VOLUME 6

INTEGRATED RESOURCE ANALYSIS

KANSAS CITY POWER & LIGHT COMPANY (KCP&L)

INTEGRATED RESOURCE PLAN

4 CSR 240-22.060

APRIL 2018

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VOLUME 6: INTEGRATED RESOURCE ANALYSIS

PURPOSE: This rule requires the utility to design alternative resource plans to meet the planning objectives identified in 4 CSR 240-22.010(2) and sets minimum standards for the scope and level of detail required in resource plan analysis, and economically equivalent analysis of alternative resource plans. This rule also requires the utility to identify the critical uncertain factors that affect the performance of alternative resource plans and establishes minimum standards for the methods used to assess the risks associated with these uncertainties.

SECTION 1: RESOURCE PLANNING OBJECTIVES

(1) Resource Planning Objectives. The utility shall design alternative resource plans to satisfy at least the objectives and priorities identified in 4 CSR 240-22.010(2). The utility may identify additional planning objectives that alternative resource plans will be designed to meet. The utility shall describe and document its additional planning objectives and its guiding principles to design alternative resource plans that satisfy all of the planning objectives and priorities.

The fundamental objective of all the alternative resource plans is to provide the public with energy services that are safe, reliable and efficient. The plans comply with current legal mandates in a manner that serves the public interest and is consistent with state energy and environmental policies.

All of the Alternative Resource Plans (ARPs) developed for the IRP consider the impact of future renewable generation requirements for KCP&L. In Missouri, these requirements are based on Rule 4 CSR 240-20.100 which requires that an electric utility's compliance with the Renewable Energy Standard (RES) is based on total retail electric sales, or total retail electric energy usage, delivered in each year to its Missouri retail customers. For the state of Kansas, pursuant to Kansas statues and standards, an affected utility is required to provide net renewable

generation capacity based on its Kansas retail one-hour peak demand averaged over the previous three calendar years. The specific renewable portfolio and RES requirements are provided in Section 3.1 below.

Other criteria considered in ARP development include various levels of demand-side management (DSM) programs, coal unit retirements, alternative generation options and the Southwest Power Pool's reserve margin requirements. Other factors were also analyzed, but were determined not critical to ARP development. Details of these additional factors and how they were examined are given in Section 5: of this document.

As required by Rule 22.010(2), demand-side resources were analyzed on an equivalent basis with supply-side resources.

Net present value of revenue requirements (NPVRR) of each plan including probable environmental costs (PEC) was calculated. Minimization of NPVRR with PEC was used as the primary criteria for determining the ordinal preference of a particular plan. Risks associated with critical uncertain factors, those associated with new or more stringent legal mandates are included in the integrated analysis of the resource planning process. Rate increases associated with the alternative resource plans are determined in the analysis as well. All performance measures are detailed in Section 2: of this document.

SECTION 2: PERFORMANCE MEASURES

(2) Specification of Performance Measures. The utility shall specify, describe, and document a set of quantitative measures for assessing the performance of alternative resource plans with respect to resource planning objectives.

(A) These performance measures shall include at least the following:

1. Present worth of utility revenue requirements, with and without any rate of return or financial performance incentives for demand-side resources the utility is planning to request;

Annual Revenue Requirement is calculated by totaling all expenses of the company in a year plus the return on rate base. The rate base increases as capital expenditures grow and plant is placed into service, but is reduced by depreciation and amortization of assets. This measure includes the total operating cost and any costs associated with probable environmental compliance.

The NPVRR is calculated by applying the discount rate consistent with rule 4 CSR 240-22.060 (2) (B) to the future estimated Annual Revenue Requirement to estimate the total future requirement on a present value basis. This value is the primary measure of plan financial performance.

DSM expenditures have been expensed in the year that they are incurred, so there is no increase to rate base for these outlays. The impact of DSM assumed financial performance incentives has been shown in the performance measures.

2. Present worth of probable environmental costs;

The Present Worth of Probable Environmental Costs are determined by removing all capital and O&M costs from future environmental retrofits to estimate the cost of utility operations absent environmental expenditures. These results are

compared to the NPVRR of the plans with environmental costs to determine the cost of these laws on total company operation and financial performance.

CO_2 credits are assumed to be a market risk. In the integrated analysis, endpoints contain different assumptions of CO_2 credit prices or no CO_2 market at all. Therefore, the analysis of plans without PEC is calculated both with and without a CO_2 market.

3. Present worth of out-of-pocket costs to participants in demand-side programs and demand-side rates;

DSM program costs are an input to the integrated analysis. As such it is an exogenous driver of each plan and does not exhibit variability within the analysis of an individual plan. The present value of these programs is calculated using the estimated future program costs and applying the discount rate consistent with rule 4 CSR 240-22.060 (2) (B). Out-of-pocket costs to participants are provided in Table 1 below:

Table 1: DSM Out of Pocket Costs

DSM Level	MO	KS	Total
RAP-	$37,742,948	$21,458,467	$59,201,415
RAP	$34,016,344	$20,904,014	$54,920,358
RAP+	$22,872,041	$15,335,375	$38,207,415
MAP	$1,104,186	$4,116,957	$5,221,143
RAP Modified	$37,925,541		$37,925,541

4. Levelized annual average rates;

Annual average rates are calculated by dividing the total estimated annual revenue requirement, calculated as described earlier in this section, by the forecasted total retail energy sales volume. The levelized value is the simple average of the 20-year estimate of annual rates.

5. Maximum single-year increase in annual average rates;

Single year increases (and decreases) in rates are developed as year-over-year percent change to the rate calculation as described earlier in this section. The maximum value is determined from the highest year-over-year percent change.

6. Financial ratios (e.g., pretax interest coverage, ratio of total debt to total capital, ratio of net cash flow to capital expenditures) or other credit metrics indicative of the utility's ability to finance alternative resource plans; and

The Company uses three financial metrics; pretax times interest earned, total debt to total capital and internal cash to construction expense.

7. Other measures that utility decision makers believe are appropriate for assessing the performance of alternative resource plans relative to the planning objectives identified in 4 CSR 240-22.010(2).

The Company finds that the required financial measures provide an appropriate indication of financial performance. No additional measures are proposed

(B) All present worth and levelization calculations shall use the utility discount rate and all costs and benefits shall be expressed in nominal dollars.

For all purposes in this analysis, a discount rate of 7.41% has been utilized.

SECTION 3: ALTERNATIVE RESOURCE PLANS

(3) Development of Alternative Resource Plans. The utility shall use appropriate combinations of candidate demand-side resources and supply-side resources to develop a set of alternative resource plans, each of which is designed to achieve one (1) or more of the planning objectives identified in 4 CSR 240-22.010(2). Demand-side resources are the demand-side candidate resource options and portfolios developed in 4 CSR 240-22.050(6). Supply-side resources are the supply-side candidate resource options developed in 4 CSR 240-22.040(4). The goal is to develop a set of alternative plans based on substantively different mixes of supply-side resources and demand-side resources and variations in the timing of resource acquisition to assess their relative performance under expected future conditions as well as their robustness under a broad range of future conditions.

Alternative Resource Plans were developed using a combination of various supply-side resources, demand-side resources, and resource addition timing.

3.1 DEVELOPMENT OF ALTERNATIVE RESOURCE PLANS

(A) The utility shall develop, and describe and document, at least one (1) alternative resource plan, and as many as may be needed to assess the range of options for the choices and timing of resources, for each of the following cases. Each of the alternative resource plans for cases pursuant to paragraphs (3)(A)1.–(3)(A)5. shall provide resources to meet at least the projected load growth and resource retirements over the planning period in a manner specified by the case. The utility shall examine cases that—

1. Minimally comply with legal mandates for demand-side resources, renewable energy resources, and other mandated energy resources. This constitutes the compliance benchmark resource plan for planning purposes;

All Alternative Resource Plans comply with the respective State renewable energy mandates (Missouri Renewable Energy Standard and Kansas Renewable Energy Standard). Since KCP&L is currently compliant with the non-solar RES requirements, the minimally compliant RES plan would not add any additional non-solar resources. This was modeled in ARP KAAKN.

Since there is no mandated DSM requirement, the minimally compliant plan assumes no additional DSM beyond what is currently in progress as part of KCP&L's MEEIA Cycle II approved programs. This was modeled in ARP KAAHA

A recap of the Missouri RES model outlining renewable non-solar additions is provided in Table 2 below:

Table 2: KCP&L Non-Solar Renewable Requirements

Year	KCP&L MO Retail Electric Sales (MWh)	MO RES Requirement	KCP&L MO Requirement (MWh)	KCP&L Renewable Generation - MO Share (MWh)	Future Renewable Additions - Total/MO (MW)	
2017	8,289,429	4.9%	406,182	1,803,209		
2018	8,510,921	9.8%	834,070	2,316,814	98	56
2019	8,482,431	9.8%	831,278	2,690,424	80	46
2020	8,474,091	9.8%	830,461	2,807,482		
2021	8,473,503	14.7%	1,245,605	2,803,243		
2022	8,493,515	14.7%	1,248,547	2,800,951		
2023	8,520,236	14.7%	1,252,475	2,800,951		
2024	8,548,739	14.7%	1,256,665	2,800,951		
2025	8,580,847	14.7%	1,261,385	2,800,951		
2026	8,618,434	14.7%	1,266,910	2,800,951		
2027	8,675,258	14.7%	1,275,263	2,800,951		
2028	8,746,395	14.7%	1,285,720	2,800,951		
2029	8,814,596	14.7%	1,295,746	2,800,951		
2030	8,857,413	14.7%	1,302,040	2,800,951		
2031	8,891,662	14.7%	1,307,074	2,800,951		
2032	8,929,842	14.7%	1,312,687	2,529,936		
2033	8,968,486	14.7%	1,318,367	2,226,016		
2034	9,008,978	14.7%	1,324,320	2,226,016		
2035	9,046,337	14.7%	1,329,812	2,226,016		
2036	9,080,417	14.7%	1,334,821	1,391,423		

2. Utilize only renewable energy resources, up to the maximum potential capability of renewable resources in each year of the planning horizon, if that results in more renewable energy resources than the minimally compliant plan. This constitutes the aggressive renewable energy resource plan for planning purposes;

Alternative Resource Plan KAAEW was developed to meet this rule.

3. Utilize only demand-side resources, up to the maximum achievable potential of demand-side resources in each year of the planning horizon, if that results in more demand-side resources than the minimally compliant plan. This constitutes the aggressive demand-side resource plan for planning purposes;

Any Alternative Resource Plan that has a letter “A” as the fourth character is utilized Maximum Achievable Potential DSM.

4. In the event that legal mandates identify energy resources other than renewable energy or demand-side resources, utilize only the other energy resources, up to the maximum potential capability of the other energy resources in each year of the planning horizon, if that results in more of the other energy resources than the compliance benchmark resource plan. For planning purposes, this constitutes the aggressive legally-mandated other energy resource plan;

No other legal mandates have been identified.

5. Optimally comply with legal mandates for demand-side resources, renewable energy resources, and other targeted energy resources. This constitutes the optimal compliance resource plan, where every legal mandate is at least minimally met, but some resources may be optimally utilized at levels greater than the mandated minimums;

All Alternative Resource Plans comply with the renewable energy mandates (Missouri RES) and demand-side mandates.

6. Any other plan specified by the commission as a special contemporary issue pursuant to 4 CSR 240-22.080(4);

No Alternative Resource Plans were required to evaluate any special contemporary issues.

7. Any other plan specified by commission order; and

There are no other plans specified by commission order.

8. Any additional alternative resource plans that the utility deems should be analyzed.

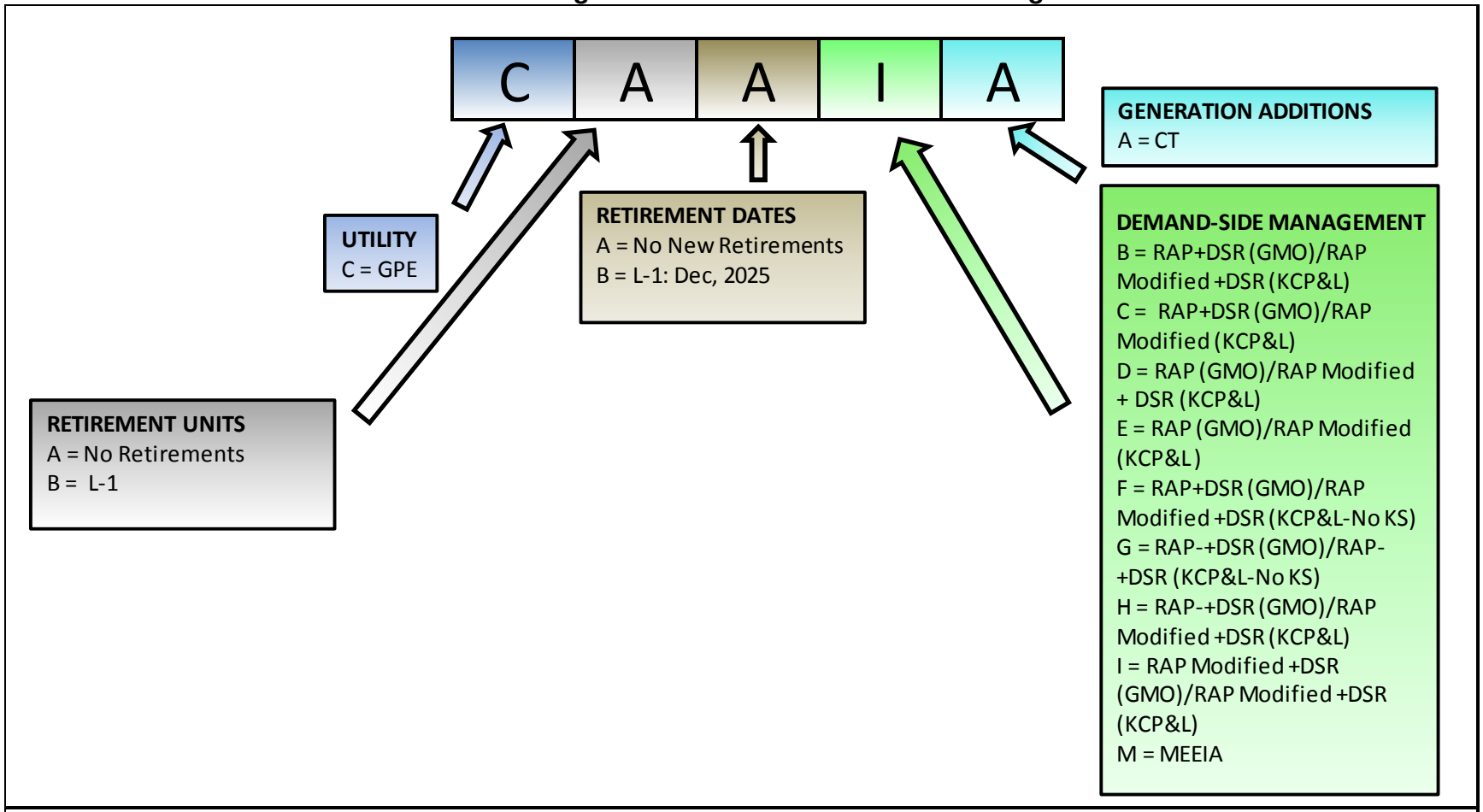
KCP&L considers it prudent resource planning to develop and analyze alternative resource plans that are based upon KCP&L and GMO combining resources. Evaluating alternative resource plans on a joint planning basis can provide a platform to determine if joint planning “serves the public interest” as mandated in 4 CSR 240-22.010 Policy Objectives.

Joint planning Alternative Resource Plans were developed to reflect combinations of the KCP&L and GMO ARPs which utilize a combination of supply-side sources, demand-side resources and resource additions timing. All ARPs include retirement of Montrose 2 and 3, Sibley 2 and 3 by December 31, 2018 and Lake Road 4/6 retired by December 31, 2019.

The NPVRR for each joint planning ARP was determined under the same 18 scenarios analyzed for the standalone companies. For example, electricity market prices, natural gas prices, CO_2 allowance prices, etc. were unchanged from the stand-alone company scenarios.

The plan naming convention utilized for the joint planning ARPs developed is shown in Table 3 and an overview of the joint planning ARPs is shown in Table 4 below.

Table 3: Joint Planning Alternative Resource Plan Naming Convention



Definitions:

L-1: LaCygne-1

MEEIA: MO Energy Efficiency

KEEIA: KS Energy Efficiency

CT - Combustion Turbine

Table 4: Overview of Joint Planning Alternative Resource Plans

Plan Name	DSM Level	Retire	Renewable Additions		Generation Addition (if needed)
CAABA	RAP+DSR (GMO)/RAP Modified +DSR (KCP&L)	No New Retirements	Solar: 2028 - 23 MW	Wind: 2018 - 444 MW	n/n
CAACA	RAP+DSR (GMO)/RAP Modified (KCP&L)	No New Retirements	Solar: 2028 - 23 MW	Wind: 2018 - 444 MW	n/n
CAADA	RAP (GMO)/RAP Modified + DSR (KCP&L)	No New Retirements	Solar: 2028 - 23 MW	Wind: 2018 - 444 MW	n/n
CAAEA	RAP (GMO)/RAP Modified (KCP&L)	No New Retirements	Solar: 2028 - 23 MW	Wind: 2018 - 444 MW	n/n
CAAFA	RAP+DSR (GMO)/RAP Modified + DSR (KCP&L- No KS DSM)	No New Retirements	Solar: 2028 - 23 MW	Wind: 2018 - 444 MW	207 MW of CT in 2036
CAAGA	RAP-+DSR (GMO)/RAP-+ DSR (KCP&L- No KS DSM)	No New Retirements	Solar: 2028 - 23 MW	Wind: 2018 - 444 MW	207 MW of CT in 2036
CAAHA	RAP-+DSR (GMO)/RAP Modified +DSR (KCP&L)	No New Retirements	Solar: 2028 - 23 MW	Wind: 2018 - 444 MW	n/n
CAAMA	MEEIA	No New Retirements	Solar: 2028 - 23 MW	Wind: 2018 - 444 MW	207 MW of CT in 2027 207 MW of CT in 2031 207 MW of CT in 2033 207 MW of CT in 2036
CBBBA	RAP+DSR (GMO)/RAP Modified +DSR (KCP&L)	LaCygne-1: Dec 31, 2025	Solar: 2028 - 23 MW	Wind: 2018 - 444 MW	207 MW of CT in 2034 207 MW of CT in 2037
CBBEA	RAP+DSR (GMO)/RAP Modified +DSR (KCP&L-No KS)	LaCygne-1: Dec 31, 2025	Solar: 2028 - 23 MW	Wind: 2018 - 444 MW	207 MW of CT in 2033 414 MW of CT in 2036
CBBFA	RAP+DSR (GMO)/RAP Modified +DSR (KCP&L-No KS)	LaCygne-1: Dec 31, 2025	Solar: 2028 - 23 MW	Wind: 2018 - 444 MW	207 MW of CT in 2032 207 MW of CT in 2035

The joint planning ARPs were each subjected to similar analysis as the integrated analysis for each of the stand-alone company plans. The resulting expected value NPVRR for each of the joint planning ARPs is detailed in the table below.

Table 5: Joint Planning Alternative Resource Plan Results

Total Revenue Requirement			
Rank	**Plan**	**NPVRR ($mm)**	**Delta**
1	CAAHA	$29,829	$0.0
2	CAAIA	$29,834	$4.8
3	CAABA	$29,844	$15.2
4	CAADA	$29,876	$47.5
5	CAAGA	$29,888	$59.5
6	CAACA	$29,900	$70.7
7	CAAFA	$29,907	$77.6
8	CAAEA	$29,932	$103.0
9	CBBBA	$29,974	$144.8
10	CBBFA	$30,048	$219.4
11	CBBEA	$30,096	$266.6
12	CAAMA	$30,132	$303.5

(B) The alternative resource plans developed at this stage of the analysis shall not include load-building programs, which shall be analyzed as required by 4 CSR 240-22.070(5).

No load-building programs have been included as a resource in any alternative resource plan.

(C) The utility shall include in its development of alternative resource plans the impact of—

1. The potential retirement or life extension of existing generation plants;

KCP&L modeled an Alternative Resource Plan which included retiring LaCygne Unit 1 in addition to the commitment to retire Montrose Units 2 and 3 by December 31, 2018.

2. The addition of equipment and other retrofits on generation plants to meet environmental requirements; and

Retrofits and other actions potentially expected to comply with currently proposed environmental regulations and assumed compliance dates are modeled for KCP&L's remaining coal units. The following table provides current assumptions regarding these expected environmental regulations and the retrofits and actions being presumed to meet compliance.

Table 6: Retrofits and Actions due to Environmental Regulations

Environmental Driver	Emittant	Compliance Year (Expected)	Status	Retrofit
Clean Water Act 316(b)	-	2021-2023	Final Rule May 2014	Fish Friendly Screens
Clean Water Act 316(b) (Fish Entrainment)	-	2022 - 2027	Final Rule May 2014	Cooling Towers
Clean Water Act 316(a) (Thermal Discharge)	-	2022-2027	Permit Conditions	Cooling Towers (river units earlier, lake units later)
Effluent Guidelines	Wastewater Constituents	2018-2023	Final Rule September 2015	Cease Wet Sluicing
Coal Combustion Residual (CCR)	Ash/Water	2018-2024	Effective October 2015	Cease Wet Sluicing/Pond Closure

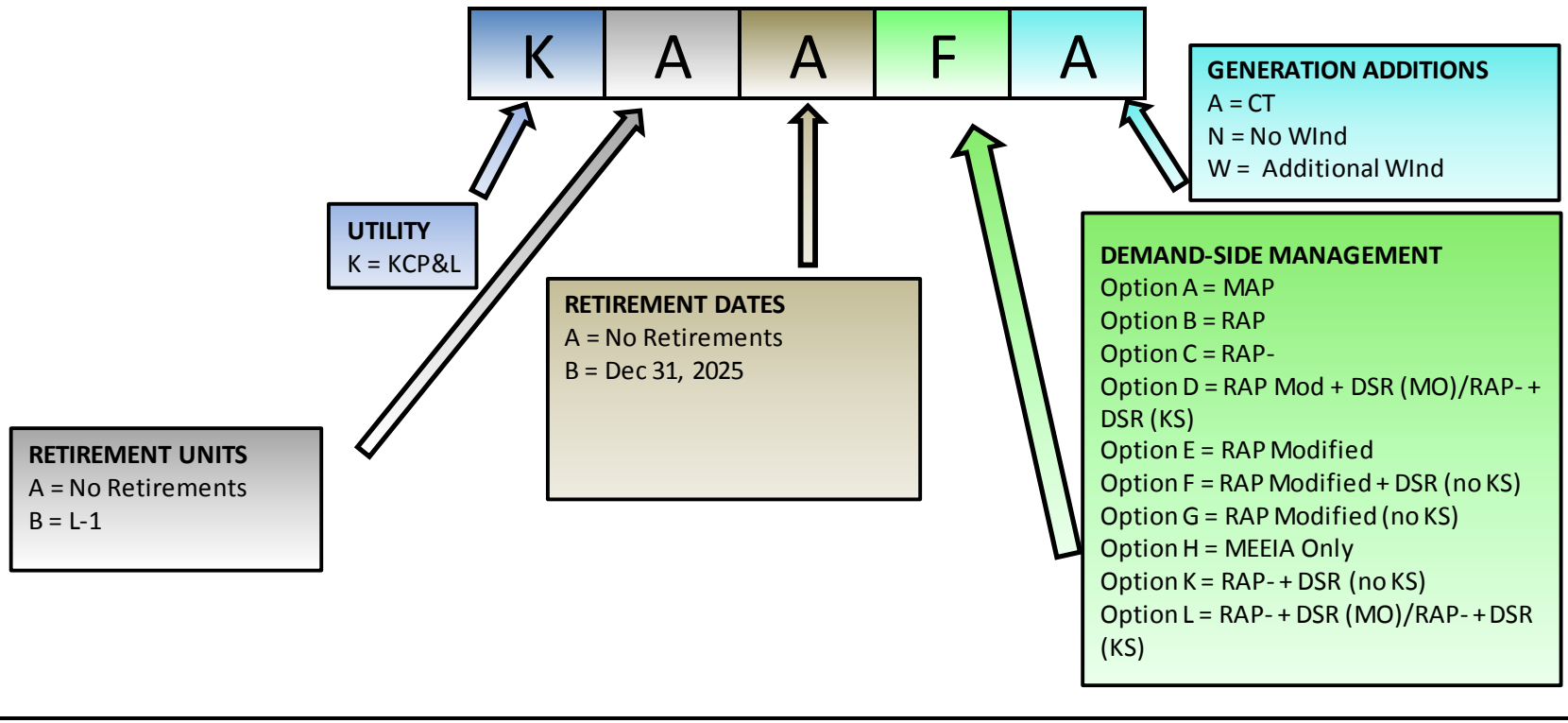
3. The conclusion of any currently implemented demand-side resources.

Alternative Resource Plan KAAHA was developed to evaluate this rule, which consists of KCP&L MEEIA Cycle II only DSM which concludes in early 2019.

(D) The utility shall provide a description of each alternative resource plan including the type and size of each demand-side resource and supply-side resource addition and a listing of the sequence and schedule for the end of life of existing resources and for the acquisition of each new resource.

Alternative Resource Plans were developed using a combination of various supply-side resources, demand-side resources, resource addition quantities and timing differences. The plan naming convention utilized for KCP&L's Alternative Resource Plans developed is shown in Table 7 below:

Table 7: Alternative Resource Plan Naming Convention



Definitions:

L-1: LaCygne-1

CT - Combustion Turbine

MEEIA: Missouri Energy Efficiency Investment Act Cycle II

RAP: Realistic Achievable Potential

MAP: Maximum Achievable Potential

RAP-: Realistic Achievable Potential Minus DSR: Demand-Side Rates

In total, fourteen Alternative Resource Plans were developed for the integrated resource analysis. The following tables provide an overview of the Alternative Resource Plans. Note that wind and solar additions shown are based on nameplate capacity. Each individual plan is shown in Table 10 through Table 23 below.

Table 8: Overview of Alternative Resource Plans

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

Table 9: Overview of Alternative Resource Plans (continued)

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

The individual plans are shown in the following tables:

Table 10: Alternative Resource Plan KAAAA

Year	CT's (MW)	Wind (MW)	Solar (MW)	DSM (MW)	Retire (MW)
2018	0	98		34	334
2019	0	80		55	
2020	0			100	
2021	0			139	
2022	0			198	
2023	0			286	
2024	0			359	
2025	0			410	
2026	0			452	
2027	0			486	
2028	0		13	513	
2029	0			534	
2030	0			555	
2031	0			574	
2032	0			585	
2033	0			594	
2034	0			601	
2035	0			609	
2036	0			622	
2037	0			640	

Plan KAAAA assumes M-2 and M-3 retiring in 2018, 178 MW of new wind in 2018-2019, DSM: A, resource additions (if needed): CT's

Table 11: Alternative Resource Plan KAABA

Year	CT's (MW)	Wind (MW)	Solar (MW)	DSM (MW)	Retire (MW)
2018	0	98		34	334
2019	0	80		52	
2020	0			90	
2021	0			123	
2022	0			169	
2023	0			222	
2024	0			270	
2025	0			315	
2026	0			357	
2027	0			388	
2028	0		13	408	
2029	0			423	
2030	0			439	
2031	0			454	
2032	0			463	
2033	0			470	
2034	0			475	
2035	0			481	
2036	0			491	
2037	0			503	

Plan KAABA assumes M-2 and M-3 retiring in 2018, 178 MW of new wind in 2018-2019, DSM: B, resource additions (if needed): CT's

Table 12: Alternative Resource Plan KAACA

Year	CT's (MW)	Wind (MW)	Solar (MW)	DSM (MW)	Retire (MW)
2018	0	98		34	334
2019	0	80		45	
2020	0			73	
2021	0			98	
2022	0			133	
2023	0			173	
2024	0			209	
2025	0			243	
2026	0			274	
2027	0			297	
2028	0		13	310	
2029	0			319	
2030	0			331	
2031	0			342	
2032	0			350	
2033	0			355	
2034	0			359	
2035	0			363	
2036	0			371	
2037	0			380	

Plan KAACA assumes M-2 and M-3 retiring in 2018, 178 MW of new wind in 2018-2019, DSM: C, resource additions (if needed): CT's

Table 13: Alternative Resource Plan KAADA

Year	CT's (MW)	Wind (MW)	Solar (MW)	DSM (MW)	Retire (MW)
2018	0	98		34	334
2019	0	80		52	
2020	0			95	
2021	0			134	
2022	0			171	
2023	0			212	
2024	0			256	
2025	0			303	
2026	0			347	
2027	0			383	
2028	0		13	409	
2029	0			429	
2030	0			447	
2031	0			463	
2032	0			476	
2033	0			485	
2034	0			490	
2035	0			496	
2036	0			506	
2037	0			517	

Plan KAADA assumes M-2 and M-3 retiring in 2018, 178 MW of new wind in 2018-2019, DSM: D, resource additions (if needed): CT's

Table 14: Alternative Resource Plan KAAEA

Year	CT's (MW)	Wind (MW)	Solar (MW)	DSM (MW)	Retire (MW)
2018	0	98		34	334
2019	0	80		52	
2020	0			90	
2021	0			123	
2022	0			153	
2023	0			186	
2024	0			222	
2025	0			256	
2026	0			288	
2027	0			310	
2028	0		13	323	
2029	0			330	
2030	0			339	
2031	0			346	
2032	0			352	
2033	0			357	
2034	0			360	
2035	0			364	
2036	0			371	
2037	0			381	

Plan KAAEA assumes M-2 and M-3 retiring in 2018, 178 MW of new wind in 2018-2019, DSM: E, resource additions (if needed): CT's

Table 15: Alternative Resource Plan KAAEW

Year	CT's (MW)	Wind (MW)	Solar (MW)	DSM (MW)	Retire (MW)
2018	0	98		34	334
2019	0	80		52	
2020	0	200		90	
2021	0			123	
2022	0			153	
2023	0			186	
2024	0			222	
2025	0			256	
2026	0			288	
2027	0			310	
2028	0		13	323	
2029	0			330	
2030	0			339	
2031	0			346	
2032	0			352	
2033	0			357	
2034	0			360	
2035	0			364	
2036	0			371	
2037	0			381	

Plan KAAEW assumes M-2 and M-3 retiring in 2018, 178 MW of new wind in 2018-2019, DSM: E, resource additions: 200 MW additional wind, CT's (if needed)

Table 16: Alternative Resource Plan KAAFA

Year	CT's (MW)	Wind (MW)	Solar (MW)	DSM (MW)	Retire (MW)
2018	0	98		34	334
2019	0	80		52	
2020	0			95	
2021	0			134	
2022	0			162	
2023	0			186	
2024	0			209	
2025	0			227	
2026	0			242	
2027	0			255	
2028	0		13	260	
2029	0			258	
2030	0			257	
2031	0			255	
2032	0			254	
2033	0			256	
2034	0			261	
2035	0			266	
2036	0			272	
2037	0			278	

Plan KAAFA assumes M-2 and M-3 retiring in 2018, 178 MW of new wind in 2018-2019, DSM: F, resource additions (if needed): CT's

Table 17: Alternative Resource Plan KAAGA

Year	CT's (MW)	Wind (MW)	Solar (MW)	DSM (MW)	Retire (MW)
2018	0	98		34	334
2019	0	80		52	
2020	0			90	
2021	0			123	
2022	0			143	
2023	0			160	
2024	0			176	
2025	0			187	
2026	0			198	
2027	0			207	
2028	0		13	210	
2029	0			207	
2030	0			206	
2031	0			202	
2032	0			200	
2033	0			201	
2034	0			204	
2035	0			209	
2036	0			214	
2037	0			219	

Plan KAAGA assumes M-2 and M-3 retiring in 2018, 178 MW of new wind in 2018-2019, DSM: G, resource additions (if needed): CT's

Table 18: Alternative Resource Plan KAAHA

Year	CT's (MW)	Wind (MW)	Solar (MW)	DSM (MW)	Retire (MW)
2018	0	98		34	334
2019	0	80		23	
2020	0			23	
2021	0			23	
2022	0			22	
2023	0			22	
2024	0			21	
2025	0			21	
2026	0			21	
2027	0			17	
2028	0		13	9	
2029	0			0	
2030	0			-1	
2031	0			-2	
2032	0			-2	
2033	0			-3	
2034	0			-4	
2035	0			-4	
2036	0			-5	
2037	0			-5	

Plan KAAHA assumes M-2 and M-3 retiring in 2018, 178 MW of new wind in 2018-2019, DSM: H, resource additions (if needed): CT's

Table 19: Alternative Resource Plan KAAKA

Year	CT's (MW)	Wind (MW)	Solar (MW)	DSM (MW)	Retire (MW)
2018	0	98		34	334
2019	0	80		45	
2020	0			78	
2021	0			110	
2022	0			142	
2023	0			173	
2024	0			196	
2025	0			213	
2026	0			229	
2027	0			242	
2028	0		13	247	
2029	0			246	
2030	0			249	
2031	0			251	
2032	0			252	
2033	0			255	
2034	0			260	
2035	0			265	
2036	0			272	
2037	0			278	

Plan KAAKA assumes M-2 and M-3 retiring in 2018, 178 MW of new wind in 2018-2019, DSM: K, resource additions (if needed): CT's

Table 20: Alternative Resource Plan KAAKN

Year	CT's (MW)	Wind (MW)	Solar (MW)	DSM (MW)	Retire (MW)
2018	0			34	334
2019	0			45	
2020	0			78	
2021	0			110	
2022	0			142	
2023	0			173	
2024	0			196	
2025	0			213	
2026	0			229	
2027	0			242	
2028	0		13	247	
2029	0			246	
2030	0			249	
2031	0			251	
2032	0			252	
2033	0			255	
2034	0			260	
2035	0			265	
2036	0			272	
2037	0			278	

Plan KAAKN assumes M-2 and M-3 retiring in 2018, no new wind in 2018-2019.

DSM: K, resource additions (if needed): CT's

Table 21: Alternative Resource Plan KAALA

Year	CT's (MW)	Wind (MW)	Solar (MW)	DSM (MW)	Retire (MW)
2018	0	98		34	334
2019	0	80		45	
2020	0			78	
2021	0			110	
2022	0			151	
2023	0			198	
2024	0			243	
2025	0			289	
2026	0			334	
2027	0			370	
2028	0		13	396	
2029	0			418	
2030	0			439	
2031	0			459	
2032	0			474	
2033	0			483	
2034	0			489	
2035	0			495	
2036	0			505	
2037	0			516	

Plan KAALA assumes M-2 and M-3 retiring in 2018, 178 MW of new wind in 2018-2019, DSM: L, resource additions (if needed): CT's

Table 22: Alternative Resource Plan KBBAA

Year	CT's (MW)	Wind (MW)	Solar (MW)	DSM (MW)	Retire (MW)
2018	0	98		34	334
2019	0	80		55	
2020	0			100	
2021	0			139	
2022	0			198	
2023	0			286	
2024	0			359	
2025	0			410	368
2026	0			452	
2027	0			486	
2028	0		13	513	
2029	0			534	
2030	0			555	
2031	0			574	
2032	0			585	
2033	0			594	
2034	0			601	
2035	0			609	
2036	0			622	
2037	0			640	

Plan KBBAA assumes M-2 and M-3 retiring in 2018 and LaCygne-1 retiring in 2025, 178 MW of new wind in 2018-2019, DSM: A, resource additions (if needed): CT's

Table 23: Alternative Resource Plan KBBDA

Year	CT's (MW)	Wind (MW)	Solar (MW)	DSM (MW)	Retire (MW)
2018	0	98		34	334
2019	0	80		52	
2020	0			95	
2021	0			134	
2022	0			171	
2023	0			212	
2024	0			256	
2025	0			303	368
2026	0			347	
2027	0			383	
2028	0		13	409	
2029	0			429	
2030	0			447	
2031	0			463	
2032	0			476	
2033	0			485	
2034	0			490	
2035	0			496	
2036	0			506	
2037	0			517	

Plan KBBDA assumes M-2 and M-3 retiring in 2018 and LaCygne-1 retiring in 2025, 178 MW of new wind in 2018-2019, DSM: D, resource additions (if needed): CT's

SECTION 4: ANALYSIS OF RESOURCE PLAN

(4) Analysis of Alternative Resource Plans.

The utility shall describe and document its assessment of the relative performance of the alternative resource plans by calculating for each plan the value of each performance measure specified pursuant to section (2). This calculation shall assume values for uncertain factors that are judged by utility decision makers to be most likely. The analysis shall cover a planning horizon of at least twenty (20) years and shall be carried out on a year by year basis in order to assess the annual and cumulative impacts of alternative resource plans. The analysis shall be based on the assumption that rates will be adjusted annually, in a manner that is consistent with Missouri law. The analysis shall treat supply-side and demand-side resources on a logically-consistent and economically-equivalent basis, such that the same types or categories of costs, benefits, and risks shall be considered and such that these factors shall be quantified at a similar level of detail and precision for all resource types. The utility shall provide the following information:

(A) A summary tabulation that shows the performance of each alternative resource plan as measured by each of the measures specified in section (2) of this rule;

The expected value of each plan's performance measures is provided below:

Table 24: Expected Value Plan Performance Measures

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

(B) For each alternative resource plan, a plot of each of the following over the planning horizon:

1. The combined impact of all demand-side resources on the base-case forecast of summer and winter peak demands;

The combined impact of all demand-side resources on the base-case forecast of summer and winter peak demands is shown in the following charts.

