

**BEFORE THE PUBLIC SERVICE COMMISSION  
OF THE STATE OF MISSOURI**

The Empire District Electric Company's	)	
2007 Utility Resource Filing Pursuant to	)	Case No. EO-2008-0069
4 CSR Chapter 22	)	

**STAFF REPORT**

Comes now the Staff of the Missouri Public Service Commission (Staff) and files its Report (Highly Confidential and Non-Proprietary versions) regarding the Chapter 22 Electric Utility Resource Planning compliance filing made by The Empire District Electric Company (Empire) on September 5, 2007. In support thereof, the Staff states as follows:

1. 4 CSR 240-22.080(5) provides that the Staff shall review each utility's compliance filing and shall file a report no later than 120 days after each utility's scheduled electric resource plan filing date that identifies, among other things, any deficiencies in the electric utility's compliance with the provisions of Chapter 22 of the Commission's rules.

2. 4 CSR 240-22.080(6) provides that the Office of the Public Counsel (Public Counsel) and any intervenor may file a report or comments no later than 120 days after each utility's scheduled electric resource plan filing date that identifies, among other things, any deficiencies in the electric utility's compliance with the provisions of Chapter 22 of the Commission's rules.

3. On December 19, 2007, the Missouri Department of Natural Resources, with the consent of all parties, filed a Motion For Extension Of Time requesting until January 15, 2008, to respond to the September 5, 2007 filing of Empire.

4. On December 21, 2007 the Commission issued an Order Granting Extension Of Time, granting until January 15, 2008, for parties to file pursuant to 4 CSR 240-22.080(5) and (6).

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5. The Staff Report (Highly Confidential and Non-Proprietary versions) accompanying this pleading, as Appendix A, identifies, among other things, deficiencies in Empire's September 5, 2007 compliance filing relating to the provisions of Chapter 22 of the Commission's rules.

WHEREFORE, the Staff herewith files its Staff Report (Highly Confidential and Non-Proprietary versions) respecting its review of Empire's September 5, 2007 compliance filing respecting the Commission's Chapter 22 Electric Utility Resource Planning rules.

Respectfully submitted,

**/s/ Steve Reed**

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### **Certificate of Service**

I hereby certify that copies of the foregoing have been mailed first class postage prepaid, hand-delivered, transmitted by facsimile, or electronically sent to all counsel of record this 15th day of January 2008.

**/s/ Steve Reed**

**MISSOURI PUBLIC SERVICE COMMISSION**

**STAFF REPORT ON**

**THE EMPIRE DISTRICT ELECTRIC  
COMPANY'S**

**CHAPTER 22 ELECTRIC UTILITY  
RESOURCE PLANNING  
COMPLIANCE FILING**

**CASE NO. EO-2008-0069**

**January 15, 2008**

**JEFFERSON CITY, MISSOURI**

**\*\* Denotes Highly Confidential \*\***

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**EO-2008-0069**

**Resource Plan of the Empire District Electric Company**

**Staff Report**

The Empire District Electric Company (Empire) filed certain information in compliance with Chapter 22 Electric Utility Resource Planning Rules on September 5, 2007, in Case No. EO-2008-0069. Prior to filing to meet the requirements of Chapter 22, in Case No. EE-2008-0025, Empire filed for and received waivers from portions of the Load Analysis and Forecasting rule (4 CSR 240-22.030) and Demand-Side Analysis rule (4 CSR 240-22.050).

**SUMMARY OF PREFERRED PLAN**

Empire's preferred resource plan, chosen as a result of the process described in its resource plan filing, is summarized in table 1. Empire's plan includes owning 150 megawatts (MW) of coal capacity that is currently under construction (100 MW of Iatan 2 and 50 MW of Plum Point). Both of these coal units are scheduled to come on line in 2010. In addition, Empire has entered into a purchased power agreement (PPA) for an additional 50 MW of coal capacity from Plum Point beginning in 2010 with an option for Empire to convert this 50 MW PPA into ownership in 2015. The current PPA for 162 MW that Empire has with Westar from the Jeffrey coal units will expire prior to the summer peak in 2010.

In addition to its current PPA for 100 MW of wind energy, Empire has entered into a long-term PPA for 105 MW of wind energy (Meridian Way Wind Farm) beginning in 2009. Empire plans to add a \*\* \_\_\_\_\_

\_\_\_\_\_ \*\* With these additions,  
Empire forecasts that it will not require additional resources until \*\* \_\_\_\_ \*\*.

