

BEFORE THE PUBLIC SERVICE COMMISSION  
OF THE STATE OF MISSOURI

In the Matter of Ameren Missouri's )  
2010 Filing Pursuant to )  
4 CSR 240 - Chapter 22 )

Case No EO-2011-0271

Filed  
January 6, 2012  
Data Center  
Missouri Public  
Service Commission

MISSOURI DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF ENERGY COMMENTS IN RESPONSE TO  
AMEREN MISSOURI'S  
INTEGRATED RESOURCE PLAN FILING

Filed June 23, 2011

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The Missouri Department of Natural Resources (MDNR), acting as an intervenor in Case No. EO-2011-0271, submits the attached comments on Ameren Missouri's Integrated Resource Planning (IRP) compliance filing dated February 23, 2011. Ameren Missouri's filing was submitted pursuant to requirements of 4 CSR 240-22.

MDNR submits these comments pursuant to 4 CSR 240-22.080(6) and (8), which provide that: "...within one hundred twenty (120) days after an electric utility's compliance filing... any intervenor may file a report or comments based on a limited review that identify any deficiencies in the electric utility's compliance with the provisions of this chapter, any deficiencies in the methodologies or analyses required to be performed by this chapter, and any other deficiencies which...the intervenor believes would cause the utility's resource acquisition strategy to fail to meet the requirements identified in 4 CSR 240-22.010(2)(A)-(C)... [The parties] shall work with the electric utility...to reach, within forty-five (45) days of the date that the report or comments were submitted, a joint agreement on a plan to remedy the identified deficiencies."

In MDNR's view, the process established by 4 CSR 240-22.080(6) - (8) should provide an opportunity for comprehensive review of the utility's resource planning process and resource acquisition strategy.

MDNR prepared these comments with the assistance of the consulting firm GDS Associates, Inc. (GDS). GDS provided a report on Ameren Missouri's IRP filing which focuses on issues related to Ameren Missouri's Load Analysis & Forecasting, Thermal Resources, Renewable & Storage Resources, Demand Side Resources, and Risk Analysis & Strategy Selection analysis. The consultant's report is being filed simultaneously with MDNR's report and is referenced herein as the "GDS report."

The compliance filing materials submitted by Ameren Missouri ("the company") on February 23 consist of ten chapters and numerous appendices. MDNR's comments focus on deficiencies and concerns with respect to Ameren Missouri's risk analysis and plan selection presented in Chapters 9 and 10. MDNR raises some concerns about the design of Ameren's DSM Market Potential Study completed in 2010.

Issues that MDNR classifies as "concerns" are not necessarily less significant than issues that MDNR classifies as "deficiencies." MDNR classified issues as "deficiencies" or "concerns" primarily on the basis of how explicitly the issues are tied to specific provisions of the Chapter 22 rules. In particular, MDNR classified several issues as "concerns" because they relate to terms introduced by the company that do not appear in Chapter 22 but bear a close conceptual relationship to terms that do appear in Chapter 22.

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In addition to these compliance filing documents, MDNR reviewed the following sources of information when preparing these comments:

- The primary narrative volumes and appendices included in Ameren Missouri's February 23, 2011 Integrated Resource Plan (IRP) filing, referenced by the Chapter or Appendix numbers assigned by Ameren Missouri;
- Accompanying work papers distributed to MDNR by Ameren Missouri as part of its February 23 IRP filing, referenced by the file name assigned by Ameren Missouri;
- Ameren Missouri responses to MDNR data requests, referenced by data request number
- Waivers granted in Case EO-2011-0271, referenced by the relevant section of 4 CSR 240-22.040 and a note this is approved waiver language;
- Joint Filing and Partial Stipulation and Agreement in Case EO-2007-0409, referenced by case number and relevant section of 4 CSR 240-22.040.

MDNR staff also participated in post-filing stakeholder information meetings that Ameren Missouri presented on April 4-5. Subject matter experts from GDS participated in portions of these meetings. MDNR wishes to emphasize that while its comments have been informed by these meetings as well as participation in previous Ameren Missouri collaborative processes, they are based on the contents of the documents actually filed in Case No. EO-2011-0271 and other documents listed in the previous paragraph.

In these comments, citation of sources is provided as follows:

- The main volumes that were included in Ameren Missouri's September 3, 2010 compliance filing are cited by volume number, for example, "Chapter 1, Page 1."
- The appendices that were included in Ameren Missouri's September 3, 2010 compliance filing are cited by the Appendix number designated by Ameren Missouri, for example, "Appendix 1A, Page 1."
- Responses to data requests (DRs) are cited based on the party originating the request and a number based on the order in which the party submitted requests, for example, "MDNR DR #1, Page 1."
- Waivers granted in Case EE-2010-0243 are cited by the rule number waived.
- Transcripts of meetings that occurred during the Stakeholder Process established by the Partial Stipulation and Agreement in Case EO-2007-0409 are cited by meeting date, transcript page number and in some cases line number.
- The reports prepared by MDNR's consultant are cited as the GDS Report by page and section name; or alternatively, where GDS enumerated deficiencies, by page and deficiency number.
- Citations of other sources are based on commonly-accepted practice.

In its June 30, 2010 Order Regarding Application for Waivers, the Commission found that there is "greater than zero probability" of new tritium regulation within the planning horizon and ordered the Company to comply with its earlier agreement in Case EO-2007-0409 to assess possible future tritium regulation in the current compliance filing. The company reviews possible new tritium regulation in Chapter 8, Section 8.6.3. MDNR has reviewed the company's analysis and believes that it satisfies the requirements of the Commission Order.

MDNR proposes remedies for each of the deficiencies or concerns listed in this report. The proposed remedies are offered for consideration by the parties during the 45-day review period provided by 4 CSR 240-22.080(8). The remedies proposed by MDNR fall into the following general categories shown in the table below. Remedies are provided as a starting point for reaching agreement among parties. Although the MDNR is not proposing a specific stakeholder process at this time, several of MDNR's proposed remedies refer to consultation with stakeholders on the assumption that stakeholder meetings will occur in the context of the revised Chapter 22 rules under which Ameren Missouri will submit its next regular integrated resource plan filing.

Remedy	Type of issue addressed	Time Frame	Milestones
Supplemental filing	Information or analysis not reported in filing that company can readily supply now	Before or at the time the Stipulation & Agreement (Stip) is signed	Company files the "supplemental" documents in the current docket  MDNR reserves the right to raise additional questions or concerns based on the results of the supplemental filing.
Revised filing	Significant deficiencies that must be addressed in the near term to provide a credible resource plan	To be filed on date specified in Stip - typically 5 to 10 months after date of Stip, depending on how extensive a revision is required	Company files a revised analysis and resource plan based on timetable and parameters established in a stipulation.
Next filing	Concerns or deficiencies that utility can readily address without a period of stakeholder input or review of progress	September 2013 unless an alternative date is set by Stip or by rule revision	Next regular filing should reflect the company's attentions to the issues identified

MDNR's review of deficiencies and concerns identified eleven deficiencies and seven concerns in the resource plan filed by Ameren Missouri ("the company"). Most relate to the definition and use of "decision factors" developed by the company. "Decision factors" play a key role in the justification that the company offers for its selection of a preferred plan that does not minimize the net present value of revenue requirement (NVPRR), as specified in the rules.

Additional concerns and deficiencies are presented in the accompanying analysis report by GDS Associates. GDS Associates provided MDNR technical assistance on this review. GDS has identified twelve deficiencies in their areas of review, primarily load forecast and demand and supply side screening. Parties should refer to both MDNR's and GDS' analyses of Ameren Missouri's filing to understand MDNR's concerns.

### **Overview of key deficiencies and concerns**

The company's filing introduces the concept of a "decision factor," which does not appear in the Chapter 22 rules or the waivers granted by the Commission in this case. The three decision factors identified in the filing ("DSM Cost Recovery", "Plant Financing" and "Retirement/Environmental") play a key role in the company's development of its resource acquisition strategy. Specifically,

- The company relies on its "demand-side resource cost recovery and financing" decision factor (DSM cost recovery factor) to justify rejection of the low-cost resource plan based on realistic achievable potential (the RAP plan); and

- The company relies on all three factors to provide the core of its contingency planning.

