MISSOURI PUBLIC SERVICE COMMISSION

STAFF REPORT ON

KANSAS CITY POWER & LIGHT COMPANY

ELECTRIC UTILITY RESOURCE PLANNING COMPLIANCE FILING

FILE NO. EO-2015-0254

August 2015

JEFFERSON CITY, MISSOURI

**** Denotes Highly Confidential Information ****

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Summary of Staff's Review and Recommendations

On April 1, 2015,[1] Kansas City Power & Light Company ("KCPL") made its Chapter 22 triennial compliance filing in Case No. EO-2015-0254 as required by the Commission's revised Chapter 22 Electric Utility Resource Planning Rules,[2] which became effective on June 30, 2011.[3] Staff recognizes and appreciates KCPL's significant effort to make its triennial compliance filing under the Commission's Chapter 22 Rules.

KCPL performed its electric utility resource planning for its filing: a) for KCPL as a stand-alone electric utility, and b) for KCPL and KCP&L Greater Missouri Operations Company ("GMO") operating as if a single company. KCPL's adopted preferred resource plan, Plan KAACA, represents KCPL's "allocated" portion of a "combined company" candidate resource plan, Plan CBBFA. Plan KAACA includes the demand-side management ("DSM") programs contained in KCPL's Option C DSM portfolio,[4] as well as supply-side resources including 10 megawatts ("MW") of solar additions and 650 MW of wind additions over the 20-year planning period. Three MW of solar resource additions are expected to consist of commercial and industrial rooftop installations owned by KCPL. 350 MW of wind additions are from power purchase agreements ("PPA") executed in 2013 and 2014. The additional 300 MW of wind additions are planned to be in service in 2017.

The 20-year risk-adjusted present value of revenue requirements ("PVRR") of KCPL's adopted preferred resource plan is $18.90 billion, which is $15 million more than KCPL's lowest cost alternative resource plan, Plan KCCCA. Plan KCCCA is the same as KCPL's preferred resource plan, except that with plan KCCCA KCPL would retire Montrose

[1] KCPL's previous triennial compliance filing was filed on April 9, 2012, in Case No. EO-2012-0323. This is KCPL's second Chapter 22 triennial compliance filing under the Commission's revised Chapter 22 rules.

[2] KCPL requested in Docket No. EE-2014-0327 - and the Commission approved - a variance from the Commission Rules 4 CSR 240-22.045(3)(B)2 and 4 CSR 240-22.045(3)(B)3 requiring regional transmission organization expansion plan analysis specific to Missouri customers.

[3] The Commission's Chapter 22 Rules were first effective on May 6, 1993, and remained unchanged until they were revised effective June 30, 2011.

[4] Option C is a level of demand-side resources lower than realistic achievable potential and reflects the following assumptions that are not considered in the 2014 Potential Study: (1) recent program developments, evaluations, and new technology, (2) an update of the net-to-gross (NTG) ratios for measures (programs) indicated in GMO's 2013 EMV, (3) cost effectiveness that does not include the impacts from natural gas savings, (4) new EISA baselines that are effective in 2020, (5) commercial and industrial opt-outs, and (6) after a review of KCPL's existing programs and the 2014 Potential Study, as well as interviews with KCPL program managers and staff, the programs were modified.to enhance their performance and incorporate the updated measure characteristics. AEG performed industry standard cost-effectiveness tests in order to gauge the economic merits of the measures, programs and portfolio. The end-use measures most likely to achieve cost-effective savings were then selected and bundled into programs.

units 2 and 3 starting in 2019 while in its preferred resource plan it would not start retiring them until 2021.[5]

Staff performed its review of KCPL's Chapter 22 triennial compliance filing in the context of the Commission's revised Chapter 22 Rules, the Missouri Renewable Energy Standard[6] ("RES"), the Commission's RES Rule,[7] the Missouri Energy Efficiency Investment Act of 2009[8] ("MEEIA") and the Commission's MEEIA Rules.[9] Staff performed its review this way, because the policy objectives of Chapter 22, RES and MEEIA are inseparable for electric utilities as discussed more fully in this Report and in Addendum A attached to it.

Base on its limited review of KCPL's filing, Staff finds that the methodologies and models KPCL used are generally well established and can produce technically correct calculations for the numerous required analyses. However, as discussed in more detail in this Staff Report, Staff finds that KCPL's filing does ***not*** comply with the Chapter 22 requirement to *describe and document* a large number of the triennial compliance filing requirements and does not achieve the "fundamental objective"[10] of the Commission's Chapter 22 Rules as a result of the following significant deficiencies and concerns:

1. There are many instances where KCPL is required to *describe and document* specific filing requirements as defined in rule 4 CSR 240-22.020(14):

> *Describe and document refers to the demonstration of compliance with each provision of this chapter. Describe means the provision of information in the technical volume(s) of the triennial compliance filing, in sufficient detail to inform the stakeholders how the utility complied with each applicable requirement of Chapter 22, why that approach was chosen, and the results of its approach. The description in the technical volume(s), including narrative text, graphs, tables, and other pertinent information, shall be written in a manner that would allow a stakeholder to thoroughly assess the utility's resource acquisition strategy and each of its components. Document means the*

[5] Volume 1 page 16 includes: Preferred Plan is based upon resource planning in tandem with KCP&L-Greater Missouri Operations Company (GMO) and provides benefit to Missouri retail customers by planning on a joint basis. The joint KCPL/GMO plan that includes keeping Montrose 2 and 3 in service as coal resources until 2021 is lower cost for Missouri electric customers than ceasing coal use in 2019.
[6] Section 393.1030, RSMo, Supp. 2014.
[7] 4 CSR 240-20.100.
[8] Section 393.1075, RSMo, Supp. 2014.
[9] 4 CSR 240-3.163, 4 CSR 240-3.164, 4 CSR 240-20.093 and 4 CSR 240-20.094.
[10] Rule 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*." (Emphasis added)

provision of all of the supporting information relating to the filed resource acquisition strategy pursuant to 4 CSR 240-22.080(11).
(Emphasis added)

However, KCPL very often did not *describe and document* its compliance with the triennial compliance filing requirements in the technical volumes, but rather cited the Chapter 22 rule requirement and then merely stated, " The […] can be found in the work paper 'KCPL IRP Filing […] .'" This approach falls far short of the requirement of definition in rule 4 CSR 240-22.020(14) for *describe and document*;

2. KCPL and GMO's joint company basis electric utility resource planning complies with relatively few of the requirements of rule 4 CSR 240-22.060 Integrated Resource Plan and Risk Analysis and 4 CSR 240-22.070 Resource Acquisition Strategy Selection and *describes and documents* relatively few of the Chapter 22 filing requirements for each of the eight (8) combined/joint candidate resource plans;

3. KCPL's stand-alone electric utility resource planning does not comply with many of the requirements of rule 4 CSR 240-22.060 Integrated Resource Plan and Risk Analysis and 4 CSR 240-22.070 Resource Acquisition Strategy Selection and fails to *describe and document* many of the Chapter 22 filing requirements for each of the fifteen (15) KCPL candidate resource plans;

4. KCPL and GMO are separate subsidiaries of Great Plains Energy, Inc. and do not have operating agreements and/or contracts in place to permit the joint operations assumed by the joint company planning.[11] Also there is the matter of the separate rates and rate designs of KCPL and GMO, let alone the matter of the separate rates and rate designs of the MPS and L&P divisions of GMO. The appropriateness of joint KCPL / GMO electric resource planning without a merger of those two entities is a question for the Commission;

5. KCPL did not supply a compliance benchmark plan which minimally complies with Missouri renewable mandates. ** _____ _____ ** Because there is little variation in mixes and timing of renewable supply-side resource additions, KCPL has not

[11] The Joint Operating Agreement made and entered into on October 10, 2008, by and between KCPL and GMO states at the top of its page 12: "KCP&L and KCP&L GMO will be operated, and planned for as separate control areas with wholesale transactions governed by applicable FERC tariffs and rules, until and unless otherwise determined by the parties and approved by all applicable regulatory bodies."

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demonstrated that the planned renewable resources optimally comply with Missouri's renewable mandate; and

6. KCPL is noncompliant with rules 4 CSR 240-22.010(2)(C) and 4 CSR 240-22.070(1), because it did not use minimization of the present worth of long-run utility costs as the only selection criterion in choosing its adopted preferred resource plan and did not describe and document the process its decision-makers used to select KCPL's adopted preferred resource plan, including the relative weights given to the various performance measures and the rationale the decision-makers used to judge the appropriate tradeoffs between competing planning objectives, and between expected performance and risk.

All of Staff's identified deficiencies and concerns are listed in the next two sections of this Staff Report, respectively.

As a result of its limited review, Staff recommends that the Commission:

1. Order KCPL to comply as a stand-alone utility with all of the requirements of rules 4 CSR 240-22.060 Integrated Resource Plan and Risk Analysis and 4 CSR 240-22.070 Resource Acquisition Strategy Selection for its April 1, 2018 Chapter 22 triennial compliance filing.

2. Order KCPL to provide a single compliance benchmark plan which minimally complies with the RES legal mandates in its April 1, 2016 annual update filing; and

3. Order KCPL to describe and document each and every triennial compliance filing requirement in its April 1, 2018, Chapter 22 triennial compliance filing.

