BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of Kansas City Power & Light Company's 2018 Triennial Compliance Filing Pursuant to 4 CSR 240-22	)))	**File No. EO-2018-0268**

STAFF'S REPORT ON KANSAS CITY POWER & LIGHT COMPANY'S 2018 CHAPTER 22 TRIENNIAL COMPLIANCE FILING

COMES NOW the Staff of the Missouri Public Service Commission and, in response to Kansas City Power & Light Company's April 2, 2018 Chapter 22 triennial compliance filing, in accord with rule 4 CSR 240-22.080(7)[1] files the attached report of its limited review of that filing. In its report, Staff identifies three (3) deficiencies and four (4) concerns with Kansas City Power & Light Company's compliance filing, and suggests remedies for each.

Respectfully submitted,

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[1] This rule requires Staff to file its report of its limited review within 150 days of when the compliance filing is made.

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing was served by electronic mail, or First Class United States Postal Mail, postage prepaid, on this 30th day of August 2018, to all counsel of record.

/s/ Casi Aslin

MISSOURI PUBLIC SERVICE COMMISSION

STAFF REPORT

KANSAS CITY POWER & LIGHT COMPANY

ELECTRIC UTILITY RESOURCE PLANNING COMPLIANCE FILING

FILE NO. EO-2018-0268

August 30, 2018

**** Denotes Confidential Information ****

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Executive Summary

On April 2, 2018, Kansas City Power & Light Company ("KCPL" or "Company"), filed its 2018 Integrated Resource Plan ("IRP") triennial compliance filing ("Filing") in File No. EO-2018-0268, as required by 4 CSR 240-22 Electric Utility Resource Planning.[1] Staff provides this Report as required by Commission Rule 4 CSR 240-22.080(7):

> (7) The staff shall conduct a limited review of each triennial compliance filing required by this rule and shall file a report not later than one hundred fifty (150) days after each utility's scheduled triennial compliance filing date. The report shall identify any deficiencies in the electric utility's compliance with the provisions of this chapter, any major deficiencies in the methodologies or analyses required to be performed by this chapter, and any other deficiencies and shall provide at least one (1) suggested remedy for each identified deficiency. Staff may also identify concerns with the utility's triennial compliance filing, may identify concerns related to the substantive reasonableness of the preferred resource plan or resource acquisition strategy, and shall provide at least one (1) suggested remedy for each identified concern.

As a result of its limited review, and as more fully discussed throughout this report ("Report"), Staff identified three (3) deficiencies and four (4) concerns regarding KCPL's 2018 IRP:

List of Staff's Identified Deficiencies

> **Deficiency 1: KCPL's base-case load forecast is based on a cutoff date of June 2017 for all implemented MEEIA Cycle 2 programs and does not include the load impacts of implemented MEEIA Cycle 2 demand-side programs through March 2019, the end of MEEIA Cycle 2. This is a violation of 4 CSR 22.030(7).[2]**
>
> **Deficiency 2: KCPL's use of ** ____ ** per kW year (2015 dollars) drastically overstates KCPL's avoided capacity cost of generation, transmission, and distribution facilities, adjusted to reflect reliability reserve margins and capacity losses on the transmission and distribution systems, because Plan KAAHA (No DSM) includes no new non-renewable supply-side resources during the entire 20-years of the planning horizon. KCPL's use of**

[1] Chapter 22 Electric Utility Resource Planning rules 4 CSR 240-22.010, .020, 030, .040, .050, .060, .070 and .080 were all revised effective May 31, 2011. Rule 4 CSR 240-22.045 Transmission and Distribution Analysis became a new rule effective May 31, 2011.

[2] 4 CSR 240-22.050(7) Base-Case Load Forecast. The utility's base-case load forecast shall be based on projections of the independent variables that utility decision-makers believe to be most likely. All components of the base-case load forecast shall assume normal weather conditions. The load impacts of implemented demand-side programs and rates shall be incorporated in the base-case load forecast, but the load impacts of proposed demand-side programs and rates shall not be included in the base-case forecast.

**** ____ ** per kW year (2015 dollars) to value avoided capacity cost benefits is in violation of rule 4 CSR 240-20.092(1)(C).**

Deficiency 3: Because KCPL considered and analyzed alternative resource plans with demand-side resources when it is not in need of any new non-renewable supply-side resources for the entire 20-year planning horizon and did not consider and analyze alternative resource plans with new low cost supply-side resources to compete with the new demand-side resources on an equivalent basis, KCPL did not comply with 4 CSR 240-22.060(1) and 4 CSR 240-22.010(2) (A).

List of Staff's Identified Concerns

Concern A: Because KCPL has used drastically overstated avoided capacity cost benefits when calculating the total resource cost test (TRC) results for its demand-side programs and portfolio, the programs may not comply with 393.1075.3., RSMo.[3]

Concern B: Because KCPL's demand-side programs do not defer any non-renewable supply-side resources during the 20-year planning horizon, it is expected that there will be little, if any, benefits for customers who do not participate in the programs, resulting in programs which may be in violation of 393.1075.3. and 4., RSMo.[4]

Concern C: Because KCPL did not include any analysis required by 4 CSR 240-20.093(4)(C)4 in its 2018 IRP, Staff is concerned that the earning opportunity component of a DSIM included in the IRP and in the anticipated KCPL MEEIA Cycle 3 application may not be as well informed as it should be.

Concern D: KCPL's decision makers may have selected an adopted preferred resource plan which includes a MEEIA RAP portfolio of demand-side programs which does not comply with the legal mandate in 393.1075. 4., because the RAP programs may not provide benefits to all customers, including those customers who do not participate in the programs.[5]

[3] 393.1075.4. The commission shall permit electric corporations to implement commission-approved demand-side programs proposed pursuant to this section with a goal of achieving all cost-effective demand-side savings. … The commission shall consider the total resource cost test a preferred cost-effectiveness test.

[4] 393.1075.4. Recovery for such programs shall not be permitted unless the programs are approved by the commission, result in energy or demand savings and are beneficial to all customers in the customer class in which the programs are proposed, regardless of whether the programs are utilized by all customers.

[5] 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 compliance with all legal mandates, and in a manner that serves the public interest and is consistent with state energy and environmental policies. 393.1075.4. … Recovery for such programs shall not be permitted unless the programs are approved by the commission, result in energy or demand savings and are beneficial to all customers in the customer class in which the programs are proposed, regardless of whether the programs are utilized by all customers.

4 CSR 240-22.010 Policy Objectives

Linkage between Chapter 22 Rules, the MEEIA and MEEIA Rules

Staff performed its review of the Filing in the context of the Commission's Chapter 22 Rules,[6] the Missouri Energy Efficiency Act of 2009[7] ("MEEIA"), and the Commission's MEEIA Rules.[8] Staff performed its review in this way because the policy objectives of Chapter 22 and of MEEIA are inseparable for electric utilities, since Rule 4 CSR 240-22.010(2) states:

> 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 compliance with all legal mandates, and *in a manner that serves the public interest and is consistent with state energy and environmental policies.* …
> (Emphasis added)

MEEIA establishes the following state energy policy for valuing demand-side resources and supply-side resources and for the cost recovery of these resources for Missouri's electrical corporations[9] in Section 393.1075.3 and 4:

> 3. It shall be the policy of the state to value demand-side investments equal to traditional investments in supply and delivery infrastructure and allow recovery of all reasonable and prudent costs of delivering cost-effective demand-side programs. In support of this policy, the commission shall:
> (1) Provide timely cost recovery for utilities;
> (2) Ensure that utility financial incentives are aligned with helping customers use energy more efficiently and in a manner that sustains or enhances utility customers' incentives to use energy more efficiently; and
> (3) Provide timely earnings opportunities associated with cost-effective measurable and verifiable efficiency savings.
>
> 4. The commission shall permit electric corporations to implement commission-approved demand-side programs proposed pursuant to this section with a goal of achieving all cost-effective demand-side savings. Recovery for such programs shall not be permitted unless the programs are approved by the commission, result in energy or demand savings and are beneficial to all customers in the customer class in which the programs are proposed, regardless of whether the programs are utilized by all customers. The commission shall consider the total resource cost test a preferred cost-effectiveness test.