Table 1

Is Deemed

Highly Confidential

In Its Entirety

In addition to these resources that Empire has already committed to, Empire's Preferred Resource Plan \*\*

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### **SUMMARY OF STAFF REVIEW**

After the waiver of Chapter 22 in 1999, Empire changed its forecasting methodology drastically. In the limited review Staff conducted of Empire's resource planning for Empire's Regulatory Plan case (Case No. EO-2005-0263), Staff found that Empire's forecasting techniques and results were very limited. The forecasting methodology used by Empire and described in this resource plan filing has improved considerably.

Empire included a wide variety of supply-side options in its supply-side screening and integration analysis. Empire included in its supply-side document the most detailed information regarding its transmission planning that Staff has reviewed in any resource plan filing. Staff also found the discussions that the parties had with the transmission planners at Empire to be helpful.

The Stipulation and Agreement, approved by the Commission in Case No. EO-2005-0263, that established the Empire Regulatory Plan, included the formation of the Customer Programs Collaborative (CPC). The purpose of the CPC is to make decisions pertaining to the development, implementation, monitoring, and evaluation of Empire's affordability, energy efficiency, and demand response programs. In accordance with its Regulatory Plan, and in consultation with the CPC, Empire has implemented or continued a range of demand-side management (DSM) programs. These programs are scheduled to be implemented and evaluated over a five year horizon beginning in 2006. In this filing,

Empire provides information regarding the historic cost effectiveness of the DSM programs in its Regulatory Plan and evaluates the existing and potentially new programs in the manner required by the Demand-Side Analysis rule, 4 CSR 240-22.050. Two new demand response programs were evaluated in the resource planning process: (1) Air Conditioning Cycling; and (2) Commercial and Industrial (C&I) Peak Load Reduction.

Empire used the MIDAS model to integrate demand-side and supply-side resources and develop and test its preferred resource plan. While it included the evaluation of several alternative resource plans, Staff found that Empire, like all the other electric utilities filings, was deficient in the important areas of risk analysis, strategy selection and contingency analysis.

With this report, Staff meets the requirement of 4 CSR 240-22.080 to file a report identifying the deficiencies it found in its limited review of Empire's compliance filing. Even though Staff found a number of deficiencies with respect to the filing, Staff would like to commend Empire on its resource plan filing. The filing for waivers prior to the resource plan filing assisted Staff and all of the other parties in its review of the filing. Information was well presented and the employees of Empire were always willing to answer questions and provide requested information. Empire provided access to the consultants that it used in its resource planning process.

In the sections of Staff's Report that follow, Staff identifies the requirements that were not met by Empire. Brief descriptions of these deficiencies are listed below.

#### **LIST OF DEFICIENCIES**

- 1) Demand-side alternatives were not considered on an equal basis with supply-side alternatives. 4 CSR 240-22.010(2)(A).**
- 2) Empire did not describe how its additional planning objectives affected its preferred resource plan choice. 4 CSR 240-22.010(2)(C).**
- 3) Lack of hourly load data detail. 4 CSR 240-22.030(1)(B)3.**



- 4) Documentation of forecasts of driver variables was not provided. 4 CSR 240-22.020(5)(B)1.A.
- 5) Sensitivity analysis was not conducted as required. 4 CSR 240-22.030(6).
- 6) Plots were not provided for the summer period, the remaining non-summer months and calendar year for number of units and energy usage per unit. 4 CSR 240-22.030(8)(A)1.
- 7) Empire did not provide all required costs and/or information for the supply-side resources. 4 CSR 240-22.040(1)(A-L).
- 8) Empire did not show that it analyzed all supply-side options identified in the rule nor did it provide any explanation on why it did not analyze all the supply-side options. 4 CSR 240-22.040(1)(A-L).
- 9) Empire provided incomplete information on costs of resources. 4 CSR 240-22.040(2)(A).
- 10) Empire provided incomplete information on environmental mitigation. 4 CSR 240-22.040(2)(B)2. and 3.
- 11) Empire provided incomplete information on environmental mitigation 4 CSR 240-22.040(2)(C).
- 12) Empire provided no documentation of any analysis of life extension and refurbishment of existing plants. 4 CSR 240-22.040(4).
- 13) Empire provided incomplete information on purchase power agreements. 4 CSR 240-22.040(5)(A-G).
- 14) Empire provided incomplete information regarding the fuel forecasts. 4 CSR 240-22.040(8)(A)3.
- 15) Empire provided incomplete information for capital costs. 4 CSR 240-040(8)(B)2.
- 16) Empire provided incomplete information for annual fixed and variable operation and maintenance costs. 4 CSR 240-040(8)(C)2.
- 17) Empire provided incomplete information for estimated emission costs. 4 CSR 240-22.040(8)(D)2.
- 18) Empire provided no information on leased or rented facilities. 4 CSR 240-040(8)(E).