List of Staff's Deficiencies

A *deficiency*, as defined in rule 4 CSR 240-22.020(9), means a deficiency in the electric utility's compliance with the provisions of Chapter 22, any major deficiency in the methodologies or analyses required to be performed by Chapter 22, and anything that would cause the electric utility's resource acquisition strategy to fail to meet the requirements identified in Chapter 22. As a result of its limited review, Staff finds the following deficiencies with KCPL's Chapter 22 triennial compliance filing:

> **Deficiency 1 - KCPL did not provide a summary table in technical Volume 4 showing each potential supply-side resource option and an assessment of whether each potential supply-side resource option qualifies as a utility renewable energy resource as required by rule 4 CSR 240-22.040(2)(C)1.**

Deficiency 2 – Staff was unable to find in technical volume 4 that KCPL described and documented the costs of ancillary and/or back-up sources of supply required to achieve necessary reliability levels in connection with intermittent and/or uncontrollable sources of generation (i.e., wind and solar) as required by rule 4 CSR 240-22.040(2)(A).

Deficiency 3- Staff was unable to find that KCPL described and documented the potential supply-side resource option purchased power from bi-lateral transactions and from organized capacity and energy markets required by rule 4 CSR 240-22.040(1).

Deficiency 4 - KCPL did not perform a comprehensive analysis to optimize investments in advanced distribution technologies pursuant to rule 4 CSR 240-22.045(4)(C).

Deficiency 5 – The only requirements of Rule 4 CSR 240-22.060 Integrated Resource Plan and Risk Analysis that are satisfied, and described, and documented[12] for each of KCPL's eight (8) combined/joint candidate resource plans are for integrated resource analysis and the calculation of PVRR for each plan.

Deficiency 6 - Compliance Benchmark Plan - KCPL did not provide a compliance bench mark plan which minimally complies with the legal mandates for renewable energy resources [13], and is therefore deficient.

Deficiency 7 - Optimal Compliance Resource Plan - KCPL did not supply a compliance benchmark plan which minimally complies with renewable mandates. ** _____ ** Because there is little variation in mixes and timing of renewable supply-side resource additions, KCPL has not demonstrated that the planned renewable resources optimally comply with renewable mandates .[15]

Deficiency 8 – All of the filing requirements of rules 4 CSR 240-22.070(2) and 4 CSR 240-22.070(3) were not described and documented for any of the fifteen (15) KCPL candidate resource plans.

[12] Rule 4 CSR 240-22.020(14): "Describe and document refers to the demonstration of compliance with each provision of this chapter. Describe means the provision of information in the technical volume(s) of the triennial compliance filing, in sufficient detail to inform the stakeholders how the utility complied with each applicable requirement of Chapter 22, why that approach was chosen, and the results of its approach. The description in the technical volume(s), including narrative text, graphs, tables, and other pertinent information, shall be written in a manner that would allow a stakeholder to thoroughly assess the utility's resource acquisition strategy and each of its components. Document means the provision of all of the supporting information relating to the filed resource acquisition strategy pursuant to 4 CSR 240-22.080(11)".

[13] Section 393.1030, RSMo, Supp. 2014.

[14] Response to Staff Data Request 9 and Tables 9-11 in *Kansas City Power & Light Company Integrated Resource Plan* - Volume 6, Pages 16-19

[15] Section 393.1030, RSMo, Supp. 2014.

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Deficiency 9 – The only requirements of rule 4 CSR 240-22.070 Resource Acquisition Strategy Selection that were satisfied and described and documented for each of the eight (8) combined/joint candidate resource plans are: 1) analysis and specification of ranges for critical uncertain factors, and 2) the expected value of better information related to the critical uncertain factors (CO_2, load forecast and natural gas prices).

Deficiency 10 - KCPL's resource acquisition strategy selection process used to select Plan KAACA as its adopted preferred resource plan does not comply with the minimum requirements of: a) rule 4 CSR 240-22.010(2)(C), because it does not *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,*[16] and b) rule 4 CSR 240-22.070(1), because it does not *describe and document 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*. [Emphasis added]

List of Staff's Concerns

A *concern*, as defined by Rule 4 CSR 240-22.020(6), means a concern with the electric utility's compliance with the provisions of Chapter 22, any major concern with the methodologies or analyses required to be performed by Chapter 22, and anything that, while not rising to the level of a deficiency, may prevent the electric utility's resource acquisition strategy from effectively fulfilling the objectives of Chapter 22. As a result of its limited review, Staff finds the following concerns with KCPL's Chapter 22 triennial compliance filing:

Concern A- KCPL has indicated that the wind capacity factor is 54% in several tables that include tables 13, 14 and 15. Staff believes that this value is too high. The wind capacity factor is indicated to be 32% in table 11 in technical volume 1. This value is more reasonable. Staff is unable to verify what capacity factor value for wind KCPL utilized in its supply-side resource analysis and modeling. Staff is concerned that KCPL may have used a value greater than 32%.

[16] Volume 6, Table 27 indicates that Plan KCCCA which retires the Montrose 2 and 3 units in 2019 is the low cost resource plan. Table 27 also indicates that Plans KCCBA and KAABA which include the RAP portfolio of demand-side resources have 20-year PVRRS which are within $12 million and $33 million, respectively, of the 20-year PVRR of the preferred resource plan.

Concern B – Utility-scale Solar PV and distributed Solar PV - KCPL did not differentiate between ** _____ **, and yet intends to pursue distributed Solar PV in its preferred resource plan.

Concern C - KCPL's Demand Response Initiative is essentially the same as its previous "M Power" program, which was rarely utilized for economic peak load curtailment during the past several years due to low energy prices in the SPP marketplace. The M Power program was almost exclusively used in the recent past for occasional reliability- or operations-based, peak load curtailment. Customers who participate in this program are paid a capacity reserve payment, regardless of whether or not KCPL requests them to curtail load. Since energy prices are projected to remain low in the near term, KCPL should reevaluate size, number and type of program participants, and incentive payments, and revise this program as appropriate.

Concern D – Renewable planning environment - As discussed above, recent changes to KCPL's planning environment, particularly Kansas' RES becoming voluntary, and the impact of the Clean Power Plan and associated incentives for KCPL's planned renewable additions, may alter the need for renewable resource additions or their timing. Because KCPL allocates its existing REC production between Kansas and Missouri, Kansas' RES becoming voluntary could allow KCPL to utilize its full REC production for Missouri compliance. KCPL's existing renewables[17] produce enough RECs for KCPL to comply with Missouri non-solar RES requirements through the planning horizon.

Concern E – Timing of Solar additions - ** _____

_____

____ ** KCPL states that the solar additions included in its preferred plan are not economic and are driven by the Missouri RES.[18] Adding a solar resource in 2016, rather than a later date, results in more of KCPL's banked solar RECs expiring. A portion of the projected surplus of solar RECs will expire and the potential value of selling solar RECs is low. For example, KCPL purchased solar RECs at $2.10/solar REC[19] for 2014 compliance.**

Concern F – Retail Rate Impact Calculation - Although Staff is aware of recent advantageous wind pricing, KCPL has failed to meet the goal outlined in rule 4 CSR 240-22.060(3), to develop substantively different mixes of supply-side resources and variations in the timing of resource acquisitions, and Staff is therefore concerned that KCPL has not fully demonstrated that there is an economic benefit to the planned wind resource additions[20] or fully justified its exclusion of wind resources from the retail rate impact calculation of rule 4 CSR 240-20.100(5).

[17] Excluding existing hydropower PPAs
[18] Response to Staff Data Request 8
[19] KCPL reported the purchase of 8,700 S-RECs in 2014, page 4 KCPL 2014 RES Compliance report; Response to Staff Data Request 3 in EO-2015-0263 indicates there was one purchase from Costco in 2014 for $18,705.00
[20] Above those included in the 2013 Notification of Preferred Plan Change

Concern G – KCPL and GMO do not have the proper operating agreements and/or contracts in place to correctly analyze joint company planning. In the absence of proper operating agreements and/or contracts, joint company planning must be performed in the context of a comprehensive plan to merge KCPL and GMO, and no such plan to merge the two companies exists at this time.

KCPL's Chapter 22 Filing

On April 1, 2015, KCPL filed its triennial compliance filing in File No. EO-2015-0254. Approximately one year earlier KCPL requested, in File No. EE-2014-0327, a variance from the requirements of Commission rules 4 CSR 240-22.045(3)(B)2 and 4 CSR 240-22.045(3)(B)3 that a regional transmission organization expansion plan analysis specific to Missouri customers be included in the triennial compliance filing. The Commission approved KCPL's request for good cause, since the Southwest Power Pool's plans are evaluated on a utility/transmission owner's costs and benefits basis and a Missouri-specific analysis is not available.

As part of its electric utility resource planning process, KCPL gave its decision-makers a set of fifteen (15) KCPL candidate resource plans, and a risk analyses for each for the decision-makers to use during their strategy selection process. KCPL also conducted resource planning as if GMO and KCPL were operating as a single company. KCPL's allocated portion of the two (2) combined company candidate resource plans with the lowest PVRR over the 20-year planning horizon resulting from the integrated resource analysis for the eight (8) combined company resource plans were included among the fifteen (15) KCPL candidate resource plans. Plan KAACA[21] is KCPL's allocated portion of combined company Plan CBBFA.[22] All of KCPL's candidate resource plans include renewable energy resources that can supply energy and generate renewable energy credits ("RECs") KCPL may use to comply with the Missouri RES requirements set out in rule 4 CSR 240-20.100(2)(C) Electric Utility Renewable Energy Standard Requirements in each year of the 20-year planning horizon.

[21] See Volume 1, page 12, for the naming convention for the KCPL alternative resource plans.
[22] See Volume 6, page 10, for the naming convention for the alternative resource plans on a combined company basis.