[6] 4 CSR 240-22 Electric Utility Resource Planning.
[7] 393.1075, RSMo.
[8] 4 CSR 240-20.092 and revised 4 CSR 240-20.093 and 4 CSR 240-20.094 became effective September 30, 2017.
[9] 4 CSR 240-22.020(16): "Electric utility or utility means any electrical corporation as defined in section 386.020, RSMo, which is subject to the jurisdiction of the commission."

Although electric utilities are not required to request Commission approval of demand-side programs and a demand-side programs investment mechanism ("DSIM") under MEEIA and the Commission's MEEIA rules, electric utilities are required to comply with the Commission's Chapter 22 Rules which establish that the fundamental objective of the electric utility resource planning process at each electric utility shall be to provide the public with energy services that are safe, reliable, and efficient, at just and reasonable rates, in compliance with all legal mandates, and in a manner that serves the public interest and is consistent with state energy and environmental policies. Because MEEIA establishes state energy policy, each electric utility is required – as part of its electric utility resource planning – to develop candidate resource plans and to analyze and document DSIMs which can allow the electric utility to make reasonable progress toward a goal of all cost-effective demand-side savings.[10]

The MEEIA rules provide – in 4 CSR 240-20.094(3) – detailed requirements for conducting current market potential studies including requirements for: 1) use of primary research, 2) updating the potential study no less frequently than every four (4) years, 3) review by Staff and stakeholders of required documentation, and 4) identification and discussion of the twenty (20)-year baseline energy and demand forecasts. Chapter 22 includes specific requirements for demand-side management potential studies in 4 CSR240-22.050(2), demand-side programs potential in 4 CSR 240-22.050(3), and demand-side rates potential in 4 CSR 240-22.050(4).

Staff Expert Witness: John Rogers and Brad Fortson

4 CSR 240-22.030 Load Analysis and Load Forecasting

Summary

4 CSR 240-22.030, Load Analysis and Load Forecasting, has a stated purpose of setting the "minimum standards for the maintenance and updating of historical data, the level of detail required in analyzing loads, and the purposes to be accomplished by load analysis and by load forecast models." The load analysis discussed in this rule is intended to support both demand-side management efforts of 4 CSR 240-22.050 and the load forecast models of this rule.

[10] 4 CSR 240-20.094(2) Guideline to Review Progress Toward an Expectation that the Electric Utility's Demand-Side Programs Can Achieve a Goal of All Cost-Effective Demand-Side Savings, which was effective September 30, 2017.

This rule also sets the minimum standards for the documentation of the inputs, components, and methods used to derive the load forecasts." The Load Analysis and Load Forecasting Rule allows the utility to use multiple analytical methods for performing its load analysis and develop its forecasts, leaving it to the utility's discretion to choose the methods by which it achieves the stated purpose of the rule. KCPL did not request any waivers from specific provisions of this rule.

KCPL's load analysis and load forecasting resulted in 20-year base load forecasts for energy and demand, which have compound annual growth rates of 0.57% and 0.45%, respectively. The Company's base, low, and high energy and demand load forecasts are included on page 1 of Addendum A. Pages 2 and 3 of Addendum A contain KCPL's historical and base energy and demand load forecasts from 2002 through 2018 and reflect the continuous decline in both energy and demand load forecasts over this time period.

In Staff's limited review of KCPL's load analysis and energy and demand forecasting, Staff found one (1) deficiency concerning compliance with this rule and Staff has not identified any concerns.

Deficiency

Deficiency 1: KCPL's base-case load forecast is based on a cutoff date of June 2017 for all implemented MEEIA Cycle 2 programs and does not include the load impacts of implemented MEEIA Cycle 2 demand-side programs through March 2019, the end of MEEIA Cycle 2. This is a violation of 4 CSR 22.030(7).[11]

To remedy this deficiency, KCPL should comply with 4 CSR 22.030(7) in all future IRP compliance filings by including the load impacts of Commission-approved and implemented demand-side programs and rates in the base-case load forecast.

Staff Expert Witness: Brad Fortson

[11] 4 CSR 240-22.050(7) Base-Case Load Forecast. The utility's base-case load forecast shall be based on projections of the independent variables that utility decision-makers believe to be most likely. All components of the base-case load forecast shall assume normal weather conditions. The load impacts of implemented demand-side programs and rates shall be incorporated in the base-case load forecast, but the load impacts of proposed demand-side programs and rates shall not be included in the base-case forecast.

4 CSR 240-22.040 Supply-Side Resource Analysis

Summary

Rule 4 CSR 240-22.040 Supply-Side Resource Analysis requires KCPL to review existing resources for opportunities to upgrade or retire existing resources and also review a wide variety of supply-side resource options to determine cost estimates for each type of resource.

Resource options are to be ranked based upon their relative levelized annual costs,[12] including installed capital costs, fixed and variable operation and maintenance costs, and probable environmental costs levelized over the useful life of the potential supply-side resource option using the utility discount rate.[13] Resources which do not have significant disadvantages and pass the pre-screening process are to be included in the integrated resource analysis process used to select a preferred resource plan.

The only potential supply-side resource option that was screened and passed on for integrated resource analysis is combustion turbine (CT) technologies. Three combustion turbine technologies were identified for the prescreening process and one of those was chosen to move into integrated resource analysis. As shown in Table 13 of Volume 4 of the IRP, their nominal cost rankings on a dollar per MWh basis were relatively similar. The CT technologies of the LM6000 and the LMS100 were not passed on to the integrated resource planning process. The GE 7FA.05 combustion turbine technology was passed on to the integrated resource planning process.

Staff has not identified any deficiencies or concerns related to KCPL's supply-side resource analysis.

Staff Expert Witness: John Rogers

4 CSR 240-22.045 Transmission and Distribution Analysis

Summary

Rule 4 CSR 240-22.045 Transmission and Distribution Analysis specifies minimum standards for the scope and level of detail required for transmission and distribution network

[12] 4 CSR 240-22.020(29) Levelized cost means the dollar amount of a fixed annual payment for which a stream of those payments over a specified period of time is equal to a specified present value based on a specified rate of interest.
[13] 4 CSR 240-22.040(2)(A).

analysis and reporting. Rule 4 CSR 240-22.045 does not prescribe how analyses are to be done, but rather allows a utility to conduct its own analysis or adopt the regional transmission operator ("RTO") or Independent Transmission System Operator ("ISO") transmission plans. Rule 4 CSR 240-22.045 requires analysis and documentation of the RTO/ISO transmission projects and requires the electric utility to review transmission and distribution for the reduction of power losses, interconnection of new generation facilities, facilitation of sales and purchases, and incorporation of advance technologies for the optimization of investment in transmission and distribution resources.

The Staff has not identified any deficiencies or concerns related to KCPL's transmission and distribution analysis.

Staff Expert Witness: John Rogers

4 CSR 240-22.050 Demand-Side Resource Analysis

Summary

Rule 4 CSR 240-22.050, Demand-Side Resource Analysis, specifies the methods by which end-use measures and demand-side programs shall be developed and screened for cost-effectiveness. It also requires the ongoing evaluation of end-use measures and programs, and the use of program evaluation, measurement and verification ("EM&V") to improve program design and cost-effectiveness analysis.

