VOLUME 6

INTEGRATED RESOURCE ANALYSIS

KCP&L GREATER MISSOURI OPERATIONS COMPANY (GMO)

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 Greater Missouri Operating Company (GMO). 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. The specific RES requirements are provided in Section 3.1 (A) 1.

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

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 costs 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 a plan's 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	GMO
RAP-	$43,070,628
RAP	$40,707,210
RAP+	$30,856,657
MAP	$12,746,341
RAP Modified	$42,173,798

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 free cash flow to capital expenditures.

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, resource addition quantities and 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 renewable energy mandates (Missouri Renewable Energy Standard or RES). Since GMO 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 GAAFN.

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

A recap of the RES model supporting renewable non-solar additions is provided in Table 2 below.

Table 2: GMO Non-Solar Renewable Requirements

Year	GMO Retail Electric Sales (MWh)	MO RES Requirement	GMO Requirement (MWh)	GMO Renewable Generation (MWh)	Future Renewable Additions (MW)
2017	7,931,919	4.90%	388,664	1,021,912	
2018	8,094,023	9.80%	793,214	1,421,303	146
2019	8,067,093	9.80%	790,575	2,397,020	120
2020	8,038,977	9.80%	787,820	2,682,097	
2021	8,023,403	14.70%	1,179,440	2,680,870	
2022	8,024,999	14.70%	1,179,675	2,678,849	
2023	8,033,086	14.70%	1,180,864	2,679,077	
2024	8,041,930	14.70%	1,182,164	2,679,077	
2025	8,053,350	14.70%	1,183,842	2,679,077	
2026	8,070,007	14.70%	1,186,291	2,679,077	
2027	8,103,932	14.70%	1,191,278	2,679,077	
2028	8,148,337	14.70%	1,197,806	2,679,077	
2029	8,191,498	14.70%	1,204,150	2,679,077	
2030	8,222,091	14.70%	1,208,647	2,679,077	
2031	8,247,473	14.70%	1,212,378	2,679,077	
2032	8,276,579	14.70%	1,216,657	2,502,740	
2033	8,306,858	14.70%	1,221,108	2,056,106	
2034	8,345,229	14.70%	1,226,749	2,056,106	
2035	8,381,280	14.70%	1,232,048	2,056,106	
2036	8,411,625	14.70%	1,236,509	2,056,106	
2037	8,428,111	14.70%	1,238,932	1,753,590	

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 GAABW 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 Renewable Energy Standard) 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.

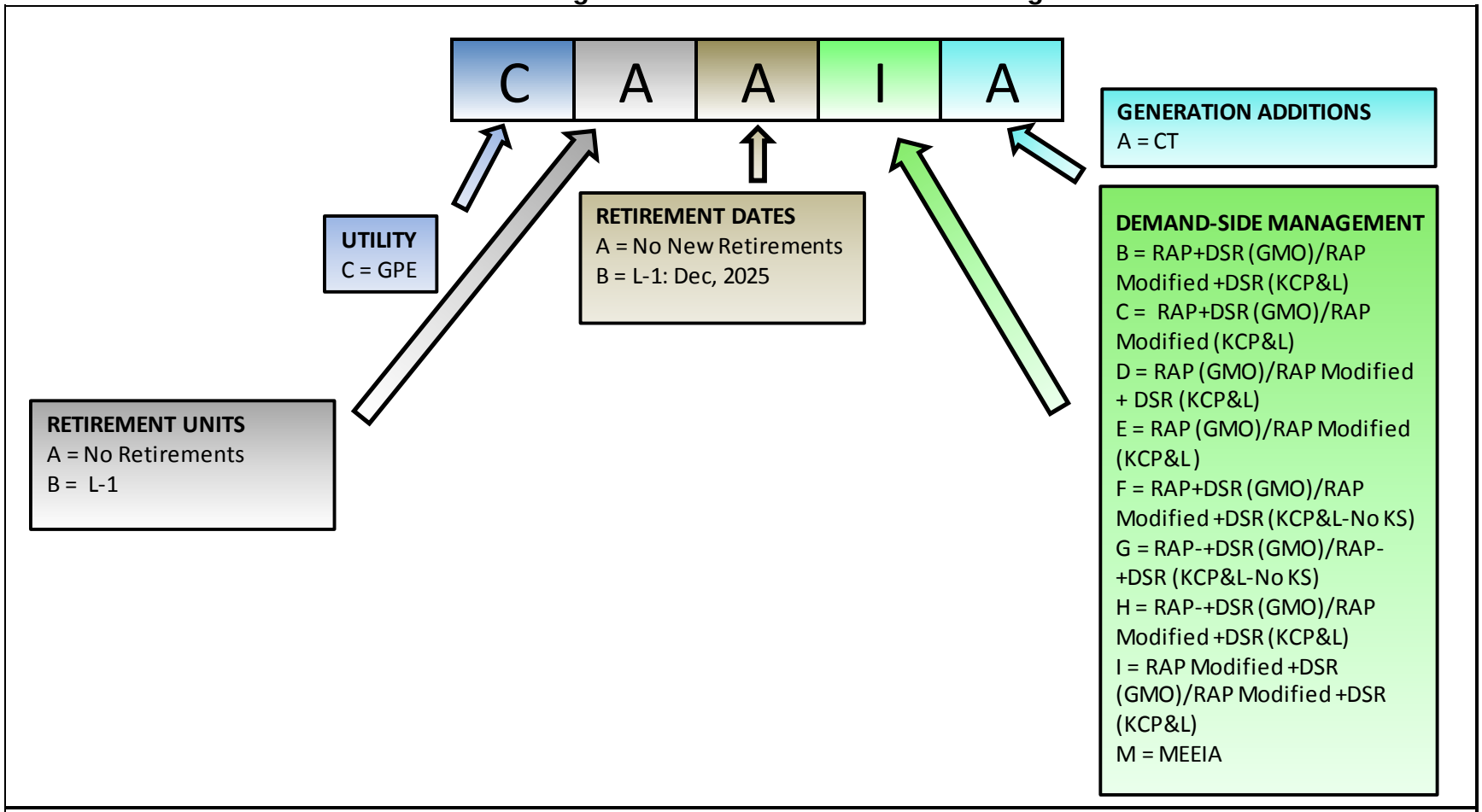
GMO considers it prudent resource planning to develop and analyze Alternative Resource Plans that are based upon KCP&L and GMO combining resources. Evaluating plans on a joint planning basis can provide a platform to determine if joint planning "serves the public interest" as mandated in 4 CSR 240-22.010 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
CAAIA	RAP Modified (GMO)/RAP Modified (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;

GMO has previously committed to retiring Sibley 2 and 3 by December 31, 2018 and Lake Road 4/6 retired by December 31, 2019.

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

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

Table 6: Retrofits 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

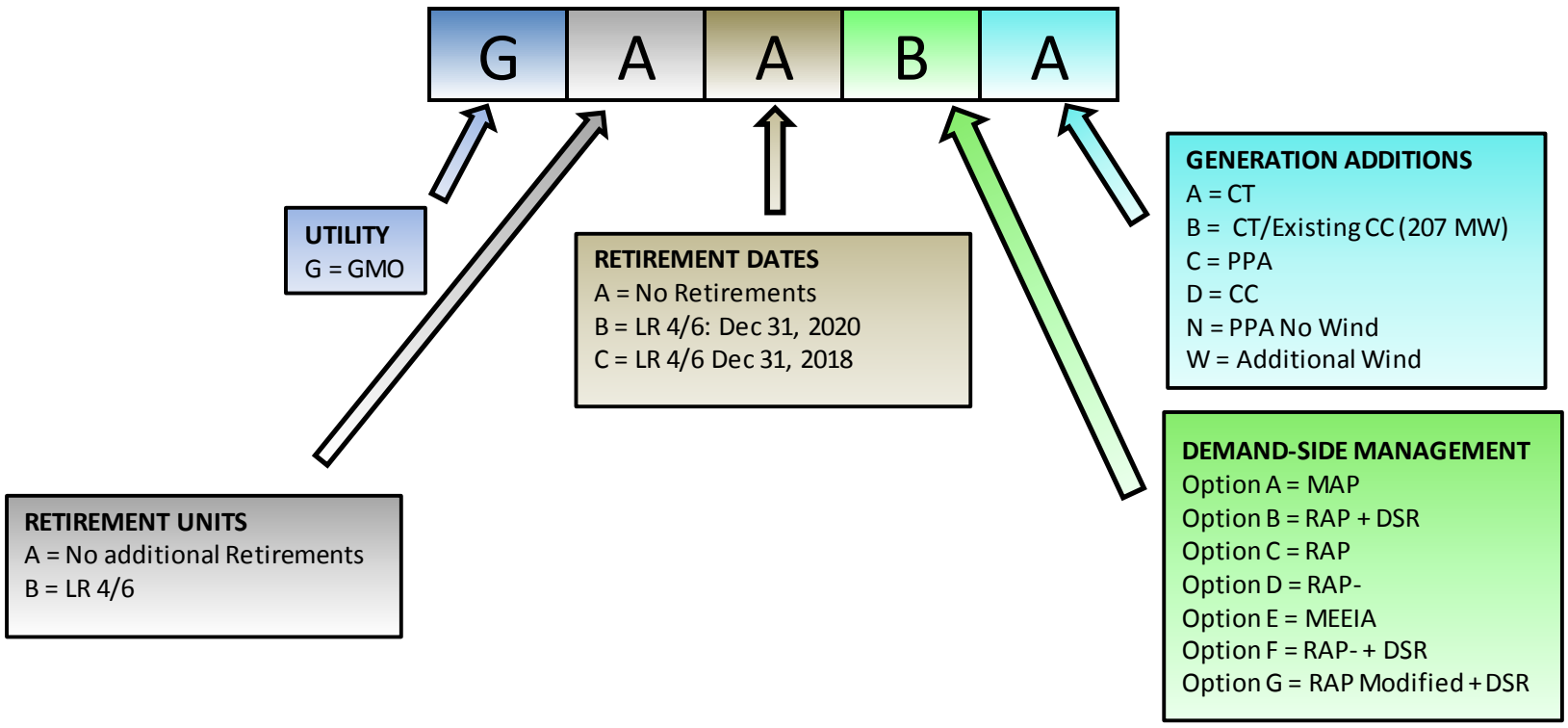
3. The conclusion of any currently implemented demand-side resources.

Alternative Resource Plan GAAEA was developed to evaluate this rule, which consists of GMO 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 GMO's Alternative Resource Plans developed is shown in Table 7 below:

Table 7: Alternative Resource Plan Naming Convention



Definitions:

LR 4/6: Lake Road 4/6

MAP: Maximum Achievable Potential

RAP: Realistic Achievable Potential

MEEIA: Missouri Energy Efficiency Investment Act Cycle II

DSR: Demand-Side Rates

CT - Combustion Turbine

CC - Combined Cycle

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 Additions (if needed)
GAAAA	MAP	Sibley-2: Dec 31, 2018 Sibley-3: Dec 31, 2018 Lake Road 4/6: Oct 1, 2019	Solar: 2028 - 10 MW	Wind: 2018 - 146 MW 2019 - 120 MW	414 MW of CT in 2020
GAABA	RAP+DSR	Sibley-2: Dec 31, 2018 Sibley-3: Dec 31, 2018 Lake Road 4/6: Oct 1, 2019	Solar: 2028 - 10 MW	Wind: 2018 - 146 MW 2019 - 120 MW	414 MW of CT in 2020
GAABB	RAP+DSR	Sibley-2: Dec 31, 2018 Sibley-3: Dec 31, 2018 Lake Road 4/6: Oct 1, 2019	Solar: 2028 - 10 MW	Wind: 2018 - 146 MW 2019 - 120 MW	200 MW of Exisitng CC in 2019 207 MW of CT in 2033
GAABC	RAP+DSR	Sibley-2: Dec 31, 2018 Sibley-3: Dec 31, 2018 Lake Road 4/6: Oct 1, 2019	Solar: 2028 - 10 MW	Wind: 2018 - 146 MW 2019 - 120 MW	PPA
GAABD	RAP+DSR	Sibley-2: Dec 31, 2018 Sibley-3: Dec 31, 2018 Lake Road 4/6: Oct 1, 2019	Solar: 2028 - 10 MW	Wind: 2018 - 146 MW 2019 - 120 MW	400 MW of CC in 2020
GAABW	RAP+DSR	Sibley-2: Dec 31, 2018 Sibley-3: Dec 31, 2018 Lake Road 4/6: Oct 1, 2019	Solar: 2028 - 10 MW	Wind: 2018 - 146 MW 2019 - 120 MW 2020 - 200 MW	200 MW of Add'l Wind in 2020 414 MW of CT in 2020
GAACA	RAP	Sibley-2: Dec 31, 2018 Sibley-3: Dec 31, 2018 Lake Road 4/6: Oct 1, 2019	Solar: 2028 - 10 MW	Wind: 2018 - 146 MW 2019 - 120 MW	414 MW of CT in 2020

Table 9: Overview of Alternative Resource Plans (continued)

Plan Name	DSM Level	Retire	Renewable Additions		Generation Additions (if needed)
GAADA	RAP-	Sibley-2: Dec 31, 2018 Sibley-3: Dec 31, 2018 Lake Road 4/6: Oct 1, 2019	Solar: 2028 - 10 MW	Wind: 2018 - 146 MW 2019 - 120 MW	414 MW of CT in 2020
GAAEA	MEEIA	Sibley-2: Dec 31, 2018 Sibley-3: Dec 31, 2018 Lake Road 4/6: Oct 1, 2019	Solar: 2028 - 10 MW	Wind: 2018 - 146 MW 2019 - 120 MW	207 MW of CT in 2019 207 MW of CT in 2020 207 MW of CT in 2028 207 MW of CT in 2036
GAAFA	RAP- +DSR	Sibley-2: Dec 31, 2018 Sibley-3: Dec 31, 2018 Lake Road 4/6: Oct 1, 2019	Solar: 2028 - 10 MW	Wind: 2018 - 146 MW 2019 - 120 MW	414 MW of CT in 2020
GAAFC	RAP- +DSR	Sibley-2: Dec 31, 2018 Sibley-3: Dec 31, 2018 Lake Road 4/6: Oct 1, 2019	Solar: 2028 - 10 MW	Wind: 2018 - 146 MW 2019 - 120 MW	PPA
GAAFN	RAP- +DSR	Sibley-2: Dec 31, 2018 Sibley-3: Dec 31, 2018 Lake Road 4/6: Oct 1, 2019	Solar: 2028 - 10 MW	No New Wind	PPA 207 MW of CT in 2033 207 MW of CT in 2036
GAAGC	RAP Modified +DSR	Sibley-2: Dec 31, 2018 Sibley-3: Dec 31, 2018 Lake Road 4/6: Oct 1, 2019	Solar: 2028 - 10 MW	Wind: 2018 - 146 MW 2019 - 120 MW	PPA
GBCBC	RAP+DSR	Sibley-2: Dec 31, 2018 Sibley-3: Dec 31, 2018 Lake Road 4/6: Oct 1, 2018	Solar: 2028 - 10 MW	Wind: 2018 - 146 MW 2019 - 120 MW	PPA

The individual plans are shown in the following tables:

Table 10: Alternative Resource Plan GAAAA

Year	CT (MW)	Wind (MW)	Solar (MW)	DSM (MW)	Retire (MW)
2018	0	146		78	406
2019	0	120		77	97
2020	414			132	
2021	0			164	
2022	0			196	
2023	0			225	
2024	0			247	
2025	0			266	
2026	0			286	
2027	0			307	
2028	0		10	315	
2029	0			319	
2030	0			323	
2031	0			323	
2032	0			321	
2033	0			324	
2034	0			332	
2035	0			343	
2036	0			355	
2037	0			365	

Plan GAAAA assumes S-2 and S-3 retiring in 2018, LR 4/6 retiring in 2019, 266 MW of new wind in 2018-2019, DSM: A, resource additions (if needed): CT's

Table 11: Alternative Resource Plan GAABA

Year	CT (MW)	Wind (MW)	Solar (MW)	DSM (MW)	Retire (MW)
2018	0	146		78	406
2019	0	120		73	97
2020	414			125	
2021	0			155	
2022	0			185	
2023	0			212	
2024	0			235	
2025	0			257	
2026	0			277	
2027	0			296	
2028	0		10	300	
2029	0			300	
2030	0			303	
2031	0			303	
2032	0			302	
2033	0			305	
2034	0			312	
2035	0			320	
2036	0			328	
2037	0			337	

Plan GAABA assumes S-2 and S-3 retiring in 2018, LR 4/6 retiring in 2019, 266 MW of new wind in 2018-2019, DSM: B, resource additions (if needed): CT's

Table 12: Alternative Resource Plan GAABB

Year	CT (MW)	Wind (MW)	Solar (MW)	DSM (MW)	Retire (MW)
2018	0	146		78	406
2019	0	120		73	97
2020	207			125	
2021	0			155	
2022	0			185	
2023	0			212	
2024	0			235	
2025	0			257	
2026	0			277	
2027	0			296	
2028	0		10	300	
2029	0			300	
2030	0			303	
2031	0			303	
2032	0			302	
2033	0			305	
2034	0			312	
2035	0			320	
2036	0			328	
2037	0			337	

Plan GAABB assumes S-2 and S-3 retiring in 2018, LR 4/6 retiring in 2019, 266 MW of new wind in 2018-2019, DSM: B, resource additions: Existing 200 MW CC, CT's (if needed)

Table 13: Alternative Resource Plan GAABC

Year	CT (MW)	Wind (MW)	Solar (MW)	DSM (MW)	Retire (MW)
2018	0	146		78	406
2019	0	120		73	97
2020	0			125	
2021	0			155	
2022	0			185	
2023	0			212	
2024	0			235	
2025	0			257	
2026	0			277	
2027	0			296	
2028	0		10	300	
2029	0			300	
2030	0			303	
2031	0			303	
2032	0			302	
2033	0			305	
2034	0			312	
2035	0			320	
2036	0			328	
2037	0			337	

Plan GAABC assumes S-2 and S-3 retiring in 2018, LR 4/6 retiring in 2019, 266 MW of new wind in 2018-2019, DSM: B, resource additions (if needed): PPA

Table 14: Alternative Resource Plan GAABD

Year	CC (MW)	Wind (MW)	Solar (MW)	DSM (MW)	Retire (MW)
2018	0	146		78	406
2019	0	120		73	97
2020	400			125	
2021	0			155	
2022	0			185	
2023	0			212	
2024	0			235	
2025	0			257	
2026	0			277	
2027	0			296	
2028	0		10	300	
2029	0			300	
2030	0			303	
2031	0			303	
2032	0			302	
2033	0			305	
2034	0			312	
2035	0			320	
2036	0			328	
2037	0			337	

Plan GAABD assumes S-2 and S-3 retiring in 2018, LR 4/6 retiring in 2019, 266 MW of new wind in 2018-2019, DSM: B, resource additions (if needed): CC's

Table 15: Alternative Resource Plan GAABW

Year	CT (MW)	Wind (MW)	Solar (MW)	DSM (MW)	Retire (MW)
2018	0	146		78	406
2019	0	120		73	97
2020	414	200		125	
2021	0			155	
2022	0			185	
2023	0			212	
2024	0			235	
2025	0			257	
2026	0			277	
2027	0			296	
2028	0		10	300	
2029	0			300	
2030	0			303	
2031	0			303	
2032	0			302	
2033	0			305	
2034	0			312	
2035	0			320	
2036	0			328	
2037	0			337	

Plan GAABW assumes S-2 and S-3 retiring in 2018, LR 4/6 retiring in 2019, 266 MW of new wind in 2018-2019, DSM: B, resource additions: 200 MW additional wind, CT's (if needed)

Table 16: Alternative Resource Plan GAACA

Year	CT (MW)	Wind (MW)	Solar (MW)	DSM (MW)	Retire (MW)
2018	0	146		78	406
2019	0	120		72	97
2020	414			120	
2021	0			142	
2022	0			166	
2023	0			185	
2024	0			201	
2025	0			217	
2026	0			232	
2027	0			248	
2028	0		10	252	
2029	0			253	
2030	0			255	
2031	0			255	
2032	0			253	
2033	0			255	
2034	0			261	
2035	0			268	
2036	0			276	
2037	0			284	

Plan GAACA assumes S-2 and S-3 retiring in 2018, LR 4/6 retiring in 2019, 266 MW of new wind in 2018-2019, DSM: C, resource additions (if needed): CT's

Table 17: Alternative Resource Plan GAADA

Year	CT (MW)	Wind (MW)	Solar (MW)	DSM (MW)	Retire (MW)
2018	0	146		78	406
2019	0	120		60	97
2020	414			96	
2021	0			112	
2022	0			130	
2023	0			145	
2024	0			157	
2025	0			168	
2026	0			180	
2027	0			193	
2028	0		10	192	
2029	0			191	
2030	0			192	
2031	0			192	
2032	0			190	
2033	0			192	
2034	0			196	
2035	0			201	
2036	0			207	
2037	0			213	

Plan GAADA assumes S-2 and S-3 retiring in 2018, LR 4/6 retiring in 2019, 266 MW of new wind in 2018-2019, DSM: D, resource additions (if needed): CT's

Table 18: Alternative Resource Plan GAAEA

Year	CT (MW)	Wind (MW)	Solar (MW)	DSM (MW)	Retire (MW)
2018	0	146		78	406
2019	207	120		22	97
2020	207			22	
2021	0			21	
2022	0			20	
2023	0			20	
2024	0			19	
2025	0			19	
2026	0			19	
2027	207			16	
2028	0		10	6	
2029	0			-3	
2030	0			-4	
2031	0			-4	
2032	0			-4	
2033	0			-6	
2034	0			-6	
2035	0			-7	
2036	207			-7	
2037	0			-7	

Plan GAAEA assumes S-2 and S-3 retiring in 2018, LR 4/6 retiring in 2019, 266 MW of new wind in 2018-2019, DSM: E, resource additions (if needed): CT's

Table 19: Alternative Resource Plan GAAFA

Year	CT (MW)	Wind (MW)	Solar (MW)	DSM (MW)	Retire (MW)
2018	0	146		78	406
2019	0	120		60	97
2020	414			101	
2021	0			125	
2022	0			149	
2023	0			171	
2024	0			191	
2025	0			209	
2026	0			225	
2027	0			240	
2028	0		10	240	
2029	0			238	
2030	0			240	
2031	0			240	
2032	0			239	
2033	0			242	
2034	0			247	
2035	0			253	
2036	0			260	
2037	0			266	

Plan GAAFA assumes S-2 and S-3 retiring in 2018, LR 4/6 retiring in 2019, 266 MW of new wind in 2018-2019, DSM: F, resource additions (if needed): CT's

Table 20: Alternative Resource Plan GAAFC

Year	CT (MW)	Wind (MW)	Solar (MW)	DSM (MW)	Retire (MW)
2018	0	146		78	406
2019	0	120		60	97
2020	0			101	
2021	0			125	
2022	0			149	
2023	0			171	
2024	0			191	
2025	0			209	
2026	0			225	
2027	0			240	
2028	0		10	240	
2029	0			238	
2030	0			240	
2031	0			240	
2032	0			239	
2033	0			242	
2034	0			247	
2035	0			253	
2036	0			260	
2037	0			266	

Plan GAAFC assumes S-2 and S-3 retiring in 2018, LR 4/6 retiring in 2019, 266 MW of new wind in 2018-2019, DSM: F, resource additions (if needed): PPA

Table 21: Alternative Resource Plan GAAFN

Year	CT (MW)	Wind (MW)	Solar (MW)	DSM (MW)	Retire (MW)
2018	0			78	406
2019	0			60	97
2020	0			101	
2021	0			125	
2022	0			149	
2023	0			171	
2024	0			191	
2025	0			209	
2026	0			225	
2027	0			240	
2028	0		10	240	
2029	0			238	
2030	0			240	
2031	0			240	
2032	0			239	
2033	207			242	
2034	0			247	
2035	0			253	
2036	207			260	
2037	0			266	

Plan GAAFN assumes S-2 and S-3 retiring in 2018, LR 4/6 retiring in 2019, no new wind in 2018-2019. DSM: F Resource additions (if needed): PPA and CT's

Table 22: Alternative Resource Plan GAAGC

Year	CT (MW)	Wind (MW)	Solar (MW)	DSM (MW)	Retire (MW)
2018	0	146		78	406
2019	0	120		72	97
2020	0			124	
2021	0			153	
2022	0			168	
2023	0			182	
2024	0			200	
2025	0			217	
2026	0			232	
2027	0			246	
2028	0		10	245	
2029	0			240	
2030	0			238	
2031	0			233	
2032	0			231	
2033	0			234	
2034	0			238	
2035	0			244	
2036	0			250	
2037	0			256	

Plan GAAGC assumes S-2 and S-3 retiring in 2018, LR 4/6 retiring in 2019, 266 MW of new wind in 2018-2019, DSM: G, resource additions (if needed): PPA

Table 23: Alternative Resource Plan GBCBC

Year	CT (MW)	Wind (MW)	Solar (MW)	DSM (MW)	Retire (MW)
2018	0	146		78	503
2019	0	120		73	
2020	0			125	
2021	0			155	
2022	0			185	
2023	0			212	
2024	0			235	
2025	0			257	
2026	0			277	
2027	0			296	
2028	0		10	300	
2029	0			300	
2030	0			303	
2031	0			303	
2032	0			302	
2033	0			305	
2034	0			312	
2035	0			320	
2036	0			328	
2037	0			337	

Plan GBCBC assumes S-2, S-3, and LR 4/6 retiring in 2018, 266 MW of new wind in 2018-2019, DSM: B, resource additions (if needed): PPA

SECTION 4: ANALYSIS OF RESOURCE PLANS

(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;

A summary tabulation of expected value of all performance measures for each plan is provided in Table 24.

