criteria for determining whether a specific plan would result in "significantly impairing the ability of investors to have a reasonable opportunity to earn a fair return." B. If this explicit statement of decision criteria does not appear in the filing, please identify explicitly the company's decision criteria for determining whether a specific plan would result in "significantly impairing the ability of investors to have a reasonable opportunity to earn a fair return." C. Please explain how the explicitly identified decision criteria referenced above were applied to determine that the utility was constrained from adopting the RAP plan as its preferred plan but was not constrained from adopting the low-risk DSM plan as its preferred plan.

RESPONSE

Prepared By: Matt Michels
Title: Managing Supervisor Resource Planning
Date: October 17, 2011

No numeric threshold was pre-determined for establishing what constitutes a significant impairment to investor opportunities for fair returns. Even the low risk plan was found to result in lost revenue that significantly affects investor returns. However, the financial impact of the low risk plan was less than that for the plans with RAP DSM and was therefore selected.

Ameren Missouri
Response to MDNR 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.: DNR 0188– Sarah Mangelsdorf

On page 22, the company comments on a statement by a company representative, Matt Michaels, at the September 14 meeting of the stakeholder process that was established by the Stipulation and Agreement reached in response to the company's previous compliance filing. The company comments that in this statement, "Ameren Missouri provided an indication of the kind of analysis that it expected to perform." The statement is excerpted below. Please provide the following information with respect to this statement. A. At the time this statement was made, did the company believe that it was possible to perform the analysis described in the statement. B. Does the company now believe that it is possible to perform the analysis described in the statement? If not, please explain the company's reasons for believing that it is not possible to perform the analysis described in the statement. "…this is essentially the same kind of analysis where we're looking at different measures for portfolios under different cost recovery mechanisms and… what kinds of cost recovery mechanics would allow us to -- what levels in demand-side resources…the analysis will cover…the same three aspects of it that we had in all of our prior discussions. You got program cost recovery and then how you insure recovery of fixed cost and then whether or not and to what degree there are any incentives… And then incentives will -- we can kind of build around the cost recovery and fixed cost recovery – or program cost recovery and fixed cost recovery pieces to build in some incentives, whether that's ROE kickers or extra bump to share net benefit or whatever that might be. But the idea here is that, again, we'll look at our potential portfolios under different cost recovery mechanisms and be able to determine what kind of cost recovery does it take in order to enable achievement of different levels of demand-side savings." (September 14 stakeholder meeting transcript p. 239.)

RESPONSE

Prepared By: Matt Michels
Title: Managing Supervisor Resource Planning
Date: October 14, 2011

Ameren Missouri believed it was possible then, and while Ameren Missouri still believes that this analysis is possible, we have a greater appreciation for the challenges of trying to define a sliding scale of cost recovery for varying levels of energy savings. For example, recovery of lost revenue has been determined to be critical in pursuing any significant level of energy savings. The restrictions placed on lost revenue recovery by the Commission's MEEIA rules, which were under development at the time Ameren Missouri was preparing its IRP, make cost recovery design more challenging. As such, Ameren Missouri believes the best forum for addressing DSM cost recovery is through a MEEIA filing.

Ameren Missouri
Response to MDNR 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.: DNR 0193– Sarah Mangelsdorf

The discussion of coal price forecasts in Chapter 2 Section 2.5.6 states that the company developed delivered coal price forecasts for each year in the planning horizon for each of the ten planning scenarios. Please provide the following information related to these forecasts. A. Please provide the company’s forecasts of delivered coal price for each year for each of the ten planning scenarios or indicate where they are located in materials already provided to MDNR. B. Did the company receive forecasts of delivered coal price from CRA? If so please indicate why the company chose to develop its own forecasts of delivered coal price.

RESPONSE

Prepared By: S. Hande Berk
Title: Sr. Corporate Planning Specialist
Date: 10/17/2011

Coal prices at the mine for all ten planning scenarios and coal delivery costs are provided in the workpapers:
SHB\Midas\Fuel - Coal.xlsm

Ameren Missouri did not receive forecasts of delivered coal price from CRA. CRA provided minemouth coal prices, and Ameren Missouri’s Fossil Fuels group provided delivery prices. In the Midas model, minemouth prices and delivery prices are added together to form the delivered coal prices.