KCPL continues to build on its DSM planning, implementation, and evaluation performance from its initial implementation of DSM programs in 2008 followed by MEEIA Cycle 1 from July 6, 2014, through December 31, 2015, and MEEIA Cycle 2, which began April 1, 2016, and is scheduled to end March 31, 2019.

Great Plains Energy engaged Applied Energy Group (AEG) to conduct a 2016 Demand-Side Management (DSM) Potential Study in November 2015. The DSM potential study encompassed the KCP&L-MO, KCP&L-KS, and KCP&L-Greater Missouri Operations (GMO) service territories and was delivered to GPE in April 2017 and included both a realistic achievable potential[14] ("RAP") and a maximum achievable potential[15] ("MAP") level of DSM,

[14] 4 CSR 240-20.092((00) Realistic achievable potential means energy savings and demand savings relative to a utility's baseline energy forecast and baseline demand forecast, respectively, resulting from expected program participation and realistic implementation conditions. Realistic achievable potential establishes a realistic target for demand-side savings that a utility can expect to achieve through its demand-side programs and involves incentives

as defined in the IRP Rules. This Potential Study was used as the basis for the scenarios evaluated in this integrated analysis.

Subsequent to this filing, KCPL will develop and prepare its next filing for MEEIA Cycle 3, which is planned to begin April 1, 2019. KCPL will use the DSM levels in the preferred plan as the basis for the Cycle 3 planning, however, the final Commission approved programs could vary from the preferred plan. In addition, the MEEIA stakeholders will have an opportunity to provide input and recommendations on budgets, energy savings targets, and peak demand reduction targets when KCPL makes its next application for MEEIA Cycle 3.

Based on its limited review, Staff concludes KCPL's Demand-Side Resource Analysis filing failed to comply with 4 CSR 240-20.092(1)(C).[16] KCPL used ****** ____ ****** per kW year[17] (2015 dollars) as its avoided cost of capacity including avoided cost of transmission and distribution in each year of the 20-year planning horizon even though KCPL has no need for new non-renewable supply-side capacity resources throughout the 20-year planning horizon in its Plan KAAHA (No DSM) and "has not currently identified any avoided transmission and distribution (T&D) costs from load reductions on specific circuits."[18] Staff is of the opinion that there can be no avoided capacity cost during a time period in which there is not a need to invest in new non-renewable supply-side resources.

As a result of its limited review of KCPL's demand-side resource analysis, Staff has identified one (1) deficiency and two (2) concerns.

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that represent a moderate portion of total program costs and longer customer payback periods when compared to those associated with maximum achievable potential;

[15] 4 CSR 240-20.092(1)(EE) Maximum achievable potential means energy savings and demand savings relative to a utility's baseline energy forecast and baseline demand forecast, respectively, resulting from expected program participation and ideal implementation conditions. Maximum achievable potential establishes a maximum target for demand-side savings that a utility can expect to achieve through its demand-side programs and involves incentives that represent a very high portion of total programs costs and very short customer payback periods. Maximum achievable potential is considered the hypothetical upper-boundary of achievable demand-side savings potential, because it presumes conditions that are ideal and not typically observed;

[16] 4 CSR 20.092(1)(C) Avoided costs or avoided utility costs means the cost savings obtained by substituting demand-side programs for existing and new supply-side resources. Avoided costs include avoided utility costs resulting from demand-side programs' energy savings and demand savings associated with generation, transmission, and distribution facilities including avoided probable environmental compliance costs. The utility shall use the integrated resource plan and risk analysis used in its most recently adopted preferred resource plan to calculate its avoided costs;

[17] Table 60 on page 114 of Volume 5.

[18] KCPL response to Staff Data Request No. 0012.

Deficiency

Deficiency 2: KCPL's use of ** ____ ** per kW year (2015 dollars) drastically overstates KCPL's avoided capacity cost of generation, transmission, and distribution facilities, adjusted to reflect reliability reserve margins and capacity losses on the transmission and distribution systems, because Plan KAAHA (No DSM) includes no new non-renewable supply-side resources during the entire 20-years of the planning horizon. KCPL's use of ** ____ ** per kW year (2015 dollars) to value avoided capacity cost benefits is in violation of rule 4 CSR 240-20.092(1)(C).

To remedy this deficiency, KCPL should calculate the avoided capacity cost it uses for its MEEIA Cycle 3 application and all future Chapter 22 compliance filings to comply with 4 CSR 240-22.092(1)(C).

Concerns

Concern A: Because KCPL has used drastically overstated avoided capacity cost benefits when calculating the total resource cost test (TRC) results for its demand-side programs and portfolio, the programs may not comply with 393.1075.3., RSMo.[19]

Concern B: Because KCPL's demand-side programs do not defer any non-renewable supply-side resources during the 20-year planning horizon, it is expected that there will be little, if any, benefits for customers who do not participate in the programs, resulting in programs which may be in violation of 393.1075.3. and 4., RSMo.[20]

To remedy these concerns, KCPL should 1) use an avoided capacity cost, which is consistent with the fact that Plan KAAHA (No DSM) includes no new non-renewable supply-side resources during the entire 20-years of the planning horizon when valuing benefits for its demand-side programs, and 2) select MEEIA programs which have TRCs greater than 1.00[21] and are expected to provide benefits for all customers, even those customers who do not participate in the programs in a meaningful way.

Staff Expert Witnesses: Brad Fortson

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[19] 393.1075.4. The commission shall permit electric corporations to implement commission-approved demand-side programs proposed pursuant to this section with a goal of achieving all cost-effective demand-side savings. … The commission shall consider the total resource cost test a preferred cost-effectiveness test.

[20] 393.1075.4. Recovery for such programs shall not be permitted unless the programs are approved by the commission, result in energy or demand savings and are beneficial to all customers in the customer class in which the programs are proposed, regardless of whether the programs are utilized by all customers.

[21] 393.1075.4. … Programs targeted to low-income customers or general education campaigns do not need to meet a cost-effectiveness test, so long as the commission determines that the program or campaign is in the public interest. Nothing herein shall preclude the approval of demand-side programs that do not meet the test if the costs of the program above the level determined to be cost-effective are funded by the customers participating in the program or through tax or other governmental credits or incentives specifically designed for that purpose.