Table 24: Expected Value of 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
GAAFC	9,594	72	19.70	0.108	6.08%	2.86	47.70	1.11
GAAGC	9,598	72	20.35	0.108	6.00%	2.86	47.70	1.12
GBCBC	9,608	72	22.55	0.109	6.17%	2.86	47.70	1.17
GAABC	9,609	72	22.55	0.109	6.17%	2.86	47.70	1.17
GAAFA	9,824	72	19.70	0.110	7.65%	2.87	47.70	1.14
GAABA	9,849	72	22.55	0.112	7.72%	2.88	47.70	1.19
GAADA	9,854	72	17.50	0.110	7.57%	2.87	47.70	1.14
GAACA	9,873	72	20.47	0.111	7.65%	2.88	47.70	1.19
GAABD	9,898	72	22.55	0.112	6.54%	2.88	47.70	1.17
GAABB	9,939	72	22.55	0.113	5.63%	2.89	47.70	1.16
GAAAA	9,954	72	23.76	0.114	7.73%	2.88	47.70	1.30
GAABW	9,955	72	22.55	0.112	5.67%	2.88	47.70	1.27
GAAEA	9,957	72	8.09	0.109	5.20%	2.87	47.70	0.98
GAAFN	10,128	72	19.70	0.114	5.88%	2.88	47.70	1.12

(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 are provided in the following charts.

Chart 1: Demand Side Impact - DSM Option A

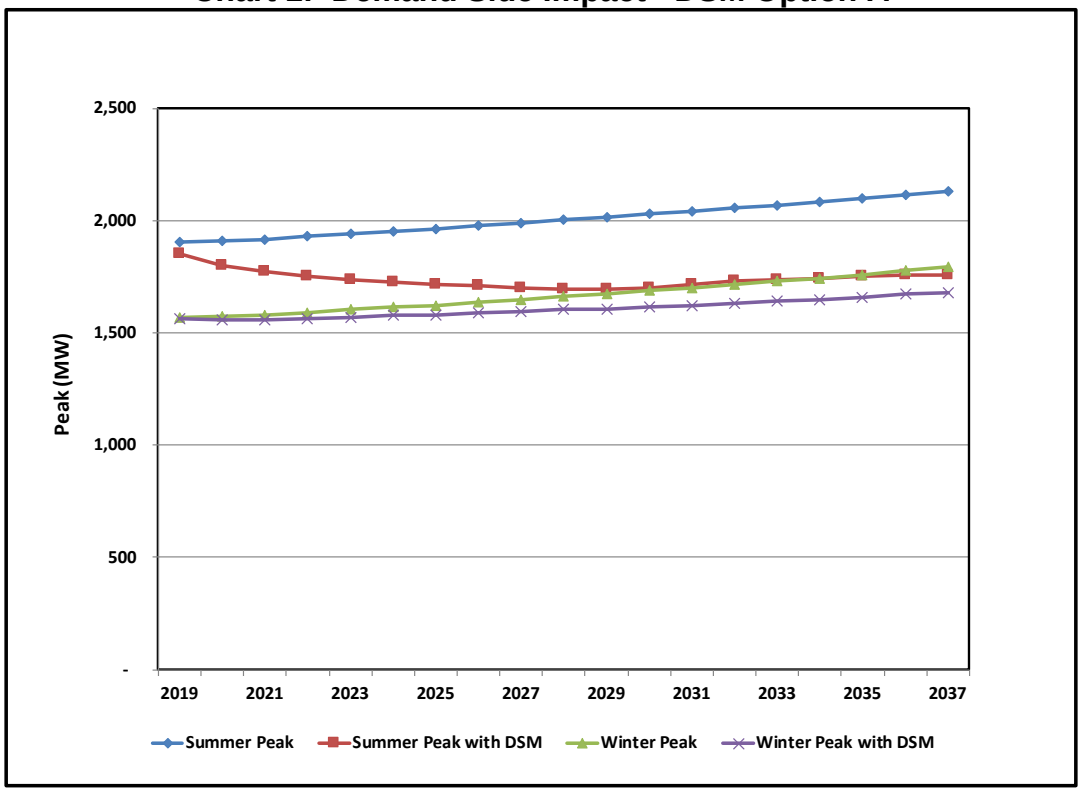


Chart 2: Demand Side Impact – DSM Option B

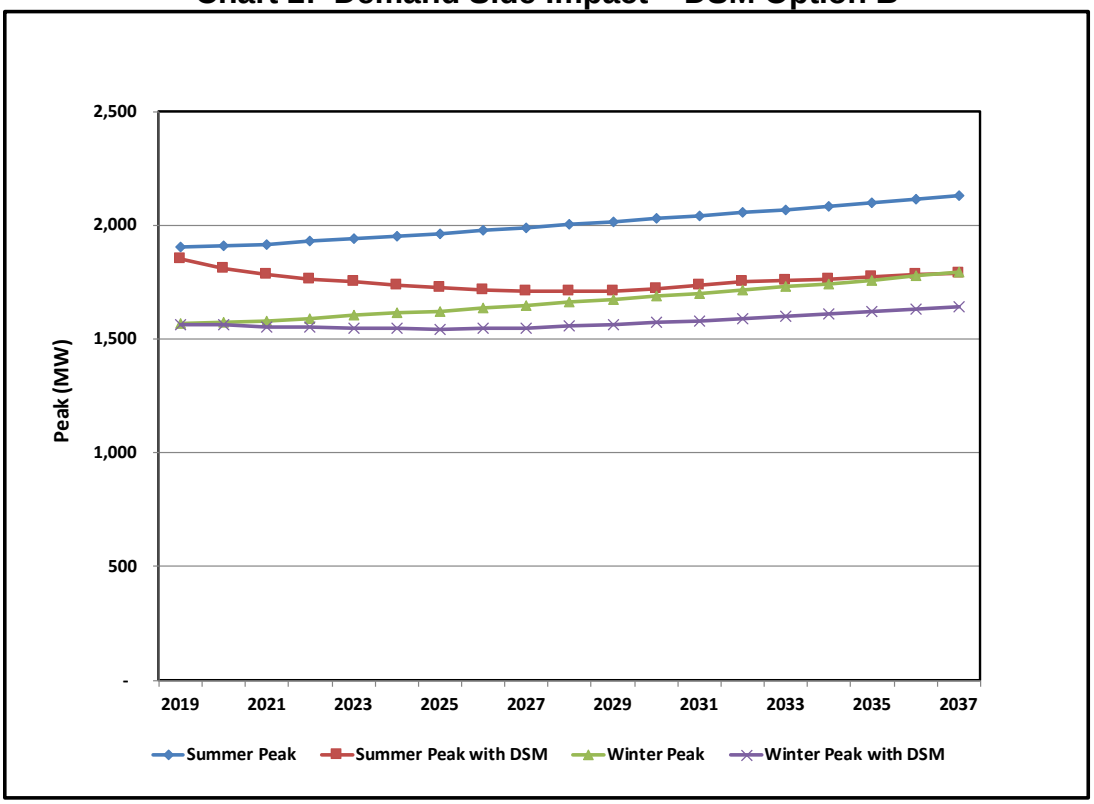


Chart 3: Demand Side Impact – DSM Option C

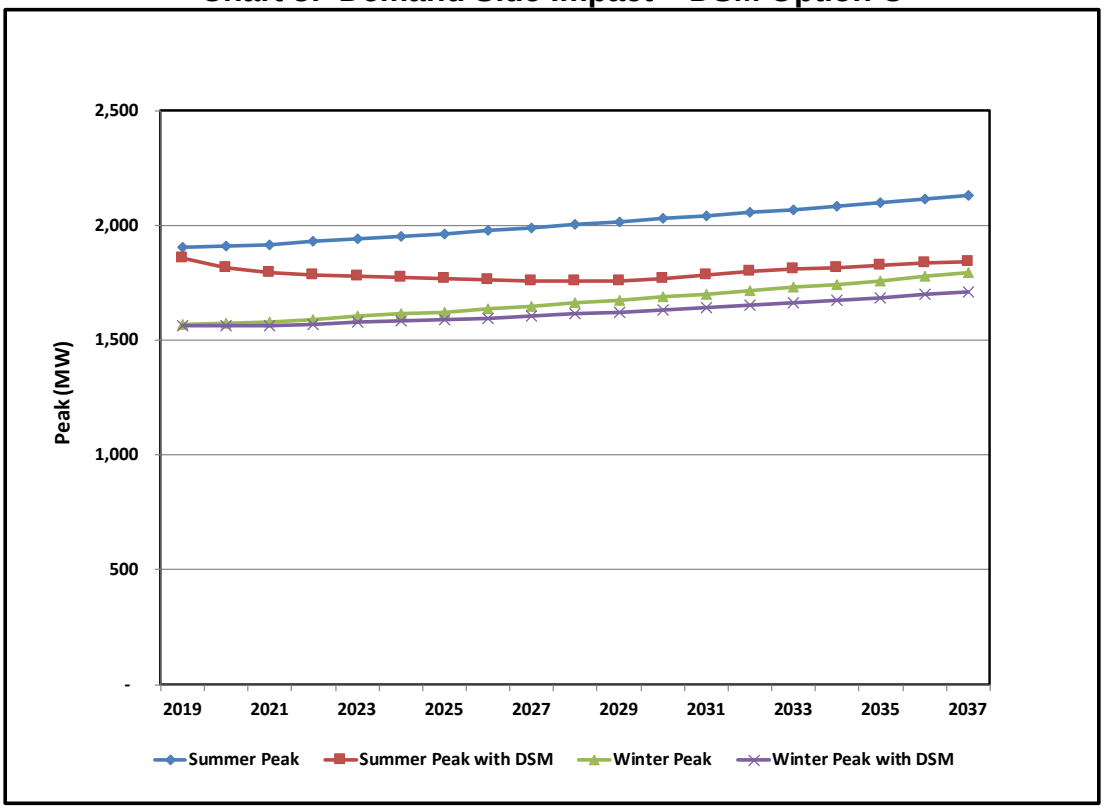


Chart 4: Demand Side Impact – Option D

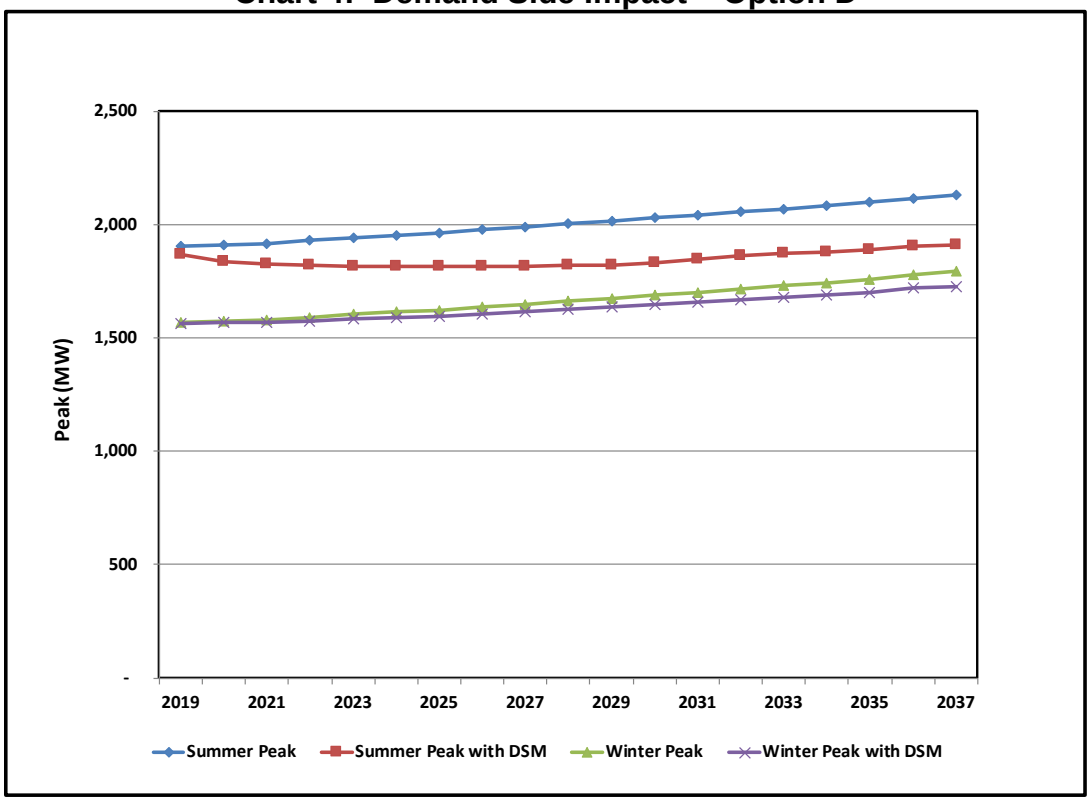


Chart 5: Demand Side Impact – Option F

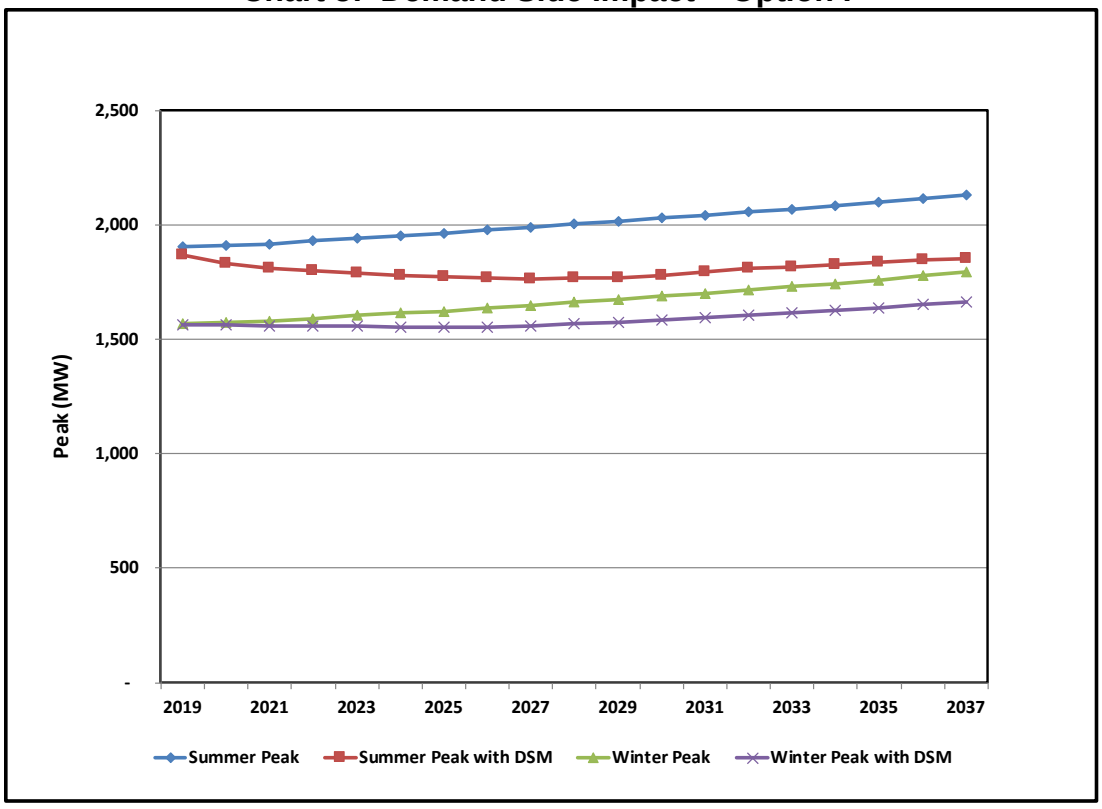
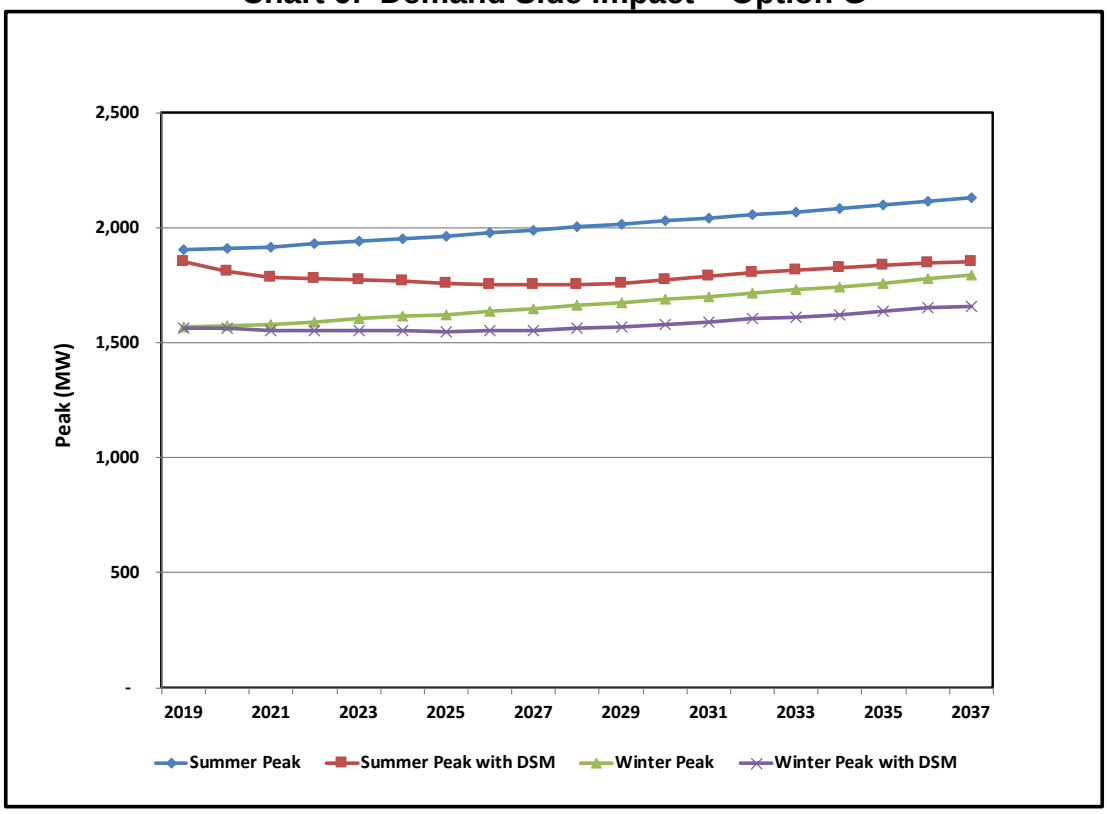


Chart 6: Demand Side Impact – Option G



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 7: Capacity Composition – DSM Option A