MDNR does not object in principle to introduction of new analytic concepts in the planning process provided that the company defines the new concept clearly, analyzes it with a rigor equivalent to that required by the rule and otherwise complies with all rule requirements.

However, the company's application of the "decision factor" concept does not meet these conditions. The company's definition of "decision factors" is muddled. Its approach to identifying and specifying decision factors does not meet standards of rigor and transparency set by the rule for critical uncertain factors and required for effective analysis. Finally, the filing does not deliver the contingency analysis for the DSM cost recovery factor that the company promised to stakeholders and that is required to justify the company's rejection of the low-cost plan.

The effect of these deficiencies, if not remedied, is to circumvent core rule requirements for risk analysis and strategy selection. MDNR is proposing revisions and supplemental filings intended to remedy these issues.

The balance of this report describes deficiencies and concerns identified by MDNR in the company's decision process, its contingency analysis, and its use of "decision factors" in more detail. The comments conclude with two concerns related to the design and conduct of the company's DSM Market Potential Study.

## **Decision factors**

### **Background**

The company's filing introduces the concept of "decision factors" and identifies three factors that fall into this category: demand-side resource cost recovery and financing, large plant investment financing, and environmental regulation and retirement. According to the company, decision factors are "critical" factors by definition.<sup>1</sup>

The Chapter 22 rules do not mention decision factors and rely primarily on the analysis of critical uncertain factors for contingency planning. The utility is required to identify the critical uncertain factors, analyze the possible effect of changes in the values or outcomes of the critical uncertain factors that would trigger a move away from the preferred plan and identify contingency options that would be triggered by the change in values or outcomes. The relevant Chapter 22 provisions are in 4 CSR 240-22.070(10)(D).

The following interchange from the May 2010 stakeholder meeting illustrates the significant role that the company assigns to decision factors in contingency planning and the company's selection of a preferred resource plan. The example provided is for one of the decision factors but applies equally to the other two decision factors identified by the company.

*[OPC] So, for example ... prior to looking at decision factors you want to build a nuclear plant. And that's our preferred plan... That comes out on top. And somehow, though, you look at it and you say...we're going to apply a decision factor and say, okay, while this would have been our preferred plan we're really going to select this other plan because that plan would require some extraordinary rate making treatment in order to get the credit metrics to where we'd be comfortable with actually moving forward with the plan.*

*[Ameren Missouri] That could be an example. And I think you would then take it a step toward and say potentially as a contingency if you had this extraordinary rate mechanism, you know, maybe this would be the preferred plan. But since we don't, maybe this is where we need to be now. Right? So I think -- I think how you phrased it is more or less accurate. (May 25, 2010 stakeholder meeting, p. 255).*

As this interchange suggests, the concept of "decision factors" plays a major role in the company's decision process and contingency planning. For example, as discussed in MDNR Deficiency #5, both demand-side resource cost recovery and financing and large plant investment financing are treated as constraints that limit the company's selection of low cost plans as the preferred plan. The three decision factors also account for most of the contingency options identified in the filing.

The decision factors introduced in the company's filing are complex and multifaceted. Demand-side resource cost recovery and financing incorporates future regulatory provisions for variable cost recovery, lost revenue recovery and incentives for DSM investment. Large plant investment planning includes future regulatory provisions for all large power plants, not limited to nuclear and includes Credit Metric Regulation ("CMR") as well as CWIP. Environmental regulation and

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<sup>1</sup> Stakeholder transcript, 9/14/10, p. 70

plant retirement includes *"the possible environmental requirements ...that would impact our existing fleet and under which conditions would it be better to retire a plant than to put the new controls on"* (September 14, 2010 stakeholder meeting, p. 225-226).

### **MDNR Concern #1: Definition of "decision factors"**

The definition of "decision factor" that the company states in the filing has evolved from earlier company statements and still is not sufficiently refined to apply to some real world planning situations.

#### **Discussion**

Decision factors, like uncertain factors, are factors that could affect the outcome of planning and for which information is incomplete at the time of planning. The distinguishing characteristic of decision factors, as defined in the company's filing, is that decision factors are "those conditions under which a decision must be made based on adequate and complete information at the time of a decision," whereas uncertain factors are defined in the Chapter 22 rules as factors "for which the information is incomplete at the time a decision must be made." (Chapter 10: 1)

In MDNR's view, the definition provided in the filing is the product of an evolutionary process and is subject to future revision. To be of practical use, the concept of decision factors requires a definition that is more nuanced than that provided in the filing.

The company offered various explanations of how decision factors can be identified and distinguished from critical uncertain factors. In some cases, explanations offered during these meetings are not consistent with that offered in the filing.

Moreover, the conceptual distinction between decision factors and uncertain factors that is offered in the filing may appear tidy in theory but can break down in practice.

It is true that some factors are easy to classify. For example cooling degree days or the price of goods and services are clearly uncertain factors because they are subject to constant change. Other factors, for example, regulations that are likely to be stable and for which compliance can be postponed until the regulations are in place are easy to classify as decision factors.

While the meaning of "complete information" is clear with respect to a simple event such as a coin toss, it is muddier with respect to complex and multifaceted conditions such as the three decision factors introduced in this filing. Taken literally, the definition that is provided in the filing would require certainty that complete information will eventually be available for every facet of the decision factor and that the decision will not need to be made until all information is available. For a complex and multifaceted factor, that is not a realistic criterion.

Moreover, the decision whether to classify a factor as an "uncertain factor" or "decision factor" may itself be subject to significant uncertainty at the time of planning – specifically, uncertainty concerning when a decision will need to be made and must be made and/or whether it can be postponed until all necessary information has become available. These uncertainties apply to decision factors brought forth in this filing. For example, the company may anticipate that its decision can be postponed until information on regulations is complete, but find itself forced to



make a decision whether to comply with a new regulation before information on other future regulations becomes available. The company may determine that abandoning demand-side efforts until future cost recovery provisions are certain is likely to significantly degrade future customer response to DSM programs even if a satisfactory cost recovery mechanism is put in place at a later date.

#### Proposed remedy

In a supplemental filing, the company should discuss the issues raised in this comment and further refine its definition of decision factors to account for these issues. Further efforts to refine the concept's utility should continue in a stakeholder process.

#### **MDNR Deficiency #1: Identification and selection of decision factors**

The process for identifying decision factors should (a) provide for clear and full specification of candidate decision factor; (b) compare in rigor to the selection process required for critical uncertain factors; and (c) provide a method for clearly distinguishing decision factors from uncertain factors.

The company does not demonstrate that it developed and used a selection process that meets these standards. MDNR is concerned that the company has not provided a clear explanation of its process for determining decision factors to be used in the filing. In particular,

- 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
- The filing does not demonstrate that the company followed a systematic process for determining which candidate decision factors should be treated as decision factors for this filing, comparable to the process for identifying which uncertain factors were critical uncertain factors.

#### Discussion

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 expressed its concern during the stakeholder meetings. For example, the following dialogue took place in the September 14 stakeholder meeting.

*[MDNR]: There are all sorts of rule requirements about what you do when you work with uncertain factors and there are no such requirements when you work with decision factors.*

*[Ameren Missouri]: The only thing I would say to think about when you're on the decision factors is that, of course, those are the decision factors that management wants to use.*

*[MDNR]: Unless they fit within the definition of uncertain factors, in which case you would expect that they would've analyzed the uncertain factors.(244)*

The company offered various explanations during the stakeholder process concerning how the decision factors were identified and distinguished from critical uncertain factors. In some cases, the explanations offered during these meetings do not appear consistent with the definition offered in the filing. For example:

*“The distinction really is driven by a couple of things. One is the degree of influence that we can have on whatever factor it is we're considering... If you look at federal policy and things like that, of course, you know, as much as we might hate to admit it, our influence in those forums is much diluted compared to the influence that we have within the state, and so we kind of have to make a guess about what's going to happen with those. And generally those are things that don't really relate directly to a particular resource or type of resource, but rather are broader based, so we tend to look at those things as uncertain factors, like climate policy, for instance, and the things where, you know, we have something that's available to us or potentially available to us at the state level, we look at those more as decision criteria. So really it's sort of an on or off situation with those kinds.”* April 16, 2010 transcript, pp 58-59.

MDNR comment: The filing identifies future federal environmental regulations as a decision factor.