4 CSR 240-22.060 Integrated Resource Plan and Risk Analysis

Summary

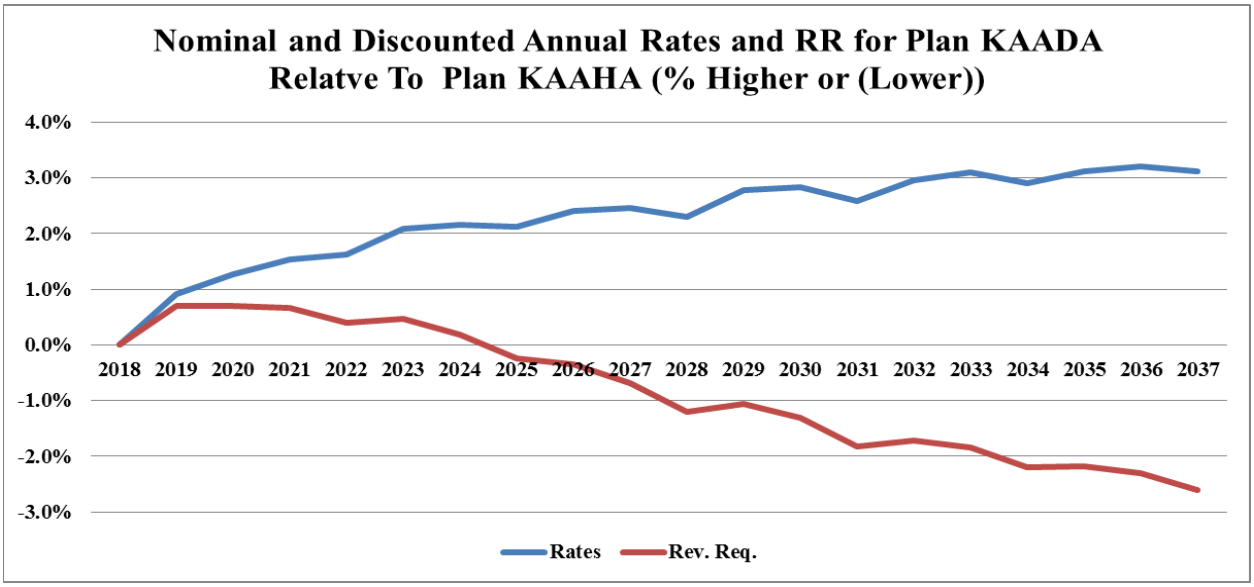
This rule requires the utility to design alternative resource plans to meet the planning objectives identified in Rule 4 CSR 240-22.010(2), and sets minimum standards for the scope and level of detail required in resource plan analysis and for the logically consistent and economically equivalent analysis of alternative resource plans. The utility is to identify the critical uncertain factors that affect the performance of alternative resource plans and establishes minimum standards for the methods used to assess the risks associated with these uncertainties. The utility shall develop alternative resource plans for analysis that maximize reliance on energy efficiency and renewable energy resources and then develop optimal cases. The rule requires the development of alternative resource plans based on normal conditions and also to assess the robustness of each plan under more extreme conditions (high and low cases). The rule requires inclusion of performance measures of present worth of utility revenue requirements, with and without any financial performance incentives the utility is planning to request. The rule also requires analysis of financial parameters and, if required, description of any changes in legal mandates and cost recovery mechanisms necessary for the utility to maintain an investment grade credit rating and documentation of the methods, analyses, judgments, and data the utility chooses.

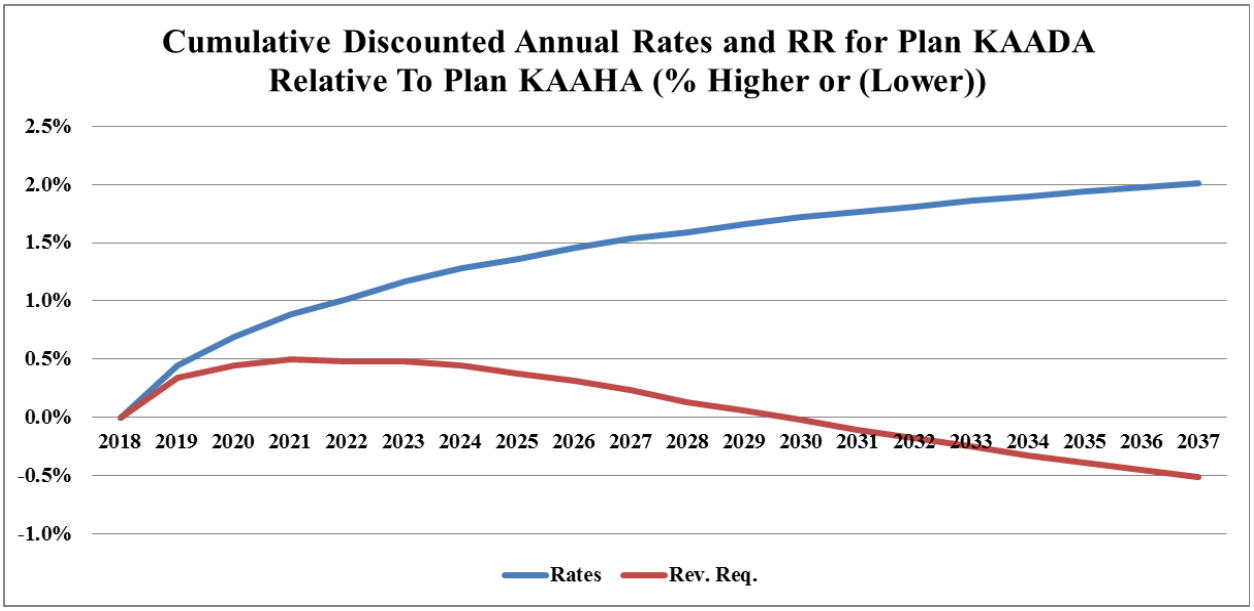
KCPL developed, considered, and analyzed the present worth of long-run utility costs for 14 alternative resource plans by calculating the PVRR for each plan (see Addendum B). While the GE 7FA.05 combustion turbine technology was passed on to the integrated resource analysis as a result of screening analysis in 4 CSR 240-22.040, the GE 7FA.05 combustion turbine technology was not included in any alternative resource plans because KCPL does not need additional new non-renewable supply-side capacity during the entire 20-year planning horizon.

Addendum C contains the confidential capacity balance sheets for the adopted preferred resource plan, Plan KAADA, and Plan KAAHA (No DSM). If KCPL does not need capacity from new non-renewable supply-side resources for 20-years, why would KCPL need capacity from demand-side resources during this same period? If KCPL includes new demand-side resources in alternative resource plans when it does not need capacity, it logically follows that KCPL should include new low cost supply-side resources – such as low cost wind - in alternative

resource plans during 2019 – 2024 time period to validate that the adopted preferred resource plan (Plan KAADA) is indeed the low cost plan for all customers. Staff believes the primary benefit for all customers as a result of Plan KAADA are the additional off-system sales as a result of Plan KAADA (RAP DSM) relative to Plan KAAHA (No DSM) and not the deferral of new non-renewable supply-side resource. Such additional off-system sales can also be achieved by new low cost supply-side resources, which should be tested through integrated resource analysis.

Staff analyzed the relative differences in the annual revenue requirements and the annual rates for Plan KAADA (RAP DSM) relative to Plan KAAHA (No DSM).





These charts illustrate that with multiple RAP MEEIA cycles:

- It will take until 2030 for all customers to break even on their investment in MEEIA;
- By 2037, there is only a 0.5% cumulative reduction in discounted annual revenue requirements due to the adopted preferred resource plan, Plan KAADA (RAP DSM), relative to Plan KAAHA (No DSM); and
- Because Plan KAADA (RAP DSM) does not defer any new non-renewable supply-side resources during the 20-year planning horizon, rates for all customers continue to increase throughout the 20-year planning horizon and are 2.0% higher on a cumulative discounted annual basis by 2037.

Further, because MEEIA programs and DSIMs are approved by the Commission in discrete "cycle" increments, Staff contends that any utility that includes MEEIA programs and DSIM in its implementation plan should also comply with 4 CSR 240-20.093(4)(C)4.[22] While not a Chapter 22 filing requirement, 4 CSR 240-20.093(4)(C)4 is a filing requirement for MEEIA. An integrated resource analysis of the implementation plan's 6-year MEEIA Cycle 3 without any additional MEEIA cycles after Cycle 3 is necessary to determine the impacts from the 6-year MEEIA Cycle 3 plan on any postponement of new supply-side resources and the early retirement of existing supply-side resources, including annual and net present value of any lost

[22] 4 CSR 240-20-.093(4)(C) Demonstration of cost-effectiveness of each demand-side program and for the total of all demand-side programs of the utility ….. 4. The impacts from all demand-side programs included in the application on any postponement of new supply-side resources and the early retirement of existing supply-side resources, including annual and net present value of any lost earning utility earnings related thereto.

earning utility earnings related thereto. The lack of such an analysis in this IRP is a concern to Staff.

Based on its limited review, Staff has one (1) deficiency and one (1) concern regarding KCPL's integrated resource plan and risk analysis.