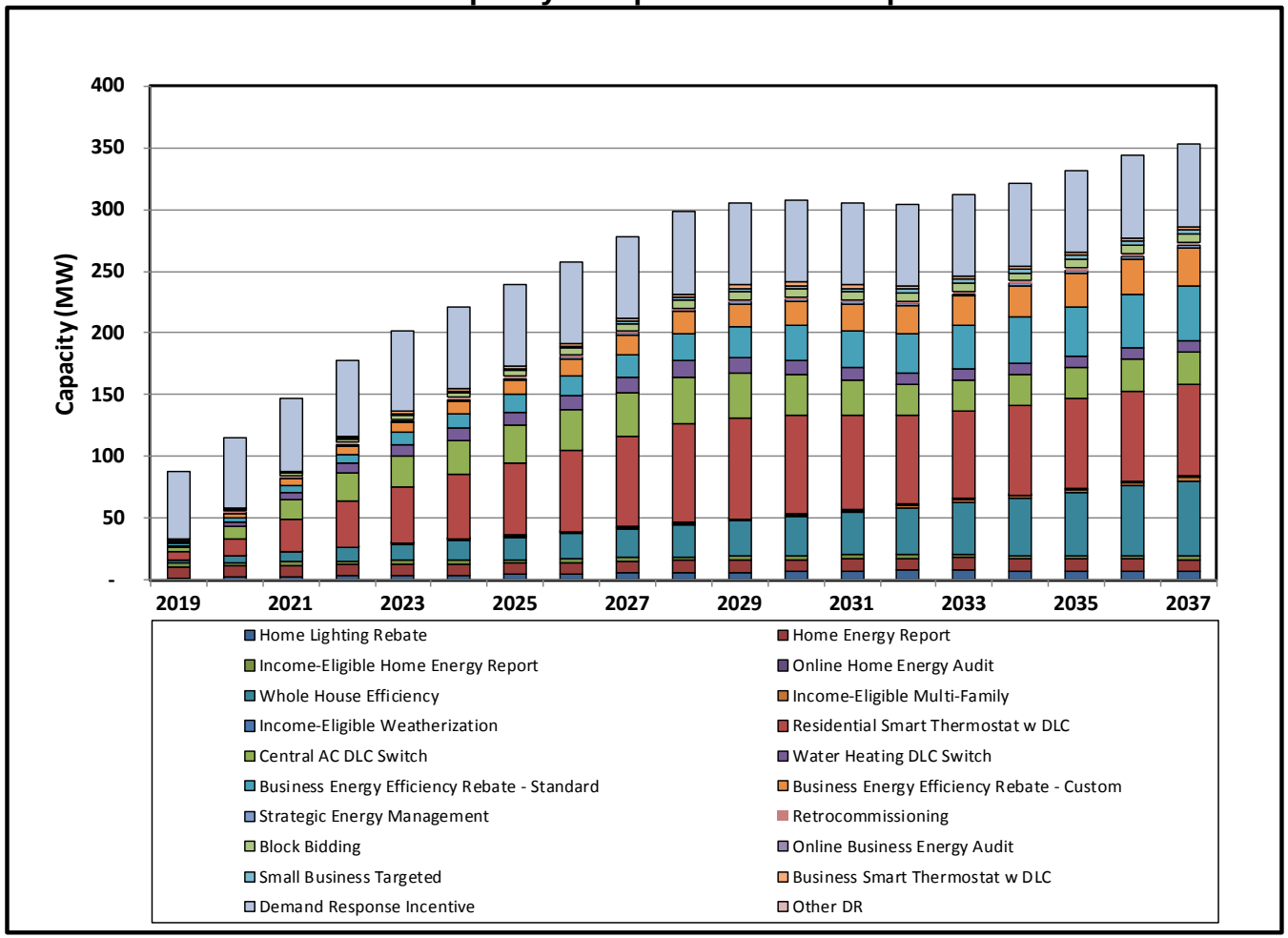


Chart 8: Capacity Composition – DSM Option B

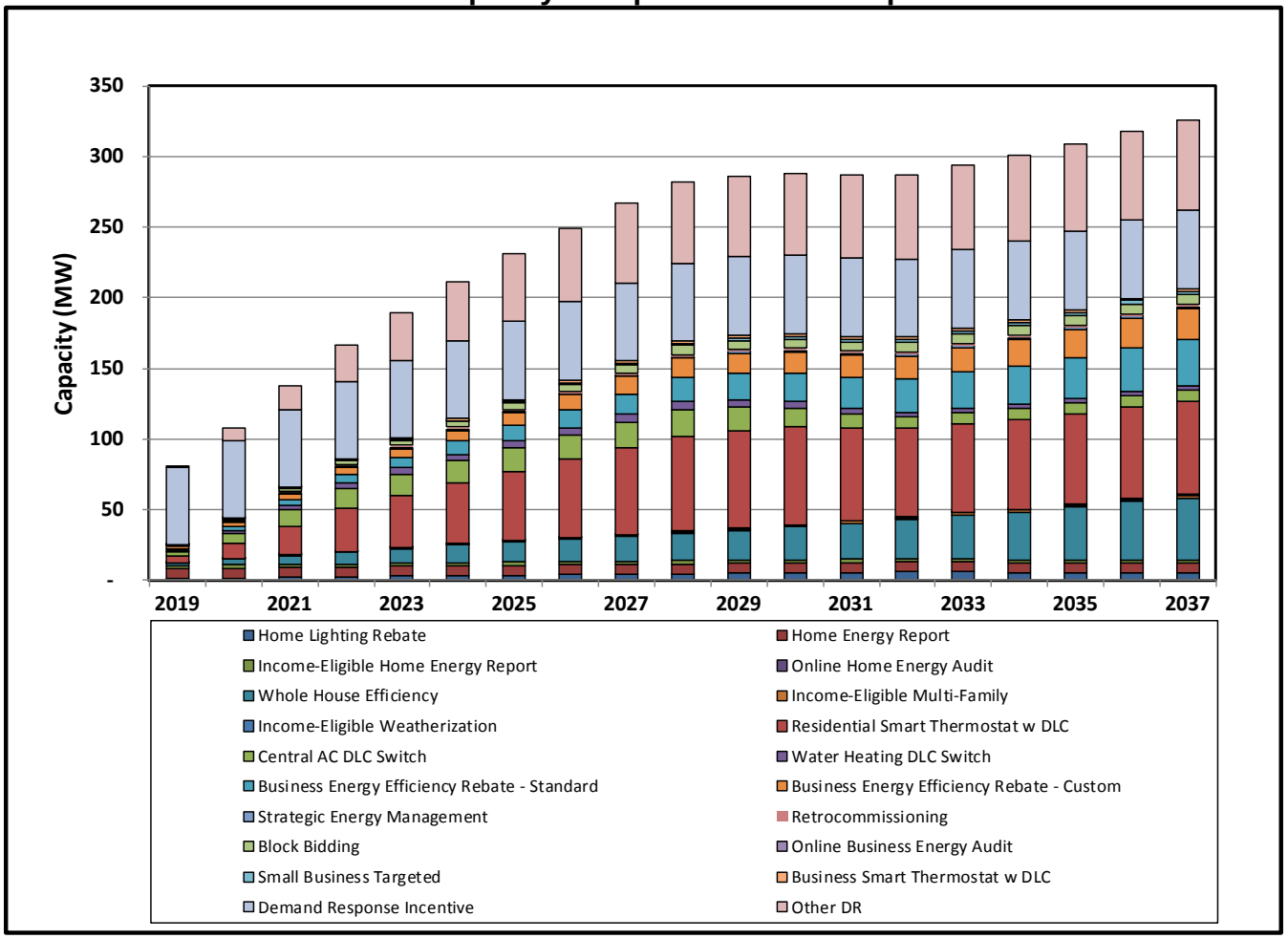


Chart 9: Capacity Composition – DSM Option C

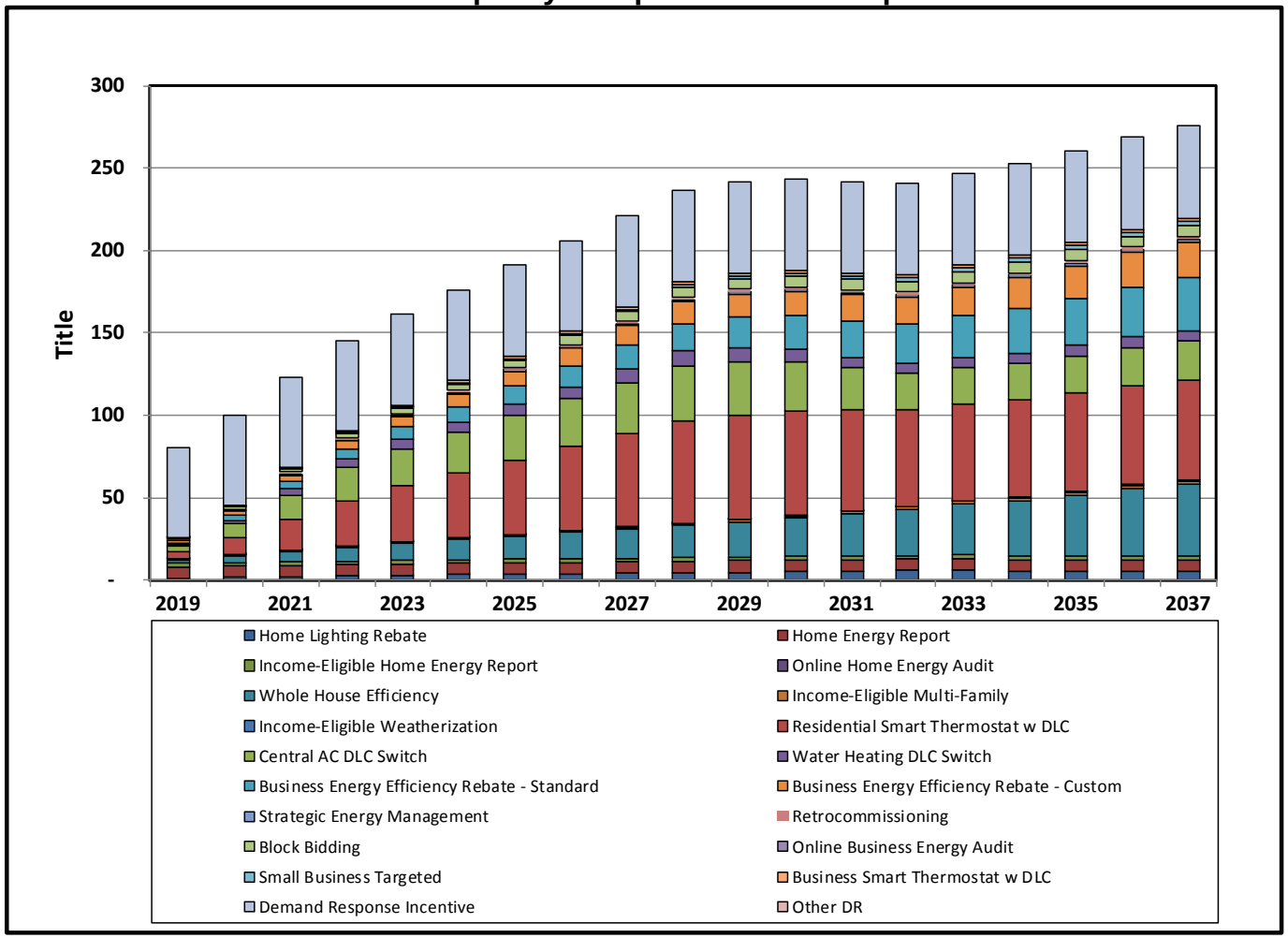


Chart 10: Capacity Composition – DSM Option D

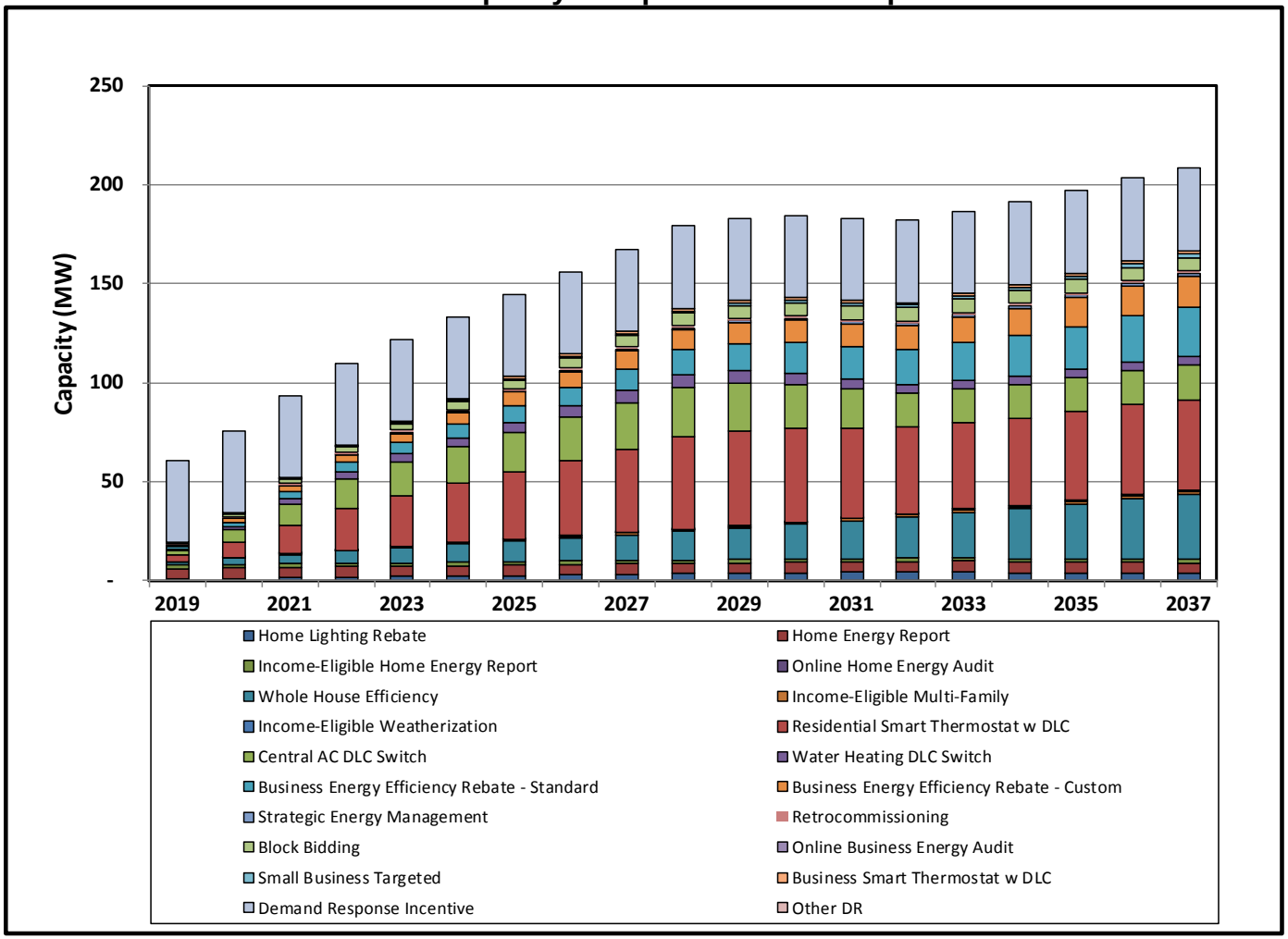


Chart 11: Capacity Composition – DSM Option F

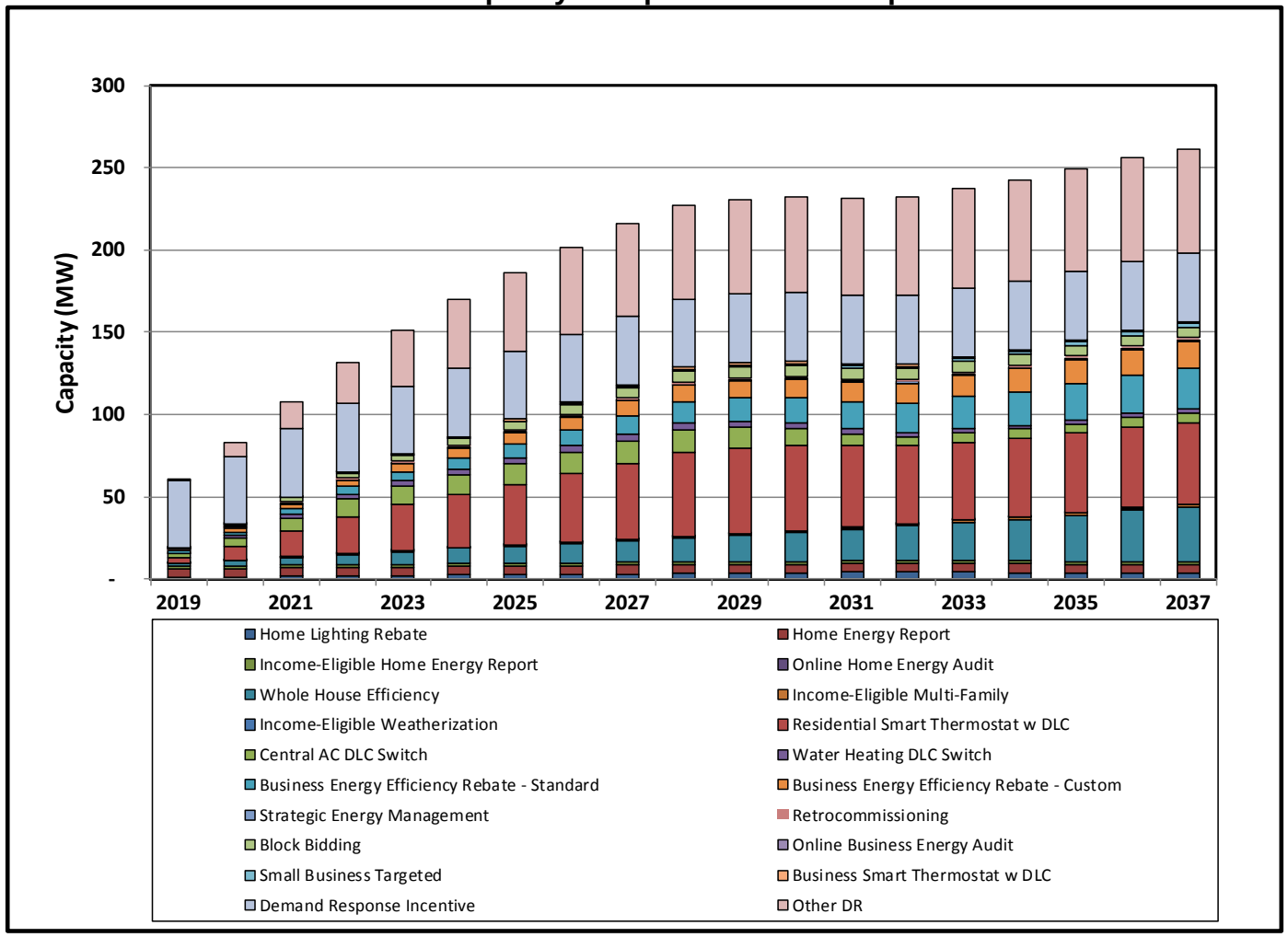
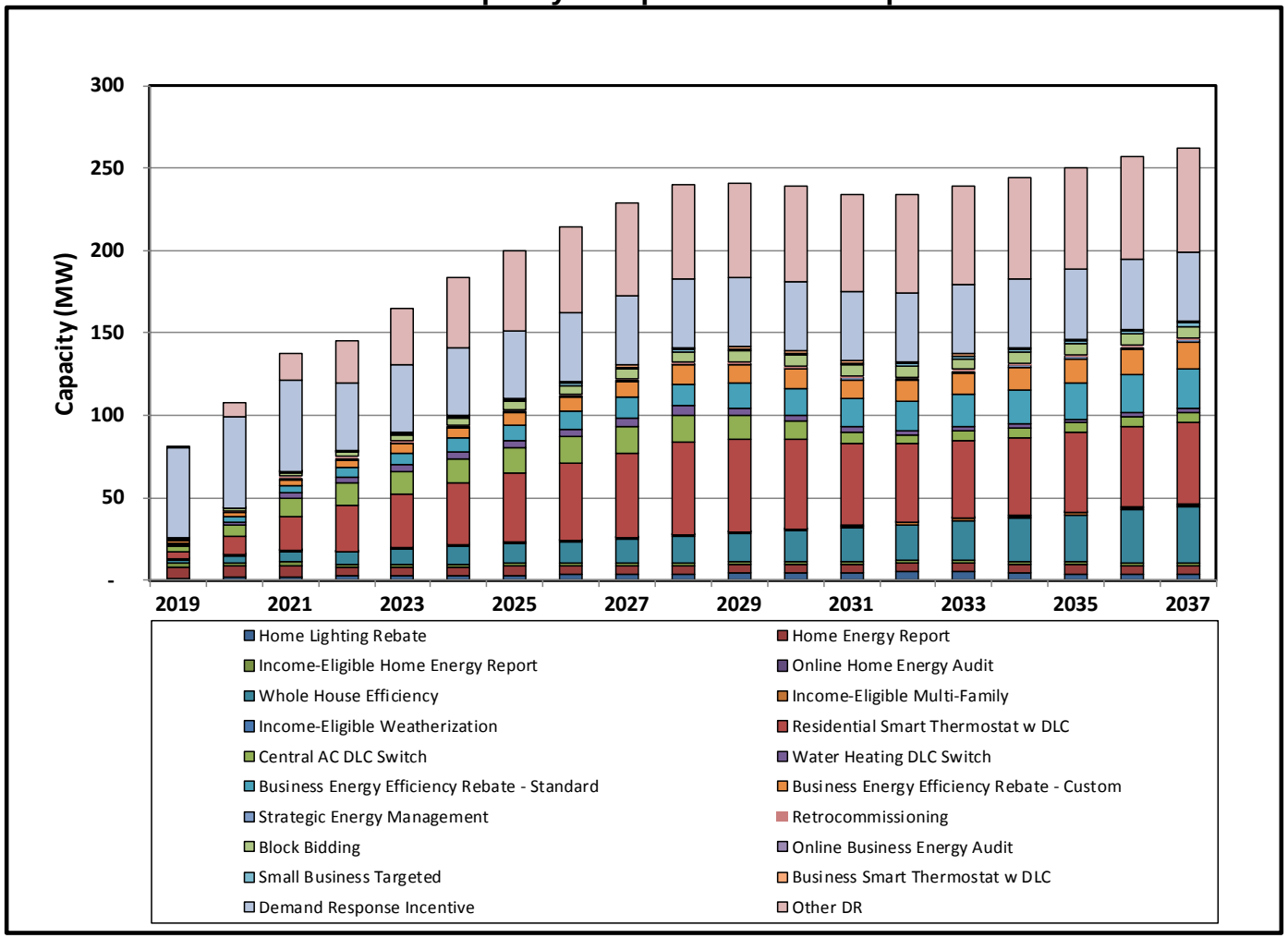


Chart 12: Capacity Composition – DSM Option G



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 13: Alternative Resource Plan GAAAA - Capacity