KCPL's decision tree has just eighteen (18) branches and joint probabilities for each of the unique combinations of three critical uncertain factors.[23]

Endpoint	Load Growth	Natural Gas	CO_2	Endpoint Probability
1	High	High	Yes	2.5%
2	High	High	No	3.8%
3	High	Mid	Yes	5.0%
4	High	Mid	No	7.5%
5	High	Low	Yes	2.5%
6	High	Low	No	3.8%
7	Mid	High	Yes	5.0%
8	Mid	High	No	7.5%
9	Mid	Mid	Yes	10.0%
10	Mid	Mid	No	15.0%
11	Mid	Low	Yes	5.0%
12	Mid	Low	No	7.5%
13	Low	High	Yes	2.5%
14	Low	High	No	3.8%
15	Low	Mid	Yes	5.0%
16	Low	Mid	No	7.5%
17	Low	Low	Yes	2.5%
18	Low	Low	No	3.8%

The following table contains a summary of all fifteen (15) KCPL candidate resource plans and the risk adjusted 20-year PVRR and other key performance metrics for each plan. The risk adjusted PVRR is calculated using the MIDAS® model accounting for the high, base and low case impacts of three critical uncertain factors (load forecast, natural gas prices and CO2 prices). KCPL chose to not include any uncertain factors in its decision tree in the MIDAS® model other than the three (3) critical uncertain factors.

[23] See Volume 6, page 109.

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
KCCCA	18,885	786	17.19	0.124	4.32%	4.61	47.87	1.44
KAACA	18,900	792	17.19	0.124	4.74%	4.61	47.87	1.44
KCCBA	18,912	782	37.65	0.130	5.72%	4.64	47.88	1.60
KAABA	18,933	788	37.65	0.131	5.90%	4.64	47.88	1.60
KAACB	18,937	792	17.19	0.125	4.74%	4.59	47.87	1.42
KAACC	18,961	789	17.19	0.124	4.50%	4.59	47.87	1.44
KAABC	19,011	785	37.65	0.131	5.73%	4.63	47.87	1.60
KAACW	19,019	788	17.19	0.126	8.52%	4.58	47.86	1.48
KAADA	19,095	795	0.00	0.121	4.11%	4.56	52.13	1.31
KBBCA	19,157	657	17.19	0.126	4.65%	4.60	47.87	1.44
KAACD	19,177	805	17.19	0.126	6.06%	4.59	47.87	1.42
KAABD	19,288	801	37.65	0.134	7.16%	4.62	47.87	1.54
KAAAA	20,254	785	124.58	0.146	12.71%	4.76	47.88	2.06
KAAAC	20,336	781	124.58	0.147	12.71%	4.75	47.88	2.06
KAAAD	20,610	798	124.58	0.150	12.73%	4.74	47.87	1.98

The 20-year risk adjusted PVRR of KCPL's adopted preferred resource plan, Plan KAACA, is $18.90 billion which is $15 million more than KCPL's lowest cost alternative resource plan, Plan KCCCA. Plan KCCCA is the same as KCPL's preferred resource plan, except that for Plan KCCCA KCPL would retire Montrose 2 and 3 starting in 2019 as opposed to 2021 in its preferred plan.

A high level description of Plan KAACA[24] and Plan KAACA's capacity balance sheet follow:

[24] Table 10 is located on page 15 of Volume 1 of the Filing does not reflect the retirement of 164 MW and 176 MW for Montrose units 2 and 3, respectively, in 2021.

Table 10: KCPL Preferred Resource Plan[25]

Plan KAACA Option C DSM							
Year	CT's (MW)	Wind (MW)	Solar (MW)	DSM (MW)	Retire (MW)	Total Capacity	Reserve Margin
2015	0			29		4372	15%
2016	0	350	3	71		4321	14%
2017	0	300		103		4434	18%
2018	0			124		4434	18%
2019	0			139		4444	18%
2020	0			176		4444	19%
2021	0			206		4254	14%
2022	0			228		4254	14%
2023	0			248		4269	14%
2024	0			266		4258	14%
2025	0			284		4283	14%
2026	0		7	299		4284	14%
2027	0			308		4309	14%
2028	0			316		4359	14%
2029	207			325		4366	14%
2030	0			333		4416	14%
2031	0			337		4441	14%
2032	0			341		4466	14%
2033	0			345		4516	14%
2034	0			349		4541	14%

[25] This is Table 10 from Volume 1. However, Table 10 erroneously omits the retirements of 164 MW and 176 MW for Montrose 2 and Montrose 3, respectively, in 2021.

This Table

Is Deemed

Highly Confidential

In Its Entirety

4 CSR 240-22.030 Load Analysis and Load Forecasting

Summary

The stated purpose of rule 4 CSR 240-22.030, Load Analysis and Load Forecasting, is for setting the "minimum standards for the maintenance and updating of historical data, the

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level of detail required in analyzing and forecasting loads, and for the documentation of the inputs, components and methods used to derive the load forecasts."

The revised *Load Analysis and Load Forecasting Rule* is less prescriptive than the original rule regarding the analytical methods the utility is to use, allowing multiple methods and leaving more discretion to the utility to choose the methods by which it achieves the stated purpose of the rule.

KCPL did not request any relief (variances) from specific provisions of this rule.

In Staff's review of KCPL's load analysis and energy and demand forecasts, Staff found no deficiencies and no concerns regarding compliance with this rule.

Staff Expert Witness: David Roos

4 CSR 240-22.040 Supply-Side Resource Analysis

Summary

Rule 4 CSR 240-22.040 – The Supply-Side Resource Analysis Rule requires the utility to evaluate all supply-side resource options, and also the required transmission and distribution requirements for each supply-side resource, to ensure that the full cost of each resource type is factored into the analysis. The rule also requires the consideration of transmission constraints in the supply-side resource screening process.

KCPL did not request any relief (variances) from rule 4 CSR 240-22.040 as a part of this Chapter 22 filing.

Deficiencies

Deficiency 1 - KCPL did not provide a summary table in technical Volume 4 showing each potential supply-side resource option and an assessment of whether each potential supply-side resource option qualifies as a utility renewable energy resource as required by rule 4 CSR 240-22.040(2)(C)1.

To resolve this deficiency, KCPL should provide this information in its April 1, 2018 triennial compliance filing.

Deficiency 2 – Staff was unable to find in technical volume 4 that KCPL described and documented the costs of ancillary and/or back-up sources of supply required to achieve necessary reliability levels in connection with intermittent and/or uncontrollable sources of generation (i.e., wind and solar) as required by rule 4 CSR 240-22.040(2)(A).

To resolve this deficiency, KCPL should provide this information in its April 1, 2018 triennial compliance filing.

Deficiency 3- Staff was unable to find that KCPL described and documented the potential supply-side resource option purchased power from bi-lateral transactions and from organized capacity and energy markets required by rule 4 CSR 240-22.040(1).

To resolve this deficiency, KCPL should provide this information in its April 1, 2018 triennial compliance filing.

Concerns

Concern A- KCPL has indicated that the wind capacity factor is 54% in several tables that include tables 13, 14 and 15. Staff believes that this value is too high. The wind capacity factor is indicated to be 32% in table 11 in technical volume 1. This value is more reasonable. Staff is unable to verify what capacity factor value for wind KCPL utilized in its supply-side resource analysis and modeling. Staff is concerned that KCPL may have used a value greater than 32%.

To resolve this concern, KCPL should provide a discussion and justification (including a comparison to the SPP allowable capacity value for wind) for the wind capacity values indicated in the tables and the value used in the supply-side resource analysis modeling in its April 1, 2018 triennial compliance filing.

Staff Expert Witness: Randy Gross

Supply Side Resources & the Missouri Renewable Energy Standard (RES)

Rule 4 CSR 240-22.040, Supply-Side Resource Analysis, requires KCPL to review a wide variety of supply-side resource options, including a wide variety of renewable generation technologies and technologies for distributed generation.

KCPL included the following renewable technologies, which have the potential to be eligible for Missouri RES compliance, in its supply-side analysis:

- Solar PV[26] (Fixed axis and tracking)
- Solar Thermal (Trough and Dish)
- Wind
- Biomass BFB[27] Boiler
- Landfill Gas

KCPL selected Fixed-axis Solar PV and Wind as final candidate resource options to represent renewable options.

[26] Photovoltaic.
[27] Bubbling Fluidized Bed.

<u>Concern B – Utility-scale Solar PV and distributed Solar PV</u> - KCPL did not differentiate between ** _____ **, and yet intends to pursue distributed Solar PV in its preferred resource plan.

To resolve this concern, KCPL should include both utility-scale Solar PV and distributed Solar PV as two distinct supply-side resource options in its April 1, 2016 annual update filing. If KCPL believes there is ** _____ _____ **, it should provide its reasoning and all pertinent information in its April 1, 2016 annual update filing[28].

Staff Expert Witness: Claire Eubanks

4 CSR 240-22.045 Transmission and Distribution Analysis

Summary

Rule 4 CSR 240-22.045 Transmission and Distribution Analysis specifies the minimum standards for the scope and level of detail required for transmission and distribution network analysis and reporting. The rule does not prescribe how analyses are to be done, but allows a utility to conduct its own analyses or adopt the RTO or Independent Transmission System Operator (ISO) transmission plan. It does require 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.

KCPL requested and the Commission granted it relief from complying with the requirements of Rule 4 CSR 240-22.045(3) (B) 2 and Rule 4 CSR 240-22.045(3) (B) 3.

Deficiency

Deficiency 4 - KCPL did not perform a comprehensive analysis to optimize investments in advanced distribution technologies pursuant to rule 4 CSR 240-22.045(4)(C).

To resolve this deficiency, KCPLGMO should provide this comprehensive analysis in its April 1, 2018 triennial compliance filing or request relief from complying with this requirement.