Deficiency

Deficiency 3: Because KCPL considered and analyzed alternative resource plans with demand-side resources when it is not in need of any new non-renewable supply-side resources for the entire 20-year planning horizon and did not consider and analyze alternative resource plans with new low cost supply-side resources to compete with the new demand-side resources on an equivalent basis, KCPL did not comply with 4 CSR 240-22.060(1) and 4 CSR 240-22.010(2) (A).

To remedy this deficiency, KCPL should evaluate low cost supply-side resources in additional alternative resource plans with no new demand-side programs in compliance with 4 CSR 240-22.060(1) and 4 CSR 240-22.010(2)(A) for its MEEIA Cycle 3 application and all future Chapter 22 compliance filings.

Concern

Concern C: Because KCPL did not include any analysis required by 4 CSR 240-20.093(4)(C)4 in its 2018 IRP, Staff is concerned that the earning opportunity component of a DSIM included in the IRP and in the anticipated KCPL MEEIA Cycle 3 application may not be as well informed as it should be.

To remedy this concern, KCPL should comply with 4 CSR 240-20.093(4)(C)4 in its future IRP and MEEIA filings.

Staff Expert Witness: John Rogers

4 CSR 240-22.070 Resource Acquisition Strategy Selection

Summary

Rule 4 CSR 240-22.070, Risk Analysis and Strategy Selection, requires the utility to select a preferred resource plan, develop an implementation plan, and officially adopt a resource acquisition strategy. The rule also requires the utility to prepare contingency plans and evaluate the demand-side resources that are included in the resource acquisition strategy.

KCPL did not apply for any waivers from the requirements of this rule.

KCPL's probability tree (see Addendum D) consists of the following dependent three critical dependent uncertain factors:

- Load growth
- Natural gas prices
- CO_2 policy

There are no dependent critical uncertain factors included in the analysis.

The decision tree for the decision analysis contained eighteen (18) end points ("EP"). KAADA emerges as the lowest cost in all but four scenarios. In EP 18 - representing low load growth, low gas price, no CO2 tax, the overall second ranked plan (KAALA) has a $0.171 Million lower revenue requirement than Preferred Plan KAADA. In three endpoints - EPs 5, 11 and 17- plan KBBDA is the lowest cost plan. KBBDA, has LaCygne 1 retiring in 2025, and represents the low natural gas prices combined with CO2 restrictions at all load growth scenarios (High, Mid, and Low).

KCPL's decision-makers selected Plan KAADA (RAP DSM) as KCPL's adopted preferred resource plan based on its having the lowest PVRR. However, page 4 of Addendum B illustrates that the PVRR values for all alternative resource plans are very close and that the adopted preferred resource plan, Plan KAADA (RAP DSM), has a PVRR that is only $106 Million or 0.52% lower than Plan KAAHA (No DSM). It is Staff's opinion that the favorable PVRR for Plan KAADA (RAP DSM) relative to Plan KAAHA (No DSM) is not due to the deferral of new non-renewable supply-side resources but rather is primarily due to an incremental increase in the volume of KCPL's off-system sales and off-system sales revenues made possible as a result of energy savings from the modeled RAP portfolio of programs.

Based on its limited review, Staff has identified one (1) concern for KCPL's resource acquisition strategy selection.

Concern

Concern D: KCPL's decision makers may have selected an adopted preferred resource plan which includes a MEEIA RAP portfolio of demand-side programs which does not comply with the legal mandate in 393.1075. 4., because the RAP programs may not provide benefits to all customers, including those customers who do not participate in the programs.[23]

[23] 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 compliance with all legal mandates, and in a manner that serves the public interest and is consistent with state energy and environmental policies. 393.1075.4. … Recovery for such programs shall not be permitted unless the

To remedy this concern, KCPL should carefully consider all deficiencies and concerns in this Report and make any necessary adjustments to its adopted preferred resource plan prior to filing its MEEIA Cycle 3 application.

Staff Expert Witnesses: John Rogers

4 CSR 240-22.080 Filing Schedule and Requirements

Summary

This rule specifies the requirements for electric utility filings to demonstrate compliance with the provisions of Chapter 22. The purpose of the compliance review required by Chapter 22 is not Commission approval of the substantive findings, determinations, or analyses contained in the filing. The purpose of the compliance review required by Chapter 22 is to determine whether the utility's resource acquisition strategy meets the requirements of Chapter 22. However, if the Commission determines that the filing substantially meets these requirements, the Commission may further acknowledge that the preferred resource plan or resource acquisition strategy is reasonable in whole, or in part, at the time of the finding. This rule also establishes a mechanism for the utility to solicit and receive stakeholder input to its resource planning process.

The Filing Schedule, Filing Requirements, and Stakeholder Process Rule establish a filing deadline for all electric utilities on April 1 of each year. A triennial compliance filing is due every third year with more informal annual update filings during the years between the full triennial compliance filings. The annual updates are coupled with a stakeholder workshop to communicate changing conditions and utility plans and to seek comments and suggestions from stakeholders during the planning process. Preliminary plans are reviewed with stakeholders to receive input regarding potential concerns and deficiencies. However, once plans are filed, stakeholders again have the opportunity to identify potential concerns and deficiencies. The Commission, with input from stakeholders, will identify special contemporary issues each year for each utility to analyze during its planning process. To make the resource planning process more meaningful, the rule requires action from the utility if its business plan or

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programs are approved by the commission, result in energy or demand savings and are beneficial to all customers in the customer class in which the programs are proposed, regardless of whether the programs are utilized by all customers.

acquisition strategy becomes inconsistent with the latest adopted preferred resource plan filed by the utility. The rule also requires certification that any request of action from the Commission is consistent with the utility's adopted preferred resource plan.

As a result of its review, Staff identified no deficiencies or concerns related to filing schedule, filing requirements, and stakeholder process.

Staff Expert Witnesses: John Rogers

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of Kansas City Power & Light Company's 2018 Triennial Compliance Filing Pursuant to 4 CSR 240-22	)))	**File No. EO-2018-0268**

AFFIDAVIT OF BRAD J. FORTSON

State of Missouri)
) ss.
County of Cole)

COMES NOW Brad J. Fortson, and on his oath declares that he is of sound mind and lawful age; that he contributed to the attached *Staff Report*; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.

Brad J. Fortson

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 29th day of August, 2017.

Dianna L. Vaught
NOTARY PUBLIC

DIANNA L. VAUGHT
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: June 28, 2019
Commission Number: 15207377

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of Kansas City Power & Light Company's 2018 Triennial Compliance Filing Pursuant to 4 CSR 240-22	)))	**File No. EO-2018-0268**

AFFIDAVIT OF JOHN A. ROGERS

State of Missouri)
) ss.
County of Cole)

COMES NOW John A. Rogers, and on his oath declares that he is of sound mind and lawful age; that he contributed to the attached *Staff Report*; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.

John A Rogers
John A. Rogers

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 30th day of August, 2017.