Chart 1: Demand Side Impact - DSM Option A

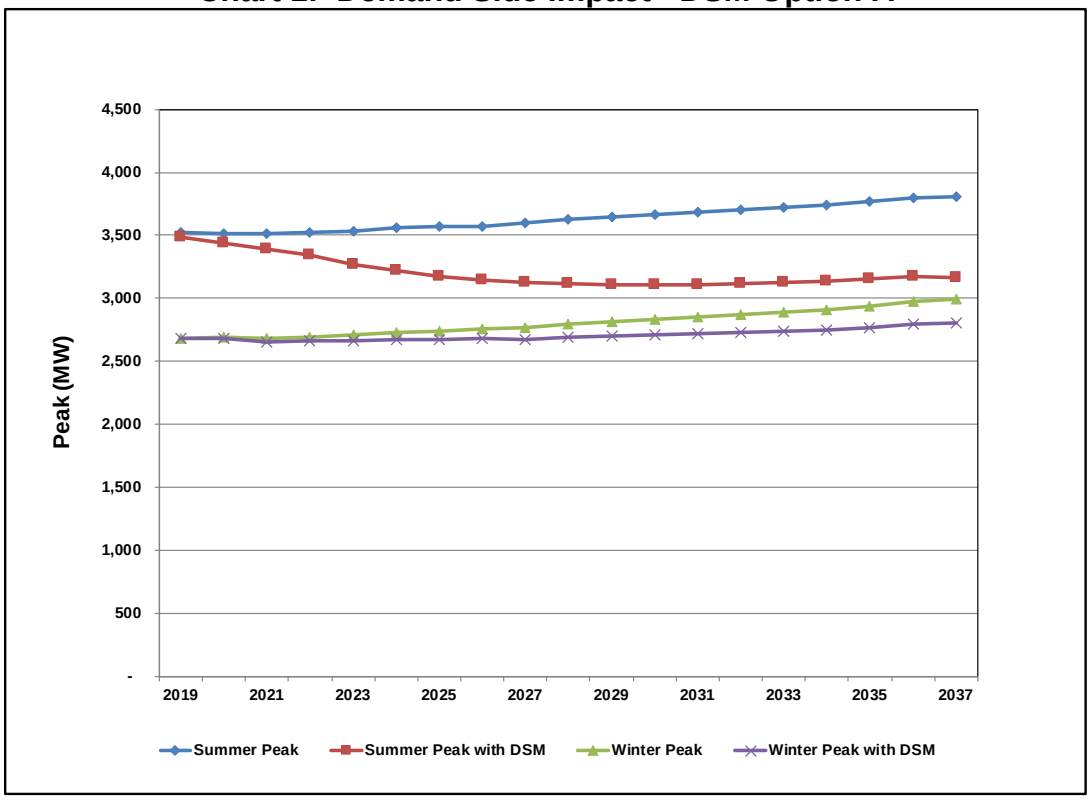


Chart 2: Demand Side Impact - DSM Option B

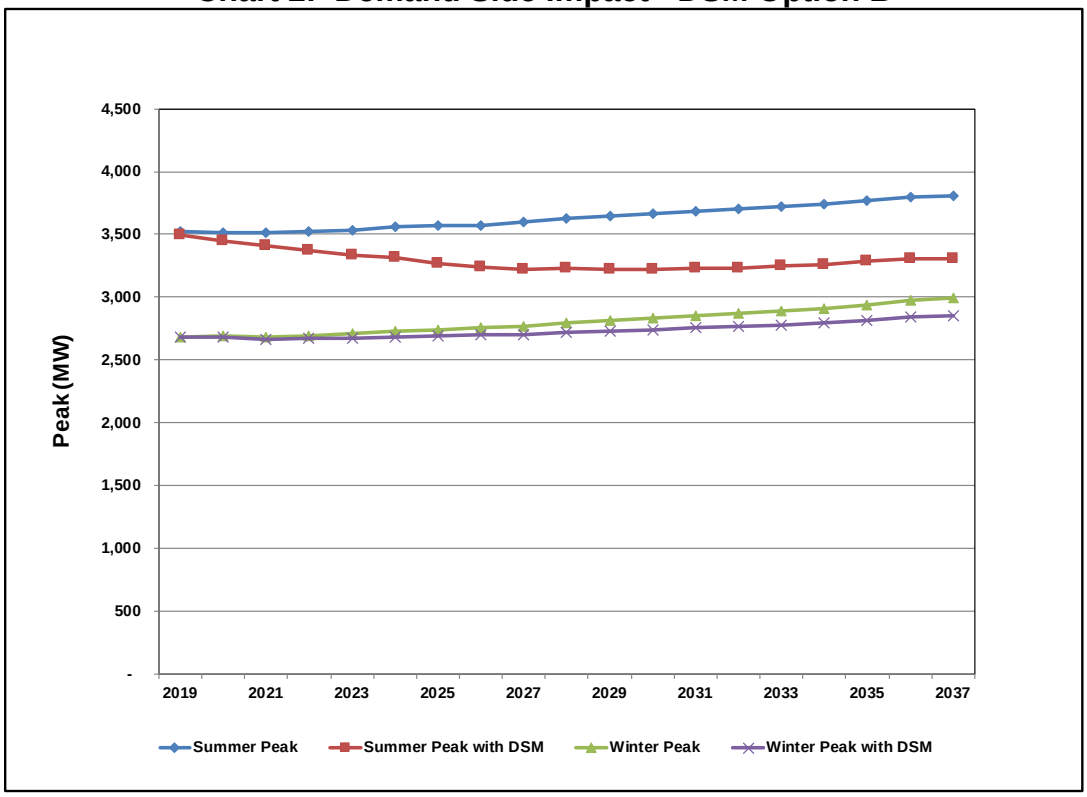


Chart 3: Demand Side Impact - DSM Option C

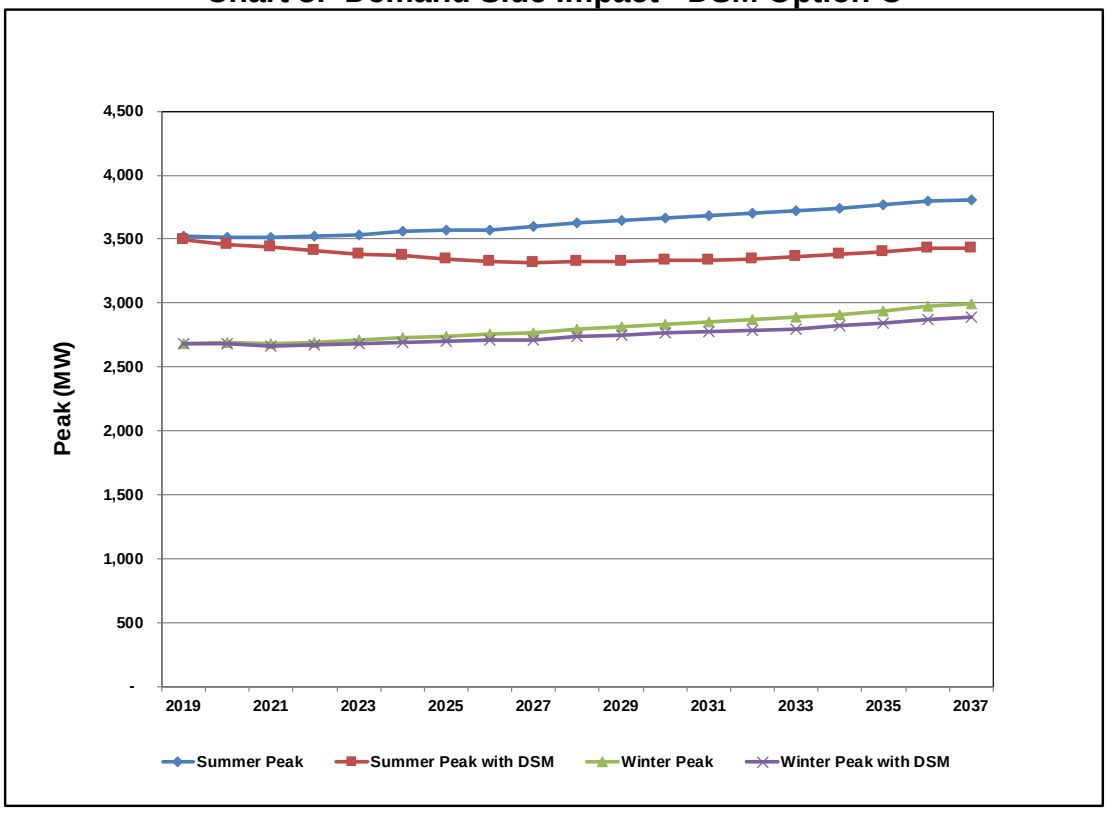


Chart 4: Demand Side Impact - DSM Option D

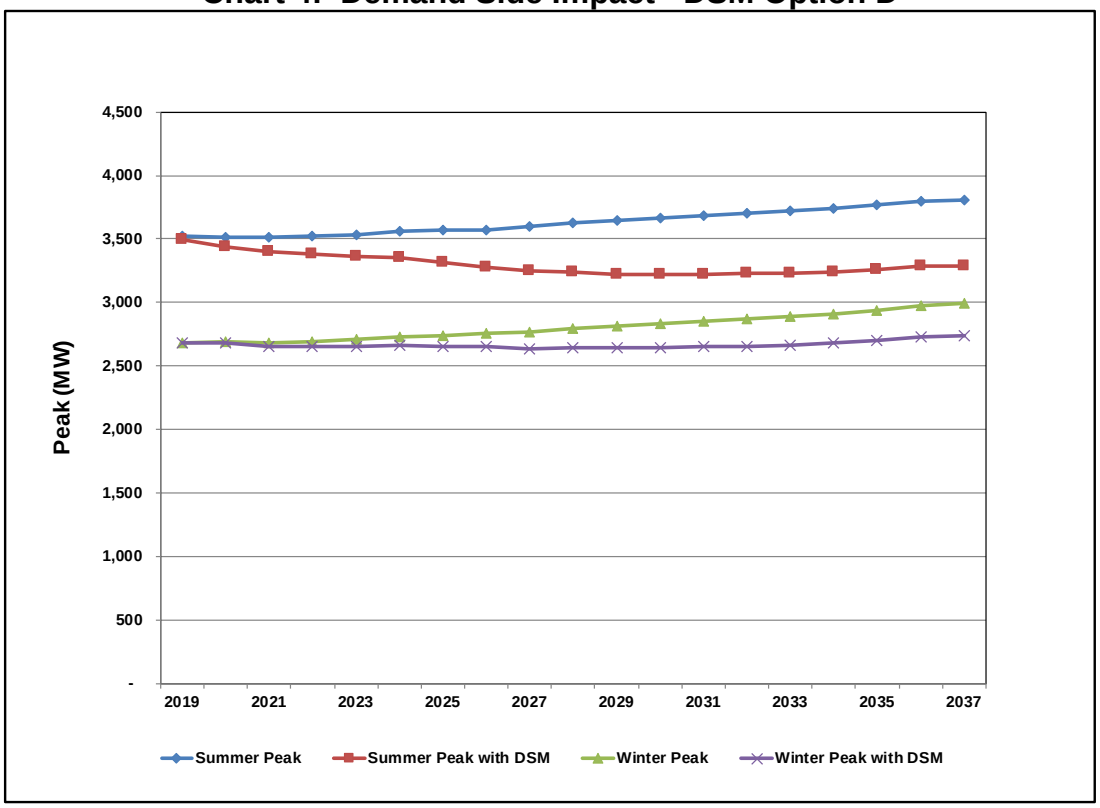


Chart 5: Demand Side Impact - DSM Option E

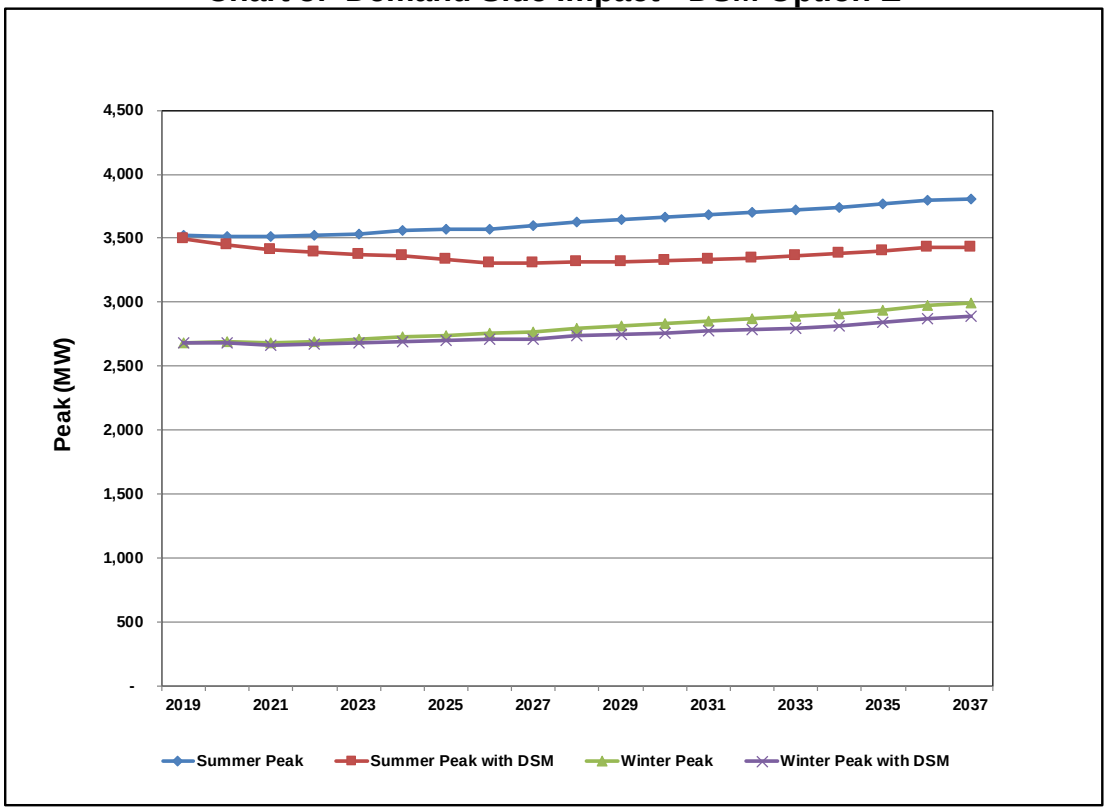


Chart 6: Demand Side Impact - DSM Option F

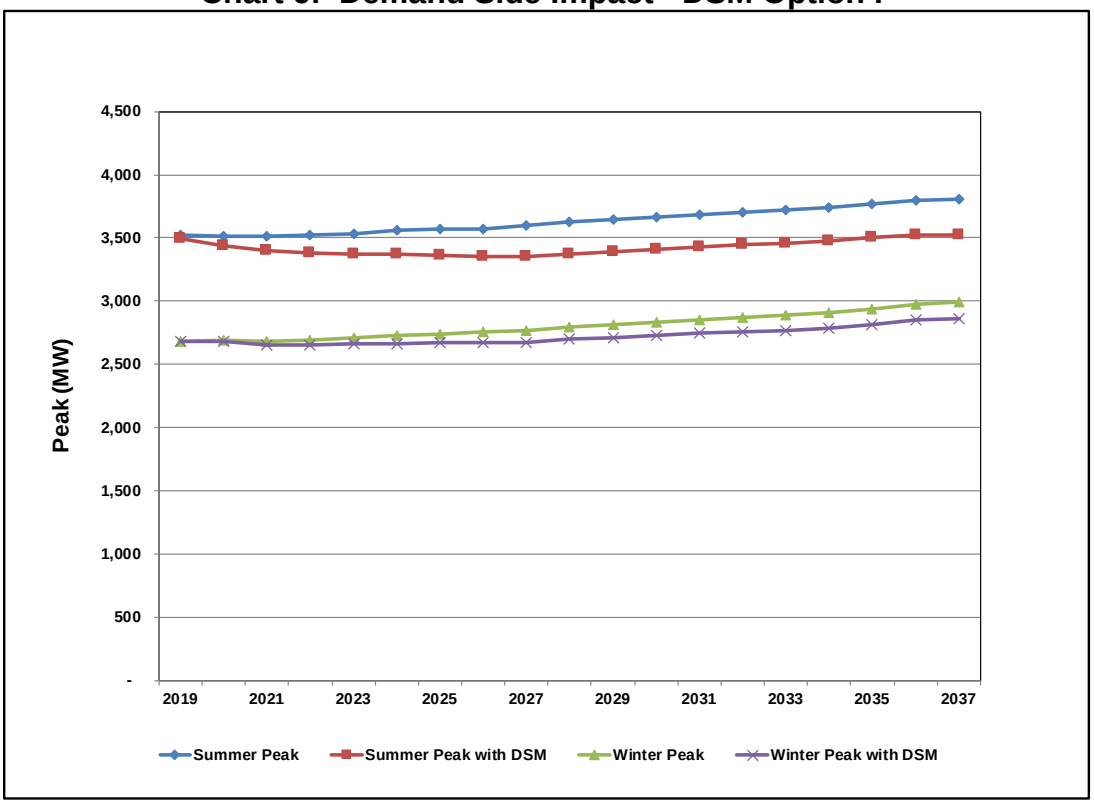


Chart 7: Demand Side Impact - DSM Option G

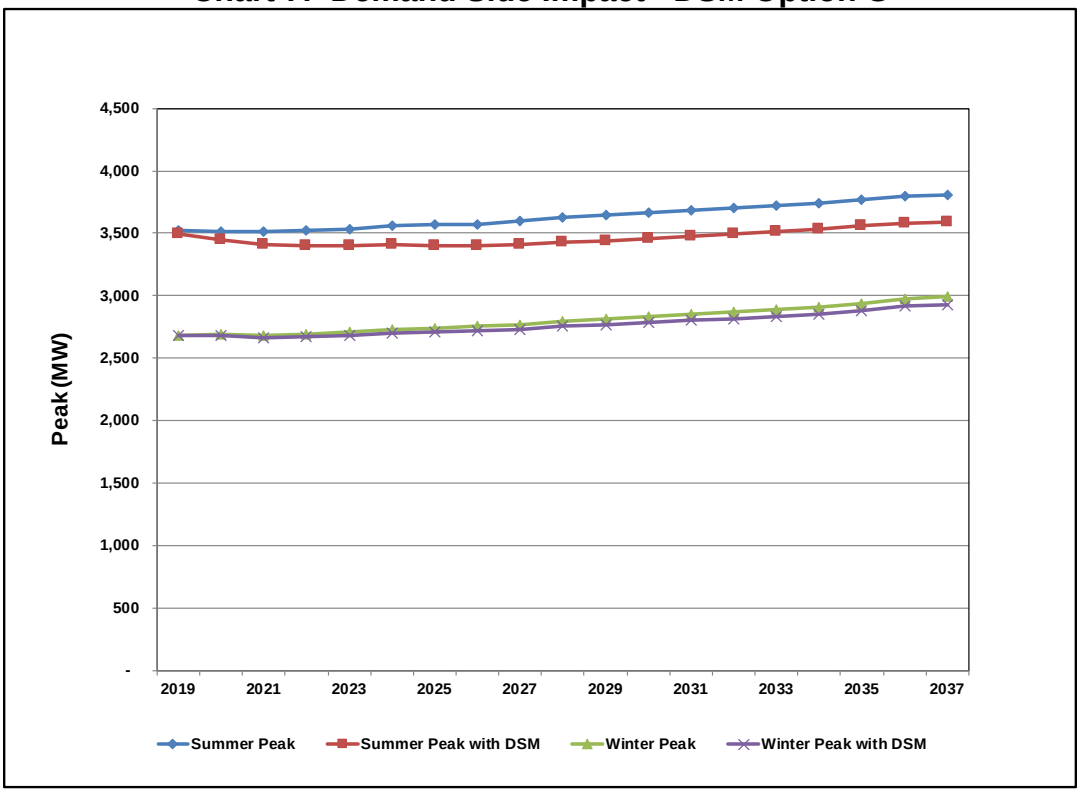


Chart 8: Demand Side Impact - DSM Option K

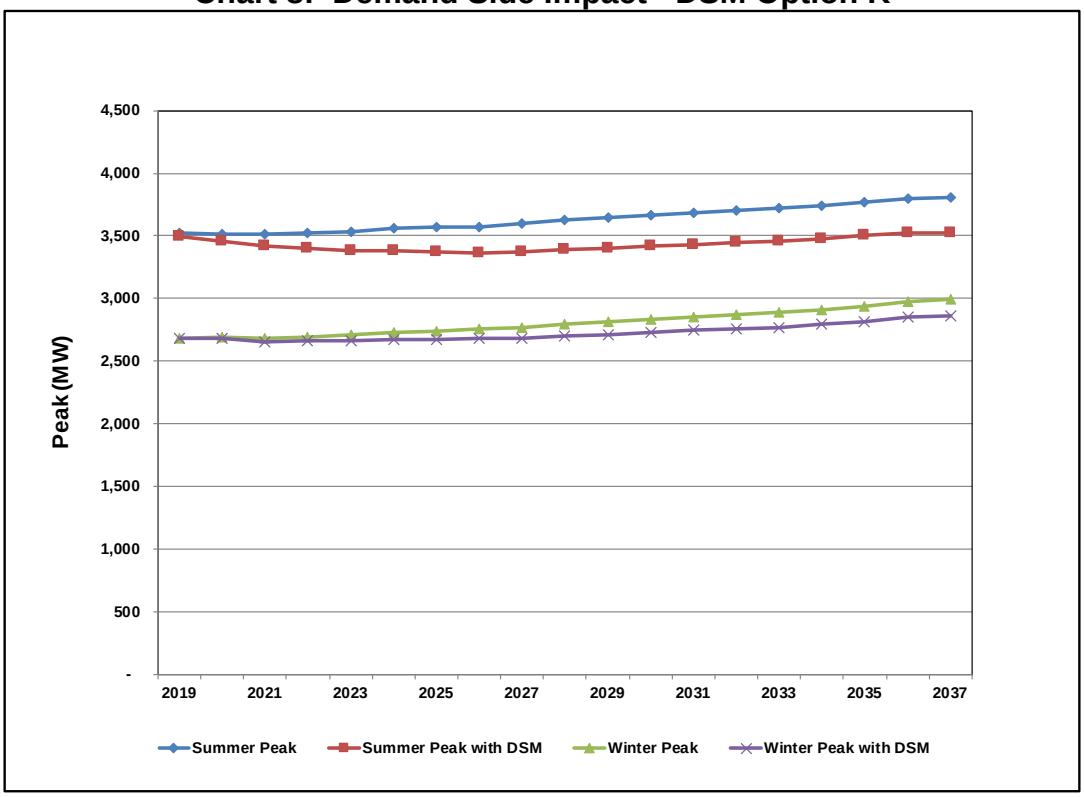
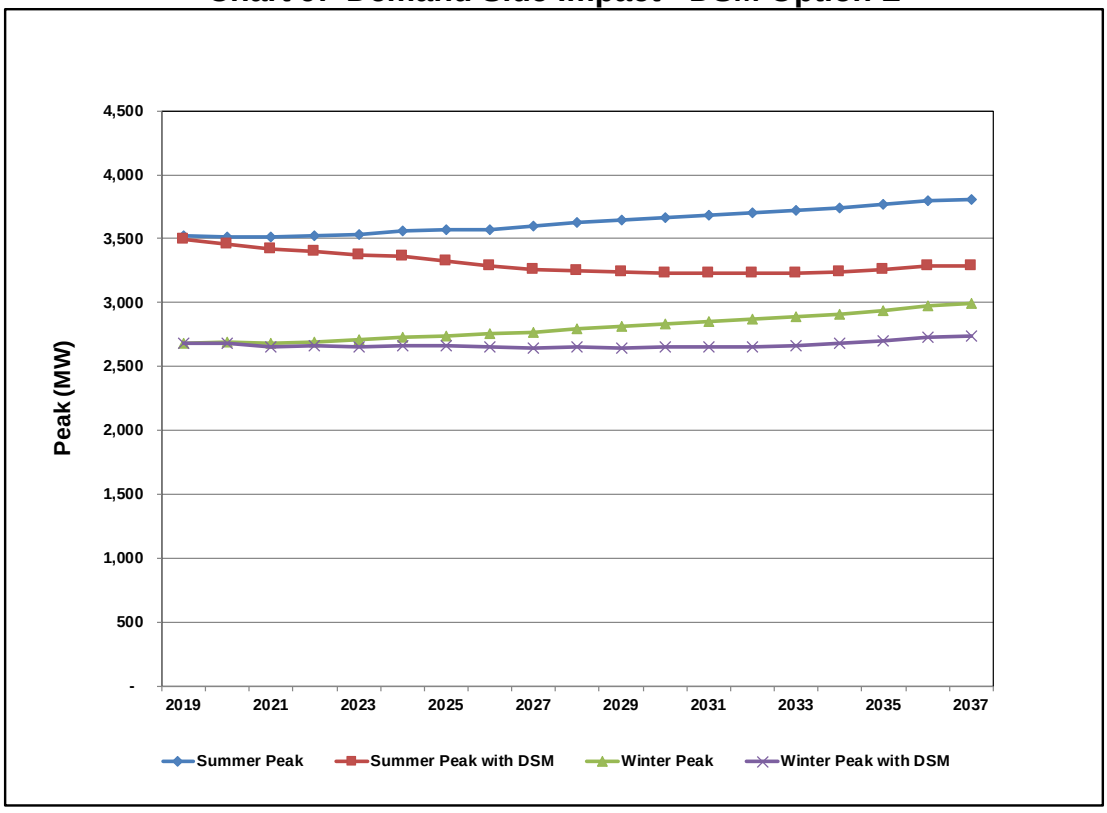


Chart 9: Demand Side Impact - DSM Option L



2. The composition, by program and demand-side rate, of the capacity provided by demand-side resources;

The following charts illustrate the combined capacity supplied by the levels of DSM programs associated with the Alternative Resource Plans.

Chart 10: Capacity Composition – DSM Option A

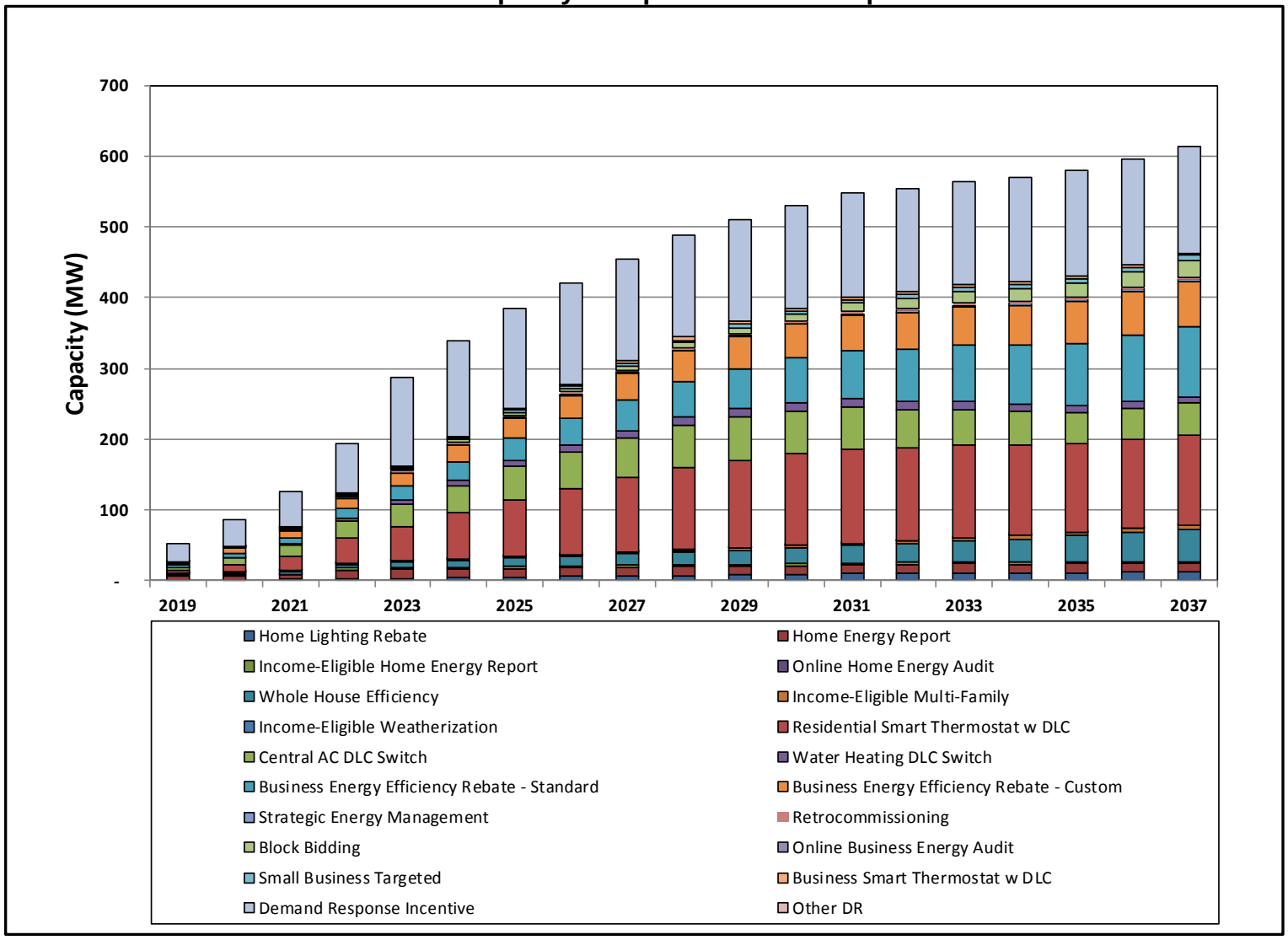


Chart 11: Capacity Composition – DSM Option B

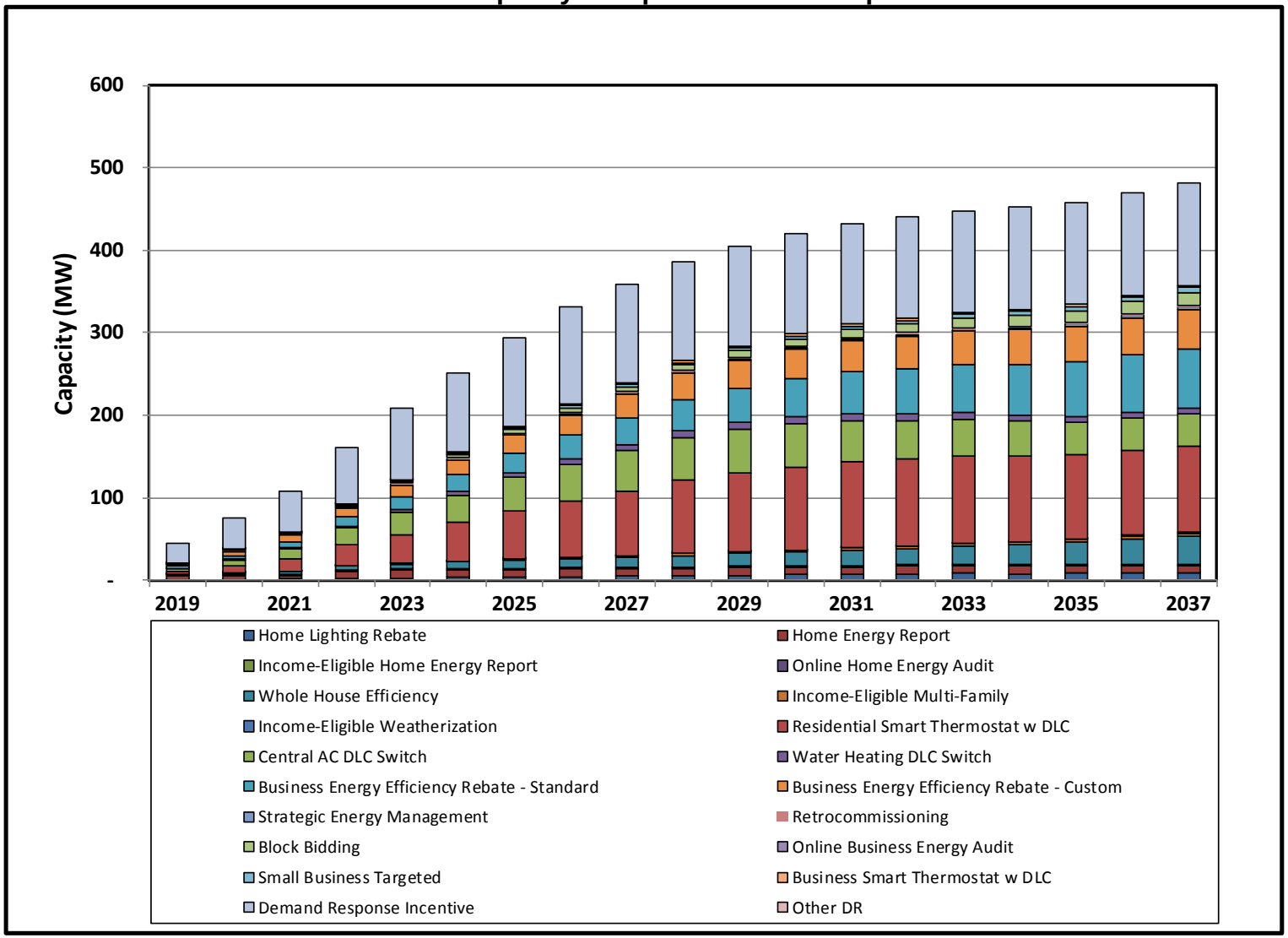


Chart 12: Capacity Composition – DSM Option C

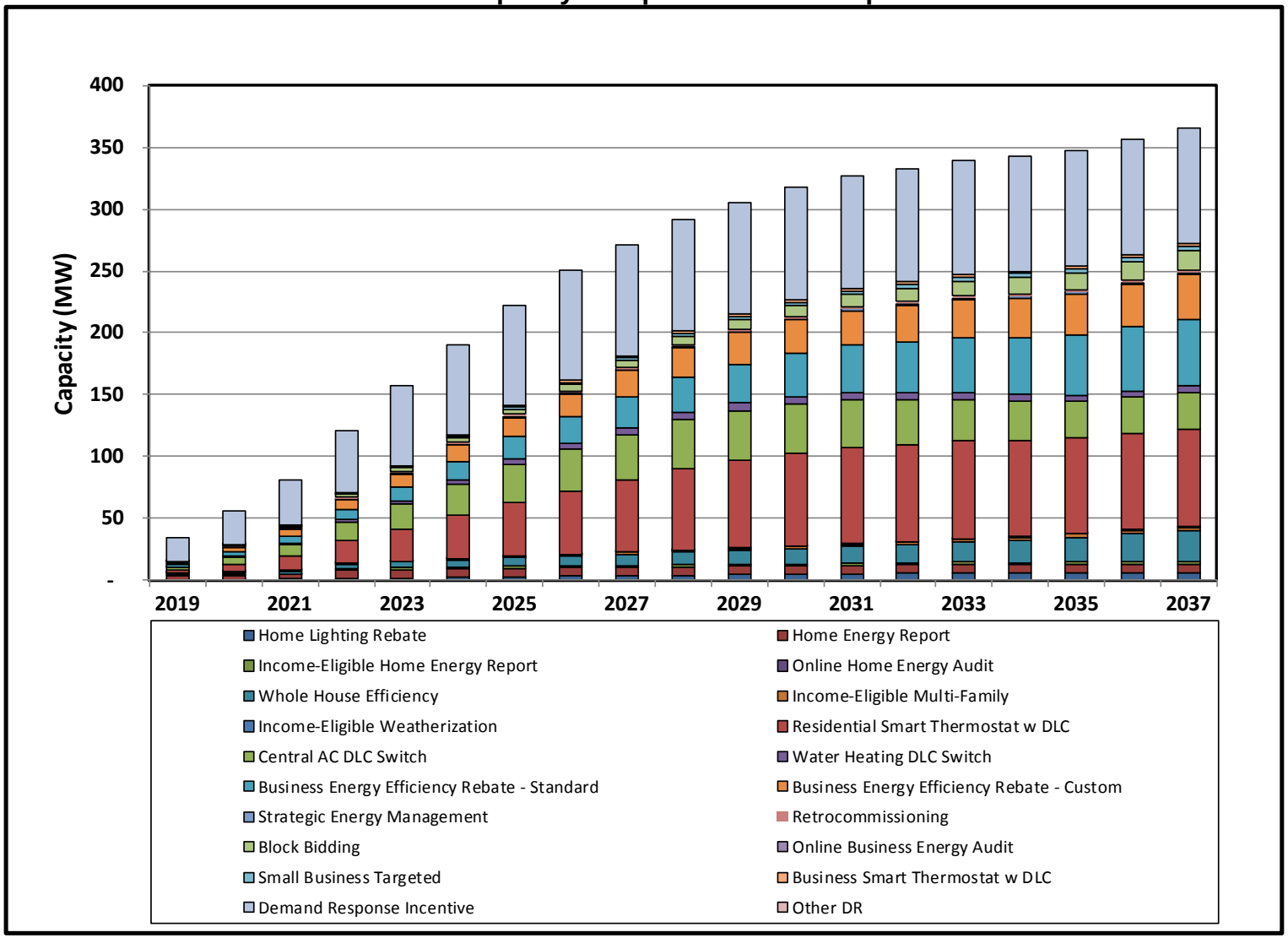


Chart 13: Capacity Composition – DSM Option D

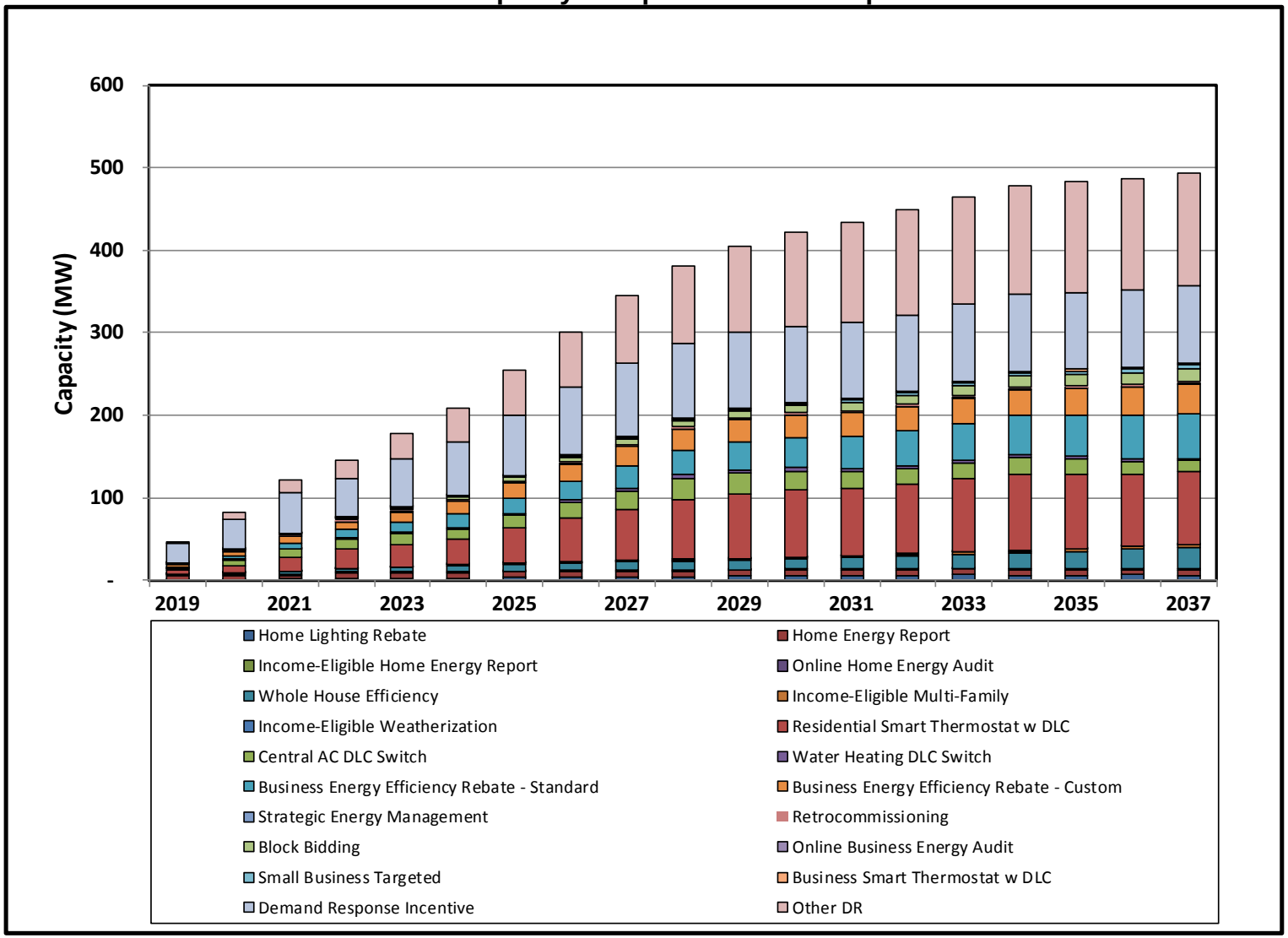


Chart 14: Capacity Composition – DSM Option E

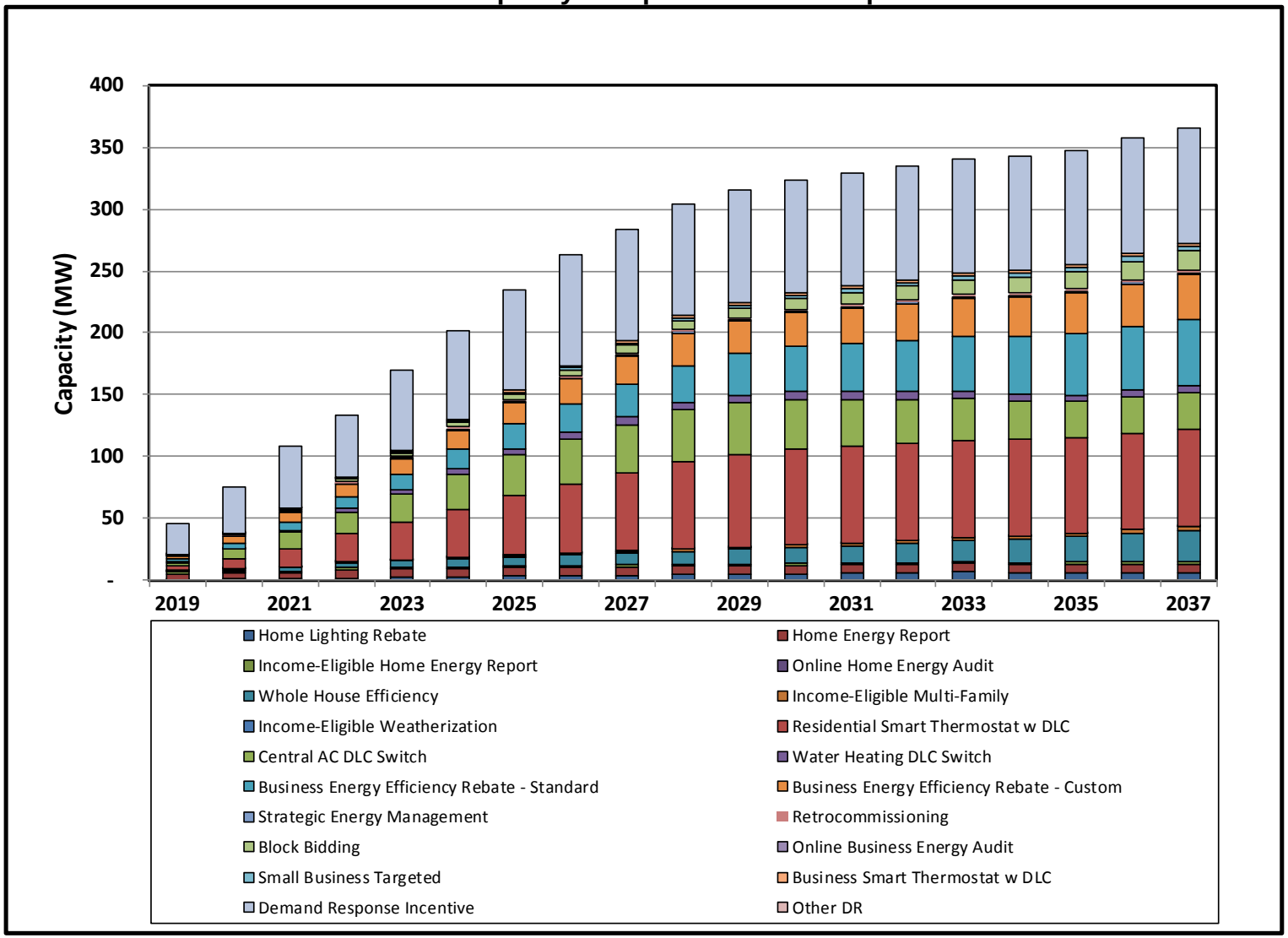


Chart 15: Capacity Composition – DSM Option F

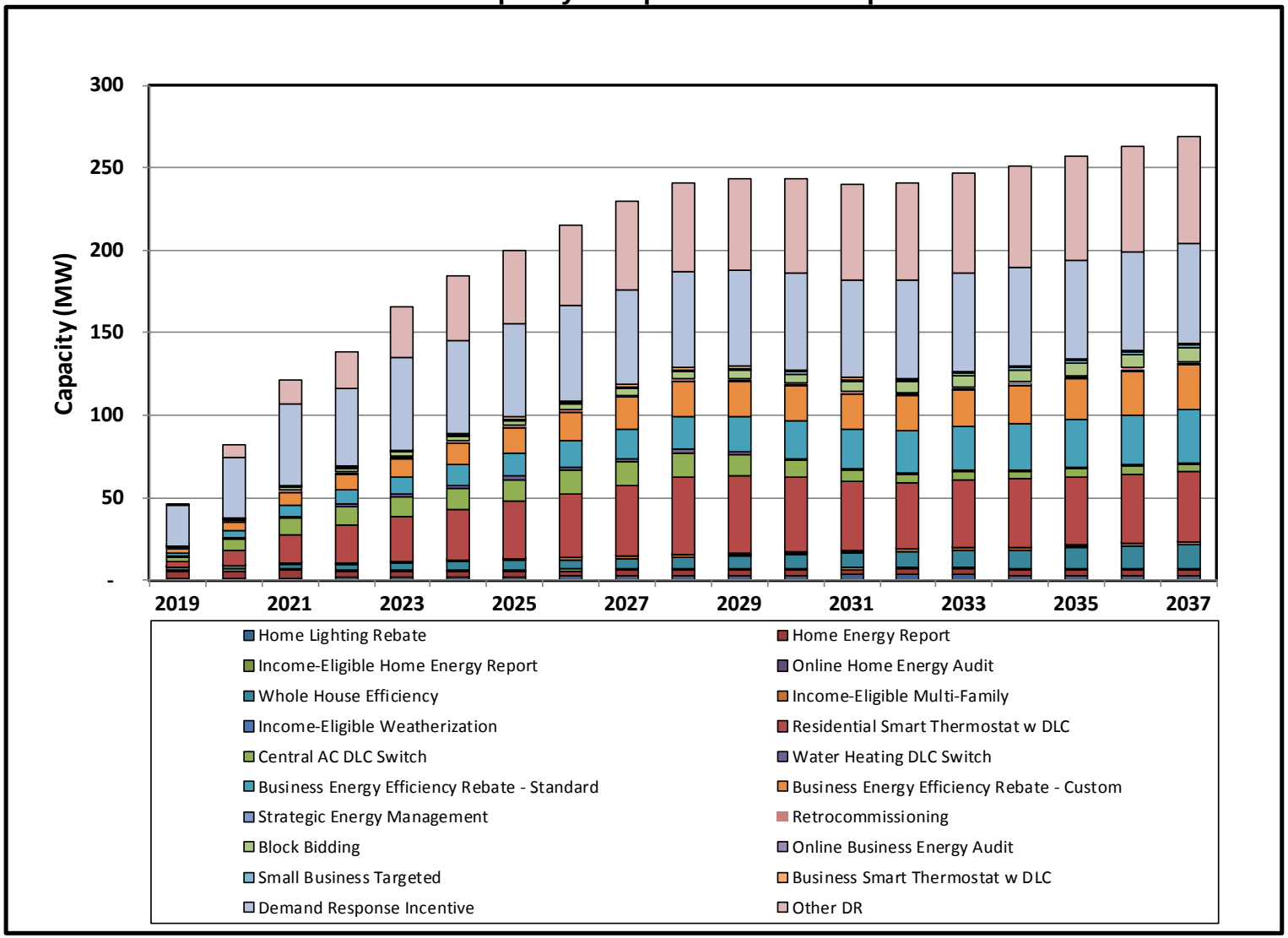


Chart 16: Capacity Composition – DSM Option G

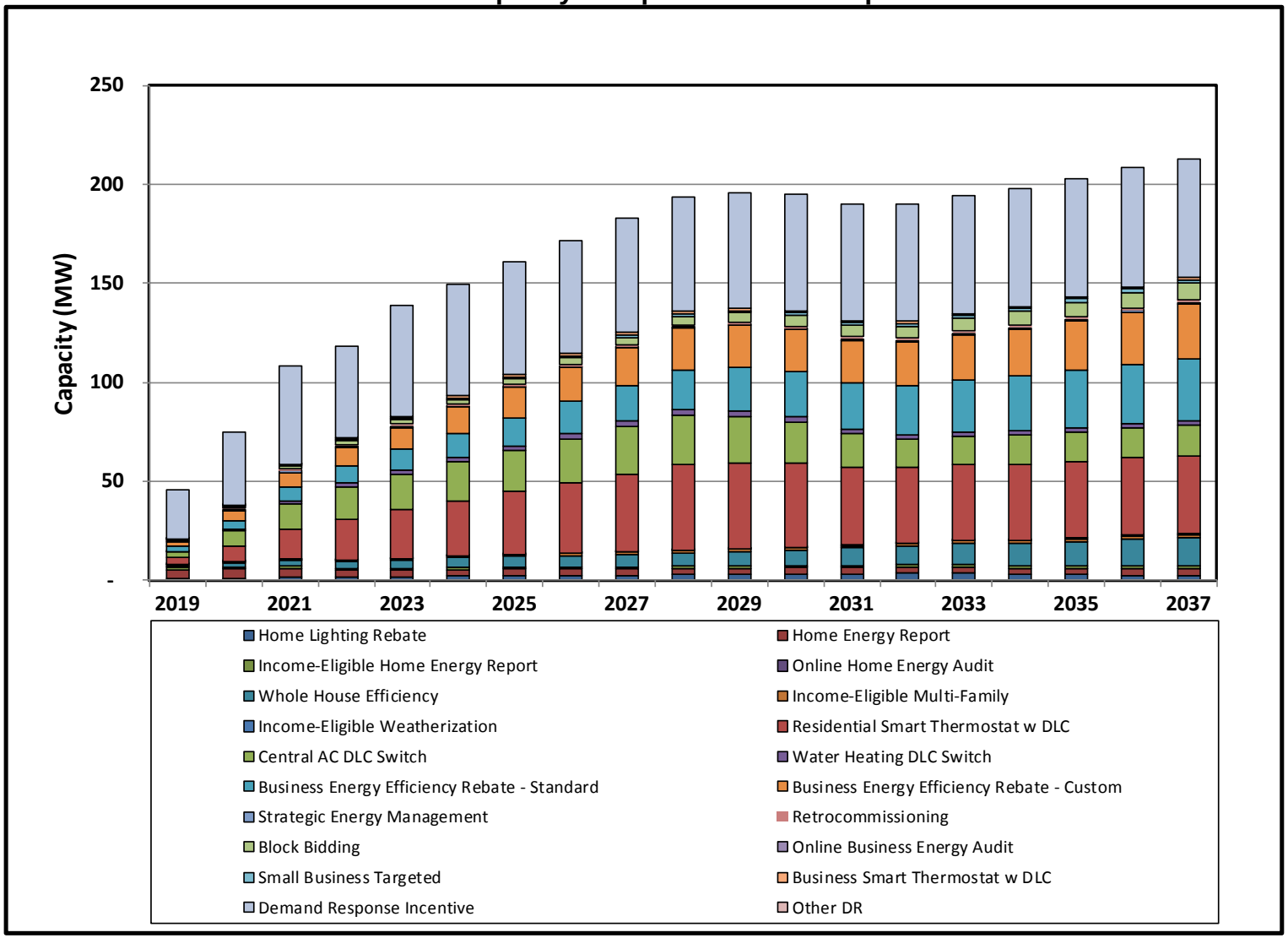


Chart 17: Capacity Composition – DSM Option K

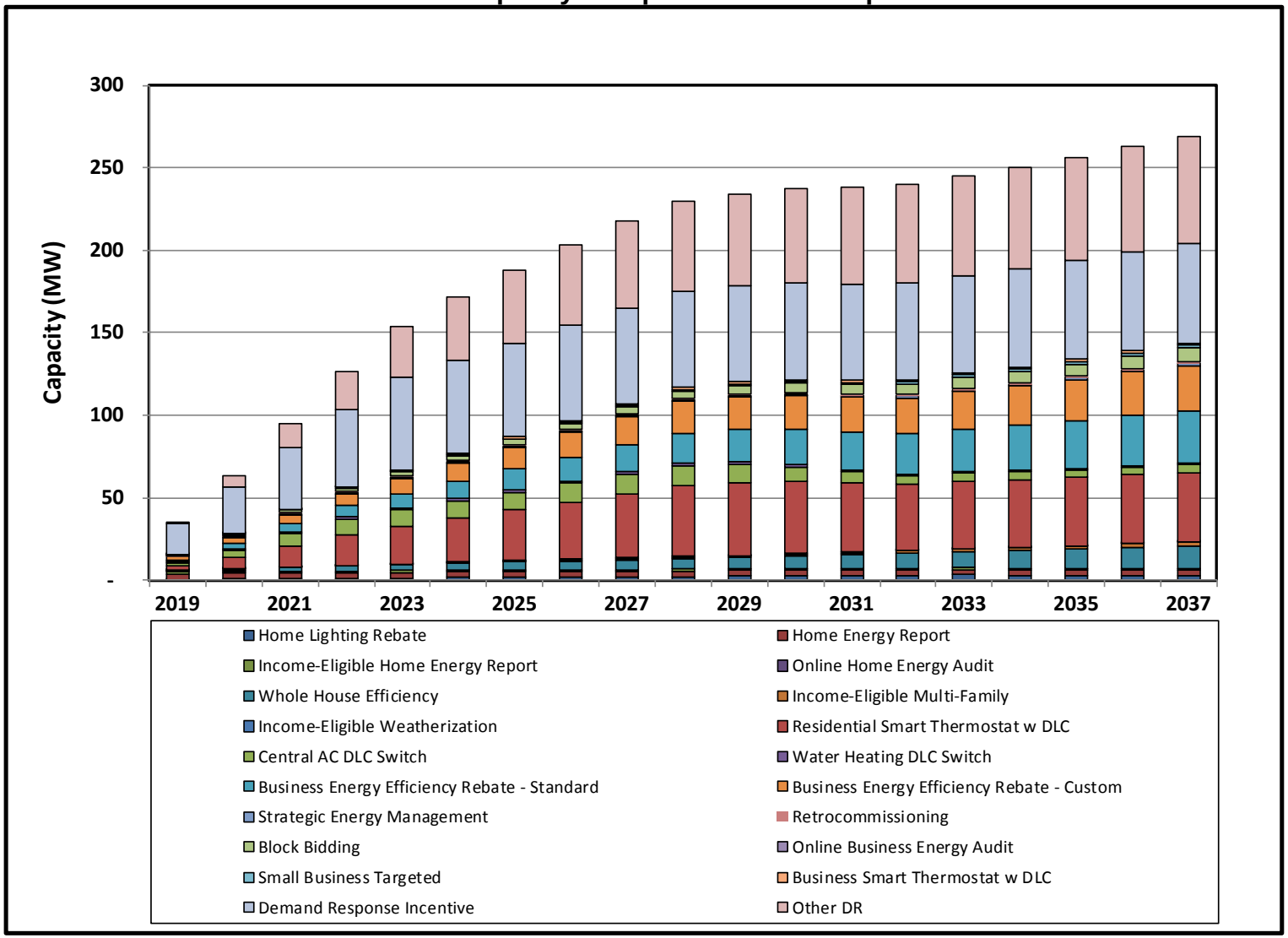
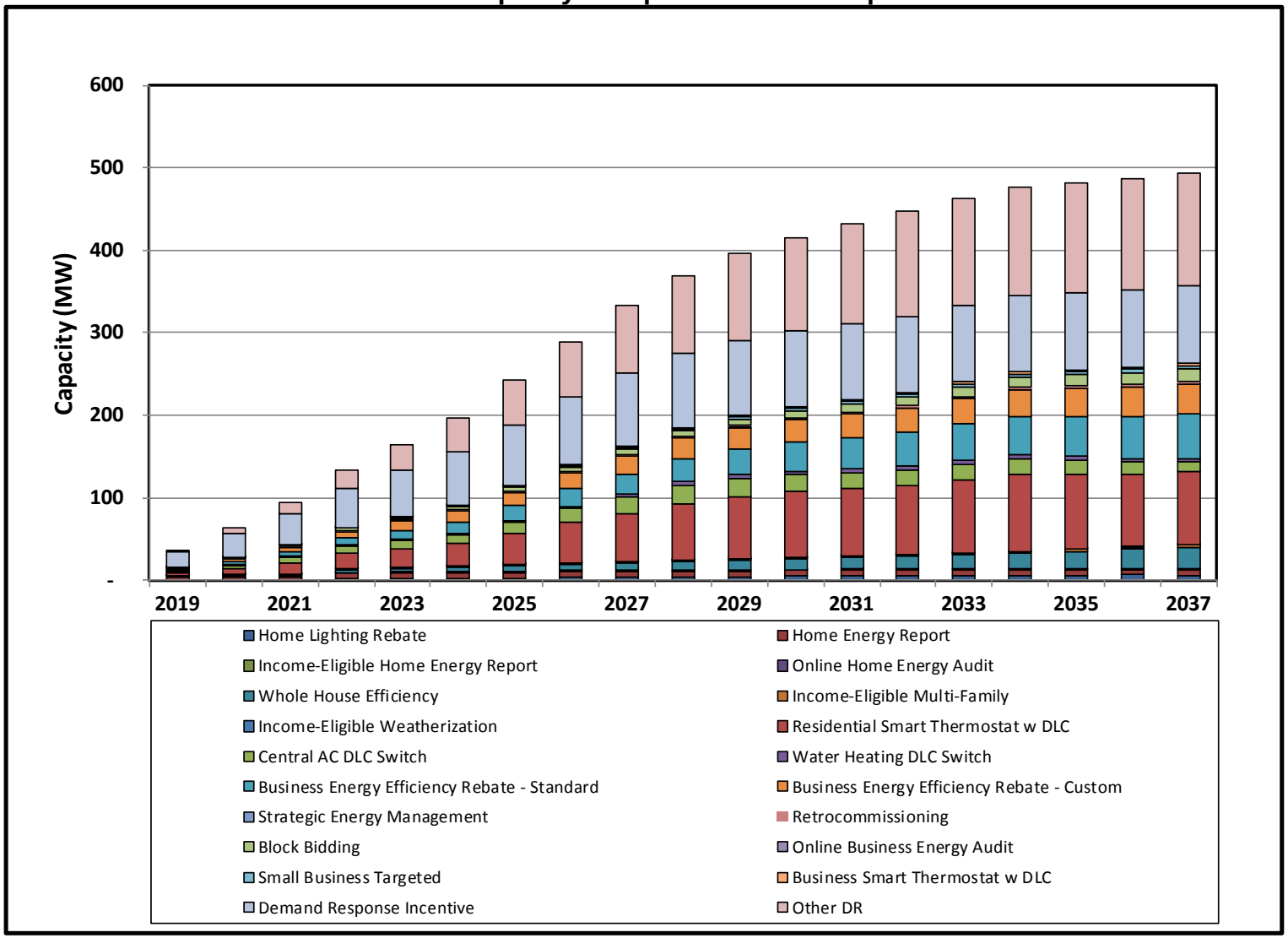


Chart 18: Capacity Composition – DSM Option L



3. The composition, by supply-side resource, of the capacity supplied to the transmission grid provided by supply-side resources. Existing supply-side resources may be shown as a single resource;

The following charts provide the supply-side resource composition for each Alternative Resource Plan.