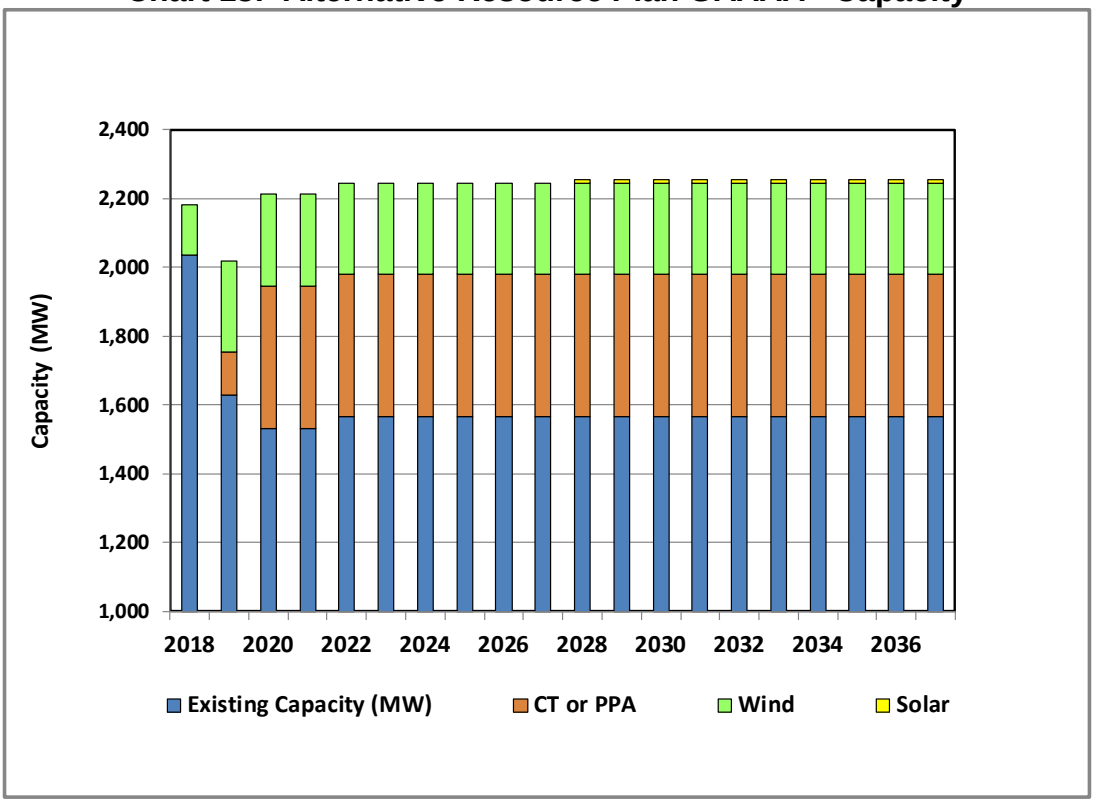


Chart 14: Alternative Resource Plan GAABA - Capacity

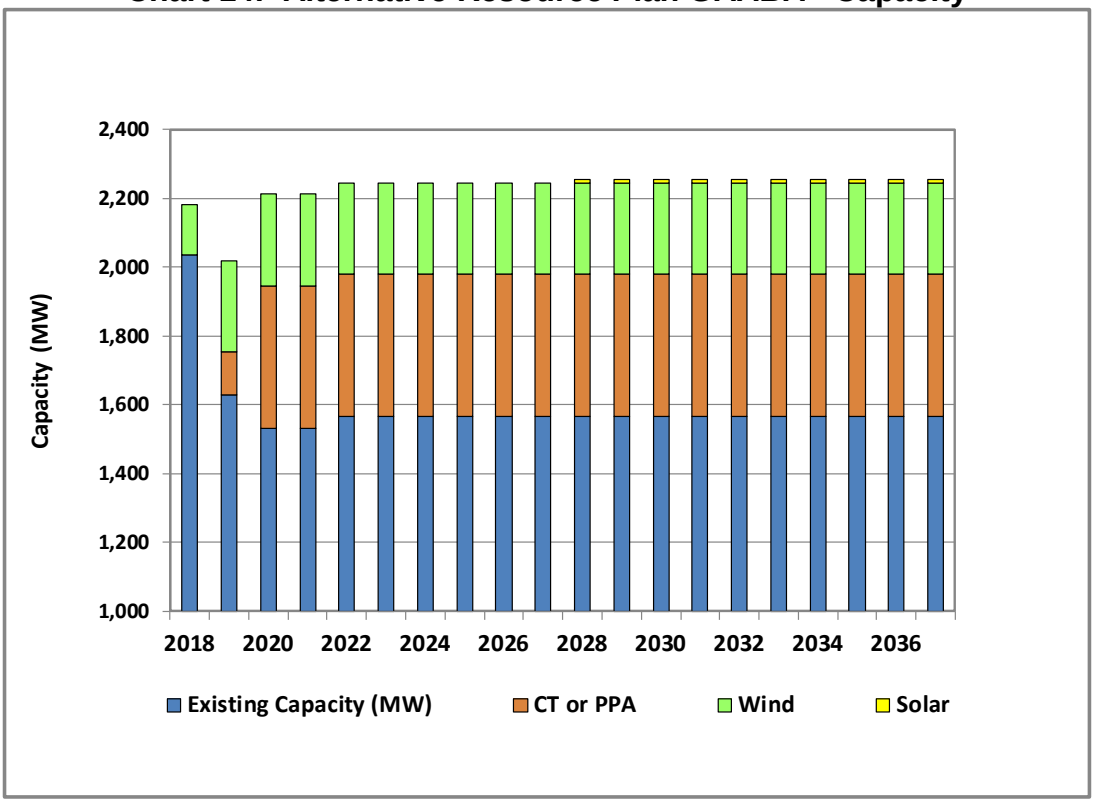


Chart 15: Alternative Resource Plan GAABB - Capacity

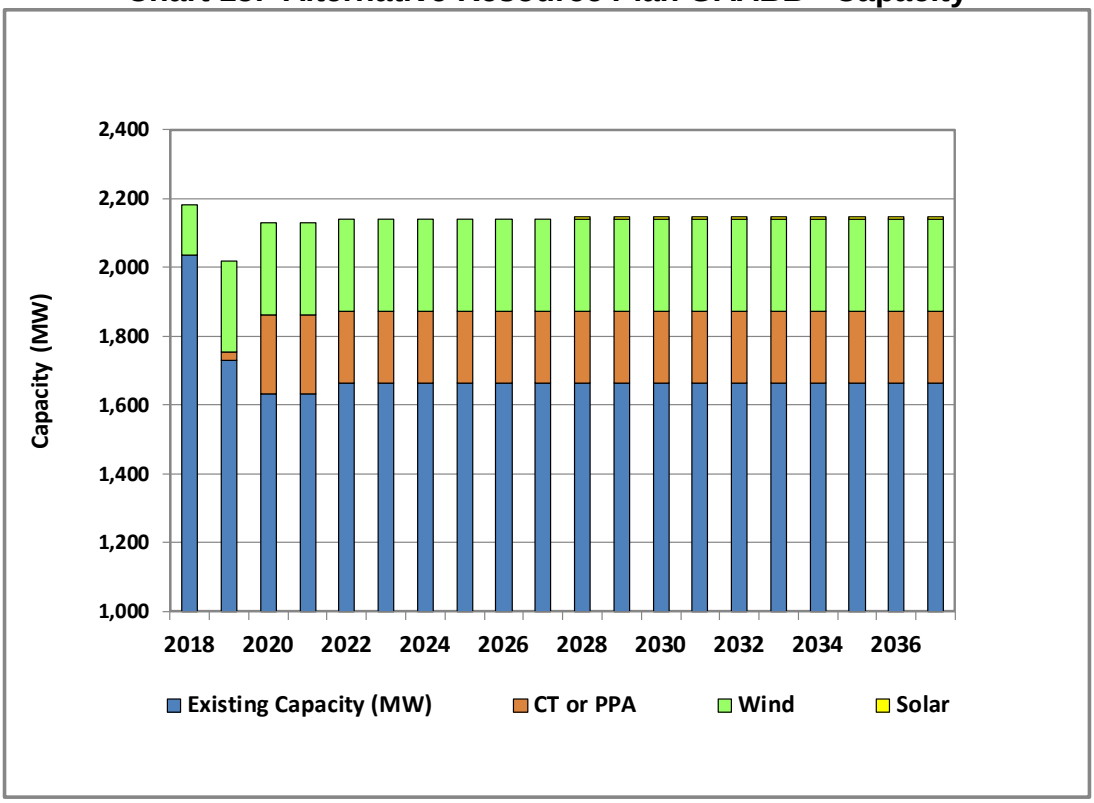


Chart 16: Alternative Resource Plan GAABC - Capacity

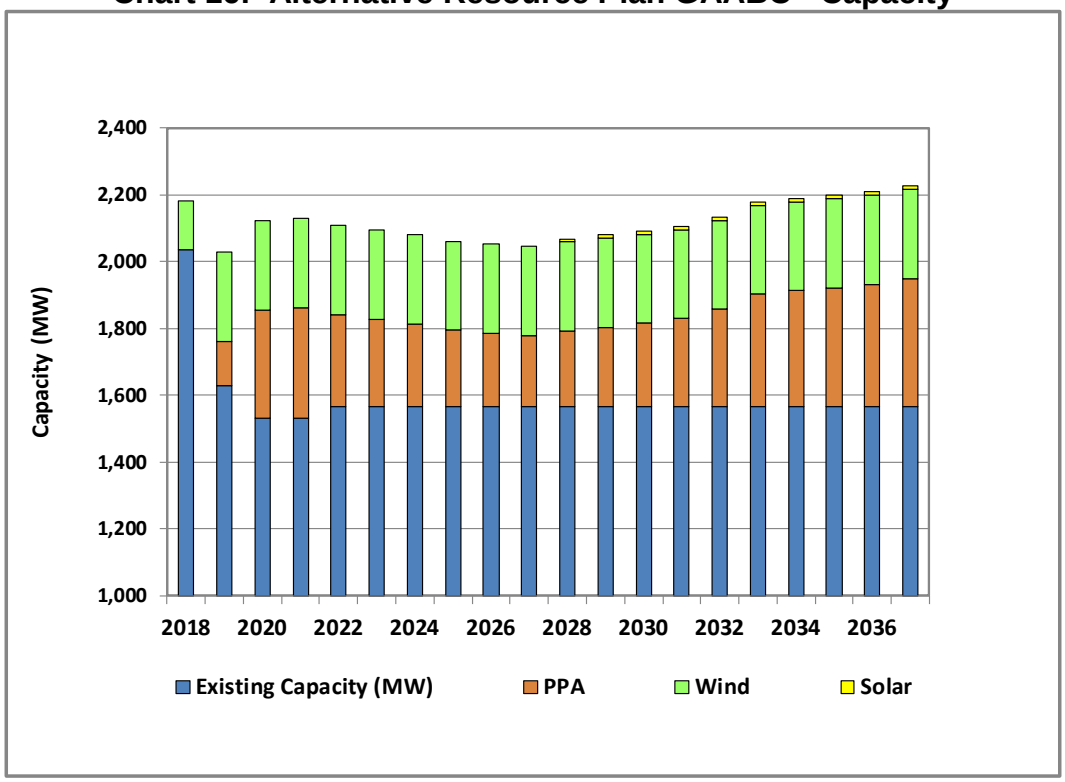


Chart 17: Alternative Resource Plan GAABD - Capacity

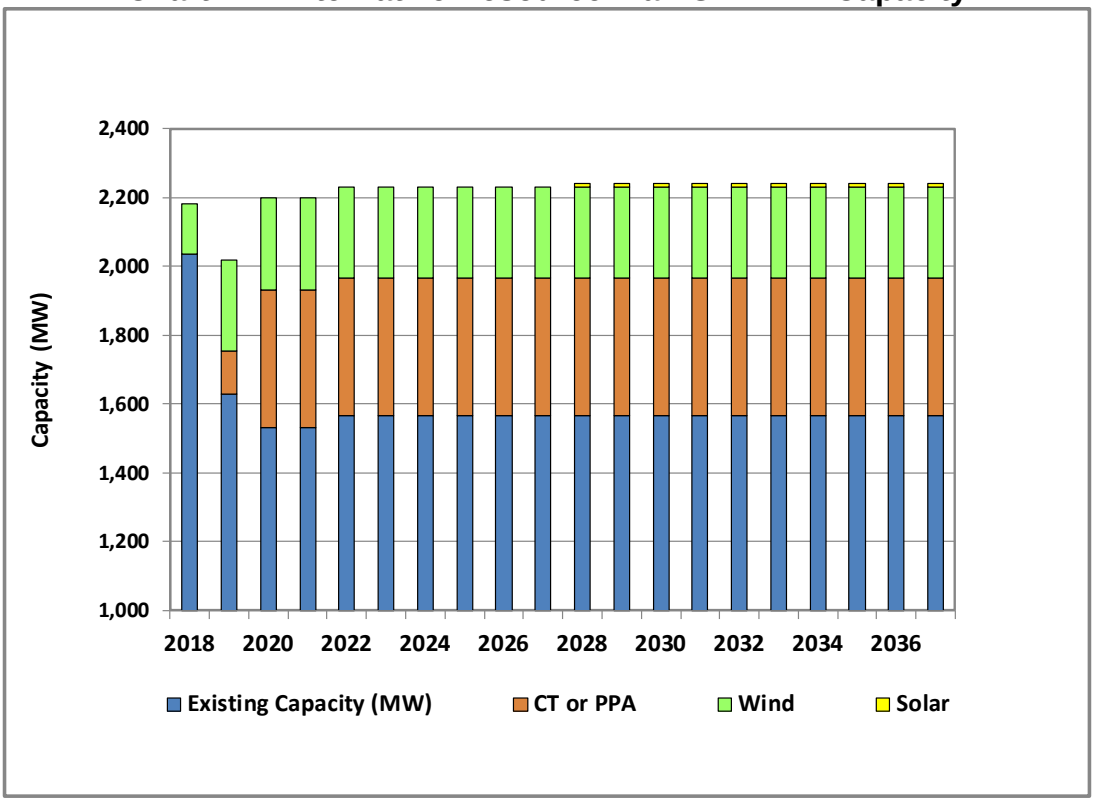


Chart 18: Alternative Resource Plan GAABW - Capacity

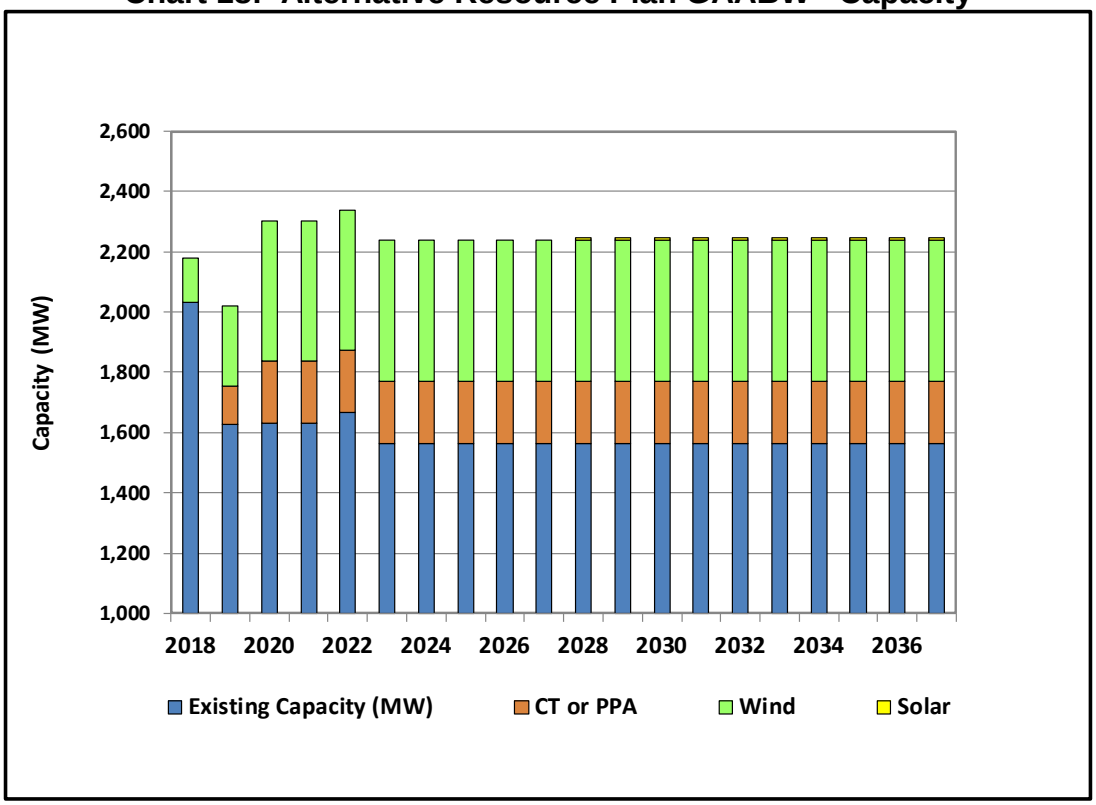


Chart 19: Alternative Resource Plan GAACA - Capacity

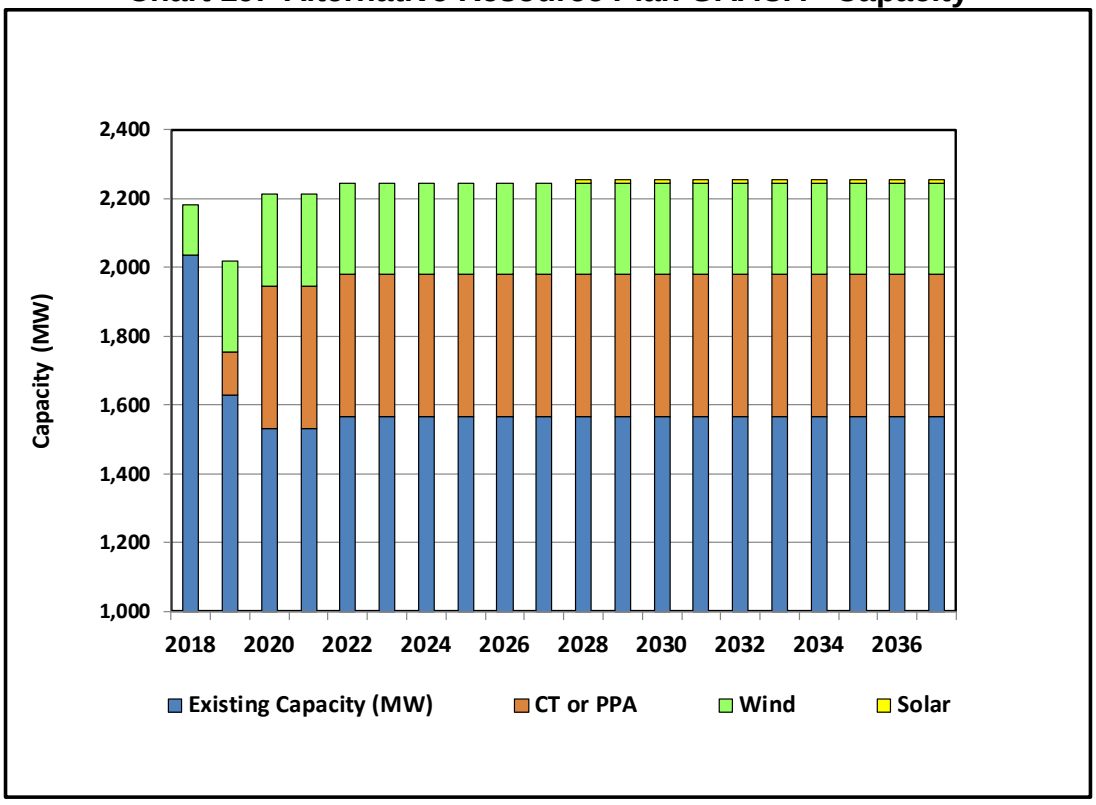


Chart 20: Alternative Resource Plan GAADA - Capacity

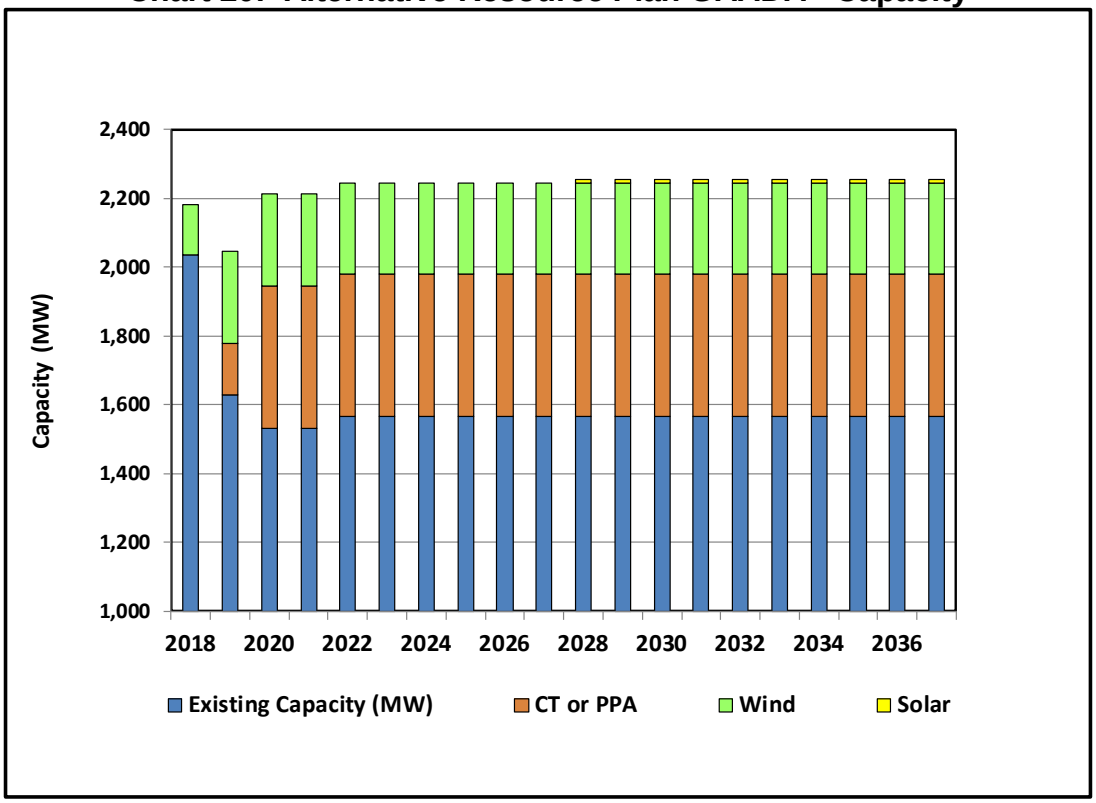