Although Ameren Missouri staff occasionally suggested that decision factors lead to a simple yes/no decision, the decision factors identified in the filing cannot be described as “an on or off situation.” Ameren Missouri staff stated at the September 14, 2010 stakeholder meeting that “Meramec retirement has potentially more than one or two outcomes.” (p. 237). The same is true for outcomes related to the other two decision factors identified in the filing.

*“Uncertain factors are around things like commodity prices, load growth. I mean, it's a numerical continuum, things like what kind of cost recovery structure is there going to be? You can't really put a chart up that has a continuum of what that could be.* September 14, 2010 transcript, p. 227.

MDNR comment: this characterization of uncertain factors does not fit some of the uncertain factors that the utility is required to analyze by the Chapter 22 rules.

MDNR is also concerned that although Chapter 10 provides extensive discussion of the three decision factors, the decision factors are not explicitly and unambiguously defined. MDNR finds it difficult to identify a single, clear working definition for each of the three decision factors or the contingency plans associated with them. A working definition would specify the primary measures or categories by which the company would judge decision factor outcomes and the resource acquisition actions that the company would consider in response to these outcomes.

### Proposed remedy

In a supplemental filing, the company should unambiguously set forth its proposed criteria for identifying factors as candidate decision factors rather than candidate uncertain factors and for determining which decision factors are to be treated as critical in the company's filing. In the supplemental filing, the company should describe the process it used to identify decision factors in its 2011 filing and present plans for incorporating the new selection criteria.

In the supplemental filing, the company should state a working definition for each of the three decision factors that it identified in its 2011 filing that is sufficient to serve as the basis for a contingency analysis and other quantitative analysis.

**MDNR Deficiency #2: Failure to perform contingency analysis for DSM cost recovery decision factor**

The company agreed to perform a contingency analysis for the DSM cost recovery decision factor during the September 14 stakeholder meeting. Furthermore, given that the company treated this decision factor as a constraint on the least-cost plan, such analysis is required by 4 CSR 240-22.010(2) (C). The company does not present the contingency analysis in the filing or demonstrate that it was performed.

Rule citations:

4 CSR 240-22.010(2)(C)

Discussion

The company's filing should have provided, but failed to provide the following:

- Identification of several different cost recovery mechanisms that would be acceptable to the company, with sufficient specificity to provide the basis for a quantitative analysis
- A quantitative contingency analysis that determined "what kind of cost recovery does it take in order to enable achievement of different levels of demand-side savings."  
(September 14, 2010 stakeholder transcript)

In stakeholder meetings, the company promised to provide these items for all three decision factors and in particular for the DSM cost recovery factor. For example,

- At the May 25, 2010 stakeholder meeting, the company responded to a stakeholder question concerning analysis of decision factors: The stakeholder asked whether the company would complete and present "*analysis that will say, if the financing goes this way, then we can do this. If it goes another way ... we can do this. So you're going to have contingency analyses that might be done actually before you do the rest of the plan?*" In response, Ameren Missouri staff stated "*Yeah. I mean all of those things would be done before we got down to selecting what the preferred plan is.*" Stakeholder transcript, May 25, 2010, p. 254.
- At the September 14 meeting, in a presentation covering all three decision factors, the company promised to provide "*...modeling analysis that will try to provide us with information on both how the uncertain factors and decision factors will influence our decision.*" (Stakeholder transcript pp. 68, 254)
- In a more detailed discussion of how the company proposed to address the three decision factors, company staff stated with respect to the DSM cost recovery factor decision factor that "*...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."* Stakeholder transcript September 14, 2010, p. 239.<sup>2</sup>

Furthermore, as discussed in MDNR Deficiency #5, the company treats this decision factor as a constraint that limits its selection of the least cost resource plan as its preferred plan. Therefore, a contingency analysis such as that which the company promised in stakeholder meetings is further required by the provisions of 4 CSR 240-22.010(2)(C).

#### Proposed remedy

In a supplemental filing, the company should present a contingency analysis for the DSM cost recovery decision factor as described to stakeholders in the September 14, 2010 stakeholder meeting.

Furthermore, in this supplemental filing, the company should state whether it considers its analysis of the DSM cost recovery decision factor to constitute a constraint on selection of the least cost alternative resource plan and if so, should demonstrate that the contingency analysis in the supplemental filing is sufficient to meeting the requirements of 4 CSR 240-22.010(2)(C).

#### **MDNR Concern #2: Circumvention of Chapter 22 requirements for analyzing critical uncertain factors**

Several of the deficiencies discussed in this and subsequent sections of MDNR's comments suggest that the company has applied less rigorous standards to its identification and analysis of decision factors than would have been required under Chapter 22 if these factors had been identified and analyzed as critical uncertain factors. It appears that one effect of the company's introduction of and reliance on decision factors is to circumvent the rigor that the rule requires when analyzing risk related to critical uncertain factors.

#### Discussion

The concept of decision factors is not based in the Chapter 22 rules or previous Commission decisions. The term appears nowhere in the Chapter 22 rules or in any Commission-approved waivers or agreements that pertain to this filing. Nor has the term appeared in previous integrated resource planning cases filed by the company or other regulated utilities.

No definitions for "decision factors" or provisions related to "decision factors" appear in the Chapter 22 rules or any Commission-approved waivers or agreements. The role assigned to "decision factors" in the company's filing closely parallels the role assigned to critical uncertain factors in the Chapter 22 rules. Both concepts refer to factors whose future outcome is unknown at the time of the planning analysis. In the company's previous planning case, stakeholders

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<sup>2</sup> "Fixed cost recovery" is identified as "lost revenue recovery" on page 240 of these same transcripts.

proposed that the regulatory treatment of large plant financing should be identified and treated as a critical uncertain factor in the company's contingency planning. Furthermore, the rule explicitly provides that "future changes in environmental laws, regulations or standards" are to be analyzed as an uncertain factor and should be subjected to sensitivity analysis to determine whether it is a critical uncertain factor (4CSR 240-22.070(2)(C)).

The company introduced the concept of "decision factors" at the March 25, 2010 stakeholder meeting. In this and subsequent stakeholder meetings, MDNR and other stakeholders expressed concern with respect to substituting the concept of "decision factors" for the Chapter 22 concept of "critical uncertain factors" particularly with respect to the analytic requirements that apply to each. These stakeholder comments are documented in the stakeholder meeting transcripts as listed below.

1. April 16 2010 - pp. 52-64, pp. 69-70
2. September 14, 2010 – p. 230, 244.

As one stakeholder put it, "it seems like you are moving some of your uncertain factors to another category and then doing some analysis that's different than the analysis prescribed by the rule." (OPC, Stakeholder Transcript, September 14, 2010, p. 230).

The company's filing does not acknowledge or address this issue and does not identify the ground rules it is following for identifying and analyzing decision factors. As discussed in Deficiency #9, the company stated in stakeholder meetings that decision factors are by definition critical but provides no explanation of how it screened potential decision factors to determine which were critical to its planning and therefore should be treated as decision factors. As discussed in Deficiency #10, the company presented different contingency analysis for some decision factors but not for others.

The level of analysis of decision factors presented in Chapter 10 lacks the transparency and rigor required in Chapter 22 for identification and analysis of critical uncertain factors.

#### Proposed remedy

The company and stakeholders should agree to standards for identification and analysis of uncertain factors. The clarity, stringency and consistency required by these standards should be equivalent to that established for critical uncertain factors in the Chapter 22 rules as modified by Commission-approved waivers. A statement of these standards and any implications for review or revisions of the company's contingency planning should be set forth in a supplemental filing prior to conclusion of a stipulation and agreement. This supplemental filing should also include a schedule for any revisions to the contingency planning that are found to be necessary as a result of this agreement.

**MDNR Deficiency #3: Specification of outcomes of the DSM cost recovery decision factor that would trigger a contingency plan**

The company fails 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.

Rule citations:

4 CSR 240-22.070(10)(C)

Discussion

Chapter 10, Section 10.3.2 does not 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. Furthermore, the filing does not demonstrate that the company attempted to determine these limits.

Proposed remedy

In a supplemental filing, the company should specify the ranges or combinations of outcomes for these decision factors that define the limits within which the preferred resource plan is judged to be appropriate and explain how these limits were determined.