Chart 19: Alternative Resource Plan KAAAA - Capacity

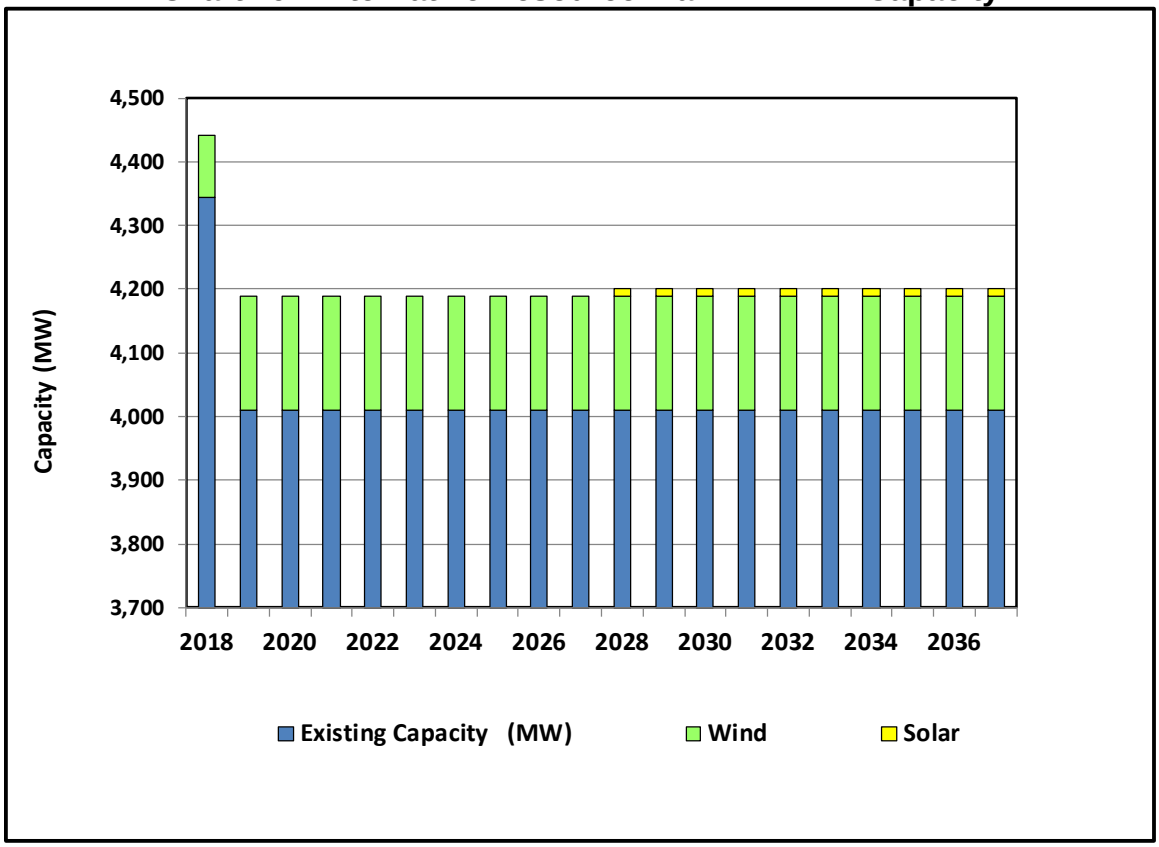


Chart 20: Alternative Resource Plan KAABA - Capacity

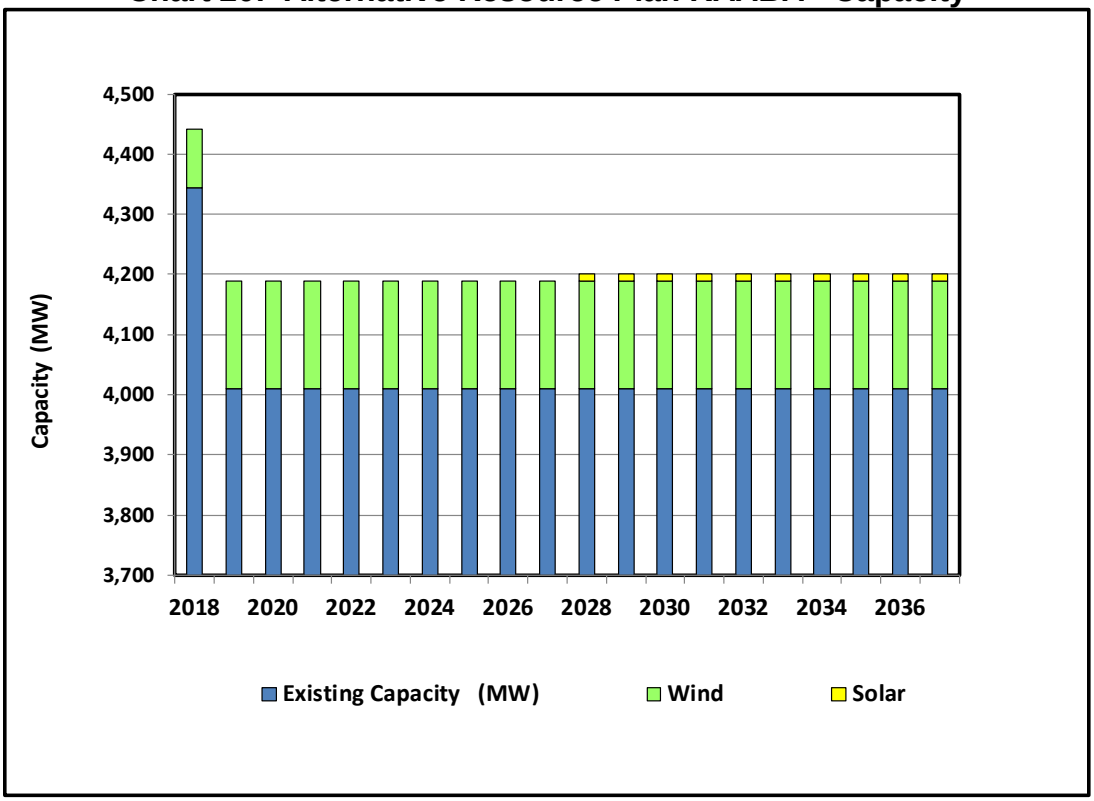


Chart 21: Alternative Resource Plan KAACA – Capacity

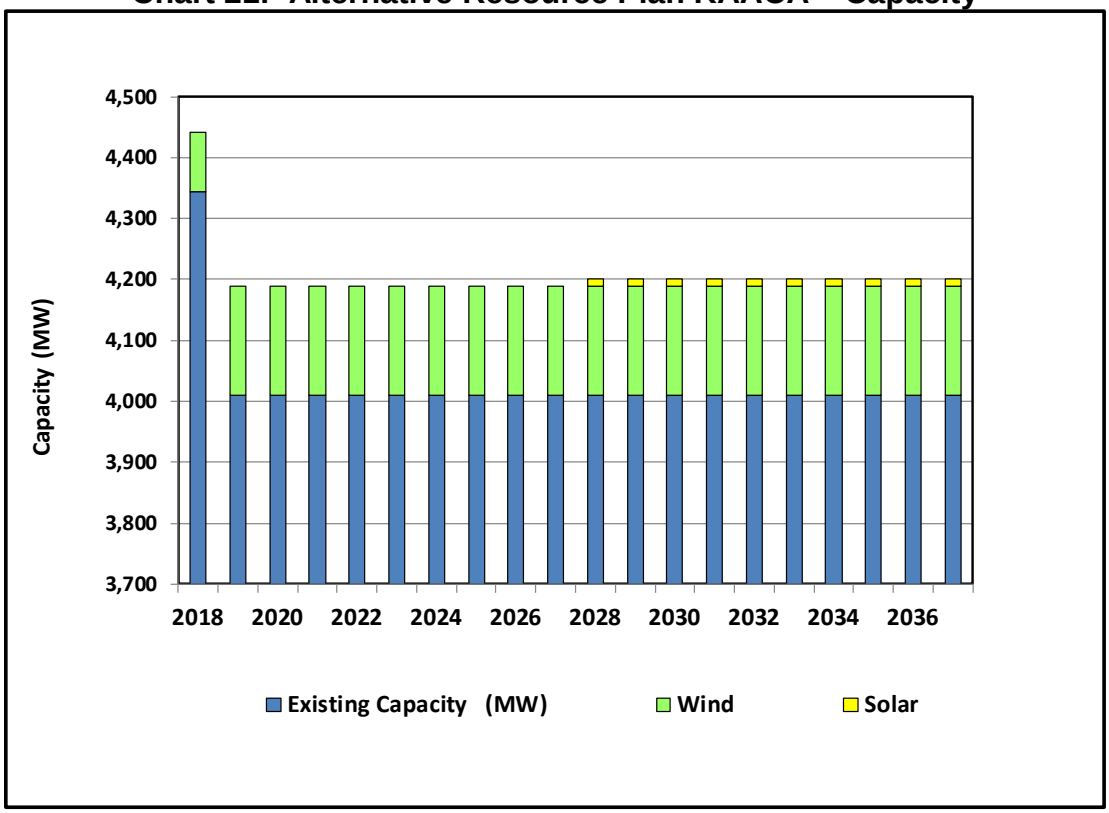


Chart 22: Alternative Resource Plan KAADA - Capacity

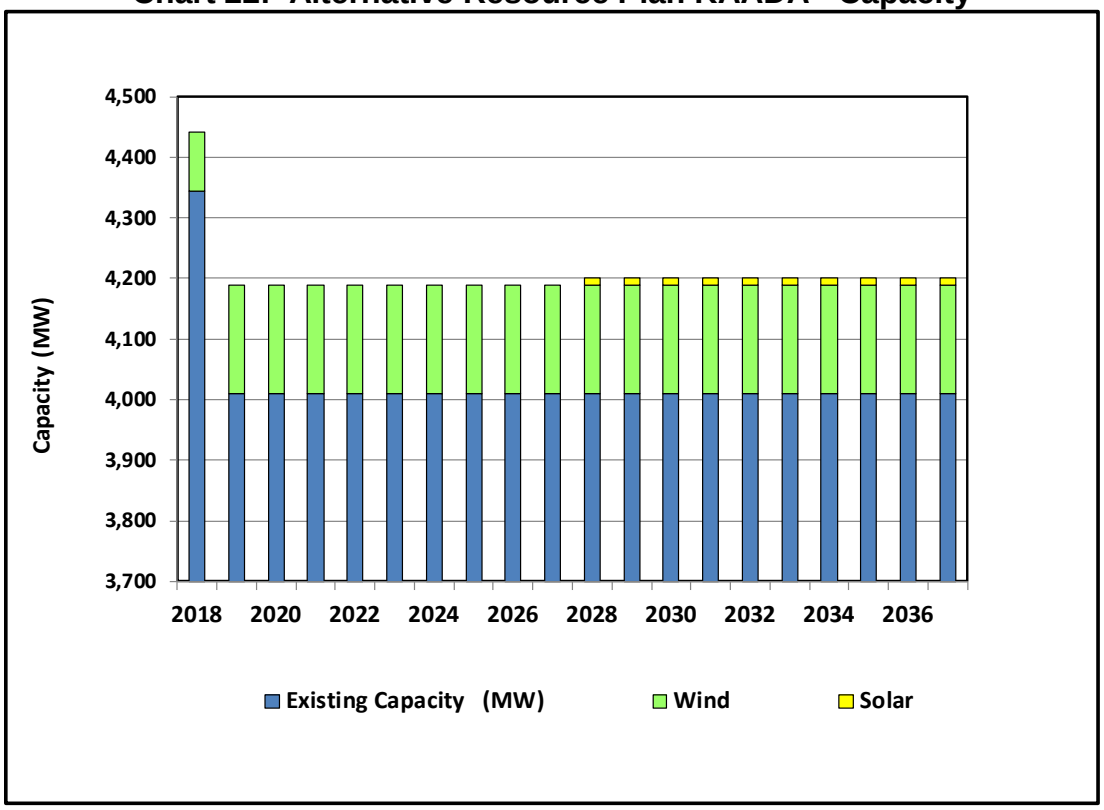


Chart 23: Alternative Resource Plan KAAEA - Capacity

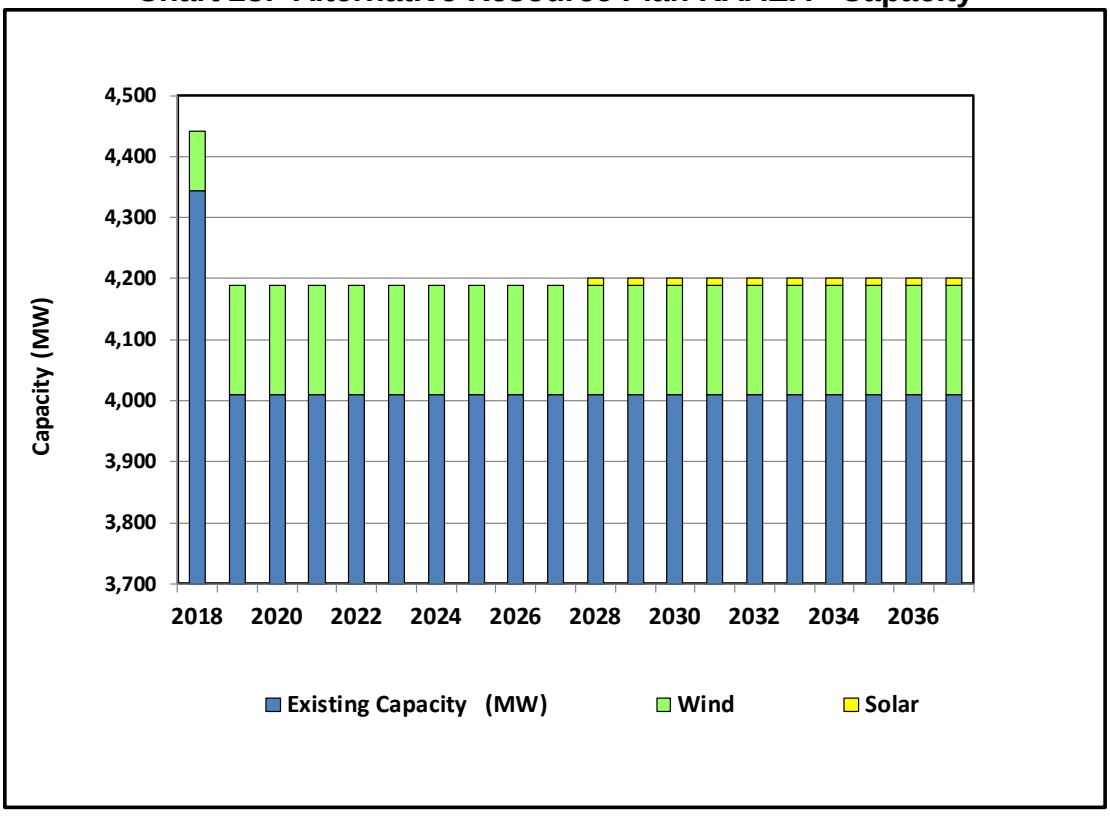


Chart 24: Alternative Resource Plan KAAEW - Capacity

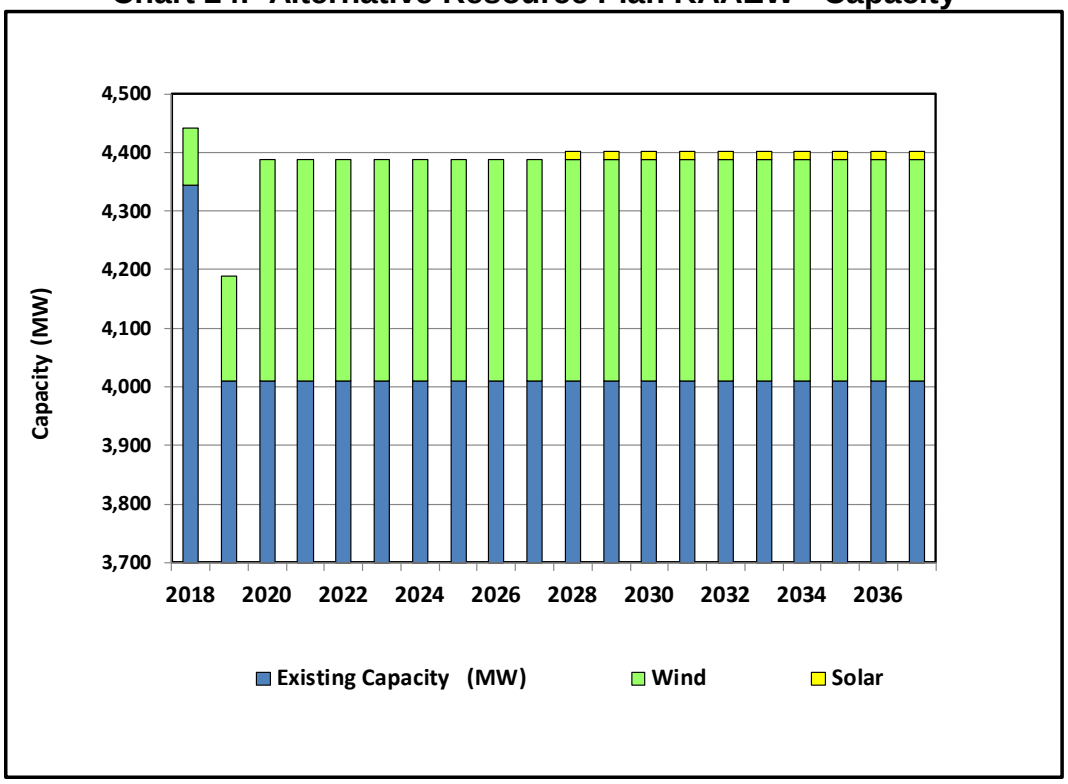


Chart 25: Alternative Resource Plan KAAFA - Capacity

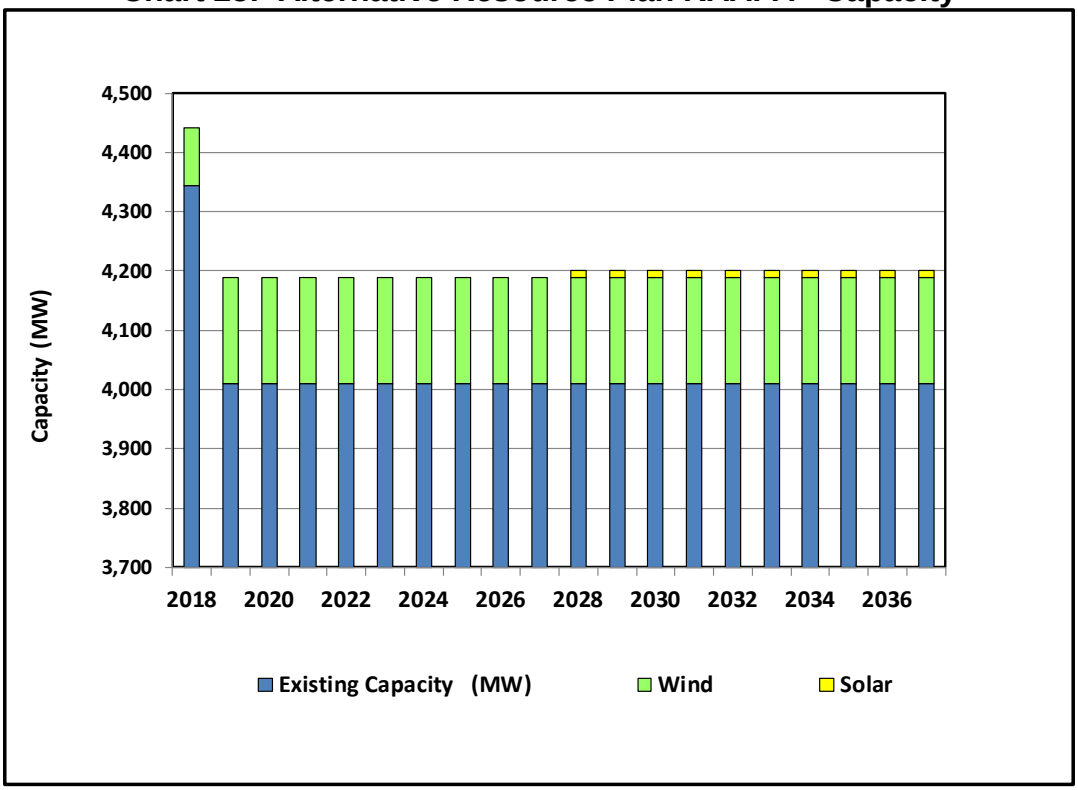


Chart 26: Alternative Resource Plan KAAGA - Capacity

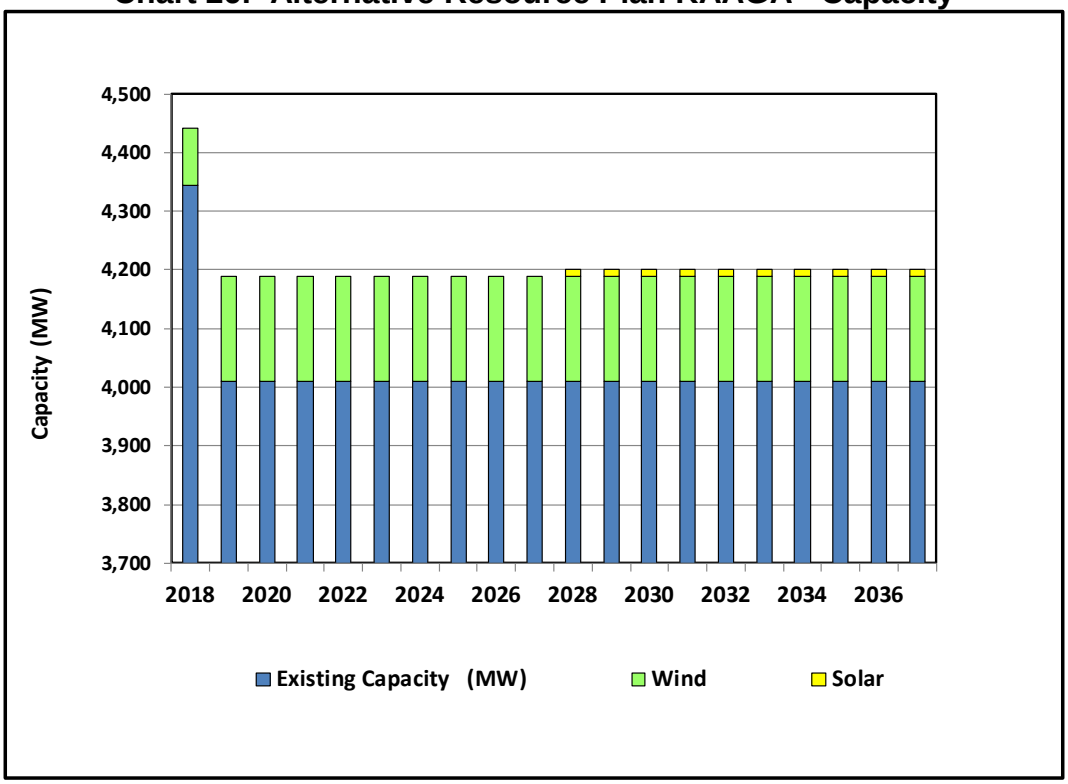


Chart 27: Alternative Resource Plan KAAHA - Capacity

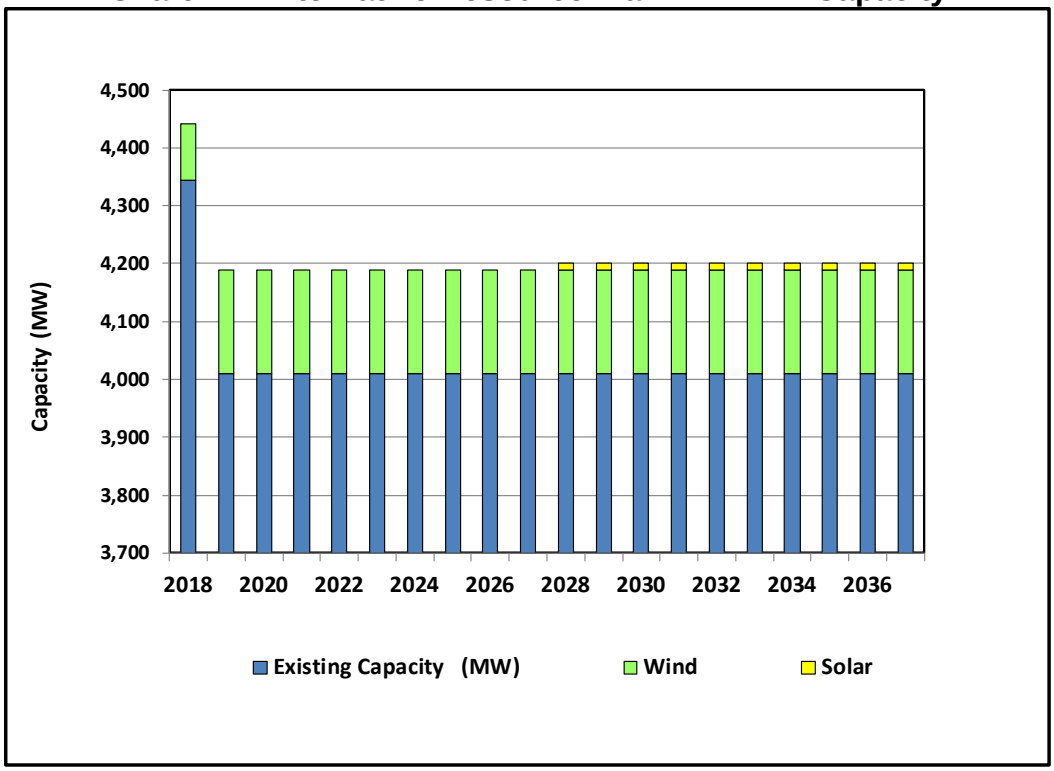


Chart 28: Alternative Resource Plan KAAKA – Capacity

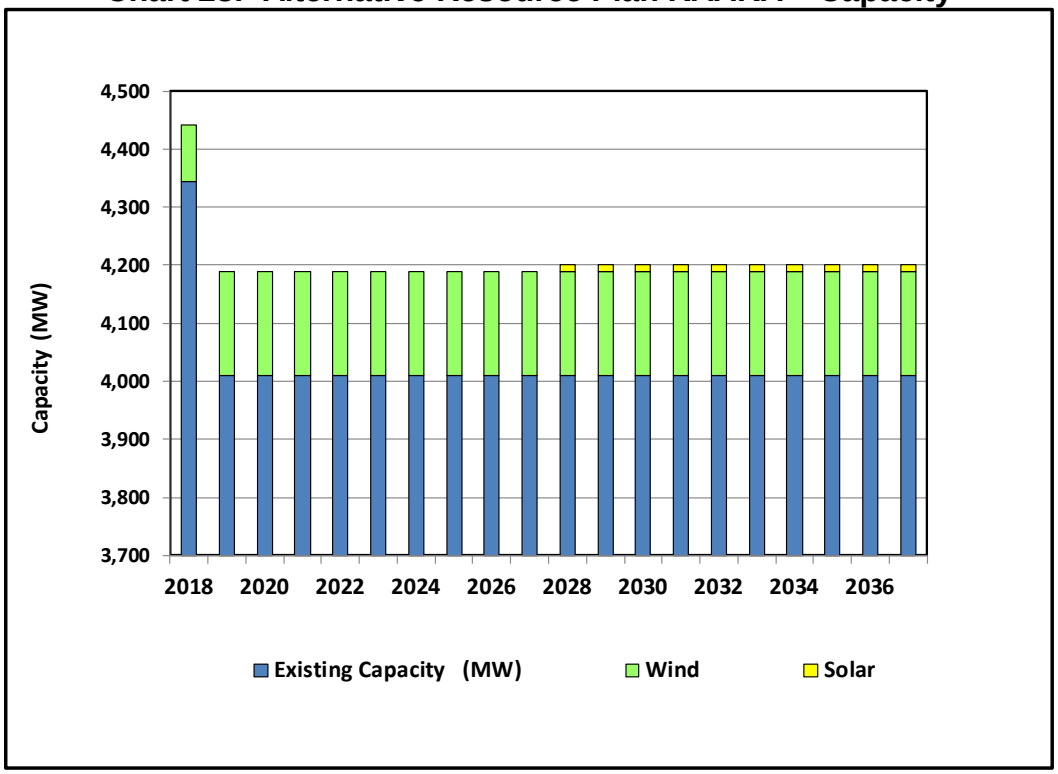


Chart 29: Alternative Resource Plan KAAKN – Capacity

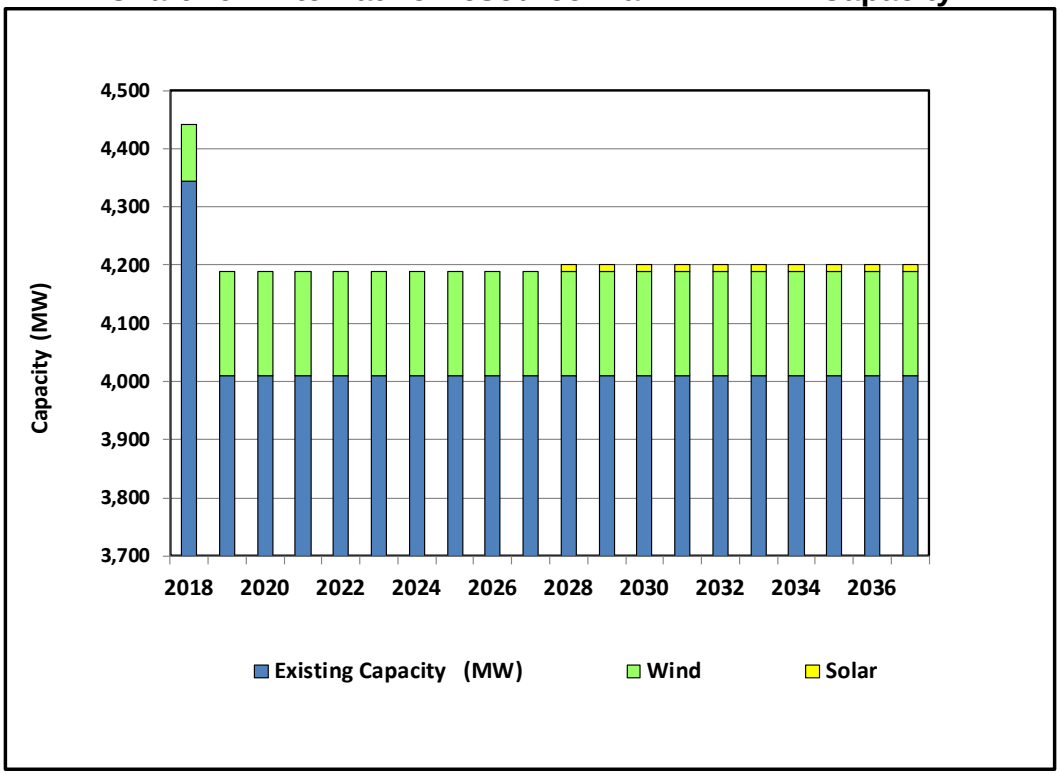


Chart 30: Alternative Resource Plan KAALA – Capacity

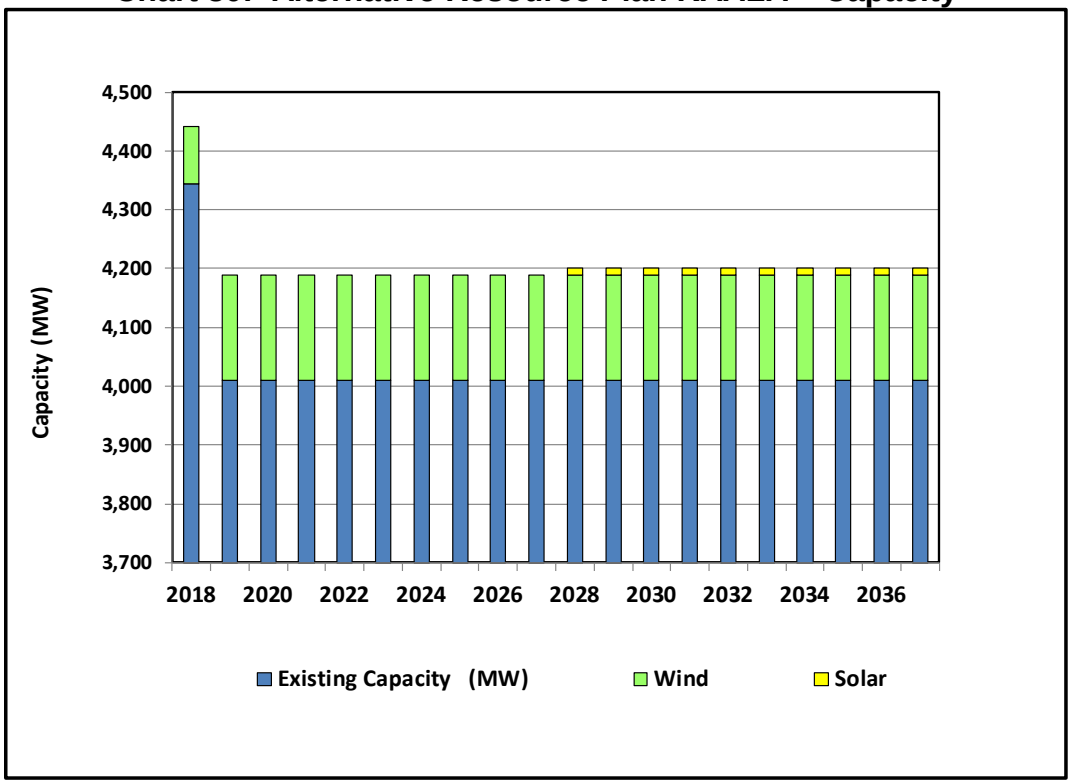


Chart 31: Alternative Resource Plan KBBAA - Capacity

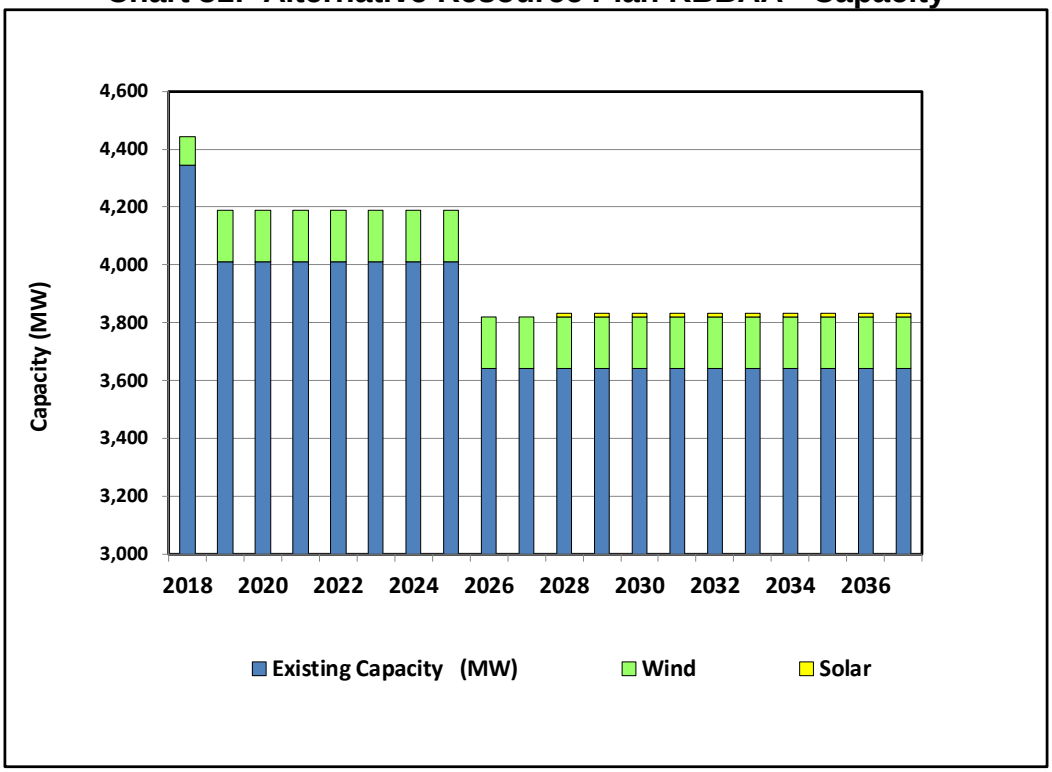
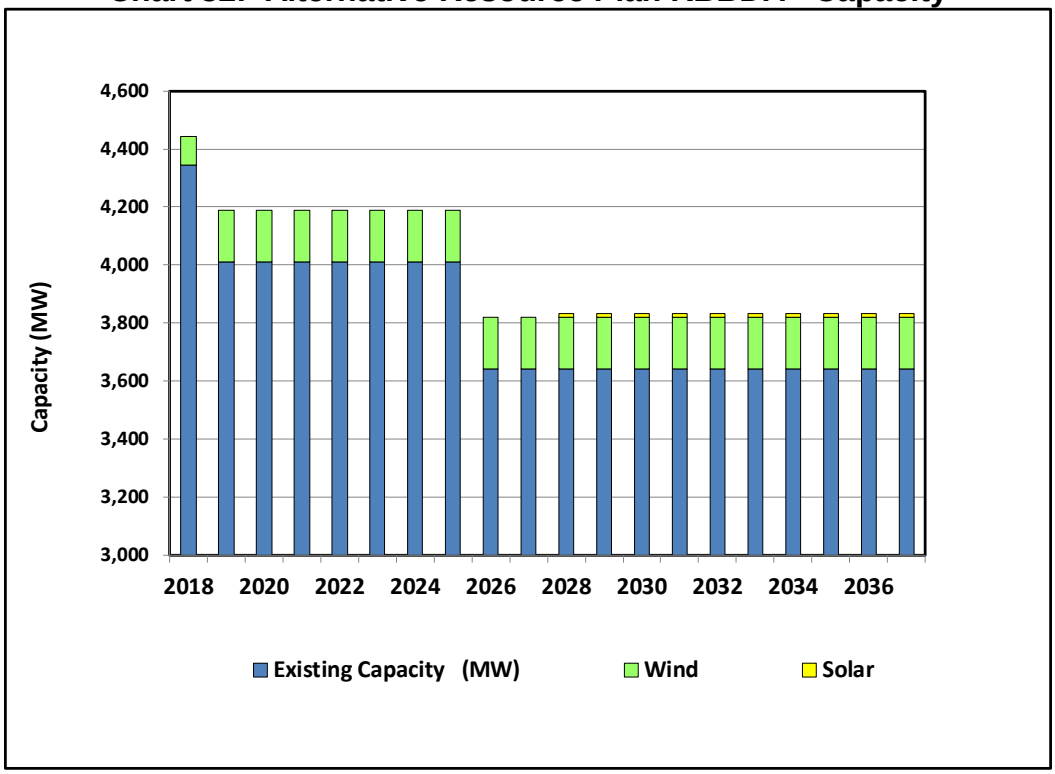


Chart 32: Alternative Resource Plan KBBDA - Capacity



4. The combined impact of all demand-side resources on the base-case forecast of annual energy requirements;

The following charts illustrate the combined energy supplied by the levels of DSM programs associated with the Alternative Resource Plans.

Chart 33: Annual Energy Impact – DSM Option A

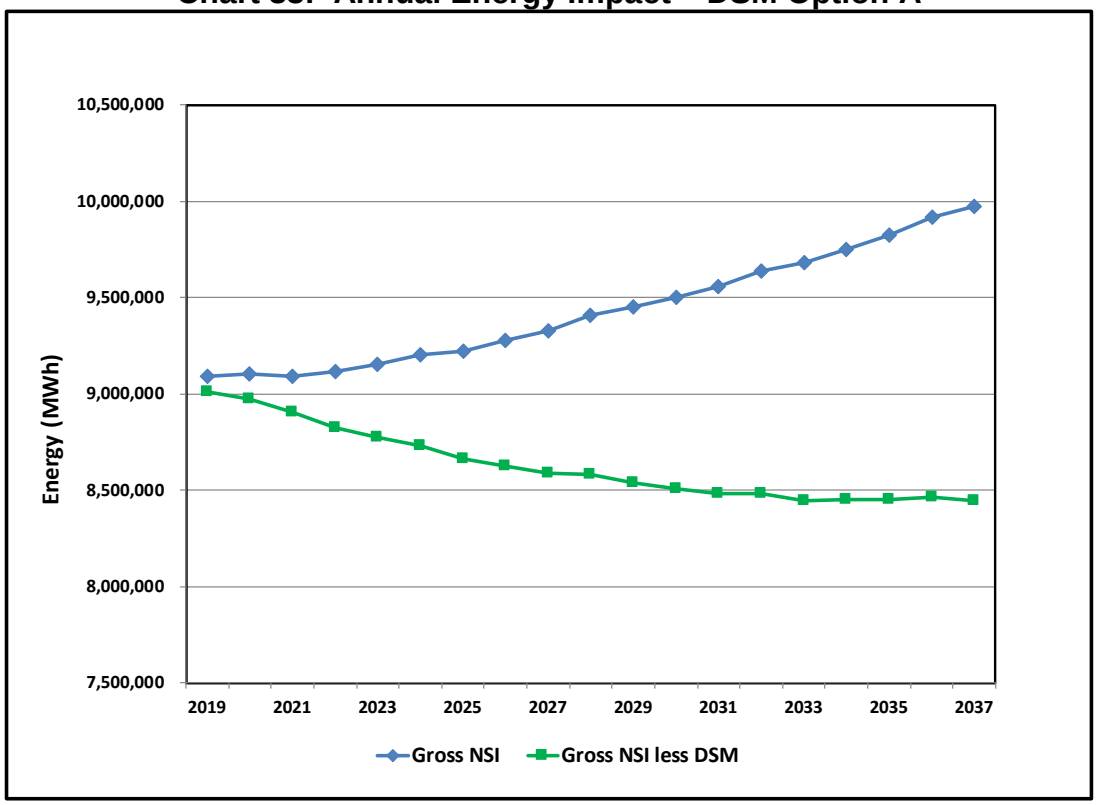


Chart 34: Annual Energy Impact – DSM Option B

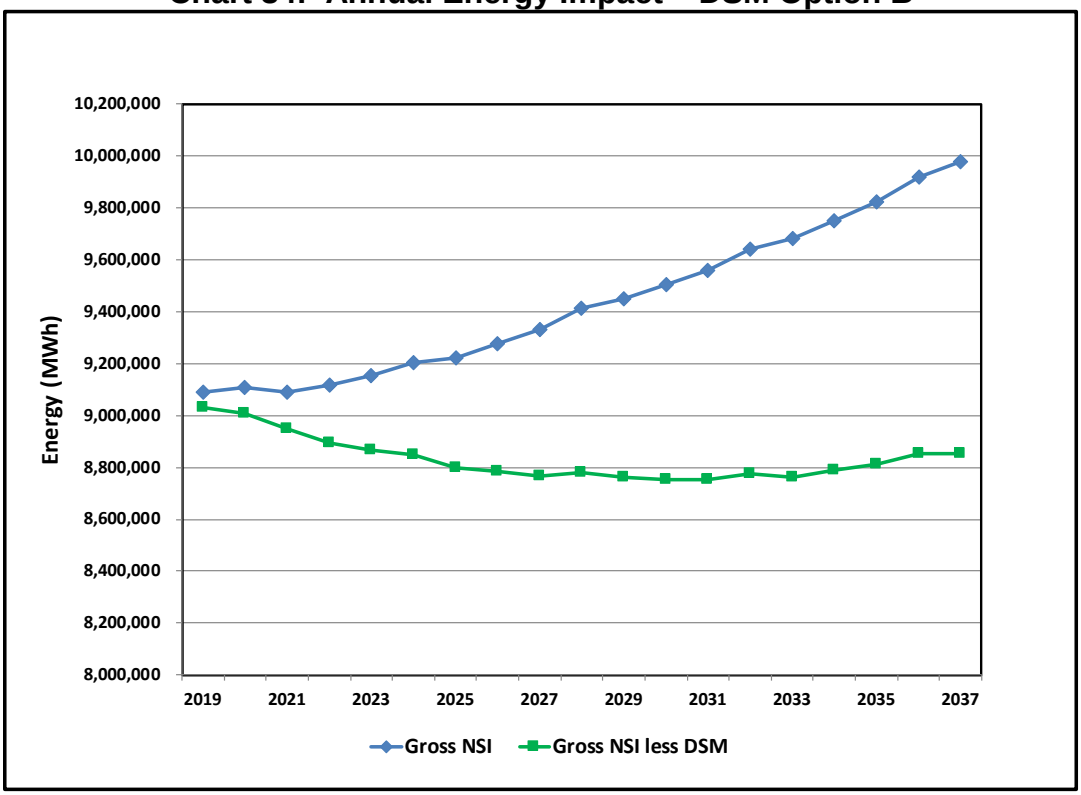


Chart 35: Annual Energy Impact – DSM Option C

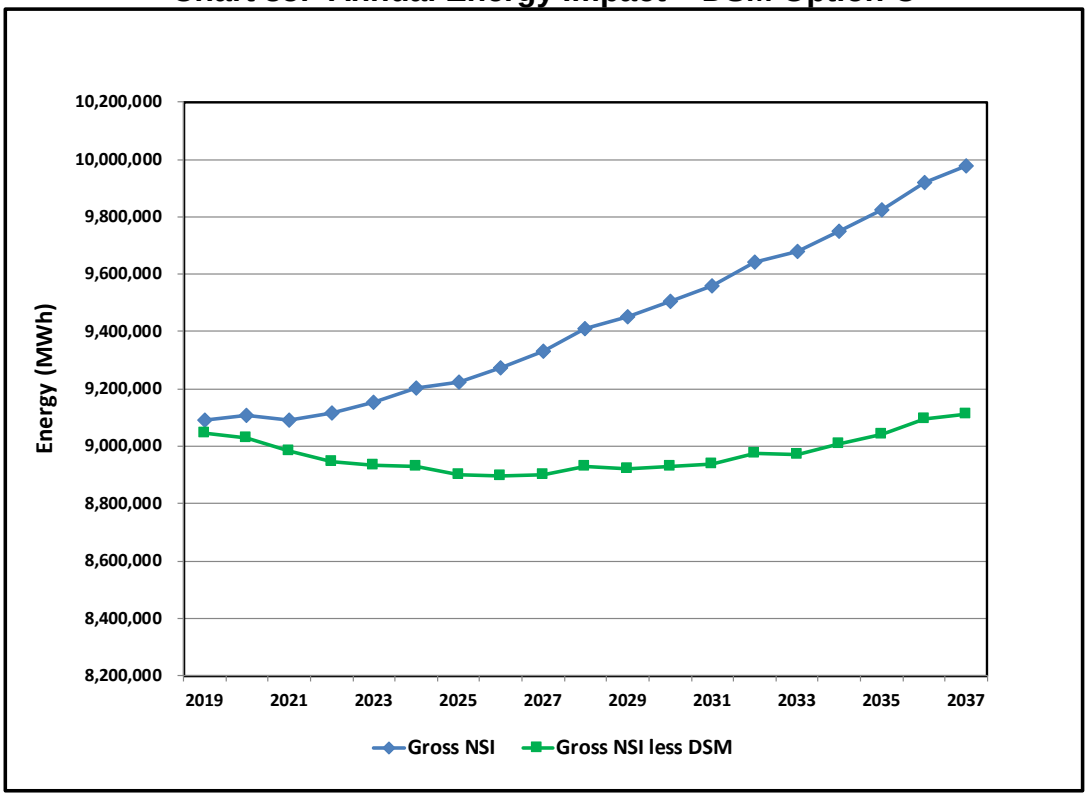


Chart 36: Annual Energy Impact – DSM Option D

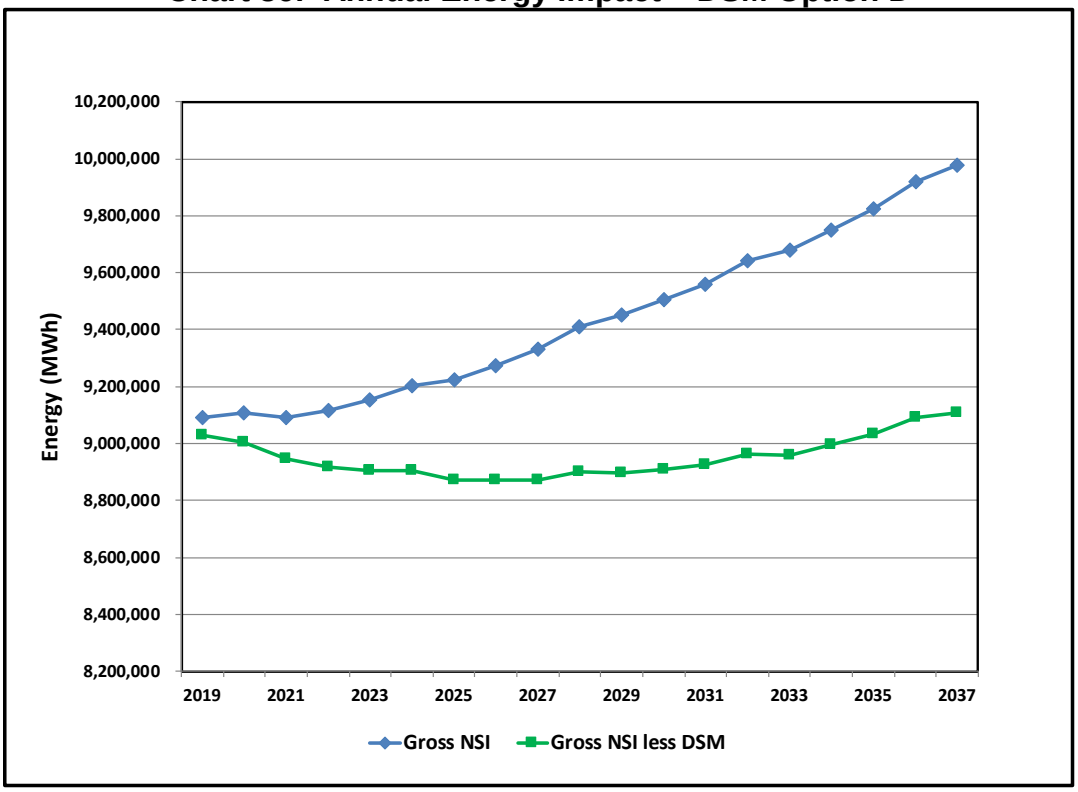


Chart 37: Annual Energy Impact – DSM Option E

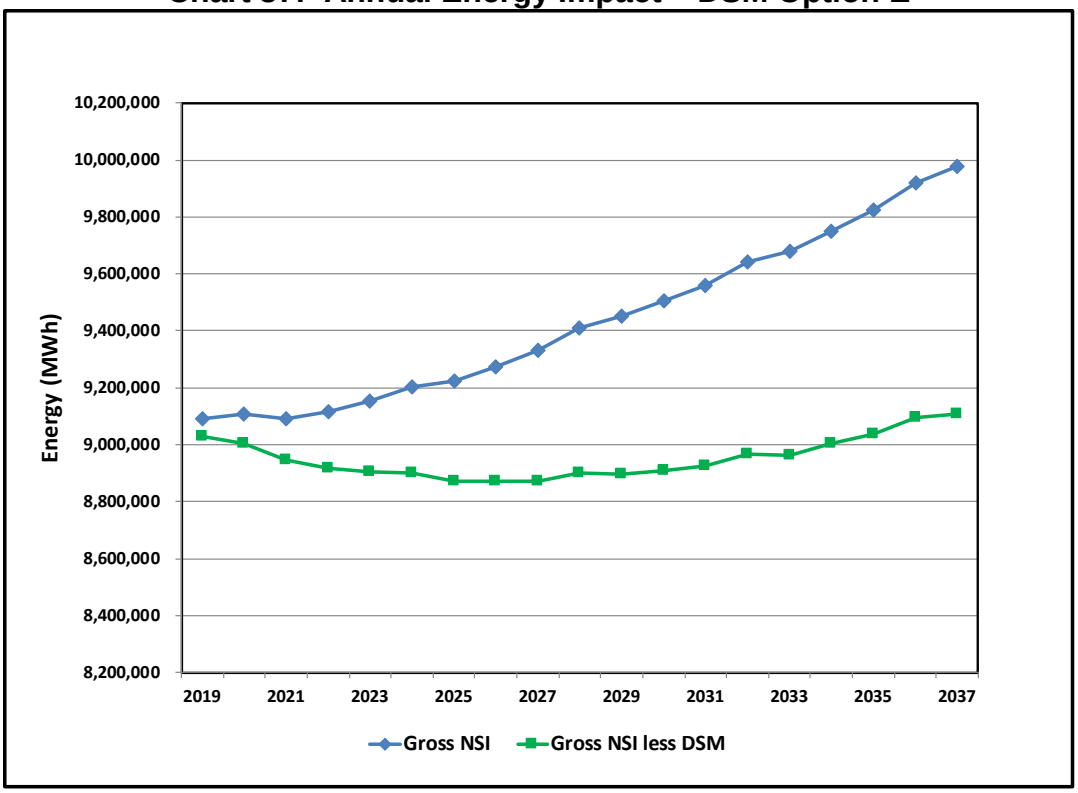


Chart 38: Annual Energy Impact – DSM Option F

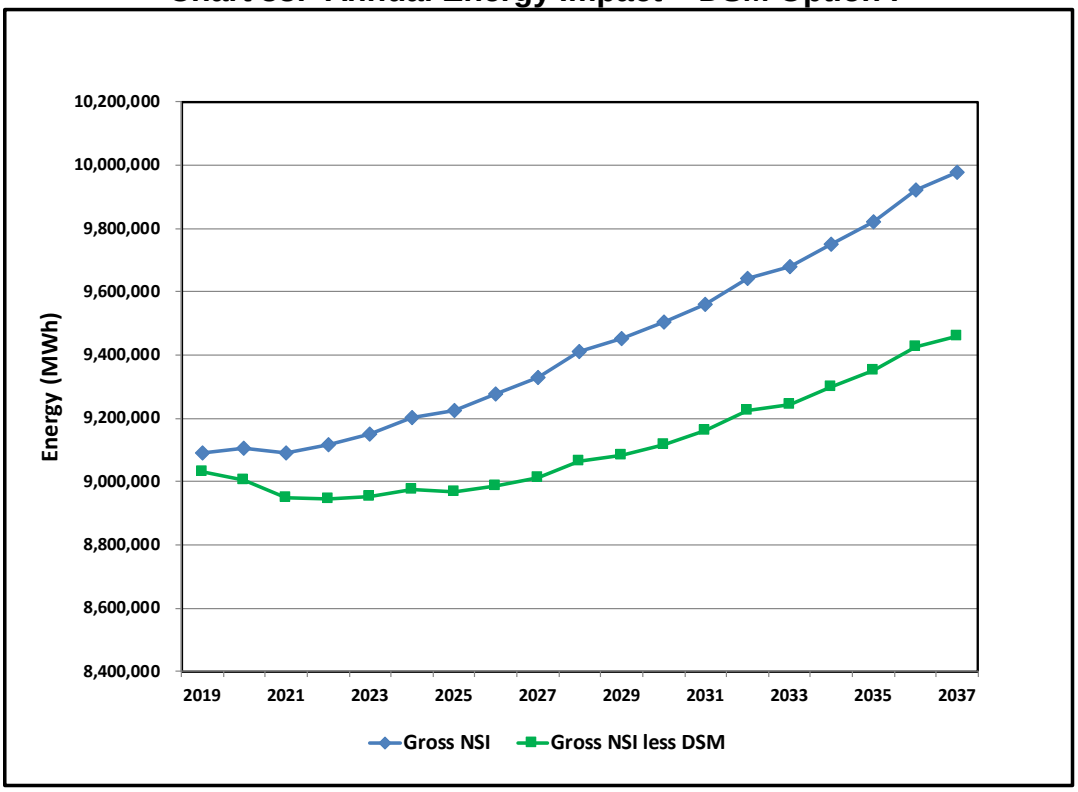


Chart 39: Annual Energy Impact – DSM Option G

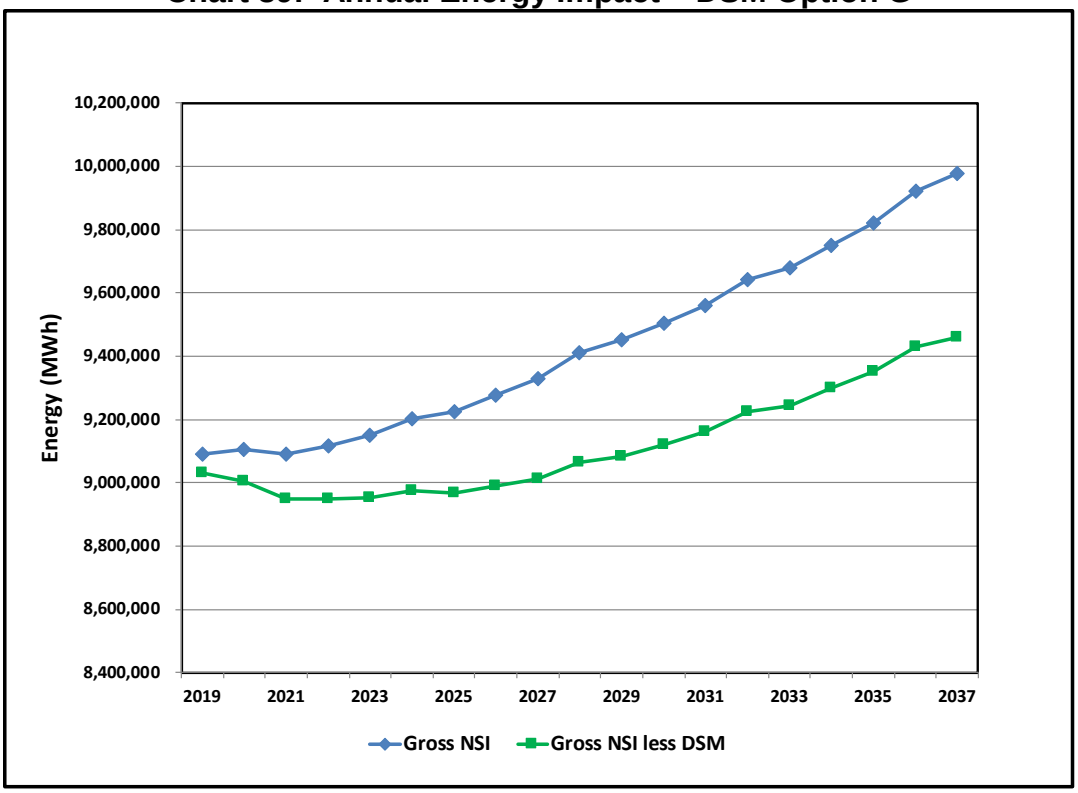


Chart 40: Annual Energy Impact – DSM Option K

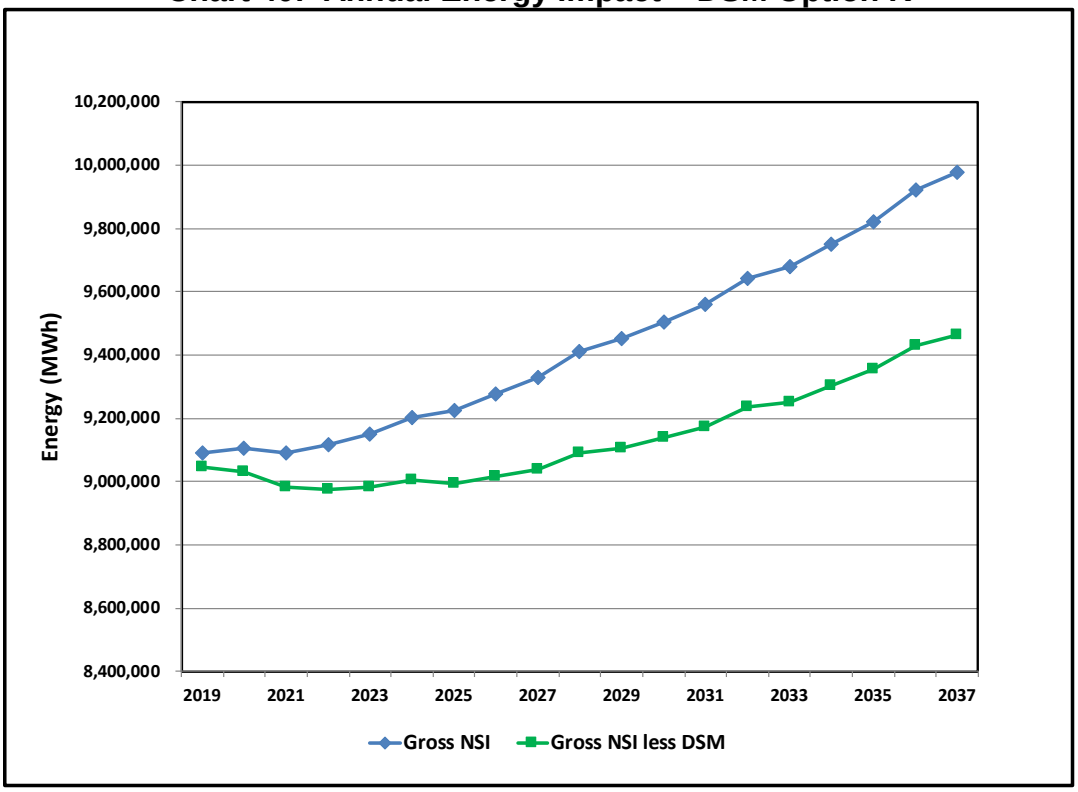
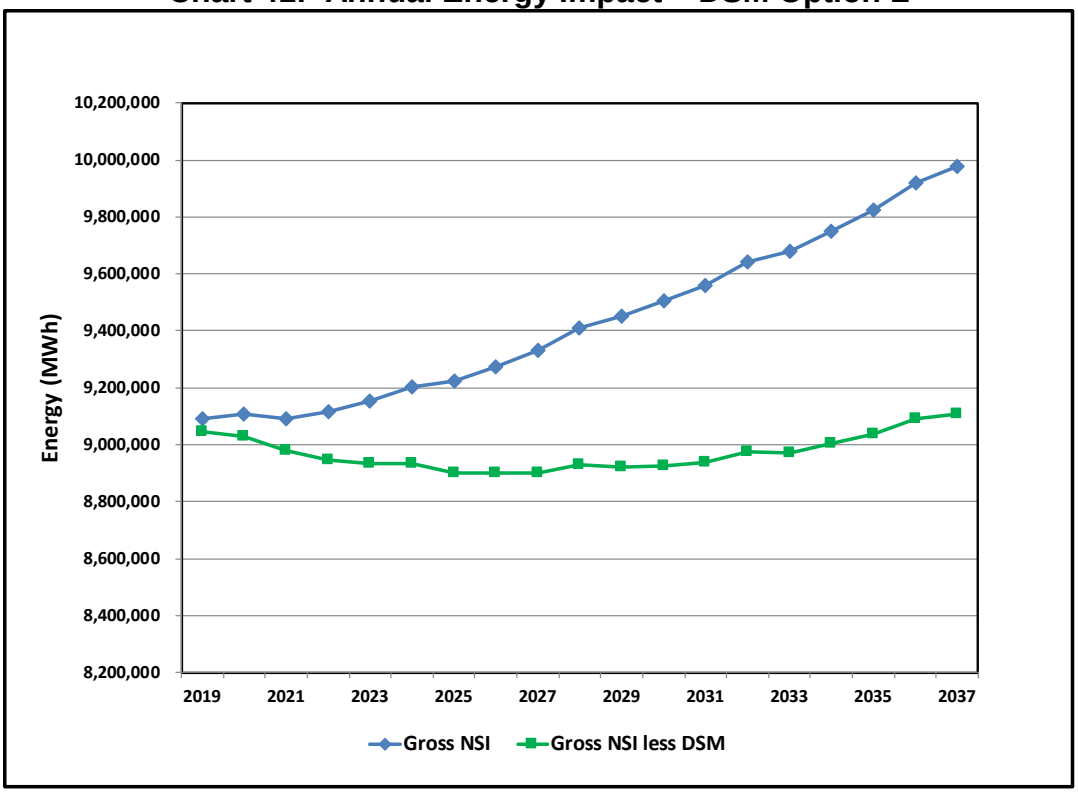


Chart 41: Annual Energy Impact – DSM Option L



5. The composition, by program and demand-side rate, of the annual energy provided by demand-side resources;

The following three charts illustrate the combined energy supplied by the levels of DSM programs associated with the Alternative Resource Plans.