- 19) Empire did not present a menu of end-use measures that include broad coverage of renewable energy sources and energy technologies that substitute for electricity at the point of use. 4 CSR 240-22.050(1)(D).
- 20) Empire did not explicitly identify market segments. 4 CSR 240-22.050(6)(A).
- 21) Empire did not present an analysis of interactions between end-use measures. 4 CSR 240-22.050(6)(B).
- 22) Empire did not present a designed marketing plan and delivery process of its demand-side programs. 4CSR 240-22.050(6)(D).
- 23) Empire did not develop and present evaluation plans for its demand-side programs. 4 CSR 240-22.050(9).
- 24) Deficiencies in supply-side and demand-side analysis limit the development of alternative resource plans. 4 CSR 240-22.060(3).
- 25) Empire did not treat supply-side and demand-side resources on a logically consistent and economically equivalent basis. 4 CSR 240-22.060(4)(D).
- 26) Empire provided no documentation that it did any analysis of load building programs. 4 CSR 240-22.060(5).
- 27) Empire did not provide the reporting requirement information for the four alternative plans it deemed contingency plans. 4 CSR 240-22.060(6)(C)6. - 9.
- 28) Empire did not conduct a preliminary sensitivity analysis of the uncertain factors listed in the rule. 4 CSR 240-22.070(2).
- 29) Empire provided limited documentation to show that the resource acquisition strategy was formally approved. 4 CSR 240-22.070(10).
- 30) Empire did not set out the range of critical uncertain factors for which the preferred resource plan or a contingency option is appropriate. 4 CSR 240-22.070(10)(C) and (D).
- 31) Empire did not develop a process for monitoring and reporting of critical uncertain factors. 4 CSR 240-22.070(10)(E).

#### **4 CSR 240-22.010 Policy Objectives**

##### **SUMMARY**

In addition to the primary planning objective stated in the rule (minimization of the present value of revenue requirements), Empire defined four additional resource planning considerations in choosing its preferred plan:

- To generate and provide reliable electric service while complying with all environmental requirements
- Minimize rate impacts for customers
- To achieve and/or maintain investment grade ratings on its debt; thus providing for corporate financial stability and minimizing the financing costs included in the rates paid by empire's customers
- To accommodate and manage cost, environmental, and load growth uncertainties

##### **DEFICIENCIES**

**1) Demand-side alternatives were not considered on an equal basis with supply-side alternatives. 4 CSR 240-22.010(2)(A).**

While Empire did allow the integration model to select DSM programs in a manner that was similar to the treatment of supply-side resources, it held the level and timing of each demand-side resource constant.

**2) Empire did not describe how its additional planning objectives affected its preferred resource plan choice. 4 CSR 240-22.010(2)(C).**

Although additional planning considerations were listed in the filing, it is unclear if these additional considerations constrain or limit the minimization of the present worth of expected utility costs. While the Commission's Rule recognizes that it may not be possible to quantitatively analyze such considerations, it does require that the utility document the process and rationale used by decision makers in balancing multiple planning objectives in selecting the preferred resource plan and in developing contingency options.

## **CSR 240-22.020 Load Analysis and Forecasting**

### **SUMMARY**

With respect to the Load Analysis and Forecasting Rule, waivers were requested by Empire and granted by the Commission regarding the provisions of the load analysis and forecasting rule having to do with forecasting subclasses (4 CSR 240-22.030(1)(A)), the starting point of the data base (4 CSR 240-22.030(1)(D)), end-use forecasting (4 CSR 240-22.030(3)), analysis of load profiles (4 CSR 240-22.030(4)), end-use detail (4 CSR 240-22.030(5)), and reporting requirements related to the other provisions of the rule for which a waiver was requested (4 CSR 240-22.030(8)). While some waivers were necessary because requirements for the use of end-use forecasting tools that no longer exist, other waivers were due to the cost, time and resources required in collecting end-use data.

Much of the end-use data is required for the load analysis portion of the rule. Load analysis is important because it helps the forecaster and the demand-side analyst better understand how customers use electricity. Staff expects that as the forecasting and demand-side analysis areas of the resource planning process continues to improve, Empire will collect the end-use information required to conduct meaningful analysis.