Dianna L. Vaught
NOTARY PUBLIC

DIANNA L. VAUGHT
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: June 28, 2019
Commission Number: 15207377

Figure 56: Base, Low, High and Significant Loss Net System Input Forecast

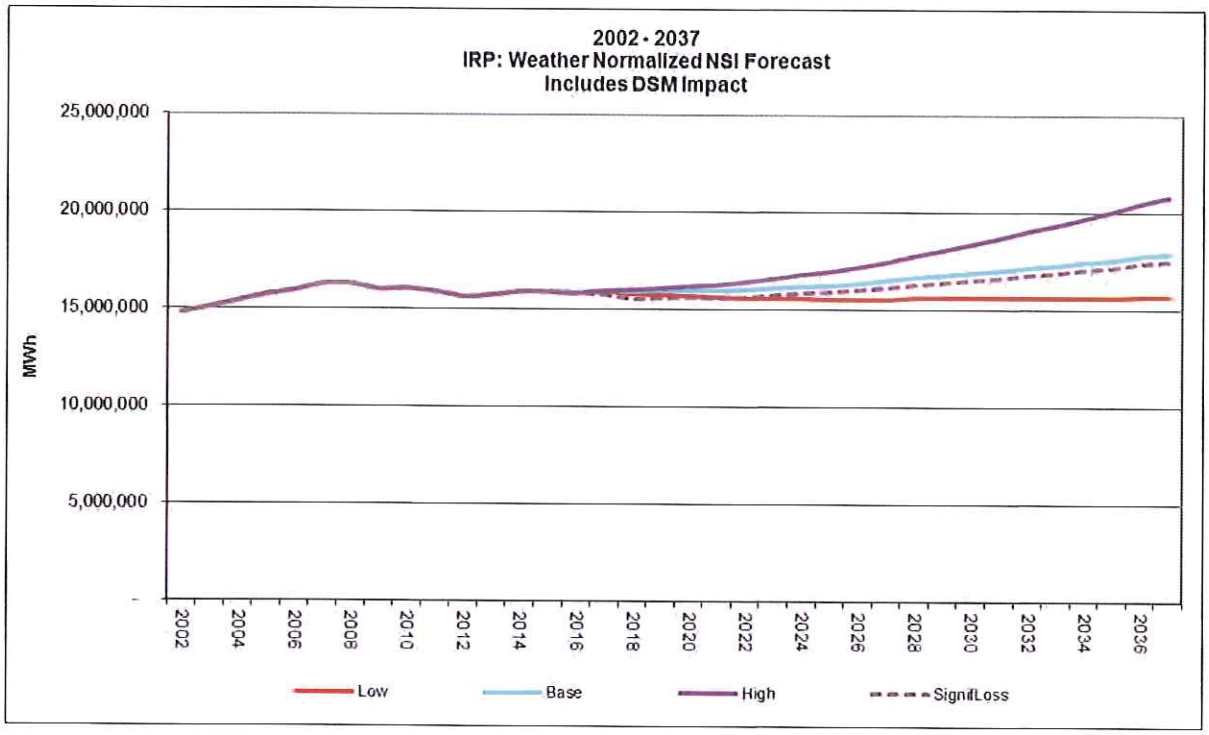
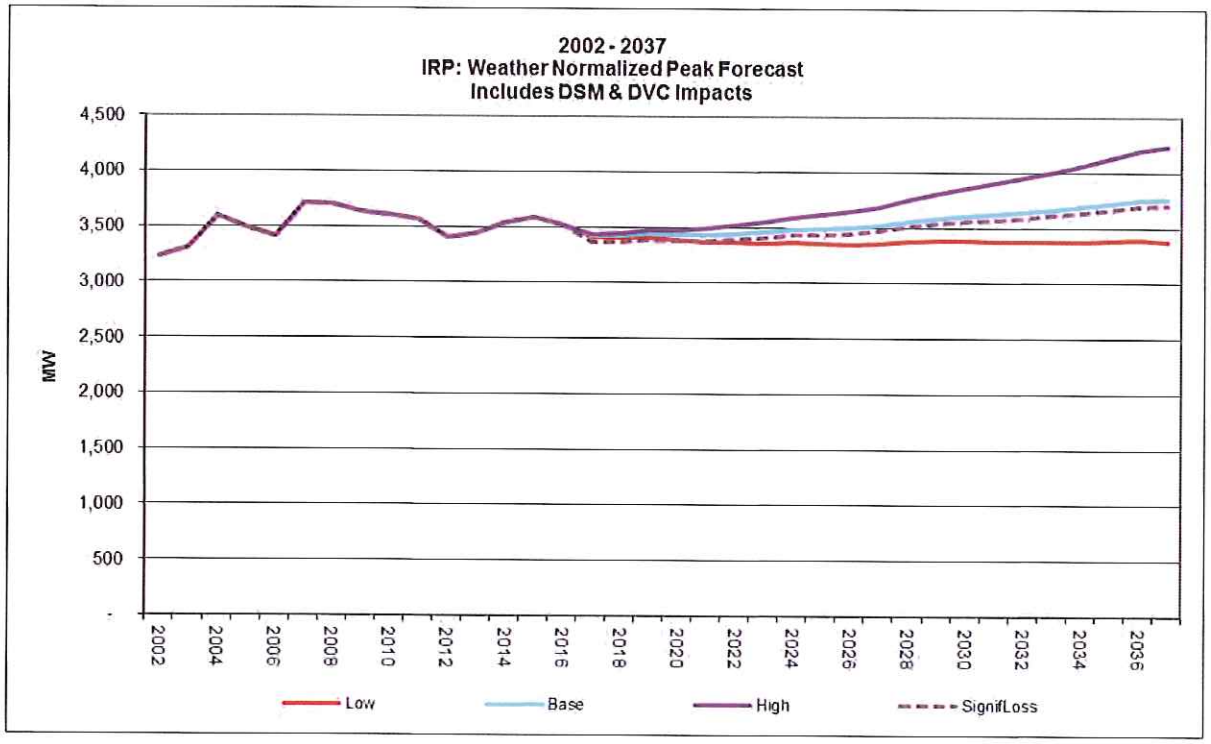


Figure 57: Base, Low, High and Significant Loss Peak Demand Forecast



4. Archive all previous forecasts of energy and peak demand, including the final data sets used to develop the forecasts, made in at least the past ten (10) years. Provide a comparison of the historical final forecasts to the actual historical energy and peak demands and to the current forecasts in the current triennial compliance filing.

KCP&L maintains an archive of the electronic files associated with our previous forecasts of energy use and peak demand for at least the last ten years. The graphs below compare our previous long-run forecasts of NSI and peak demand. The most recent forecast is very similar to the prior four forecasts (starting with 2014) reflecting the significant slowdown in economic growth that began in 2008, expectations for modest economic growth, the impact of currently enforced energy efficiency standards and the anticipated impact of recently enacted energy efficiency standards.