Chart 21: Alternative Resource Plan GAAEA - Capacity

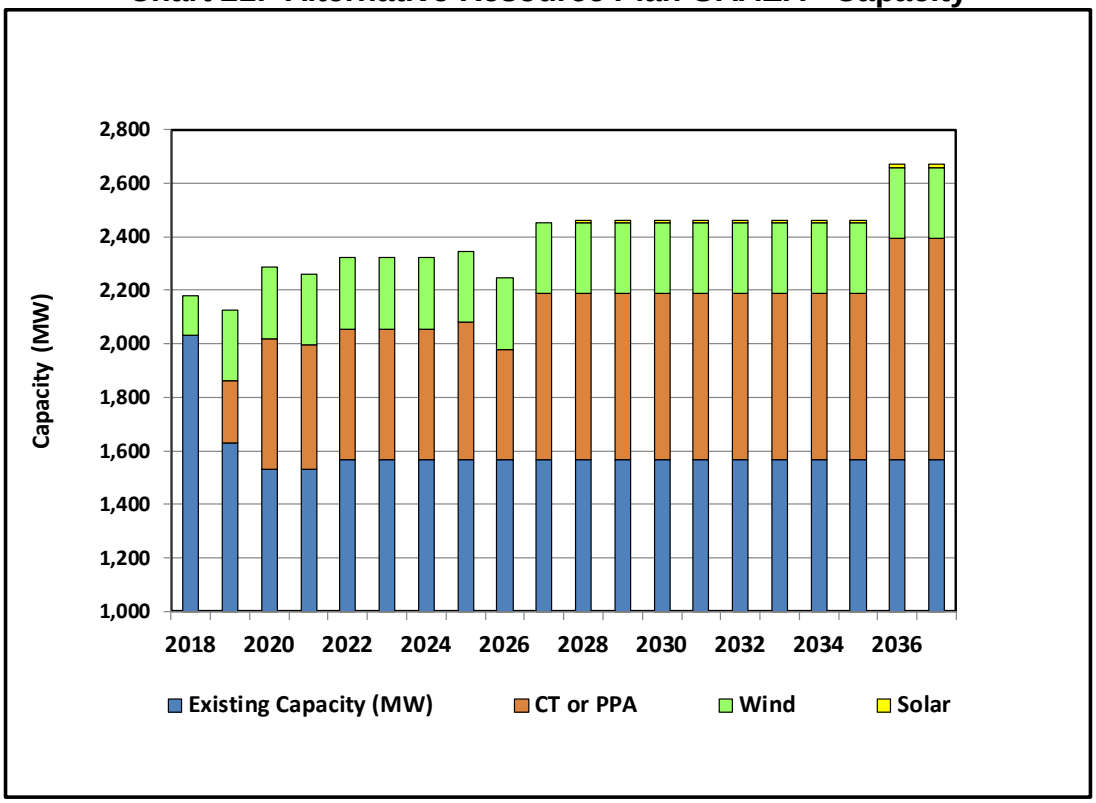


Chart 22: Alternative Resource Plan GAAFA - Capacity

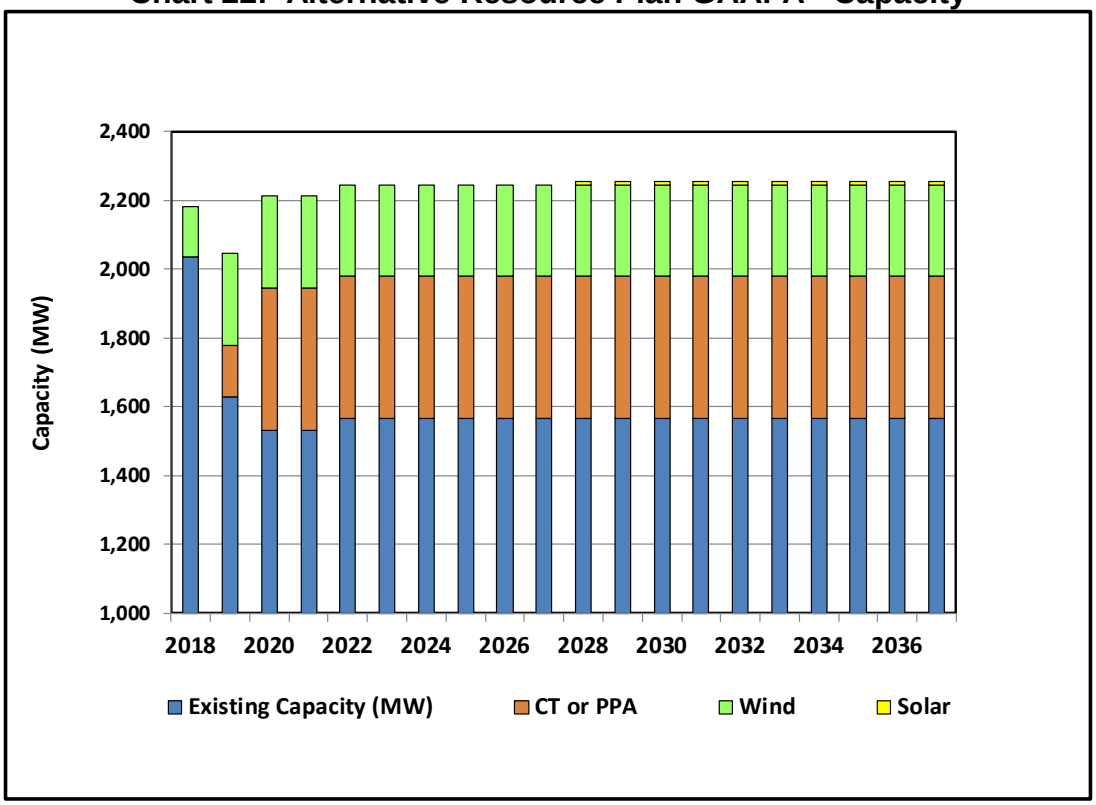


Chart 23: Alternative Resource Plan GAAFC - Capacity

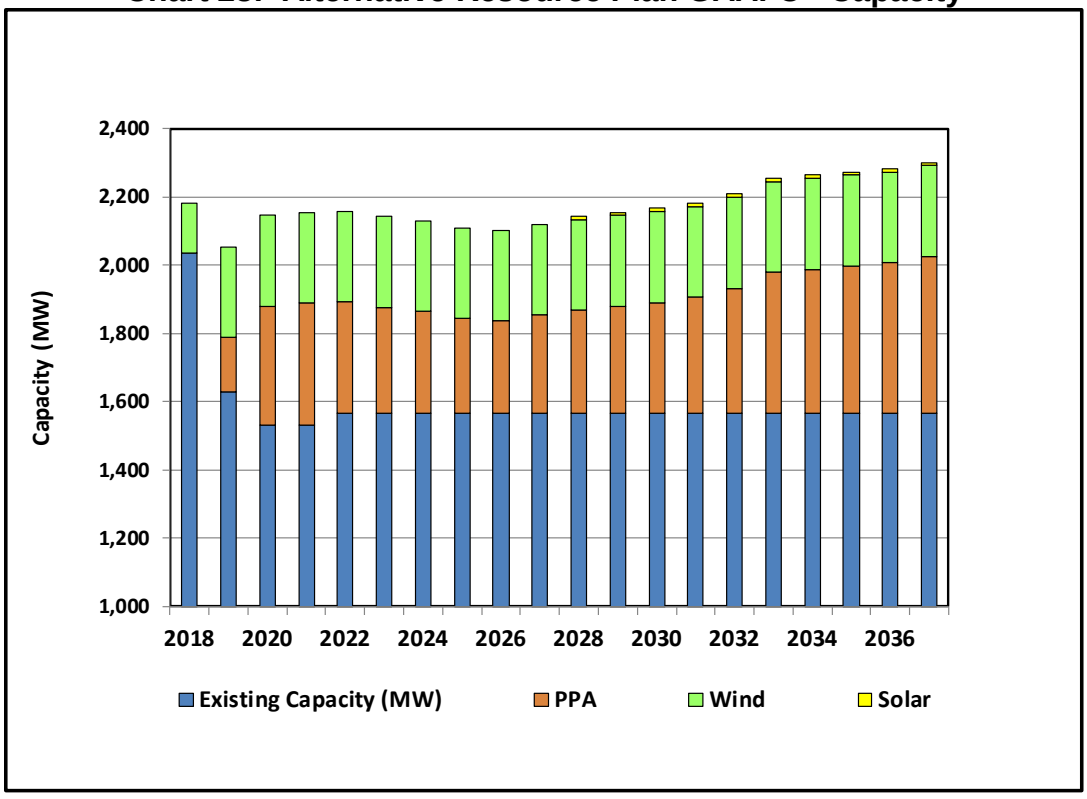


Chart 24: Alternative Resource Plan GAAFN - Capacity

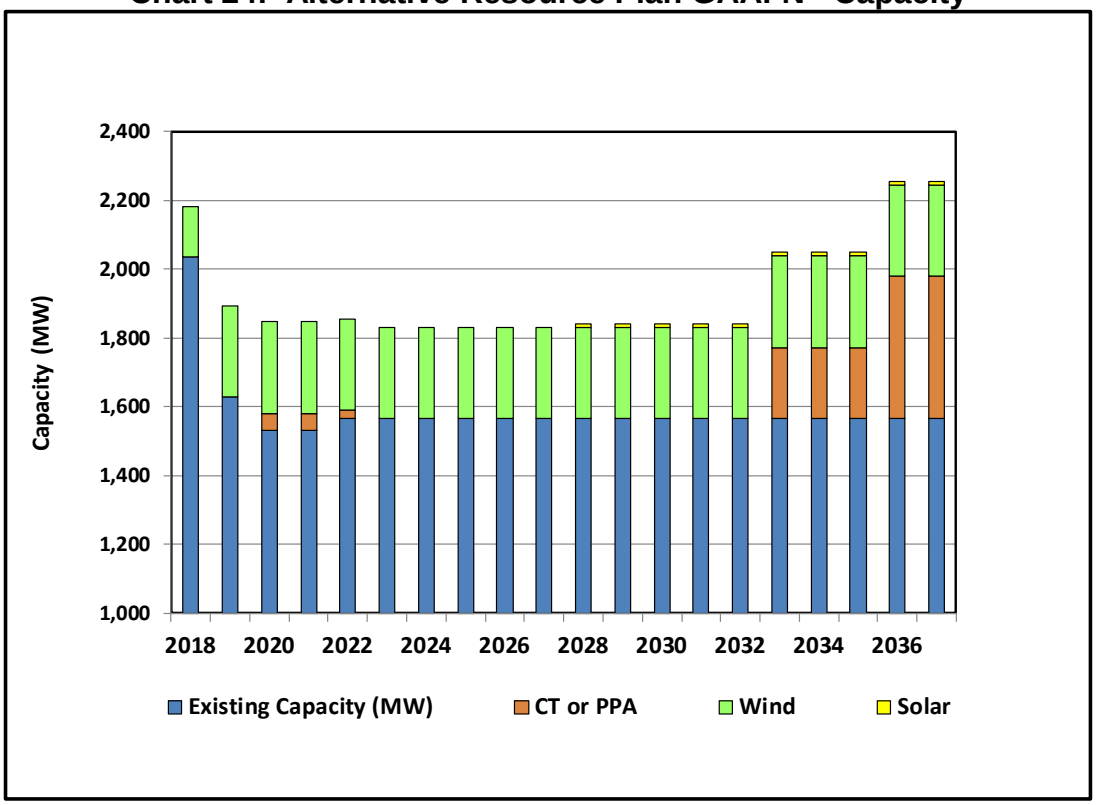


Chart 25: Alternative Resource Plan GAAGC - Capacity

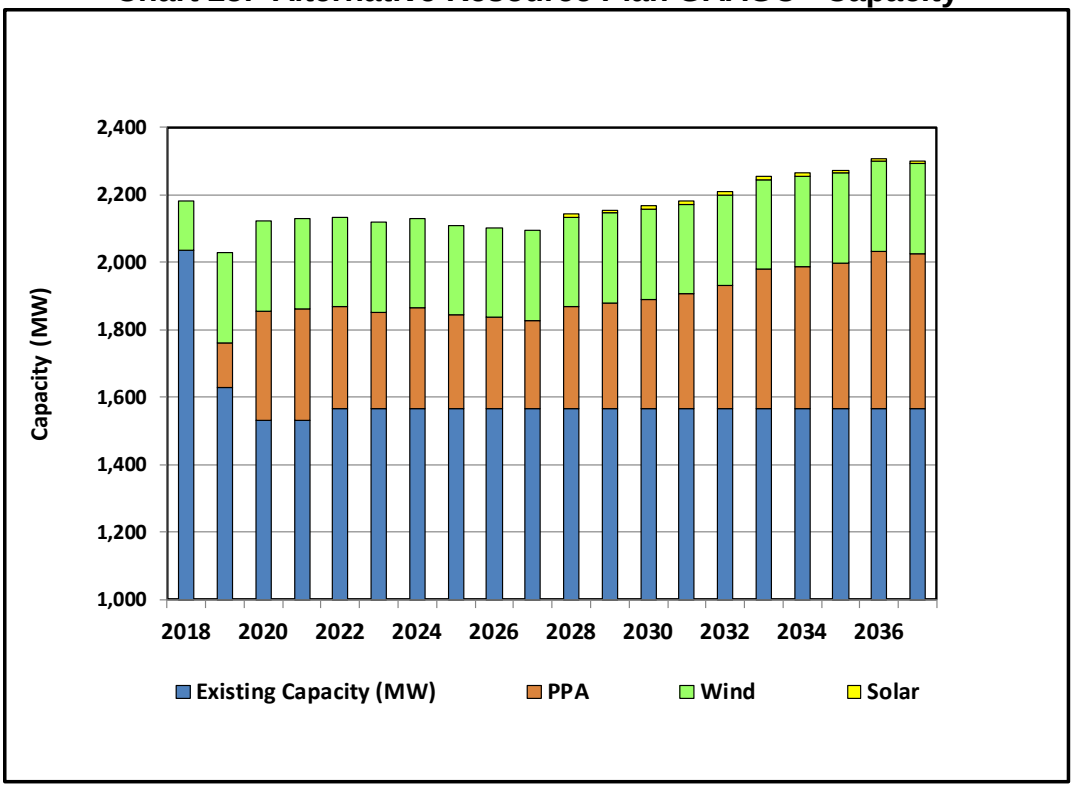
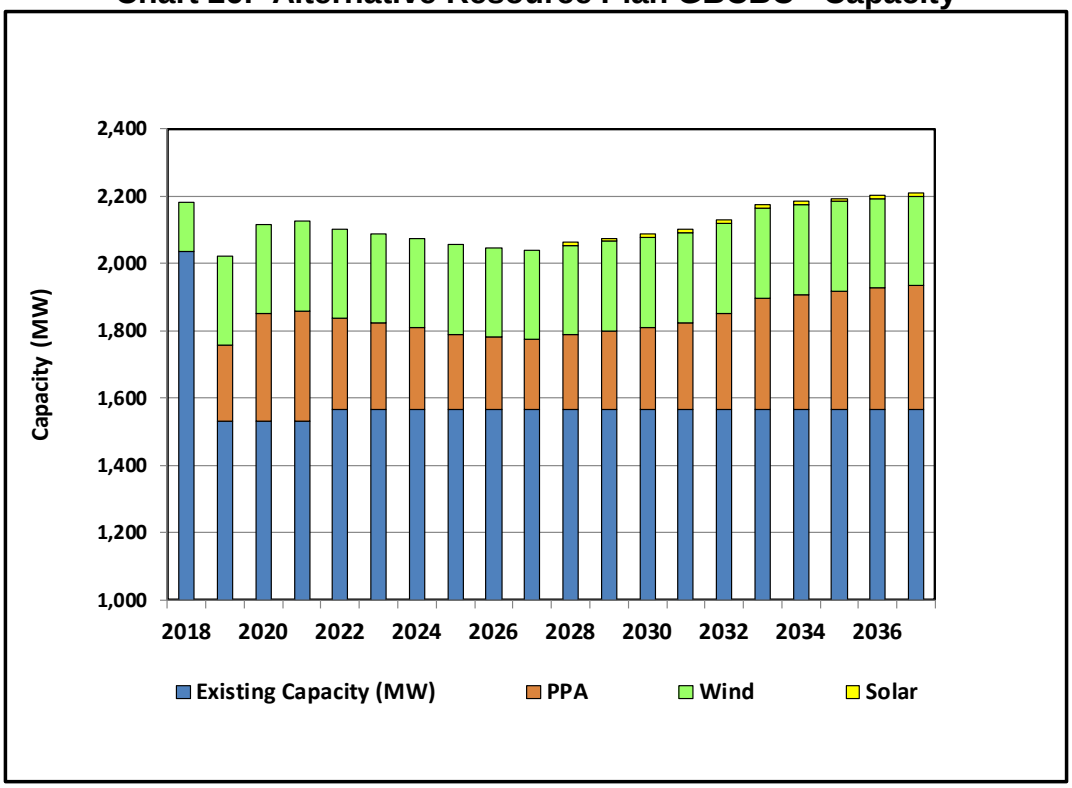


Chart 26: Alternative Resource Plan GBCBC - Capacity



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 DSM programs associated with the Alternative Resource Plans.