**Selection of preferred resource plan**

**Citation of rule provisions for this section**

*4 CSR 240-22(010)(2) The fundamental objective of the resource planning process at electric utilities shall be 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. This objective requires that the utility shall—*

*(A) Consider and analyze Demand-Side efficiency and energy management measures on an equivalent basis with Supply-Side alternatives in the resource planning process;*

*(B): Use minimization of the present worth of long run utility costs as the primary selection criterion in choosing the preferred resource plan; and*

*(C) 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.*

*4 CSR 240-22(060)(1): The utility shall design alternative resource plans to satisfy at least the objectives and priorities identified in 4 CSR 240-22.010(2). The utility may identify additional planning objectives that alternative resource plans will be designed to serve.*

*4 CSR 240-22(060)(2) Specification of Performance Measures. The utility shall specify a set of quantitative measures for assessing the performance of alternative resource plans with respect to identified planning objectives*

*4 CSR 240-22(070)(6)a; The utility shall select a preferred resource plan from among the alternative plans that have been analyzed pursuant to the requirements of 4 CSR 240-22.060 and sections (1)–(5) of this rule. The preferred resource plan shall satisfy at least the following conditions: (A) In the judgment of utility decision makers, the preferred plan shall strike an appropriate balance between the various planning objectives specified in 4 CSR 240-22.010(2)*

*4 CSR 240-22.070 (11) Reporting Requirements. To demonstrate compliance with the provisions of this rule, and pursuant to the requirements of 4 CSR 240-22.080, the utility shall furnish at least the following information: ... (F) 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 the appropriate tradeoffs between competing planning objectives and between expected performance and risk...*

*4 CSR 240-22.080 (1) Each electric utility ... shall make a filing with the commission... that demonstrates compliance with the provisions of this chapter. The utility's filing shall include at least the following items: ... (C) Reports and information required by 4 CSR 240-22.030(8), 4 CSR 240-22.040(9), 4 CSR 240-22.050(11), 4 CSR 240-22.060(6) and 4 CSR 240-22.070(11);*

## **General Background Discussion**

### Chapter 22 selection process:

The decision process prescribed in Chapter 22 for selecting the preferred resource plan and contingency plans revolves around “planning objectives,” “performance measures” and “critical uncertain factors.” The rules state that the utility:

- May specify planning objectives in addition to the planning objectives “identified in 4 CSR 240-22.010(2). [Reference: 4 CSR 240-22.060(1)]
- Shall specify “quantitative measures for assessing the performance of alternative resource plans with respect to identified planning objectives. The rule identifies four performance measures that must be included. [Reference: 4 CSR 240-22.060(2)]
- Shall design alternative resource plans to satisfy these planning objectives [Reference: 4 CSR 240-22.060(1)].
- Shall assess the relative performance of the alternative resource plans by calculating for each plan the value of each performance measure [4 CSR 240-22.060(2)]
- Shall select a preferred resource plan from among the alternative plans [to] strike an appropriate balance between the various planning objectives [Citation: 4 CSR 240-22.070 (6)]
- Shall specify 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 [Dilatation: 4 CSR 240-22.070(10)(C)]

As MDNR understands the selection process prescribed in Chapter 22, planning objectives provide the foundation for selecting a preferred plan and identifying contingency options. The key criteria used to select the preferred resource plan and define the limits within which it is appropriate are quantitative performance measures based on the planning objectives,

with the primary selection criterion to be minimization of NPVRR. By inference, the utility should not rely on selection criteria that are not based on the utility's planning objectives; if the utility determines that it should rely on selection criteria that are not related to planning objectives, it should reconsider and revise the planning objectives.

Ameren Missouri selection process

The company's decision making process occurred in five stages. The first two stages are parallel steps in the company's decision making process that could proceed independently of each other. Each of the remaining stages required completion of the previous stages in order to proceed. The essential elements of Stages 1, 3 and 4 were set forth in the waivers granted in this case.

*Stage 1:* Ameren Missouri staff identified 216 alternative resource plans based on the prior load forecast, demand-side screening, supply-side screening and scenario analysis conducted in Volumes 1 to 8 of the plan filing.

*Stage 2:* Ameren Missouri senior management<sup>3</sup> identified Ameren Missouri's planning objectives, called "policy objectives" in the filing. [See MDNR Concern #3] These are listed in the first column of the following table:

**Table 1 Planning objectives, performance measures and weights used in the company filing**

Planning objective	Performance Measure	Weight
<i>Cost</i>	<i>PV revenue requirements</i>	<i>25%</i>
<i>Financial / regulatory</i>	<i>PV free cash flow</i>	<i>20%</i>
<i>Environmental / renewable / resource diversity</i>	<i>Total plan carbon emissions</i>	<i>20%</i>
<i>Customer satisfaction</i>	<i>Rate increases</i>	<i>15%</i>
<i>Economic development</i>	<i>Primary job growth (FTE years)</i>	<i>10%</i>
<i>Energy efficiency spending</i>	<i>EE Portfolio</i>	<i>10%</i>

*Stage 3:* Ameren Missouri staff selected 16 "preliminary candidate resource plans" from the 216 plans that had been identified. This screening process relied primarily on a weighted scoring system which was created by identifying a single performance measure and a weight for each of the six planning objectives, as listed in the second and third columns of Table 1. The weights used for selecting the preliminary candidate plans were determined by senior management.

*Stage 4:* Through additional analysis described in Chapter 9, Ameren Missouri staff further refined the set of candidate plans, resulting in a final set of 14 candidate plans.

<sup>3</sup> Identified as "Warner Baxter and his direct reports" - Stakeholder transcript 9/24/10, p 91.



*Stage 5:* Ameren Missouri senior management selected the preferred resource plan from the 14 final candidate plans. The filing's description of this selection process appears in Chapter 10, Section 10.2.

### **MDNR Concern #3: Use of terms that do not appear in the Chapter 22 rules**

In selecting its preferred plan, the company relies on several terms that do not appear in Chapter 22. The company does not adequately explain the relationship of these terms to the selection process required in Chapter 22.

#### **Discussion**

Key terms on which the Chapter 22 rules rely when setting requirements for selecting the preferred resource plan include “planning objective,” “selection criterion,” “performance measure” and “critical uncertain factor.”

The company uses several terms that appear to resemble these key terms but that are not used in Chapter 22. Specifically, the filing uses the following terms that do not appear in the rule.

- “decision factors,” which apparently are similar to “critical uncertain factors”;
- “policy objectives,” which apparently are similar to “planning objectives”;
- “decision criteria,” which apparently are similar to “selection criterion” and “performance measures”

MDNR’s concerns are with respect to the company’s definition and use of the term “decision factor” is thoroughly discussed in the previous section of these Comments. In MDNR’s view, further explanation of the company’s use of the other two terms is also required to assure that rule requirements are not being circumvented.

- The company’s filing contains no reference to “planning objectives.” However, the company refers frequently to “policy objectives.” The filing provides no statement concerning the intended relationship of “policy objectives” to “planning objectives.” In preparing these comments, MDNR has assumed that the two terms are synonymous. MDNR notes that when demonstrating the filing's compliance with Chapter 22 provisions that pertain to planning objectives, the company cites passages from its filing that pertain to policy objectives.
- The company’s filing contains a number of references to performance measures and the primary selection criterion. During the stakeholder process, company staff referred frequently to “decision criteria”; this term also appears in Chapter 10. The filing provides no definition for “decision criteria”, no explanation of the relationship of decision criteria to selection criteria and performance measures, and no explanation of the special relationship if any of decision criteria to decision factors.

#### **Proposed remedy**

In a supplemental filing, the company should define “policy objective,” explain the relationship of “policy objectives” to “planning objectives” and either state that rule requirements that apply to planning objectives also apply to policy objectives or explain why they should not apply.

In a supplemental filing, the company should define “decision criteria,” explain the relationship of “decision criteria” to “decision factors,” “performance measures” and “selection criteria” and either state that rule requirements that apply to selection criteria also apply to decision criteria or explain why they should not apply.

**MDNR Deficiency #4: Identification of planning objectives.**

The company’s specification of planning objectives is inadequate because the two- to four-word phrases that the company provides do not clearly state the outcome that the company desires.

**Rule citations:**

*4 CSR 240-22(010)(2), 4 CSR 240-22(060)(1), 4 CSR 240-22(070)(6)(A)*

**Discussion**

As described in the Background discussion for this Section, the Chapter 22 rules provide for identification of multiple planning objectives and require the utility to consider the tradeoffs between them.