Staff Expert Witness: Randy Gross

[28] ** _____ _____ **

4 CSR 240-22.050 Demand-Side Resource Analysis

Summary

Rule 4 CSR 240-22.050, *Demand-Side Resource Analysis*, "specifies the principles by which potential demand-side resource options shall be developed and analyzed for cost-effectiveness, with the *goal of achieving all cost-effective demand-side savings*." (Emphasis added). This rule identifies the objectives demand-side programs and portfolios are to achieve, and gives each utility the option of developing demand-side programs or portfolios from the top down (starting with a program designs and filling in the cost-effective measures) or from the bottom up (starting by screening a comprehensive menu of measures and ending with program designs). The rule clarifies the distinction between demand-side programs and demand-side rates, and now places more emphasis on demand-side rates than it previously did. It requires that the Total Resource Cost ("TRC") test be used, which meets the requirement of the MEEIA (Section 393.1075.4 RSMo, Supp. 2014). The rule requires documentation regarding how the potential demand-side resources were analyzed and screened to identify demand-side candidate resource options to advance to the integrated resource analysis.

Finally, rule 4 CSR 240-22.050 requires the selection of demand-side candidate resource options that are subjected to the integrated resource analysis required by rule 4 CSR 240-22.060 where their technical potentials, maximum achievable potentials ("MAP"), and realistic achievable potentials ("RAP") are assessed.

KCPL's 2015 Chapter 22 triennial filing improves and expands KCPL's overall consideration and evaluation of demand-side resources from its previous 2012 Chapter 22 filing. Primary improvements include the knowledge gained from (1) the actual program implementation and evaluation, (2) measurement and verification ("EM&V") experience for the previous and the current demand-side programs, (3) research of previously implemented demand-side programs from other utilities[29] and (4) KCPL's MEEIA filing on January 7, 2014, which was implemented on July 6, 2014. KCPL is communicating with stakeholders, meeting on a regular basis with significant decision makers[30] and meeting quarterly with its DSM advisory group.

[29] Volume 5, Demand - Side Resource Analysis", page 60, Section 3.1, "Previously Implemented Demand-Side Programs From Other Utilities"
[30] Volume 5, "Demand - Side Resource Analysis", page 1, Section 1.1.2, "Decision-Maker Coverage"

KCPL did not request any relief from rule 4 CSR 240-22.050 for this Chapter 22 filing.[31]

Demand-Side Management Programs

KCPL includes in its demand-side management portfolio "Option C," twelve (12) energy efficiency ("EE") programs, five (5) educational programs, two (2) low-income programs, and three (3) demand response ("DR") programs that it considers will allow it to obtain realistically-achievable capacity and energy reductions. These programs are included in KCPL's adopted preferred resource plan, Plan KAACA[32]. KCPL developed the "Option C" portfolio based upon the analysis Applied Energy Group ("AEG") completed. To develop "Option C", AEG reviewed the existing KCPL DSM Portfolio, KCPL's DSM Potential Study, stakeholder input, and regulatory requirements.[33]

KCPL engaged Navigant Consulting, Inc. (Navigant) to conduct a Demand Side Management (DSM) Resource Potential Study (Potential Study) in January 2012. Navigant delivered the Potential Study to KCPL in August 2013. It includes both a RAP level of DSM and a MAP level of DSM, as defined in the Chapter 22 Rules. This potential study was used as the basis for the scenarios evaluated in its integrated resource analysis.

The following are brief descriptions of KCPL's demand-side management portfolio "Option C" programs:

1. EE Programs

a. Commercial and Industrial ("C&I"): Custom Rebates

KCPL's C&I Custom Rebate program encourages and assists non-residential customers to improve the energy efficiency of existing facilities through a broad range of options that address all major end uses and processes. The program is designed for non-prescriptive retrofit and replacement projects and offers financial incentives, paid on a fixed kWh basis, based on the project's first year energy savings.

b. C&I Prescriptive Rebate Program

This program encourages and assists non-residential customers to improve the energy efficiency of their existing facilities through a broad range of options that address all major end uses and processes. The program offers fixed, per-unit rebates to

[31] Volume 1, "Executive Summary," page 2, Section 2.2, "Waivers"
[32] Volume 1, "Executive Summary," page 15, Section 4.2, "Selection of Preferred Resource Plan"
[33] Volume 5: "Demand Side Resource Analysis," page 10, Section 1.2, "Designing Effective Potential Demand-Side Programs"

customers and engages equipment suppliers and contractors to promote eligible equipment.

c. C&I New Construction

KCPL's C&I New Construction program works with design professionals and construction contractors to influence prospective building owners and developers to construct high-performance buildings that provide improved energy efficiency, systems performance, and comfort. Energy saving targets will be accomplished by stimulating incremental efficiency improvements. The program will seek to capture synergistic energy savings by encouraging the design and construction of buildings as integrated systems.

d. Small Business Direct Install (New Program)

This program encourages and assists small businesses improve the energy efficiency of their facilities through turn-key installation and rapid project completion. The program includes lighting, refrigeration, air-conditioning, water heating and control measures that are typically low-cost with reliable, prescriptive energy savings and costs per unit. The program is designed to assist small business owners overcome barriers to achieving energy efficiency, including time constraints, capital constraints, lack of energy efficiency awareness, and lack of labor resources.

e. Home Performance with Energy Star®

The Home Performance with Energy Star® ("HPwES") program coordinates the development of a statewide network of independent contractors trained and mentored on the delivery of comprehensive energy analysis and measure installations under the Home Building Performance Institute standards on building science and offer marketing and incentive packages to accelerate customer awareness and demand. Customers will pay a market-based fee for the analysis and receive partial reimbursement when recommendations are implemented.

This program is available to any customer receiving service under any generally available residential rate schedule offered by KCPL. All audits must be requested by the owner of the home, multiplex, or apartment. A tenant agreement is required for rental residences. Program rebates are limited to one rebate per audit. Customer participation is limited by funds availability.

f. Efficient Products (New Program)

The efficient products program promotes Energy Star® appliances, lighting and home electronics. The program also promotes products that are energy efficient, for which there are not yet Energy Star® labels, such as solid state lighting and light emitting diode technologies.

g. Multi-Family Rebate

The Multi-family Rebate program incentivizes property owners a comprehensive service for reducing common area energy use and help residents reduce energy use in their living units. Property owners will be given the opportunity to participate in either or both components of the program.

The Multi-family Rebate program offers prescribed rebates for energy efficient products to motivate multi-family property owners/managers to install energy efficient products in both common and dwelling areas of multi-family complexes and common areas of mobile home parks and condominiums.

h. Cool Homes

The Cool Homes program is designed to influence the installation of high-efficiency heating, cooling and water heating technologies through a combination of market push and pull strategies that stimulate demand, while simultaneously increasing market provider investment in promoting high-efficiency products. The program will stimulate demand by educating customers about the energy and money-saving benefits associated with efficient equipment and providing financial incentives to overcome the first cost barrier. The program will stimulate market provider investment in stocking and promoting efficient products by offering HVAC contractors several services including training, educational materials, cooperative advertising and sales brochures.

This program is available to any current customer with a working, central home cooling system receiving service under any generally available residential rate schedule. Customer participation is limited by funds availability.

i. Home Appliance Recycling Rebate

The average household replaces a refrigerator or freezer every ten years. Many of these units replaced are still functioning and often end up as back-up appliances in

basements and garages or are sold in a used appliance market. The program will target these "second" refrigerators and freezers, providing the dual benefit of cutting energy consumption and keeping the appliances out of the used market. Units removed will be recycled and disabled through a certified recycling agency.

The program will also raise awareness of the energy benefits of Energy Star® appliances.

j. Energy Star® Homes

This program provides education and rebates to inform and encourage architects, builders, and home buyers on the benefits of Energy Star® homes as well as requirements for gaining certification.

k. Home Lighting Rebate

The Home Lighting Rebate Program incentivizes the purchase and installation of efficient lighting utilizing an upstream strategy to provide customers incentives on qualifying CFL and LED light bulbs at participating retailers. Customers receive an instant incentive at the point-of-purchase. The incentives vary depending upon the type of light bulb, manufacturer and the associated retail cost.

l. Whole Home Efficiency

The Whole House Efficiency Program consists of 3 Tiers:

- Tier 1: Customer Audit - Customer receives a home energy audit and direct installation of low-cost measures. The audit identifies potential efficiency improvements. The low-cost measures to be installed include: faucet aerator, low-flow showerhead, advanced power strip, water heater tank wrap, hot water pipe insulation and CFL/LEDs.
- Tier 2: Infiltration Measures - Customers that have completed Tier 1 are eligible to receive incentives for the purchase and installation of air sealing, insulation and ENERGY STAR® windows.
- Tier 3: HVAC Equipment - Customers are eligible to receive incentives for qualifying HVAC equipment installed by a participating contractor. Customers are not required to participate in Tier 1 or 2. Qualifying measures include heat pump water heaters, ECM furnace fans, heat pump ductless mini splits, central air conditioners and heat pumps. Early

retirement incentives are provided to customers with central air conditioners and/or heat pumps in operable condition and at least 5 years of age.

Residential customers that rent a residence must receive the written approval of the homeowner/landlord to participate in the program.

m. Block Bidding

The Block Bidding Program seeks to purchase blocks of electric savings by issuing a Request for Proposal (RFP) to eligible customers and third-party suppliers. The RFP details the proposal requirements as well as the electric savings that must be achieved. Customers and/or third parties submit proposals to deliver the requested block of cost-effective electric savings. The electric savings may be achieved in a variety of ways; for example, one customer facility installing energy efficiency equipment or a bundle of projects across multiple sites and/or customers. Bidder proposals are reviewed to:

- Verify customer eligibility.
- Ensure completeness and accuracy of proposed energy savings.
- Screen the proposed measures for cost-effectiveness. All projects must have a Total Resource Cost Test benefit-cost ratio of greater than 1.0.