Ameren Missouri
Response to MDNR 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.: DNR 0194– Sarah Mangelsdorf

The discussion of coal price forecasts in Chapter 2 Section 2.5.6 states that CRA provided a forecast of coal minemouth price for each year for each of the ten planning scenarios. Please provide the following information related to these forecasts. A. Please provide CRA's forecasts of coal minemouth price for each year for each of the ten planning scenarios or indicate where they are located in materials already provided to MDNR. B. For a given year and scenario, did CRA provide a single-point forecast of coal minemouth price or a probability distribution of coal minemouth price. C. If probability distributions were provided, please indicate how many price data points were included in each probability distribution, for example "continuous" or "high-mid-low." D. Please identify the critical uncertain factors that drove the coal minemouth price forecasts that CRA provided to the company. If CRA provided these as probability distributions, please identify both the critical uncertain factors that drove the forecast of the price data points included in the probability distribution and the forecast of the probabilities associated with these data points.

<u>RESPONSE</u>

Prepared By: Matt Michels
Title: Managing Supervisor Resource Planning
Date: October 17, 2011

A. Coal minemouth prices for all ten planning scenarios are provided in the workpapers: SHB\Midas\Fuel - Coal.xlsm

B. CRA provided a single-point forecast for each scenario.

C. N/A

D. The CRA model dynamically accounts for drivers of demand, including those variables on which the various model scenarios were based – electric demand, gas prices, and environmental policy. Prices are then determined by the model-generated demand and the fixed supply curves included in the model.

Ameren Missouri
Response to MDNR 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.: DNR 0195– Sarah Mangelsdorf

The description of CRA's NEEM model in Chapter 2 indicates that the model assumes the absence of several barriers that might impede or prevent coal units in the U.S. from accessing and acquiring fuel supply based on the fuel strategy that minimizes the generating unit's NPV fuel supply cost. The description specifically mentions NEEM modeling assumptions with respect to information barriers , transportation infrastructure barriers and market barriers. A. Please identify any other potential barriers or factors that might impede real-world realization of the model's theoretical equilibrium solution for power plant fuel acquisition and that are "assumed away" by the NEEM model. B. Please indicate whether the company or CRA have discussed or analyzed uncertainty with respect to the coal minemouth price forecasts and data provided by CRA, whether the uncertain is due to the modeling assumptions discussed above or due to any other factor. C. Please provide any written materials or estimates produced by the company, CRA or other consultant with respect to uncertainty in the coal minemouth price forecasts and data provided by CRA. D. If the company has had internal discussions, discussions with CRA or discussion with other consultant concerning uncertainty in the coal minemouth price forecasts and data provided by CRA that did not result in written materials or estimates, please identify the parties to the discussion and the specific information that was considered and provide a general description of topics discussed and conclusions reached.

RESPONSE

Prepared By: Matt Michels
Title: Managing Supervisor Resource Planning
Date: October 17, 2011

A. No other potential barriers were identified.

B. No such discussions were held.

C. No such materials or estimates have been produced.

D. N/A

Ameren Missouri
Response to MDNR 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.: DNR 0196– Sarah Mangelsdorf

The discussion of coal price forecasts in Chapter 2 Section 2.5.6 states that Norwest provided annual forecasts and other data for “production capabilities and minemouth prices per ton of coal production.” The following questions relate to the forecasts and data that Norwest provided and the modeling that served as the basis for the data that Norwest provided. A. Please provide a description of the specific data that Norwest provided to CRA for mines in the PRB Northern Wyoming region and the PRB Southern Wyoming region. For each type of data that Norwest provided, this identification should include a data identifier, data description and unit of measure and an indication whether the data was provided at an individual mine level or some other level of aggregation. If Norwest provided any of this data as probability distributions, please provide information about the number of data points in the distribution and the probability is assigned to data points. B. Please indicate whether the company, CRA or Norwest have discussed or analyzed uncertainty with respect to the forecasts and data provided by Norwest to CRA. Please provide any written materials or estimates produced by the company, CRA or Norwest concerning uncertainty with respect to the forecasts and data provided by Norwest to CRA. If there have been discussions of this topic that did not result in any written materials or estimates, please indicate the specific data that was considered and provide a general description of the topics discussed. C. Please indicate whether the company, CRA or Norwest have discussed or analyzed uncertainty with respect to the forecasts and data provided by Norwest to CRA. D. Please provide any written materials or estimates produced by the company, CRA or Norwest with respect to uncertainty in the forecasts and data provided by CRA. E. If the company has had internal discussions, discussions with CRA or discussion with Norwest concerning uncertainty in the forecasts and data provided by CRA that did not result in written materials or estimates, please indicate the parties to the discussion, the specific information that was considered and provide a general description of topics discussed and conclusions reached.