### **DEFICIENCIES**

#### **3) Lack of hourly load data detail. 4 CSR 240-22.030(1)(B)3.**

The utility is required to have actual and weather-normalized hourly net system loads. Empire did not provide actual or weather-normalized hourly net system load data. In its filing, Empire provided hourly loads for each class on a winter and summer peak day for various forecast years; however, Staff could not find files that contained historical hourly loads. Empire should provide actual and weather normalized hourly net system loads starting with January of 1996 as Empire proposed in its Application for Waivers.

**4) Documentation of forecasts of driver variables was not provided. 4 CSR 240-22.020(5)(B)1.A.**

This subparagraph requires, in part, that the forecasts of the driver variables used in the number of units forecasts be specified and clearly documented and differences between the forecasts of the driver variables and long-term and recent trends explained. Empire did not specify nor clearly document its forecast of the driver variables used to forecast number of units. Nor, did Empire explain the differences between the forecast of the driver variables and recent trends. Empire should provide documentation of its forecast of the driver variables used in its number of units forecasting process and explain the changes to the driver variables compared to the recent trends.

**5) Sensitivity analysis was not conducted as required. 4 CSR 240-22.030(6).**

This section requires the utility to analyze the sensitivity of the components of the base-case forecast for each major class to variations in the key driver variables, including the real price of electricity, the real price of competing fuels, and economic and demographic factors identified in 4 CSR 240-22.030(2). Empire indicated it used a set of high and low economic drivers which yielded a high and low customer growth forecast. Empire did not describe what changes were made to the economic drivers that resulted in changes in customer growth. Empire also did not use the real price of electricity or the real price of competing fuels in its sensitivity analysis as required by the rule. Thus, it is difficult to determine if the high and low forecasts provided by Empire are meaningful. Empire should conduct sensitivity analysis on its major class base-case forecasts to the price of electricity or the real price of competing fuels.

**6) Plots were not provided for the summer period, the remaining non-summer months and calendar year for number of units and energy usage per unit. 4 CSR 240-22.030(8)(A)1.**

The filing requirements include plots for number of units, energy usage per unit, and total class energy for the summer period (June through September), the remaining non-summer months and the calendar year. Empire provided these plots for total class energy, but not for number of units or energy per unit on a summer period/non-summer

period basis. Empire only included the data on a calendar year basis for those two measures.

#### **4 CSR 240-22.040 Supply-Side Resource Analysis**

##### **SUMMARY**

This rule requires the electric utility to review alternative supply-side resources and determine cost estimates for each type of resource in order to include these resources in the integration process used to determine a Preferred Resource Plan.

Empire started its review with a list of supply-side technologies which included pulverized coal, combustion turbine, combined cycle, nuclear, distributed generation, integrated gasification combined cycle (IGCC), atmospheric circulating fluidized bed, compressed air energy storage, wind, and biomass. All of these technologies except compressed air energy storage were passed on to the integration part of the planning process. The compressed air energy storage was dropped due to no project developments in Empire's region.

Empire currently has planned capacity additions of 100 MW of participation in the Iatan 2 coal unit starting in 2010 and 50 MW of participation in the Plum Point coal unit starting in 2010. In addition to its part ownership in these units, Empire plans to add a \*\* \_\_\_\_\_ \*\*. Empire has a purchased power agreement of 105 MW for wind beginning in 2009, and a purchased power agreement, with an option for future ownership, for an additional 50 MW of the Plum Point coal unit.

Empire's current purchased power contract with Westar's Jeffery Energy Center coal plant will end in 2010.

Empire's filing identifies its Preferred Resource Plan as adding the following to its currently planned capacity additions: \*\* \_\_\_\_\_

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### **DEFICIENCIES**

**7) Empire did not provide all required costs and/or information for the supply-side resources. 4 CSR 240-22.040(1)(A-L).**

None of the listed technologies have information for maturity of the technology (4 CSR 240-22.040(1)(C)), routine maintenance outage requirements (4 CSR 240-22.040(1)(H)), operational characteristics and constraints of significance (4 CSR 240-22.040(1)(J)), waste generation (4 CSR 240-22.040(1)(K)(2)), water impacts (4 CSR 240-22.040(1)(K)(3)), or siting impacts (4 CSR 240-22.040(1)(K)(4)).