Chart 27: Annual Energy Impact – DSM Option A

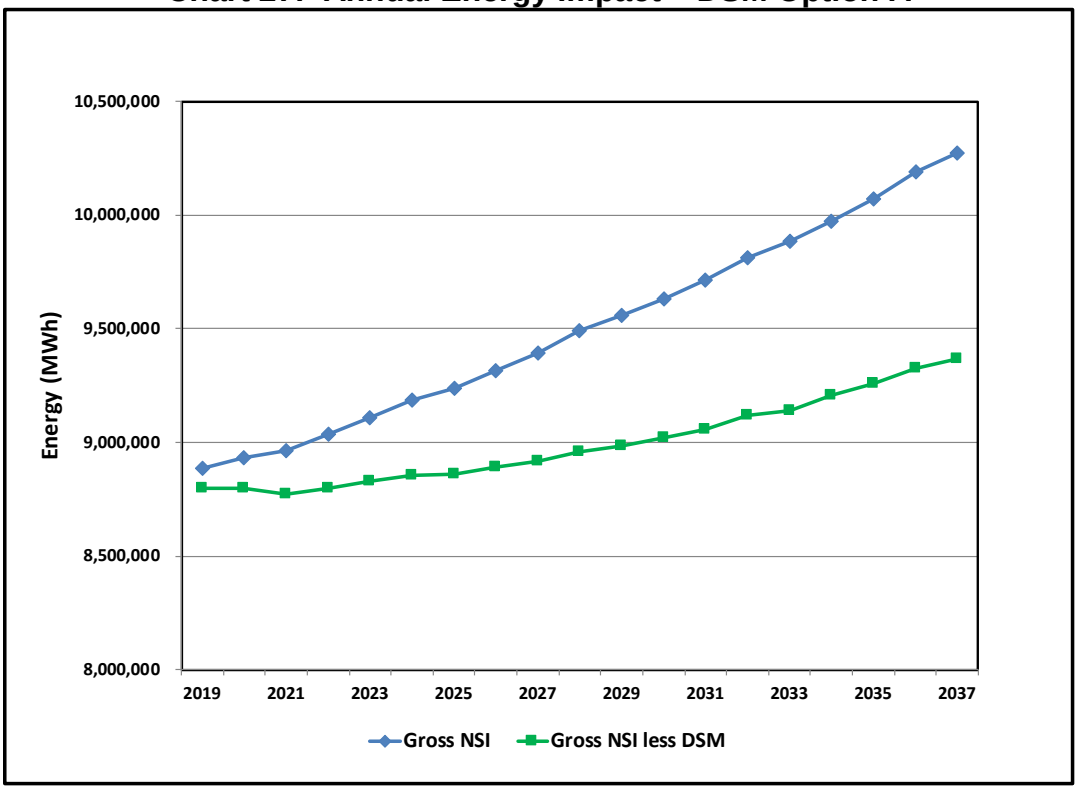


Chart 28: Annual Energy Impact – DSM Option B

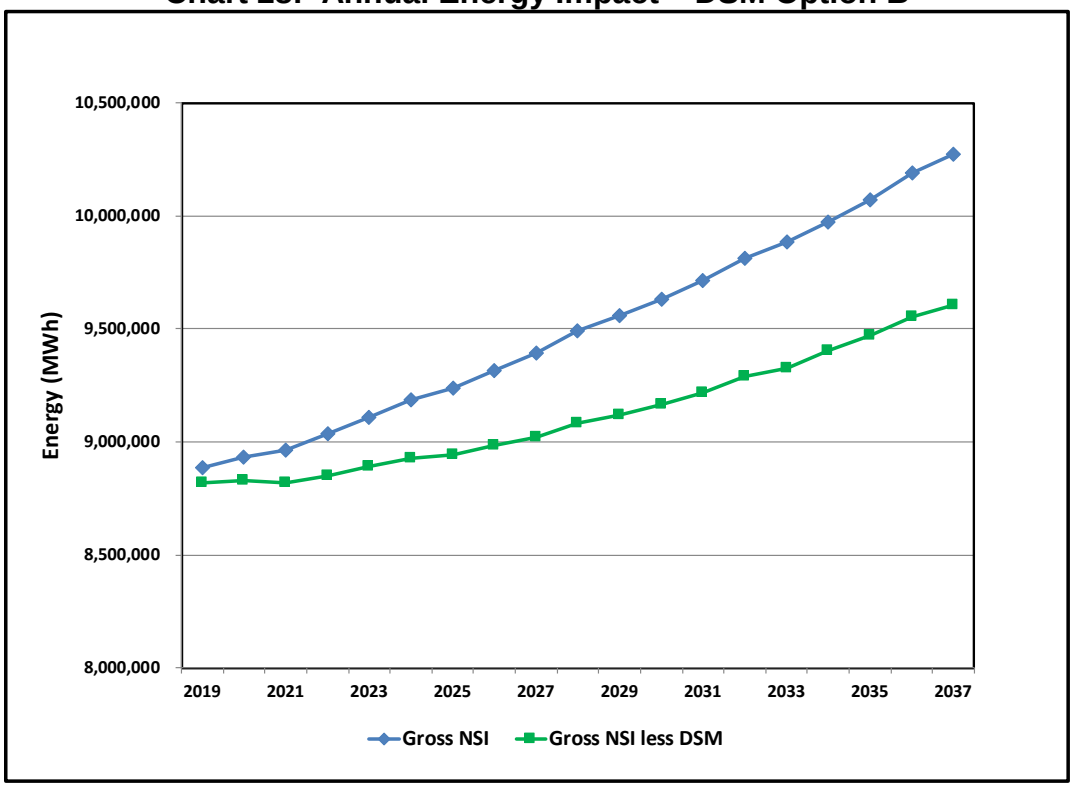


Chart 29: Annual Energy Impact – DSM Option C

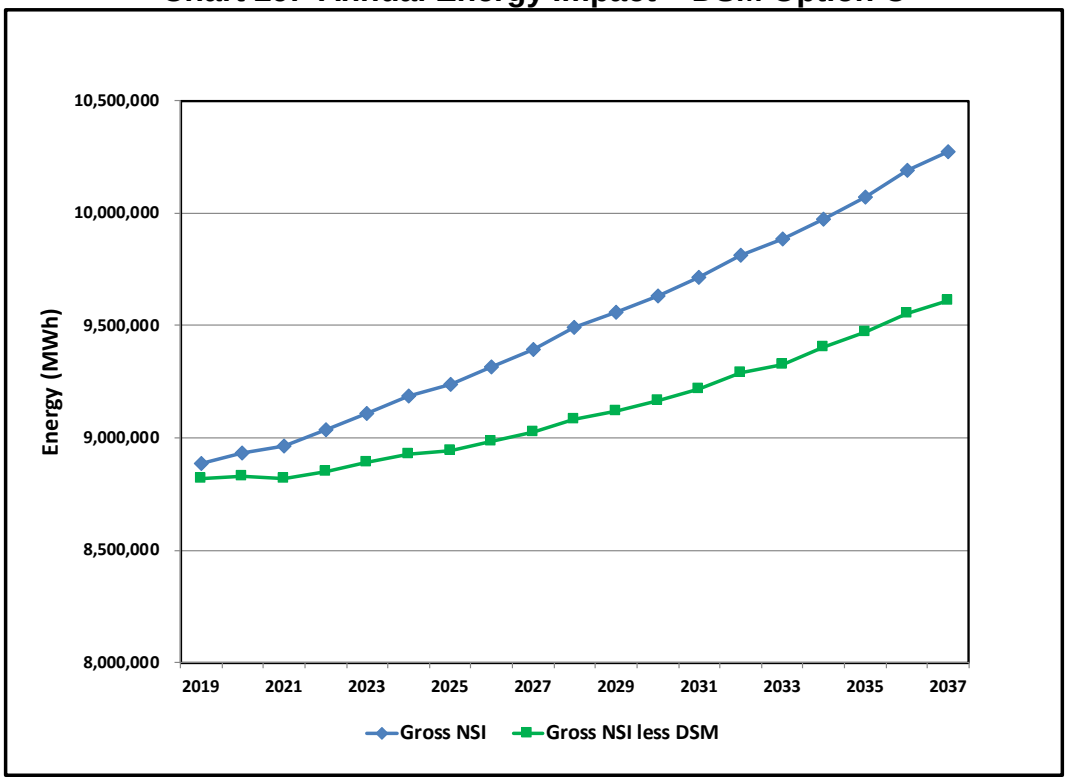


Chart 30: Annual Energy Impact – DSM Option D

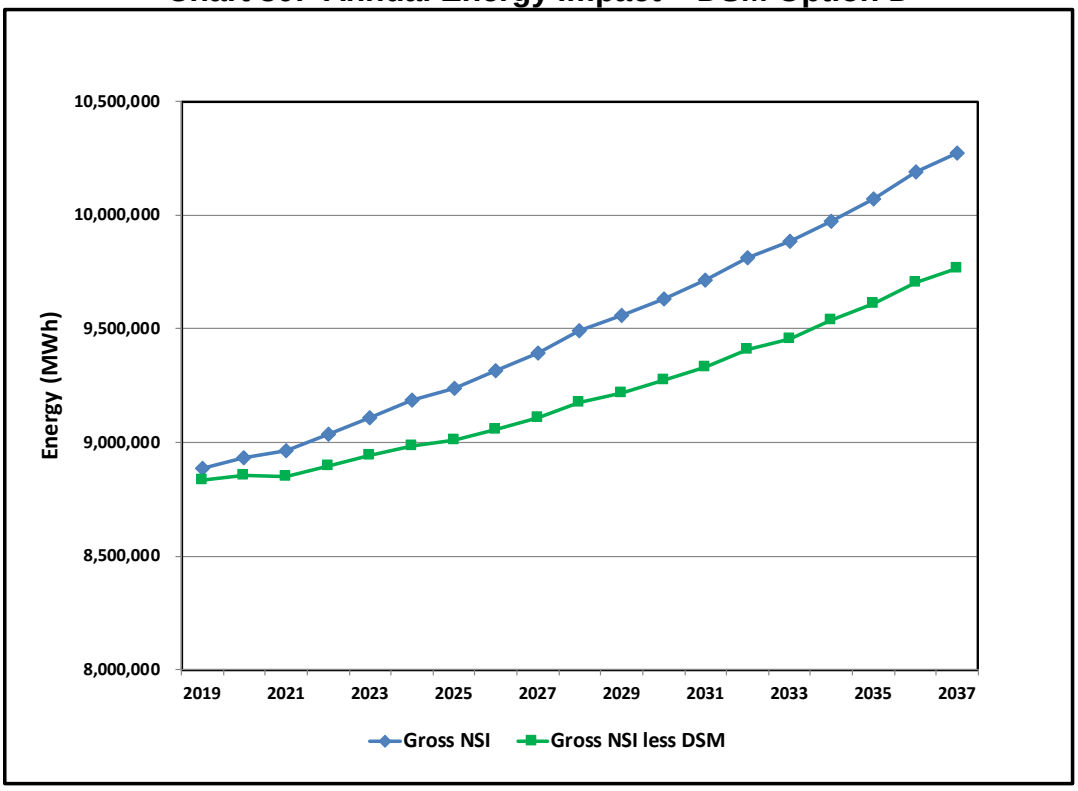


Chart 31: Annual Energy Impact – DSM Option F

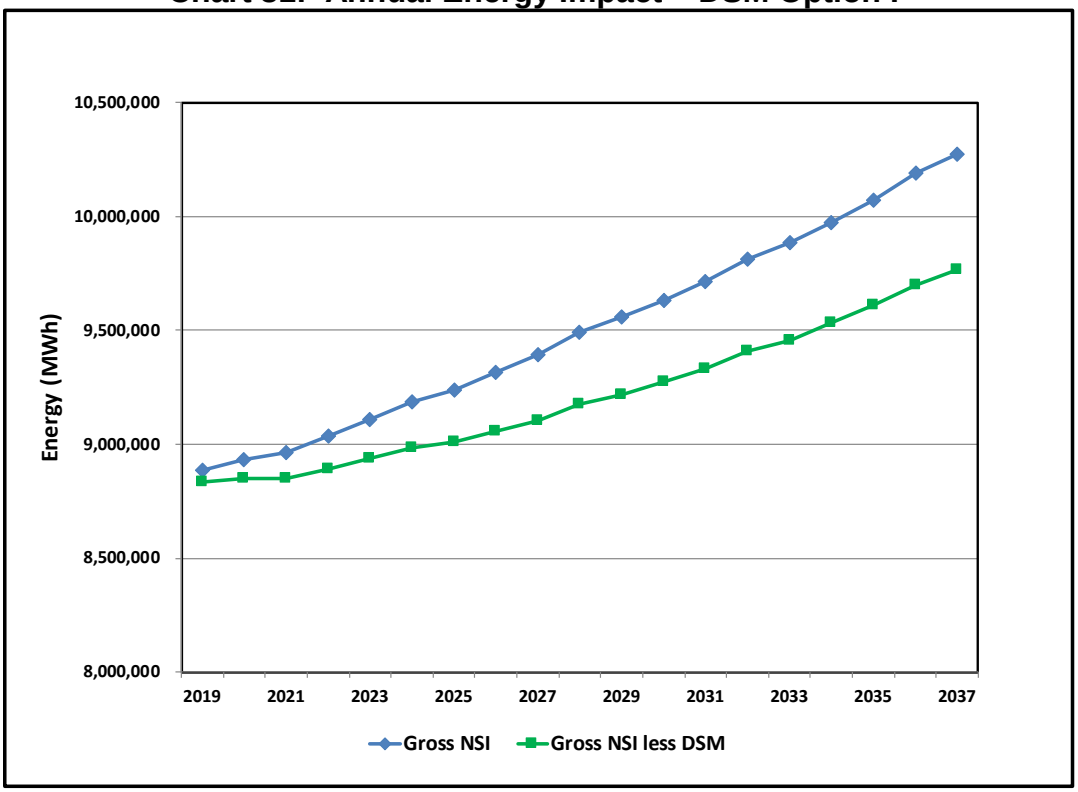
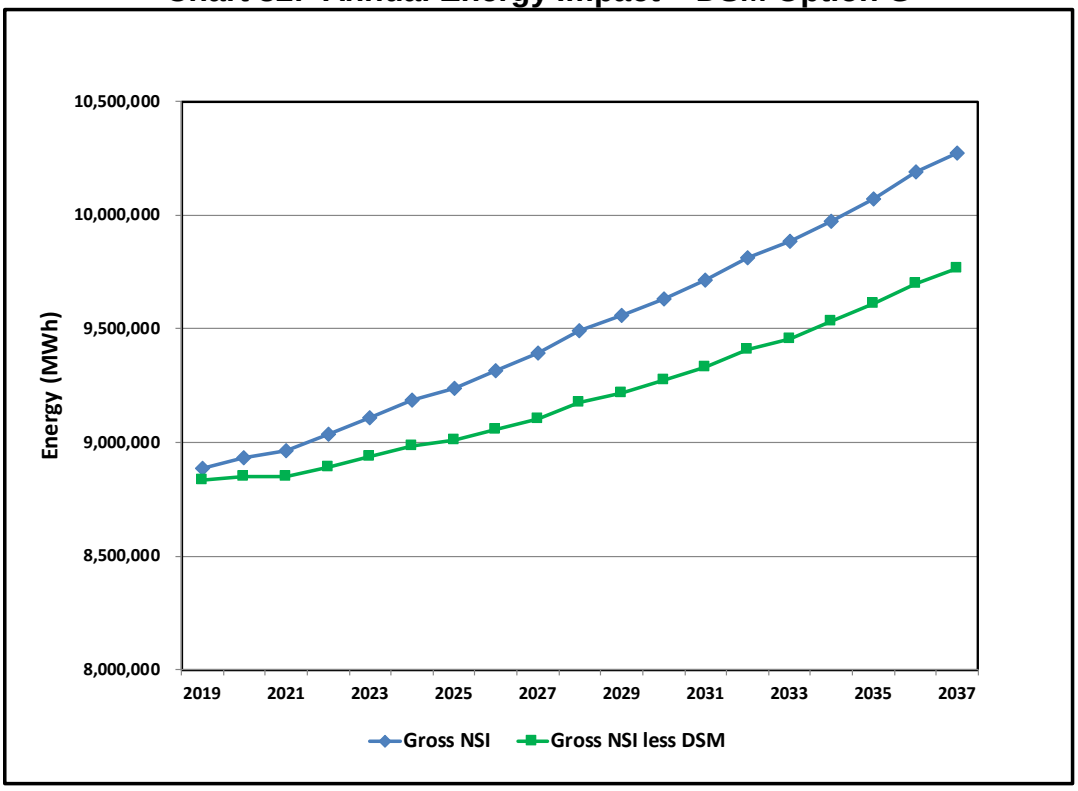


Chart 32: Annual Energy Impact – DSM Option G



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

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

Chart 33: Energy Composition – DSM Option A

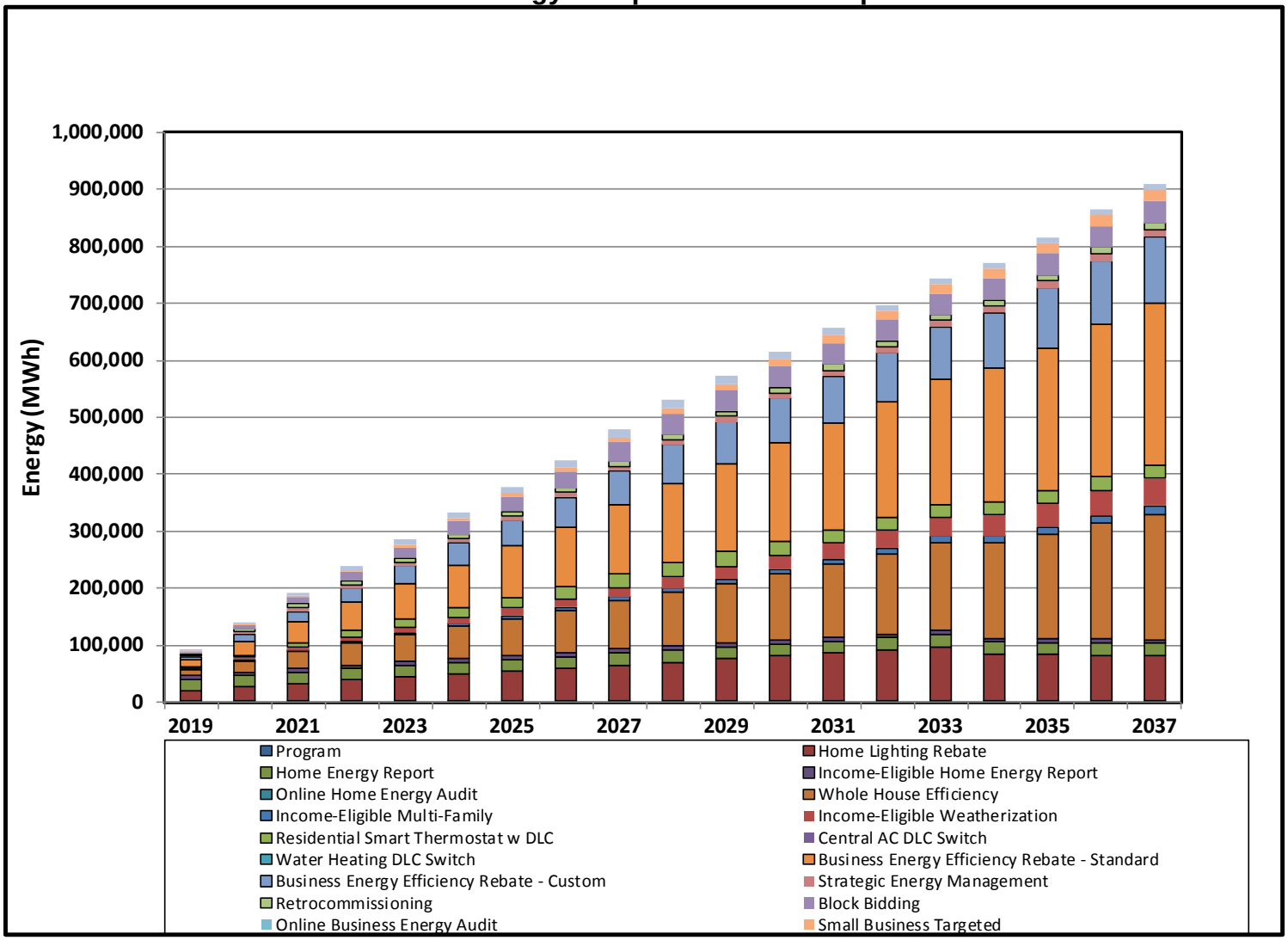


Chart 34: Energy Composition – DSM Option B

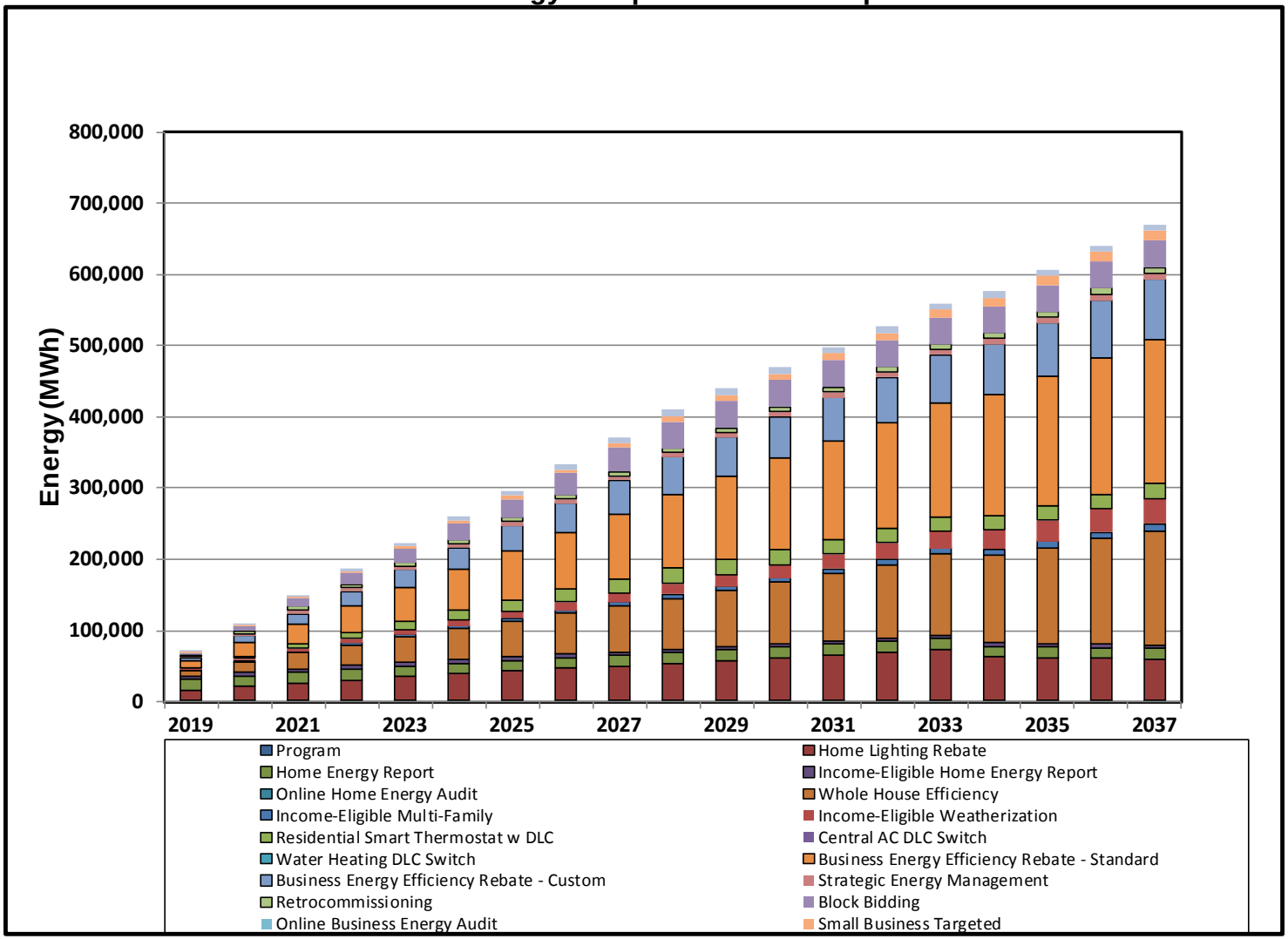


Chart 35: Energy Composition – DSM Option C

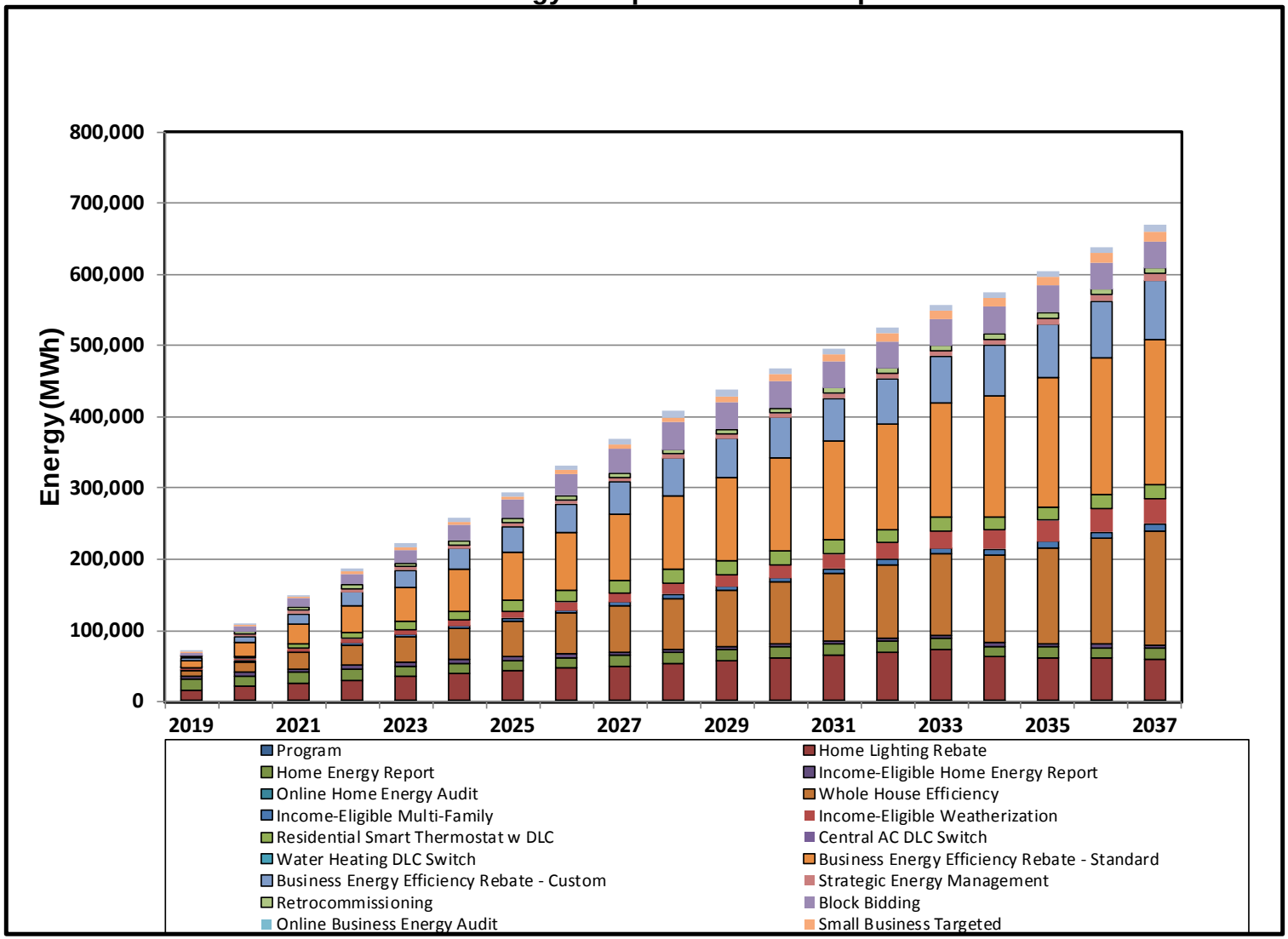


Chart 36: Energy Composition – DSM Option D

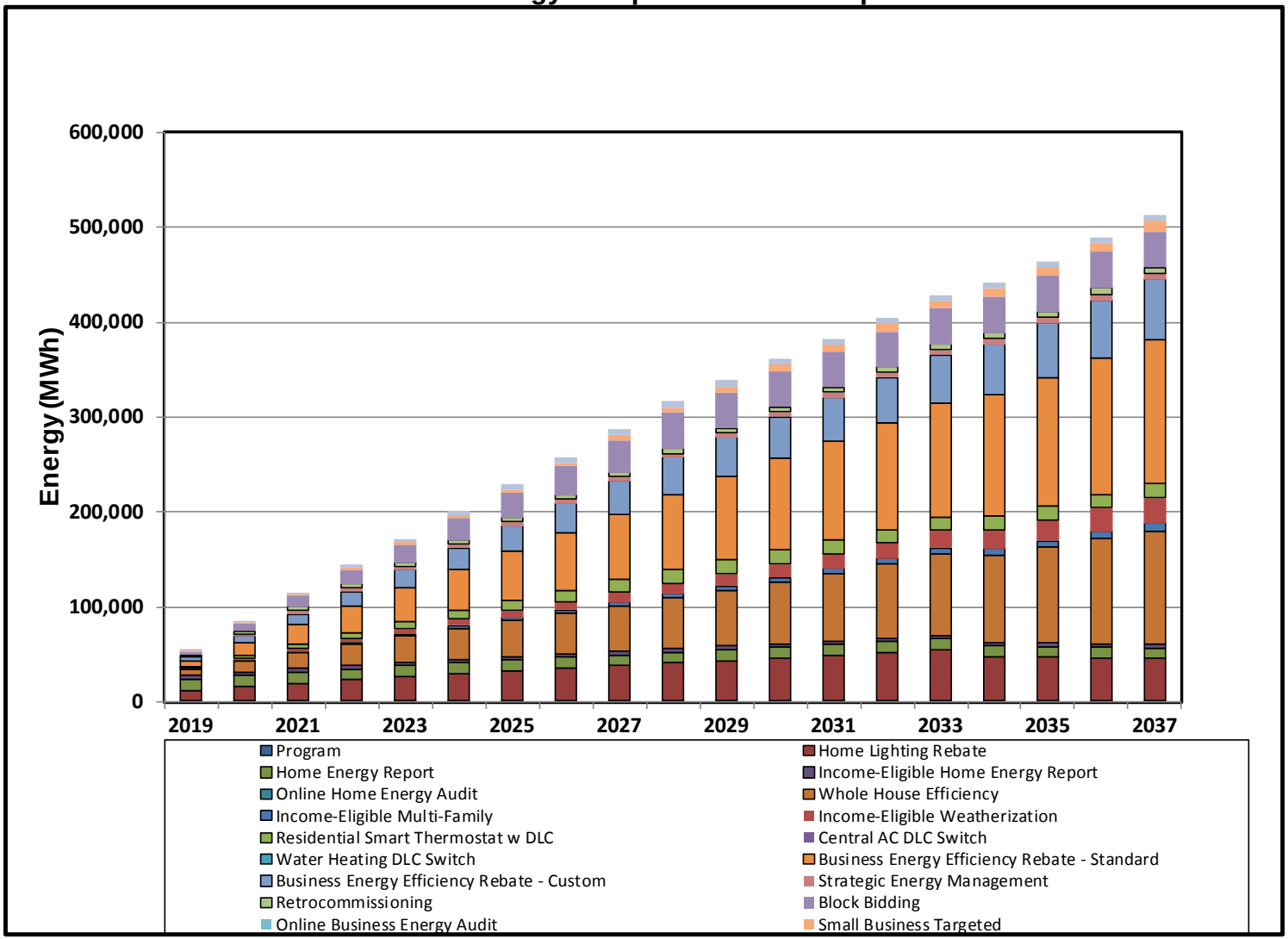


Chart 37: Energy Composition – DSM Option F

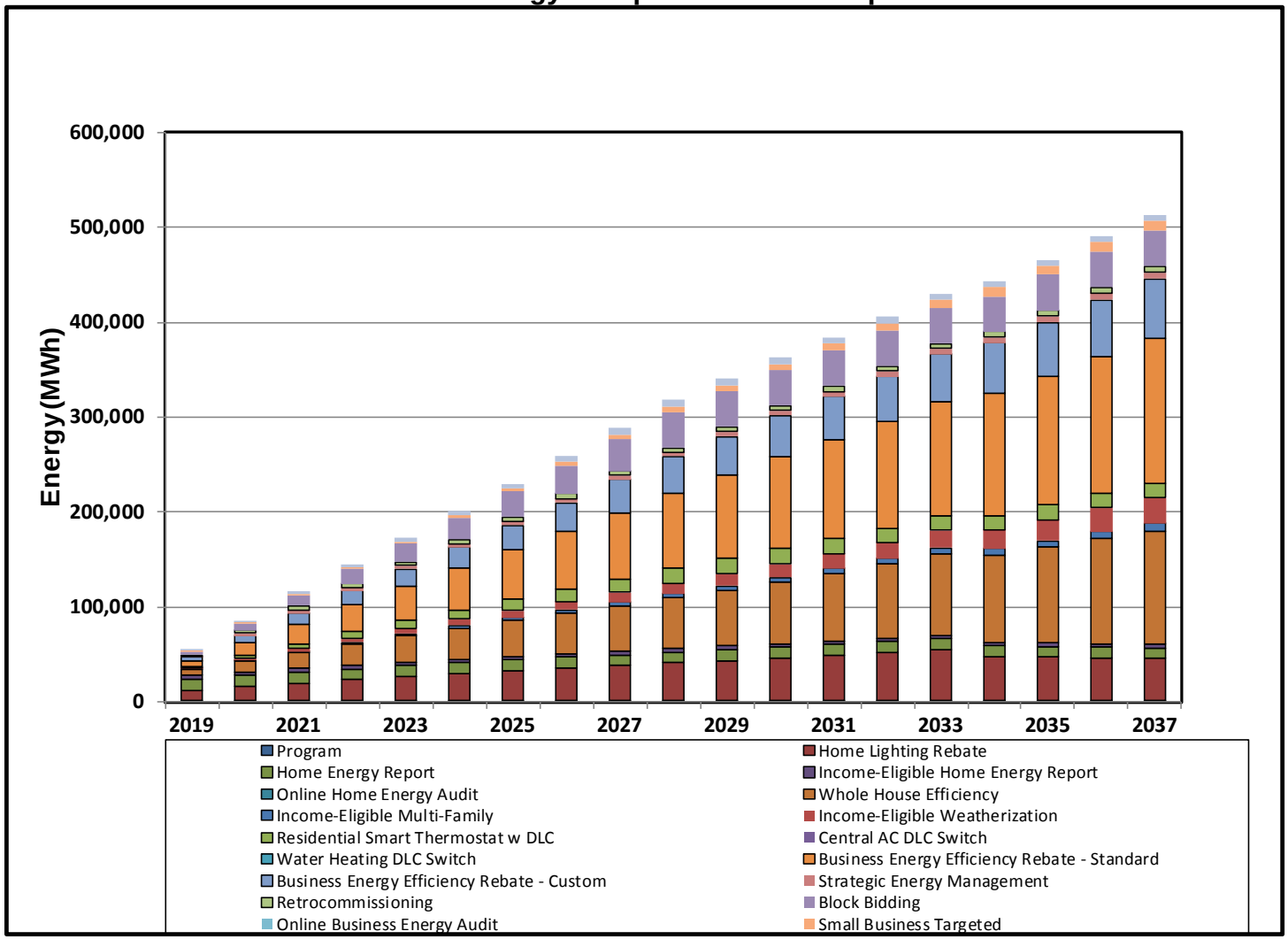
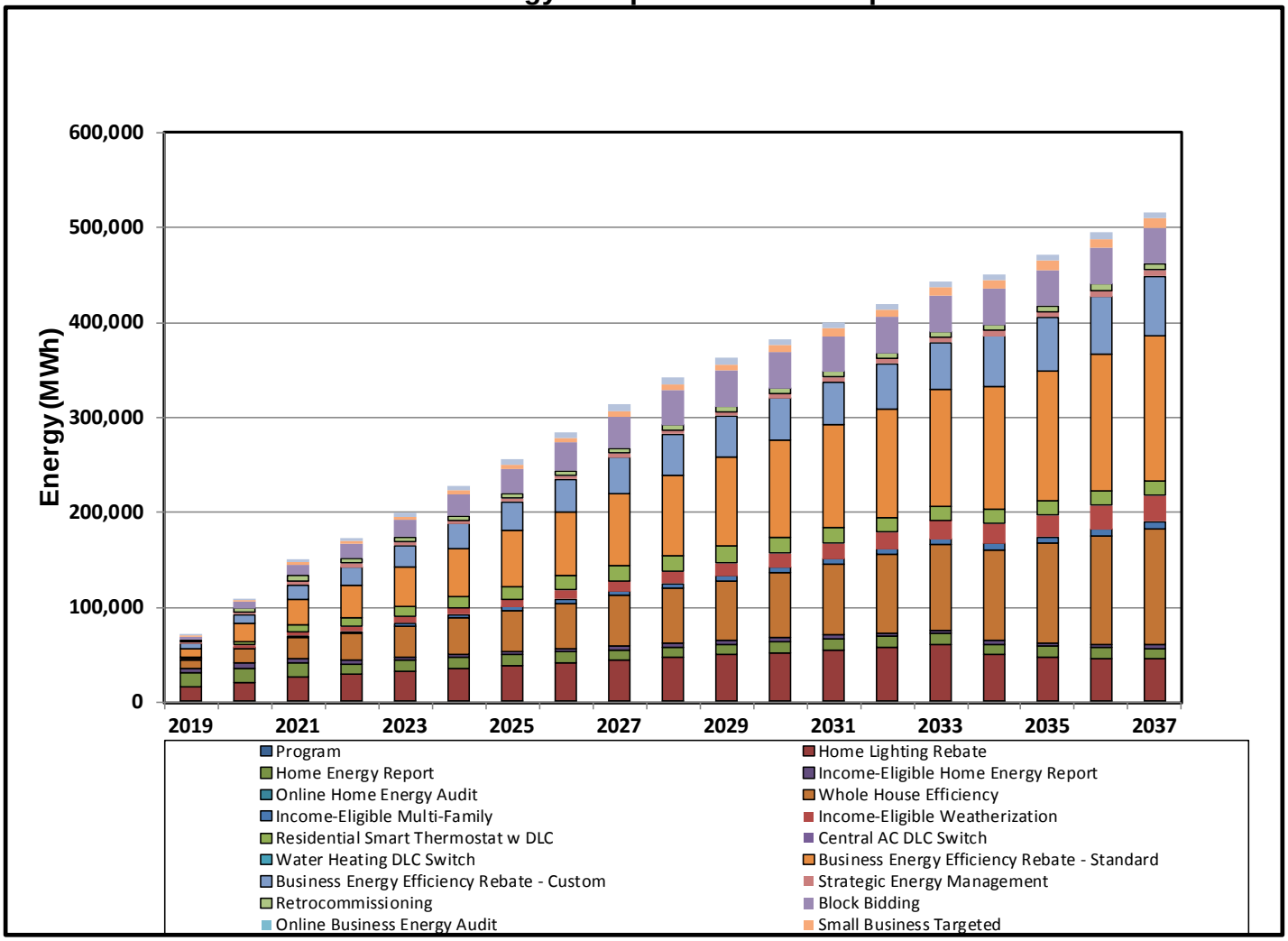