Chart 42: Energy Composition – DSM Option A

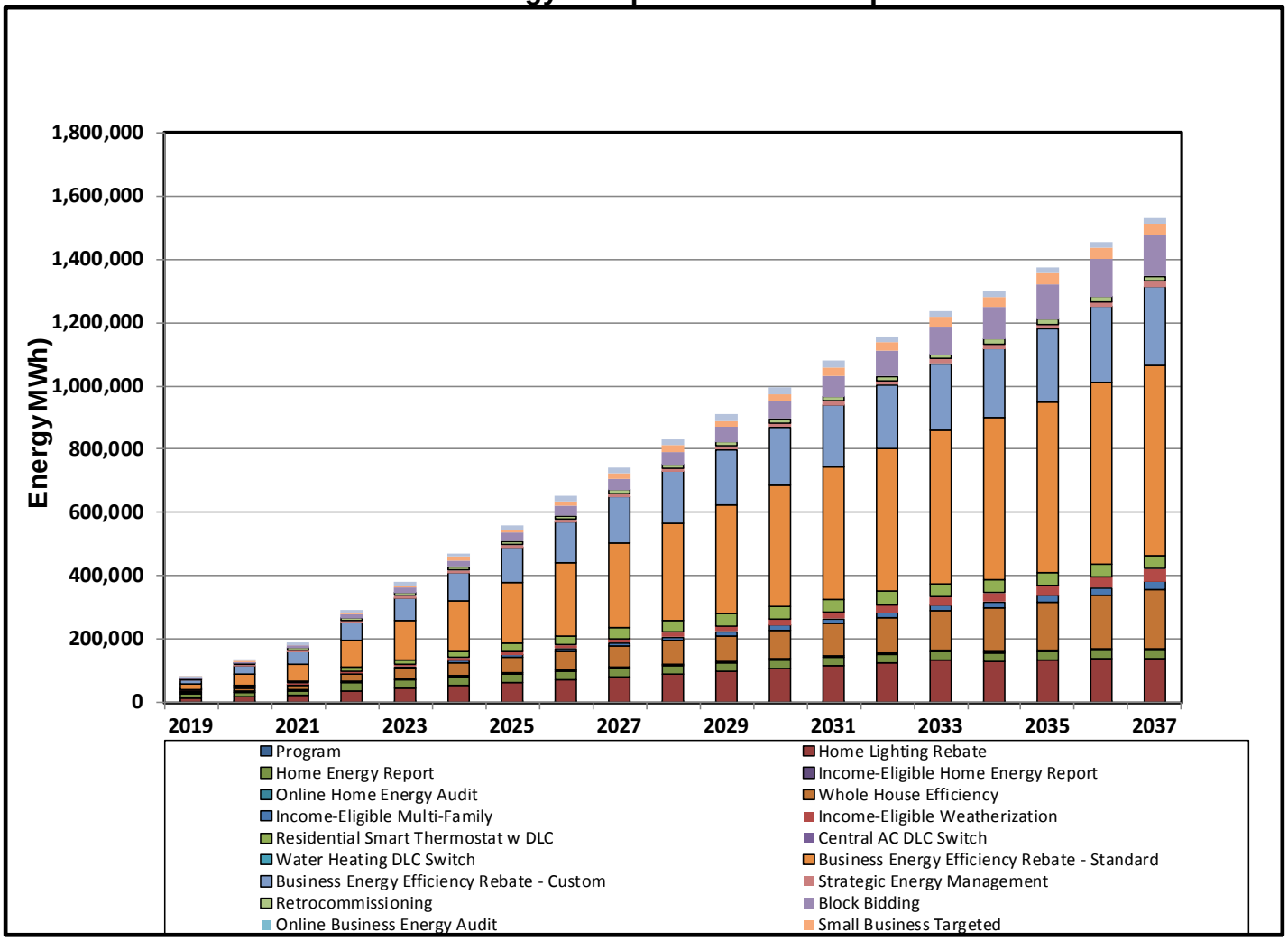


Chart 43: Energy Composition – DSM Option B

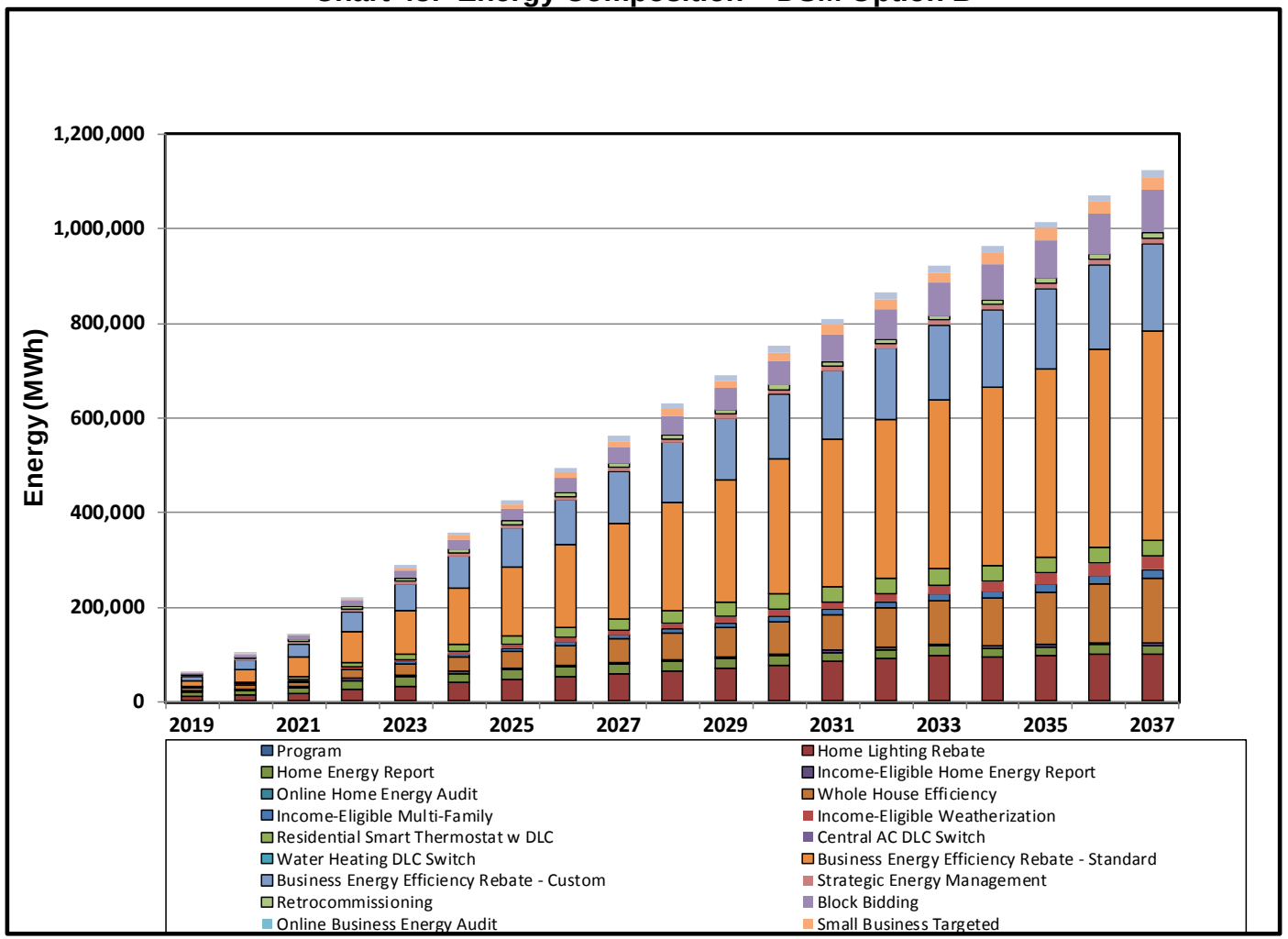


Chart 44: Energy Composition – DSM Option C

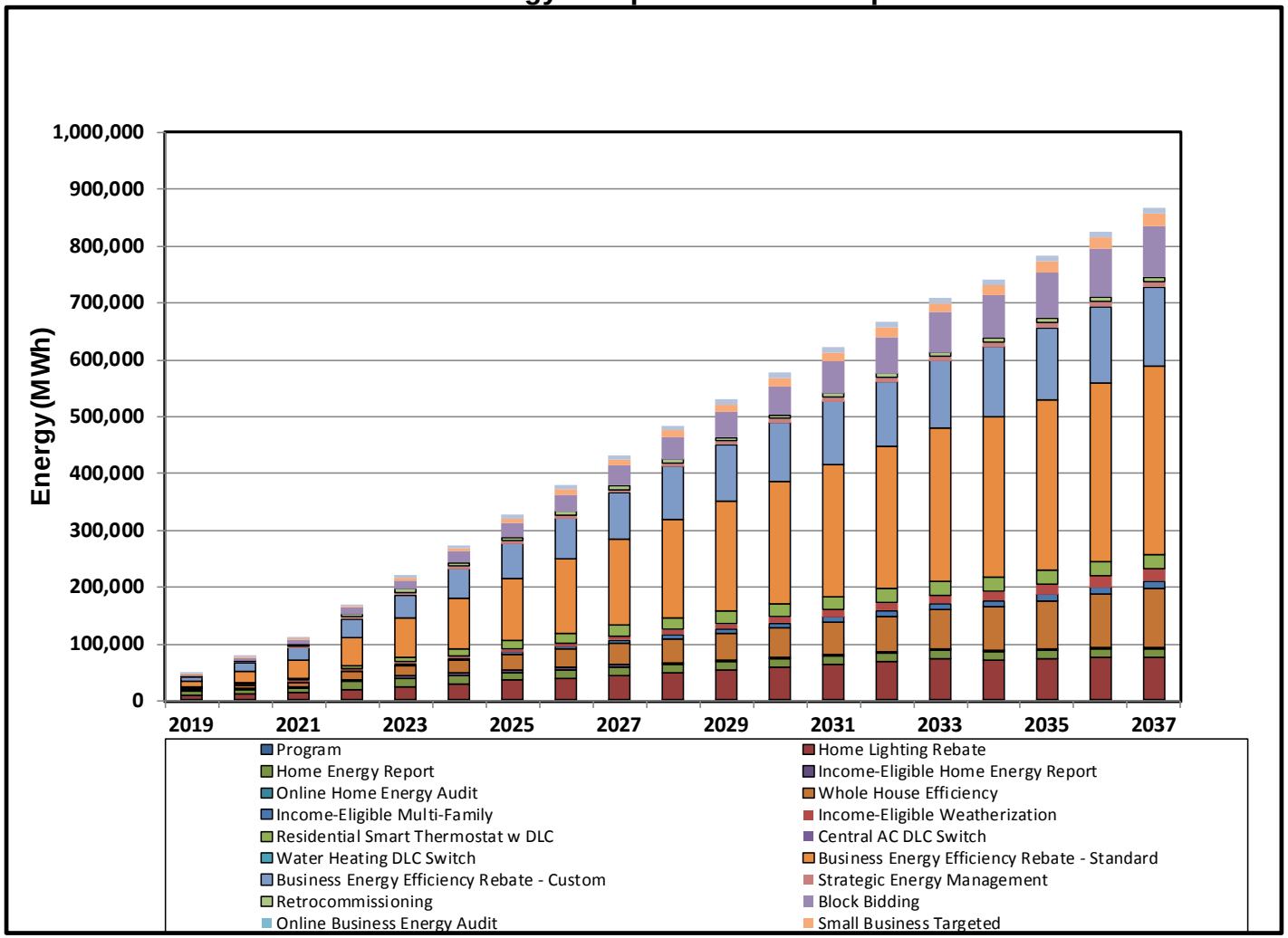


Chart 45: Energy Composition – DSM Option D

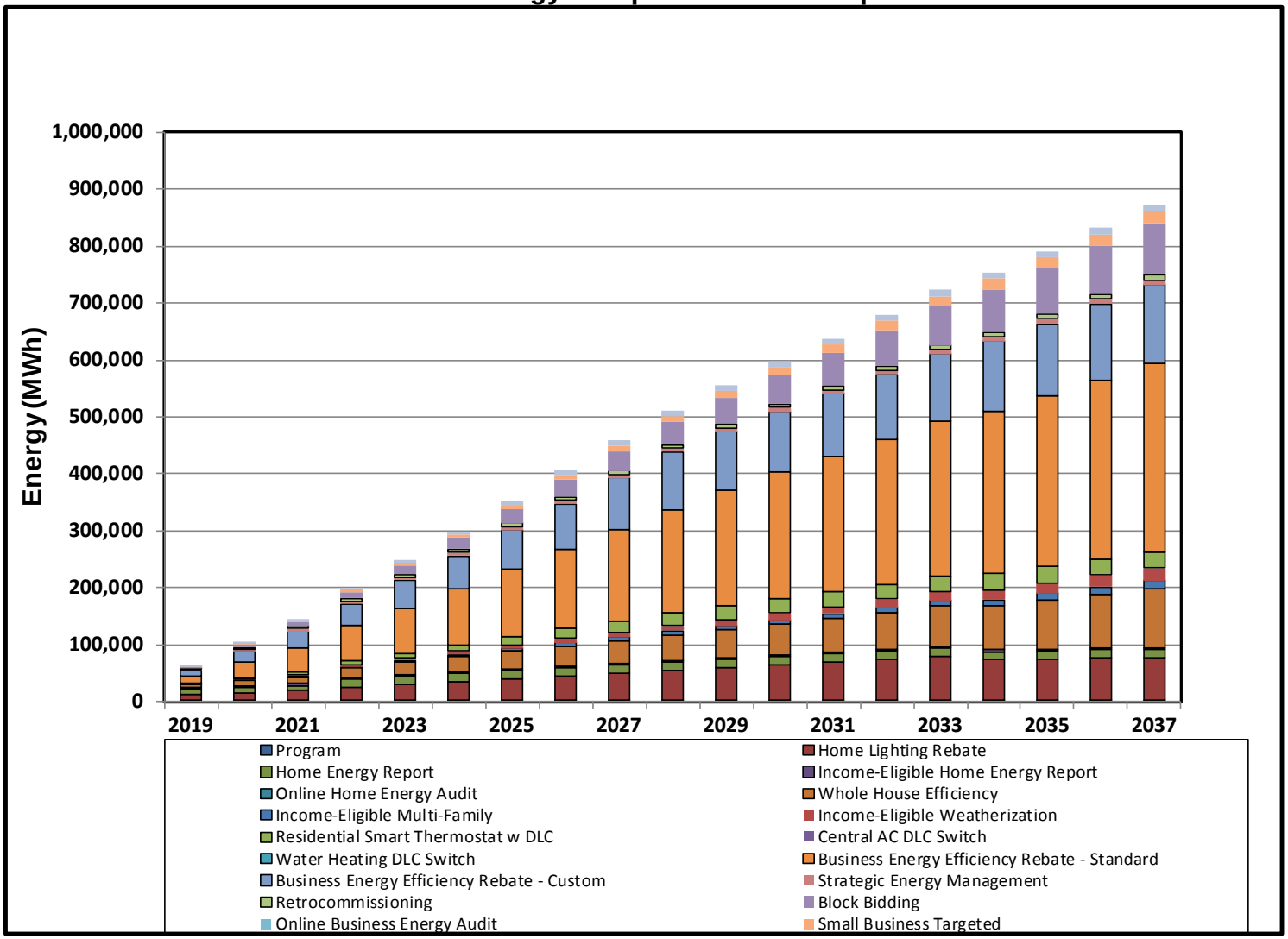


Chart 46: Energy Composition – DSM Option E

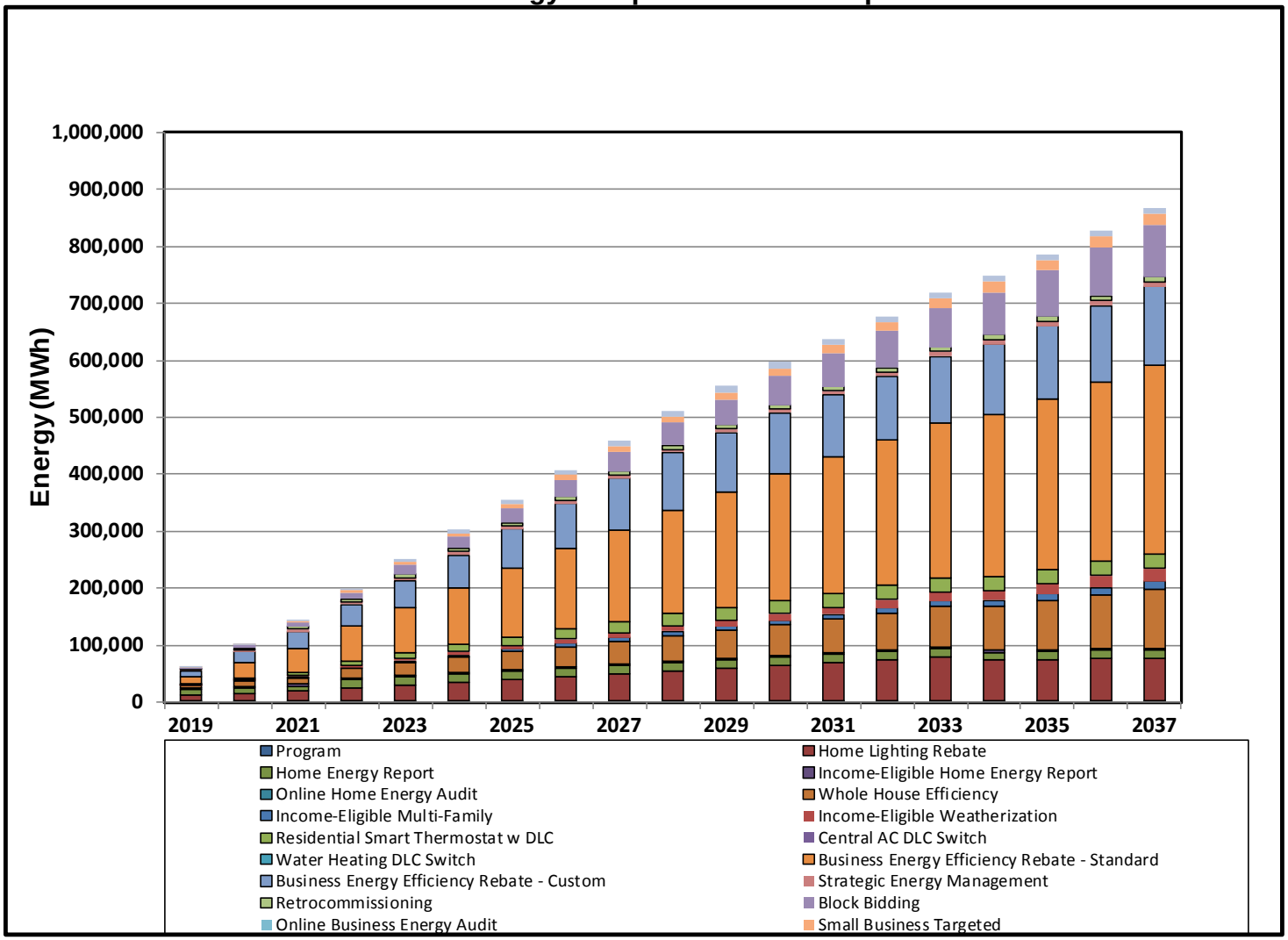


Chart 47: Energy Composition – DSM Option F

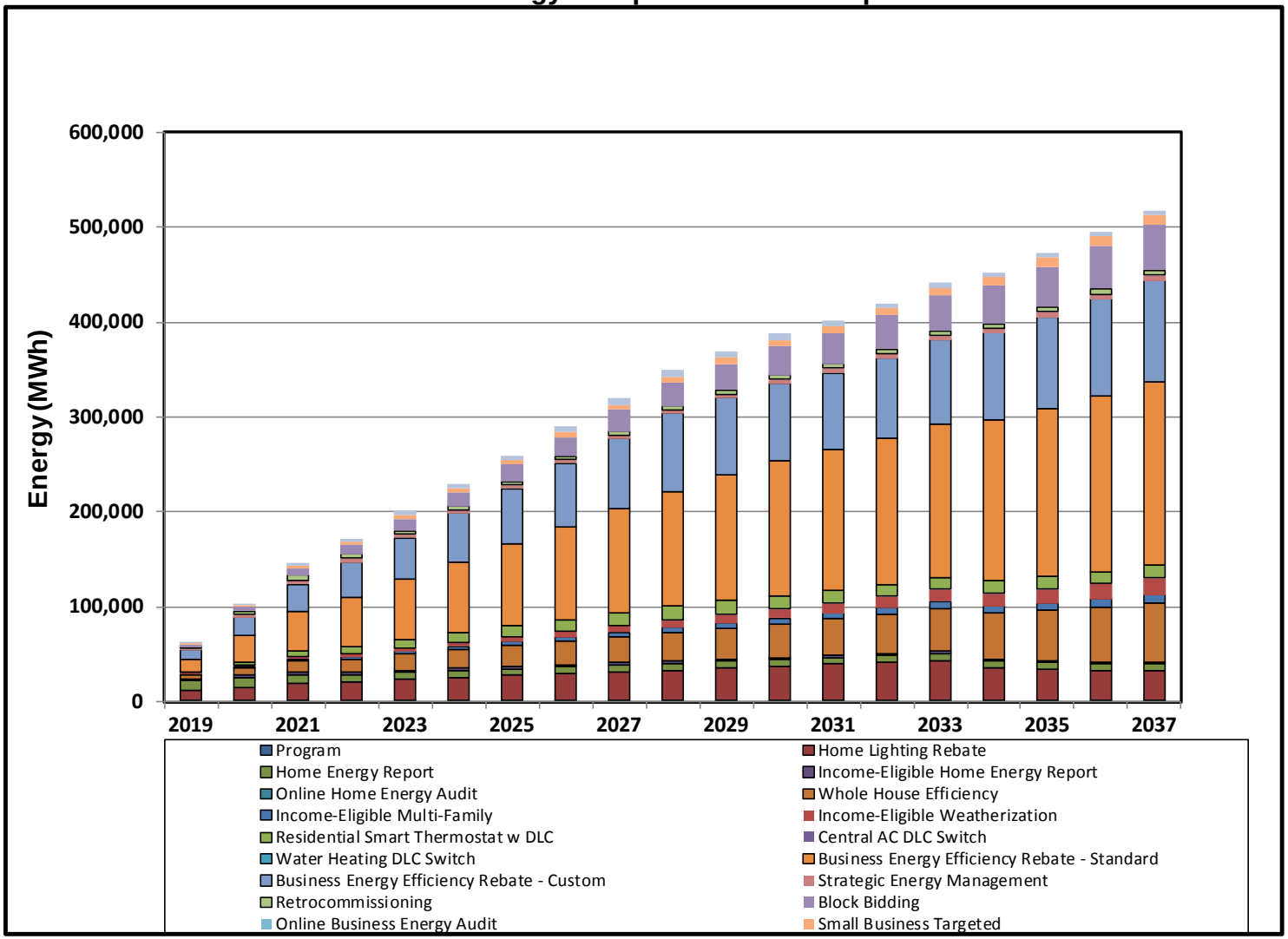


Chart 48: Energy Composition – DSM Option G

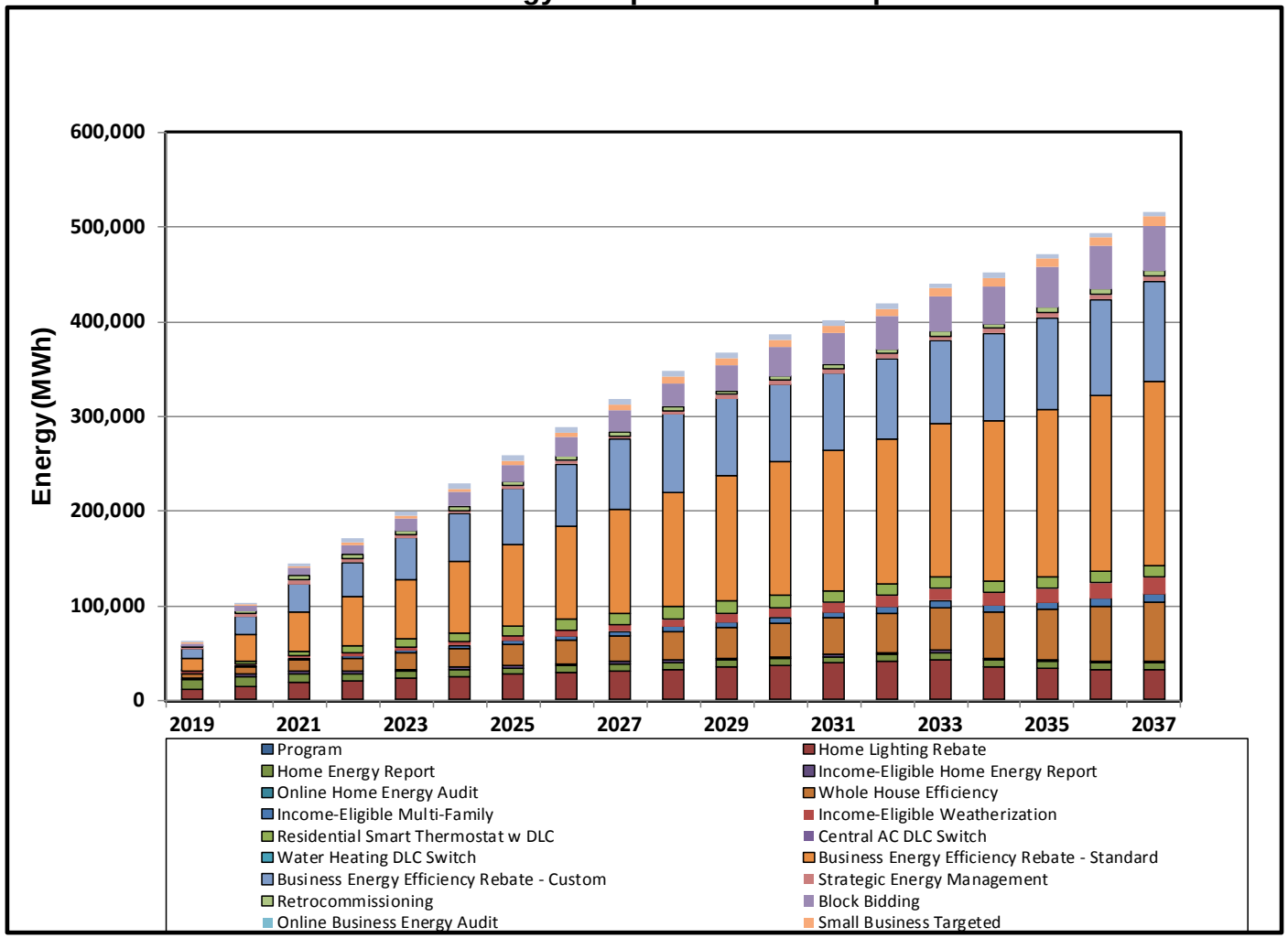


Chart 49: Energy Composition – DSM Option K

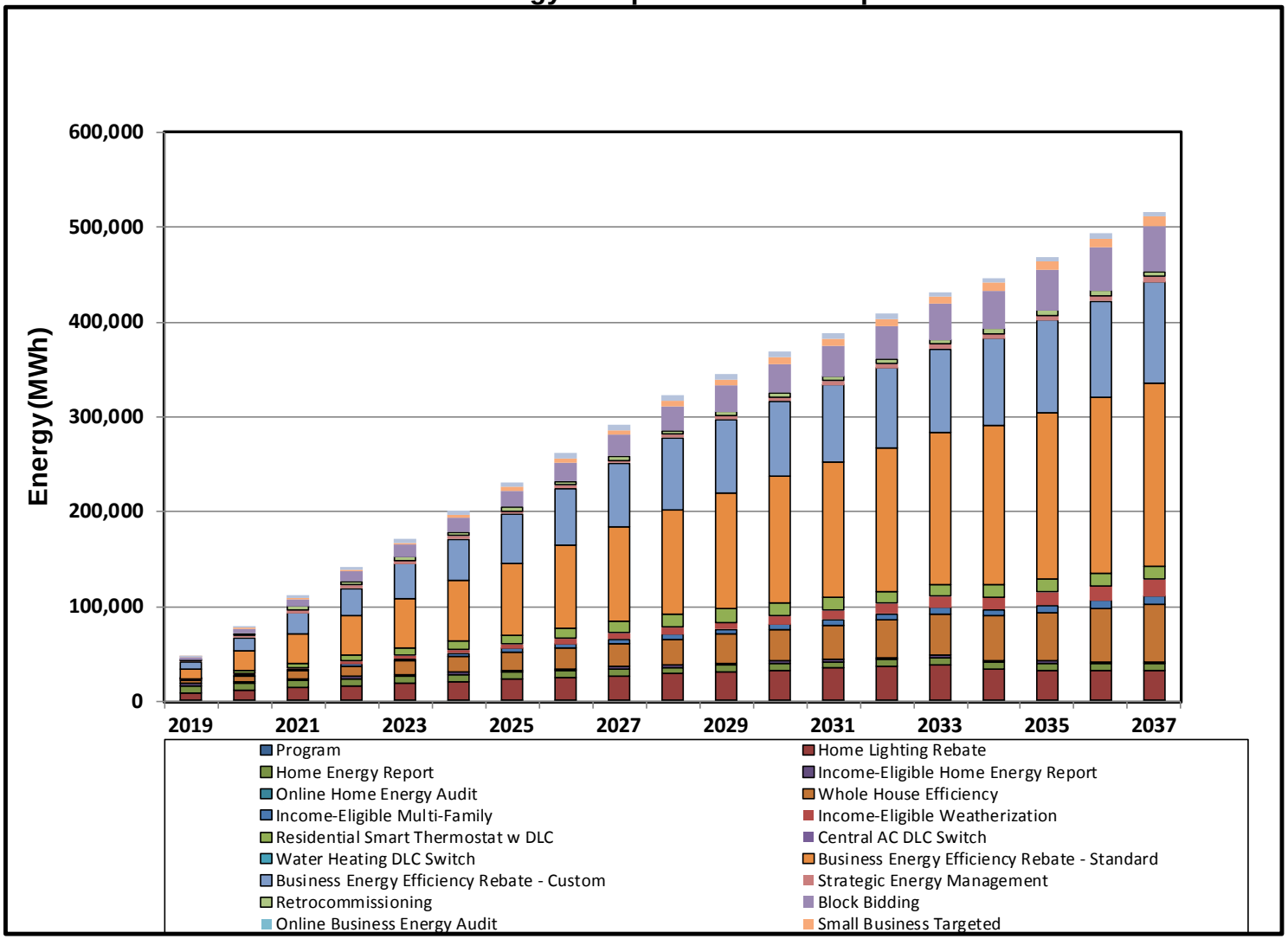
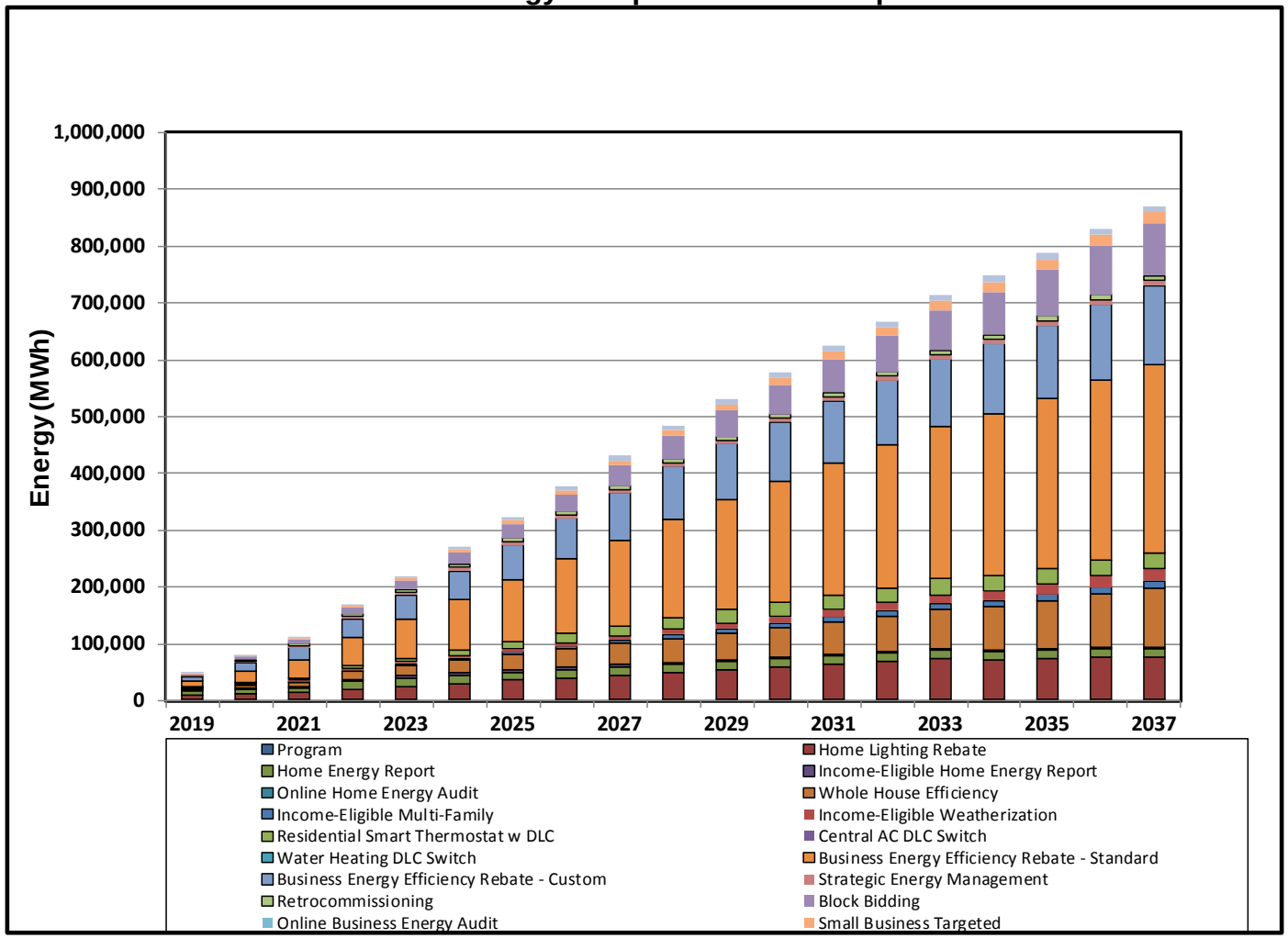


Chart 50: Energy Composition – DSM Option L



6. The composition, by supply-side resource, of the annual energy supplied to the transmission grid, less losses, provided by supply-side resources. Existing supply-side resources may be shown as a single resource;

The following charts detail the expected-value composition by supply-side resource of all energy generated by the assets and supplied to the transmission grid included in each plan. No allowances are developed for "losses" as it is not possible to determine the exact source of energy for a particular lost megawatt-hour of energy.