Qualifying and cost-effective bidder proposals are ranked based upon the proposed cost per kWh saved ($/kWh). Program funds are awarded to bidders starting with the lowest $/kWh saved until the funding is depleted. KCPL enters into contracts with the bidders that receive program funding. All projects must receive pre- and post-implementation inspections to verify the existing and upgraded equipment. The acquired savings may differ from the expected savings stated in the contract based upon actual performance and the post-implementation inspection.

2. Educational Programs

a. Building Operator Certification

The Building Operator Certification program offers training and certification program for operations and maintenance staff working in commercial, institutional, or industrial buildings. Operators attend training and complete project assignments in their facilities. This program achieves energy savings by training individuals directly

responsible for the maintenance of energy-using building equipment and day-to-day building operations.

b. Home Energy Report

This program provides residential customers with an energy report that provides an analysis of their household energy usage information along with comparison to similar customers or "neighbors." The intention of the energy report is to provide information that will influence customers' behavior in such a way that they lower their energy usage.

c. Energy Education

This program provides a curriculum, teacher training, and supplies for in-class instruction about how to use energy efficiently at home. The program will target students in 5th through 8th grades, providing education and a "take-home" kit that raises awareness about how individual actions and low-cost measures can provide significant reductions in electricity and water consumption.

d. Online Home Energy Audit

These programs provide residential and commercial customers access to a free online tool to analyze the energy efficiency of their home, educational materials regarding energy efficiency and conservation, and information on KCPL DSM Programs. The program goals include:

- Increase awareness of household energy consumption.
- Educate residential customers about the benefits of energy efficiency and the opportunities to reduce energy consumption.
- Increase awareness of and participation in other KCPL DSM programs.

e. Online Building Energy Audit

These programs provide residential and commercial customers access to a free online tool to analyze the energy efficiency of their business, educational materials regarding energy efficiency and conservation, and information on KCPL DSM Programs. The program goals include:

- Increase awareness of household energy consumption.
- Educate commercial customers about the benefits of energy efficiency and the opportunities to reduce energy consumption.

- Increase awareness of and participation in other KCPL DSM programs.

3. Low-Income Programs

a. Low-Income Weatherization

The Weatherization Assistance Program facilitates the implementation of cost-effective electric saving measures in residential low-income households. In an ongoing effort, KCPL intends to work with the agencies responsible for implementing the federal LIHEAP program to leverage its funding, thereby increasing the number of homes served. If local weatherization agencies initially lack the resources to handle the additional workload, KCPL will temporarily contract with private sector firms to address the overload.

b. Income-Eligible Multi-Family

The program includes 2 tiers:

- Tier 1: Multi-Family Kits - Direct installation of low-cost measures for low-income homeowners and renters in multi-family housing, at no cost to the participant. The measures installed include: faucet aerator, low-flow showerhead, advanced power strip, hot water pipe insulation and CFL/LEDs.
- Tier 2: Multi-Family Common Areas - Installation of lighting measures in multi-family common areas, at no cost to the participant.

4. DR Programs

a. Residential Programmable Thermostat.

The Residential Programmable Thermostat Program reduces peak demand by controlling participant cooling equipment during periods of system peak demand and when there may be delivery constraints within certain load zones. This is done by way of a remotely communicating, programmable thermostat. During a program event, the program operations center sends a radio frequency signal to the thermostat to adjust its set-point by 2 to 4 degrees F such that the system will consume less energy and run less frequently throughout the 3 to 6 hour event duration.[34]

b. Commercial Programmable Thermostat.

The Commercial Programmable Thermostat Program reduces peak demand by controlling participant cooling equipment during periods of system peak demand and

[34] Volume 5: Demand-Side Resource Analysis, page 20, Table 10.

when there may be delivery constraints within certain load zones. This is done by way of a remotely communicating, programmable thermostat. During a program event, the program operations center sends a radio frequency signal to the thermostat to adjust its set-point by 2 to 4 degrees F such that the system will consume less energy and run less frequently throughout the 3 to 6 hour event duration.[35]

c. Demand Response Initiative.

The Demand Response Incentive Program provides firm contractual arrangements with customers for periodic curtailments at times of system peak demand. Customers enter into a contract for a one-, three- or five-year term and receive a payment/bill credit based upon the curtailable load, the contract term and number of consecutive years under contract. Participants receive notification of an event at least 4 hours prior to the start time. Curtailment events may occur between June 1 through September 30, Monday through Friday between the hours of 12 pm and 10 pm (holidays are excluded). Event duration is typically 3 to 6 hours per day for a maximum of 15 events per year. Customers receive a fixed, capacity-reserve payment in terms of $/kW, based on the number of curtailable kW, the contract term, and number of consecutive years under contract. The fixed payment is supplemented by a performance payment on a $/kWh basis, calculated from the customer's actual load curtailment relative to their baseline load, as calculated by program management.[36]

For each program, the number of participants, program costs, avoided costs and demand reduction savings are included in the Work Paper "KCPL Program Cost-Effectiveness_HC 240-22.050." Table 1 summarizes the results of each cost-effectiveness test for KCPL's proposed Programs, except the Home Energy Analyzer and Business Energy Analyzer, which are education programs for which the benefits are very difficult to calculate and are assumed to be "zero".

[35] Volume 5: Demand-Side Resource Analysis, page 31, Table 17.
[36] Volume 5: Demand-Side Resource Analysis, page 32, Table 18

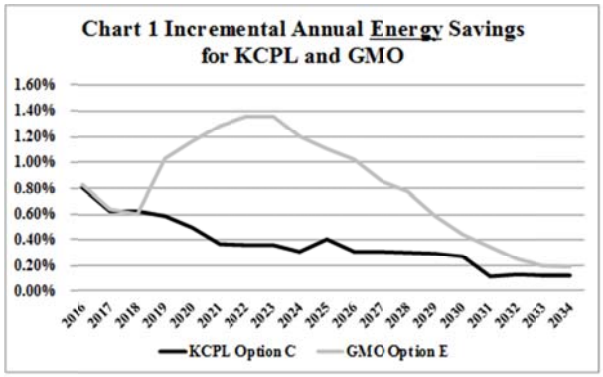
<Table 1>
Cost-Effectiveness Test Summary

Programs	TRC	UCT
Home Lighting Rebate	1.18	1.73
Home Appliance Recycling Rebate	1.07	1.13
Home Energy Report	0.90	0.90
Online Home Energy Audit	-	-
Whole House Efficiency	1.17	1.82
Income-Eligible Multi-Family	0.17	0.17
Income-Eligible Weatherization	0.22	0.22
Residential Programmable Thermostat	14.69	14.69
Business Energy Efficiency Rebate - Prescriptive	2.07	2.02
Business Energy Efficiency Rebate - Custom	1.79	2.77
Strategic Energy Management	0.89	0.89
Block Bidding	2.00	5.62
Online Building Energy Audit	-	-
Small Business Direct Install	1.09	1.09
Commercial Programmable Thermostat	15.82	15.82
Demand Response Incentive	3.37	0.33

Chapter 22 requires that electric utility resource planning be performed for a planning horizon of at least twenty (20) years. KCPL's demand-side resource portfolio Option C represents a more conservative level of achievable DSM levels than RAP or MAP identified in the Potential Study. The RAP and MAP levels developed are from a single Potential Study at a point in time based on assumptions that may or may not be comprehensive to achieve such results as defined in the study.

Chart 1 and Chart 2 present the incremental annual energy savings for adopted preferred resource plans of KCPL and GMO,[37] respectively, as a percentage of base load forecast levels for energy and demand.

[37] In File No. EO-2015-0252, GMO's adopted preferred resource plan includes demand-side resource in Option E, which mirrors Option C for 2016-2018 and then transitions to adjusted RAP level annual impacts.



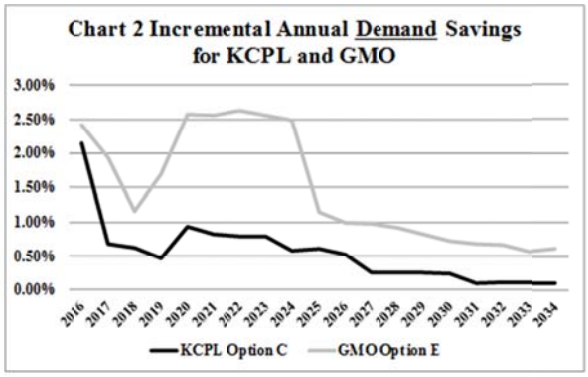
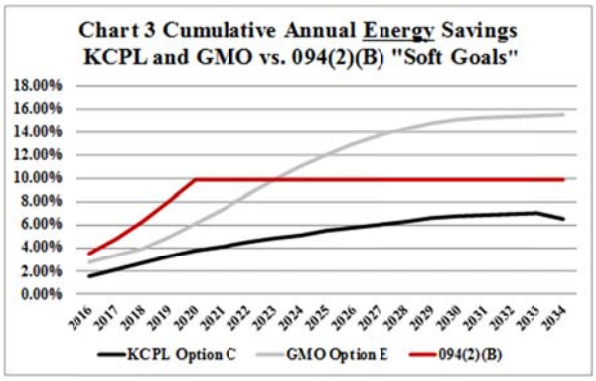
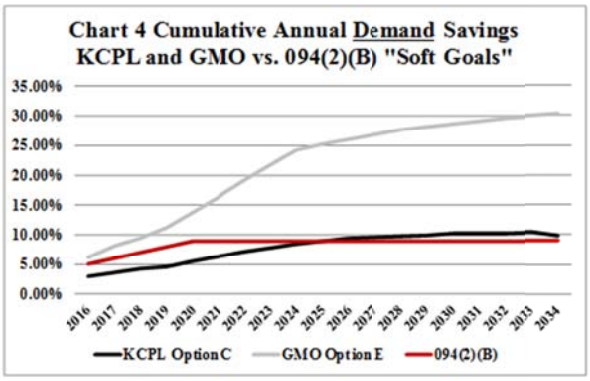


Chart 3 and Chart 4 present progress of KCPL and GMO relative to the "soft goals" for cumulative annual energy savings and cumulative annual demand savings contained in 4 CSR 240-20.094(2)(B). The cumulative annual energy and demand savings in Charts 3 and 4 include the cumulative annual energy and demand savings targets approved the Commission for the first MEEIA Cycles of KCPL and GMO, respectively. For Charts 3 and 4, Staff chooses to "fix" the "soft goals" in 4 CSR 240-20.094(2)(B) at the 2020 level for illustrative purposes only.[38]





Staff has also identified one concern for this rule.