Chart 38: Energy Composition – DSM Option G



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 39: Annual Generation GAAAA

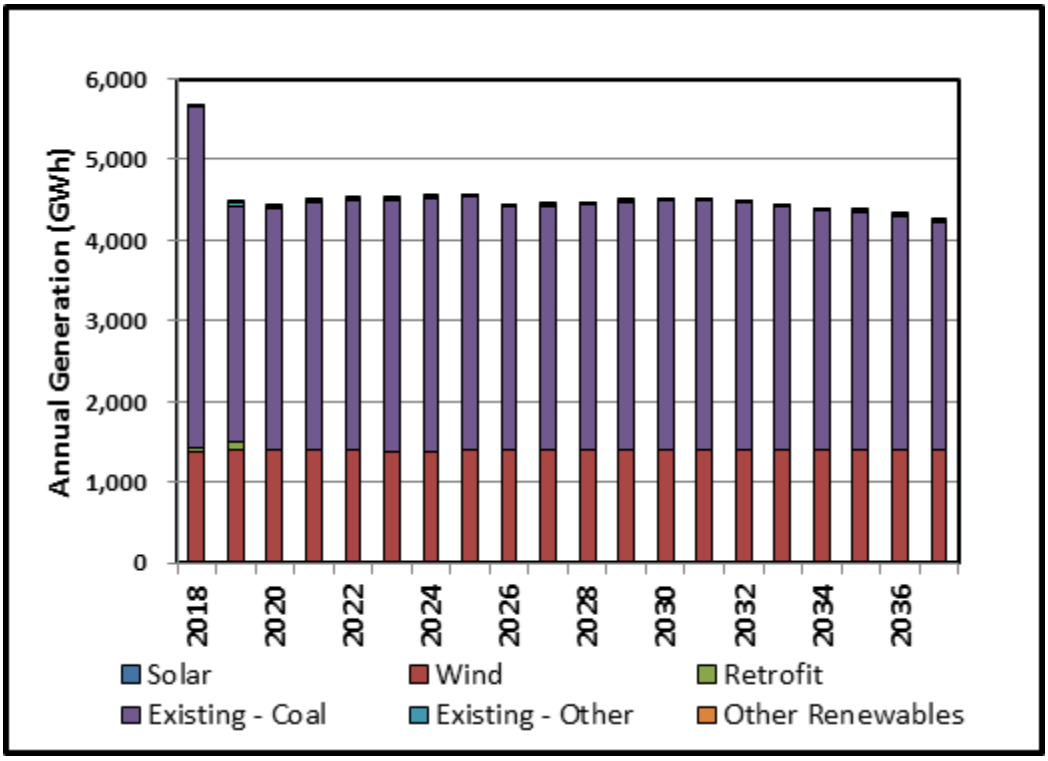


Chart 40: Annual Generation GAABA

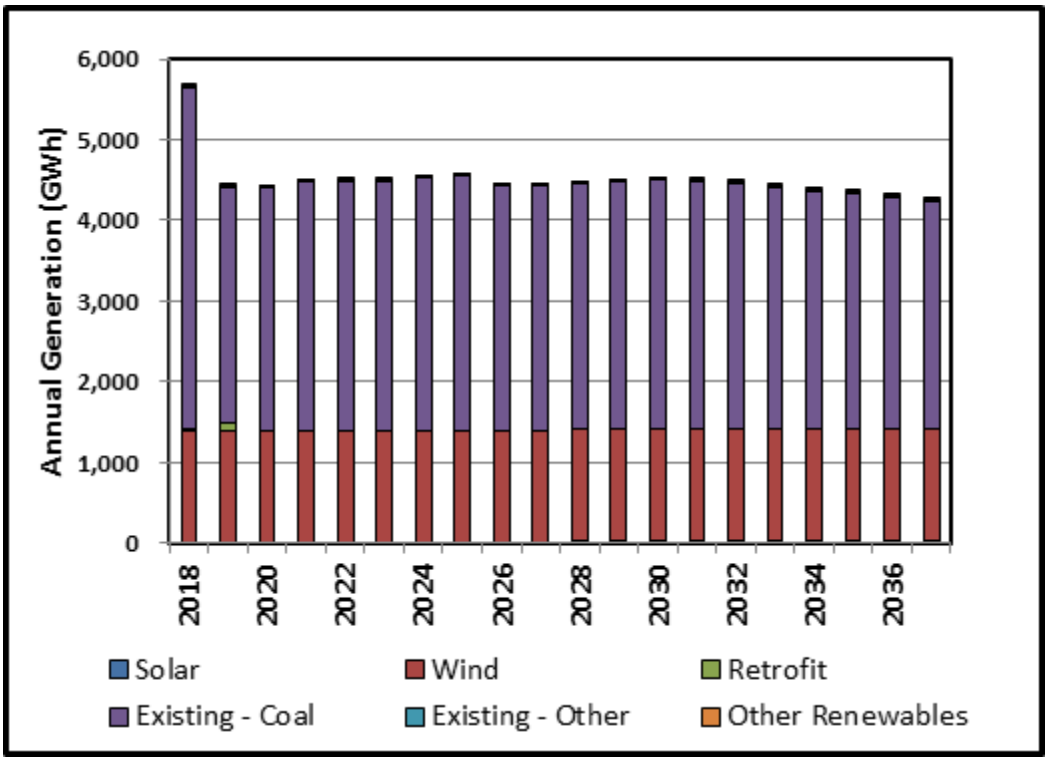


Chart 41: Annual Generation GAABB

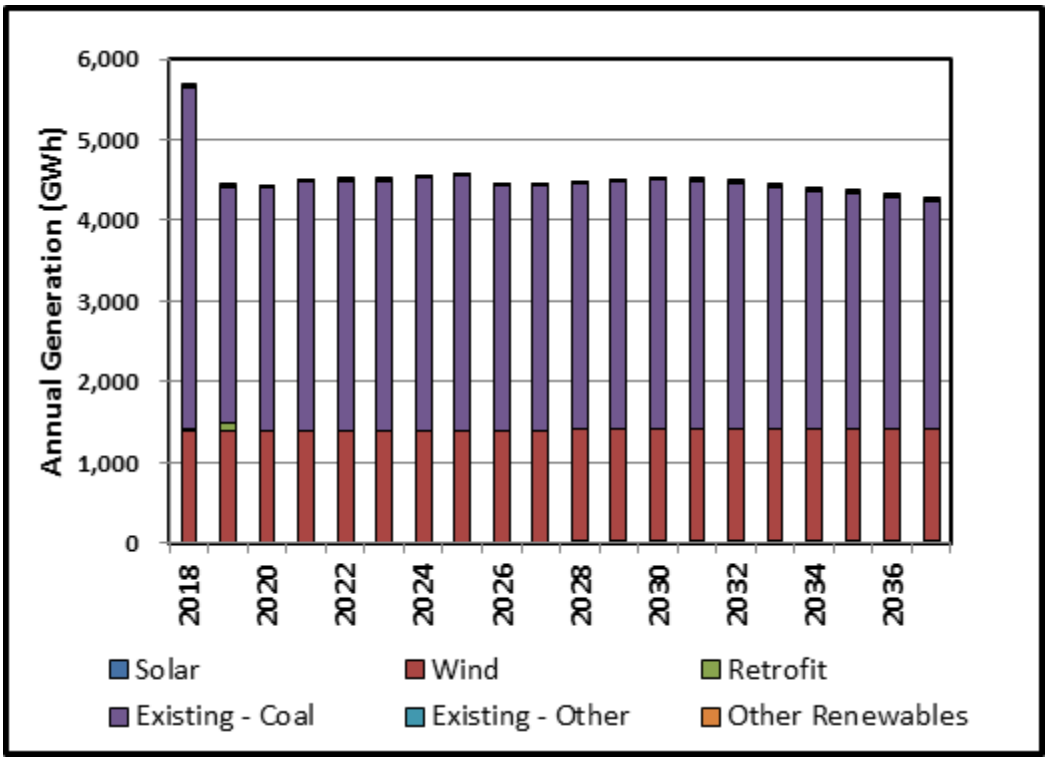


Chart 42: Annual Generation GAABC

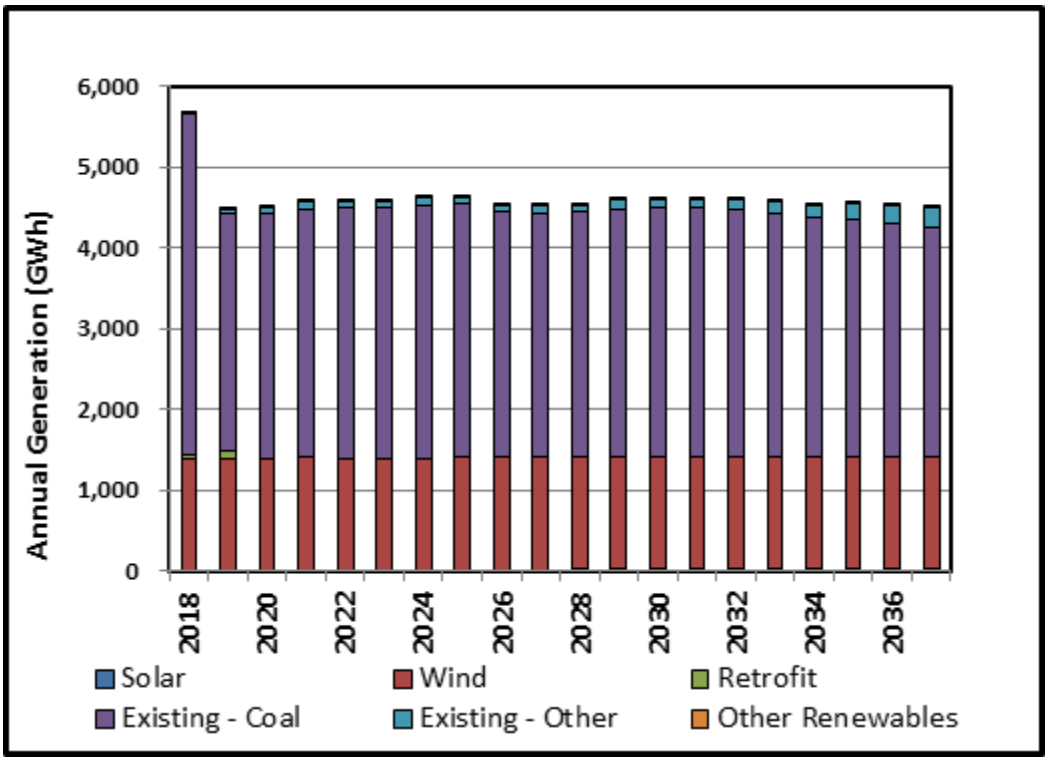


Chart 43: Annual Generation GAABD

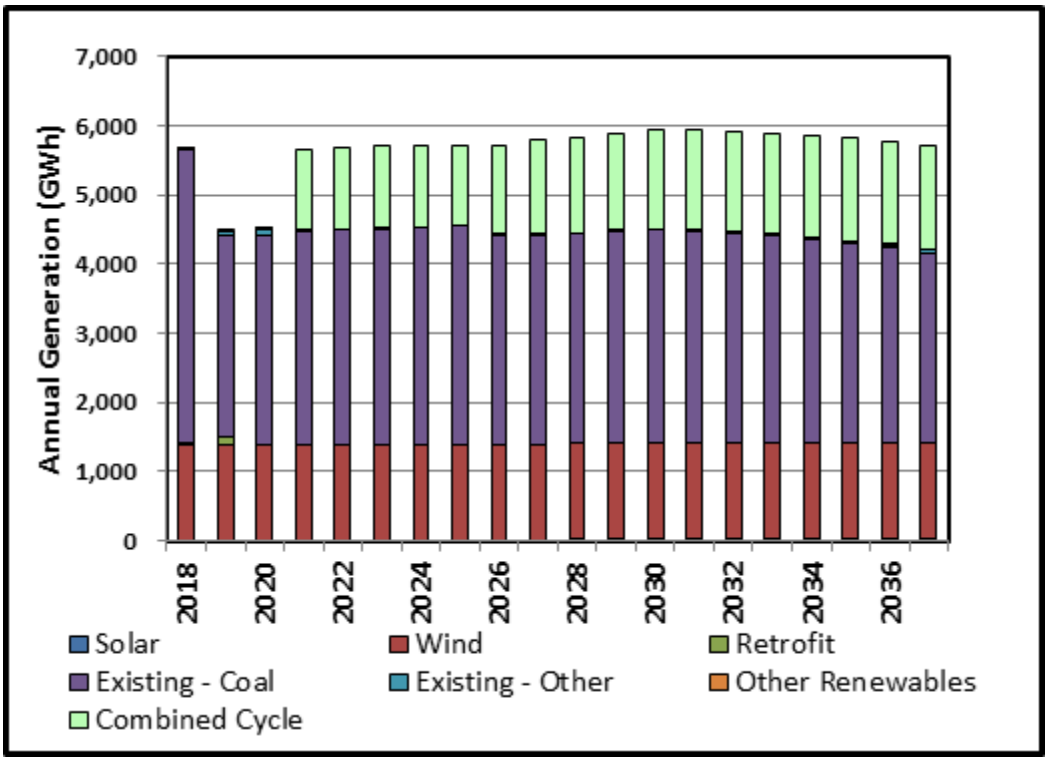


Chart 44: Annual Generation GAABW

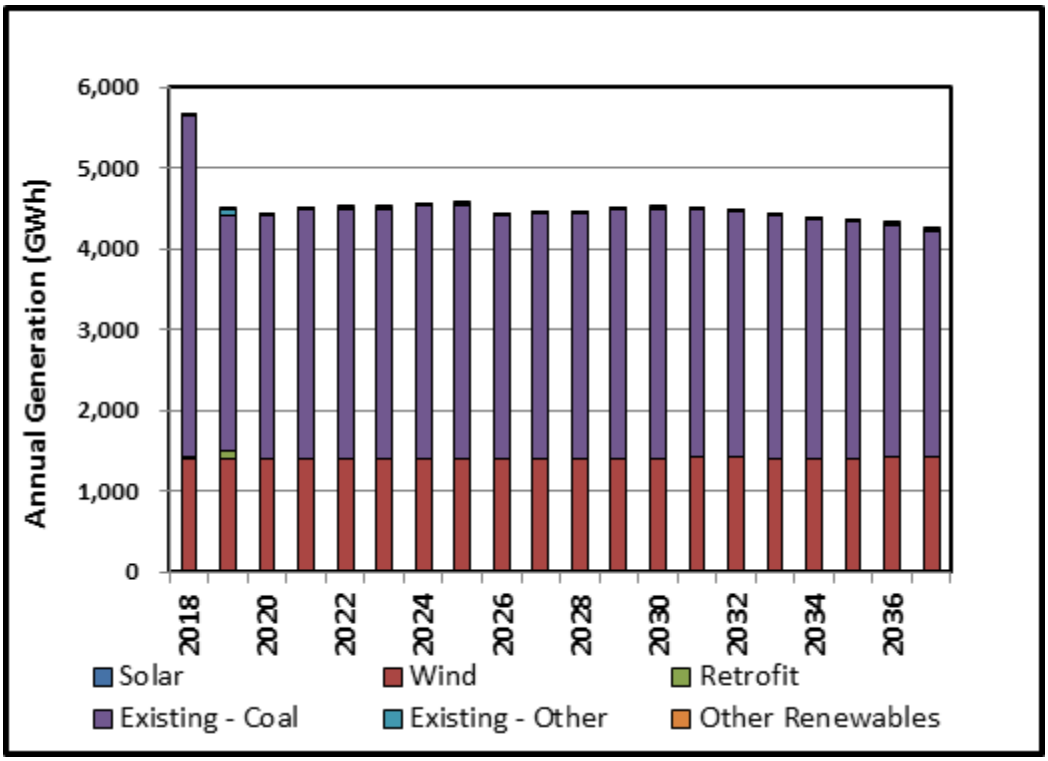


Chart 45: Annual Generation GAACA

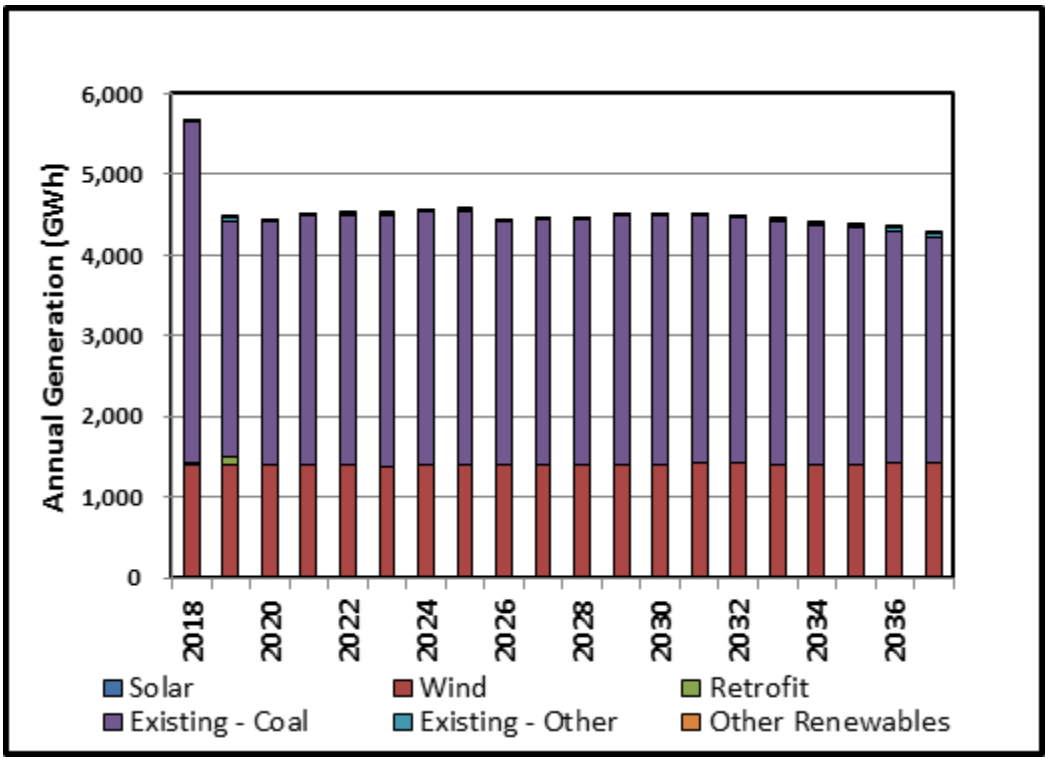


Chart 46: Annual Generation GAADA

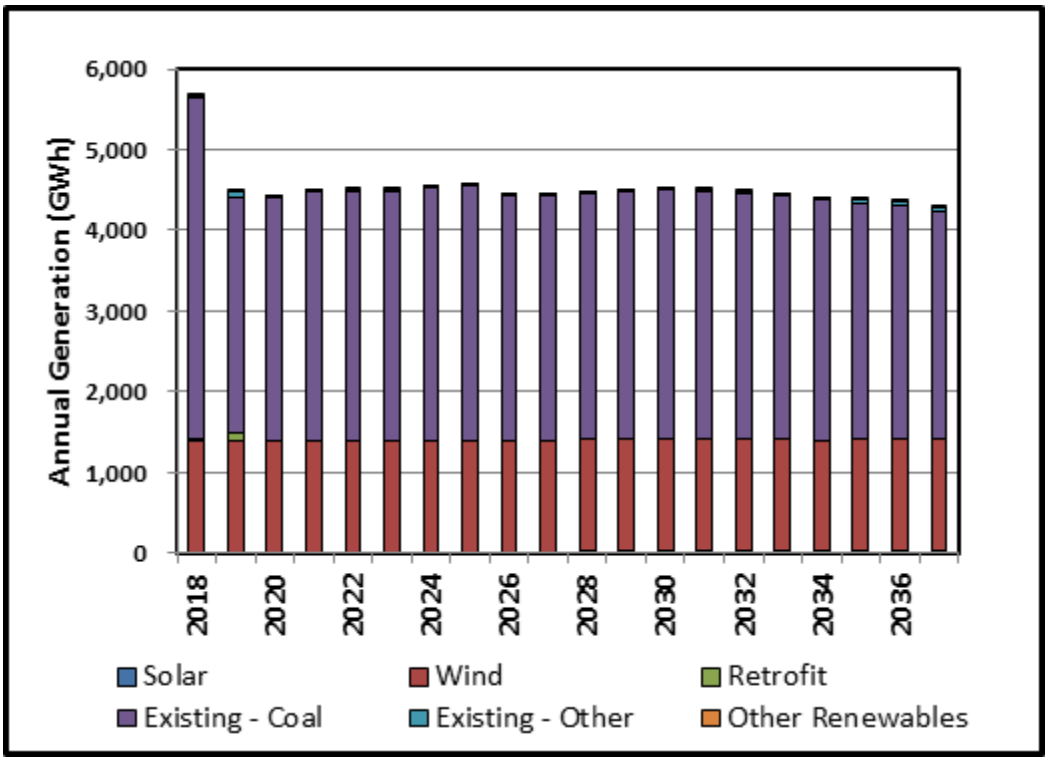


Chart 47: Annual Generation GAAEA