Chart 51: Annual Generation KAAAA

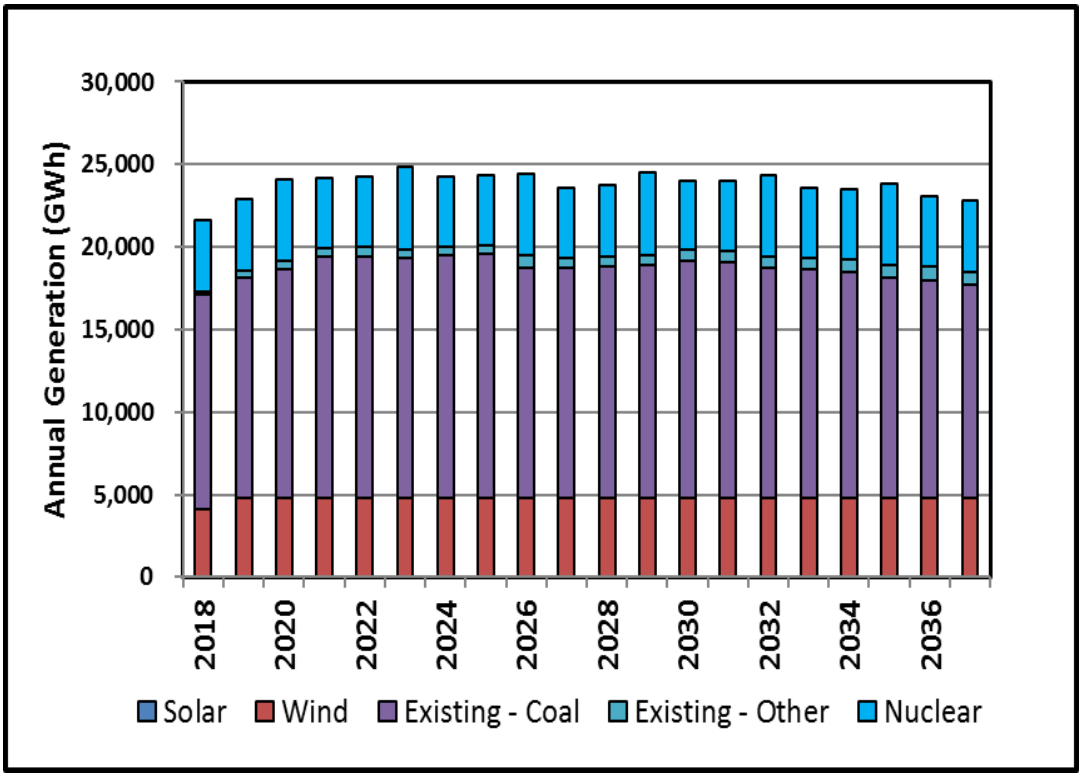


Chart 52: Annual Generation KAABA

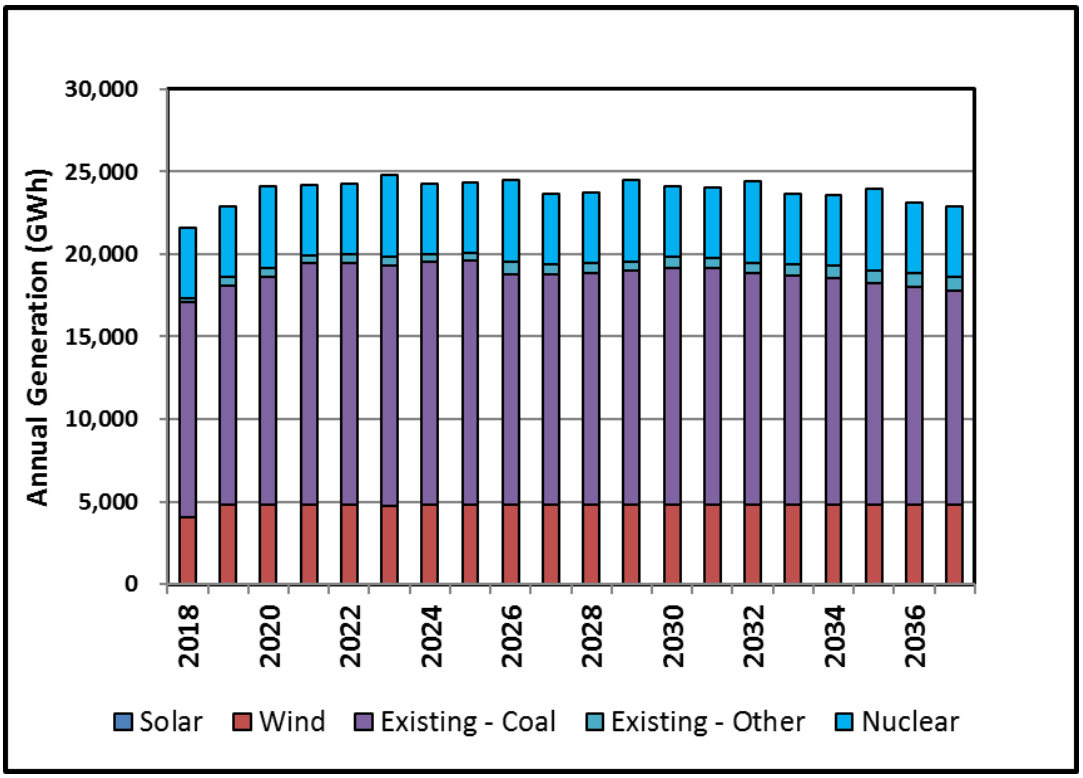


Chart 53: Annual Generation KAACA

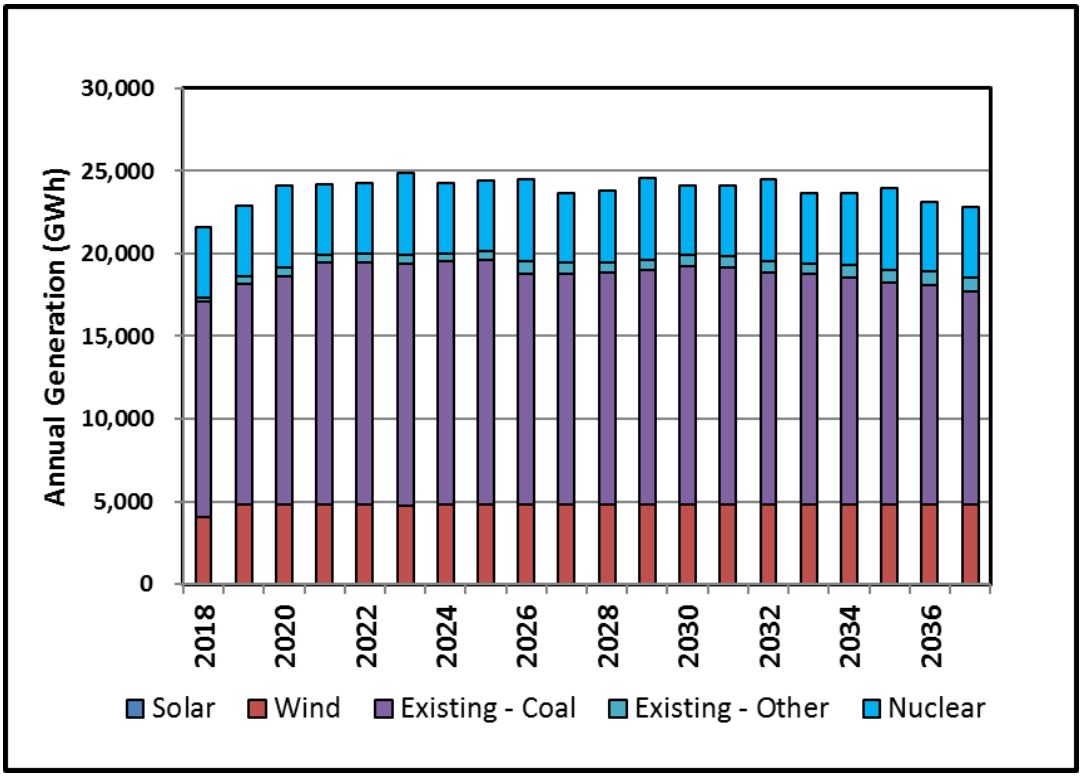


Chart 54: Annual Generation KAADA

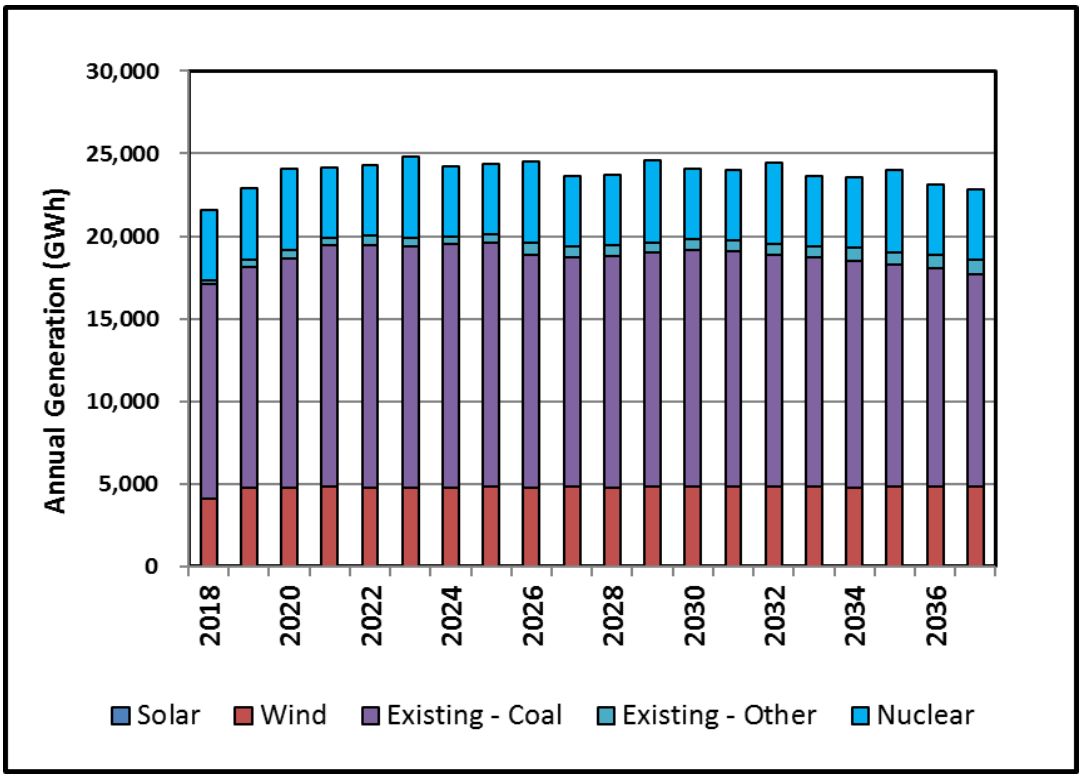


Chart 55: Annual Generation KAAEA

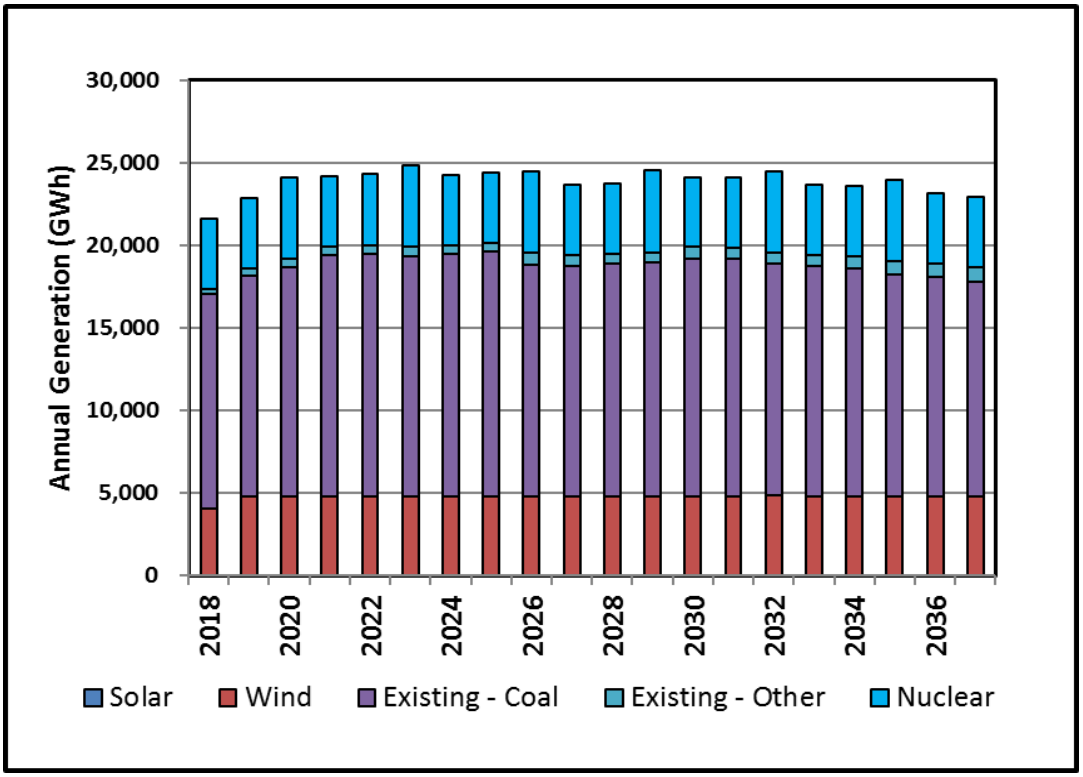


Chart 56: Annual Generation KAAEW

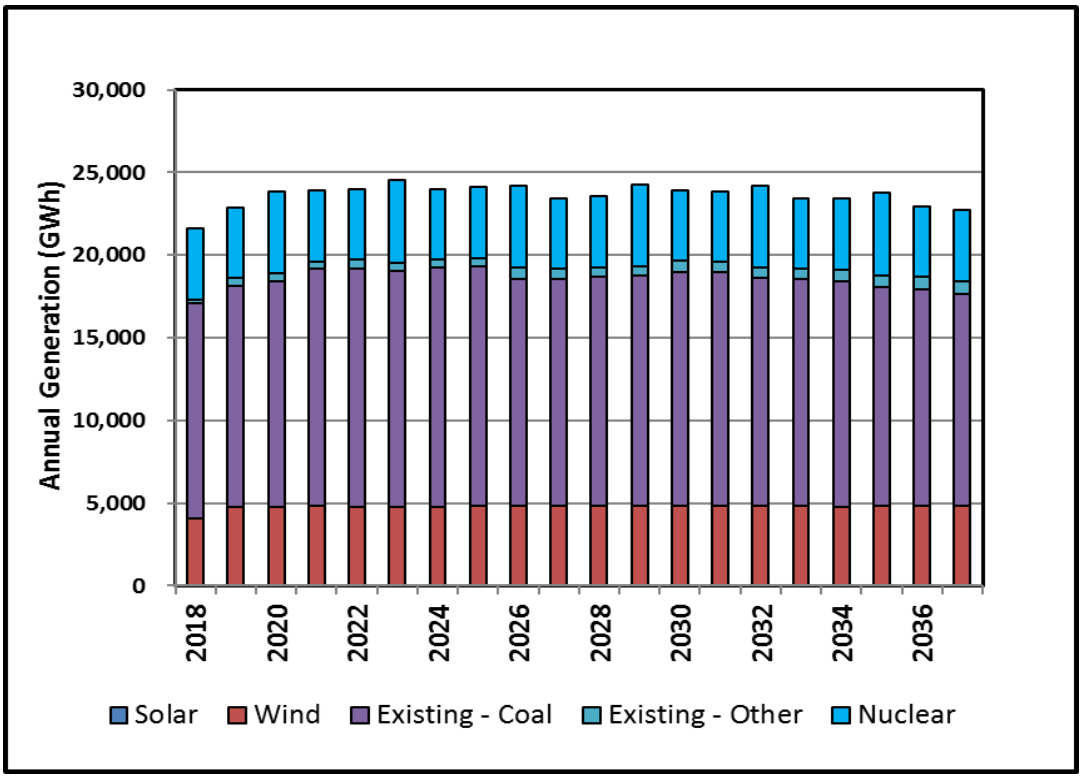


Chart 57: Annual Generation KAAFA

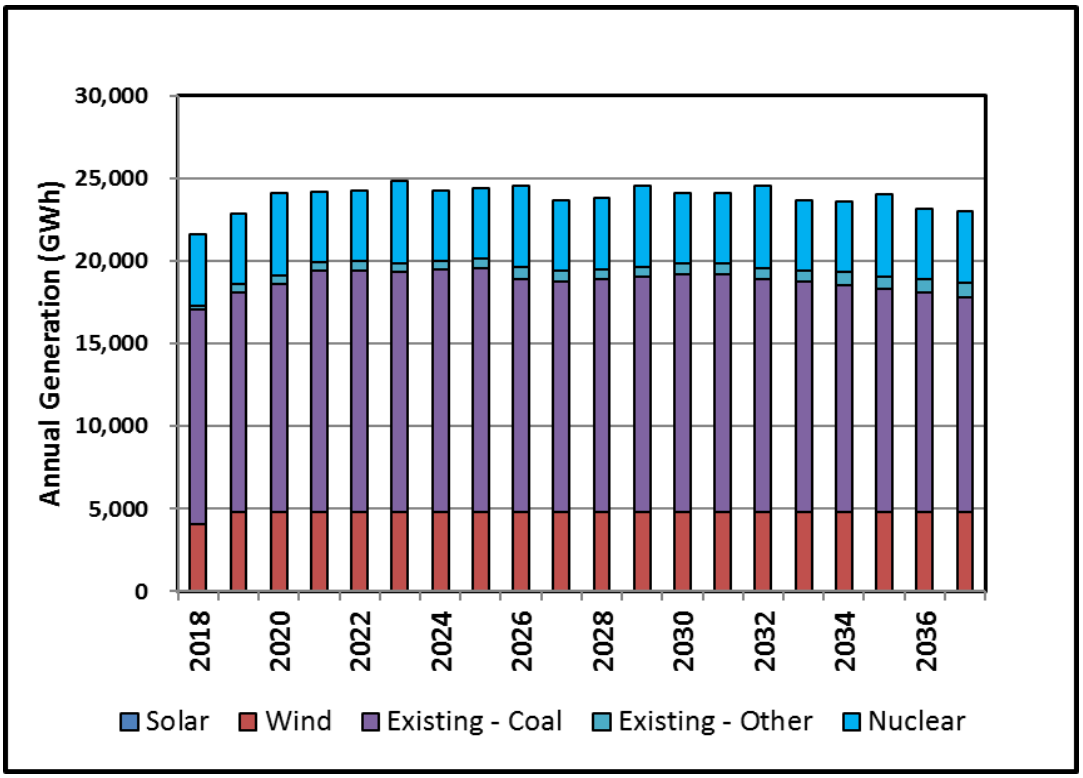


Chart 58: Annual Generation KAAGA

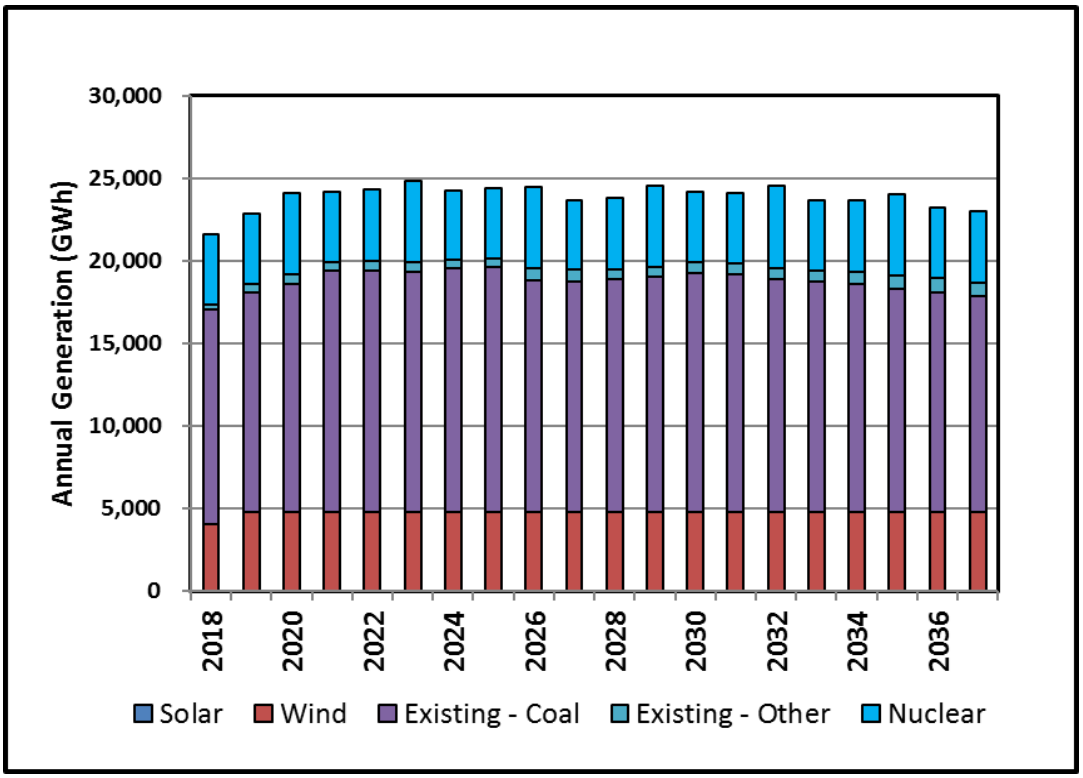


Chart 59: Annual Generation KAAHA

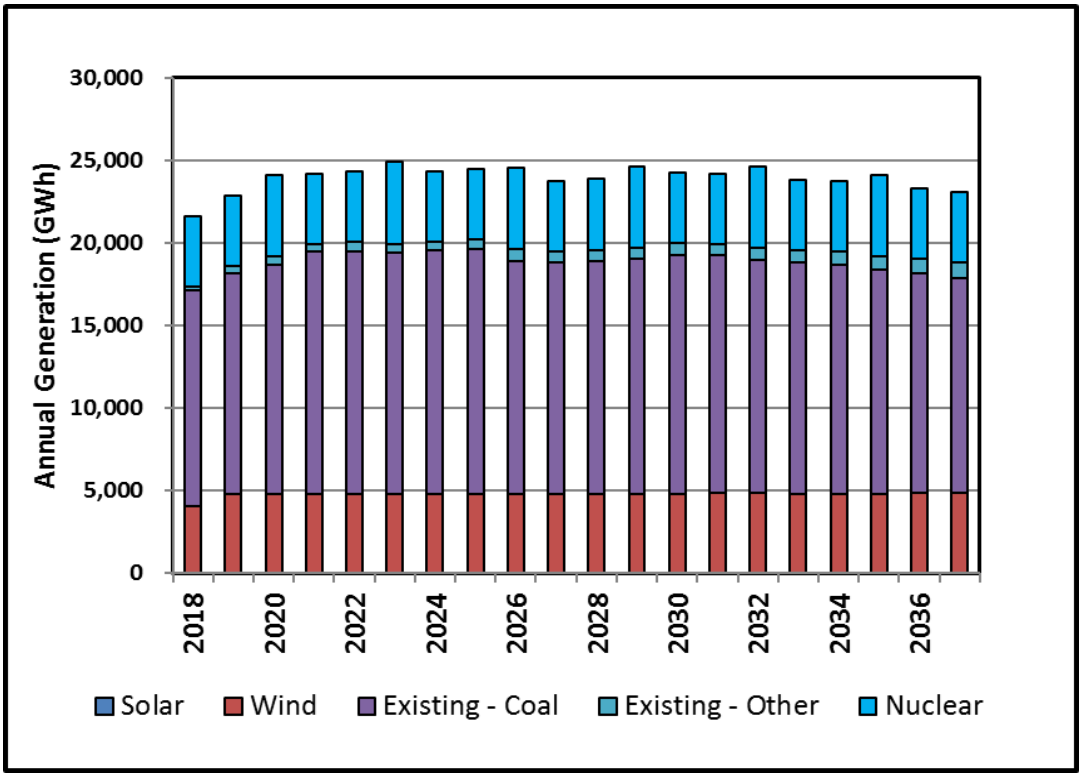


Chart 60: Annual Generation KAAKA

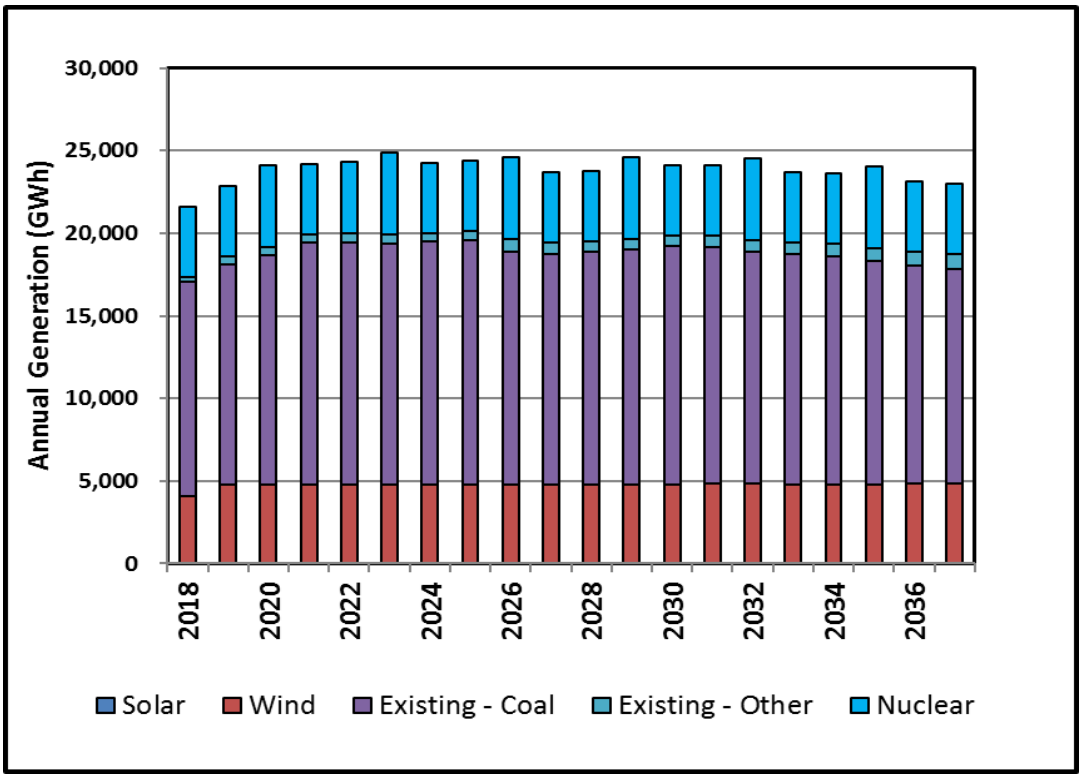


Chart 61: Annual Generation KAAKN

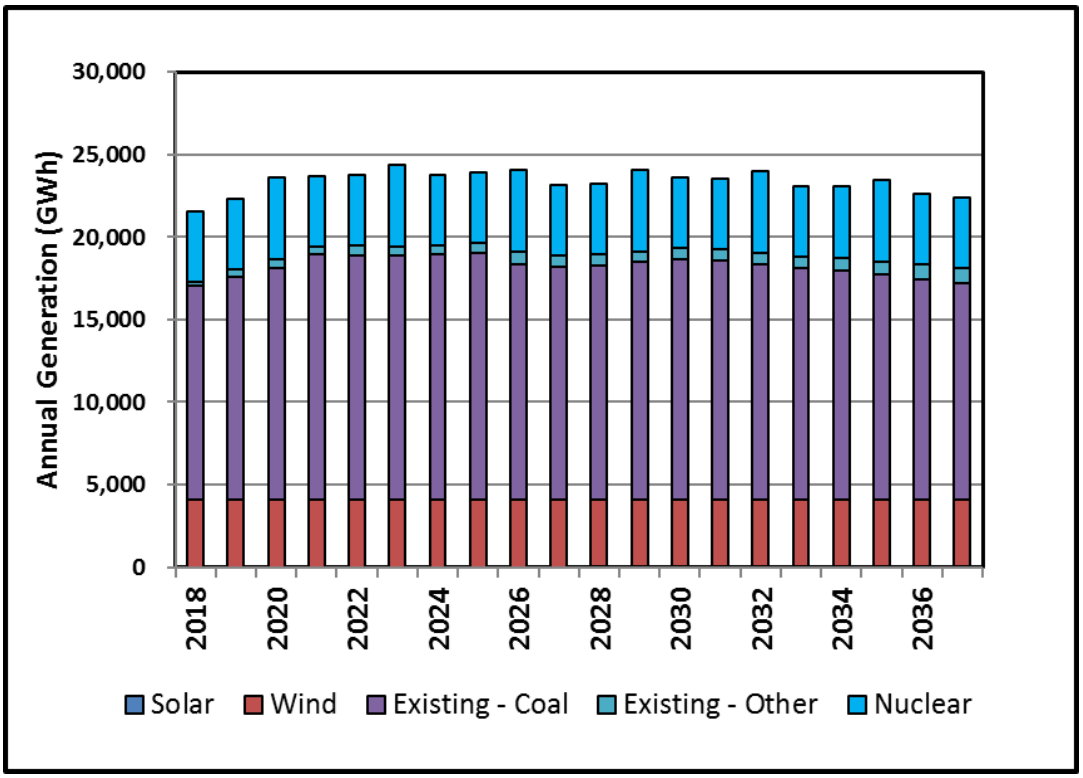


Chart 62: Annual Generation KAALA

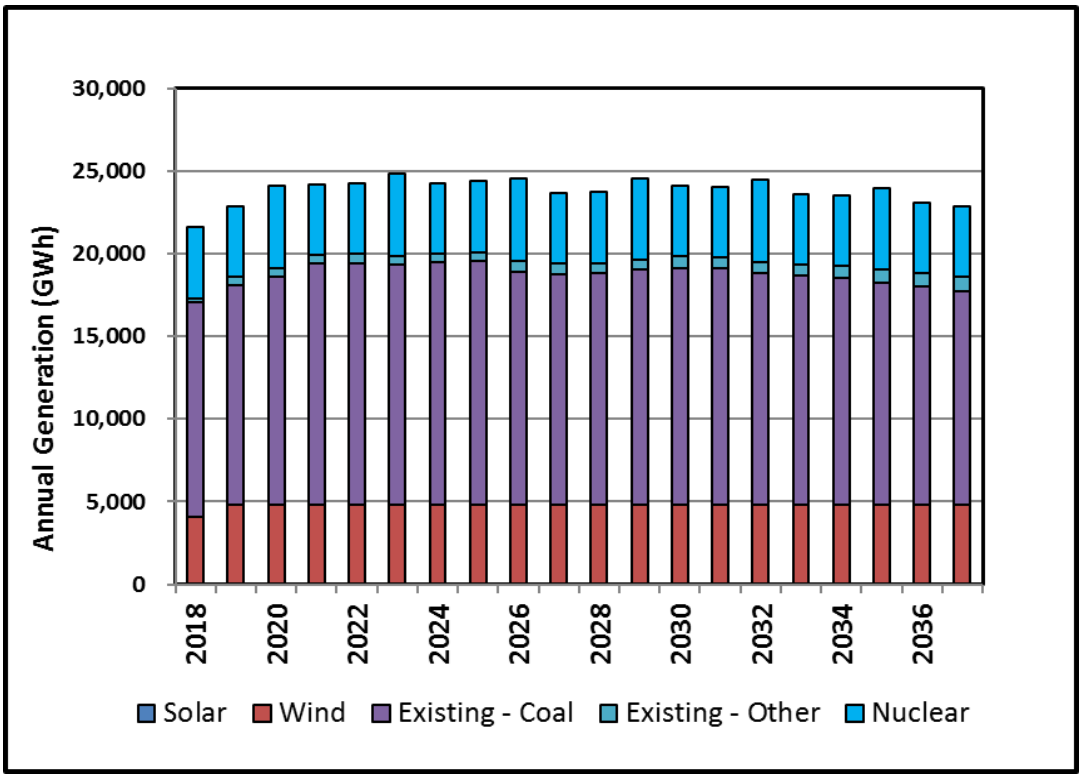


Chart 63: Annual Generation KBBAA

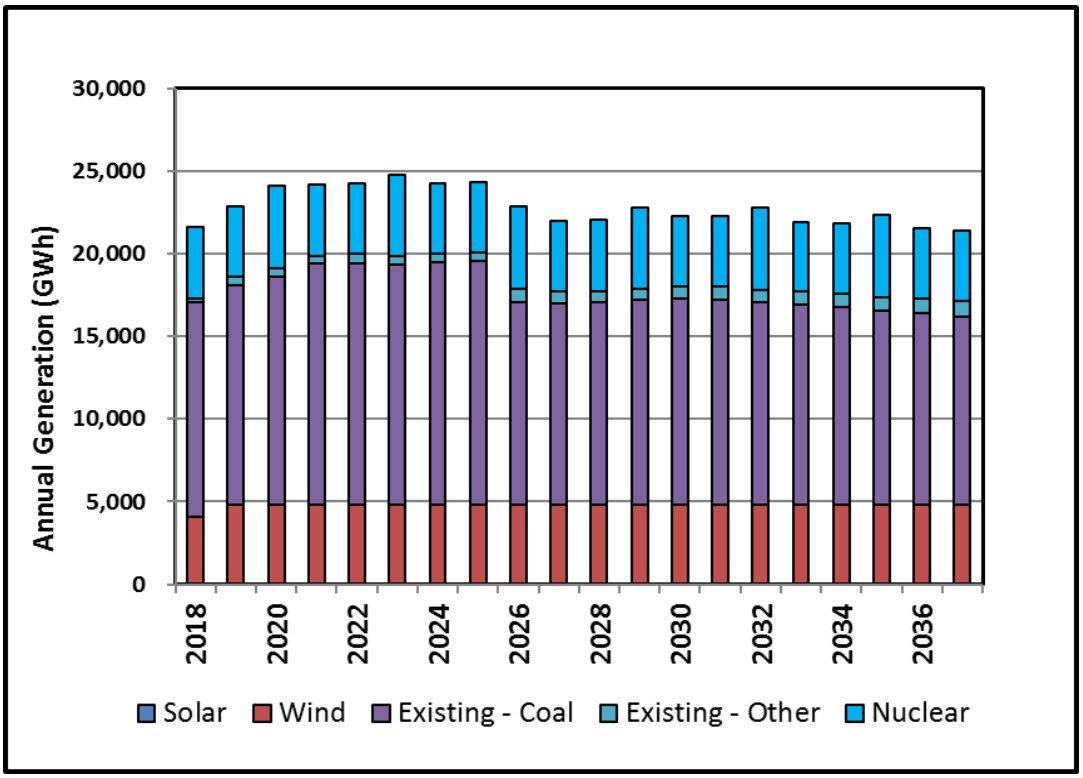
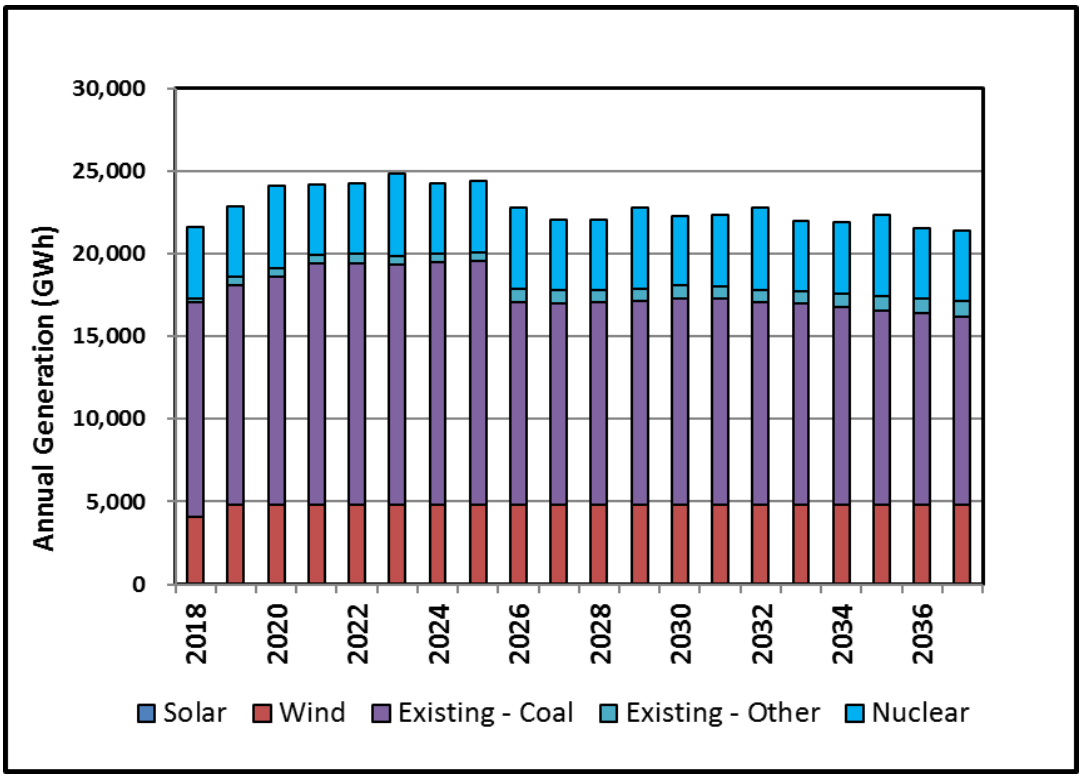


Chart 64: Annual Generation KBBDA



7. Annual emissions of each environmental pollutant identified pursuant to 4 CSR 240-22.040(2)(B);

The following charts detail the expected value of annual emissions in each Alternative Resource Plan.

Chart 65: Annual Emissions - KAAAA

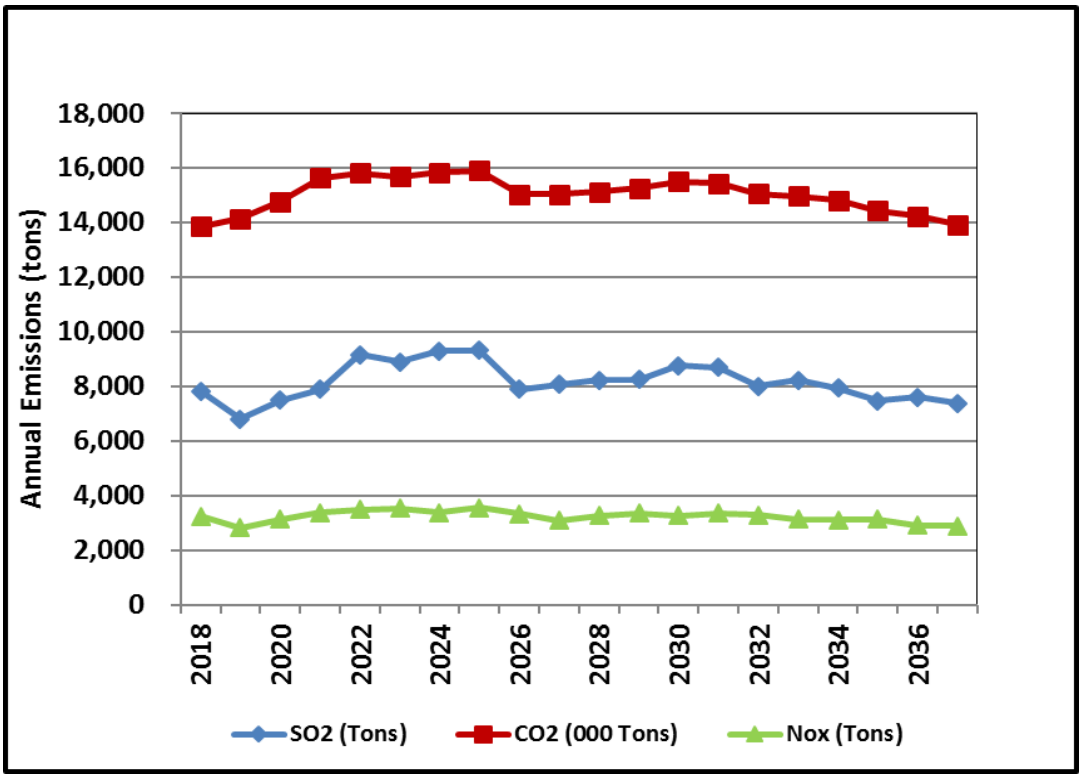


Chart 66: Annual Emissions KAABA

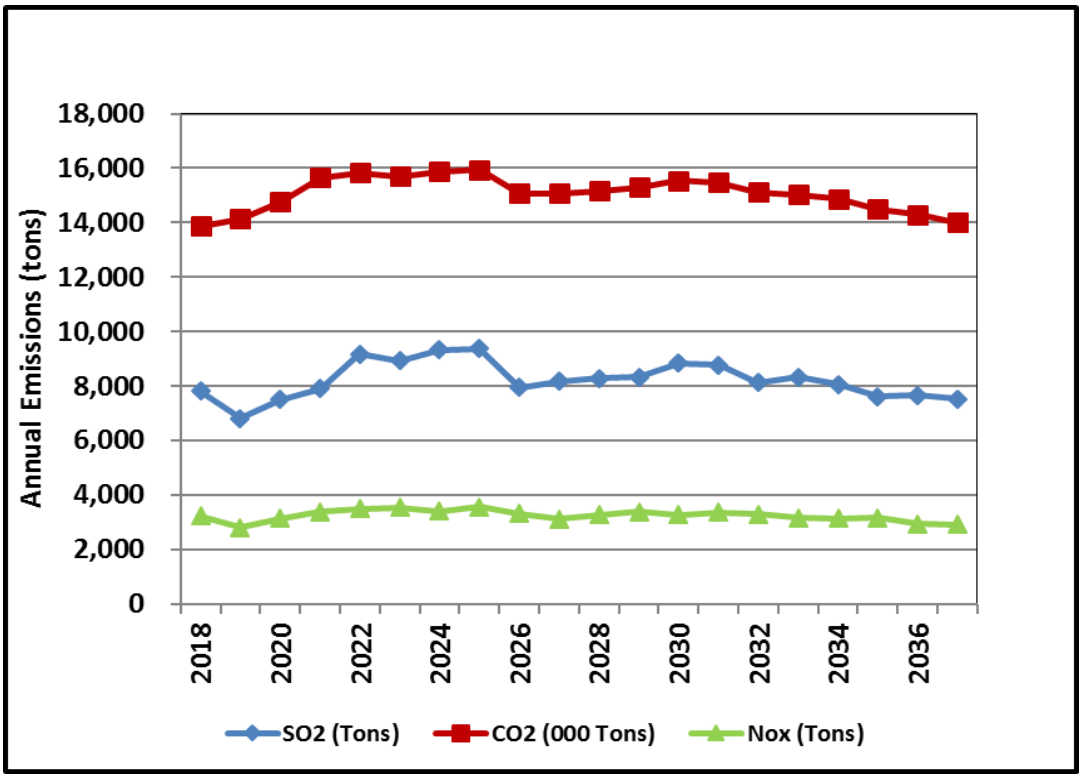


Chart 67: Annual Emissions KAACA

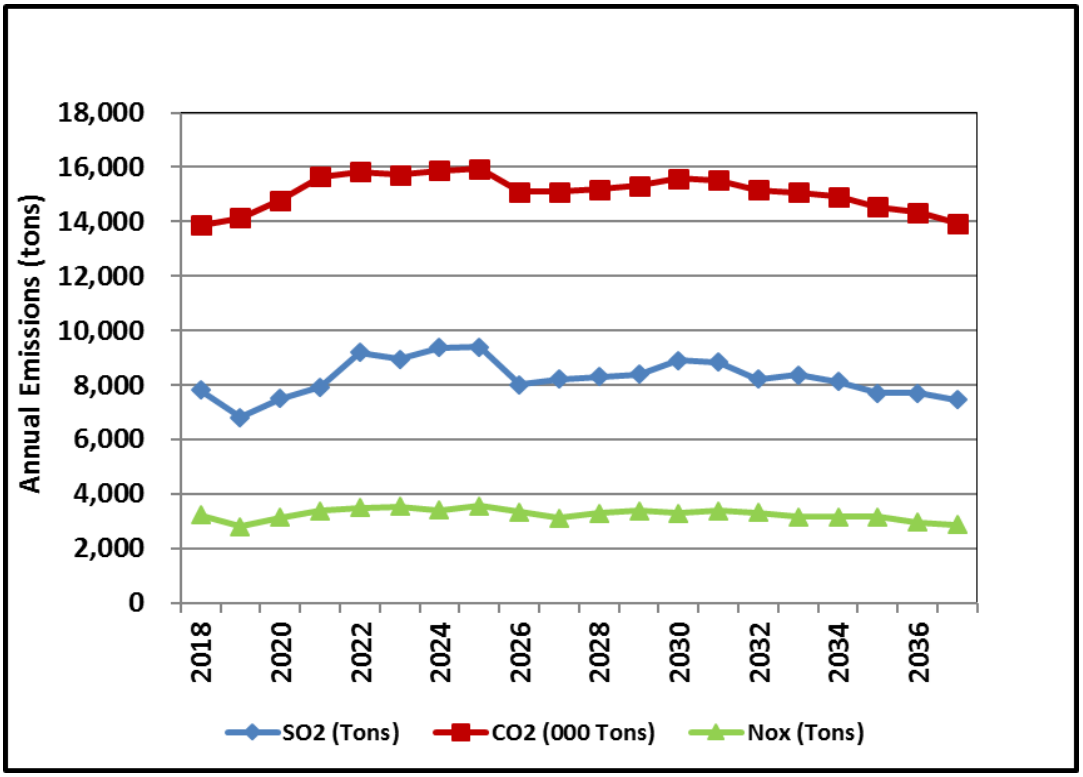


Chart 68: Annual Emissions KAADA

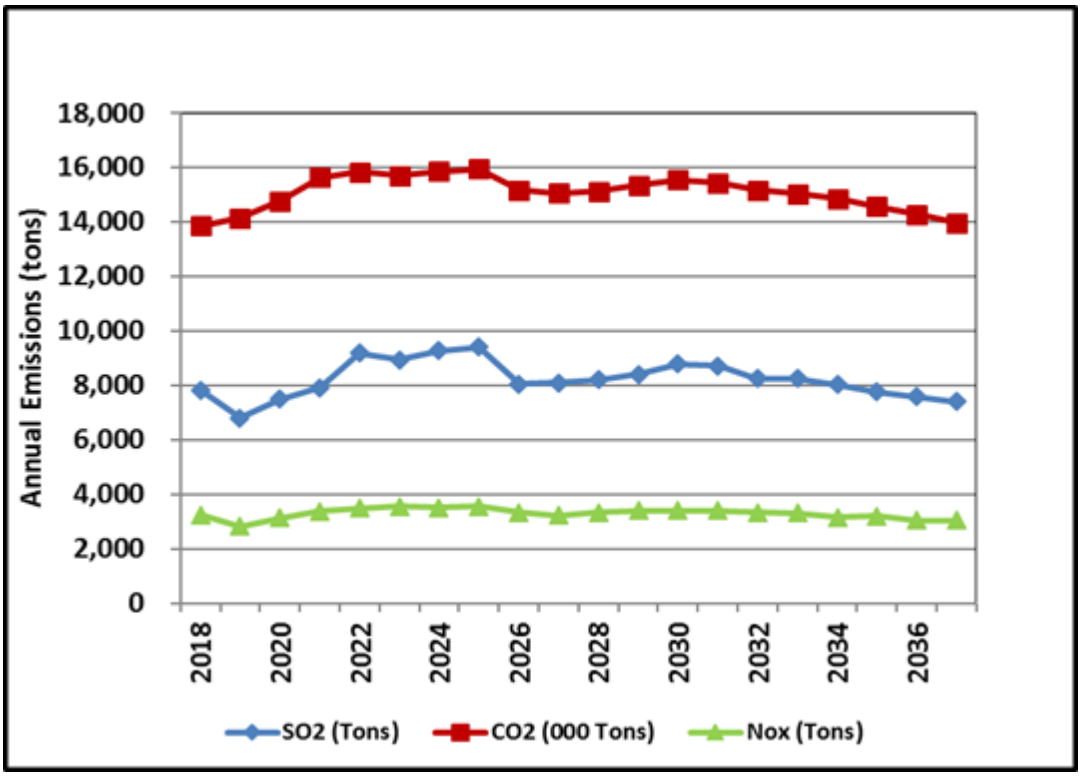


Chart 69: Annual Emissions KAAEA

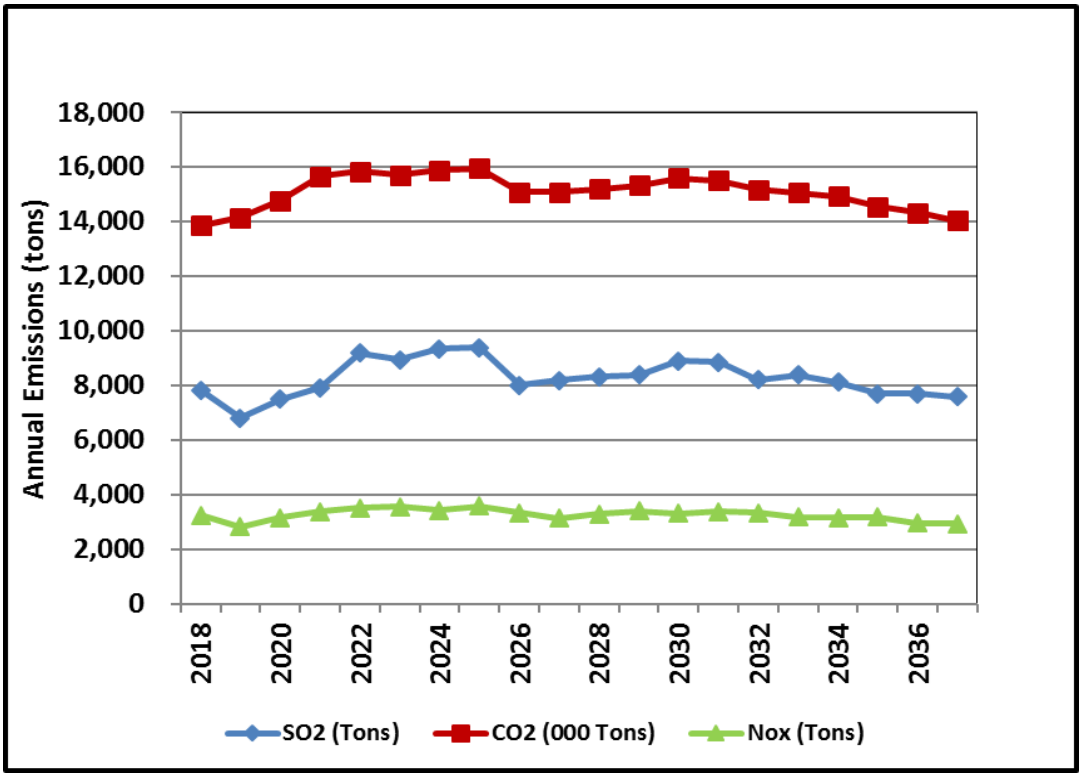


Chart 70: Annual Emissions KAAEW

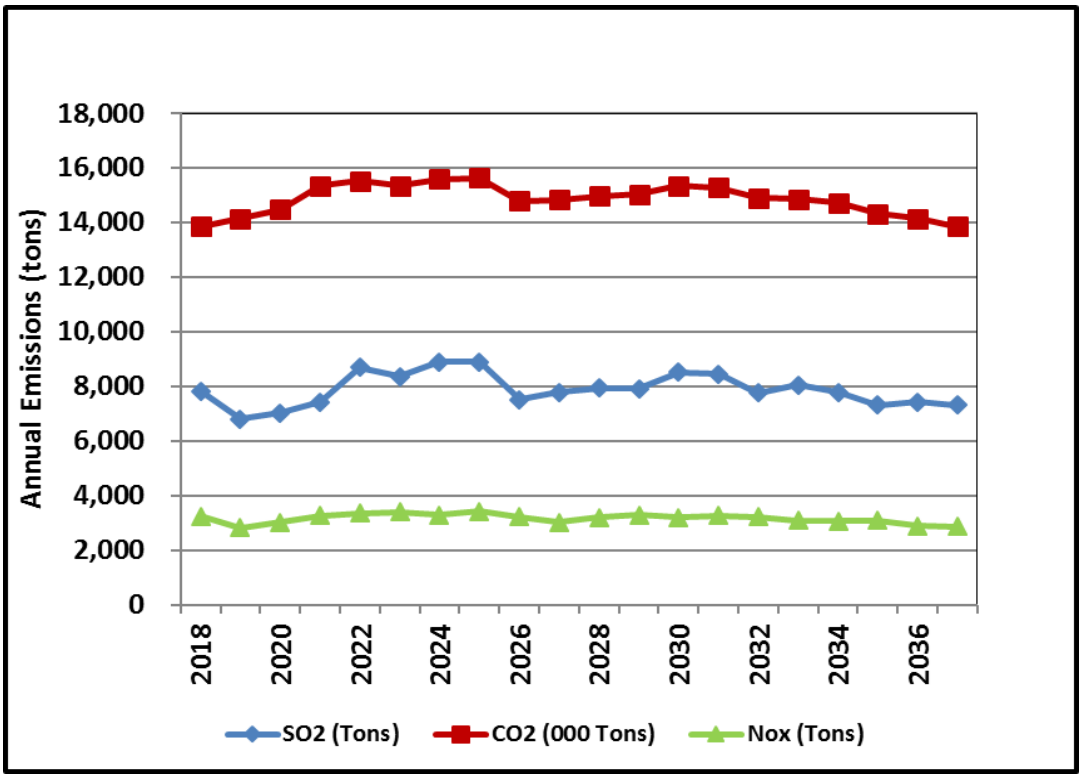


Chart 71: Annual Emissions KAAFA

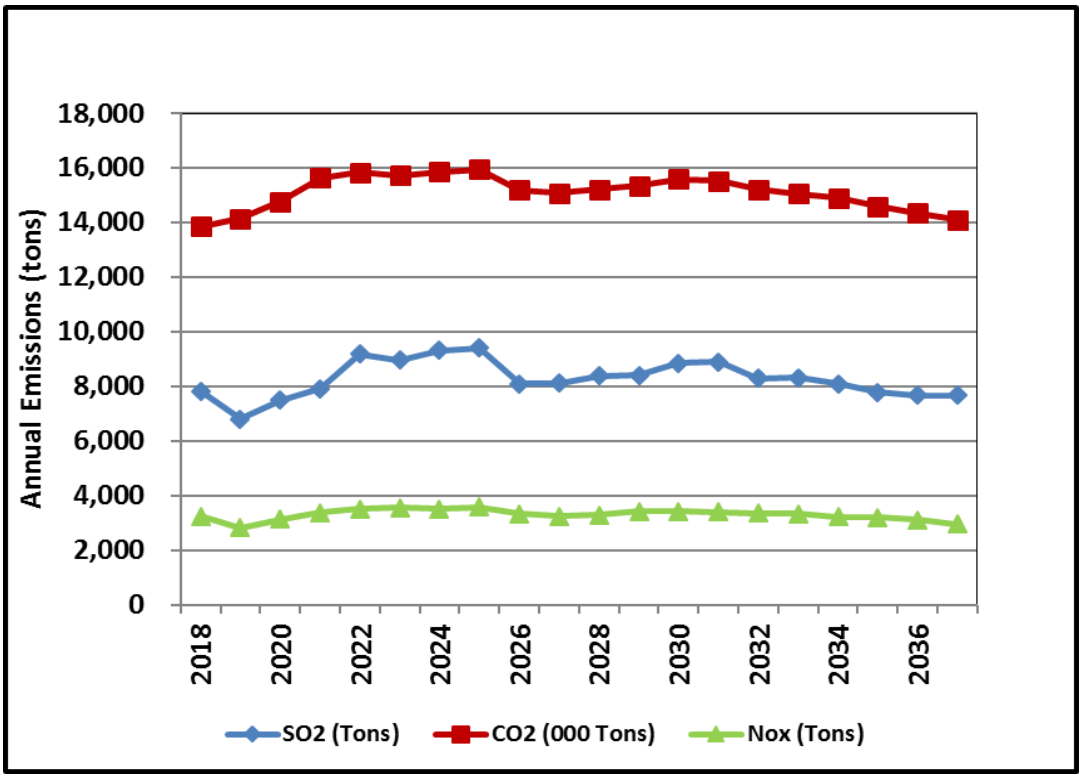


Chart 72: Annual Emissions KAAGA

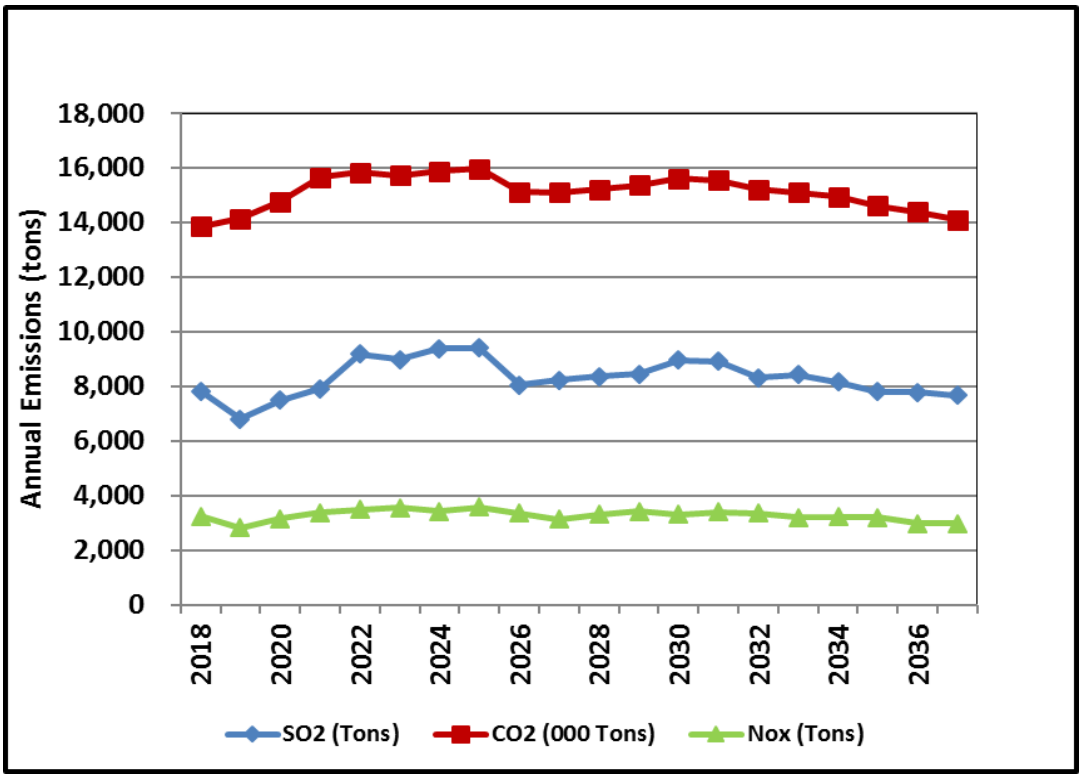


Chart 73: Annual Emissions KAAHA

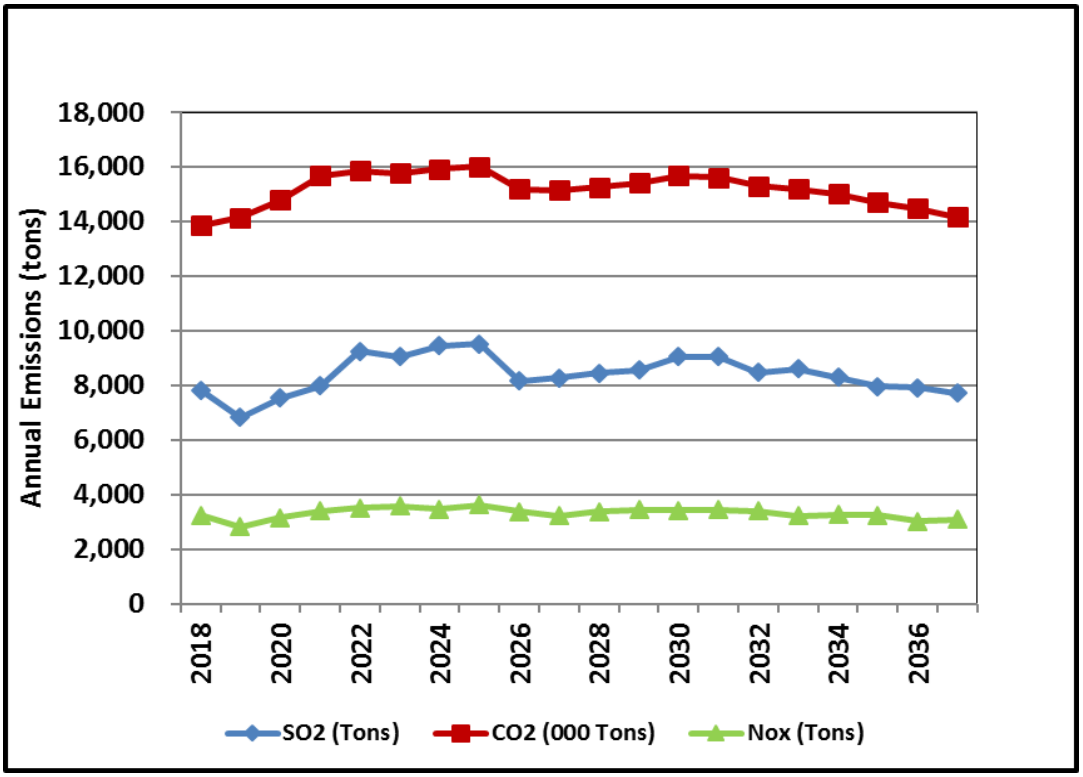


Chart 74: Annual Emissions KAAKA

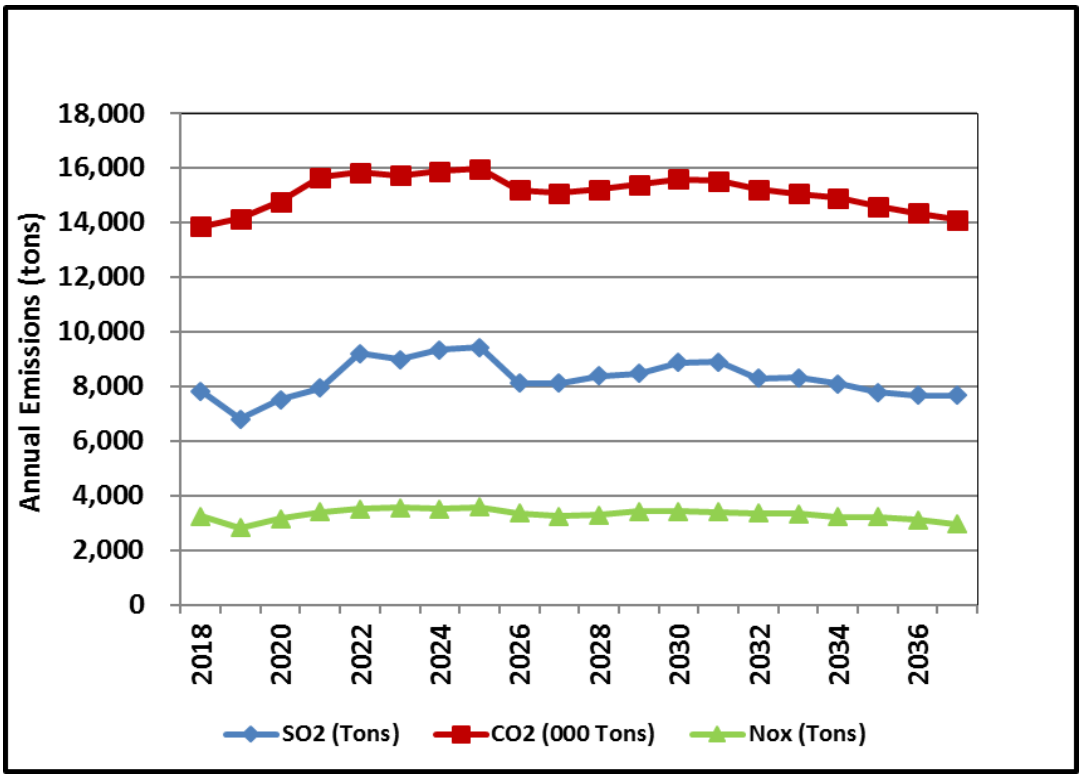


Chart 75: Annual Emissions KAAKN

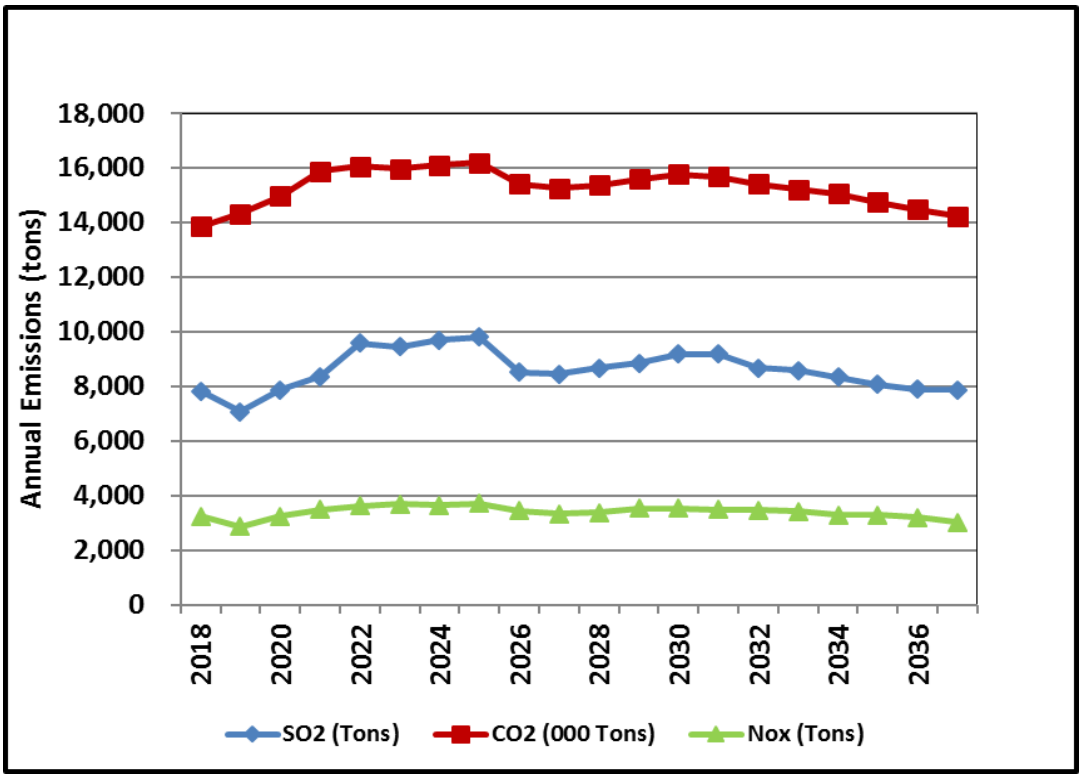


Chart 76: Annual Emissions KAALA

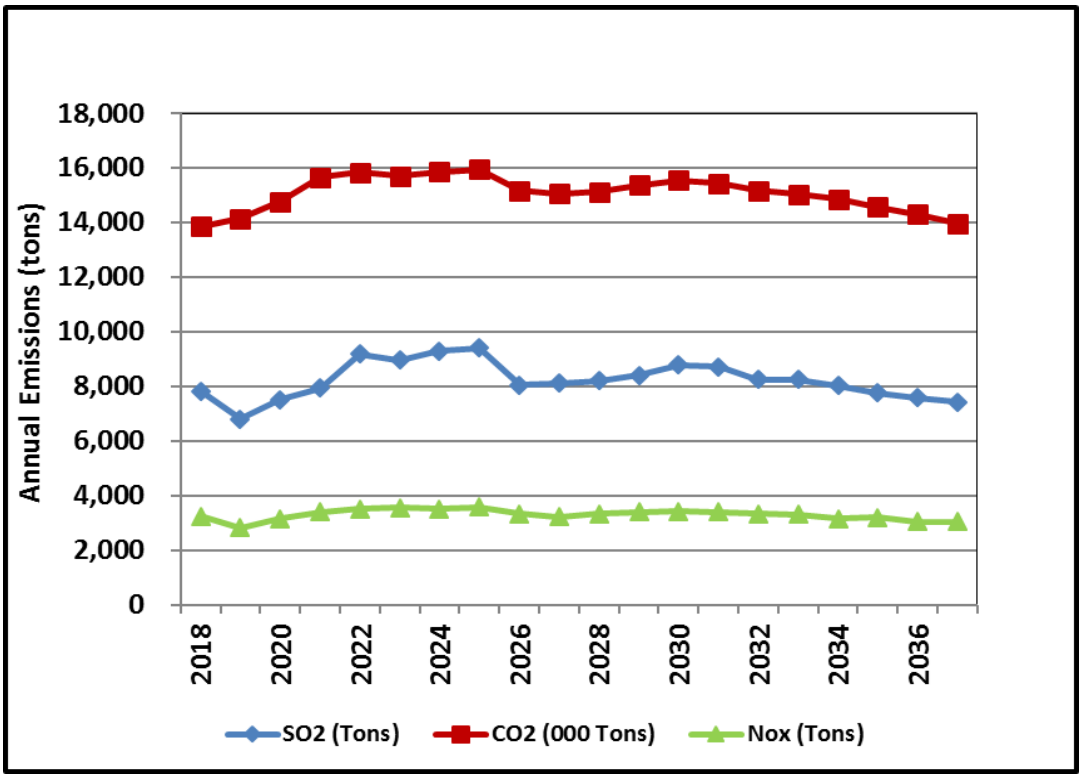


Chart 77: Annual Emissions KBBAA

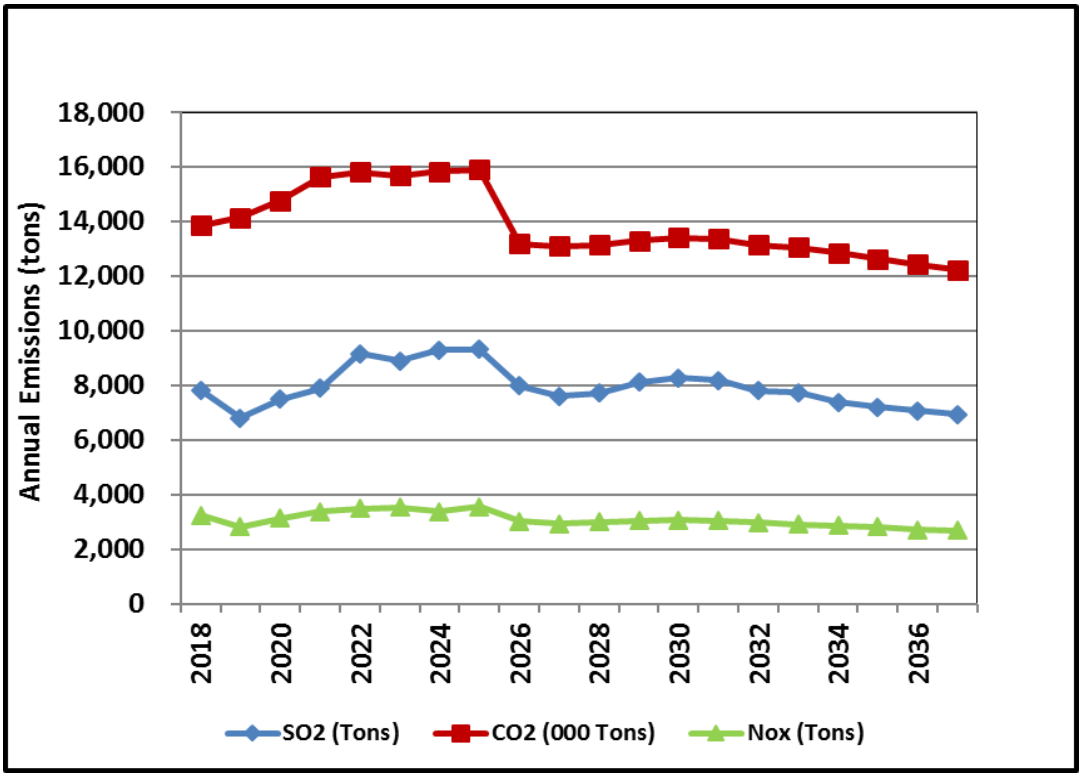
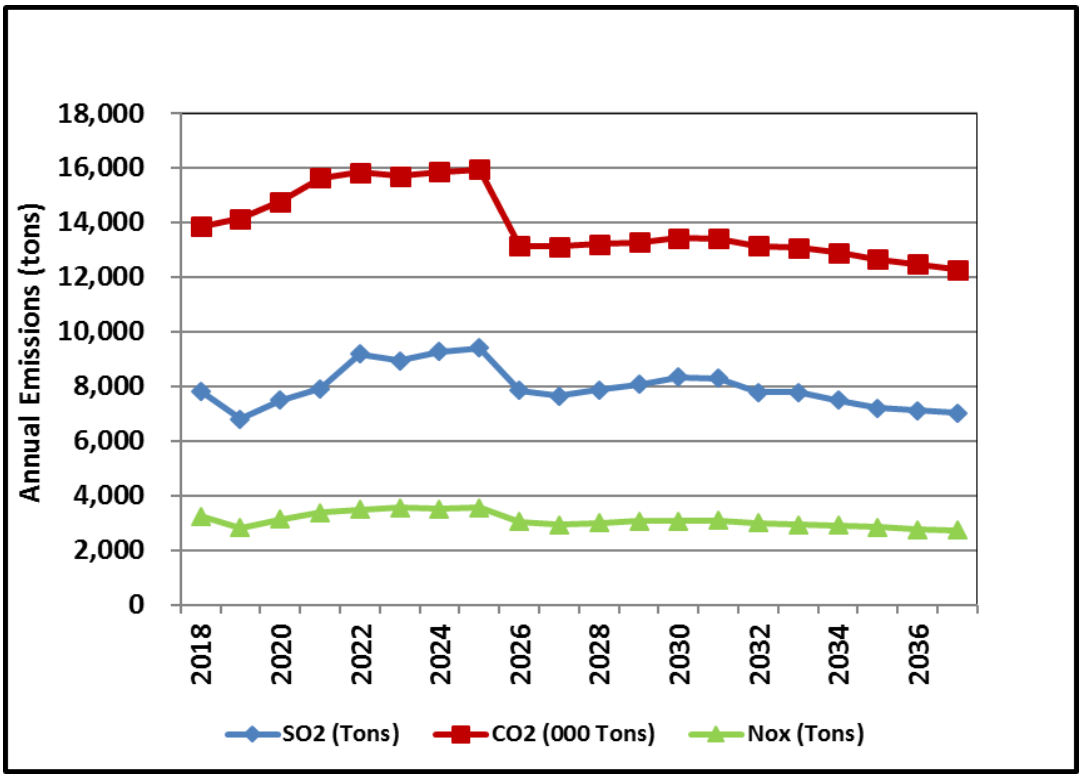