Concern

Concern C - KCPL's Demand Response Initiative is essentially the same as its previous "M Power" program, which was rarely utilized for economic peak load curtailment during the past several years due to low energy prices in the SPP marketplace. The M Power program was almost exclusively used in the recent

[38] 4 CSR 240-20.094(2)(B) includes: For 2020 and for subsequent years, unless additional energy savings and demand savings goals are established by the commission: nine-and-nine-tenths percent (9.9%) of total annual energy and nine percent (9.0%) of annual peak demand for 2020, *and then increasing by one-and-nine-tenths percent (1.9%) of total annual energy and by one percent (1.0%) of annual peak demand each year after 2020.* [Emphasis added]

past for occasional reliability- or operations-based, peak load curtailment. Customers who participate in this program are paid a capacity reserve payment, regardless of whether or not KCPL requests them to curtail load. Since energy prices are projected to remain low in the near term, KCPL should reevaluate size, number and type of program participants, and incentive payments, and revise this program as appropriate.

To resolve this concern, KCPL should utilize the results of its evaluation of the Demand Response Initiative program, revise it and provide the revised program in its April 1, 2018 triennial compliance filing.

Staff Expert Witnesses: Randy Gross for demand response programs and Jason Huffman for energy efficiency programs

4 CSR 240-22.060 Integrated Resource Analysis

Summary

Rule 4 CSR 240-22.060 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 that resource plan analysis. Rule 4 CSR 240-22.060 also requires the utility to design logically consistent and economically equivalent alternative resource plans. The utility is to identify the critical uncertain factors that affect the performance of alternative resource plans and also establish the methods used to assess the risks associated with these critical uncertain factors.

The utility shall develop cases 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. The rule also requires documentation of the methods, analyses, judgments and data the utility chooses.

Deficiency

Deficiency 5 – The only requirements of Rule 4 CSR 240-22.060 Integrated Resource Plan and Risk Analysis that are satisfied, and described, and documented[39] for each of KCPL's eight (8) combined/joint candidate resource plans are for integrated resource analysis and the calculation of PVRR for each plan.

To resolve this deficiency, KCPL should comply with all requirements of rule 4 CSR 240-22.060 Integrated Resource Plan and Risk Analysis for its April 1, 2018, triennial compliance filing.

As of June 25, 2015 Staff did not renew its license for Midas Gold. Midas Gold is used by GMO and KCPL to model the revenue requirements of their various integrated resource plans. As a result, Staff no longer has the capability to view GMO's or KCPL's results from Midas Gold when reviewing their integrated resource plans. Staff intends to discuss this issue further with GMO, KCPL and their stakeholders in the future.

Staff Expert Witness: Matthew J. Barnes

Missouri Renewable Energy Standard (RES)

The Missouri RES requires investor-owned utilities to use eligible renewable energy resources to meet 15% of its annual retail sales by 2021. Missouri's RES includes a carve-out for solar electricity and a credit multiplier of 1.25 for in-state generation. Compliance with the RES can be achieved through the development or procurement of renewable energy resources or by acquiring renewable energy credits[40] (RECs). RECs expire for Missouri compliance after 3 years from the date of generation[41].

The Missouri RES includes a provision which allows the investor-owned utilities to adjust its RES compliance downward if the cost of compliance with the standard increases retail electricity rates by more than one percent. The retail rate impact is determined by estimating and comparing the electric utility's cost of compliance with least-cost renewable generation and the cost of continuing to generate or purchase electricity from entirely nonrenewable sources. The Missouri RES allows investor-owned utilities to invest in

[39] Rule 4 CSR 240-22.020(14): "Describe and document refers to the demonstration of compliance with each provision of this chapter. Describe means the provision of information in the technical volume(s) of the triennial compliance filing, in sufficient detail to inform the stakeholders how the utility complied with each applicable requirement of Chapter 22, why that approach was chosen, and the results of its approach. The description in the technical volume(s), including narrative text, graphs, tables, and other pertinent information, shall be written in a manner that would allow a stakeholder to thoroughly assess the utility's resource acquisition strategy and each of its components. Document means the provision of all of the supporting information relating to the filed resource acquisition strategy pursuant to 4 CSR 240-22.080(11)".

[40] A REC represent that 1 MWh has been generated by a renewable energy resource

[41] RECs can be retired for compliance if valid at any time during the compliance year.

additional renewable resources, beyond those used for compliance, by excluding those resources from the retail rate impact calculation[42].

In Missouri, investor-owned utilities are required to file annual compliance reports and annual compliance plans which describe how they will meet the standard for the current year and the two subsequent years. KCPL's most recent compliance plan was filed in April 2015 (Case No. EO-2015-0265).

In its 2015 RES Compliance Plan KCPL outlined its plan to utilize existing renewable resources[43] for compliance with the Missouri RES from 2015 through 2017. In its RES Compliance Plan KCPL identified the following planned renewable energy resource additions:

Table 2 (HC): Planned Renewable Energy Resources Additions

Name	Type	Location	Total nameplate capacity (MW)	Contract Duration	Expected Operational Date
Waverly	Wind PPA	KS	200	20	December 31, 2015
Slate Creek	Wind PPA	KS	150	20	December 31, 2015
** **	** **	MO	** **	** **	** **
Solar Initiative	KCPL owned rooftop solar	MO & KS	3	n/a	2016

Table 3 includes KCPL's forecasted Missouri RES requirements (solar and non-solar), existing REC production, and an estimation of when KCPL's REC bank would be depleted. As shown in Table 3, KCPL is capable of complying with the non-solar RES requirements through 2024 with its Missouri share of existing non-solar renewable resources. KCPL is also capable of meeting its solar requirements through 2026, primarily through S-RECs acquired from its customer-generators.

[42] 4 CSR 240-20.100(5)(A)
[43] Spearville I, Spearville II, Cimarron II PPA, Spearville 3 PPA, Hampton Alternative Energy Products PPA

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Table 3 (HC): Forecasted RES requirements and Estimated End-of-year REC Bank

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Is Deemed

Highly Confidential

In Its Entirety

Recent changes that may impact KCPL's planned renewable additions are the release of EPA's final Clean Power Plan on August 3, 2015 and Kansas' RES becoming a voluntary program in May 2015. The final Clean Power Plan includes incentives for wind and solar additions which are made (1) after the state where the addition is located submits its final plan

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to the EPA (or after September 6, 2018) and (2) which generate MWhs during 2020 and/or 2021. Because KCPL allocates its existing REC production between Kansas and Missouri, Kansas' RES becoming voluntary could allow KCPL to utilize its full REC production for Missouri RES compliance. KCPL's existing renewables[44] produce enough RECs to cover KCPL's non-solar RES compliance for Missouri through the planning horizon, see further discussion below.

Integrated Resource Plan and Risk Analysis & the Missouri Renewable Energy Standard (RES)

Rule 4 CSR 240-22.060, Integrated Resource Plan and Risk Analysis, requires KCPL to develop alternative resource plans to meet the planning objectives identified in rule 4 CSR 240-22.010(2). The goal outlined in 4 CSR 240-22.060(3) is to develop substantively different mixes of supply-side resources and demand-side resources and variations in the timing of resource acquisitions.

This section of Staff's report focuses on the interrelationship of the Missouri RES (4 CSR 240-20.100) with the Integrated Resource Plan (4 CSR 240-22.060). For Chapter 22 filings, KCPL is required to develop at least one alternative resource plan which incorporates renewable energy mandates for each of the following cases:

1) A compliance benchmark plan, which minimally complies with legal mandates for demand-side and renewable energy resources (4 CSR 240-22.060(3)(A)1.);
2) An aggressive renewable energy resource plan, which utilizes only renewable energy resources, up to the maximum potential capabilities of renewable resources in the planning horizon (4 CSR 240-22.060(3)(A)2.); and
3) An optimal compliance resource plan, which optimizes compliance with the legal mandates for demand-side resources and renewable energy resources (4 CSR 240-22.060(3)(A)3.).

Deficiency 6 - Compliance Benchmark Plan - KCPL did not provide a compliance bench mark plan which minimally complies with the legal mandates for renewable energy resources [45], and is therefore deficient.

Although all of the alternative resource plans comply with the previously mandated Kansas and the Missouri RES requirements, the planned resource additions exceed a

[44] Excluding existing hydropower PPAs
[45] Section 393.1030, RSMo, Supp. 2014.

minimally compliant plan and, therefore the filing is deficient. Further, KCPL may comply with both the Kansas and Missouri RES requirements by purchasing RECs and solar RECs; therefore, the minimally compliant plan might include ***no*** new renewable supply-side resource additions.