**8) Empire did not show that it analyzed all supply-side options identified in the rule nor did it provide any explanation on why it did not analyze all the supply-side options. 4 CSR 240-22.040(1)(A-L).**

The documents Empire supplied do not include discussions of life extension and refurbishments at existing plants (other than \*\* \_\_\_\_\_  
\_\_\_\_\_) \*\*); enhancement of the emission controls at existing plants; purchased power from utility sources, cogenerators, or independent power producers; efficiency improvements; or upgrading transmission and distribution systems to reduce power and energy losses as required by the rule.

**9) Empire provided incomplete information on costs of resources. 4 CSR 240-22.040(2)(A).**

Empire provided no cost rankings of the resources over the useful life in the preliminary screening of supply-side options as required by this subsection.

**10) Empire provided incomplete information on environmental mitigation. 4 CSR 240-22.040(2)(B)2. and 3.**



Empire did include its expected costs of environmental mitigation costs in its analysis. However, the rule requires analysis of two levels of mitigation above the existing requirements which are judged to have a nonzero probability of being imposed at some point within the planning horizon. Empire did not supply documentation of this type of analysis.

**11) Empire provided incomplete information on environmental mitigation 4 CSR 240-22.040(2)(C).**

This subsection requires the utility to rank options based on cost estimates with and without probable environmental costs. Empire provided neither a ranking of technology option costs with probable environmental costs, nor a ranking without probable environmental costs.

**12) Empire provided no documentation of any analysis of life extension and refurbishment of existing plants. 4 CSR 240-22.040(4).**

Although documents were provide that discussed \*\* \_\_\_\_\_  
\_\_\_\_\_, no analysis was provided on the feasibility of this project or the cost estimates of this project. Empire did not provide any information on whether any other life extension and/or refurbishment projects were reviewed and/or analyzed for any of its other units.

**13) Empire provided incomplete information on purchase power agreements. 4 CSR 240-22.040(5)(A-G).**

Empire did not include an evaluation of any long-term purchase power agreements other than those currently planned. Empire did not identify any reason why it did not to include long-term purchase power agreements as part of its planning process.

Empire provided no information for the purchase type (4 CSR 240-22.040(5)(A)), MWh amount (4 CSR 240-22.040(5)(B)), contract price (4 CSR 240-22.040(5)(C)), duration (4 CSR 240-22.040(5)(D)), terms and conditions (4 CSR 240-22.040(5)(E)), transmission

requirements (4 CSR 240-22.040(5)(F)), or constraints (4 CSR 240-22.040(5)(G)) of any long-term purchase opportunities.

**14) Empire provided incomplete information regarding the fuel forecasts. 4 CSR 240-22.040(8)(A)3.**

No information was provided identifying any critical uncertain factors regarding fuel forecast analysis. In addition, no ranges of estimated costs were provided with a subjective probability distribution that reflects the uncertainty as required by this paragraph of the rule.

**15) Empire provided incomplete information for capital costs. 4 CSR 240-040(8)(B)2.**

No critical uncertain factors for capital costs were identified. In addition, no ranges of estimated costs were provided with a subjective probability distribution that reflects the uncertainty as required by this paragraph of the rule.

**16) Empire provided incomplete information for annual fixed and variable operation and maintenance costs. 4 CSR 240-040(8)(C)2.**

No critical uncertain factors for annual fixed and variable operation and maintenance costs were identified. No ranges of estimated costs were provided with a subjective probability distribution that reflects the uncertainty about these costs were provided as required by 4 CSR 240-22.040(8)(C)2.

**17) Empire provided incomplete information for estimated emission costs. 4 CSR 240-22.040(8)(D)2.**

No critical uncertain factors were identified for estimated emission costs. No ranges of estimated costs were provided with a subjective probability distribution that reflects the required uncertainty.

**18) Empire provided no information on leased or rented facilities. 4 CSR 240-040(8)(E).**

Annual payment schedules for leased or rented facilities are to be included in the supply-side analysis. No information was provided. If Empire does not have any leased or rented facilities, it should include such information in its documentation of its resource plan.

#### **4 CSR 240-22.050 Demand-Side Analysis**

##### **SUMMARY**

Empire and its consultant, Applied Energy Group (AEG), investigated and evaluated a number of DSM programs which include energy efficiency, demand response and affordability programs. This filing contains information regarding the cost effectiveness of the programs in Empire's Regulatory Plan as well as evaluations of the programs in the manner required by the Demand-Side Analysis rule.