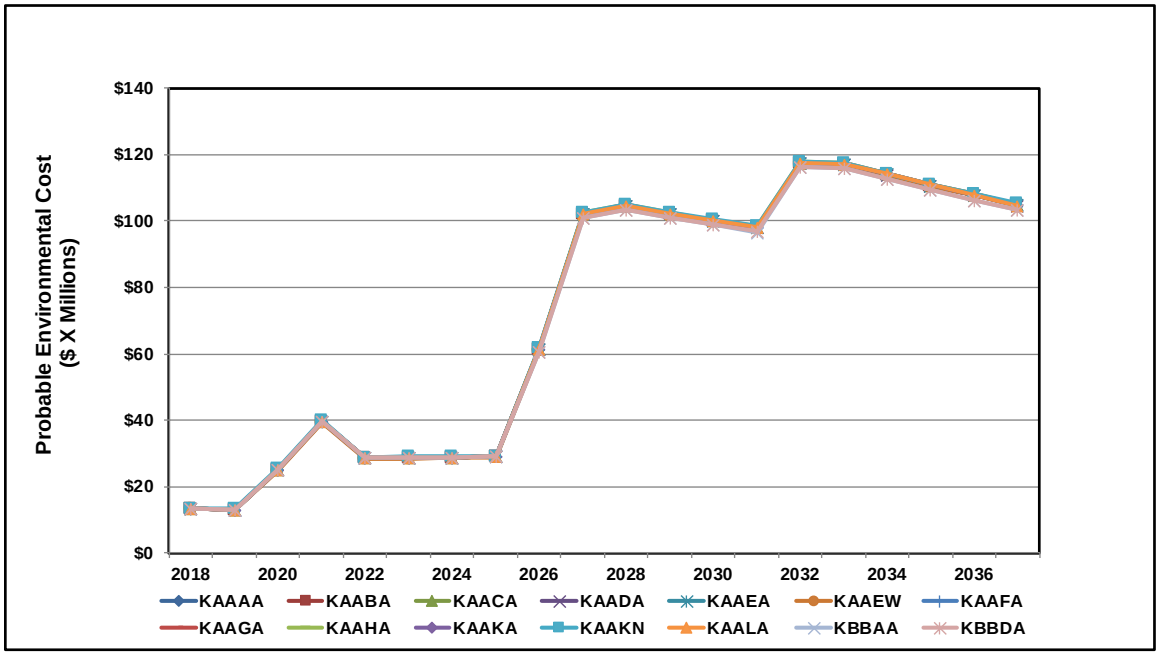
Chart 78: Annual Emissions KBBDA



8. Annual probable environmental costs; and

The following table shows the annual probable environmental cost of each plan on an expected value basis.

Chart 79: Probable Environmental Costs



9. Public and highly-confidential forms of the capacity balance spreadsheets completed in the specified format;

The following tables provide the KCP&L forecast of capacity balance for the next 20 years for each of the Alternative Resource Plans discussed elsewhere in this document.

Table 25: Capacity Forecast - Alternative Resource Plan KAAAA

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
A. System Generating Capacity (KCPL share)																				
Base Capacity																				
Wolf Creek	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552
Iatan I	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490
Iatan II	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482
Hawthorn 5	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564
La Cygne 1	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368
La Cygne 2	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331
Montrose 2	164	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Montrose 3	170	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Base Capacity	**3,121**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**
Intermediate Capacity																				
Hawthorn 6 & 9	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235
Total Intermediate Capacity	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**
Peaking Capacity																				
Hawthorn 7	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
Hawthorn 8	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
Northeast 11	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
Northeast 12	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
Northeast 13	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46
Northeast 14	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49
Northeast 15	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
Northeast 16	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
Northeast 17	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
Northeast 18	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52
Northeast Black Start Generator	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
West Gardner 1	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80
West Gardner 2	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
West Gardner 3	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77
West Gardner 4	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
Osawatomie	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76
Total Peaking Capacity	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**
Intermittent Capacity (Nameplate)																				
Spearville 1	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101
Spearville 2	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
Total Intermittent Capacity	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**
Percent Accredited Intermittent Capacity	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%
Total Accredited Intermittent Capacity	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
Wind Additions																				
Solar Additions											1	1	1	1	1	1	1	1	1	1
Total Intermittent Capacity with Additions	47	47	47	47	47	47	47	47	47	47	48	48	48	48	48	48	48	48	48	48
Total Generation Capacity (TGC)	**4,345**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**
B. Capacity Transactions																				
Purchases:																				
Duke/Sumitomo Cimarron II (131.1 MW)	39	39	39	39	39	39	39	39	39	39	39	39	39	39	-	-	-	-	-	-
EDF Spearville 3 (100.8 MW)	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	-	-	-	-	-
CNPPID (Nebraska) - Hydro PPA	60	60	60	60	60	60	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EDPR Renewables Waverly (200 MW)	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	-	-
EDF Slate Creek (150 MW)	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	-	-
Enel Rock Creek (180 MW)	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
NextEra Osborn (120 MW)	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
NextEra Pratt (98 MW)	-	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46
EDPR Prairie Queen (80 MW)	-	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26
Total Capacity Purchases (P)	313	385	385	385	385	385	325	325	325	325	325	325	325	325	286	250	250	250	119	119
Sales:																				
GMO	(60)	(125)	(35)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
City of Chanute	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
City of Eudora	(15)	(15)	(15)	(15)	(15)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KMEA (from SPV 1 & 2)	(37)	(27)	(27)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Big Rivers Electric Coop	-	(25)	(25)	(25)	(25)	(25)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Capacity Sales (S)	(112)	(192)	(102)	(40)	(40)	(25)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Transactions (NT)	**201**	**193**	**283**	**345**	**345**	**360**	**325**	**325**	**325**	**325**	**325**	**325**	**325**	**325**	**286**	**250**	**250**	**250**	**119**	**119**
Total System Capacity (TSC)	**4,545**	**4,203**	**4,293**	**4,355**	**4,355**	**4,370**	**4,336**	**4,336**	**4,336**	**4,336**	**4,337**	**4,337**	**4,337**	**4,337**	**4,298**	**4,262**	**4,262**	**4,262**	**4,131**	**4,131**
C. System Peaks & Reserves																				
Peak Demands																				
Forecasted Peak	**3,507**	**3,519**	**3,510**	**3,509**	**3,523**	**3,536**	**3,560**	**3,566**	**3,574**	**3,594**	**3,625**	**3,644**	**3,665**	**3,680**	**3,699**	**3,718**	**3,741**	**3,770**	**3,801**	**3,810**
Less DSM:																				
Demand Response	(50)	(71)	(102)	(132)	(174)	(242)	(299)	(335)	(361)	(381)	(400)	(414)	(422)	(426)	(422)	(417)	(411)	(405)	(403)	(405)
Energy Efficiency		(7)	(21)	(31)	(49)	(68)	(84)	(101)	(117)	(134)	(150)	(165)	(180)	(196)	(211)	(226)	(240)	(254)	(270)	(286)
MEEIA	(34)	(27)	(27)	(26)	(26)	(25)	(25)	(24)	(24)	(21)	(12)	(4)	(2)	(2)	(2)	(0)	1	1	1	1
Demand-Side Rates	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Peak Forecast less DSM (PF)	**3,423**	**3,414**	**3,361**	**3,320**	**3,275**	**3,201**	**3,152**	**3,106**	**3,072**	**3,059**	**3,063**	**3,061**	**3,061**	**3,057**	**3,064**	**3,075**	**3,091**	**3,112**	**3,129**	**3,121**
Capacity Reserves (CR)	**1,123**	**789**	**933**	**1,035**	**1,080**	**1,170**	**1,184**	**1,230**	**1,264**	**1,277**	**1,274**	**1,276**	**1,276**	**1,280**	**1,234**	**1,187**	**1,171**	**1,150**	**1,001**	**1,010**
D. Capacity Needs																				
% Reserve Margin	33%	23%	28%	31%	33%	37%	38%	40%	41%	42%	42%	42%	42%	42%	40%	39%	38%	37%	32%	32%
% Capacity Margin	25%	19%	22%	24%	25%	27%	27%	28%	29%	29%	29%	29%	29%	30%	29%	28%	27%	27%	24%	24%
Required Capacity (RC)	**3,833**	**3,824**	**3,764**	**3,719**	**3,668**	**3,585**	**3,530**	**3,479**	**3,441**	**3,426**	**3,430**	**3,428**	**3,428**	**3,423**	**3,432**	**3,444**	**3,461**	**3,485**	**3,505**	**3,495**
Capacity Balance	**712**	**380**	**529**	**637**	**687**	**785**	**806**	**857**	**895**	**910**	**907**	**908**	**908**	**913**	**866**	**818**	**800**	**777**	**626**	**635**

Table 26: Capacity Forecast - Alternative Resource Plan KAABA

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
A. System Generating Capacity (KCPL share)																				
Base Capacity																				
Wolf Creek	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552
Iatan I	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490
Iatan II	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482
Hawthorn 5	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564
La Cygne 1	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368
La Cygne 2	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331
Montrose 2	164	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Montrose 3	170	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Base Capacity	**3,121**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**
Intermediate Capacity																				
Hawthorn 6 & 9	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235
Total Intermediate Capacity	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**
Peaking Capacity																				
Hawthorn 7	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
Hawthorn 8	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
Northeast 11	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
Northeast 12	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
Northeast 13	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46
Northeast 14	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49
Northeast 15	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
Northeast 16	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
Northeast 17	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
Northeast 18	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52
Northeast Black Start Generator	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
West Gardner 1	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80
West Gardner 2	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
West Gardner 3	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77
West Gardner 4	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
Osawatomie	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76
Total Peaking Capacity	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**
Intermittent Capacity (Nameplate)																				
Spearville 1	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101
Spearville 2	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
Total Intermittent Capacity	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**
Percent Accredited Intermittent Capacity	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%
Total Accredited Intermittent Capacity	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
Wind Additions																				
Solar Additions											1	1	1	1	1	1	1	1	1	1
Total Intermittent Capacity with Additions	47	47	47	47	47	47	47	47	47	47	48	48	48	48	48	48	48	48	48	48
Total Generation Capacity (TGC)	**4,345**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**
B. Capacity Transactions																				
Purchases:																				
Duke/Sumitomo Cimarron II (131.1 MW)	39	39	39	39	39	39	39	39	39	39	39	39	39	39	-	-	-	-	-	-
EDF Spearville 3 (100.8 MW)	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	-	-	-	-	-
CNPPID (Nebraska) - Hydro PPA	60	60	60	60	60	60	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EDPR Renewables Waverly (200 MW)	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	-	-
EDF Slate Creek (150 MW)	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	-	-
Enel Rock Creek (180 MW)	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
NextEra Osborn (120 MW)	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
NextEra Pratt (98 MW)	-	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46
EDPR Prairie Queen (80 MW)	-	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26
Total Capacity Purchases (P)	313	385	385	385	385	385	325	325	325	325	325	325	325	325	286	250	250	250	119	119
Sales:																				
GMO	(60)	(125)	(35)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
City of Chanute	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
City of Eudora	(15)	(15)	(15)	(15)	(15)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KMEA (from SPV 1 & 2)	(37)	(27)	(27)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Big Rivers Electric Coop	-	(25)	(25)	(25)	(25)	(25)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Capacity Sales (S)	(112)	(192)	(102)	(40)	(40)	(25)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Transactions (NT)	**201**	**193**	**283**	**345**	**345**	**360**	**325**	**325**	**325**	**325**	**325**	**325**	**325**	**325**	**286**	**250**	**250**	**250**	**119**	**119**
Total System Capacity (TSC)	**4,545**	**4,203**	**4,293**	**4,355**	**4,355**	**4,370**	**4,336**	**4,336**	**4,336**	**4,336**	**4,337**	**4,337**	**4,337**	**4,337**	**4,298**	**4,262**	**4,262**	**4,262**	**4,131**	**4,131**
C. System Peaks & Reserves																				
Peak Demands																				
Forecasted Peak	**3,507**	**3,519**	**3,510**	**3,509**	**3,523**	**3,536**	**3,560**	**3,566**	**3,574**	**3,594**	**3,625**	**3,644**	**3,665**	**3,680**	**3,699**	**3,718**	**3,741**	**3,770**	**3,801**	**3,810**
Less DSM:																				
Demand Response	(50)	(70)	(98)	(123)	(157)	(195)	(231)	(265)	(294)	(315)	(332)	(344)	(351)	(355)	(355)	(353)	(349)	(345)	(344)	(346)
Energy Efficiency		(5)	(15)	(23)	(37)	(51)	(63)	(76)	(88)	(101)	(113)	(125)	(135)	(146)	(157)	(167)	(176)	(186)	(197)	(208)
MEEIA	(34)	(27)	(27)	(26)	(26)	(25)	(25)	(24)	(24)	(21)	(12)	(4)	(2)	(2)	(2)	(0)	1	1	1	1
Demand-Side Rates	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Peak Forecast less DSM (PF)	**3,423**	**3,418**	**3,371**	**3,336**	**3,304**	**3,265**	**3,241**	**3,201**	**3,167**	**3,157**	**3,168**	**3,172**	**3,177**	**3,177**	**3,186**	**3,198**	**3,216**	**3,240**	**3,261**	**3,258**
Capacity Reserves (CR)	**1,123**	**785**	**923**	**1,019**	**1,051**	**1,106**	**1,095**	**1,134**	**1,168**	**1,179**	**1,169**	**1,165**	**1,160**	**1,160**	**1,112**	**1,064**	**1,046**	**1,022**	**870**	**873**
D. Capacity Needs																				
% Reserve Margin	33%	23%	27%	31%	32%	34%	34%	35%	37%	37%	37%	37%	37%	37%	35%	33%	33%	32%	27%	27%
% Capacity Margin	25%	19%	21%	23%	24%	25%	25%	26%	27%	27%	27%	27%	27%	27%	26%	25%	25%	24%	21%	21%
Required Capacity (RC)	**3,833**	**3,828**	**3,775**	**3,737**	**3,701**	**3,656**	**3,629**	**3,585**	**3,547**	**3,535**	**3,548**	**3,552**	**3,558**	**3,558**	**3,568**	**3,582**	**3,602**	**3,629**	**3,652**	**3,648**
Capacity Balance	**712**	**375**	**518**	**619**	**655**	**714**	**706**	**750**	**788**	**800**	**789**	**784**	**779**	**778**	**729**	**680**	**660**	**633**	**478**	**482**

Table 27: Capacity Forecast - Alternative Resource Plan KAACA

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
A. System Generating Capacity (KCPL share)																				
Base Capacity																				
Wolf Creek	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552
Iatan I	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490
Iatan II	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482
Hawthorn 5	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564
La Cygne 1	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368
La Cygne 2	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331
Montrose 2	164	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Montrose 3	170	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Base Capacity	**3,121**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**
Intermediate Capacity																				
Hawthorn 6 & 9	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235
Total Intermediate Capacity	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**
Peaking Capacity																				
Hawthorn 7	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
Hawthorn 8	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
Northeast 11	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
Northeast 12	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
Northeast 13	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46
Northeast 14	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49
Northeast 15	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
Northeast 16	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
Northeast 17	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
Northeast 18	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52
Northeast Black Start Generator	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
West Gardner 1	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80
West Gardner 2	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
West Gardner 3	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77
West Gardner 4	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
Osawatomie	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76
Total Peaking Capacity	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**
Intermittent Capacity (Nameplate)																				
Spearville 1	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101
Spearville 2	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
Total Intermittent Capacity	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**
Percent Accredited Intermittent Capacity	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%
Total Accredited Intermittent Capacity	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
Wind Additions																				
Solar Additions											1	1	1	1	1	1	1	1	1	1
Total Intermittent Capacity with Additions	47	47	47	47	47	47	47	47	47	47	48	48	48	48	48	48	48	48	48	48
Total Generation Capacity (TGC)	**4,345**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**
B. Capacity Transactions																				
Purchases:																				
Duke/Sumitomo Cimarron II (131.1 MW)	39	39	39	39	39	39	39	39	39	39	39	39	39	39	-	-	-	-	-	-
EDF Spearville 3 (100.8 MW)	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	-	-	-	-	-
CNPPID (Nebraska) - Hydro PPA	60	60	60	60	60	60	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EDPR Renewables Waverly (200 MW)	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	-	-
EDF Slate Creek (150 MW)	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	-	-
Enel Rock Creek (180 MW)	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
NextEra Osborn (120 MW)	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
NextEra Pratt (98 MW)	-	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46
EDPR Prairie Queen (80 MW)	-	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26
Total Capacity Purchases (P)	313	385	385	385	385	385	325	325	325	325	325	325	325	325	286	250	250	250	119	119
Sales:																				
GMO	(60)	(125)	(35)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
City of Chanute	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
City of Eudora	(15)	(15)	(15)	(15)	(15)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KMEA (from SPV 1 & 2)	(37)	(27)	(27)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Big Rivers Electric Coop	-	(25)	(25)	(25)	(25)	(25)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Capacity Sales (S)	(112)	(192)	(102)	(40)	(40)	(25)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Transactions (NT)	**201**	**193**	**283**	**345**	**345**	**360**	**325**	**325**	**325**	**325**	**325**	**325**	**325**	**325**	**286**	**250**	**250**	**250**	**119**	**119**
Total System Capacity (TSC)	**4,545**	**4,203**	**4,293**	**4,355**	**4,355**	**4,370**	**4,336**	**4,336**	**4,336**	**4,336**	**4,337**	**4,337**	**4,337**	**4,337**	**4,298**	**4,262**	**4,262**	**4,262**	**4,131**	**4,131**
C. System Peaks & Reserves																				
Peak Demands																				
Forecasted Peak	**3,507**	**3,519**	**3,510**	**3,509**	**3,523**	**3,536**	**3,560**	**3,566**	**3,574**	**3,594**	**3,625**	**3,644**	**3,665**	**3,680**	**3,699**	**3,718**	**3,741**	**3,770**	**3,801**	**3,810**
Less DSM:																				
Demand Response	(50)	(65)	(86)	(105)	(130)	(159)	(186)	(211)	(233)	(249)	(261)	(270)	(276)	(279)	(279)	(277)	(274)	(271)	(270)	(272)
Energy Efficiency		(2)	(11)	(17)	(27)	(38)	(47)	(57)	(67)	(76)	(86)	(95)	(103)	(111)	(119)	(127)	(135)	(142)	(151)	(159)
MEEIA	(34)	(27)	(27)	(26)	(26)	(25)	(25)	(24)	(24)	(21)	(12)	(4)	(2)	(2)	(2)	(0)	1	1	1	1
Demand-Side Rates	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Peak Forecast less DSM (PF)	**3,423**	**3,425**	**3,387**	**3,361**	**3,340**	**3,314**	**3,302**	**3,274**	**3,250**	**3,248**	**3,266**	**3,275**	**3,284**	**3,288**	**3,299**	**3,313**	**3,333**	**3,357**	**3,381**	**3,380**
Capacity Reserves (CR)	**1,123**	**778**	**906**	**994**	**1,015**	**1,056**	**1,034**	**1,062**	**1,086**	**1,088**	**1,071**	**1,061**	**1,052**	**1,049**	**998**	**949**	**929**	**905**	**750**	**750**
D. Capacity Needs																				
% Reserve Margin	33%	23%	27%	30%	30%	32%	31%	32%	33%	34%	33%	32%	32%	32%	30%	29%	28%	27%	22%	22%
% Capacity Margin	25%	19%	21%	23%	23%	24%	24%	24%	25%	25%	25%	24%	24%	24%	23%	22%	22%	21%	18%	18%
Required Capacity (RC)	**3,833**	**3,836**	**3,793**	**3,765**	**3,741**	**3,712**	**3,698**	**3,666**	**3,640**	**3,637**	**3,657**	**3,668**	**3,678**	**3,683**	**3,695**	**3,711**	**3,733**	**3,760**	**3,786**	**3,786**
Capacity Balance	**712**	**368**	**500**	**591**	**614**	**659**	**638**	**669**	**696**	**698**	**679**	**668**	**658**	**654**	**602**	**551**	**529**	**502**	**344**	**345**

Table 28: Capacity Forecast - Alternative Resource Plan KAADA

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
A. System Generating Capacity (KCPL share)																				
Base Capacity																				
Wolf Creek	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552
Iatan I	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490
Iatan II	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482
Hawthorn 5	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564
La Cygne 1	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368
La Cygne 2	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331
Montrose 2	164	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Montrose 3	170	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Base Capacity	**3,121**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**
Intermediate Capacity																				
Hawthorn 6 & 9	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235
Total Intermediate Capacity	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**
Peaking Capacity																				
Hawthorn 7	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
Hawthorn 8	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
Northeast 11	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
Northeast 12	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
Northeast 13	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46
Northeast 14	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49
Northeast 15	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
Northeast 16	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
Northeast 17	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
Northeast 18	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52
Northeast Black Start Generator	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
West Gardner 1	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80
West Gardner 2	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
West Gardner 3	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77
West Gardner 4	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
Osawatomie	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76
Total Peaking Capacity	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**
Intermittent Capacity (Nameplate)																				
Spearville 1	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101
Spearville 2	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
Total Intermittent Capacity	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**
Percent Accredited Intermittent Capacity	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%
Total Accredited Intermittent Capacity	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
Wind Additions																				
Solar Additions											1	1	1	1	1	1	1	1	1	1
Total Intermittent Capacity with Additions	47	47	47	47	47	47	47	47	47	47	48	48	48	48	48	48	48	48	48	48
Total Generation Capacity (TGC)	**4,345**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**
B. Capacity Transactions																				
Purchases:																				
Duke/Sumitomo Cimarron II (131.1 MW)	39	39	39	39	39	39	39	39	39	39	39	39	39	39	-	-	-	-	-	-
EDF Spearville 3 (100.8 MW)	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	-	-	-	-	-
CNPPID (Nebraska) - Hydro PPA	60	60	60	60	60	60	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EDPR Renewables Waverly (200 MW)	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	-	-
EDF Slate Creek (150 MW)	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	-	-
Enel Rock Creek (180 MW)	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
NextEra Osborn (120 MW)	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
NextEra Pratt (98 MW)	-	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46
EDPR Prairie Queen (80 MW)	-	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26
Total Capacity Purchases (P)	313	385	385	385	385	385	325	325	325	325	325	325	325	325	286	250	250	250	119	119
Sales:																				
GMO	(60)	(125)	(35)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
City of Chanute	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
City of Eudora	(15)	(15)	(15)	(15)	(15)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KMEA (from SPV 1 & 2)	(37)	(27)	(27)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Big Rivers Electric Coop	-	(25)	(25)	(25)	(25)	(25)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Capacity Sales (S)	(112)	(192)	(102)	(40)	(40)	(25)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Transactions (NT)	**201**	**193**	**283**	**345**	**345**	**360**	**325**	**325**	**325**	**325**	**325**	**325**	**325**	**325**	**286**	**250**	**250**	**250**	**119**	**119**
Total System Capacity (TSC)	**4,545**	**4,203**	**4,293**	**4,355**	**4,355**	**4,370**	**4,336**	**4,336**	**4,336**	**4,336**	**4,337**	**4,337**	**4,337**	**4,337**	**4,298**	**4,262**	**4,262**	**4,262**	**4,131**	**4,131**
C. System Peaks & Reserves																				
Peak Demands																				
Forecasted Peak	**3,507**	**3,519**	**3,510**	**3,509**	**3,523**	**3,536**	**3,560**	**3,566**	**3,574**	**3,594**	**3,625**	**3,644**	**3,665**	**3,680**	**3,699**	**3,718**	**3,741**	**3,770**	**3,801**	**3,810**
Less DSM:																				
Demand Response	(50)	(70)	(98)	(123)	(144)	(167)	(194)	(219)	(241)	(257)	(269)	(277)	(280)	(280)	(279)	(277)	(274)	(271)	(270)	(272)
Energy Efficiency		(5)	(15)	(23)	(33)	(43)	(53)	(62)	(72)	(81)	(91)	(99)	(106)	(114)	(121)	(129)	(136)	(143)	(151)	(160)
MEEIA	(34)	(27)	(27)	(26)	(26)	(25)	(25)	(24)	(24)	(21)	(12)	(4)	(2)	(2)	(2)	(0)	1	1	1	1
Demand-Side Rates	-	(0)	(5)	(11)	(18)	(26)	(34)	(47)	(59)	(73)	(86)	(98)	(108)	(116)	(124)	(128)	(130)	(132)	(134)	(136)
Peak Forecast less DSM (PF)	**3,423**	**3,417**	**3,366**	**3,325**	**3,302**	**3,275**	**3,254**	**3,214**	**3,178**	**3,162**	**3,167**	**3,166**	**3,168**	**3,168**	**3,174**	**3,184**	**3,201**	**3,224**	**3,246**	**3,244**
Capacity Reserves (CR)	**1,123**	**786**	**927**	**1,030**	**1,053**	**1,096**	**1,081**	**1,122**	**1,158**	**1,174**	**1,170**	**1,171**	**1,168**	**1,169**	**1,124**	**1,078**	**1,061**	**1,038**	**885**	**887**
D. Capacity Needs																				
% Reserve Margin	33%	23%	28%	31%	32%	33%	33%	35%	36%	37%	37%	37%	37%	37%	35%	34%	33%	32%	27%	27%
% Capacity Margin	25%	19%	22%	24%	24%	25%	25%	26%	27%	27%	27%	27%	27%	27%	26%	25%	25%	24%	21%	21%
Required Capacity (RC)	**3,833**	**3,828**	**3,770**	**3,724**	**3,699**	**3,668**	**3,645**	**3,599**	**3,559**	**3,541**	**3,547**	**3,545**	**3,548**	**3,548**	**3,555**	**3,566**	**3,585**	**3,611**	**3,635**	**3,633**
Capacity Balance	**712**	**376**	**524**	**631**	**657**	**703**	**691**	**736**	**777**	**795**	**790**	**791**	**788**	**789**	**743**	**696**	**676**	**651**	**495**	**498**

Table 29: Capacity Forecast - Alternative Resource Plan KAAEA

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
A. System Generating Capacity (KCPL share)																				
Base Capacity																				
Wolf Creek	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552
Iatan I	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490
Iatan II	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482
Hawthorn 5	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564
La Cygne 1	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368
La Cygne 2	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331
Montrose 2	164	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Montrose 3	170	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Base Capacity	**3,121**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**
Intermediate Capacity																				
Hawthorn 6 & 9	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235
Total Intermediate Capacity	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**
Peaking Capacity																				
Hawthorn 7	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
Hawthorn 8	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
Northeast 11	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
Northeast 12	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
Northeast 13	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46
Northeast 14	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49
Northeast 15	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
Northeast 16	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
Northeast 17	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
Northeast 18	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52
Northeast Black Start Generator	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
West Gardner 1	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80
West Gardner 2	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
West Gardner 3	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77
West Gardner 4	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
Osawatomie	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76
Total Peaking Capacity	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**
Intermittent Capacity (Nameplate)																				
Spearville 1	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101
Spearville 2	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
Total Intermittent Capacity	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**
Percent Accredited Intermittent Capacity	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%
Total Accredited Intermittent Capacity	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
Wind Additions																				
Solar Additions											1	1	1	1	1	1	1	1	1	1
Total Intermittent Capacity with Additions	47	47	47	47	47	47	47	47	47	47	48	48	48	48	48	48	48	48	48	48
Total Generation Capacity (TGC)	**4,345**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**
B. Capacity Transactions																				
Purchases:																				
Duke/Sumitomo Cimarron II (131.1 MW)	39	39	39	39	39	39	39	39	39	39	39	39	39	39	-	-	-	-	-	-
EDF Spearville 3 (100.8 MW)	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	-	-	-	-	-
CNPPID (Nebraska) - Hydro PPA	60	60	60	60	60	60	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EDPR Renewables Waverly (200 MW)	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	-	-
EDF Slate Creek (150 MW)	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	-	-
Enel Rock Creek (180 MW)	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
NextEra Osborn (120 MW)	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
NextEra Pratt (98 MW)	-	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46
EDPR Prairie Queen (80 MW)	-	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26
Total Capacity Purchases (P)	313	385	385	385	385	385	325	325	325	325	325	325	325	325	286	250	250	250	119	119
Sales:																				
GMO	(60)	(125)	(35)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
City of Chanute	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
City of Eudora	(15)	(15)	(15)	(15)	(15)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KMEA (from SPV 1 & 2)	(37)	(27)	(27)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Big Rivers Electric Coop	-	(25)	(25)	(25)	(25)	(25)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Capacity Sales (S)	(112)	(192)	(102)	(40)	(40)	(25)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Transactions (NT)	**201**	**193**	**283**	**345**	**345**	**360**	**325**	**325**	**325**	**325**	**325**	**325**	**325**	**325**	**286**	**250**	**250**	**250**	**119**	**119**
Total System Capacity (TSC)	**4,545**	**4,203**	**4,293**	**4,355**	**4,355**	**4,370**	**4,336**	**4,336**	**4,336**	**4,336**	**4,337**	**4,337**	**4,337**	**4,337**	**4,298**	**4,262**	**4,262**	**4,262**	**4,131**	**4,131**
C. System Peaks & Reserves																				
Peak Demands																				
Forecasted Peak	**3,507**	**3,519**	**3,510**	**3,509**	**3,523**	**3,536**	**3,560**	**3,566**	**3,574**	**3,594**	**3,625**	**3,644**	**3,665**	**3,680**	**3,699**	**3,718**	**3,741**	**3,770**	**3,801**	**3,810**
Less DSM:																				
Demand Response	(50)	(60)	(73)	(86)	(98)	(115)	(137)	(159)	(178)	(191)	(200)	(207)	(212)	(215)	(216)	(215)	(212)	(208)	(207)	(208)
Energy Efficiency		(15)	(39)	(60)	(78)	(95)	(110)	(122)	(135)	(147)	(160)	(169)	(175)	(179)	(184)	(191)	(198)	(206)	(215)	(223)
MEEIA	(34)	(27)	(27)	(26)	(26)	(25)	(25)	(24)	(24)	(21)	(12)	(4)	(2)	(2)	(2)	(0)	1	1	1	1
Demand-Side Rates	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Peak Forecast less DSM (PF)	**3,423**	**3,418**	**3,371**	**3,336**	**3,321**	**3,300**	**3,289**	**3,260**	**3,237**	**3,235**	**3,253**	**3,264**	**3,276**	**3,284**	**3,298**	**3,312**	**3,332**	**3,357**	**3,380**	**3,380**
Capacity Reserves (CR)	**1,123**	**785**	**923**	**1,019**	**1,035**	**1,070**	**1,047**	**1,075**	**1,099**	**1,101**	**1,084**	**1,072**	**1,060**	**1,052**	**1,000**	**950**	**930**	**905**	**750**	**751**
D. Capacity Needs																				
% Reserve Margin	33%	23%	27%	31%	31%	32%	32%	33%	34%	34%	33%	33%	32%	32%	30%	29%	28%	27%	22%	22%
% Capacity Margin	25%	19%	21%	23%	24%	24%	24%	25%	25%	25%	25%	25%	24%	24%	23%	22%	22%	21%	18%	18%
Required Capacity (RC)	**3,833**	**3,828**	**3,775**	**3,737**	**3,719**	**3,696**	**3,683**	**3,652**	**3,625**	**3,623**	**3,643**	**3,656**	**3,669**	**3,678**	**3,693**	**3,709**	**3,731**	**3,759**	**3,786**	**3,786**
Capacity Balance	**712**	**375**	**518**	**619**	**636**	**674**	**652**	**684**	**710**	**713**	**693**	**681**	**667**	**658**	**604**	**553**	**531**	**503**	**345**	**345**

Table 30: Capacity Forecast - Alternative Resource Plan KAAEW

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
A. System Generating Capacity (KCPL share)																				
Base Capacity																				
Wolf Creek	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552
Iatan I	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490
Iatan II	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482
Hawthorn 5	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564
La Cygne 1	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368
La Cygne 2	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331
Montrose 2	164	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Montrose 3	170	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Base Capacity	**3,121**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**
Intermediate Capacity																				
Hawthorn 6 & 9	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235
Total Intermediate Capacity	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**
Peaking Capacity																				
Hawthorn 7	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
Hawthorn 8	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
Northeast 11	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
Northeast 12	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
Northeast 13	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46
Northeast 14	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49
Northeast 15	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
Northeast 16	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
Northeast 17	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
Northeast 18	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52
Northeast Black Start Generator	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
West Gardner 1	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80
West Gardner 2	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
West Gardner 3	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77
West Gardner 4	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
Osawatomie	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76
Total Peaking Capacity	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**
Intermittent Capacity (Nameplate)																				
Spearville 1	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101
Spearville 2	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
Total Intermittent Capacity	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**
Percent Accredited Intermittent Capacity	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%
Total Accredited Intermittent Capacity	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
Wind Additions																				
Solar Additions											1	1	1	1	1	1	1	1	1	1
Total Intermittent Capacity with Additions	47	47	47	47	47	47	47	47	47	47	48	48	48	48	48	48	48	48	48	48
Total Generation Capacity (TGC)	**4,345**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**
B. Capacity Transactions																				
Purchases:																				
Duke/Sumitomo Cimarron II (131.1 MW)	39	39	39	39	39	39	39	39	39	39	39	39	39	39	-	-	-	-	-	-
EDF Spearville 3 (100.8 MW)	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	-	-	-	-	-
CNPPID (Nebraska) - Hydro PPA	60	60	60	60	60	60	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EDPR Renewables Waverly (200 MW)	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	-	-
EDF Slate Creek (150 MW)	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	-	-
Enel Rock Creek (180 MW)	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
NextEra Osborn (120 MW)	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
NextEra Pratt (98 MW)	-	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46
EDPR Prairie Queen (80 MW)	-	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26
Total Capacity Purchases (P)	313	385	385	385	385	385	325	325	325	325	325	325	325	325	286	250	250	250	119	119
Sales:																				
GMO	(60)	(125)	(35)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
City of Chanute	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
City of Eudora	(15)	(15)	(15)	(15)	(15)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KMEA (from SPV 1 & 2)	(37)	(27)	(27)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Big Rivers Electric Coop	-	(25)	(25)	(25)	(25)	(25)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Capacity Sales (S)	(112)	(192)	(102)	(40)	(40)	(25)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Transactions (NT)	**201**	**193**	**283**	**345**	**345**	**360**	**325**	**325**	**325**	**325**	**325**	**325**	**325**	**325**	**286**	**250**	**250**	**250**	**119**	**119**
Total System Capacity (TSC)	**4,545**	**4,203**	**4,293**	**4,355**	**4,355**	**4,370**	**4,336**	**4,336**	**4,336**	**4,336**	**4,337**	**4,337**	**4,337**	**4,337**	**4,298**	**4,262**	**4,262**	**4,262**	**4,131**	**4,131**
C. System Peaks & Reserves																				
Peak Demands																				
Forecasted Peak	**3,507**	**3,519**	**3,510**	**3,509**	**3,523**	**3,536**	**3,560**	**3,566**	**3,574**	**3,594**	**3,625**	**3,644**	**3,665**	**3,680**	**3,699**	**3,718**	**3,741**	**3,770**	**3,801**	**3,810**
Less DSM:																				
Demand Response	(50)	(70)	(98)	(123)	(144)	(167)	(194)	(219)	(241)	(257)	(269)	(277)	(280)	(280)	(279)	(277)	(274)	(271)	(270)	(272)
Energy Efficiency		(5)	(15)	(23)	(33)	(43)	(53)	(62)	(72)	(81)	(91)	(99)	(106)	(114)	(121)	(129)	(136)	(143)	(151)	(160)
MEEIA	(34)	(27)	(27)	(26)	(26)	(25)	(25)	(24)	(24)	(21)	(12)	(4)	(2)	(2)	(2)	(0)	1	1	1	1
Demand-Side Rates	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Peak Forecast less DSM (PF)	**3,423**	**3,418**	**3,371**	**3,336**	**3,321**	**3,300**	**3,289**	**3,260**	**3,237**	**3,235**	**3,253**	**3,264**	**3,276**	**3,284**	**3,298**	**3,312**	**3,332**	**3,357**	**3,380**	**3,380**
Capacity Reserves (CR)	**1,123**	**785**	**923**	**1,019**	**1,035**	**1,070**	**1,047**	**1,075**	**1,099**	**1,101**	**1,084**	**1,072**	**1,060**	**1,052**	**1,000**	**950**	**930**	**905**	**750**	**751**
D. Capacity Needs																				
% Reserve Margin	33%	23%	27%	31%	31%	32%	32%	33%	34%	34%	33%	33%	32%	32%	30%	29%	28%	27%	22%	22%
% Capacity Margin	25%	19%	21%	23%	24%	24%	24%	25%	25%	25%	25%	25%	24%	24%	23%	22%	22%	21%	18%	18%
Required Capacity (RC)	**3,833**	**3,828**	**3,775**	**3,737**	**3,719**	**3,696**	**3,683**	**3,652**	**3,625**	**3,623**	**3,643**	**3,656**	**3,669**	**3,678**	**3,693**	**3,709**	**3,731**	**3,759**	**3,786**	**3,786**
Capacity Balance	**712**	**375**	**518**	**619**	**636**	**674**	**652**	**684**	**710**	**713**	**693**	**681**	**667**	**658**	**604**	**553**	**531**	**503**	**345**	**345**

Table 31: Capacity Forecast - Alternative Resource Plan KAAFA

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
A. System Generating Capacity (KCPL share)																				
Base Capacity																				
Wolf Creek	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552
Iatan I	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490
Iatan II	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482
Hawthorn 5	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564
La Cygne 1	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368
La Cygne 2	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331
Montrose 2	164	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Montrose 3	170	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Base Capacity	**3,121**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**
Intermediate Capacity																				
Hawthorn 6 & 9	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235
Total Intermediate Capacity	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**
Peaking Capacity																				
Hawthorn 7	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
Hawthorn 8	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
Northeast 11	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
Northeast 12	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
Northeast 13	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46
Northeast 14	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49
Northeast 15	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
Northeast 16	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
Northeast 17	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
Northeast 18	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52
Northeast Black Start Generator	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
West Gardner 1	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80
West Gardner 2	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
West Gardner 3	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77
West Gardner 4	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
Osawatomie	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76
Total Peaking Capacity	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**
Intermittent Capacity (Nameplate)																				
Spearville 1	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101
Spearville 2	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
Total Intermittent Capacity	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**
Percent Accredited Intermittent Capacity	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%
Total Accredited Intermittent Capacity	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
Wind Additions																				
Solar Additions											1	1	1	1	1	1	1	1	1	1
Total Intermittent Capacity with Additions	47	47	47	47	47	47	47	47	47	47	48	48	48	48	48	48	48	48	48	48
Total Generation Capacity (TGC)	**4,345**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**
B. Capacity Transactions																				
Purchases:																				
Duke/Sumitomo Cimarron II (131.1 MW)	39	39	39	39	39	39	39	39	39	39	39	39	39	39	-	-	-	-	-	-
EDF Spearville 3 (100.8 MW)	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	-	-	-	-	-
CNPPID (Nebraska) - Hydro PPA	60	60	60	60	60	60	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EDPR Renewables Waverly (200 MW)	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	-	-
EDF Slate Creek (150 MW)	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	-	-
Enel Rock Creek (180 MW)	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
NextEra Osborn (120 MW)	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
NextEra Pratt (98 MW)	-	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46
EDPR Prairie Queen (80 MW)	-	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26
Total Capacity Purchases (P)	313	385	385	385	385	385	325	325	325	325	325	325	325	325	286	250	250	250	119	119
Sales:																				
GMO	(60)	(125)	(35)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
City of Chanute	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
City of Eudora	(15)	(15)	(15)	(15)	(15)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KMEA (from SPV 1 & 2)	(37)	(27)	(27)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Big Rivers Electric Coop	-	(25)	(25)	(25)	(25)	(25)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Capacity Sales (S)	(112)	(192)	(102)	(40)	(40)	(25)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Transactions (NT)	**201**	**193**	**283**	**345**	**345**	**360**	**325**	**325**	**325**	**325**	**325**	**325**	**325**	**325**	**286**	**250**	**250**	**250**	**119**	**119**
Total System Capacity (TSC)	**4,545**	**4,203**	**4,293**	**4,355**	**4,355**	**4,370**	**4,336**	**4,336**	**4,336**	**4,336**	**4,337**	**4,337**	**4,337**	**4,337**	**4,298**	**4,262**	**4,262**	**4,262**	**4,131**	**4,131**
C. System Peaks & Reserves																				
Peak Demands																				
Forecasted Peak	**3,507**	**3,519**	**3,510**	**3,509**	**3,523**	**3,536**	**3,560**	**3,566**	**3,574**	**3,594**	**3,625**	**3,644**	**3,665**	**3,680**	**3,699**	**3,718**	**3,741**	**3,770**	**3,801**	**3,810**
Less DSM:																				
Demand Response	(50)	(70)	(102)	(135)	(157)	(177)	(195)	(207)	(218)	(228)	(236)	(238)	(236)	(231)	(227)	(227)	(229)	(231)	(232)	(234)
Energy Efficiency		(5)	(15)	(23)	(28)	(33)	(39)	(44)	(50)	(55)	(61)	(65)	(68)	(71)	(74)	(78)	(82)	(86)	(91)	(95)
MEEIA	(34)	(27)	(27)	(26)	(26)	(25)	(25)	(24)	(24)	(21)	(12)	(4)	(2)	(2)	(2)	(0)	1	1	1	1
Demand-Side Rates	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Peak Forecast less DSM (PF)	**3,423**	**3,418**	**3,366**	**3,325**	**3,312**	**3,300**	**3,301**	**3,290**	**3,282**	**3,290**	**3,316**	**3,337**	**3,358**	**3,376**	**3,396**	**3,412**	**3,431**	**3,454**	**3,479**	**3,482**
Capacity Reserves (CR)	**1,123**	**785**	**927**	**1,030**	**1,044**	**1,070**	**1,034**	**1,046**	**1,054**	**1,046**	**1,021**	**1,000**	**978**	**961**	**902**	**850**	**831**	**808**	**651**	**648**
D. Capacity Needs																				
% Reserve Margin	33%	23%	28%	31%	32%	32%	31%	32%	32%	32%	31%	30%	29%	28%	27%	25%	24%	23%	19%	19%
% Capacity Margin	25%	19%	22%	24%	24%	24%	24%	24%	24%	24%	24%	23%	23%	22%	21%	20%	19%	19%	16%	16%
Required Capacity (RC)	**3,833**	**3,828**	**3,770**	**3,724**	**3,709**	**3,696**	**3,698**	**3,685**	**3,676**	**3,684**	**3,714**	**3,737**	**3,761**	**3,781**	**3,803**	**3,822**	**3,843**	**3,869**	**3,897**	**3,900**
Capacity Balance	**712**	**375**	**524**	**631**	**646**	**674**	**638**	**651**	**660**	**651**	**623**	**599**	**575**	**556**	**494**	**440**	**419**	**393**	**234**	**230**