Kansas' RES requirements are calculated as a percentage of the 3-year average of the utility's retail peak (MW), whereas Missouri's RES requirements are calculated as a percentage of the utilities' total Missouri retail electric sales (MWh). ** ________________ **

** ________________ **

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[46] *Kansas City Power & Light Company Integrated Resource Plan*; Volume 6, Table 1, Page 8

[47] *Kansas City Power & Light Company, Kansas Renewable Energy Standards Act, 2015 Annual Compliance Report;* Page 13 Value includes the 1.1 Kansas RES multiplier.

[48] Response to Staff Data request 3.

[49] Response to Staff Data request 3.

[50] For the purposes of estimating the MW of renewable resource additions required for Missouri RES requirements it was assumed the additions would consist of wind resources with a capacity factor of **____ **; substituting other types of renewable resources or varying capacity factors will change the required MW to comply with the RES. ** ________________ **

[5] ** ________________ **

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Chart 5 (HC): Forecasted Non-solar RES requirement vs Production

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Highly Confidential

In Its Entirety

Although Staff does not disagree with the level of solar renewable additions KCPL attributes to compliance with the Missouri RES solar requirements, 10 MW[53], Staff notes that KCPL can comply with the solar portion of the Missouri RES by purchasing solar RECs from current and future KCPL customer-generators[54] or from other in-state or out-of-state sources.

[52] Excluding existing hydropower PPAs and KCPL's net-metered customers located in Kansas
[53] Response to Staff Data request 3.
[54] HB142 allowed KCPL the right to customer-generated SRECs for a period of 10-years as a condition of receiving a solar rebate when KCPL's right to those S-RECs expire, there is nothing preventing KCPL from offering a standard offer contract to purchase S-RECs from its current and future customer-generators.

To resolve this deficiency, KCPL should include in its April 1, 2016, annual update filing a single minimally compliant alternative resource plan, to serve as the compliance benchmark plan, which includes low or no renewable additions.

> **<u>Deficiency 7 - Optimal Compliance Resource Plan</u> - KCPL did not supply a compliance benchmark plan which minimally complies with renewable mandates. ** _____ ** Because there is little variation in mixes and timing of renewable supply-side resource additions, KCPL has not demonstrated that the planned renewable resources optimally comply with renewable mandates**.[56]

To resolve this deficiency, KCPL should include in its April 1, 2016, annual update filing alternative resource plans which vary the timing and mixes of both solar and non-solar renewable supply-side resource additions.

> **<u>Concern D – Renewable planning environment</u> - As discussed above, recent changes to KCPL's planning environment, particularly Kansas' RES becoming voluntary, and the impact of the Clean Power Plan and associated incentives for KCPL's planned renewable additions, may alter the need for renewable resource additions or their timing. Because KCPL allocates its existing REC production between Kansas and Missouri, Kansas' RES becoming voluntary could allow KCPL to utilize its full REC production for Missouri compliance. KCPL's existing renewables[57] produce enough RECs for KCPL to comply with Missouri non-solar RES requirements through the planning horizon.**

To resolve this concern, KCPL should evaluate whether it will continue to comply with Kansas' voluntary RES and discuss the results of its evaluation in both its 2016 RES Compliance Plan and April 1, 2016, annual update filing. KCPL should include alternative resource plans which vary the timing of renewable energy resources such that they occur at a time in which KCPL can take advantage of the Clean Power Plan incentives.

> **Concern E – Timing of Solar additions - ** _____ ____ ** KCPL states that the solar additions included in its preferred plan are not economic and are driven by the Missouri RES.[58] Adding a solar resource in 2016, rather than a later date, results in more of KCPL's banked solar RECs expiring. A portion of the projected surplus of solar RECs will expire and the**

[55] Response to Staff Data Request 9 and Tables 9-11 in *Kansas City Power & Light Company Integrated Resource Plan* - Volume 6, Pages 16-19
[56] Section 393.1030, RSMo, Supp. 2014.
[57] Excluding existing hydropower PPAs
[58] Response to Staff Data Request 8

potential value of selling solar RECs is low. For example, KCPL purchased solar RECs at $2.10/solar REC[59] for 2014 compliance.

To resolve this concern, KCPL should include alternative resource plans that vary the timing of solar resource additions, considering the potential expiration of solar RECs and renewable incentives such as the production tax credit and the Clean Power Plan incentives. These alternative resource plans should be used to demonstrate that the chosen preferred plan consists of least-cost renewable generation (RSMo 393.1030(1)). Additionally, KCPL should demonstrate and fully discuss that its planned solar additions are the least-cost way to comply[60] with the Missouri RES in its 2016 RES Compliance Plan and utilize the April 1, 2016, annual update as the basis for its discussion.

Concern F – Retail Rate Impact Calculation - Although Staff is aware of recent advantageous wind pricing, KCPL has failed to meet the goal outlined in rule 4 CSR 240-22.060(3), to develop substantively different mixes of supply-side resources and variations in the timing of resource acquisitions, and Staff is therefore concerned that KCPL has not fully demonstrated that there is an economic benefit to the planned wind resource additions[61] or fully justified its exclusion of wind resources from the retail rate impact calculation of rule 4 CSR 240-20.100(5).

KCPL has excluded the planned wind resource additions (see Table 2 above) from the retail rate impact calculation asserting that the planned additions are economic and would have been pursued regardless of any RES requirements.[62] The Missouri RES allows investor-owned utilities to invest in additional renewable resources, beyond those used to comply with the RES requirements[63], by excluding those resources from the retail rate impact calculation[64].

Staff is concerned with KCPL's assertion that these wind contracts are economic in light of the above identified Deficiencies 6 and 7. In the *Kansas City Power & Light Company Integrated Resource Plan Notification of Preferred Plan Change*, KCPL filed on January 17, 2014, ** _____ _____ **. As shown in the table below, the new wind resource addition discussed in that notice did not change the total capacity of wind

[59] KCPL reported the purchase of 8,700 S-RECs in 2014, page 4 KCPL 2014 RES Compliance report; Response to Staff Data Request 3 in EO-2015-0263 indicates there was one purchase from Costco in 2014 for $18,705.00
[60] 4 CSR 240-20.100(7)(B)1.E
[61] Above those included in the 2013 Notification of Preferred Plan Change
[62] Response to Staff Data Request 8
[63] 4 CSR 240-20.100(2)
[64] 4 CSR 240-20.100(5)(A)

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additions, but, instead, changed the timing of a 150 MW wind addition from 2020 to 2016. The Table below also illustrates the trend of KCPL increasing the planned capacity of wind additions and moving them earlier in the planning horizon.

Table 4 (HC): Recent Preferred Plans

This Table

Is Deemed

Highly Confidential

In Its Entirety

To resolve this concern, KCPL should include a minimally compliant (low renewable or no-renewable) alternative resource plan in its April 1, 2016 annual update filing and discuss the results and provide all pertinent information in the text of its April 1, 2016 annual update filing and 2016 RES Compliance Plan. Additionally, KCPL should fully discuss and support its exclusion of its planned wind resource additions from its retail rate impact calculation in its 2016 RES Compliance Plan and utilize the April 1, 2016, annual update as the basis for its discussion.

Staff Expert Witness: Claire Eubanks

4 CSR 240-22.070 Risk Analysis and Strategy Selection

Summary

Rule 4 CSR 240-22.070 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.

The revised *Resource Acquisition Strategy Selection Rule* requires an evaluation of demand-side programs, demand-side rates and load building programs in the strategy

selection process. It also clarifies the requirement to identify and develop implementation plans and contingency resource plans. The rule provides additional flexibility to exercise judgment when satisfying policy objectives of Chapter 22, but requires the selection of a preferred resource plan that invests in advanced transmission and distribution technologies, includes demand-side programs that meet legal mandates and includes sufficient resources to serve load forecasted under extreme weather conditions. The rule now requires the utility to officially adopt a preferred resource plan, contingency resource plans and resource acquisition strategy, including specific information to describe the implementation plan.

Deficiencies

> **Deficiency 8 – All of the filing requirements of rules 4 CSR 240-22.070(2) and 4 CSR 240-22.070(3) were not described and documented for any of the fifteen (15) KCPL candidate resource plans.**

To resolve this deficiency, KCPL should comply with all requirements of Rule 4 CSR 240-22.070(2) and Rule 4 CSR 240-22.070(3) for its April 1, 2018 triennial compliance filing.

> **Deficiency 9 – The only requirements of rule 4 CSR 240-22.070 Resource Acquisition Strategy Selection that were satisfied and described and documented for each of the eight (8) combined/joint candidate resource plans are: 1) analysis and specification of ranges for critical uncertain factors, and 2) the expected value of better information related to the critical uncertain factors (CO_2, load forecast and natural gas prices).**

To resolve this deficiency, KCPL should comply with all requirements of Rule 4 CSR 240-22.070 Resource Acquisition Strategy Selection for its April 1, 2018 triennial compliance filing.

> **Deficiency 10 - KCPL's resource acquisition strategy selection process used to select Plan KAACA as its adopted preferred resource plan does not comply with the minimum requirements of: a) rule 4 CSR 240-22.010(2)(C), because it does not *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,*[65] and b) rule 4 CSR 240-22.070(1), because it does not *describe and document 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*.**

[65] Volume 6, Table 27 indicates that Plan KCCCA which retires the Montrose 2 and 3 units in 2019 is the low cost resource plan. Table 27 also indicates that Plans KCCBA and KAABA which include the RAP portfolio of demand-side resources have 20-year PVRRS which are within $12 million and $33 million, respectively, of the 20-year PVRR of the preferred resource plan.