Ameren Missouri's filing indicates that the company identified six objectives<sup>4</sup> and identifies a 2-word to 4-word category into which each of the objectives falls. However, the filing does not explicitly state its objectives.

In both standard planning practice and common use, an objective is generally understood to be a desired outcome. For example, the statement of the fundamental objective in 4 CSR 240-22(010)(2) states in broad terms the desired outcomes of the planning process. By contrast, in the guise of stating its planning objectives, Ameren Missouri provides only a list of 2- to 4-word categories that fail to indicate the desired outcomes.

Standard planning practice emphasizes explicit identification of planning objectives as a fundamental starting point for effective planning. In the context of an IRP filing, explicit identification of planning objectives is a prerequisite for clear understanding and effective review by the Commission and stakeholders.

**Proposed remedy**

In a supplemental filing, Ameren Missouri should explicitly state its planning objectives. Ameren Missouri's senior management provided the initial identification of planning objectives and should be involved in formulating the revised planning objectives.

The revised objectives should include, in addition to an objective related to minimization of utility costs, objectives for the other five categories that are identified in the filing, as follows:

- An explicit statement of Ameren Missouri's policy and planning objectives with respect to financial considerations and the related regulatory framework;

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<sup>4</sup> These are referenced as "policy objectives" in Ameren Missouri's filing. As discussed in MDNR Concern #3, MDNR assumes that "policy objectives" and "planning objectives" are functionally identical.

- An explicit statement of Ameren Missouri's policy and planning objectives with respect to environmental impact, environmental regulations, resource diversity and/or renewable resources;
- An explicit statement of Ameren Missouri's policy and planning objectives with respect to customer satisfaction;
- An explicit statement of Ameren Missouri's policy and planning objectives with respect to economic development;
- An explicit statement of Ameren Missouri's policy and planning objectives with respect to expenditures on and/or energy savings from energy efficiency and other demand-side resources; and
- An explicit statement of any other policy and planning objectives that is suggested by review of the performance measures that are listed in 4 CSR 240-22(060)(2).

The company should review and report in the supplemental filing whether this clarification and refinement of planning objectives would result in any revisions in the analysis presented in the filing.

In its next regularly scheduled resource filing, the company should adopt the Chapter 22-based term "planning objectives" as a replacement for the term "policy objectives". Alternatively, if the company determines that this substitution is not appropriate, the supplemental filing should explain the relationship of the two concepts to each other and to the rule provisions that pertain to planning objectives.

#### **MDNR Concern #4: Selection of preliminary candidate plans**

The 25% weight that the company assigns to cost minimization in its preliminary selection of candidate resource plans does not reflect the Chapter 22 requirement that cost minimization be treated as the primary selection criterion.

#### **Rule citations:**

*4 CSR 240-22.010(2)(B)*

#### **Discussion**

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.

Ameren Missouri assigned a 25% weight to utility cost minimization. As Table 1 indicates, two competing performance measures received weights nearly as high (20%) as that assigned to utility cost minimization.

While the Chapter 22 rules provide for the utility to recognize and balance competing planning objectives, they provide that the utility must "use minimization of the present worth of long-run

utility costs as the primary selection criterion in choosing the preferred resource plan." [4 CSR 240-22.010(2)(B)].

MDNR recognizes that the term "primary selection criterion" is subject to interpretation and that final selection of the preferred resource plan occurred at a latter stage of Ameren Missouri's decision making process. However, in MDNR's view, a 25% weight is not sufficient to reflect the requirement that cost minimization be the "primary" selection criterion. A weight of 50% or greater would be more appropriate.

The weights assigned to the planning objectives were not presented to stakeholders until the September 14, 2010 stakeholder meeting. At that time, the integrated planning analysis had proceeded to subsequent stages and there was no opportunity to consider modifying the weights that had been assigned.

#### Proposed remedy

If the decision process used for the company's next regularly scheduled filing makes similar use of a weighted index for determining candidate resource plans, the company should discuss with stakeholders the weights that will be assigned to the planning objectives and performance measures prior to final determination of the weights.

#### **MDNR Deficiency #5: Documentation of decision process used to select the preferred resource plan**

The company does not adequately describe the decision process through which senior management selected the preferred resource plan.

#### Rule Citation:

*4 CSR 240-22.070 (11)*

#### Discussion

The company's filing does not comply with rule requirements for describing the decision process used to select the preferred resource plan from candidate resource plans.

In the final stage (Stage 5) of its decision process, the company selected the preferred plan from among 14 candidate plans. The company's documentation of its decision process for Stage 5 appears in Chapter 10, Section 10.2. This section presents a narrative that may be summarized as follows:

- The narrative states that the final selection of the preferred resource plan was done by senior management, who engaged in "deeper discussion and consideration" than at previous stages of the decision process.
- The narrative describes information that Ameren Missouri staff provided to senior management. Specifically, Ameren Missouri staff provided:
  - Resource Plan Dashboards for each of the 14 candidate plans, which are included in the filing in Chapter 10 Appendix A; and

- a "Preferred Plan Selection Scorecard" that provided qualitative rankings of the 14 plans for each of the six planning objectives.
- The narrative identified plans that were attractive or unattractive and stated various reasons why they were attractive or unattractive. It was not possible to determine whether the reasons cited in the narrative were stated by senior management or reflect Ameren Missouri staff's interpretation of the decision factors.

Ameren Missouri's narrative is deficient in the following respects:

- The narrative does not provide a transparent account of senior management consideration of tradeoffs between planning objectives as required by the rule.
- The narrative is not organized around consideration of planning objectives. The narrative in the final two paragraphs of Section 10.2 refers to planning objectives obliquely or not at all.
- As noted above, it is not possible to conclude whether the considerations cited in the narrative were stated by senior management or reflect Ameren Missouri staff interpretation.
- The narrative provides no information on the relative weights that senior management gave to the various planning objectives in their Stage 5 decision making process as required by the rule. No weighting factors were included or recommended in the Dashboards and "Preferred Plan Selection Scorecard" that Ameren Missouri staff provided to senior management. While senior management determined the weighting factors used for the Stage 3 selection of preliminary candidate plans, the narrative provides no indication that these weighting factors were used for final selection of the preferred resource plan.

#### Proposed remedy

In a supplemental filing, the company should provide revised documentation of the decision process that meets the documentation concerns identified in MDNR's comments on this deficiency. If the company cannot demonstrate through this supplemental filing that it complied with the rule provisions identified in MDNR's comments on this deficiency, it should propose a plan for remedying this deficiency through a revised filing.

#### **MDNR Deficiency #6: Compliance with the "primary selection criterion" requirement in selecting the preferred resource plan**

The company does not adequately demonstrate that it complied with rule requirements when it rejected the plan based on realistic achievable potential (RAP) DSM.

#### Rule Citation:

*4 CSR 240-22.010 (2) and 4 CSR 240-22.080*

## Discussion

The provisions cited above require Ameren Missouri to demonstrate that the company complied with 4 CSR 240-22.010 (2)(B), which requires the company to use minimization of the present worth of long-run utility costs as the primary selection criterion when selecting its preferred resource plan. Ameren Missouri's filing does not demonstrate that the company complied with this requirement when selecting the preferred resource plan from the candidate resource plans.

It is an undeniable fact that Ameren Missouri's senior management did not select the least-cost candidate plan, the "RAP plan," as the company's preferred resource plan.<sup>5</sup> Given this fact, MDNR would expect Ameren Missouri to recognize that the company bears the burden to demonstrate that the decision process of senior management did in fact comply with 4 CSR 240-22(010)(2)(B).

One might expect Ameren Missouri to describe their decision process in the narrative in Chapter 10 in sufficient detail to justify the selection of a plan that is not the least-cost plan. Section 10.2 documents the decision process used to select the preferred plan from the candidate plans. However, the narrative in Section 10.2 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. References to this issue in Section 10.2 are limited to the following statements: "The RAP plan (R0) [is] less attractive given the constraints of current state policies and regulations...The DSM-only plans are less attractive under the constraints of current state policies."

Although the narrative filing provides no rule citation, one may infer from these statements that the company might take the position that "current state policies" constitute a "consideration" sufficient to constraint minimization of utility cost under the provisions 4 CSR 240-22.010(2)(C).