Empire submitted a request for and was granted a number of waivers from the requirements of this rule for this filing. Many of the waivers granted are for parts of the rule that require Empire to develop end-use measures as if no existing programs (containing end-use measures) were in place. Many of the deficiencies listed below are for requirements regarding the evaluation of end-use measures or other requirements related to end-use measures. For instance, the deficiencies Staff found to 4 CSR 240-22.050(6) are the result of Empire already following or undertaking a "best practices" approach for the choice of end-use programs and measures. This "best practices" approach does not include the creation of the specific evaluation outputs expected by 4 CSR 240-22.050(6).

##### **DEFICIENCIES**

**19) Empire did not present a menu of end-use measures that include broad coverage of renewable energy sources and energy technologies that substitute for electricity at the point of use. 4 CSR 240-22.050(1)(D).**

Empire's report focuses on programs that include end-use energy efficiency or demand response measures. Empire did not present an evaluation of renewable energy sources or energy technologies that substitute for electricity at the point of use in its menu of end-use measures, as Empire relied on current programs based on "best practice" measures

that did not contain these types of measures. Empire did not include these measures in its waiver request.

**20) Empire did not explicitly identify market segments. 4 CSR 240-22.050(6)(A).**

In Section 3.6 of its Demand-Side Resource Analysis (Volume IV), Empire includes a consultant's recommendation that Empire conduct research into the area of market segments (specifically, an "Appliance Saturation Survey, followed by a Commercial End-Use Inventory"). However, this work has not been completed as of the filing of this resource plan, nor is there other evidence presented of this sort of work being previously conducted by Empire.

**21) Empire did not present an analysis of interactions between end-use measures. 4 CSR 240-22.050(6)(B).**

Empire's report focuses on programs of end-use measures, not end-use measures themselves. Empire did not present any analysis of the interaction between end-use measures, whether in existing programs or proposed new programs. Empire did not seek a waiver from this requirement.

**22) Empire did not present a designed marketing plan and delivery process of its demand-side programs. 4CSR 240-22.050(6)(D).**

While Empire does present information about and examples of marketing from 2005-2007 in Section 3.6 of its Volume IV, Empire does not present a designed marketing plan and delivery process. In Section 3.3.10 of Volume IV of its filing, Empire has presented a budget for "general product management and marketing", discussing how "it will be necessary to develop general marketing materials and infrastructure". Empire does state in Section 3.6 that it is working, with a consultant, on additional marketing research.

**23) Empire did not develop and present evaluation plans for its demand-side programs. 4 CSR 240-22.050(9).**

In Section 3.8 of its Volume IV, Empire discusses how, referencing a past stipulation, it plans to "hire an evaluation consultant in the next twelve months to perform the

evaluation of existing DSM programs". This referenced stipulation requirement does specify, on page 28 in section 6, that both process evaluation (4 CSR 240-22.050(9)(A)) and cost effectiveness evaluation (4 CSR 240-22.050(9)(B)) be completed.

#### **4 CSR 240-22.060 Integrated Resource Analysis**

##### **SUMMARY**

This rule requires the utility to design alternative resource plans with appropriate combinations of candidate demand-side and supply-side resources. Empire states that supply-side and demand-side resources were considered as available resources. While each DSM program was an available resource in the integration process, Empire assumed no variations in level and timing of the demand-side program.

Empire developed twelve alternative resource plans. Eleven plans were developed to respond to 12 different scenarios. The scenarios and their respective associated plans are listed below:

- Base assumptions – Plan 1
- High fuel, market, and wind prices – Plan 2
- Low fuel and market prices – Plan 3
- High load – Plan 4
- Low load – Plan 5
- \*\* \_\_\_\_\_ \*\* – Plan 9
- Base assumptions, nuclear available after 2020 – Plan 11
- Base assumptions, no coal after 2010 – Plan 12
- Medium environmental costs – Plan 6
- High environmental costs – Plan 7
- No Riverton CC conversion – Plan 8
- \*\* \_\_\_\_\_ \*\* – Plan 10

Empire deemed the last four plans listed above, Plans 6, 7, 8, and 10, as contingency scenarios and did not conduct the full stochastic analysis for these four plans.

##### **DEFICIENCIES**

**24) Deficiencies in supply-side and demand-side analysis limit the development of alternative resource plans. 4 CSR 240-22.060(3).**

Many of the deficiencies listed for the Supply-Side Resource Analysis (4 CSR 240-22.040) and Demand-Side Resource Analysis (4 CSR 240-22.050) will have a direct

effect on the development of alternative resource plans. For example, the supply-side deficiencies related to life extension and refurbishment of existing plants would significantly alter the timing and resource choices in the development of alternative resource plans if different extension and refurbishment assumptions were made. Similarly, demand-side deficiencies limit the development of alternative resource plans since varying levels of demand-side resources were not modeled.