Table 32: Capacity Forecast - Alternative Resource Plan KAAGA

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
A. System Generating Capacity (KCPL share)																				
Base Capacity																				
Wolf Creek	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552
Iatan I	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490
Iatan II	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482
Hawthorn 5	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564
La Cygne 1	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368
La Cygne 2	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331
Montrose 2	164	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Montrose 3	170	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Base Capacity	**3,121**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**
Intermediate Capacity																				
Hawthorn 6 & 9	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235
Total Intermediate Capacity	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**
Peaking Capacity																				
Hawthorn 7	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
Hawthorn 8	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
Northeast 11	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
Northeast 12	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
Northeast 13	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46
Northeast 14	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49
Northeast 15	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
Northeast 16	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
Northeast 17	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
Northeast 18	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52
Northeast Black Start Generator	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
West Gardner 1	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80
West Gardner 2	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
West Gardner 3	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77
West Gardner 4	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
Osawatomie	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76
Total Peaking Capacity	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**
Intermittent Capacity (Nameplate)																				
Spearville 1	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101
Spearville 2	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
Total Intermittent Capacity	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**
Percent Accredited Intermittent Capacity	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%
Total Accredited Intermittent Capacity	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
Wind Additions																				
Solar Additions											1	1	1	1	1	1	1	1	1	1
Total Intermittent Capacity with Additions	47	47	47	47	47	47	47	47	47	47	48	48	48	48	48	48	48	48	48	48
Total Generation Capacity (TGC)	**4,345**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**
B. Capacity Transactions																				
Purchases:																				
Duke/Sumitomo Cimarron II (131.1 MW)	39	39	39	39	39	39	39	39	39	39	39	39	39	39	-	-	-	-	-	-
EDF Spearville 3 (100.8 MW)	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	-	-	-	-	-
CNPPID (Nebraska) - Hydro PPA	60	60	60	60	60	60	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EDPR Renewables Waverly (200 MW)	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	-	-
EDF Slate Creek (150 MW)	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	-	-
Enel Rock Creek (180 MW)	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
NextEra Osborn (120 MW)	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
NextEra Pratt (98 MW)	-	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46
EDPR Prairie Queen (80 MW)	-	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26
Total Capacity Purchases (P)	313	385	385	385	385	385	325	325	325	325	325	325	325	325	286	250	250	250	119	119
Sales:																				
GMO	(60)	(125)	(35)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
City of Chanute	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
City of Eudora	(15)	(15)	(15)	(15)	(15)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KMEA (from SPV 1 & 2)	(37)	(27)	(27)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Big Rivers Electric Coop	-	(25)	(25)	(25)	(25)	(25)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Capacity Sales (S)	(112)	(192)	(102)	(40)	(40)	(25)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Transactions (NT)	**201**	**193**	**283**	**345**	**345**	**360**	**325**	**325**	**325**	**325**	**325**	**325**	**325**	**325**	**286**	**250**	**250**	**250**	**119**	**119**
Total System Capacity (TSC)	**4,545**	**4,203**	**4,293**	**4,355**	**4,355**	**4,370**	**4,336**	**4,336**	**4,336**	**4,336**	**4,337**	**4,337**	**4,337**	**4,337**	**4,298**	**4,262**	**4,262**	**4,262**	**4,131**	**4,131**
C. System Peaks & Reserves																				
Peak Demands																				
Forecasted Peak	**3,507**	**3,519**	**3,510**	**3,509**	**3,523**	**3,536**	**3,560**	**3,566**	**3,574**	**3,594**	**3,625**	**3,644**	**3,665**	**3,680**	**3,699**	**3,718**	**3,741**	**3,770**	**3,801**	**3,810**
Less DSM:																				
Demand Response	(50)	(60)	(73)	(86)	(94)	(100)	(105)	(108)	(111)	(114)	(117)	(118)	(116)	(113)	(110)	(110)	(110)	(110)	(111)	(111)
Energy Efficiency		(11)	(39)	(60)	(74)	(85)	(96)	(104)	(113)	(122)	(130)	(136)	(137)	(137)	(137)	(141)	(144)	(149)	(154)	(159)
MEEIA	(34)	(27)	(27)	(26)	(26)	(25)	(25)	(24)	(24)	(21)	(12)	(4)	(2)	(2)	(2)	(0)	1	1	1	1
Demand-Side Rates	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Peak Forecast less DSM (PF)	**3,423**	**3,422**	**3,371**	**3,336**	**3,330**	**3,326**	**3,335**	**3,330**	**3,326**	**3,338**	**3,366**	**3,387**	**3,410**	**3,428**	**3,450**	**3,467**	**3,487**	**3,512**	**3,537**	**3,542**
Capacity Reserves (CR)	**1,123**	**781**	**923**	**1,019**	**1,025**	**1,044**	**1,001**	**1,006**	**1,009**	**998**	**971**	**949**	**927**	**909**	**848**	**795**	**775**	**750**	**593**	**589**
D. Capacity Needs																				
% Reserve Margin	33%	23%	27%	31%	31%	31%	30%	30%	30%	30%	29%	28%	27%	27%	25%	23%	22%	21%	17%	17%
% Capacity Margin	25%	19%	21%	23%	24%	24%	23%	23%	23%	23%	22%	22%	21%	21%	20%	19%	18%	18%	14%	14%
Required Capacity (RC)	**3,833**	**3,832**	**3,775**	**3,737**	**3,730**	**3,725**	**3,735**	**3,729**	**3,725**	**3,738**	**3,770**	**3,794**	**3,819**	**3,839**	**3,864**	**3,883**	**3,906**	**3,933**	**3,962**	**3,967**
Capacity Balance	**712**	**371**	**518**	**619**	**626**	**645**	**601**	**606**	**610**	**597**	**567**	**543**	**518**	**497**	**434**	**379**	**356**	**329**	**169**	**164**

Table 33: Capacity Forecast - Alternative Resource Plan KAAHA

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
A. System Generating Capacity (KCPL share)																				
Base Capacity																				
Wolf Creek	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552
Iatan I	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490
Iatan II	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482
Hawthorn 5	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564
La Cygne 1	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368
La Cygne 2	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331
Montrose 2	164	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Montrose 3	170	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Base Capacity	**3,121**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**
Intermediate Capacity																				
Hawthorn 6 & 9	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235
Total Intermediate Capacity	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**
Peaking Capacity																				
Hawthorn 7	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
Hawthorn 8	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
Northeast 11	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
Northeast 12	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
Northeast 13	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46
Northeast 14	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49
Northeast 15	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
Northeast 16	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
Northeast 17	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
Northeast 18	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52
Northeast Black Start Generator	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
West Gardner 1	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80
West Gardner 2	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
West Gardner 3	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77
West Gardner 4	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
Osawatomie	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76
Total Peaking Capacity	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**
Intermittent Capacity (Nameplate)																				
Spearville 1	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101
Spearville 2	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
Total Intermittent Capacity	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**
Percent Accredited Intermittent Capacity	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%
Total Accredited Intermittent Capacity	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
Wind Additions																				
Solar Additions											1	1	1	1	1	1	1	1	1	1
Total Intermittent Capacity with Additions	47	47	47	47	47	47	47	47	47	47	48	48	48	48	48	48	48	48	48	48
Total Generation Capacity (TGC)	**4,345**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**
B. Capacity Transactions																				
Purchases:																				
Duke/Sumitomo Cimarron II (131.1 MW)	39	39	39	39	39	39	39	39	39	39	39	39	39	39	-	-	-	-	-	-
EDF Spearville 3 (100.8 MW)	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	-	-	-	-	-
CNPPID (Nebraska) - Hydro PPA	60	60	60	60	60	60	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EDPR Renewables Waverly (200 MW)	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	-	-
EDF Slate Creek (150 MW)	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	-	-
Enel Rock Creek (180 MW)	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
NextEra Osborn (120 MW)	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
NextEra Pratt (98 MW)	-	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46
EDPR Prairie Queen (80 MW)	-	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26
Total Capacity Purchases (P)	313	385	385	385	385	385	325	325	325	325	325	325	325	325	286	250	250	250	119	119
Sales:																				
GMO	(60)	(125)	(35)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
City of Chanute	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
City of Eudora	(15)	(15)	(15)	(15)	(15)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KMEA (from SPV 1 & 2)	(37)	(27)	(27)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Big Rivers Electric Coop	-	(25)	(25)	(25)	(25)	(25)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Capacity Sales (S)	(112)	(192)	(102)	(40)	(40)	(25)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Transactions (NT)	**201**	**193**	**283**	**345**	**345**	**360**	**325**	**325**	**325**	**325**	**325**	**325**	**325**	**325**	**286**	**250**	**250**	**250**	**119**	**119**
Total System Capacity (TSC)	**4,545**	**4,203**	**4,293**	**4,355**	**4,355**	**4,370**	**4,336**	**4,336**	**4,336**	**4,336**	**4,337**	**4,337**	**4,337**	**4,337**	**4,298**	**4,262**	**4,262**	**4,262**	**4,131**	**4,131**
C. System Peaks & Reserves																				
Peak Demands																				
Forecasted Peak	**3,507**	**3,519**	**3,510**	**3,509**	**3,523**	**3,536**	**3,560**	**3,566**	**3,574**	**3,594**	**3,625**	**3,644**	**3,665**	**3,680**	**3,699**	**3,718**	**3,741**	**3,770**	**3,801**	**3,810**
Less DSM:																				
Demand Response	(50)	(50)	(50)	(50)	(50)	(50)	(50)	(50)	(50)	(50)	(50)	(50)	(50)	(50)	(50)	(50)	(50)	(50)	(50)	(50)
Energy Efficiency																				
MEEIA	(34)	(23)	(23)	(23)	(22)	(22)	(21)	(21)	(21)	(17)	(9)	(0)	1	2	2	3	4	4	5	5
Demand-Side Rates	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Peak Forecast less DSM (PF)	**3,423**	**3,446**	**3,437**	**3,436**	**3,451**	**3,464**	**3,489**	**3,495**	**3,503**	**3,527**	**3,566**	**3,594**	**3,616**	**3,632**	**3,651**	**3,671**	**3,695**	**3,724**	**3,756**	**3,765**
Capacity Reserves (CR)	**1,123**	**758**	**857**	**919**	**904**	**906**	**847**	**840**	**832**	**809**	**770**	**743**	**720**	**705**	**647**	**591**	**567**	**538**	**375**	**365**
D. Capacity Needs																				
% Reserve Margin	33%	22%	25%	27%	26%	26%	24%	24%	24%	23%	22%	21%	20%	19%	18%	16%	15%	14%	10%	10%
% Capacity Margin	25%	18%	20%	21%	21%	21%	20%	19%	19%	19%	18%	17%	17%	16%	15%	14%	13%	13%	9%	9%
Required Capacity (RC)	**3,833**	**3,859**	**3,849**	**3,849**	**3,865**	**3,880**	**3,907**	**3,915**	**3,924**	**3,950**	**3,994**	**4,025**	**4,050**	**4,067**	**4,089**	**4,112**	**4,139**	**4,171**	**4,206**	**4,217**
Capacity Balance	**712**	**344**	**444**	**507**	**490**	**490**	**428**	**421**	**412**	**386**	**342**	**311**	**286**	**269**	**209**	**150**	**123**	**91**	**(76)**	**(86)**

Table 34: Capacity Forecast - Alternative Resource Plan KAAKA

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
A. System Generating Capacity (KCPL share)																				
Base Capacity																				
Wolf Creek	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552
Iatan I	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490
Iatan II	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482
Hawthorn 5	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564
La Cygne 1	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368
La Cygne 2	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331
Montrose 2	164	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Montrose 3	170	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Base Capacity	**3,121**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**
Intermediate Capacity																				
Hawthorn 6 & 9	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235
Total Intermediate Capacity	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**
Peaking Capacity																				
Hawthorn 7	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
Hawthorn 8	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
Northeast 11	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
Northeast 12	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
Northeast 13	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46
Northeast 14	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49
Northeast 15	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
Northeast 16	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
Northeast 17	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
Northeast 18	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52
Northeast Black Start Generator	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
West Gardner 1	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80
West Gardner 2	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
West Gardner 3	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77
West Gardner 4	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
Osawatomie	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76
Total Peaking Capacity	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**
Intermittent Capacity (Nameplate)																				
Spearville 1	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101
Spearville 2	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
Total Intermittent Capacity	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**
Percent Accredited Intermittent Capacity	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%
Total Accredited Intermittent Capacity	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
Wind Additions																				
Solar Additions											1	1	1	1	1	1	1	1	1	1
Total Intermittent Capacity with Additions	47	47	47	47	47	47	47	47	47	47	48	48	48	48	48	48	48	48	48	48
Total Generation Capacity (TGC)	**4,345**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**
B. Capacity Transactions																				
Purchases:																				
Duke/Sumitomo Cimarron II (131.1 MW)	39	39	39	39	39	39	39	39	39	39	39	39	39	39	-	-	-	-	-	-
EDF Spearville 3 (100.8 MW)	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	-	-	-	-	-
CNPPID (Nebraska) - Hydro PPA	60	60	60	60	60	60	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EDPR Renewables Waverly (200 MW)	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	-	-
EDF Slate Creek (150 MW)	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	-	-
Enel Rock Creek (180 MW)	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
NextEra Osborn (120 MW)	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
NextEra Pratt (98 MW)	-	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46
EDPR Prairie Queen (80 MW)	-	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26
Total Capacity Purchases (P)	313	385	385	385	385	385	325	325	325	325	325	325	325	325	286	250	250	250	119	119
Sales:																				
GMO	(60)	(125)	(35)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
City of Chanute	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
City of Eudora	(15)	(15)	(15)	(15)	(15)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KMEA (from SPV 1 & 2)	(37)	(27)	(27)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Big Rivers Electric Coop	-	(25)	(25)	(25)	(25)	(25)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Capacity Sales (S)	(112)	(192)	(102)	(40)	(40)	(25)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Transactions (NT)	**201**	**193**	**283**	**345**	**345**	**360**	**325**	**325**	**325**	**325**	**325**	**325**	**325**	**325**	**286**	**250**	**250**	**250**	**119**	**119**
Total System Capacity (TSC)	**4,545**	**4,203**	**4,293**	**4,355**	**4,355**	**4,370**	**4,336**	**4,336**	**4,336**	**4,336**	**4,337**	**4,337**	**4,337**	**4,337**	**4,298**	**4,262**	**4,262**	**4,262**	**4,131**	**4,131**
C. System Peaks & Reserves																				
Peak Demands																				
Forecasted Peak	**3,507**	**3,519**	**3,510**	**3,509**	**3,523**	**3,536**	**3,560**	**3,566**	**3,574**	**3,594**	**3,625**	**3,644**	**3,665**	**3,680**	**3,699**	**3,718**	**3,741**	**3,770**	**3,801**	**3,810**
Less DSM:																				
Demand Response	(50)	(53)	(72)	(88)	(104)	(121)	(133)	(142)	(150)	(156)	(161)	(163)	(168)	(163)	(163)	(164)	(165)	(166)	(168)	(169)
Energy Efficiency		(6)	(29)	(45)	(62)	(76)	(87)	(96)	(105)	(114)	(123)	(129)	(133)	(135)	(137)	(141)	(145)	(149)	(155)	(160)
MEEIA	(34)	(27)	(27)	(26)	(26)	(25)	(25)	(24)	(24)	(21)	(12)	(4)	(2)	(2)	(2)	(0)	1	1	1	1
Demand-Side Rates	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Peak Forecast less DSM (PF)	**3,423**	**3,432**	**3,382**	**3,350**	**3,331**	**3,314**	**3,315**	**3,303**	**3,295**	**3,303**	**3,329**	**3,348**	**3,362**	**3,380**	**3,397**	**3,414**	**3,432**	**3,455**	**3,480**	**3,483**
Capacity Reserves (CR)	**1,123**	**771**	**911**	**1,005**	**1,024**	**1,057**	**1,021**	**1,033**	**1,040**	**1,033**	**1,008**	**989**	**975**	**957**	**900**	**848**	**830**	**807**	**651**	**648**
D. Capacity Needs																				
% Reserve Margin	33%	22%	27%	30%	31%	32%	31%	31%	32%	31%	30%	30%	29%	28%	26%	25%	24%	23%	19%	19%
% Capacity Margin	25%	18%	21%	23%	24%	24%	24%	24%	24%	24%	23%	23%	22%	22%	21%	20%	19%	19%	16%	16%
Required Capacity (RC)	**3,833**	**3,844**	**3,788**	**3,752**	**3,731**	**3,711**	**3,713**	**3,699**	**3,690**	**3,699**	**3,728**	**3,750**	**3,765**	**3,785**	**3,805**	**3,823**	**3,844**	**3,870**	**3,897**	**3,901**
Capacity Balance	**712**	**359**	**505**	**603**	**624**	**659**	**623**	**636**	**645**	**637**	**608**	**587**	**571**	**551**	**493**	**439**	**418**	**392**	**233**	**230**

Table 35: Capacity Forecast - Alternative Resource Plan KAAKN

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
A. System Generating Capacity (KCPL share)																				
Base Capacity																				
Wolf Creek	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552
Iatan I	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490
Iatan II	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482
Hawthorn 5	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564
La Cygne 1	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368
La Cygne 2	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331
Montrose 2	164	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Montrose 3	170	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Base Capacity	**3,121**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**
Intermediate Capacity																				
Hawthorn 6 & 9	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235
Total Intermediate Capacity	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**
Peaking Capacity																				
Hawthorn 7	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
Hawthorn 8	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
Northeast 11	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
Northeast 12	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
Northeast 13	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46
Northeast 14	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49
Northeast 15	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
Northeast 16	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
Northeast 17	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
Northeast 18	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52
Northeast Black Start Generator	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
West Gardner 1	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80
West Gardner 2	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
West Gardner 3	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77
West Gardner 4	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
Osawatomie	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76
Total Peaking Capacity	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**
Intermittent Capacity (Nameplate)																				
Spearville 1	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101
Spearville 2	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
Total Intermittent Capacity	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**
Percent Accredited Intermittent Capacity	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%
Total Accredited Intermittent Capacity	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
Wind Additions																				
Solar Additions											1	1	1	1	1	1	1	1	1	1
Total Intermittent Capacity with Additions	47	47	47	47	47	47	47	47	47	47	48	48	48	48	48	48	48	48	48	48
Total Generation Capacity (TGC)	**4,345**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**
B. Capacity Transactions																				
Purchases:																				
Duke/Sumitomo Cimarron II (131.1 MW)	39	39	39	39	39	39	39	39	39	39	39	39	39	39	-	-	-	-	-	-
EDF Spearville 3 (100.8 MW)	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	-	-	-	-	-
CNPPID (Nebraska) - Hydro PPA	60	60	60	60	60	60	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EDPR Renewables Waverly (200 MW)	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	-	-
EDF Slate Creek (150 MW)	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	-	-
Enel Rock Creek (180 MW)	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
NextEra Osborn (120 MW)	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
NextEra Pratt (98 MW)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EDPR Prairie Queen (80 MW)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Capacity Purchases (P)	313	313	313	313	313	313	253	253	253	253	253	253	253	253	214	178	178	178	47	47
Sales:																				
GMO	(60)	(125)	(35)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
City of Chanute	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
City of Eudora	(15)	(15)	(15)	(15)	(15)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KMEA (from SPV 1 & 2)	(37)	(27)	(27)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Big Rivers Electric Coop	-	(25)	(25)	(25)	(25)	(25)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Capacity Sales (S)	(112)	(192)	(102)	(40)	(40)	(25)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Transactions (NT)	**201**	**121**	**211**	**273**	**273**	**288**	**253**	**253**	**253**	**253**	**253**	**253**	**253**	**253**	**214**	**178**	**178**	**178**	**47**	**47**
Total System Capacity (TSC)	**4,545**	**4,131**	**4,221**	**4,283**	**4,283**	**4,298**	**4,264**	**4,264**	**4,264**	**4,264**	**4,265**	**4,265**	**4,265**	**4,265**	**4,226**	**4,190**	**4,190**	**4,190**	**4,059**	**4,059**
C. System Peaks & Reserves																				
Peak Demands																				
Forecasted Peak	**3,507**	**3,519**	**3,510**	**3,509**	**3,523**	**3,536**	**3,560**	**3,566**	**3,574**	**3,594**	**3,625**	**3,644**	**3,665**	**3,680**	**3,699**	**3,718**	**3,741**	**3,770**	**3,801**	**3,810**
Less DSM:																				
Demand Response	(50)	(53)	(72)	(88)	(104)	(121)	(133)	(142)	(150)	(156)	(161)	(163)	(168)	(163)	(163)	(164)	(165)	(166)	(168)	(169)
Energy Efficiency		(6)	(29)	(45)	(62)	(76)	(87)	(96)	(105)	(114)	(123)	(129)	(133)	(135)	(137)	(141)	(145)	(149)	(155)	(160)
MEEIA	(34)	(27)	(27)	(26)	(26)	(25)	(25)	(24)	(24)	(21)	(12)	(4)	(2)	(2)	(2)	(0)	1	1	1	1
Demand-Side Rates	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Peak Forecast less DSM (PF)	**3,423**	**3,432**	**3,382**	**3,350**	**3,331**	**3,314**	**3,315**	**3,303**	**3,295**	**3,303**	**3,329**	**3,348**	**3,362**	**3,380**	**3,397**	**3,414**	**3,432**	**3,455**	**3,480**	**3,483**
Capacity Reserves (CR)	**1,123**	**699**	**839**	**933**	**952**	**985**	**949**	**961**	**968**	**961**	**936**	**917**	**903**	**885**	**828**	**776**	**758**	**735**	**579**	**576**
D. Capacity Needs																				
% Reserve Margin	33%	20%	25%	28%	29%	30%	29%	29%	29%	29%	28%	27%	27%	26%	24%	23%	22%	21%	17%	17%
% Capacity Margin	25%	17%	20%	22%	22%	23%	22%	23%	23%	23%	22%	21%	21%	21%	20%	19%	18%	18%	14%	14%
Required Capacity (RC)	**3,833**	**3,844**	**3,788**	**3,752**	**3,731**	**3,711**	**3,713**	**3,699**	**3,690**	**3,699**	**3,728**	**3,750**	**3,765**	**3,785**	**3,805**	**3,823**	**3,844**	**3,870**	**3,897**	**3,901**
Capacity Balance	**712**	**287**	**433**	**531**	**552**	**587**	**551**	**564**	**573**	**565**	**536**	**515**	**499**	**479**	**421**	**367**	**346**	**320**	**161**	**158**

Table 36: Capacity Forecast - Alternative Resource Plan KAALA

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
A. System Generating Capacity (KCPL share)																				
Base Capacity																				
Wolf Creek	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552
Iatan I	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490
Iatan II	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482
Hawthorn 5	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564
La Cygne 1	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368	368
La Cygne 2	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331
Montrose 2	164	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Montrose 3	170	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Base Capacity	**3,121**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**
Intermediate Capacity																				
Hawthorn 6 & 9	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235
Total Intermediate Capacity	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**
Peaking Capacity																				
Hawthorn 7	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
Hawthorn 8	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
Northeast 11	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
Northeast 12	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
Northeast 13	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46
Northeast 14	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49
Northeast 15	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
Northeast 16	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
Northeast 17	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
Northeast 18	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52
Northeast Black Start Generator	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
West Gardner 1	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80
West Gardner 2	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
West Gardner 3	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77
West Gardner 4	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
Osawatomie	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76
Total Peaking Capacity	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**
Intermittent Capacity (Nameplate)																				
Spearville 1	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101
Spearville 2	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
Total Intermittent Capacity	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**
Percent Accredited Intermittent Capacity	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%
Total Accredited Intermittent Capacity	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
Wind Additions																				
Solar Additions											1	1	1	1	1	1	1	1	1	1
Total Intermittent Capacity with Additions	47	47	47	47	47	47	47	47	47	47	48	48	48	48	48	48	48	48	48	48
Total Generation Capacity (TGC)	**4,345**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**	**4,012**
B. Capacity Transactions																				
Purchases:																				
Duke/Sumitomo Cimarron II (131.1 MW)	39	39	39	39	39	39	39	39	39	39	39	39	39	39	-	-	-	-	-	-
EDF Spearville 3 (100.8 MW)	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	-	-	-	-	-
CNPPID (Nebraska) - Hydro PPA	60	60	60	60	60	60	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EDPR Renewables Waverly (200 MW)	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	-	-
EDF Slate Creek (150 MW)	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	-	-
Enel Rock Creek (180 MW)	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
NextEra Osborn (120 MW)	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
NextEra Pratt (98 MW)	-	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46
EDPR Prairie Queen (80 MW)	-	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26
Total Capacity Purchases (P)	313	385	385	385	385	385	325	325	325	325	325	325	325	325	286	250	250	250	119	119
Sales:																				
GMO	(60)	(125)	(35)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
City of Chanute	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
City of Eudora	(15)	(15)	(15)	(15)	(15)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KMEA (from SPV 1 & 2)	(37)	(27)	(27)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Big Rivers Electric Coop	-	(25)	(25)	(25)	(25)	(25)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Capacity Sales (S)	(112)	(192)	(102)	(40)	(40)	(25)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Transactions (NT)	**201**	**193**	**283**	**345**	**345**	**360**	**325**	**325**	**325**	**325**	**325**	**325**	**325**	**325**	**286**	**250**	**250**	**250**	**119**	**119**
Total System Capacity (TSC)	**4,545**	**4,203**	**4,293**	**4,355**	**4,355**	**4,370**	**4,336**	**4,336**	**4,336**	**4,336**	**4,337**	**4,337**	**4,337**	**4,337**	**4,298**	**4,262**	**4,262**	**4,262**	**4,131**	**4,131**
C. System Peaks & Reserves																				
Peak Demands																				
Forecasted Peak	**3,507**	**3,519**	**3,510**	**3,509**	**3,523**	**3,536**	**3,560**	**3,566**	**3,574**	**3,594**	**3,625**	**3,644**	**3,665**	**3,680**	**3,699**	**3,718**	**3,741**	**3,770**	**3,801**	**3,810**
Less DSM:																				
Demand Response	(50)	(65)	(86)	(105)	(130)	(159)	(186)	(211)	(233)	(249)	(261)	(270)	(276)	(279)	(279)	(277)	(274)	(271)	(270)	(272)
Energy Efficiency		2	(11)	(17)	(27)	(38)	(47)	(57)	(67)	(76)	(86)	(95)	(103)	(111)	(119)	(127)	(135)	(142)	(151)	(159)
MEEIA	(34)	(27)	(27)	(26)	(26)	(25)	(25)	(24)	(24)	(21)	(12)	(4)	(2)	(2)	(2)	(0)	1	1	1	1
Demand-Side Rates	-	(0)	(5)	(11)	(18)	(26)	(34)	(47)	(59)	(73)	(86)	(98)	(108)	(116)	(124)	(128)	(130)	(132)	(134)	(136)
Peak Forecast less DSM (PF)	**3,423**	**3,428**	**3,382**	**3,350**	**3,322**	**3,288**	**3,267**	**3,227**	**3,191**	**3,175**	**3,180**	**3,177**	**3,176**	**3,172**	**3,176**	**3,185**	**3,202**	**3,225**	**3,246**	**3,244**
Capacity Reserves (CR)	**1,123**	**775**	**911**	**1,005**	**1,033**	**1,082**	**1,068**	**1,109**	**1,145**	**1,161**	**1,157**	**1,160**	**1,160**	**1,165**	**1,122**	**1,077**	**1,060**	**1,037**	**884**	**886**
D. Capacity Needs																				
% Reserve Margin	33%	23%	27%	30%	31%	33%	33%	34%	36%	37%	36%	37%	37%	37%	35%	34%	33%	32%	27%	27%
% Capacity Margin	25%	18%	21%	23%	24%	25%	25%	26%	26%	27%	27%	27%	27%	27%	26%	25%	25%	24%	21%	21%
Required Capacity (RC)	**3,833**	**3,840**	**3,788**	**3,752**	**3,721**	**3,683**	**3,660**	**3,614**	**3,574**	**3,556**	**3,561**	**3,558**	**3,557**	**3,552**	**3,557**	**3,567**	**3,587**	**3,612**	**3,636**	**3,633**
Capacity Balance	**712**	**364**	**505**	**603**	**635**	**688**	**676**	**721**	**762**	**780**	**775**	**778**	**779**	**784**	**741**	**695**	**675**	**650**	**495**	**497**

Table 37: Capacity Forecast - Alternative Resource Plan KBBAA

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
A. System Generating Capacity (KCPL share)																				
Base Capacity																				
Wolf Creek	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552
Iatan I	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490
Iatan II	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482
Hawthorn 5	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564
La Cygne 1	368	368	368	368	368	368	368	368	-	-	-	-	-	-	-	-	-	-	-	-
La Cygne 2	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331
Montrose 2	164	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Montrose 3	170	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Base Capacity	**3,121**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,419**	**2,419**	**2,419**	**2,419**	**2,419**	**2,419**	**2,419**	**2,419**	**2,419**	**2,419**	**2,419**	**2,419**
Intermediate Capacity																				
Hawthorn 6 & 9	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235
Total Intermediate Capacity	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**
Peaking Capacity																				
Hawthorn 7	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
Hawthorn 8	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
Northeast 11	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
Northeast 12	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
Northeast 13	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46
Northeast 14	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49
Northeast 15	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
Northeast 16	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
Northeast 17	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
Northeast 18	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52
Northeast Black Start Generator	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
West Gardner 1	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80
West Gardner 2	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
West Gardner 3	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77
West Gardner 4	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
Osawatomie	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76
Total Peaking Capacity	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**
Intermittent Capacity (Nameplate)																				
Spearville 1	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101
Spearville 2	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
Total Intermittent Capacity	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**
Percent Accredited Intermittent Capacity	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%
Total Accredited Intermittent Capacity	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
Wind Additions																				
Solar Additions											1	1	1	1	1	1	1	1	1	1
Total Intermittent Capacity with Additions	47	47	47	47	47	47	47	47	47	47	48	48	48	48	48	48	48	48	48	48
Total Generation Capacity (TGC)	**4,345**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**3,642**	**3,642**	**3,643**	**3,643**	**3,643**	**3,643**	**3,643**	**3,643**	**3,643**	**3,643**	**3,643**	**3,643**
B. Capacity Transactions																				
Purchases:																				
Duke/Sumitomo Cimarron II (131.1 MW)	39	39	39	39	39	39	39	39	39	39	39	39	39	39	-	-	-	-	-	-
EDF Spearville 3 (100.8 MW)	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	-	-	-	-	-
CNPPID (Nebraska) - Hydro PPA	60	60	60	60	60	60	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EDPR Renewables Waverly (200 MW)	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	-	-
EDF Slate Creek (150 MW)	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	-	-
Enel Rock Creek (180 MW)	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
NextEra Osborn (120 MW)	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
NextEra Pratt (98 MW)	-	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46
EDPR Prairie Queen (80 MW)	-	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26
Total Capacity Purchases (P)	313	385	385	385	385	385	325	325	325	325	325	325	325	325	286	250	250	250	119	119
Sales:																				
GMO	(60)	(125)	(35)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
City of Chanute	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
City of Eudora	(15)	(15)	(15)	(15)	(15)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KMEA (from SPV 1 & 2)	(37)	(27)	(27)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Big Rivers Electric Coop	-	(25)	(25)	(25)	(25)	(25)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Capacity Sales (S)	(112)	(192)	(102)	(40)	(40)	(25)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Transactions (NT)	**201**	**193**	**283**	**345**	**345**	**360**	**325**	**325**	**325**	**325**	**325**	**325**	**325**	**325**	**286**	**250**	**250**	**250**	**119**	**119**
Total System Capacity (TSC)	**4,545**	**4,203**	**4,293**	**4,355**	**4,355**	**4,370**	**4,336**	**4,336**	**3,967**	**3,967**	**3,968**	**3,968**	**3,968**	**3,968**	**3,930**	**3,894**	**3,894**	**3,894**	**3,762**	**3,762**
C. System Peaks & Reserves																				
Peak Demands																				
Forecasted Peak	**3,507**	**3,519**	**3,510**	**3,509**	**3,523**	**3,536**	**3,560**	**3,566**	**3,574**	**3,594**	**3,625**	**3,644**	**3,665**	**3,680**	**3,699**	**3,718**	**3,741**	**3,770**	**3,801**	**3,810**
Less DSM:																				
Demand Response	(50)	(71)	(102)	(132)	(174)	(242)	(299)	(335)	(361)	(381)	(400)	(414)	(422)	(426)	(422)	(417)	(411)	(405)	(403)	(405)
Energy Efficiency		(7)	(21)	(31)	(49)	(68)	(84)	(101)	(117)	(134)	(150)	(165)	(180)	(196)	(211)	(226)	(240)	(254)	(270)	(286)
MEEIA	(34)	(27)	(27)	(26)	(26)	(25)	(25)	(24)	(24)	(21)	(12)	(4)	(2)	(2)	(2)	(0)	1	1	1	1
Demand-Side Rates	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Peak Forecast less DSM (PF)	**3,423**	**3,414**	**3,361**	**3,320**	**3,275**	**3,201**	**3,152**	**3,106**	**3,072**	**3,059**	**3,063**	**3,061**	**3,061**	**3,057**	**3,064**	**3,075**	**3,091**	**3,112**	**3,129**	**3,121**
Capacity Reserves (CR)	**1,123**	**789**	**933**	**1,035**	**1,080**	**1,170**	**1,184**	**1,230**	**895**	**909**	**906**	**908**	**908**	**912**	**866**	**819**	**803**	**782**	**633**	**642**
D. Capacity Needs																				
% Reserve Margin	33%	23%	28%	31%	33%	37%	38%	40%	29%	30%	30%	30%	30%	30%	28%	27%	26%	25%	20%	21%
% Capacity Margin	25%	19%	22%	24%	25%	27%	27%	28%	23%	23%	23%	23%	23%	23%	22%	21%	21%	20%	17%	17%
Required Capacity (RC)	**3,833**	**3,824**	**3,764**	**3,719**	**3,668**	**3,585**	**3,530**	**3,479**	**3,441**	**3,426**	**3,430**	**3,428**	**3,428**	**3,423**	**3,432**	**3,444**	**3,461**	**3,485**	**3,505**	**3,495**
Capacity Balance	**712**	**380**	**529**	**637**	**687**	**785**	**806**	**857**	**527**	**542**	**538**	**540**	**540**	**545**	**498**	**450**	**432**	**409**	**258**	**267**

Table 38: Capacity Forecast - Alternative Resource Plan KBBDA

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
A. System Generating Capacity (KCPL share)																				
Base Capacity																				
Wolf Creek	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552
Iatan I	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490
Iatan II	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482
Hawthorn 5	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564
La Cygne 1	368	368	368	368	368	368	368	368	-	-	-	-	-	-	-	-	-	-	-	-
La Cygne 2	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331	331
Montrose 2	164	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Montrose 3	170	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Base Capacity	**3,121**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,787**	**2,419**	**2,419**	**2,419**	**2,419**	**2,419**	**2,419**	**2,419**	**2,419**	**2,419**	**2,419**	**2,419**	**2,419**
Intermediate Capacity																				
Hawthorn 6 & 9	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235
Total Intermediate Capacity	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**	**235**
Peaking Capacity																				
Hawthorn 7	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
Hawthorn 8	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
Northeast 11	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
Northeast 12	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
Northeast 13	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46
Northeast 14	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49
Northeast 15	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
Northeast 16	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
Northeast 17	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
Northeast 18	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52
Northeast Black Start Generator	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
West Gardner 1	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80
West Gardner 2	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
West Gardner 3	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77
West Gardner 4	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
Osawatomie	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76
Total Peaking Capacity	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**	**942**
Intermittent Capacity (Nameplate)																				
Spearville 1	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101
Spearville 2	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
Total Intermittent Capacity	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**	**149**
Percent Accredited Intermittent Capacity	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%	32%
Total Accredited Intermittent Capacity	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
Wind Additions																				
Solar Additions											1	1	1	1	1	1	1	1	1	1
Total Intermittent Capacity with Additions	47	47	47	47	47	47	47	47	47	47	48	48	48	48	48	48	48	48	48	48
Total Generation Capacity (TGC)	**4,345**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**4,011**	**3,642**	**3,642**	**3,643**	**3,643**	**3,643**	**3,643**	**3,643**	**3,643**	**3,643**	**3,643**	**3,643**	**3,643**
B. Capacity Transactions																				
Purchases:																				
Duke/Sumitomo Cimarron II (131.1 MW)	39	39	39	39	39	39	39	39	39	39	39	39	39	39	-	-	-	-	-	-
EDF Spearville 3 (100.8 MW)	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	-	-	-	-	-
CNPPID (Nebraska) - Hydro PPA	60	60	60	60	60	60	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EDPR Renewables Waverly (200 MW)	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	-	-
EDF Slate Creek (150 MW)	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	-	-
Enel Rock Creek (180 MW)	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
NextEra Osborn (120 MW)	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
NextEra Pratt (98 MW)	-	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46
EDPR Prairie Queen (80 MW)	-	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26
Total Capacity Purchases (P)	313	385	385	385	385	385	325	325	325	325	325	325	325	325	286	250	250	250	119	119
Sales:																				
GMO	(60)	(125)	(35)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
City of Chanute	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
City of Eudora	(15)	(15)	(15)	(15)	(15)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KMEA (from SPV 1 & 2)	(37)	(27)	(27)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Big Rivers Electric Coop	-	(25)	(25)	(25)	(25)	(25)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Capacity Sales (S)	(112)	(192)	(102)	(40)	(40)	(25)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Transactions (NT)	**201**	**193**	**283**	**345**	**345**	**360**	**325**	**325**	**325**	**325**	**325**	**325**	**325**	**325**	**286**	**250**	**250**	**250**	**119**	**119**
Total System Capacity (TSC)	**4,545**	**4,203**	**4,293**	**4,355**	**4,355**	**4,370**	**4,336**	**4,336**	**3,967**	**3,967**	**3,968**	**3,968**	**3,968**	**3,968**	**3,930**	**3,894**	**3,894**	**3,894**	**3,762**	**3,762**
C. System Peaks & Reserves																				
Peak Demands																				
Forecasted Peak	**3,507**	**3,519**	**3,510**	**3,509**	**3,523**	**3,536**	**3,560**	**3,566**	**3,574**	**3,594**	**3,625**	**3,644**	**3,665**	**3,680**	**3,699**	**3,718**	**3,741**	**3,770**	**3,801**	**3,810**
Less DSM:																				
Demand Response	(50)	(70)	(98)	(123)	(144)	(167)	(194)	(219)	(241)	(257)	(269)	(277)	(280)	(280)	(279)	(277)	(274)	(271)	(270)	(272)
Energy Efficiency		(5)	(15)	(23)	(33)	(43)	(53)	(62)	(72)	(81)	(91)	(99)	(106)	(114)	(121)	(129)	(136)	(143)	(151)	(160)
MEEIA	(34)	(27)	(27)	(26)	(26)	(25)	(25)	(24)	(24)	(21)	(12)	(4)	(2)	(2)	(2)	(0)	1	1	1	1
Demand-Side Rates	-	(0)	(5)	(11)	(18)	(26)	(34)	(47)	(59)	(73)	(86)	(98)	(108)	(116)	(124)	(128)	(130)	(132)	(134)	(136)
Peak Forecast less DSM (PF)	**3,423**	**3,417**	**3,366**	**3,325**	**3,302**	**3,275**	**3,254**	**3,214**	**3,178**	**3,162**	**3,167**	**3,166**	**3,168**	**3,168**	**3,174**	**3,184**	**3,201**	**3,224**	**3,246**	**3,244**
Capacity Reserves (CR)	**1,123**	**786**	**927**	**1,030**	**1,053**	**1,096**	**1,081**	**1,122**	**790**	**806**	**802**	**803**	**800**	**801**	**756**	**710**	**693**	**670**	**517**	**519**
D. Capacity Needs																				
% Reserve Margin	33%	23%	28%	31%	32%	33%	33%	35%	25%	25%	25%	25%	25%	25%	24%	22%	22%	21%	16%	16%
% Capacity Margin	25%	19%	22%	24%	24%	25%	25%	26%	20%	20%	20%	20%	20%	20%	19%	18%	18%	17%	14%	14%
Required Capacity (RC)	**3,833**	**3,828**	**3,770**	**3,724**	**3,699**	**3,668**	**3,645**	**3,599**	**3,559**	**3,541**	**3,547**	**3,545**	**3,548**	**3,548**	**3,555**	**3,566**	**3,585**	**3,611**	**3,635**	**3,633**
Capacity Balance	**712**	**376**	**524**	**631**	**657**	**703**	**691**	**736**	**409**	**426**	**422**	**423**	**420**	**421**	**375**	**328**	**308**	**283**	**127**	**130**

(C) The analysis of economic impact of alternative resource plans, calculated with and without utility financial incentives for demand-side resources, shall provide comparative estimates for each year of the planning horizon—

Each year of the planning period, all alternative plans are simulated with DSM expensed in the year spent. Summary results for this analysis are provided in the following Section.

1. For the following performance measures for each year:

A. Estimated annual revenue requirement;

B. Estimated annual average rates and percentage increase in the average rate from the prior year; and

C. Estimated company financial ratios and credit metrics; and

The following tables detail performance measures of each Alternative Resource Plan, with and without incentive payments for DSM expenditures on an expected value basis.

It should be noted that the IRP analysis for determining estimated annual revenue requirement; estimated level of average retail rates and percentage of change from the prior year; and estimated company financial ratios assumes perfect ratemaking.

Of note, the analysis does not take into consideration other factors such as company commitments and determinations from Commission Orders in other dockets that may impact the Rate Increase depicted each year in the table below.

As such, Rate Increase percentages reflected in the various years of analysis should not be interpreted as actual planned rate increase requests anticipated by the Company.

Table 39: Economic Impact of Alternative Resource Plan KAAAA

Year	Revenue Requirement ($MM)	Revenue Requirement Without DSM Performance Incentive ($MM)	Levelized Annual Rates ($/kW-hr)	Levelized Annual Rates Without DSM Performance Incentive ($/kW-hr)	Rate Increase	Rate Increase Without DSM Performance Incentive	Times Interest Earned	Debt to Capital	Internal Cash to Construction Expense
2018	1,788	1,788	0.11	0.11	0.00%	0.00%	4.83	47.90	1.19
2019	1,813	1,809	0.11	0.11	1.55%	1.34%	4.95	47.90	1.38
2020	1,780	1,776	0.11	0.11	-1.66%	-1.66%	4.62	47.90	1.40
2021	1,826	1,826	0.12	0.12	3.05%	3.26%	4.57	47.90	1.39
2022	1,853	1,853	0.12	0.12	1.58%	1.58%	4.55	47.89	1.29
2023	1,863	1,858	0.12	0.12	0.69%	0.41%	4.36	47.89	1.14
2024	1,885	1,880	0.12	0.12	1.11%	1.11%	4.11	47.88	1.06
2025	1,899	1,899	0.12	0.12	0.98%	1.25%	4.03	47.87	1.11
2026	2,003	1,994	0.13	0.13	5.29%	4.80%	4.09	47.87	1.39
2027	2,094	2,085	0.13	0.13	4.26%	4.28%	4.18	47.87	1.36
2028	2,117	2,117	0.13	0.13	0.41%	0.86%	4.07	47.87	1.43
2029	2,120	2,114	0.13	0.13	-0.12%	-0.41%	4.05	47.87	1.38
2030	2,162	2,156	0.14	0.13	1.69%	1.70%	4.02	47.87	1.41
2031	2,196	2,196	0.14	0.14	1.28%	1.57%	3.99	47.87	1.45
2032	2,237	2,233	0.14	0.14	1.34%	1.13%	4.05	47.87	1.51
2033	2,305	2,301	0.14	0.14	2.90%	2.91%	4.00	47.87	1.57
2034	2,338	2,338	0.14	0.14	0.91%	1.12%	3.98	47.87	1.51
2035	2,358	2,355	0.14	0.14	0.33%	0.20%	3.76	47.87	1.52
2036	2,445	2,442	0.15	0.15	2.97%	2.98%	3.91	47.87	1.52
2037	2,495	2,495	0.15	0.15	1.77%	1.89%	3.90	47.87	1.55

Table 40: Economic Impact of Alternative Resource Plan KAABA

Year	Revenue Requirement ($MM)	Revenue Requirement Without DSM Performance Incentive ($MM)	Levelized Annual Rates ($/kW-hr)	Levelized Annual Rates Without DSM Performance Incentive ($/kW-hr)	Rate Increase	Rate Increase Without DSM Performance Incentive	Times Interest Earned	Debt to Capital	Internal Cash to Construction Expense
2018	1,788	1,788	0.11	0.11	0.00%	0.00%	4.83	47.90	1.19
2019	1,805	1,801	0.11	0.11	1.01%	0.80%	4.95	47.90	1.35
2020	1,771	1,767	0.11	0.11	-1.77%	-1.77%	4.62	47.90	1.37
2021	1,817	1,817	0.11	0.11	2.96%	3.18%	4.57	47.90	1.36
2022	1,837	1,837	0.12	0.12	1.10%	1.10%	4.55	47.89	1.25
2023	1,845	1,841	0.12	0.12	0.41%	0.18%	4.36	47.89	1.10
2024	1,869	1,865	0.12	0.12	1.08%	1.09%	4.11	47.88	1.02
2025	1,886	1,886	0.12	0.12	0.97%	1.20%	4.03	47.87	1.06
2026	1,988	1,981	0.13	0.12	5.13%	4.79%	4.08	47.87	1.33
2027	2,081	2,074	0.13	0.13	4.23%	4.25%	4.17	47.87	1.30
2028	2,108	2,108	0.13	0.13	0.52%	0.83%	4.06	47.87	1.37
2029	2,110	2,104	0.13	0.13	-0.29%	-0.55%	4.04	47.87	1.33
2030	2,153	2,147	0.13	0.13	1.58%	1.59%	4.01	47.87	1.35
2031	2,187	2,187	0.13	0.13	1.19%	1.45%	3.98	47.87	1.39
2032	2,229	2,225	0.14	0.14	1.17%	1.01%	4.04	47.87	1.45
2033	2,298	2,294	0.14	0.14	2.79%	2.80%	3.99	47.87	1.50
2034	2,332	2,332	0.14	0.14	0.87%	1.03%	3.97	47.87	1.45
2035	2,352	2,349	0.14	0.14	0.18%	0.09%	3.75	47.87	1.45
2036	2,440	2,438	0.15	0.15	2.89%	2.89%	3.90	47.87	1.45
2037	2,493	2,493	0.15	0.15	1.71%	1.81%	3.89	47.87	1.48

Table 41: Economic Impact of Alternative Resource Plan KAACA

Year	Revenue Requirement ($MM)	Revenue Requirement Without DSM Performance Incentive ($MM)	Levelized Annual Rates ($/kW-hr)	Levelized Annual Rates Without DSM Performance Incentive ($/kW-hr)	Rate Increase	Rate Increase Without DSM Performance Incentive	Times Interest Earned	Debt to Capital	Internal Cash to Construction Expense
2018	1,788	1,788	0.11	0.11	0.00%	0.00%	4.83	47.90	1.19
2019	1,801	1,797	0.11	0.11	0.74%	0.53%	4.95	47.90	1.34
2020	1,767	1,763	0.11	0.11	-1.85%	-1.86%	4.62	47.90	1.36
2021	1,813	1,813	0.11	0.11	2.89%	3.11%	4.57	47.90	1.35
2022	1,831	1,831	0.12	0.12	0.90%	0.90%	4.55	47.89	1.23
2023	1,838	1,835	0.12	0.12	0.26%	0.09%	4.36	47.89	1.08
2024	1,863	1,860	0.12	0.12	1.03%	1.04%	4.10	47.88	1.00
2025	1,882	1,882	0.12	0.12	1.00%	1.18%	4.03	47.87	1.04
2026	1,984	1,979	0.12	0.12	5.03%	4.78%	4.08	47.87	1.30
2027	2,078	2,073	0.13	0.13	4.22%	4.23%	4.17	47.87	1.28
2028	2,109	2,109	0.13	0.13	0.57%	0.81%	4.06	47.87	1.35
2029	2,110	2,106	0.13	0.13	-0.42%	-0.61%	4.04	47.87	1.30
2030	2,153	2,149	0.13	0.13	1.54%	1.55%	4.00	47.87	1.32
2031	2,191	2,191	0.13	0.13	1.22%	1.42%	3.97	47.87	1.36
2032	2,232	2,229	0.13	0.13	1.07%	0.95%	4.03	47.87	1.42
2033	2,301	2,299	0.14	0.14	2.75%	2.76%	3.98	47.87	1.47
2034	2,338	2,338	0.14	0.14	0.89%	1.01%	3.97	47.87	1.42
2035	2,357	2,355	0.14	0.14	0.11%	0.04%	3.74	47.87	1.42
2036	2,446	2,445	0.14	0.14	2.84%	2.85%	3.90	47.87	1.42
2037	2,500	2,500	0.15	0.15	5.65%	5.72%	3.88	47.87	1.44

Table 42: Economic Impact of Alternative Resource Plan KAADA

Year	Revenue Requirement ($MM)	Revenue Requirement Without DSM Performance Incentive ($MM)	Levelized Annual Rates ($/kW-hr)	Levelized Annual Rates Without DSM Performance Incentive ($/kW-hr)	Rate Increase	Rate Increase Without DSM Performance Incentive	Times Interest Earned	Debt to Capital	Internal Cash to Construction Expense
2018	1,788	1,788	0.11	0.11	0.00%	0.00%	4.83	47.90	1.19
2019	1,805	1,801	0.11	0.11	1.03%	0.82%	4.95	47.90	1.35
2020	1,771	1,768	0.11	0.11	-1.73%	-1.73%	4.62	47.90	1.37
2021	1,817	1,817	0.11	0.11	2.98%	3.19%	4.57	47.90	1.36
2022	1,827	1,827	0.12	0.12	0.52%	0.52%	4.55	47.89	1.23
2023	1,835	1,830	0.12	0.12	0.29%	0.03%	4.36	47.89	1.08
2024	1,858	1,854	0.12	0.12	1.00%	1.00%	4.11	47.88	1.00
2025	1,877	1,877	0.12	0.12	1.07%	1.33%	4.03	47.87	1.04
2026	1,978	1,974	0.12	0.12	5.06%	4.82%	4.08	47.87	1.30
2027	2,071	2,066	0.13	0.13	4.23%	4.24%	4.17	47.87	1.28
2028	2,100	2,100	0.13	0.13	0.61%	0.82%	4.06	47.87	1.35
2029	2,101	2,095	0.13	0.13	-0.37%	-0.66%	4.04	47.87	1.31
2030	2,143	2,137	0.13	0.13	1.51%	1.51%	4.01	47.87	1.33
2031	2,177	2,177	0.13	0.13	1.08%	1.36%	3.98	47.87	1.37
2032	2,218	2,214	0.13	0.13	1.15%	0.95%	4.04	47.87	1.42
2033	2,288	2,283	0.14	0.14	2.75%	2.76%	3.99	47.87	1.48
2034	2,321	2,321	0.14	0.14	0.78%	0.97%	3.97	47.87	1.42
2035	2,341	2,338	0.14	0.14	0.11%	0.01%	3.75	47.87	1.43
2036	2,430	2,427	0.14	0.14	2.84%	2.85%	3.90	47.87	1.42
2037	2,482	2,482	0.15	0.15	1.63%	1.73%	3.89	47.87	1.44

Table 43: Economic Impact of Alternative Resource Plan KAAEA

Year	Revenue Requirement ($MM)	Revenue Requirement Without DSM Performance Incentive ($MM)	Levelized Annual Rates ($/kW-hr)	Levelized Annual Rates Without DSM Performance Incentive ($/kW-hr)	Rate Increase	Rate Increase Without DSM Performance Incentive	Times Interest Earned	Debt to Capital	Internal Cash to Construction Expense
2018	1,788	1,788	0.11	0.11	0.00%	0.00%	4.83	47.90	1.19
2019	1,805	1,801	0.11	0.11	1.01%	0.80%	4.95	47.90	1.35
2020	1,771	1,767	0.11	0.11	-1.77%	-1.77%	4.62	47.90	1.37
2021	1,817	1,817	0.11	0.11	2.96%	3.18%	4.57	47.90	1.36
2022	1,829	1,829	0.12	0.12	0.59%	0.59%	4.55	47.89	1.23
2023	1,838	1,834	0.12	0.12	0.33%	0.09%	4.36	47.89	1.08
2024	1,863	1,859	0.12	0.12	1.03%	1.03%	4.11	47.88	1.00
2025	1,880	1,880	0.12	0.12	0.92%	1.15%	4.03	47.87	1.04
2026	1,982	1,977	0.12	0.12	5.00%	4.76%	4.08	47.87	1.30
2027	2,076	2,072	0.13	0.13	4.22%	4.23%	4.17	47.87	1.27
2028	2,107	2,107	0.13	0.13	0.60%	0.81%	4.06	47.87	1.35
2029	2,108	2,104	0.13	0.13	-0.43%	-0.62%	4.04	47.87	1.30
2030	2,152	2,148	0.13	0.13	1.53%	1.53%	4.00	47.87	1.32
2031	2,190	2,190	0.13	0.13	1.21%	1.41%	3.97	47.87	1.36
2032	2,231	2,228	0.13	0.13	1.05%	0.94%	4.03	47.87	1.42
2033	2,301	2,298	0.14	0.14	2.75%	2.75%	3.98	47.87	1.47
2034	2,337	2,337	0.14	0.14	0.89%	1.00%	3.97	47.87	1.42
2035	2,356	2,355	0.14	0.14	0.08%	0.02%	3.74	47.87	1.42
2036	2,446	2,444	0.14	0.14	2.83%	2.84%	3.89	47.87	1.42
2037	2,500	2,500	0.15	0.15	1.71%	1.77%	3.88	47.87	1.44

Table 44: Economic Impact of Alternative Resource Plan KAAEW

Year	Revenue Requirement ($MM)	Revenue Requirement Without DSM Performance Incentive ($MM)	Levelized Annual Rates ($/kW-hr)	Levelized Annual Rates Without DSM Performance Incentive ($/kW-hr)	Rate Increase	Rate Increase Without DSM Performance Incentive	Times Interest Earned	Debt to Capital	Internal Cash to Construction Expense
2018	1,788	1,788	0.11	0.11	0.00%	0.00%	4.80	47.90	0.97
2019	1,859	1,855	0.12	0.12	4.03%	3.82%	4.98	47.90	0.87
2020	1,794	1,791	0.11	0.11	-3.36%	-3.37%	4.50	47.90	1.48
2021	1,836	1,836	0.12	0.12	2.68%	2.90%	4.47	47.90	1.44
2022	1,844	1,844	0.12	0.12	0.35%	0.35%	4.46	47.89	1.30
2023	1,850	1,846	0.12	0.12	0.16%	-0.08%	4.29	47.89	1.14
2024	1,871	1,867	0.12	0.12	0.80%	0.81%	4.06	47.88	1.05
2025	1,886	1,886	0.12	0.12	0.78%	1.01%	3.99	47.87	1.07
2026	1,982	1,977	0.12	0.12	4.71%	4.47%	4.04	47.87	1.34
2027	2,073	2,068	0.13	0.13	4.06%	4.07%	4.13	47.87	1.31
2028	2,102	2,102	0.13	0.13	0.51%	0.72%	4.03	47.87	1.38
2029	2,102	2,097	0.13	0.13	-0.50%	-0.70%	4.01	47.87	1.34
2030	2,162	2,158	0.13	0.13	2.35%	2.35%	3.98	47.87	1.35
2031	2,198	2,198	0.13	0.13	1.11%	1.30%	3.95	47.87	1.40
2032	2,238	2,235	0.13	0.13	0.99%	0.88%	4.01	47.87	1.45
2033	2,305	2,303	0.14	0.14	2.63%	2.64%	3.97	47.87	1.50
2034	2,340	2,340	0.14	0.14	0.80%	0.91%	3.95	47.87	1.45
2035	2,357	2,356	0.14	0.14	0.02%	-0.04%	3.73	47.87	1.45
2036	2,444	2,443	0.14	0.14	2.71%	2.71%	3.89	47.87	1.44
2037	2,496	2,496	0.15	0.15	1.64%	1.70%	3.88	47.87	1.47