However, 4 CSR 240-22.010(2)(C) contains provisions concerning what the company must demonstrate to be found in compliance with the Chapter 22 rules. Specifically, the rule requires the company to "document the process and rationale used by decision makers to assess the tradeoffs and determine the appropriate balance between minimization of expected utility costs and these other considerations in selecting the preferred resource plan."

As discussed in Deficiency #5, the narrative in Section 10.2 does not document the decision process with sufficient transparency or detail to meet this requirement.

Furthermore, if quantitative analysis of the constraint is feasible, 4 CSR 240-22.010(2)(C) requires the company to provide quantitative analysis of the trade-offs. Stakeholder discussion during the September 14, 2010 meeting suggested an approach to accomplishing such a quantitative analysis. The company could have provided a quantitative analysis of tradeoffs under alternative state policy scenarios, particularly scenarios for incentive payments or lost revenue recovery. The company's filing does not provide this quantitative analysis.

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<sup>5</sup> For a very detailed demonstration and discussion of this fact, see the discussion section for Deficiency #8 in the GDS comments submitted by MDNR.

The company is required by 4 CSR 240-22.010(2)(C) to "explicitly identify" the constraint. As further discussed in MDNR Deficiency #10 Ameren Missouri has not provided sufficient specificity to support a quantitative analysis of tradeoffs.

#### Proposed remedy

In a supplemental filing, the company should provide a completely documented contingency analysis that incorporates alternative state policy scenarios, scenarios for incentive payments and scenarios for lost revenue recovery, demonstrating the justification for the company's selection of a "low-risk DSM plan" over a "RAP" DSM plan.

#### **MDNR Deficiency #7—Ameren Missouri did not analyze alternative resource plans containing the 2% savings scenario.**

Ameren Missouri did not analyze alternative resource plans containing the 2% savings scenario according to its agreements with MDNR.

#### Background

As part of the stipulation and agreement in File No. ER-2010-0036 Ameren Missouri agreed to the following:

12. With regard to demand-side management programs, AmerenUE shall:
  - a. model two demand-side management program portfolios for analysis in its next Chapter 22 Resource Planning Filing due February 5, 2011 (the resource planning filing regarding which AmerenUE has sought waivers in Case No. EE-2010-0243), *that annually achieve incremental electric energy and demand savings equivalent to (A) 1% (by 2015) and (B) 2% (by 2020) reductions in annual sales.* AmerenUE will also model demand-side management portfolios for its next Chapter 22 Resource Planning Filing due February 5, 2011 based on Maximum Achievable Potential (MAP) and Realistic Achievable Potential (RAP), as defined in AmerenUE's recently completed DSM Market Potential Study. In addition, AmerenUE will consider for inclusion in its next Chapter 22 Resource Planning Filing due February 5, 2011 modeling adjustments to MAP and RAP that may be proposed by the parties, and will do its best to support parties' review of the DSM Potential Study; provided, however, AmerenUE does not agree to open-ended expenditures to answer parties' questions on the study. (Emphasis added.)

In its September 14, 2010 stakeholder meeting, the company presented analyses that showed neither the 1% nor the 2% scenarios were cost effective. Based on this finding, MDNR reviewed the company's methodology and concluded that the company overstated the cumulative sales reductions for each savings scenario. MDNR distributed a memorandum describing their analysis and presented an alternative methodology for calculating savings to the company and stakeholders on November 9, 2010. On November 30, 2010 MDNR and the company exchanged emails about the calculations to be used to estimate the 1% and 2% scenarios and distributed the email to stakeholders<sup>6</sup>.

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<sup>6</sup> "RE: Modified interpretation of 1% and 2% DSM savings" between Ameren and MDNR on November 30, 2010.

In that agreement, MDNR stated its understanding that,

- The savings levels derived from the company's Maximum Achievable Potential (MAP) portfolio would be used as the 1% savings scenario, and
- The company would recalculate the savings derived from the 2% savings scenario based on MDNR's recommendations.

With respect to the use of the 2% savings scenario, in the November 30, 2010 email the company originally planned to present these savings results in a supplemental filing:

Furthermore, Ameren will modify its analysis of the 2% portfolio according to MDNR's modified kWh goals in the attached files. Ameren will develop a new alternative resource plan for the 2% portfolio and analyze the plan with MIDAS. This will satisfy the 2% portfolio item in the stipulation & agreement. All workpapers and documentation will be available.

As far as reporting, we are already well into the documentation portions of the IRP project schedule. We will make every effort to include the results in the Feb 4 filing, but due to timing issues, we may file the results of the 2% case separately in a supplemental filing. (Email from Dave Costenaro, Ameren Missouri to MDNR (with copies to IRP stakeholders), November 30, 2010)

To which MDNR replied:

We are pleased that Ameren has agreed to modify its 2% portfolio according to DNR's recommendation. However, the possibility of filing the 2% DSM plan in a supplemental filing was not discussed in the DNR/Ameren call yesterday. Step 2(a) of Ameren's analysis (as described in its IRP waivers), by its very nature, involves comparison of alternative resource plans to select the small set of candidate plans that are to be subjected to the further risk analysis that takes place in Step 2b and Step 3 of risk analysis. We do not believe that the 2% DSM plan(s) can be included in the analysis on a fair and equitable basis if their analysis is deferred to a supplemental filing. I apologize if we misunderstood your statement about not sending the 2% plan to risk analysis.

In the context of Ameren's IRP waivers, we are not insisting that a 2% DSM plan be picked as a candidate resource plan. However, we did state in our call that the 2% DSM plan(s) should compete in the analysis on the same basis as other alternative resource plans and the selection of candidate plans should take place on a fair, equitable, transparent basis.

It is our understanding that at least one alternative resource plan containing DSM resources based on the 2% portfolio would be included when selecting candidate resource plans, which is Step 2A in the integration and risk analysis process described in Ameren's IRP waivers. As stated in the waivers "Step 2A consists of the modeling of alternative resource plans (for example, 110 plans in the IRP filed Feb. 2008) and Step 2A also consists of the identification of the candidate resource plans (for example, 18 candidate resource plans in the IRP filed in Feb. 2008). (Email from Brenda Wilbers,



MDNR to Dave Costenaro, Ameren Missouri (with copies to IRP stakeholders), November 30, 2010).

### Discussion

In the discussion of DSM portfolios in Chapter 7 of its filing, the company considered the 2% savings scenario, but concluded:

This 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. (Chapter 7: 117)

The company did not present any quantitative analysis indicating when the 2% savings scenario exceeded its estimate of economic potential. The company did present tables indicating that the 2% savings scenario was not cost effective (see Tables 7.41 and 7.46). However the company did not include the 2% savings scenario in its set of alternative resource plans submitted for further analysis. There is no indication in the filing to suggest that MIDAS was used in assessing the 2% savings scenario.

While 4 CSR 240-22.060(3) discusses the development of alternative recourse plans and 4 CSR 240-22.050(3) emphasizes the role cost-effective DSM programs and measures play in creating alternative resource plans, Ameren Missouri stated in the November 30, 2010 email that "Ameren will develop a new alternative resource plan for the 2% portfolio and analyze the plan with MIDAS" without reference to the cost effectiveness of this savings scenario. MDNR maintains that Ameren Missouri has not satisfied its agreement with MDNR and therefore has not fully complied with the requirements of Paragraph 12 of the Stipulation and Agreement for File No. ER-2010-0036 with regard to the 2% savings scenario.

### Proposed remedy

In a revised integrated analysis, Ameren Missouri should include one or more alternative resource plan based on the 2% savings scenario. The 2% savings scenario should "compete in the analysis on the same basis as other alternative resource plans and the selection of candidate plans should take place on a fair, equitable, transparent basis."

In reporting the results for the 2% scenario, the company should examine and document the conditions where this scenario would be cost-effective. This analysis should consider the supply side generation circumstances (i.e., plant retirements and fuel costs) that would make the 2% savings scenario cost-effective.

**MDNR Deficiency #8 –Ameren Missouri did not submit candidate resource plans containing the MAP DSM portfolio to sensitivity and risk analysis.**

Ameren Missouri did not submit candidate resource plans containing the Maximum Achievable Potential (MAP) DSM portfolio to sensitivity analysis. The company and MDNR agreed to use MAP portfolio in place of the 1% savings scenario described in Deficiency tk.