[Emphasis added]

To remedy the current noncompliance with rule 4 CSR 240-22.010(2)(C) and 4 CSR 240-22.070(1), KCPL should utilize a decision scorecard whenever KCPL does not use minimization of the present worth of long-run utility costs as the only selection criterion in choosing its adopted preferred resource plan. That scorecard should describe and document the process used to select the adopted 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 (1) between competing planning objectives and (2) between expected performance and risk.

Staff Expert Witness: John Rogers and David Roos

4 CSR 240-22.080 Filing Schedule and Requirements

Summary

Rule 4 CSR 240-22.080 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 current rule requires Kansas City Power & Light Company, KCP&L Greater Missouri Operations Company, Union Electric Company and The Empire District Electric Company to file April 1 of each year either a triennial compliance filing or a more informal annual update. 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, identifies special contemporary issues each year

for each utility to analyze during its planning process. To make the resource planning process more meaningful, the revised rule requires action from the utility if its business plan or acquisition strategy becomes inconsistent with its most recently filed preferred resource plan filed by the utility. The revised rule also requires certification that any request of action from the Commission is consistent with the utility's adopted preferred resource plan.

Concern

> **Concern G – KCPL and GMO do not have the proper operating agreements and/or contracts in place to correctly analyze joint company planning. In the absence of proper operating agreements and/or contracts, joint company planning must be performed in the context of a comprehensive plan to merge KCPL and GMO, and no such plan to merge the two companies exists at this time.**

To resolve this concern, KCPL and GMO should file either 1) a detailed proposal for allocating capacity and energy between KCPL and GMO, and if GMO's MPS and L&P rate districts are not eliminated, between GMO's MPS and L&P rate districts; or 2) a definitive plan for merging KCPL and GMO into one electrical corporation prior to any future Chapter 22 electric utility resource planning filing for which KCPL requests Commission acknowledgement that it is reasonable for KCPL and GMO to plan on a consolidated company basis.

An alternative available to KCPL and GMO may involve KCPL and GMO entering into a long-term contract for KCPL to supply capacity and energy to GMO after GMO issues a RFP for a long-term PPA and evaluates the responses it receives. If KCPL's bid would be the low cost solution, then the contract between KCPL and GMO would have to meet the requirements of rule 4 CSR 240-20.015 Affiliate Transactions rule.

Staff Expert Witness: John Rogers

Linkage between Chapter 22 Rules, the MEEIA and MEEIA Rules [John]

Staff performed its review of the Filing in the context of the Commission's revised Chapter 22 Rules, the MEEIA and the Commission's MEEIA Rules. Staff performed its review of the Filing 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]

And 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[1] 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.*
>
> [Emphasis added]

Although electric utilities are not required to request Commission approval of demand-side programs and a DSIM under MEEIA and the Commission's MEEIA rules, electric utilities

[1] Rule 4 CSR 240-22.020(16): "Electric utility or utility mean any electrical corporation as defined in section 386.020, RSMo, which is subject to the jurisdiction of the commission."

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 DSIM's which can allow the electric utility to make reasonable progress toward an expectation that the electric utility can achieve a goal of all cost-effective demand-side savings.[2]

It is important to also note the linkages between MEEIA Rules and Chapter 22 Rules included in Rule 4 CSR 240-20.094(3)(A):

> (A) For demand-side programs and program plan that have a total resource cost test ratio greater than one (1), the commission shall approve demand-side programs or program plans, and annual demand and energy savings targets for each demand-side program it approves, provided it finds that the utility has met the filing and submission requirements of 4 CSR 240-3.164(2) and the demand-side programs and program plans-
>
> 1. Are consistent with a goal of achieving all cost-effective demand-side savings;
> 2. Have reliable evaluation, measurement, and verification plans; and
> 3. Are included in the electric utility's preferred plan or have been analyzed through the integration process required by 4 CSR 240-22.060 to determine the impact of the demand-side programs and program plans on the net present value of revenue requirements of the electric utility.

Of less significance - but still important - is the linkage between Chapter 22 Rules and MEEIA Rules in Rule 4 CSR 240-22.070(8):

> Evaluation of Demand-Side Programs and Demand-Side Rates. The utility shall describe and document its evaluation plans for all demand-side programs and demand-side rates that are included in the preferred resource plan selected pursuant to 4 CSR 240-22.070(1). Evaluation plans required by this section are for planning purposes and are separate and distinct from the evaluation, measurement, and verification reports required by 4 CSR 240-3.163(7) and 4 CSR 240-20.093(7); nonetheless, the evaluation plan should, in addition to the requirements of this section, include the proposed evaluation schedule and the proposed approach to achieving the evaluation goals pursuant to 4 CSR 240-3.163(7) and 4 CSR 240-20.093(7). The evaluation plans for each program and

[2] *See* Rule 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."

rate shall be developed before the program or rate is implemented and shall be filed when the utility files for approval of demand-side programs or demand-side program plans with the tariff application for the program or rate as described in 4 CSR 240-20.094(3).

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of the Resource Plan of Kansas City Power & Light Company	))	File No. EO-2015-0254

AFFIDAVIT OF CLAIRE M. EUBANKS

STATE OF MISSOURI)
) **ss**
COUNTY OF COLE)

Claire M. Eubanks, of lawful age, on oath states: that she participated in the preparation of the foregoing Staff Report, to be presented in the above case; that the information in the Staff Report was provided to her; that she has knowledge of the matters set forth in such Staff Report; and that such matters are true to the best of her knowledge and belief.

Claire M Eubanks
Claire M. Eubanks

Subscribed and sworn to before me this 31st day of August, 2015.

SUSAN L. SUNDERMEYER
Notary Public - Notary Seal
State of Missouri
Commissioned for Callaway County
My Commission Expires: October 28, 2018
Commission Number: 14942086

Susan L Sundermeyer
Notary Public

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of the Resource Plan of Kansas City Power & Light Company	))	File No. EO-2015-0254

AFFIDAVIT OF JOHN A. ROGERS

STATE OF MISSOURI)
) **ss**
COUNTY OF COLE)

John A. Rogers, of lawful age, on oath states: that he participated in the preparation of the foregoing Staff Report, to be presented in the above case; that the information in the Staff Report was provided to him; that he has knowledge of the matters set forth in such Staff Report; and that such matters are true to the best of his knowledge and belief.

John A Rogers

John A. Rogers

Subscribed and sworn to before me this 31st day of August, 2015.

SUSAN L. SUNDERMEYER
Notary Public - Notary Seal
State of Missouri
Commissioned for Callaway County
My Commission Expires: October 28, 2018
Commission Number: 14942086

Susan L Sundermeyer

Notary Public

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of the Resource Plan of Kansas City Power & Light Company	))	File No. EO-2015-0254

AFFIDAVIT OF MATTHEW J. BARNES

STATE OF MISSOURI)
) **ss**
COUNTY OF COLE)

Matthew J. Barnes, of lawful age, on oath states: that he participated in the preparation of the foregoing Staff Report, to be presented in the above case; that the information in the Staff Report was provided to him; that he has knowledge of the matters set forth in such Staff Report; and that such matters are true to the best of his knowledge and belief.

Matthew J. Barnes

Subscribed and sworn to before me this 31st day of August, 2015.

SUSAN L. SUNDERMEYER
Notary Public - Notary Seal
State of Missouri
Commissioned for Callaway County
My Commission Expires: October 28, 2018
Commission Number: 14942086

Notary Public

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of the Resource Plan of Kansas City Power & Light Company	))	File No. EO-2015-0254

AFFIDAVIT OF DAVID C. ROOS

STATE OF MISSOURI)
) **ss**
COUNTY OF COLE)

David C. Roos, of lawful age, on oath states: that he participated in the preparation of the foregoing Staff Report, to be presented in the above case; that the information in the Staff Report was provided to him; that he has knowledge of the matters set forth in such Staff Report; and that such matters are true to the best of his knowledge and belief.

David C. Roos

Subscribed and sworn to before me this 31st day of August, 2015.

SUSAN L. SUNDERMEYER
Notary Public - Notary Seal
State of Missouri
Commissioned for Callaway County
My Commission Expires: October 28, 2018
Commission Number: 14942086

Notary Public

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of the Resource Plan of Kansas City Power & Light Company	))	File No. EO-2015-0254

AFFIDAVIT OF RANDY S. GROSS

STATE OF MISSOURI)
) **ss**
COUNTY OF COLE)

Randy S. Gross, of lawful age, on oath states: that he participated in the preparation of the foregoing Staff Report, to be presented in the above case; that the information in the Staff Report was provided to him; that he has knowledge of the matters set forth in such Staff Report; and that such matters are true to the best of his knowledge and belief.

Randy S. Gross

Subscribed and sworn to before me this 31st day of August, 2015.

SUSAN L. SUNDERMEYER
Notary Public - Notary Seal
State of Missouri
Commissioned for Callaway County
My Commission Expires: October 28, 2018
Commission Number: 14942086

Notary Public

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of the Resource Plan of Kansas City Power & Light Company	))	File No. EO-2015-0254

AFFIDAVIT OF JASON HUFFMAN

STATE OF MISSOURI)
) **ss**
COUNTY OF COLE)

Jason Huffman, of lawful age, on oath states: that he participated in the preparation of the foregoing Staff Report, to be presented in the above case; that the information in the Staff Report was provided to him; that he has knowledge of the matters set forth in such Staff Report; and that such matters are true to the best of his knowledge and belief.

Jason Huffman

Subscribed and sworn to before me this 31st day of August, 2015.

SUSAN L. SUNDERMEYER
Notary Public - Notary Seal
State of Missouri
Commissioned for Callaway County
My Commission Expires: October 28, 2018
Commission Number: 14942086

Notary Public