**25) Empire did not treat supply-side and demand-side resources on a logically consistent and economically equivalent basis. 4 CSR 240-22.060(4)(D).**

Empire did allow the integration model to select DSM programs in a manner that was similar to the treatment of supply-side resources. However, since the level and timing of each demand-side resource was held constant, the value of changing the level and timing of demand-side programs was not assessed.

**26) Empire provided no documentation that it did any analysis of load building programs. 4 CSR 240-22.060(5).**

**27) Empire did not provide the reporting requirement information for the four alternative plans it deemed contingency plans. 4 CSR 240-22.060(6)(C)6. - 9.**

Staff would note that it believes that the Volume V of Empire's filing contains the information for the other eight alternative plans that responses to 4 CSR 240-22.060(6)(C)7. (figures 6, 7, and 8) and the information that responses to 4 CSR 240-22.060(6)(C)8. (figure 9). On page 4 of Volume V of the filing, Empire indicated that this information was in Appendix B, C, D, E or figure 18. These four plans also did not undergo the risk analysis that is defined in 4 CSR 240-22.070.



#### **4 CSR 240-22.070 Risk Analysis and Strategy Selection**

##### **SUMMARY**

This rule requires the utility to identify the critical uncertain factors that affect the performance of resource plans, establishes minimum standards for the methods used to assess the risks associated with these uncertainties, and requires the utility to specify and officially adopt a resource acquisition strategy. Empire states that after consideration of its situation, industry best practices, and key factors that impact its operation, Empire selected four key uncertainties: market and natural gas prices; load forecast; environmental costs; and capital and transmission costs. Empire determined that the primary risk driver is environmental costs, which is represented primarily by CO<sub>2</sub> regulation. Empire stated that “[d]ue to the filing requirements associated with an IRP in Missouri, Empire is scheduled to complete another IRP filing (in 2010 – based on a three year-cycle) prior to the initiation of substantive expenditures related to any uncommitted future capacity additions”. Empire outlined several tasks that it will be doing in the next three years but these tasks primarily monitor, track and evaluate developments.

A short discussion of Empire’s acquisition strategy is included on page 52 of Volume V of its filing.

##### **DEFICIENCIES**

**28) Empire did not conduct a preliminary sensitivity analysis of the uncertain factors listed in the rule. 4 CSR 240-22.070(2).**

Empire states that after consideration of its situation, industry best practices, and key factors that impact its operation, Empire selected four key uncertainties: (1) market and natural gas prices; (2) load forecast; (3) environmental costs; and (4) capital and transmission costs. No documentation was provided regarding the sensitivity analysis the 12 uncertainties listed in this section of the rule. Although the four key uncertainties

selected by Empire are related to some of the 12 uncertainties listed in this section of the rule, the goal of the required sensitive analysis is to identify the critical uncertain factors.

**29) Empire provided limited documentation to show that the resource acquisition strategy was formally approved. 4 CSR 240-22.070(10).**

Although the filing states that the “preferred plan and the implementation plan have been accepted and reviewed by Empire’s senior management and constitute its Resource Acquisition Strategy” [Volume V, page ES-8], the rule states that the “resource acquisition strategy shall be formally approved by the board of directors, a committee of senior management, an officer of the company or other responsible party who has been delegated the authority to commit the utility to the course of action described in the resource acquisition strategy.” It was unclear from the filing that these persons had been delegated the authority to commit the utility to the course of action described in the resource acquisition strategy.

**30) Empire did not set out the range of critical uncertain factors for which the preferred resource plan or a contingency option is appropriate. 4 CSR 240-22.070(10)(C) and (D).**

Empire generally discussed its resource acquisition strategy on page 52, Volume V, of its filing but it did not set out the ranges required in 4 CSR 240-22.070(10)(C) or the contingency options required in 4 CSR 240-22.070(10)(D). Given the fact that the alternative resource plans developed by Empire were designed to address specific scenarios, the alternative resource plans that Empire developed would likely have been similar to some of the contingency options required by 4 CSR 240-22.070(10)(D).