RESPONSE

Prepared By: Matt Michels
Title: Managing Supervisor Resource Planning
Date: October 17, 2011

A. See October 7, 2011, Objections

B. No such discussions were held

C. No such discussions were held and no such analysis has been performed.

D. No such materials or estimates have been produced.

E. N/A

No. MDNR Ameren Missouri 197

Data Information Request
From Missouri Department of Natural Resources (MDNR)
PSC Case No. EO-2011-0271

Requested From: Ameren Missouri

Requested by: MDNR

Date of Request: September 30, 2011

Information Requested:
The discussion of coal price forecasts in Chapter 2 Section 2.5.6 states that models for each U.S. coal mine that were developed by Norwest provide the basis for forecasts and data that Norwest provided to CRA. Please provide the following information with respect to Norwest's models for mines located in the PRB Northern Wyoming region and the PRB Southern Wyoming region.

A. Please identify the specific definition of "recoverable coal resources" on which the Norwest models and analysis is based
B. Does Norwest model any recovery of recoverable coal resources within these two regions through underground mining? If so, when would this occur?
C. Please identify the critical uncertain factors that drive Norwest's modeling, analysis and forecast of the production capability and minemouth coal price for PRB Northern Wyoming coal mines and PRB Southern Wyoming coal mines.
D. Please provide the following information concerning characteristics and assumptions of the Norwest models for PRB Northern Wyoming coal mines and PRB Southern Wyoming coal mines:
    1. Do these models incorporate a mine-specific distribution of overburden levels? If so what data sources or models are relied on to determine this distribution?
    2. Do these models incorporate a mine-specific distribution of the mine's total recoverable reserves relative to the distribution of overburden levels? If so what data sources or models are used to determine this distribution?
    3. Do these models make any assumptions concerning technical or economic barriers or lags in surface mining extraction technology as overburden levels increase?
    4. How does Norwest model the cost of advanced extraction technology?
    5. Do these models make any assumptions concerning technical or economic limit to the depth of overburden that can be removed through surface mining?

Response:

Response Provided By: __________________________ **Date:** ___________________

October 7, 2011

Sarah Mangelsdorf
Missouri Department of Natural Resources
P.O. Box 899
207 West High St.
Jefferson City, MO 65102

RE: Case No. EO-2011-0271

Dear Sarah:

This letter is to provide Ameren Missouri's objections to data requests 180, 192, 196 and 197.

Ameren Missouri objects to data request 180 because it is overly broad and burdensome in that it seeks information on a voluminous number of projects. However, Ameren Missouri has discussed this matter with Bruce Walter (at Adam Bickford's suggestion) and worked out a resolution which is satisfactory to both parties. Ameren Missouri will provide the top 20 projects for the 10-year period (2006-2015) for inclusion of cost-benefit analyses along with the list of all projects over $500,000.

Ameren Missouri objects to 192, 196 and 197 because they each seek information which is proprietary and/or confidential to the consultant firm which performed the work which is the subject of the requests. If there is responsive information which is not proprietary or confidential to the consultant, Ameren Missouri will provide that information.

Sincerely,

Wendy K. Tatro

Wendy K. Tatro

Ameren Missouri
Response to MDNR 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.: DNR 0198 – Sarah Mangelsdorf

Data Request re: p. 91 The company refers to its ongoing resource planning process on page 5 of the Ameren Response. Does Ameren intend to rely on policy (planning) objectives to guide its ongoing planning process? Are the policy (planning) objectives that Ameren identified in its filing still the policy (planning) objectives that guide Ameren's ongoing resource planning.

RESPONSE

Prepared By: Matt Michels
Title: Managing Supervisor Resource Planning
Date: October 17, 2011

Ameren Missouri intends to continue to rely on policy/planning objectives to guide its resource planning efforts. While the policy objectives and measures used to evaluate the performance of plans in satisfying them may evolve, the objectives themselves are likely to remain largely unchanged from those presented in the IRP.

Ameren Missouri
Response to MDNR 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.: DNR 0200 – Sarah Mangelsdorf

Data Request re: p 110. The company states that "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. " Please provide an officially adopted statement in which Missouri management states that the views expressed regarding plan selection are those of senior management, whether based on analyst suggestions or not, or indicate where this statement is located in the filing.

RESPONSE

Prepared By: Matt Michels
Title: Managing Supervisor Resource Planning
Date: October 17, 2011

No such statement has been prepared.