**Discussion**

In Chapter 9 of its filing, Ameren Missouri identified 16 candidate resource plans for sensitivity analysis (see Table 9.5, page 12). In this table, two plans are based on the company's MAP portfolio. Later in this chapter the company makes the following statement justifying the reduction of the 16 candidate resource plans to 14 plans submitted to risk analysis:

RAP's risk adjusted PVRR is lower than MAP's risk adjusted PVRR. In addition, given the maturity of Ameren Missouri DSM programs, the challenging regulatory environment, and expected customer acceptance, MAP is not a resource that can be realistically implemented at this time. (Chapter 9: 21)

This decision removed the MAP portfolio from consideration as a preferred resource plan. Additionally, Table 9.5 lists a limited number of options under which the 16 candidate resource plans were considered. Under these options, only one scenario for the retirement of Meramec (in 2022) is listed. Table 9.1 lists three options for the Meramec plant: retirement in 2015, retirement in 2022 and continuation "as-is".

This raises two issues. First, the most aggressive DSM portfolio that the company considered is not analyzed on the same grounds as the Realistic Achievable Portfolio (RAP) and the Low-risk Portfolio. Secondly, the impact of the full range of possible resource options, including retirement of Meramec in 2015, on the feasibility of the MAP portfolio is not considered.

**Proposed remedy**

In a revised compliance filing, Ameren Missouri should including the MAP plans in its analysis of its candidate resource plans. The revised filing should include candidate resource plans addressing the following conditions:

- A) 2% reductions in annual sales,
- B) the MAP portfolio, as described in Chapter 7 of the filing,
- C) Retirement of Meramec in 2015,
- D) Retirement of Meramec in 2022, and,
- E) Plans based on the upper bounds of coal O&M costs and non-carbon environmental costs, as discussed in MDNR Deficiency #11.

## **Concerns and Deficiencies Related to Critical Uncertain Factors in Contingency Planning**

### **Citation of rule provisions for this section**

*4 CSR 240-22.070(2) The utility shall conduct a preliminary sensitivity analysis to identify the uncertain factors that are critical to the performance of the resource plan. This analysis shall assess at least the following uncertain factors:*

*...(C) Future changes in environmental laws, regulations or standards*

*4 CSR 240-22.070(10) The utility shall develop, document and officially adopt a resource acquisition strategy. ... The officially adopted resource acquisition strategy shall consist of the following components:*

*(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;*

*(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; and*

*(E) A process for monitoring the critical uncertain factors on a continuous basis and reporting significant changes in a timely fashion to those managers or officers who have the authority to direct the implementation of contingency options when the specified limits for uncertain factors are exceeded.*

### **General Background Discussion**

Identification and analysis of critical uncertain factors is at the heart of the contingency planning required by 4 CSR 240-22.070(10). The utility is required to review the uncertain factors that it has identified as critical, specify 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 specify the contingency options the utility would pursue if the outcomes for the critical uncertain factors move outside this range.

The requirements of 4 CSR 240-22.070(10)(A) through (C ) apply to the following factors which are identified as critical in Chapter 9, Section 9.2:

- Carbon policy
- Gas prices
- Load growth
- Interest rates
- Project cost
- DSM load impact
- DSM cost
- Return on Equity

**MDNR Deficiency #9 Specification of outcomes of critical uncertain factors that would trigger a contingency plan**

The company does not specify outcomes for the critical uncertain factors that would trigger a contingency plan. Furthermore, the filing does not demonstrate that the company attempted to determine these outcomes.

Rule citations:

*4 CSR 240-22.070(10)(C)*

Discussion

Chapter 10, Section 10.3.2 does not specify 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. Furthermore, the filing does not demonstrate that the company attempted to determine these limits.

Furthermore, the only two critical uncertain factors included in the contingency planning “Decision Roadmap” in Chapter 10, Figure 10.6 are gas prices and carbon policy. All other movement toward contingency plans would be triggered by changes in the outcome of decision factors rather than critical uncertain factors.

Proposed remedy

In a supplemental filing, the company should specify 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 explain how these limits were determined.

**MDNR Deficiency #10 Specification of contingency options that would be triggered by extreme outcomes of the critical uncertain factors**

Rule citations:

*4 CSR 240-22.070(10)(D)*

Discussion

Chapter 10, Section 10.3.2 does not specify a set of contingency options that are judged to be appropriate responses to extreme outcomes of the critical uncertain factors. Furthermore, the filing does not demonstrate that the company attempted to determine the required contingency options.

Proposed remedy

In a supplemental filing, the company should specify a set of contingency options that are judged to be appropriate responses to extreme outcomes of the critical uncertain factors and explain why these options are judged to be appropriate.

**MDNR Deficiency #11: 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**

The company does not adequately assess the upper boundary of costs for generation from its existing fleet of coal-fired power plants over the planning horizon.

Rule citations

*4 CSR 240-22.040 (8) (C) (2): "The critical uncertain factors that affect these cost estimates (fixed and variable operation and maintenance cost estimates) shall be identified and a range of estimates shall be provided, together with an associated subjective probability distribution that reflects this uncertainty."*

*4 CSR 140-22.070 (2): The utility shall conduct a preliminary sensitivity analysis to identify the uncertain factors that are critical to the performance of [each] resource plan. This analysis shall assess at least ... (C) Future changes in environmental laws, regulations or standards; (D) Relative real fuel prices; ...*

Discussion

At present, Ameren Missouri relies heavily on existing coal-fired power plants to meet load requirements. Chapter 4, In MDNR's view, within the 20-year planning horizon there are major uncertainties with respect to fuel costs and environmental compliance costs that could influence continued generation at present levels from the company's existing fleet of coal-fired power plants. These uncertainties could conceivably affect company choices concerning the level of its reliance on its coal-fired fleet.

Chapter 4, Section 4.7 provides the company's estimate of uncertainty distributions for costs affecting or new coal-fired plants and other new supply-side resources. However, the company provides no discussion of its comparable assessment of uncertainty affecting costs for its existing fleet of coal-fired plants. Furthermore, this section and the company's response to MDNR DR #34 do not provide a transparent explanation of the derivation of these uncertainty distributions by its consultant Black and Veatch..

The company is required by 4 CSR 240-22.040(8)(C)(2) to identify the critical uncertain factors considered by its consultants when estimating the upper and lower boundaries of future O&M costs, including fuel costs for its coal-fired power plants.

The filing's discussion of coal price forecasts appears in Chapter 2 Section 2.5.6. The forecasts were provided by CRA for each branch of the final probability tree represented in Figure 2.42. Section 2.5.6 provides a detailed discussion of CRA's methodology but does not indicate that CRA identified critical uncertain factors affecting the range of its estimates other than the three factors (carbon policy, natural gas prices and load growth) that determine the probability tree. Specifically, Section 2.5.6 does not discuss CRA's analysis of uncertainty with respect to mine-mouth price or transportation cost, the two factors that most influence delivered coal price.

Chapter 2 states that mine-mouth prices and production capabilities were provided to CRA by the Norwest consulting firm. There is no identification or discussion of the critical uncertain factors considered by the consultant and no indication whether and how Norwest estimated upper and lower bounds for mine-mouth supply curves.

Chapter 2 also states that Norwest's supply curves were "supplemented" by data from Energy Information Administration (EIA). EIA estimates coal supply and prices using econometric models that are not capable of reflecting changes in mine-mouth production costs.

MDNR is aware that a wide variety of credible views exists concerning the effect of increasing levels of overburden on future mine-mouth prices for PRB coal and is concerned that no consideration of this issue appears in the company's discussion of analysis of future mine-mouth coal prices in Chapter 2.

The company is required by 4 CSR 240-22.070(2) to conduct a sensitivity analysis of uncertain factors, including factors specifically listed in 4 CSR 240-22.070(2) (A) through (L), to determine which should be considered critical uncertain factors when complying with 4 CSR 240-22.070's requirements for risk analysis and contingency planning. The uncertain factors for which the company conducted a sensitivity analysis did not include either 9a) future coal price or (b) future changes in environmental regulation, other than regulation of CO2 emissions.