**31) Empire did not develop a process for monitoring and reporting of critical uncertain factors. 4 CSR 240-22.070(10)(E).**

Empire stated that it monitors the potential enactment of a carbon tax or carbon cap and trade legislation by the U.S. Congress. Empire will reexamine its decisions for future system expansions as the need for additional resources become more evident. However, that does not meet the requirements of 4 CSR 240-22.070(10)(E) which requires that the

resource acquisition strategy include a process for monitoring and reporting significant changes regarding the critical uncertain factors. Empire did not develop a process for monitoring critical uncertain factors on a continuous basis and reporting significant changes to those managers or officers who have authority to direct the implementation of contingency options when the specified limits for uncertain factors are exceeded.

**BEFORE THE PUBLIC SERVICE COMMISSION  
OF THE STATE OF MISSOURI**

Empire District Electric Company )  
Pursuant to CSR 240-22 )

Case No. EO-2008-0069

**AFFIDAVIT OF LENA M. MANTLE**

STATE OF MISSOURI     )  
                                  ) ss  
COUNTY OF COLE     )

Lena M. Mantle, of lawful age, on oath states: that she has participated in the preparation of the following Staff Report in pages 1 to 6; that she has knowledge of the matters set forth in such Report; and that such matters are true to the best of her knowledge and belief.

  
\_\_\_\_\_  
Lena M. Mantle

Subscribed and sworn to before me this 15<sup>th</sup> day of January, 2008 .



SUSAN L. SUNDERMEYER  
My Commission Expires  
September 21, 2010  
Callaway County  
Commission #06942086

  
\_\_\_\_\_  
Notary Public

**BEFORE THE PUBLIC SERVICE COMMISSION  
OF THE STATE OF MISSOURI**

Empire District Electric Company )  
Pursuant to CSR 240-22 )

Case No. EO-2008-0069

**AFFIDAVIT OF DANIEL I. BECK**

STATE OF MISSOURI     )  
                                  ) ss  
COUNTY OF COLE        )

Daniel I. Beck, of lawful age, on oath states: that he has participated in the preparation of the following Staff Report in page 7 and 19 to 23; that he has knowledge of the matters set forth in such Report; and that such matters are true to the best of his knowledge and belief.



\_\_\_\_\_  
Daniel I. Beck

Subscribed and sworn to before me this 15<sup>th</sup> day of January, 2008 .



SUSAN L. SUNDERMEYER  
My Commission Expires  
September 21, 2010  
Callaway County  
Commission #06942086

  
\_\_\_\_\_  
Notary Public

**BEFORE THE PUBLIC SERVICE COMMISSION  
OF THE STATE OF MISSOURI**

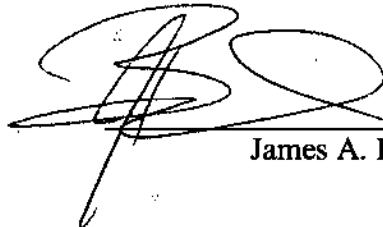
Empire District Electric Company )  
Pursuant to CSR 240-22 )

Case No. EO-2008-0069

**AFFIDAVIT OF JAMES A. BUSCH**

STATE OF MISSOURI     )  
                                  ) ss  
COUNTY OF COLE     )

James A. Busch, of lawful age, on oath states: that he has participated in the preparation of the following Staff Report in pages 8 to 10; that he has knowledge of the matters set forth in such Report; and that such matters are true to the best of his knowledge and belief.

  
\_\_\_\_\_  
James A. Busch

Subscribed and sworn to before me this 15<sup>th</sup> day of January, 2008 .



DAWN L. HAKE  
My Commission Expires  
March 16, 2009  
Cole County  
Commission #06407843

  
\_\_\_\_\_  
Notary Public

**BEFORE THE PUBLIC SERVICE COMMISSION  
OF THE STATE OF MISSOURI**

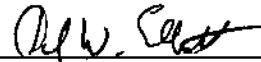
Empire District Electric Company )  
Pursuant to CSR 240-22 )

Case No. EO-2008-0069

**AFFIDAVIT OF DAVID W. ELLIOT**

STATE OF MISSOURI     )  
                                  ) ss  
COUNTY OF COLE     )

David W. Elliot, of lawful age, on oath states: that he has participated in the preparation of the following Staff Report in pages 11 to 15; that he has knowledge of the matters set forth in such Report; and that such matters are true to the best of his knowledge and belief.



David W. Elliot

Subscribed and sworn to before me this 15<sup>th</sup> day of January, 2008 .



SUSAN L. SUNDERMEYER  
My Commission Expires  
September 21, 2010  
Callaway County  
Commission #08942086

  
Notary Public