Figure 28: Net System Input (NSI) Historical and Forecasts

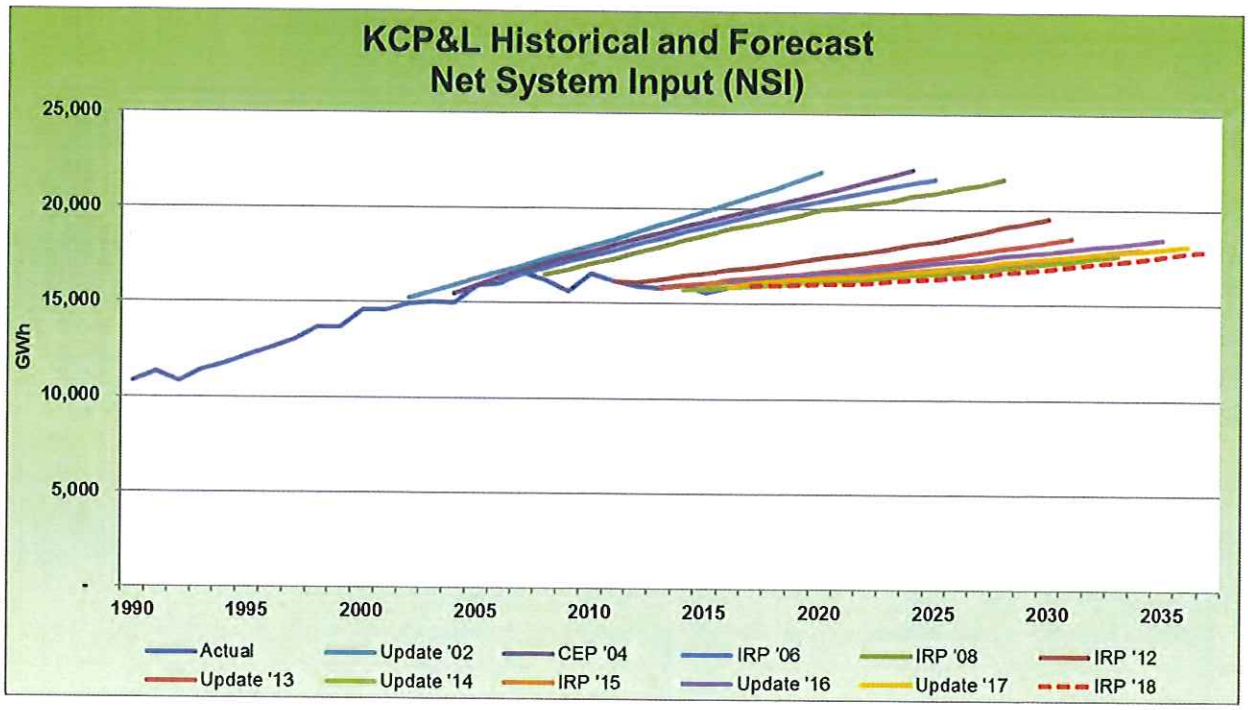


Figure 29: Peak Demand Historical and Forecasts

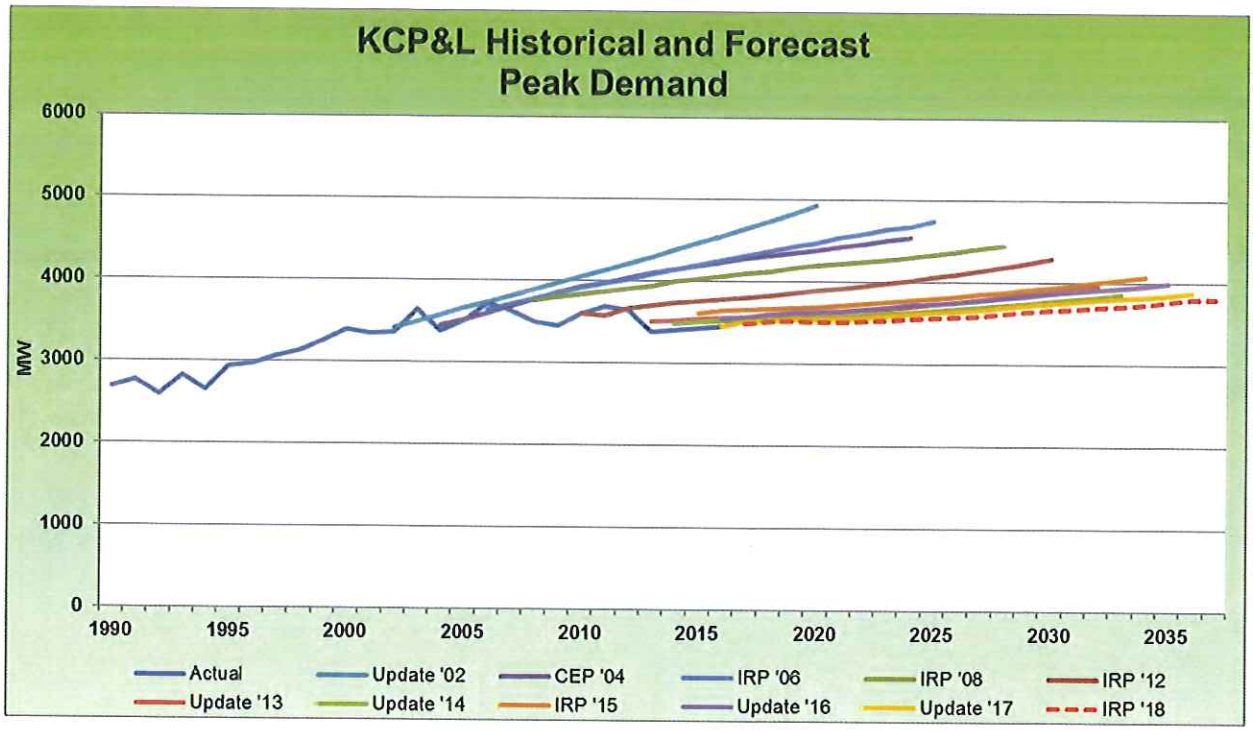
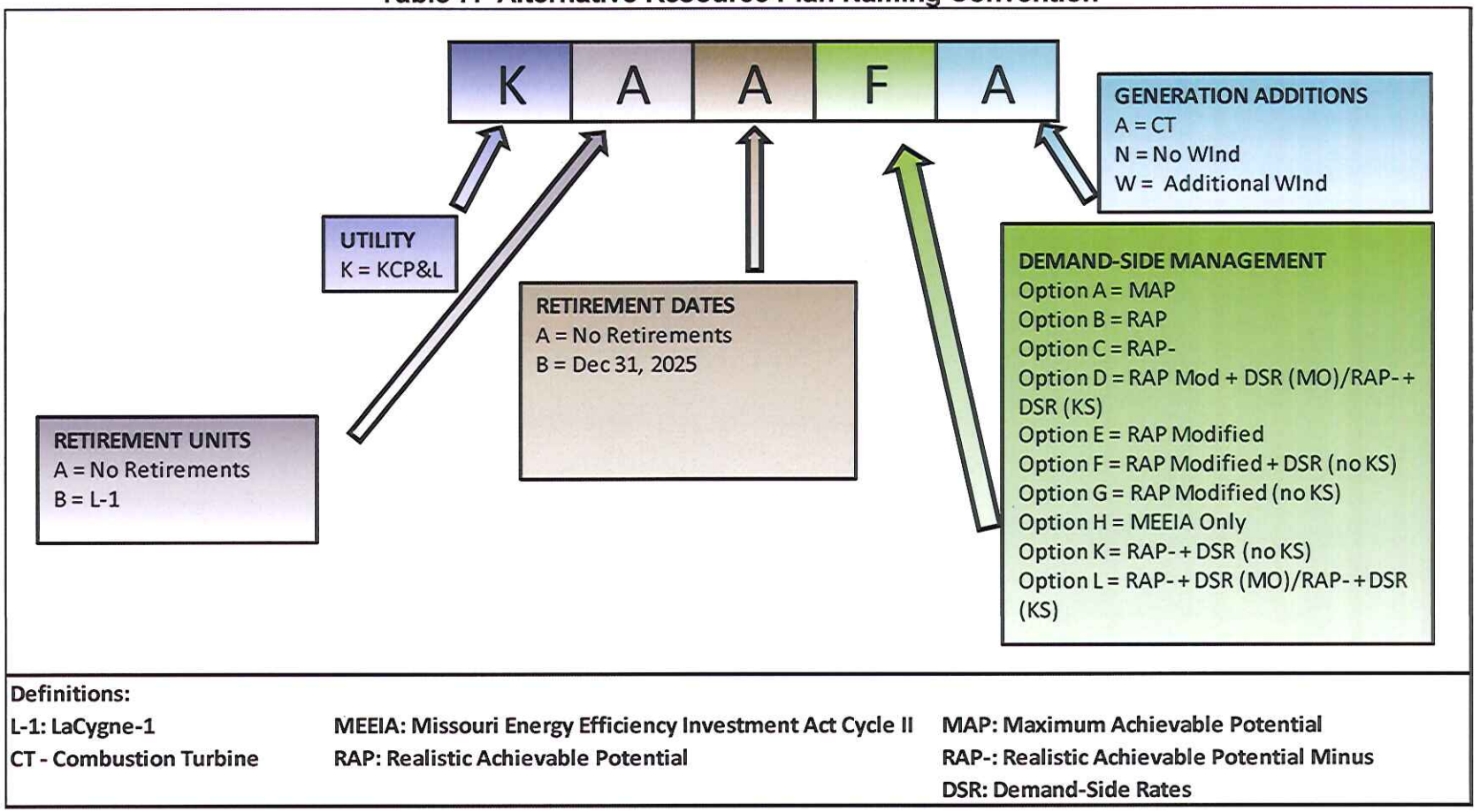