Table 45: Economic Impact of Alternative Resource Plan KAAFA

Year	Revenue Requirement ($MM)	Revenue Requirement Without DSM Performance Incentive ($MM)	Levelized Annual Rates ($/kW-hr)	Levelized Annual Rates Without DSM Performance Incentive ($/kW-hr)	Rate Increase	Rate Increase Without DSM Performance Incentive	Times Interest Earned	Debt to Capital	Internal Cash to Construction Expense
2018	1,788	1,788	0.11	0.11	0.00%	0.00%	4.83	47.90	1.19
2019	1,805	1,801	0.11	0.11	1.03%	0.82%	4.95	47.90	1.35
2020	1,771	1,768	0.11	0.11	-1.73%	-1.73%	4.62	47.90	1.37
2021	1,817	1,817	0.11	0.11	2.98%	3.19%	4.57	47.90	1.36
2022	1,824	1,824	0.12	0.12	0.21%	0.21%	4.55	47.89	1.22
2023	1,832	1,828	0.12	0.12	0.20%	-0.06%	4.36	47.89	1.07
2024	1,857	1,852	0.12	0.12	0.92%	0.93%	4.11	47.88	0.99
2025	1,874	1,874	0.12	0.12	0.81%	1.07%	4.03	47.87	1.02
2026	1,977	1,973	0.12	0.12	4.94%	4.77%	4.08	47.87	1.28
2027	2,073	2,070	0.13	0.13	4.23%	4.24%	4.16	47.87	1.25
2028	2,106	2,106	0.13	0.13	0.56%	0.73%	4.06	47.87	1.33
2029	2,106	2,104	0.13	0.13	-0.60%	-0.71%	4.03	47.87	1.28
2030	2,152	2,150	0.13	0.13	1.49%	1.49%	3.99	47.87	1.30
2031	2,193	2,193	0.13	0.13	1.23%	1.34%	3.97	47.87	1.34
2032	2,234	2,233	0.13	0.13	0.91%	0.85%	4.02	47.87	1.39
2033	2,305	2,304	0.14	0.14	2.69%	2.70%	3.97	47.87	1.44
2034	2,345	2,345	0.14	0.14	0.90%	0.96%	3.96	47.87	1.39
2035	2,363	2,363	0.14	0.14	-0.06%	-0.08%	3.73	47.87	1.39
2036	2,454	2,454	0.14	0.14	2.79%	2.79%	3.89	47.87	1.39
2037	2,510	2,510	0.14	0.14	1.64%	1.65%	3.88	47.87	1.42

Table 46: Economic Impact of Alternative Resource Plan KAAGA

Year	Revenue Requirement ($MM)	Revenue Requirement Without DSM Performance Incentive ($MM)	Levelized Annual Rates ($/kW-hr)	Levelized Annual Rates Without DSM Performance Incentive ($/kW-hr)	Rate Increase	Rate Increase Without DSM Performance Incentive	Times Interest Earned	Debt to Capital	Internal Cash to Construction Expense
2018	1,788	1,788	0.11	0.11	0.00%	0.00%	4.83	47.90	1.19
2019	1,805	1,801	0.11	0.11	1.01%	0.80%	4.95	47.90	1.35
2020	1,771	1,767	0.11	0.11	-1.77%	-1.77%	4.62	47.90	1.37
2021	1,817	1,817	0.11	0.11	2.96%	3.18%	4.57	47.90	1.36
2022	1,824	1,824	0.12	0.12	0.20%	0.20%	4.55	47.89	1.22
2023	1,833	1,829	0.12	0.11	0.15%	-0.08%	4.36	47.89	1.07
2024	1,858	1,854	0.12	0.12	0.92%	0.92%	4.11	47.88	0.98
2025	1,877	1,877	0.12	0.12	0.86%	1.09%	4.03	47.87	1.02
2026	1,980	1,977	0.12	0.12	4.92%	4.79%	4.07	47.87	1.27
2027	2,077	2,074	0.13	0.13	4.21%	4.21%	4.16	47.87	1.25
2028	2,112	2,112	0.13	0.13	0.67%	0.78%	4.05	47.87	1.33
2029	2,111	2,110	0.13	0.13	-0.64%	-0.72%	4.03	47.87	1.28
2030	2,157	2,155	0.13	0.13	1.48%	1.48%	3.99	47.87	1.30
2031	2,200	2,200	0.13	0.13	1.29%	1.37%	3.97	47.87	1.34
2032	2,240	2,239	0.13	0.13	0.89%	0.85%	4.02	47.87	1.39
2033	2,312	2,311	0.14	0.14	2.68%	2.68%	3.97	47.87	1.44
2034	2,352	2,352	0.14	0.14	0.94%	0.98%	3.96	47.87	1.39
2035	2,370	2,370	0.14	0.14	-0.07%	-0.08%	3.73	47.87	1.39
2036	2,462	2,461	0.14	0.14	2.77%	2.77%	3.88	47.87	1.39
2037	2,518	2,518	0.14	0.14	1.69%	1.70%	3.87	47.87	1.41

Table 47: Economic Impact of Alternative Resource Plan KAAHA

Year	Revenue Requirement ($MM)	Revenue Requirement Without DSM Performance Incentive ($MM)	Levelized Annual Rates ($/kW-hr)	Levelized Annual Rates Without DSM Performance Incentive ($/kW-hr)	Rate Increase	Rate Increase Without DSM Performance Incentive	Times Interest Earned	Debt to Capital	Internal Cash to Construction Expense
2018	1,788	1,788	0.11	0.11	0.00%	0.00%	4.83	47.90	1.19
2019	1,792	1,789	0.11	0.11	0.11%	-0.10%	4.95	47.90	1.32
2020	1,759	1,755	0.11	0.11	-2.07%	-2.08%	4.62	47.90	1.33
2021	1,805	1,805	0.11	0.11	2.71%	2.92%	4.57	47.90	1.32
2022	1,820	1,820	0.11	0.11	0.44%	0.44%	4.55	47.89	1.19
2023	1,826	1,826	0.11	0.11	-0.16%	-0.16%	4.35	47.89	1.03
2024	1,855	1,855	0.11	0.11	0.92%	0.92%	4.09	47.88	0.95
2025	1,882	1,882	0.12	0.12	1.12%	1.12%	4.02	47.87	1.00
2026	1,985	1,985	0.12	0.12	4.76%	4.76%	4.06	47.87	1.24
2027	2,085	2,085	0.13	0.13	4.18%	4.18%	4.15	47.87	1.22
2028	2,126	2,126	0.13	0.13	0.76%	0.76%	4.04	47.87	1.30
2029	2,124	2,124	0.13	0.13	-0.84%	-0.84%	4.01	47.87	1.25
2030	2,171	2,171	0.13	0.13	1.46%	1.46%	3.97	47.87	1.26
2031	2,217	2,217	0.13	0.13	1.32%	1.32%	3.95	47.87	1.31
2032	2,257	2,257	0.13	0.13	0.78%	0.78%	4.00	47.87	1.35
2033	2,330	2,330	0.13	0.13	2.61%	2.61%	3.96	47.87	1.41
2034	2,374	2,374	0.14	0.14	0.96%	0.96%	3.94	47.87	1.36
2035	2,393	2,393	0.14	0.14	-0.10%	-0.10%	3.72	47.87	1.36
2036	2,487	2,487	0.14	0.14	2.77%	2.77%	3.87	47.87	1.35
2037	2,548	2,548	0.14	0.14	1.72%	1.72%	3.86	47.87	1.38

Table 48: Economic Impact of Alternative Resource Plan KAAKA

Year	Revenue Requirement ($MM)	Revenue Requirement Without DSM Performance Incentive ($MM)	Levelized Annual Rates ($/kW-hr)	Levelized Annual Rates Without DSM Performance Incentive ($/kW-hr)	Rate Increase	Rate Increase Without DSM Performance Incentive	Times Interest Earned	Debt to Capital	Internal Cash to Construction Expense
2018	1,788	1,788	0.11	0.11	0.00%	0.00%	4.83	47.90	1.19
2019	1,801	1,797	0.11	0.11	0.76%	0.55%	4.95	47.90	1.34
2020	1,767	1,764	0.11	0.11	-1.81%	-1.82%	4.62	47.90	1.36
2021	1,813	1,813	0.11	0.11	2.91%	3.13%	4.57	47.90	1.35
2022	1,825	1,825	0.11	0.11	0.51%	0.51%	4.55	47.89	1.22
2023	1,832	1,829	0.12	0.11	0.13%	-0.07%	4.36	47.89	1.07
2024	1,857	1,853	0.12	0.12	0.93%	0.93%	4.10	47.88	0.98
2025	1,876	1,876	0.12	0.12	0.89%	1.09%	4.03	47.87	1.02
2026	1,979	1,975	0.12	0.12	4.96%	4.78%	4.08	47.87	1.28
2027	2,076	2,072	0.13	0.13	4.24%	4.25%	4.16	47.87	1.26
2028	2,108	2,108	0.13	0.13	0.54%	0.72%	4.06	47.87	1.33
2029	2,108	2,106	0.13	0.13	-0.59%	-0.70%	4.03	47.87	1.28
2030	2,153	2,151	0.13	0.13	1.50%	1.50%	3.99	47.87	1.30
2031	2,194	2,194	0.13	0.13	1.24%	1.35%	3.97	47.87	1.34
2032	2,235	2,233	0.13	0.13	0.93%	0.87%	4.02	47.87	1.39
2033	2,306	2,305	0.14	0.14	2.70%	2.70%	3.97	47.87	1.44
2034	2,345	2,345	0.14	0.14	0.90%	0.96%	3.96	47.87	1.39
2035	2,364	2,363	0.14	0.14	-0.03%	-0.06%	3.73	47.87	1.39
2036	2,455	2,454	0.14	0.14	2.79%	2.79%	3.89	47.87	1.39
2037	2,510	2,510	0.14	0.14	1.62%	1.65%	3.88	47.87	1.42

Table 49: Economic Impact of Alternative Resource Plan KAAKN

Year	Revenue Requirement ($MM)	Revenue Requirement Without DSM Performance Incentive ($MM)	Levelized Annual Rates ($/kW-hr)	Levelized Annual Rates Without DSM Performance Incentive ($/kW-hr)	Rate Increase	Rate Increase Without DSM Performance Incentive	Times Interest Earned	Debt to Capital	Internal Cash to Construction Expense
2018	1,788	1,788	0.11	0.11	0.00%	0.00%	4.83	47.90	1.19
2019	1,808	1,804	0.11	0.11	1.13%	0.92%	4.95	47.90	1.34
2020	1,776	1,772	0.11	0.11	-1.70%	-1.71%	4.62	47.90	1.36
2021	1,822	1,822	0.11	0.11	2.95%	3.17%	4.57	47.90	1.35
2022	1,836	1,836	0.12	0.12	0.61%	0.61%	4.55	47.89	1.22
2023	1,844	1,841	0.12	0.12	0.17%	-0.03%	4.36	47.89	1.07
2024	1,871	1,867	0.12	0.12	1.02%	1.02%	4.10	47.88	0.98
2025	1,891	1,891	0.12	0.12	0.94%	1.14%	4.03	47.87	1.02
2026	1,997	1,994	0.12	0.12	5.13%	4.93%	4.08	47.87	1.28
2027	2,096	2,092	0.13	0.13	4.28%	4.28%	4.16	47.87	1.26
2028	2,129	2,129	0.13	0.13	0.56%	0.74%	4.06	47.87	1.33
2029	2,129	2,127	0.13	0.13	-0.58%	-0.69%	4.03	47.87	1.28
2030	2,176	2,174	0.13	0.13	1.56%	1.56%	3.99	47.87	1.30
2031	2,218	2,218	0.13	0.13	1.27%	1.38%	3.97	47.87	1.34
2032	2,259	2,258	0.13	0.13	0.93%	0.87%	4.02	47.87	1.39
2033	2,332	2,330	0.14	0.14	2.72%	2.72%	3.97	47.87	1.44
2034	2,372	2,372	0.14	0.14	0.93%	1.00%	3.96	47.87	1.39
2035	2,391	2,391	0.14	0.14	-0.01%	-0.03%	3.73	47.87	1.39
2036	2,484	2,483	0.14	0.14	2.82%	2.82%	3.89	47.87	1.39
2037	2,540	2,540	0.15	0.15	1.64%	1.66%	3.88	47.87	1.42

Table 50: Economic Impact of Alternative Resource Plan KAALA

Year	Revenue Requirement ($MM)	Revenue Requirement Without DSM Performance Incentive ($MM)	Levelized Annual Rates ($/kW-hr)	Levelized Annual Rates Without DSM Performance Incentive ($/kW-hr)	Rate Increase	Rate Increase Without DSM Performance Incentive	Times Interest Earned	Debt to Capital	Internal Cash to Construction Expense
2018	1,788	1,788	0.11	0.11	0.00%	0.00%	4.83	47.90	1.19
2019	1,801	1,797	0.11	0.11	0.75%	0.54%	4.95	47.90	1.34
2020	1,767	1,763	0.11	0.11	-1.82%	-1.83%	4.62	47.90	1.36
2021	1,812	1,812	0.11	0.11	2.92%	3.13%	4.57	47.90	1.35
2022	1,830	1,830	0.12	0.12	0.91%	0.91%	4.55	47.89	1.23
2023	1,838	1,834	0.12	0.12	0.31%	0.10%	4.36	47.89	1.08
2024	1,862	1,858	0.12	0.12	1.05%	1.05%	4.10	47.88	1.00
2025	1,879	1,879	0.12	0.12	0.96%	1.17%	4.03	47.87	1.04
2026	1,979	1,974	0.12	0.12	5.02%	4.76%	4.08	47.87	1.30
2027	2,072	2,067	0.13	0.13	4.26%	4.27%	4.17	47.87	1.28
2028	2,101	2,101	0.13	0.13	0.56%	0.80%	4.06	47.87	1.35
2029	2,102	2,096	0.13	0.13	-0.33%	-0.62%	4.04	47.87	1.31
2030	2,145	2,139	0.13	0.13	1.56%	1.56%	4.01	47.87	1.33
2031	2,178	2,178	0.13	0.13	1.09%	1.38%	3.98	47.87	1.37
2032	2,220	2,215	0.13	0.13	1.17%	0.96%	4.04	47.87	1.42
2033	2,289	2,284	0.14	0.14	2.76%	2.76%	3.99	47.87	1.48
2034	2,322	2,322	0.14	0.14	0.76%	0.97%	3.97	47.87	1.42
2035	2,341	2,339	0.14	0.14	0.14%	0.02%	3.75	47.87	1.43
2036	2,431	2,428	0.14	0.14	2.86%	2.86%	3.90	47.87	1.42
2037	2,482	2,482	0.15	0.15	1.61%	1.73%	3.89	47.87	1.44

Table 51: Economic Impact of Alternative Resource Plan KBBAA

Year	Revenue Requirement ($MM)	Revenue Requirement Without DSM Performance Incentive ($MM)	Levelized Annual Rates ($/kW-hr)	Levelized Annual Rates Without DSM Performance Incentive ($/kW-hr)	Rate Increase	Rate Increase Without DSM Performance Incentive	Times Interest Earned	Debt to Capital	Internal Cash to Construction Expense
2018	1,788	1,788	0.11	0.11	0.00%	0.00%	4.83	47.90	1.19
2019	1,813	1,809	0.11	0.11	1.54%	1.33%	4.95	47.90	1.38
2020	1,779	1,775	0.11	0.11	-1.69%	-1.69%	4.62	47.90	1.41
2021	1,825	1,825	0.12	0.12	3.03%	3.25%	4.57	47.90	1.39
2022	1,851	1,851	0.12	0.12	1.52%	1.52%	4.55	47.89	1.32
2023	1,861	1,856	0.12	0.12	0.65%	0.38%	4.37	47.89	1.15
2024	1,882	1,877	0.12	0.12	1.06%	1.06%	4.11	47.88	1.08
2025	1,895	1,895	0.12	0.12	0.94%	1.21%	4.04	47.88	1.11
2026	2,015	2,005	0.13	0.13	6.15%	5.66%	4.09	47.87	1.42
2027	2,112	2,103	0.13	0.13	4.54%	4.56%	4.19	47.87	1.38
2028	2,137	2,137	0.13	0.13	0.49%	0.94%	4.08	47.87	1.43
2029	2,141	2,135	0.13	0.13	-0.06%	-0.35%	4.06	47.87	1.39
2030	2,186	2,180	0.14	0.14	1.82%	1.83%	4.02	47.87	1.41
2031	2,220	2,220	0.14	0.14	1.26%	1.54%	3.99	47.87	1.46
2032	2,261	2,256	0.14	0.14	1.28%	1.08%	4.06	47.87	1.51
2033	2,329	2,325	0.14	0.14	2.90%	2.90%	4.01	47.87	1.58
2034	2,363	2,363	0.15	0.15	0.97%	1.17%	3.99	47.87	1.51
2035	2,382	2,379	0.15	0.15	0.25%	0.13%	3.76	47.87	1.52
2036	2,471	2,468	0.15	0.15	3.01%	3.02%	3.92	47.87	1.52
2037	2,518	2,518	0.15	0.15	1.63%	1.75%	3.91	47.87	1.55

Table 52: Economic Impact of Alternative Resource Plan KBBDA

Year	Revenue Requirement ($MM)	Revenue Requirement Without DSM Performance Incentive ($MM)	Levelized Annual Rates ($/kW-hr)	Levelized Annual Rates Without DSM Performance Incentive ($/kW-hr)	Rate Increase	Rate Increase Without DSM Performance Incentive	Times Interest Earned	Debt to Capital	Internal Cash to Construction Expense
2018	1,788	1,788	0.11	0.11	0.00%	0.00%	4.83	47.90	1.19
2019	1,805	1,801	0.11	0.11	1.02%	0.81%	4.95	47.90	1.36
2020	1,771	1,767	0.11	0.11	-1.76%	-1.76%	4.62	47.90	1.39
2021	1,816	1,816	0.11	0.11	2.96%	3.18%	4.57	47.90	1.37
2022	1,825	1,825	0.12	0.12	0.47%	0.47%	4.55	47.89	1.25
2023	1,832	1,827	0.12	0.12	0.26%	0.00%	4.36	47.89	1.08
2024	1,855	1,850	0.12	0.12	0.94%	0.95%	4.11	47.88	1.01
2025	1,873	1,873	0.12	0.12	1.04%	1.30%	4.04	47.87	1.05
2026	1,991	1,986	0.12	0.12	5.97%	5.73%	4.08	47.87	1.33
2027	2,089	2,084	0.13	0.13	4.47%	4.48%	4.17	47.87	1.30
2028	2,120	2,120	0.13	0.13	0.67%	0.88%	4.07	47.87	1.35
2029	2,123	2,117	0.13	0.13	-0.28%	-0.56%	4.05	47.87	1.32
2030	2,167	2,161	0.13	0.13	1.61%	1.61%	4.02	47.87	1.33
2031	2,201	2,201	0.13	0.13	1.07%	1.35%	3.99	47.87	1.37
2032	2,242	2,238	0.14	0.14	1.10%	0.90%	4.05	47.87	1.42
2033	2,312	2,308	0.14	0.14	2.74%	2.75%	4.00	47.87	1.48
2034	2,347	2,347	0.14	0.14	0.82%	1.01%	3.98	47.87	1.42
2035	2,365	2,363	0.14	0.14	0.05%	-0.05%	3.75	47.87	1.42
2036	2,456	2,453	0.15	0.14	2.87%	2.88%	3.91	47.87	1.42
2037	2,505	2,505	0.15	0.15	1.51%	1.61%	3.90	47.87	1.44

2. If the estimated company financial ratios in subparagraph (4)(C)1.C. are below investment grade in any year of the planning horizon, a description of any changes in legal mandates and cost recovery mechanisms necessary for the utility to maintain an investment grade credit rating in each year of the planning horizon and the resulting performance measures in subparagraphs (4)(C)1.A.–(4)(C)1.C. of the alternative resource plans that are associated with the necessary changes in legal mandates and cost recovery mechanisms.

The expected values of alternative plan performance ratios do not materially change below current conditions. The expectations would be that the investment rating of the company is not at risk from the choice of any particular alternative resource plan.

(D) A discussion of how the impacts of rate changes on future electric loads were modeled and how the appropriate estimates of price elasticity were obtained;

Rate calculation is performed in this analysis on a perfect rate making basis. Total revenue requirement is calculated which requires exogenous load forecast(s) as an input. In other words, rates are an output of the perfect rate making process.

Where rate elasticity is used in the IRP process is in the development of the load forecast. This is documented in the response to rule 22.030(7)(A)1 in Volume 3 of this filing.

(E) A discussion of the incremental costs of implementing more renewable energy resources than required to comply with renewable energy legal mandates;

Following the filing of the 2017 KCPL IRP Annual Update, the company entered into two new wind PPAs that will add 98 MW of capacity in 2018 and 80 MW in 2019 to the KCPL renewable portfolio. These additions are included in all 2018 modeled ARPs, with the exception of KAAKN, which excludes these for

comparative purposes. Comparing KAAKN to KAAKA, shows a $155mm lower revenue requirement attributable to these additions.

Rule 060(3)(A)2 requires the company to study a larger build of renewable resources beyond the current Missouri RES requirement. To meet this requirement and review the potential impact of a proposal to increase RES requirements in Missouri, the company included a plan (200 MW additional wind in 2020, ARP KAAEW) which increased the renewable portfolio for the company and is described in detail in Section 3 of this volume.

The results of this analysis are detailed throughout this Volume and in Volume 7. A summary review shows that increasing the amount of wind in the current company portfolio generally increases the NPVRR of the alternative resource plan.

(F) A discussion of the incremental costs of implementing more energy efficiency resources than required to comply with energy efficiency legal mandates;

At the current time, there is no specifically target legal mandate for energy efficiency. However this analysis reviews different levels of energy efficiency. These alternative plans are included in the integrated analysis results presented elsewhere in this Volume.

(G) A discussion of the incremental costs of implementing more energy resources than required to comply with any other energy resource legal mandates; and

At this time no other legal resource mandates exist. None are contemplated in this analysis.

(H) A description of the computer models used in the analysis of alternative resource plans.

The MIDAS™ model provides hourly chronological dispatch of all system generating assets including unit commitment logic that simulation the actual

operation of the utility system resources. The model contains all unit operating variables required to simulate the units. These variables include but are not limited to, heat rates, fuel costs, variable operation and maintenance costs, sulfur dioxide emission allowance costs, scheduled maintenance outages, forced and de rate outages rates each on a per unit basis.

The model can also simulate capacity and energy purchases from or sales to a market in either a firm transaction or as a spot market transaction. In the case of market based transactions, all can be conducted with the impact of environmental credits factored in.

SECTION 5: UNCERTAIN FACTORS

(5) The utility shall describe and document its selection of the uncertain factors that are critical to the performance of the alternative resource plans. The utility shall consider at least the following uncertain factors:

The company began developing a list of potential critical uncertain factors to consider in the alternative resource plans by including items required per Rule 4 CSR 240-22.060(5). In addition, the selection of critical uncertain factors considered previously filed IRP stipulations and agreements, the order from the Contemporary Issues process in Case EO-2018-0046, and internal company management concerns. The following table shows the consolidated list of uncertain factors considered by the company.

Table 53: Uncertain Factors

UNCERTAIN FACTOR	RULE	Default State	Test States
Load growth	060(5)(A)	Mid	High, Low
Interest rates/Credit market conditions	060(5)(B)	Mid	High, Low
Changes in legal mandates	060(5)(C)	RES	Standard
Clean Power Plan (CPP)		CPP Delay to 2026	Yes/No
Relative fuel prices	060(5)(D)		
Natural Gas		Mid	High, Low
PRB Coal		Mid	High, Low
Siting and permitting costs	060(5)(E)	Mid	High, Low
Construction costs	060(5)(F)	Mid	High, Low
Purchased power availability	060(5)(G)	Mid	High, Low
Emission allowances	060(5)(H)		
CO2		CPP 2026	Yes/No
SO2		Mid	High, Low
NOX		Mid	High, Low
Fixed O&M	060(5)(I)	Mid	High, Low
EFOR	060(5)(J)	Mid	High, Low
DSM load impacts	060(5)(K)	Mid	High, Low
DSM Utility marketing and delivery costs	060(5)(L)	Mid	High, Low
Other factors	060(5)(M)		
2018 Special Contemporary Issues:	EO-2018-0046		
Foreseeable demand response technologies	A(i)		
Foreseeable energy storage technologies	A(ii)		
Foreseeable distributed energy resources	A(iii)		
Impact of electric vehicle usage	B		
Impact of SPP coal generation retirements	T(i) -(iv)		-10%, -25%
Inclusion of Mountain West into SPP	T(v)		

The Company compiled information concerning the risks listed in 22.060 (5) from subject matter experts within the company. The experts were requested to provide mid, high and low scenario forecasts for their particular risk.

The company utilized the Ventyx System Optimizer Model™[CapEx™] to provide a preliminary test of each state of the uncertain factors. CapEx™ is a linear program based model that chooses the least-cost expansion plan given a known load growth and other fixed market factors. Once a load growth forecast and market is defined, the model is allowed to pick from the available supply, DSM and retirement options to develop the least-cost expansion plan.

The Company executed test runs for each sensitivity to determine if the resulting least-cost expansion plan constituted different choices of DSM, supply or retirements. If the model did not materially change its expansion plan by changing sensitivity, that factor was not deemed to be a Critical Uncertain Factor. However, if the model chose different options, such as different technologies or foregoing DSM programs, then that factor would be deemed a Critical Uncertain Factor and was incorporated within the Risk Analysis Decision Tree.

(A) The range of future load growth represented by the low-case and high-case load forecasts;

The high, mid and low load growth cases compliant with and described in Rule 22.030 (7) and 22.030(8) were used in the CapEx™ model. The CapEx™ results demonstrated that load growth is a critical uncertain factor. Load growth sensitivity was passed onto the integrated analysis.

(B) Future interest rate levels and other credit market conditions that can affect the utility's cost of capital and access to capital;

The company tested high and low long term cost of capital to model the sensitivity of CapEx™ plans to changes in these factors. When the adjusted cost of capital rates were input into the CapEx™ model, no material changes occurred to the

optimal expansion plan. Therefore the cost of capital was not deemed to be a critical uncertain factor and not included in the integrated analysis.

(C) Future changes in legal mandates;

Future changes to legal mandates would include the potential of a Federal Renewable Energy Standard. For the purposes of modeling, the company assumed the federal requirements would be similar to the Missouri Renewable Energy Standard (RES) requirements except that they would apply on a national level. The Federal standard would not require the Company to acquire additional renewable resources beyond the requirements of the Missouri rules. However, the entire country would be required to acquire additional renewable resources causing an adjustment to power market prices. When adjusted market prices were input into the CapEx™ model, no material changes occurred to the optimal expansion plan. Therefore the Federal renewable standard was not deemed to be a critical uncertain factor and not included in the integrated analysis.

The Clean Power Plan has been the basis for CO_2 uncertainty analysis since the 2015 Triennial filings. CPP provided insight into targets and how the EPA would reduce carbon emissions for uncertainty planning modeling purposes. CPP has experienced a significant setback since the last Presidential Election. For the purposes of modeling, the company has assumed that CPP, or another version of a carbon tax, will be shifted out until 2026 as an uncertainty for the integrated analysis performed for this 2018 Triennial filing.

(D) Relative real fuel prices;

NATURAL GAS PRICES

High and low natural gas price forecast scenarios were developed as inputs into the CapEx™ model. The optimized expansion plans for the high and low cases are sufficiently different to require adding natural gas price risk as a critical uncertain factor. Natural gas price forecast development is detailed in Volume 4, Supply-Side Analysis.

COAL PRICES

High and low delivered coal price forecast scenario was modeled in CapEx™. No material changes were identified in the model's optimal expansion plans. This risk was not included in the integrated analysis. Coal price forecast development is detailed in Volume 4, Supply-Side Analysis.

(E) Siting and permitting costs and schedules for new generation and generation-related transmission facilities for the utility, for a regional transmission organization, and/or other transmission systems;

Siting and permitting costs are incorporated into the cost of construction risk detailed in 22.060 (5) (F).

(F) Construction costs and schedules for new generation and generation-related transmission facilities for the utility, for a regional transmission organization, and/or other transmission systems;

The company determined high and low construction cost estimates for each supply technology that passed the preliminary screening process and was moved into the integrated resource analysis. These high and low construction costs scenarios were modeled in CapEx™. The resulting optimal expansion plans did not materially change for either the high or the low construction cost estimates. Construction cost was not identified as a critical uncertain factor, and this risk was not included in the integrated analysis.

Construction cost risks vary by technology. Detailed information for each of the resource options identified can be viewed in Volume 4.

(G) Purchased power availability, terms, cost, optionality, and other benefits;

High and low purchased power availability was simulated with a high and low cost for the capacity terms of the contracts. High and low purchased power availability scenarios were modeled in CapEx™. No material changes were identified in the

model's optimal expansion plans. Purchased power availability was not identified as a critical uncertain factor. This risk was not included in the integrated analysis.

(H) Price of emission allowances, including at a minimum sulfur dioxide, carbon dioxide, and nitrogen oxides;

SO_2 credit price forecast development is detailed in Volume 4, Supply-Side Analysis. High and low SO_2 credit price forecasts were simulated in the CapEx™ model. Resulting optimal expansion plans did not change as this cost was varied. SO_2 credit prices are not considered a critical resource factor and were not used as part of the integrated analysis.

NO_X credit price forecast development is detailed in Volume 4, Supply-Side Analysis. High and low NO_X credit price forecasts were simulated in the CapEx™ model. Resulting optimal expansion plans did not change as this cost was varied. NO_X credit prices are not considered a critical resource factor and were not used as part of the integrated analysis.

CO_2 credit price forecast development is detailed in Volume 4, Supply-Side Analysis. The default assumption is that there will be no CO_2 emissions credit market over the 20-year integrated resource planning period. The impact of including a cost for a CO_2 emission credits market was tested in the CapEx™ model. The resulting optimal expansion plan showed sensitivity to having a CO_2 emissions credit market. Therefore, CO_2 credit prices were included in the integrated analysis as a critical uncertain factor.

(I) Fixed operation and maintenance costs for new and existing generation facilities;

High and low Fixed O&M costs were simulated in the CapEx™ model. Resulting optimal expansion plans did not change as this cost was varied. Therefore, fixed O&M costs were not considered a critical resource factor and were not used as part of the integrated analysis.

(J) Equivalent or full- and partial-forced outage rates for new and existing generation facilities;

High and low equivalent forced outage rates were simulated in the CapEx™ model. Resulting optimal expansion plans did not change as this factor was varied. Therefore, equivalent forced outage rates were not considered a critical resource factor and were not used as part of the integrated analysis.

(K) Future load impacts of demand-side programs and demand-side rates:

High and low load impacts of DSM were simulated in the CapEx™ model. Resulting optimal expansion plans did not materially change as this factor was varied. Therefore, load impacts of DSM were not considered a critical resource factor and were not used as part of the integrated analysis.

(L) Utility marketing and delivery costs for demand-side programs and demand-side rates; and

High and low marketing costs of DSM were simulated in the CapEx™ model. Resulting optimal expansion plans did not change as this factor was varied. Therefore, marketing costs of DSM were not considered a critical resource factor and were not used as part of the integrated analysis.

(M) Any other uncertain factors that the utility determines may be critical to the performance of alternative resource plans.

The MIDAS ™ Model assumes interregional transfers of power are possible and power is allowed to flow freely in the model to help lower overall system costs and reduce the resultant market clearing price for wholesale power. The constraint of this power flow was simulated in the CapEx™ model to determine if a reduction in transfers of power would impact the expansion plan. The resulting optimal expansion plans did not materially change as this factor was varied. Therefore, interregional transfers of power were not considered a critical resource factor and were not used as part of the integrated analysis.

SECTION 6: CRITICAL UNCERTAIN FACTORS ASSESSMENT

(6) The utility shall describe and document its assessment of the impacts and interrelationships of critical uncertain factors on the expected performance of each of the alternative resource plans developed pursuant to 4 CSR 240-22.060(3) and analyze the risks associated with alternative resource plans. This assessment shall explicitly describe and document the probabilities that utility decision makers assign to each critical uncertain factor.

To summarize the results described in Section 5 above, the company determined three risks to be critical uncertain factors that would be used in the risk sensitivities of the integrated analysis; load growth, natural gas prices and CO_2 credit prices. These risks, and the associated probabilities used to model this IRP Filing are represented in this figure 1 below. The probabilities for both load and natural gas are the same as used on all filings since the last triennial filing in 2012 – with Mid 50% and High and Low states at 25% weighted probabilities. For CO_2, the decision states are now modeled as a 40% probability there will be a CO_2 credit market and 60% probability that no CO_2 credit market will exist. The weighted endpoint probability is the product these three weighted probabilities

Figure 1: Decision Tree Probabilities

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%

In order to assess the full range of risks, each possible combination of covariant risk is simulated. Subject matter experts within the company have assigned risk distributions to each of the three drivers. These risks are used to develop an overall distribution of risk using every combination of risk factors. A cumulative risk distribution is then derived from the joint probability calculation of each scenario component risk that defines the scenario.

The Company has used all combinations of identified risk drivers in its analysis. This includes scenarios that exhibited both strong positive and strong negative correlations among risk drivers. By using regression methods, the Company tested the effects of all extreme risk drivers and the cases of strong positive and strong negative correlations. The results of the regression studies are conclusive.

Even if strong correlations existed in the long run [either positive or negative], they have no statistically significant impact on plan performance results.

Results of the company correlation study are presented in the following table of regression results.

Table 54: Regression Study Results

Regression Statistics				
Multiple R	0.98993			
R Square	0.97997			
Adjusted R Square	0.97931			
Standard Error	80.14284			
Observations	252			
ANOVA				
	df	*SS*	*MS*	*F*
Regression	8	76340928.17	9542616	1485.723
Residual	243	1560758.756	6422.876	
Total	251	77901686.92		
	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	20034.340	16.359	1224.661	0.000
CO2	831.371	12.366	67.229	0.000
HGas	-285.587	22.294	-12.810	0.000
LGas	203.776	19.553	10.422	0.000
HLoad	389.346	19.553	19.912	0.000
LLoad	-330.649	19.553	-16.911	0.000
Load/Gas(+)	34.958	23.947	1.460	0.146
Load/Gas(-)	-34.953	23.947	-1.460	0.146
GAS/CO2	46.324	21.419	2.163	0.032

SECTION 7: CRITICAL UNCERTAIN FACTOR PROBABILITIES

(7) The utility decision-makers shall assign a probability pursuant to section (5) of this rule to each uncertain factor deemed critical by the utility. The utility shall compute the cumulative probability distribution of the values of each performance measure specified pursuant to 4 CSR 240-22.060(2). Both the expected performance and the risks of each alternative resource plan shall be quantified. The utility shall describe and document its risk assessment of each alternative resource plan.

Each risk factor has a probability distribution developed by the company subject matter expert. These probability distributions have been combined to produce overall joint probabilities for critical factor combinations.

(A) The expected performance of each resource plan shall be measured by the statistical expectation of the value of each performance measure.

Table 55: Expected Value Plan Performance Measures

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

(B) The risk associated with each resource plan shall be characterized by some measure of the dispersion of the probability distribution for each performance measure, such as the standard deviation or the values associated with specified percentiles of the distribution.

Table 56: Standard Deviation Plan Performance Measures

Plan	NPVRR ($MM)	Probable Environmental Costs ($MM)	DSM Performance Incentive Costs ($MM)	Levelized Annual Rates ($/KW-hr)	Maximum Rate Increase	Times Interest Earned	Total Debt to Capital	Internal Cash to Construction Expense
KAADA	557	3.79	0.00	0.007	1.50%	0.00	0.00	0.00
KAALA	557	3.80	0.00	0.007	1.50%	0.00	0.00	0.00
KAAKA	559	3.80	0.00	0.006	1.45%	0.00	0.00	0.00
KAAFA	559	3.77	0.00	0.006	1.45%	0.00	0.00	0.00
KAACA	558	3.87	0.00	0.006	1.16%	0.00	0.00	0.00
KAAEA	558	3.88	0.00	0.007	1.49%	0.00	0.00	0.00
KAABA	557	3.88	0.00	0.007	1.53%	0.00	0.00	0.00
KAAGA	560	3.84	0.00	0.006	1.44%	0.00	0.00	0.00
KBBDA	510	3.16	0.00	0.006	1.43%	0.00	0.00	0.00
KAAHA	563	3.78	0.00	0.006	1.38%	0.00	0.00	0.00
KAAEW	549	3.99	0.00	0.006	1.48%	0.00	0.00	0.00
KAAAA	554	3.96	0.00	0.007	1.60%	0.00	0.00	0.00
KAAKN	566	3.79	0.00	0.006	1.47%	0.00	0.00	0.00
KBBAA	509	3.22	0.00	0.007	1.53%	0.00	0.00	0.00

Note: Several performance measures are not affected by the individual scenario risk and therefore exhibits no standard deviation.

(C) The utility shall provide—

1. A discussion of the method the utility used to determine the cumulative probability—

For the overall risk analysis, the company assumed independence of the three critical uncertain factors for this long term analysis. The individual scenarios utilized a joint probability of the probabilistic occurrence of each risk component that defined the scenario. This method and its statistical performance is described in Section 6 of this Volume.

A. An explanation of how the critical uncertain factors were identified, how the ranges of potential outcomes for each uncertain factor were determined, and how the probabilities for each outcome were derived; and

The method for determining whether or not a risk was an uncertain factor is detailed in Section 5 of this Volume. The risk distribution for the load forecast and natural gas forecast was determined by the company subject matter expert.

B. Analyses supporting the utility's choice of ranges and probabilities for the uncertain factors;

Supporting documentation for the choice of probabilistic range is in Volume 3 for the load growth risk and Volume 4 for Natural Gas and CO_2 credit price risk.

2. Plots of the cumulative probability distribution of each distinct performance measure for each alternative resource plan;

Chart 80: Cumulative Probability - NPVRR

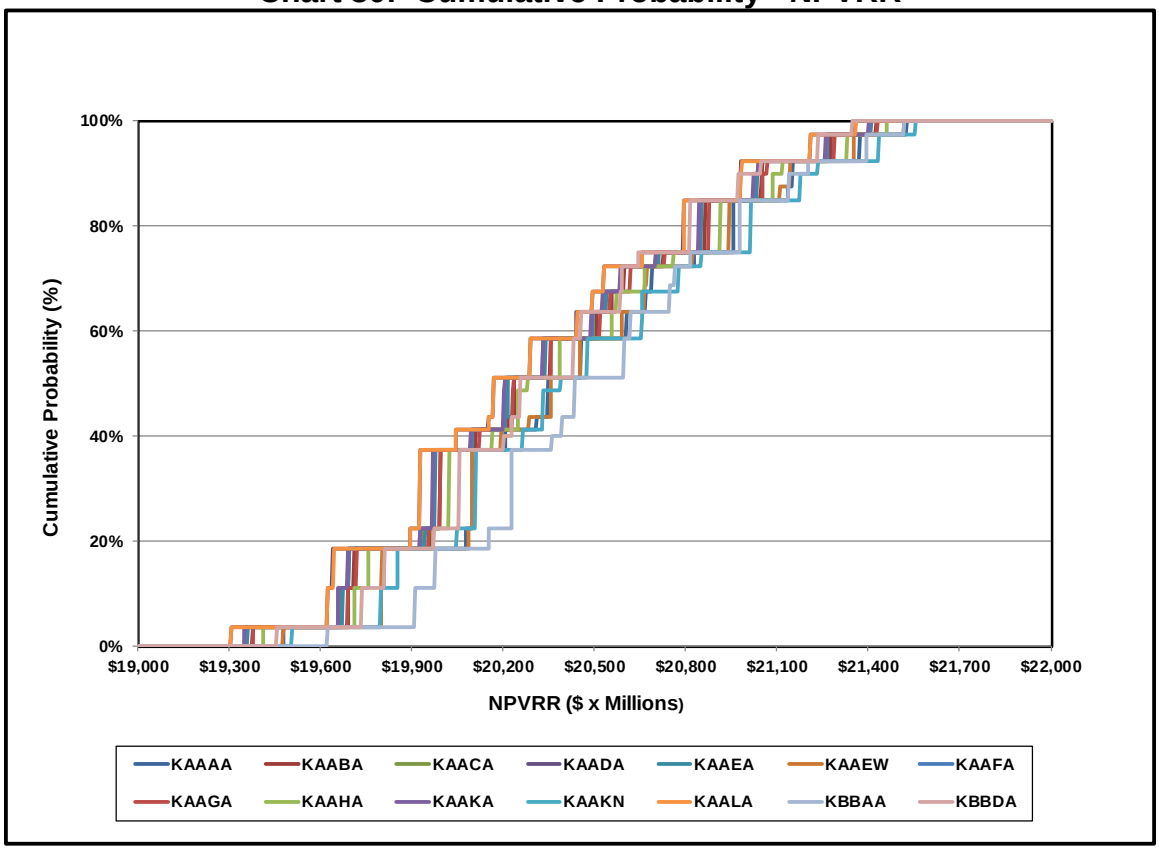


Chart 81: Cumulative Probability - PEC

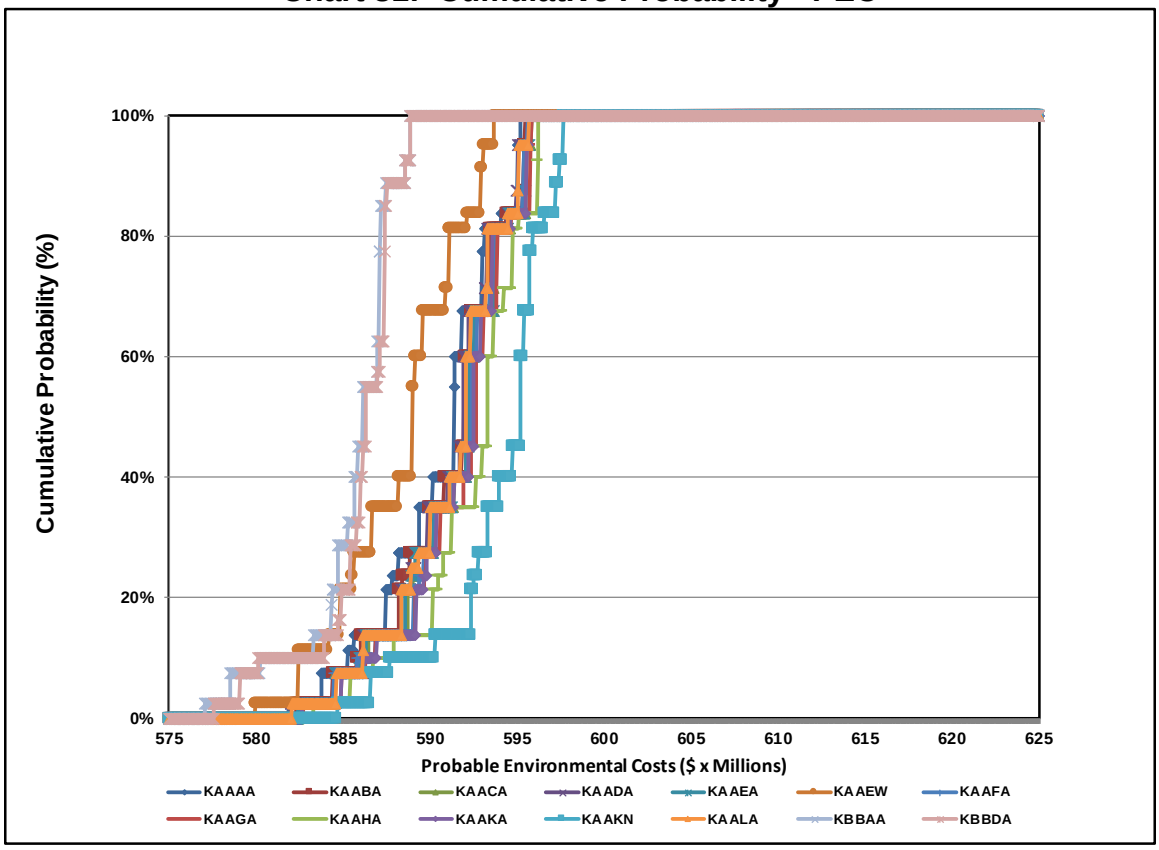


Chart 82: Cumulative Probability - Average Rates

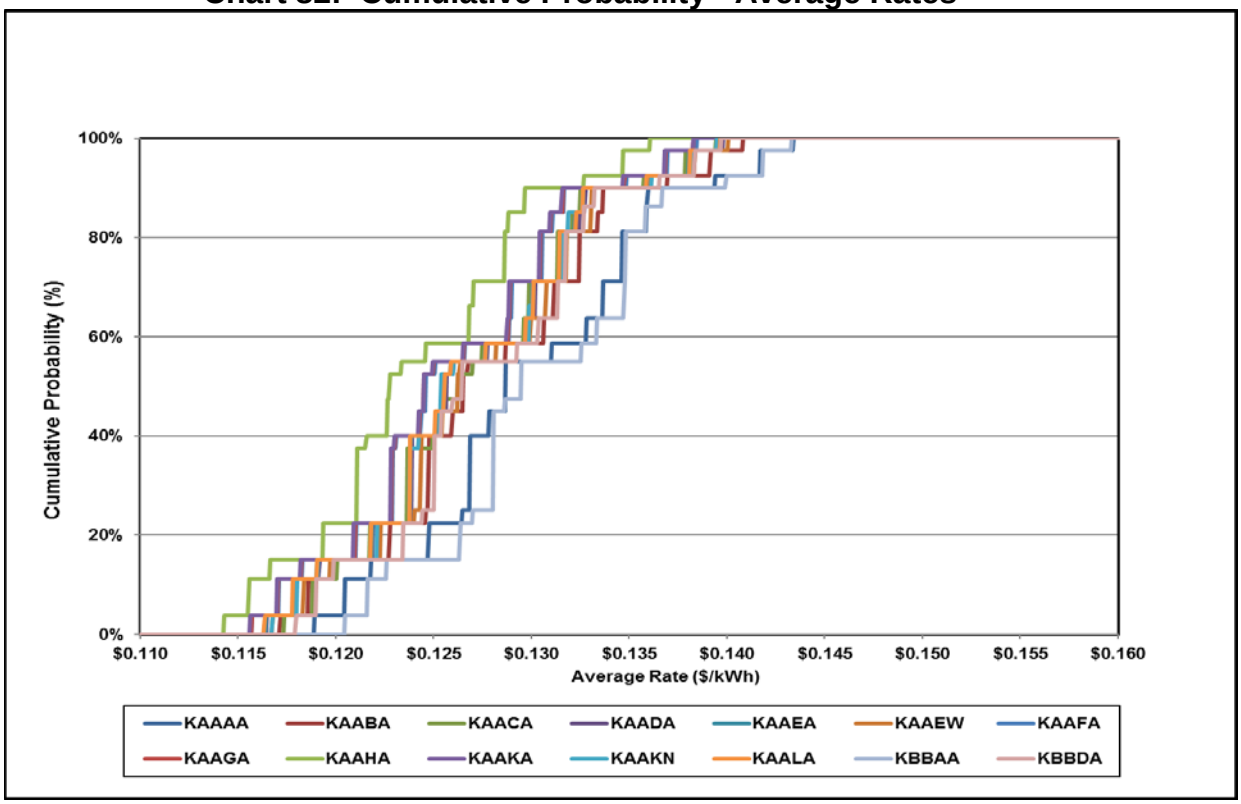
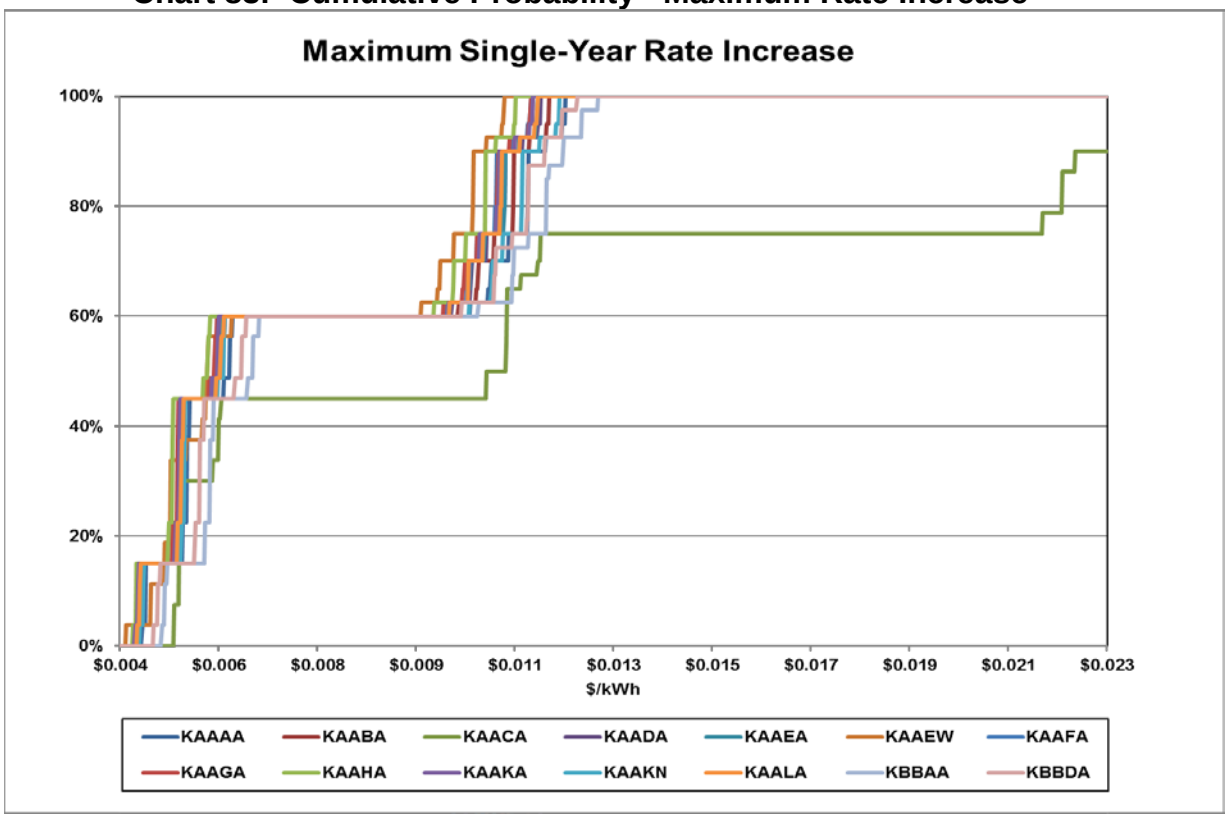


Chart 83: Cumulative Probability - Maximum Rate Increase



Values for all other performance measures do not vary enough over the range of scenarios to allow for graphical display.

3. For each performance measure, a table that shows the expected value and the risk of each alternative resource plan; and

Table 57: Expected Value Plan Performance Measures

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

Table 58: Standard Deviation Plan Performance Measures

Plan	NPVRR ($MM)	Probable Environmental Costs ($MM)	DSM Performance Incentive Costs ($MM)	Levelized Annual Rates ($/KW-hr)	Maximum Rate Increase	Times Interest Earned	Total Debt to Capital	Internal Cash to Construction Expense
KAADA	557	3.79	0.00	0.007	1.50%	0.00	0.00	0.00
KAALA	557	3.80	0.00	0.007	1.50%	0.00	0.00	0.00
KAAKA	559	3.80	0.00	0.006	1.45%	0.00	0.00	0.00
KAAFA	559	3.77	0.00	0.006	1.45%	0.00	0.00	0.00
KAACA	558	3.87	0.00	0.006	1.16%	0.00	0.00	0.00
KAAEA	558	3.88	0.00	0.007	1.49%	0.00	0.00	0.00
KAABA	557	3.88	0.00	0.007	1.53%	0.00	0.00	0.00
KAAGA	560	3.84	0.00	0.006	1.44%	0.00	0.00	0.00
KBBDA	510	3.16	0.00	0.006	1.43%	0.00	0.00	0.00
KAAHA	563	3.78	0.00	0.006	1.38%	0.00	0.00	0.00
KAAEW	549	3.99	0.00	0.006	1.48%	0.00	0.00	0.00
KAAAA	554	3.96	0.00	0.007	1.60%	0.00	0.00	0.00
KAAKN	566	3.79	0.00	0.006	1.47%	0.00	0.00	0.00
KBBAA	509	3.22	0.00	0.007	1.53%	0.00	0.00	0.00

Note: Several performance measures are not affected by the individual scenario risk and therefore exhibits no standard deviation.

4. A plot of the expected level of annual unserved hours for each alternative resource plan over the planning horizon.

There was no unserved energy in any of the alternative resource plans.