One of the chief conclusions of the Chapter 8 review of possible changes in environmental policy is that "although the momentum for carbon legislation has recently subsided, the U.S. Environmental Protection Agency [EPA] has been aggressively pursuing more stringent regulations of power plant air, water, and solid waste emissions" (Volume 8, Page 1). The company does identify "moderate" and "aggressive" scenarios for environmental regulation and does identify a "decision factor" that takes these two scenarios into account when considering Meramec retirement. However, the company does not consider the impact of their two scenarios on decision with respect to the company's reliance on coal-fired plants other than Meramec. Furthermore, MDNR is concerned that the company may not have fully considered the upper bound of possible non-carbon environmental regulation. For example, the utility MACT rule (40 CFR Parts 60 and 63) recently published in the Federal Register, would place very stringent limits on toxic emissions from the company's entire fleet of coal-fired power plants.

Proposed remedy:

In a supplemental filing, the company should reassess and revise the upper boundary of fuel costs and environmental compliance costs for its fleet of coal-fired plants over the planning horizon. This reassessment:

- Should identify and analyze critical uncertain factors affecting coal mine-mouth costs and delivered costs, including physical production factors such as increasing overburden for PRB coal resources;
- Should estimate the upper boundary of possible non-carbon environmental regulatory compliance costs affecting existing coal-fired plants; and
- Should provide a transparent explanation of the company's derivation of uncertainty distributions for these costs; and

In a revised integration analysis, the company should formulate and analyze additional alternative resource plans that reflect options for reducing reliance on its coal-fired fleet that go beyond Meramec retirement. These additional plans should include one or more plans that incorporate a MAP demand-side portfolio. The integration analysis of the additional alternative resource plans compare their performance to the performance of other plans assuming coal-fired generation costs that reflect the revision of cost estimates set forth in this remedy..

**MDNR Concern #5 Monitoring future changes in environmental laws, regulations or standards on a continuous basis**

The company's plan for monitoring changes in environmental regulations is limited to carbon policy and should be expanded to include the full range of relevant environmental issues.

Rule citations

*4 CSR 240-22.070(2)(C), 4 CSR 204-22.070(10)(D)*

Discussion

The company is required by 4 CSR 240-22.070(2) to conduct a sensitivity analysis of uncertain factors, including factors specifically listed in 4 CSR 240-22.070(2) (A) through (L), to determine which should be considered critical uncertain factors. Chapter 9, Section 9.2 reviews the sensitivity analysis that the company conducted in compliance with this rule provisions.

In general, the sensitivity test conducted by the company includes the uncertainties listed in the rule. However, where 4 CSR 240-22.070(2)(C) requires review of "future changes in environmental laws, regulations or standards," the company limited its sensitivity analysis to carbon policy.

As a consequence of limiting the sensitivity analysis, carbon policy was the only aspect of environmental policy changes that the company considered in determining how it would comply with 4 CSR 240-22.070(10)(E). The filing states that Ameren Missouri senior management and its Strategic Initiatives Group will monitor and evaluate developments in carbon policy on an annual basis.

In MDNR's view, the company's decision to carry this artificial limitation over into its contingency planning is highly problematic. In its next filing, the company will have to comply with revised Chapter 22 rules that specifically require include compliance with federal and state environmental policy within the fundamental objective of resource planning.

Proposed remedy

In a supplemental filing, the company should provide for continuous monitoring of the full range of possible changes in environmental policy that are identified in Chapter 8 as potentially significant. The assessment of the potential impact of possible environmental changes should not be limited to the Meramec plant.

## **Concerns about the DSM Market Potential Study**

Rule 4 CSR 240-22.050 (5):

*The utility shall 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. These research activities shall be designed to provide a solid foundation of information about how and by whom energy related decisions are made and about the most appropriate and cost-effective methods of influencing these decisions in favor of greater long-run energy efficiency.*

MDNR raises two concerns about the company's Demand Side Management (DSM) Market Potential Study. The first addresses the sampling design employed in this study. The second addresses the methodology used to estimate "Maximum Achievable Potential."

### **MDNR Concern #6 Sampling issues with the company's DSM Market Potential Study**

#### **Discussion**

While MDNR applauds the company's effort to undertake a comprehensive assessment of DSM savings potential in its service territory, we are concerned that the company's Market Potential Study was based on a non-random quota sample, rather than on a stratified random sample. While the use of quota samples in potential studies is not uncommon, such samples do not yield results that are representative of a population and do not allow for the use of standard statistical tests in assessing apparent differences between groups.

For example, in the case of the Residential Program Interest Survey portion of the Market Potential Study, the final sample over represented groups of the company customers in two categories of electricity use ("10,001 -- 14,000 kWh" and "Above 20,000 kWh") that had low adoption rates for CFLs and other electric measures. This anomaly has the effect of lowering the potential savings estimates. Unfortunately, due to the survey design it was not possible for Missouri or its contractors to determine whether the impact of this over-representation on savings estimates is sufficiently large to be a source of concern. Additionally, the non-probabilistic nature of the underlying sample prevents appropriate adjustment of estimates to account for any anomalies.

#### **Proposed remedy**

Ameren Missouri should consider using a stratified-random sample in data collection for its next full demand-side potential study and in similar studies for the company's next regularly scheduled resource filing.

### **MDNR Concern #7 Calculation of "Maximum Achievable Potential"**

#### **Discussion**

MDNR is concerned that the measure-level variables that the company used in its market potential study to construct one-year take rates and ultimately to estimate Maximum Achievable Potential were not based on primary data.



Ameren Missouri based its estimate of “Maximum Achievable Potential” (MAP) for its DSM programs on the results from its 2010 Market Potential Study. The level of participation under the MAP scenario was based on the company’s estimates of the “one-year payback” scenario described in Volumes 2 and 4 of the Market Potential study. MDNR’s review of the data analysis methods for the measure-level variables used in constructing the one-year take rates revealed that respondents were not asked about their likelihood of adopting the entire range of measures.

Measure adoption rates (“take rates”) were reported for one-year, three-year and five-year payback rates and were calculated from the Residential Program Interest Survey. In the survey, the full range of questions about adoption for each payback period were asked for a single measure, while a question about adoption under a three-year payback structure were asked for all of the other measures in a series. The results from the first item were then applied to the other items to calculate adoption rate for the one-year payback schemes. For example, one question series asked about the adoption of household appliances, including CFL bulbs (see MPS, Volume 2: 4-14, Questionnaire Item Q23\_06) under a three-year payback structure. The take rates for one-year paybacks of these items were calculated from a series of questions about adoption of a high efficiency refrigerator (Questionnaire Items Q22, Q22A and Q22B).

This methodology implies that purchasing of major household appliances, i.e., refrigerators, is the same as purchasing other pieces of household infrastructure (e.g., furnaces and water heaters) or consumer goods (e.g., light bulbs), despite any number of differences between major durable goods, consumer electronics, and other electrical equipment. In discussing this, both Ameren Missouri and GEP described their approach to asking about different measures as a reaction to survey length issues. However, a more appropriate response to survey length concerns is to redesign the survey, rather than omit a key set of items.

In discussions with MDNR (and other stakeholders) concerning the methods used to estimate one-year and five-year take rates, both Ameren Missouri and GEP have attempted to describe this estimation as standard practice. However, this practice is different from creating an index (i.e., a measure of a higher-level concept like “environmentalism” or “political affiliation”), where the results from individual items are combined mathematically to create a new measure. In the case of index construction, respondents are asked to answer the individual items that constitute the index. By contrast, when estimating one-year take rates, GEP and Ameren Missouri imputed the “responses” to the individual items. The data manipulation necessary to calculate the one-year take rates makes this measure problematic. It follows that all of the analyses that use the one-year take rates as its base are also problematic. This analytical approach lessens the credibility of estimates of maximum achievable potential.

#### Proposed remedy

In its next full demand-side potential study and in similar studies for the company’s next regularly scheduled resource filing, the company should design survey instruments to collect a full set of primary data, so that there will be no need to estimate key data points, such as the “one-year payback take rate” measures that form the basis of their “Maximum Achievable Potential” scenario.

**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 0184– Sarah Mangelsdorf

Data Request re p. 83: Has Ameren Missouri performed any studies or analyses related to the average size of residential air conditioners in its service territory? Has Ameren Missouri performed any studies or analyses related to customer utilization of air conditioners on peak days? If so, please provide the analyses.

**RESPONSE**

**Prepared By: Steven M. Wills**  
**Title: Managing Supervisor, Quantitative Analytics**  
**Date: October 14, 2011**

No such studies or analysis have been performed.