Table 7: Alternative Resource Plan Naming Convention



Definitions:

L-1: LaCygne-1
CT - Combustion Turbine
MEEIA: Missouri Energy Efficiency Investment Act Cycle II
RAP: Realistic Achievable Potential
MAP: Maximum Achievable Potential
RAP-: Realistic Achievable Potential Minus DSR: Demand-Side Rates

Addendum B
Page 1

Table 8: Overview of Alternative Resource Plans

Plan Name	DSM Level	Retire	Renewable Additions		Generation Addition (if needed)
KAAAA	MAP	Montrose-2: Dec 31, 2018 Montrose-3: Dec 31, 2018	Solar: 2028 - 13 MW	Wind: 2018 - 98 MW 2019- 80 MW	n/n
KAABA	RAP	Montrose-2: Dec 31, 2018 Montrose-3: Dec 31, 2018	Solar: 2028 - 13 MW	Wind: 2018 - 98 MW 2019- 80 MW	n/n
KAACA	RAP-	Montrose-2: Dec 31, 2018 Montrose-3: Dec 31, 2018	Solar: 2028 - 13 MW	Wind: 2018 - 98 MW 2019- 80 MW	n/n
KAADA	RAP Modified + DSR	Montrose-2: Dec 31, 2018 Montrose-3: Dec 31, 2018	Solar: 2028 - 13 MW	Wind: 2018 - 98 MW 2019- 80 MW	n/n
KAAEA	RAP Modified	Montrose-2: Dec 31, 2018 Montrose-3: Dec 31, 2018	Solar: 2028 - 13 MW	Wind: 2018 - 98 MW 2019- 80 MW	n/n
KAAEW	RAP Modified	Montrose-2: Dec 31, 2018 Montrose-3: Dec 31, 2018	Solar: 2028 - 13 MW	Wind: 2018 - 98 MW 2019- 80 MW 2020 - 200 MW	n/n
KAAFA	RAP Modified + DSR (No KS DSM)	Montrose-2: Dec 31, 2018 Montrose-3: Dec 31, 2018	Solar: 2028 - 13 MW	Wind: 2018 - 98 MW 2019- 80 MW	n/n

Table 9: Overview of Alternative Resource Plans (continued)

Plan Name	DSM Level	Retire	Renewable Additions		Generation Addition (if needed)
KAAGA	RAP Modified (No KS DSM)	Montrose-2: Dec 31, 2018 Montrose-3: Dec 31, 2018	Solar: 2028 - 13 MW	Wind: 2018 - 98 MW 2019- 80 MW	n/n
KAAHA	MEEIA	Montrose-2: Dec 31, 2018 Montrose-3: Dec 31, 2018	Solar: 2028 - 13 MW	Wind: 2018 - 98 MW 2019- 80 MW	n/n
KAAKA	RAP- + DSR (No KS DSM)	Montrose-2: Dec 31, 2018 Montrose-3: Dec 31, 2018	Solar: 2028 - 13 MW	Wind: 2018 - 98 MW 2019- 80 MW	n/n
KAAKN	RAP- + DSR (No KS DSM)	Montrose-2: Dec 31, 2018 Montrose-3: Dec 31, 2018	Solar: 2028 - 13 MW	No New Wind	n/n
KAALA	RAP- + DSR	Montrose-2: Dec 31, 2018 Montrose-3: Dec 31, 2018	Solar: 2028 - 13 MW	Wind: 2018 - 98 MW 2019- 80 MW	n/n
KBBAA	MAP	LaCygne-1: Dec 31, 2025	Solar: 2028 - 13 MW	Wind: 2018 - 98 MW 2019- 80 MW	n/n
KBBDA	RAP Modified + DSR	LaCygne-1: Dec 31, 2025	Solar: 2028 - 13 MW	Wind: 2018 - 98 MW 2019- 80 MW	n/n

The individual plans are shown in the following tables:

Table 24: Expected Value Plan Performance Measures

Plan	NPVRR ($MM)	Probable Environmental Costs ($MM)	DSM Performance Incentive Costs ($MM)	Levelized Annual Rates ($/KW-hr)	Maximum Rate Increase	Times Interest Earned	Total Debt to Capital	Internal Cash to Construction Expense
KAADA	20,271	591	25.76	0.127	5.06%	4.20	47.88	1.31
KAALA	20,272	591	25.19	0.127	5.02%	4.19	47.88	1.31
KAAKA	20,315	592	17.87	0.126	4.98%	4.19	47.88	1.29
KAAFA	20,318	591	18.45	0.126	4.94%	4.19	47.88	1.29
KAACA	20,322	591	21.31	0.127	5.65%	4.19	47.88	1.30
KAAEA	20,324	591	21.89	0.127	5.00%	4.19	47.88	1.31
KAABA	20,339	591	26.11	0.128	5.13%	4.20	47.88	1.33
KAAGA	20,345	592	16.28	0.126	4.92%	4.19	47.88	1.29
KBBDA	20,357	586	25.76	0.128	5.97%	4.20	47.88	1.32
KAAHA	20,377	592	6.22	0.124	4.76%	4.18	47.88	1.26
KAAEW	20,434	588	21.89	0.127	4.71%	4.16	47.88	1.31
KAAAA	20,441	591	31.69	0.130	5.29%	4.20	47.88	1.38
KAAKN	20,470	594	17.87	0.127	5.13%	4.19	47.88	1.29
KBBAA	20,526	585	31.69	0.131	6.15%	4.21	47.88	1.39

ADDENDUM C

HAS BEEN DEEMED

CONFIDENTIAL

IN ITS ENTIRETY

The lowest ranked ARPs by scenario/endpoint are provided in Table 7 below.

Table 7: Lowest NPVRR Alternative Resource Plan By Endpoint

EP	Plan	NPVRR ($mm)	Load Growth	Natural Gas	CO_2	Endpoint Probability
1	KAADA	20,979	High	High	Yes	2.5%
2	KAADA	20,042	High	High	No	3.8%
3	KAADA	21,207	High	Mid	Yes	5.0%
4	KAADA	20,285	High	Mid	No	7.5%
5	KBBDA	21,346	High	Low	Yes	2.5%
6	KAADA	20,488	High	Low	No	3.8%
7	KAADA	20,528	Mid	High	Yes	5.0%
8	KAADA	19,639	Mid	High	No	7.5%
9	KAADA	20,791	Mid	Mid	Yes	10.0%
10	KAADA	19,923	Mid	Mid	No	15.0%
11	KBBDA	20,968	Mid	Low	Yes	5.0%
12	KAADA	20,166	Mid	Low	No	7.5%
13	KAADA	20,148	Low	High	Yes	2.5%
14	KAADA	19,305	Low	High	No	3.8%
15	KAADA	20,439	Low	Mid	Yes	5.0%
16	KAADA	19,619	Low	Mid	No	7.5%
17	KBBDA	22,148	Low	Low	Yes	2.5%
18	KAALA	19,892	Low	Low	No	3.8%

In these rankings above, KAADA emerges as the lowest cost in all but four scenarios. In EP 18 - representing low load growth, low gas price, no CO_2 tax, the overall second ranked plan (KAALA) has a $0.171mm lower revenue requirement than Preferred Plan KAADA. In three endpoints - EPs 5, 11 and 17- plan KBBDA is the lowest cost plan. KBBDA, has LaCygne 1 retiring in 2025, and represents the low gas prices combined with CO_2 restrictions at all load growth scenarios (High, Mid and Low).

The following tables represent the sensitivities for the uncertain factors by scenario/endpoint.