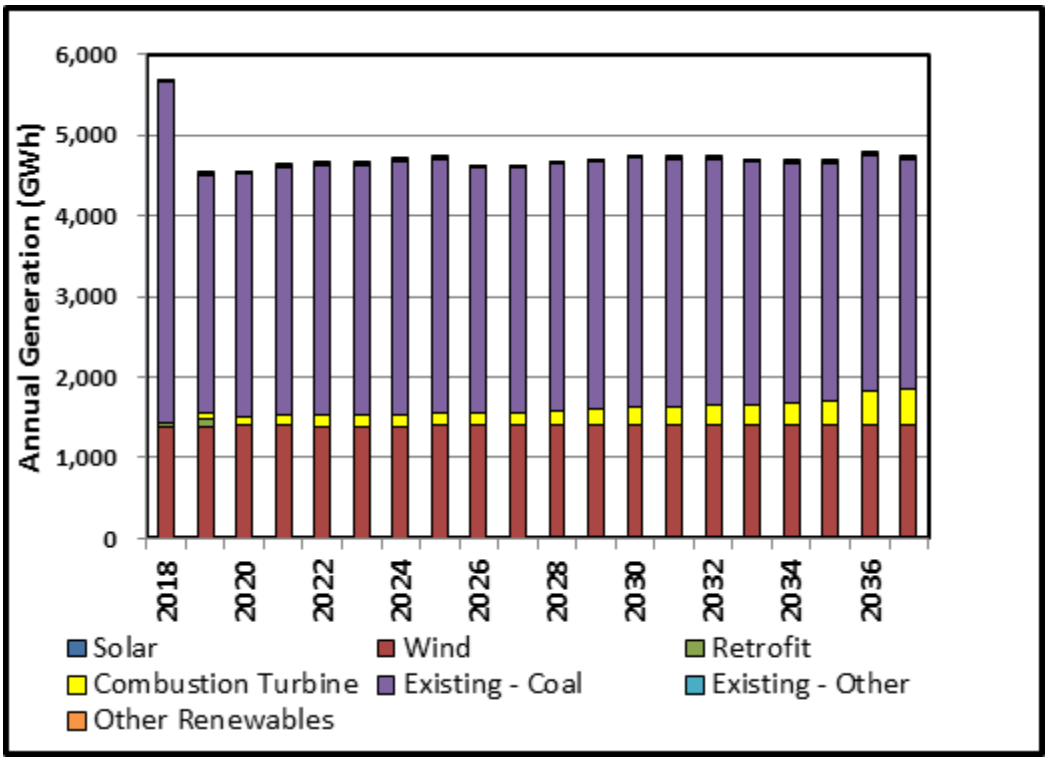


Chart 48: Annual Generation GAAFA

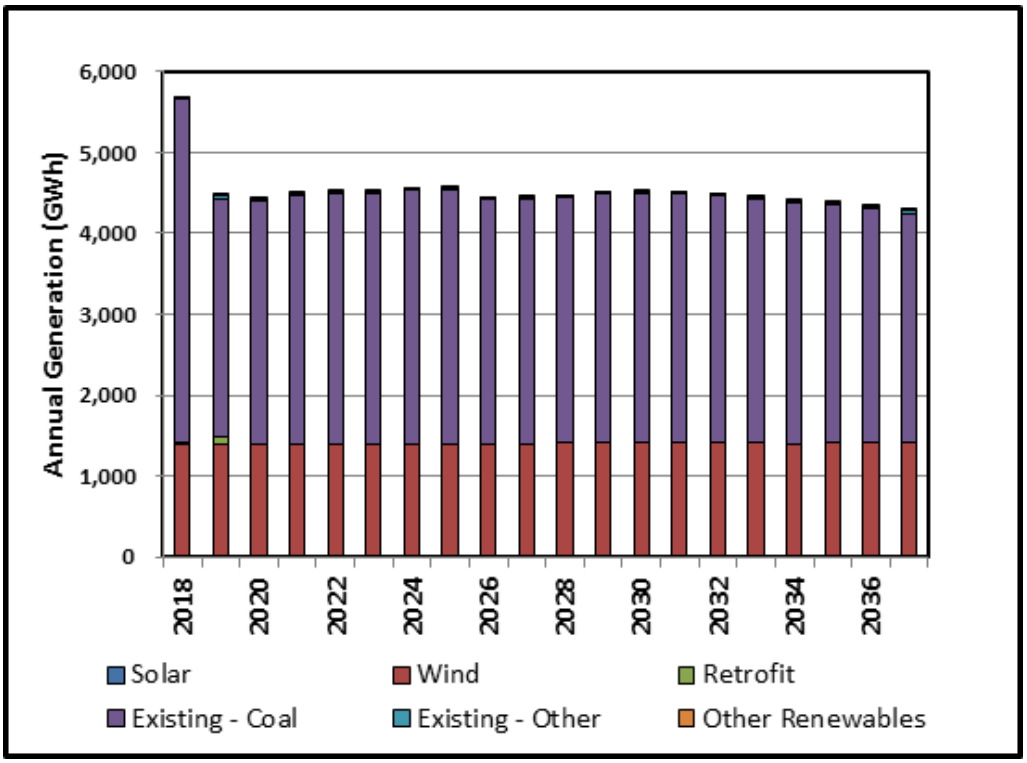


Chart 49: Annual Generation GAAFC

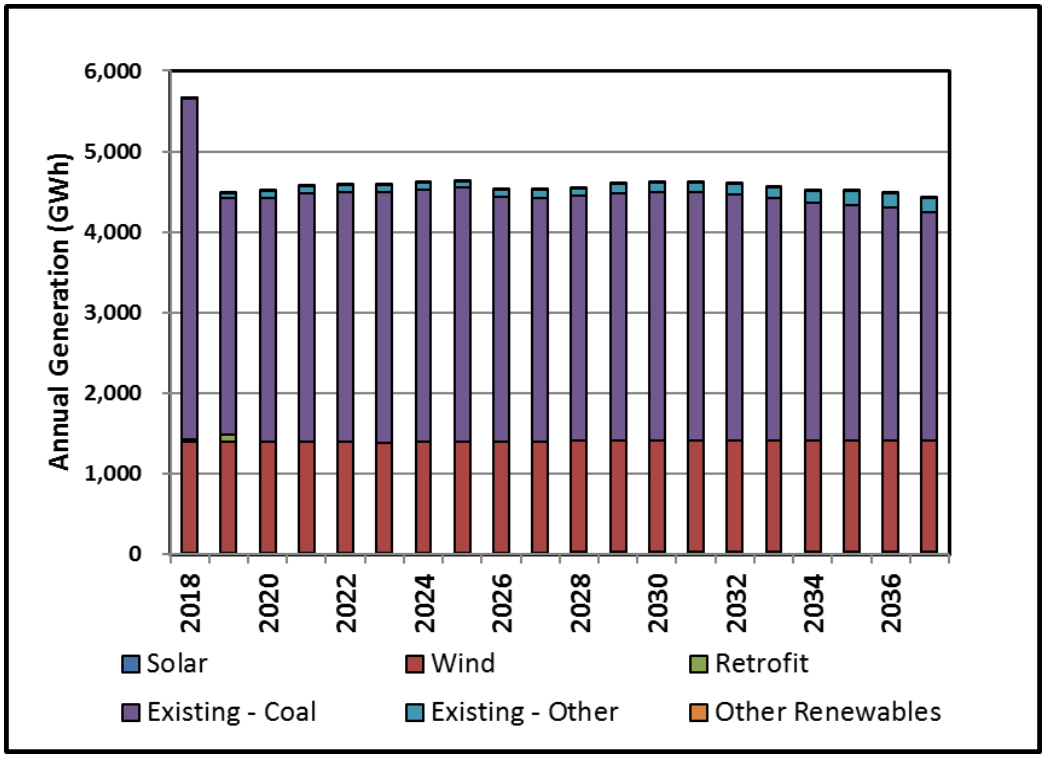


Chart 50: Annual Generation GAAFN

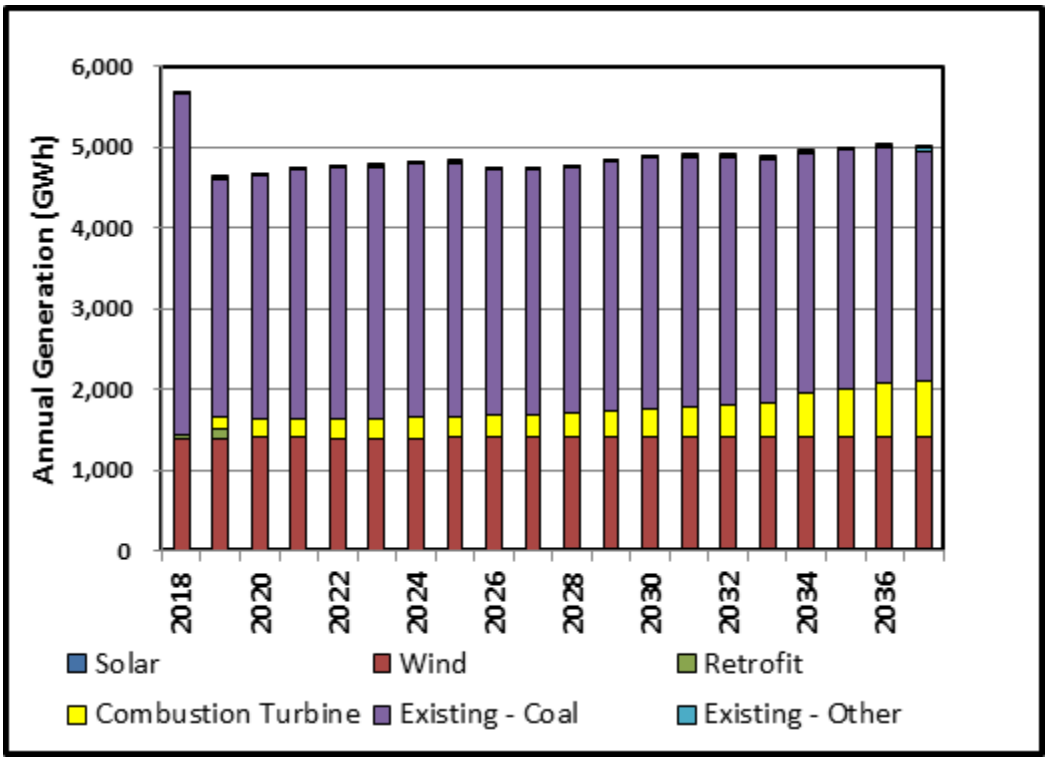


Chart 51: Annual Generation GAAGC

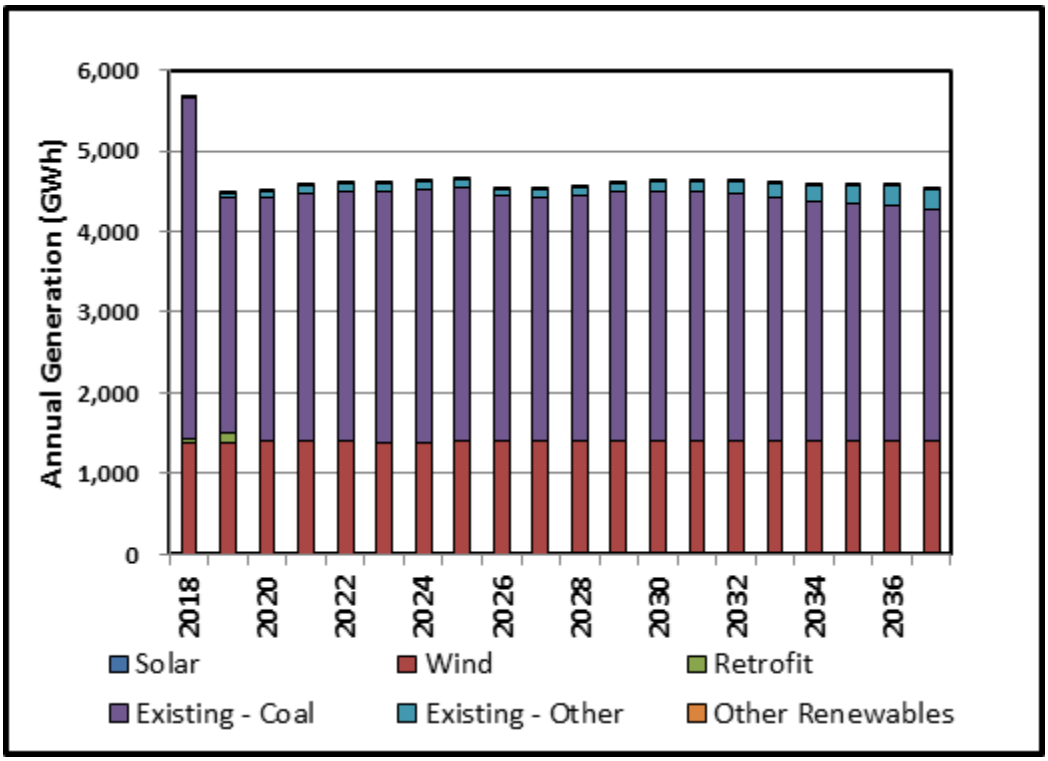
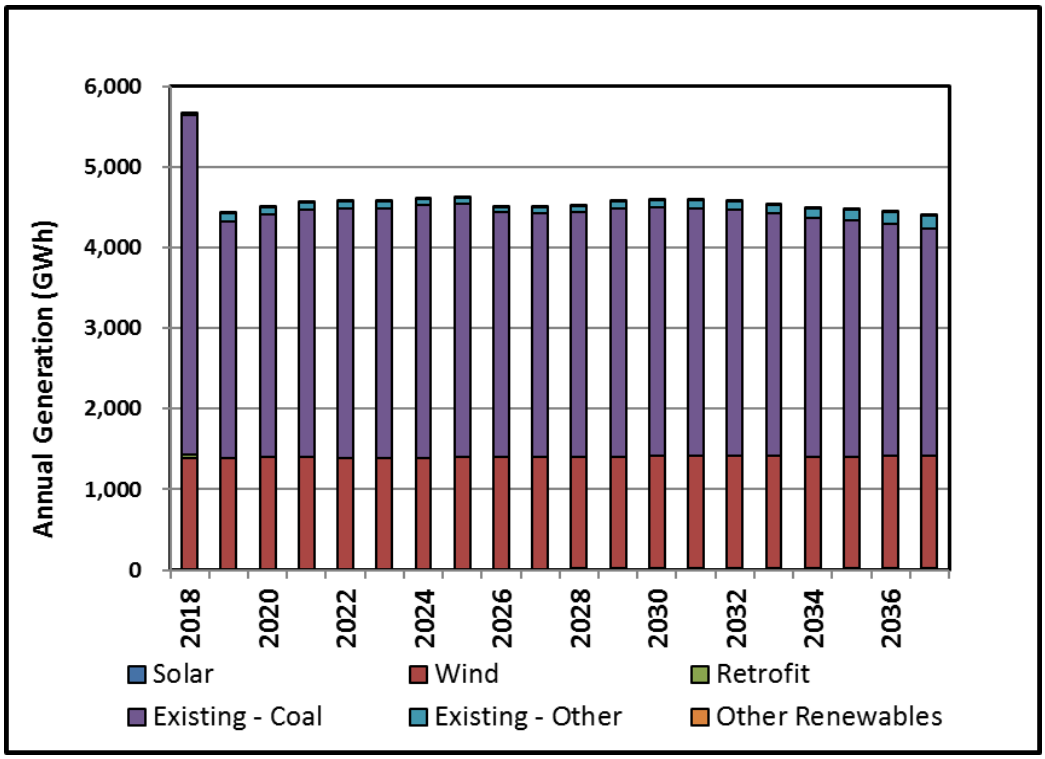


Chart 52: Annual Generation GBCBC



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 53: Annual Emissions GAAAA

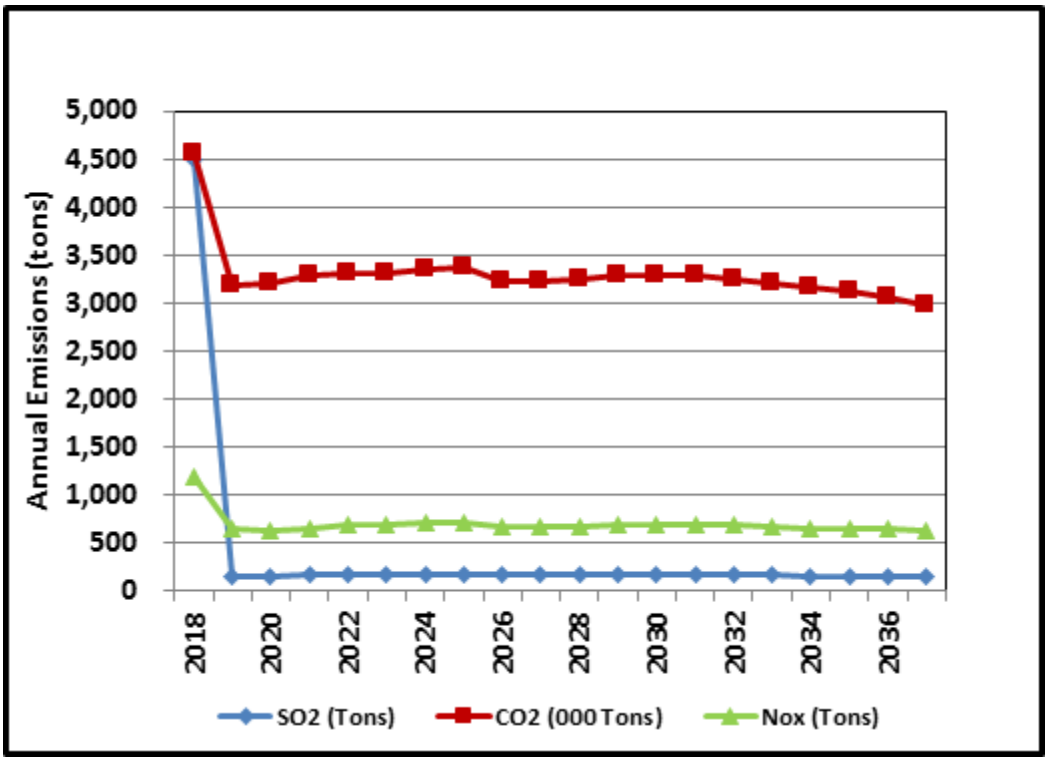


Chart 54: Annual Emissions GAABA

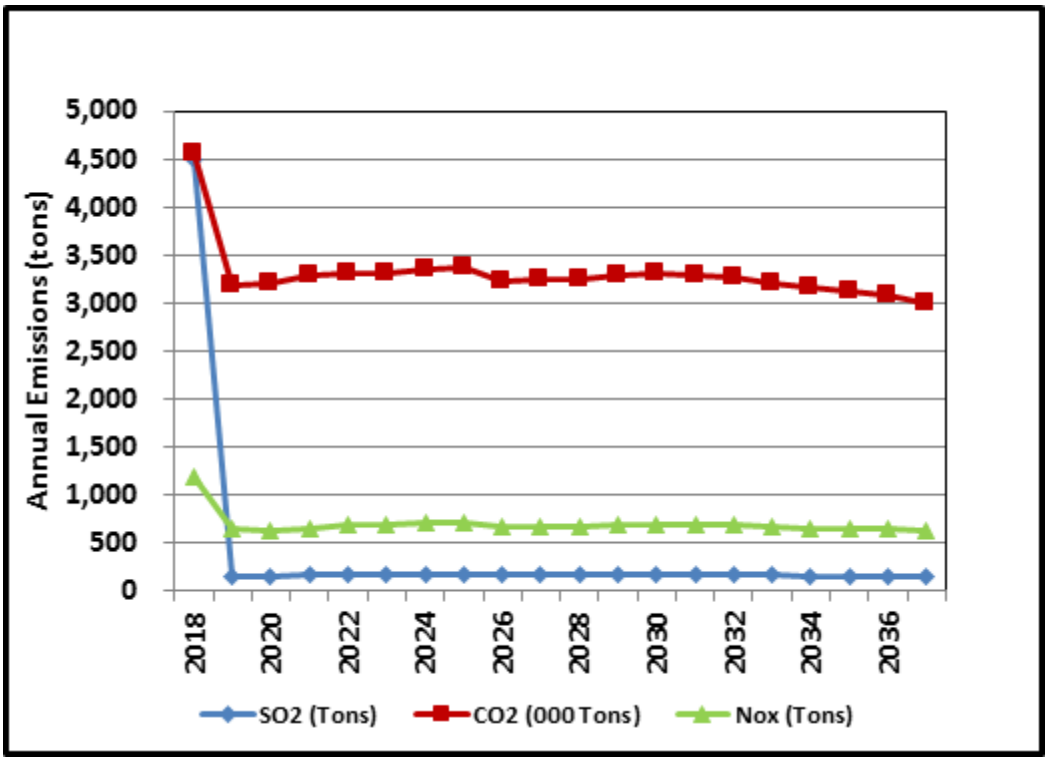


Chart 55: Annual Emissions GAABB

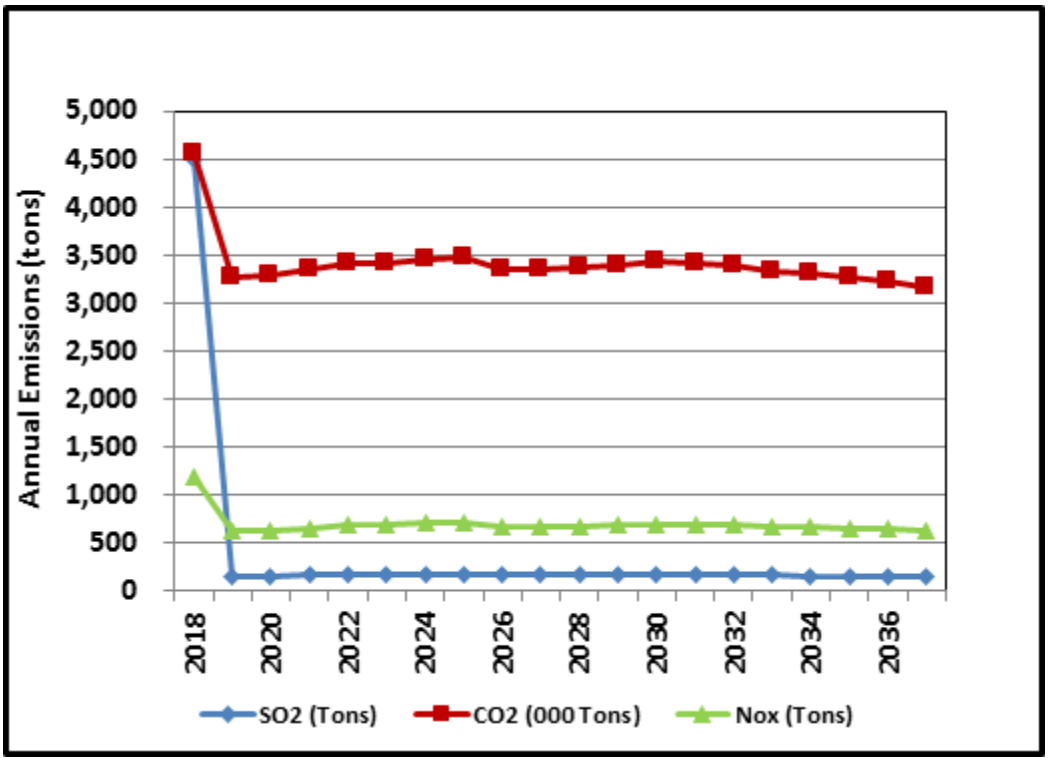


Chart 56: Annual Emissions GAABC

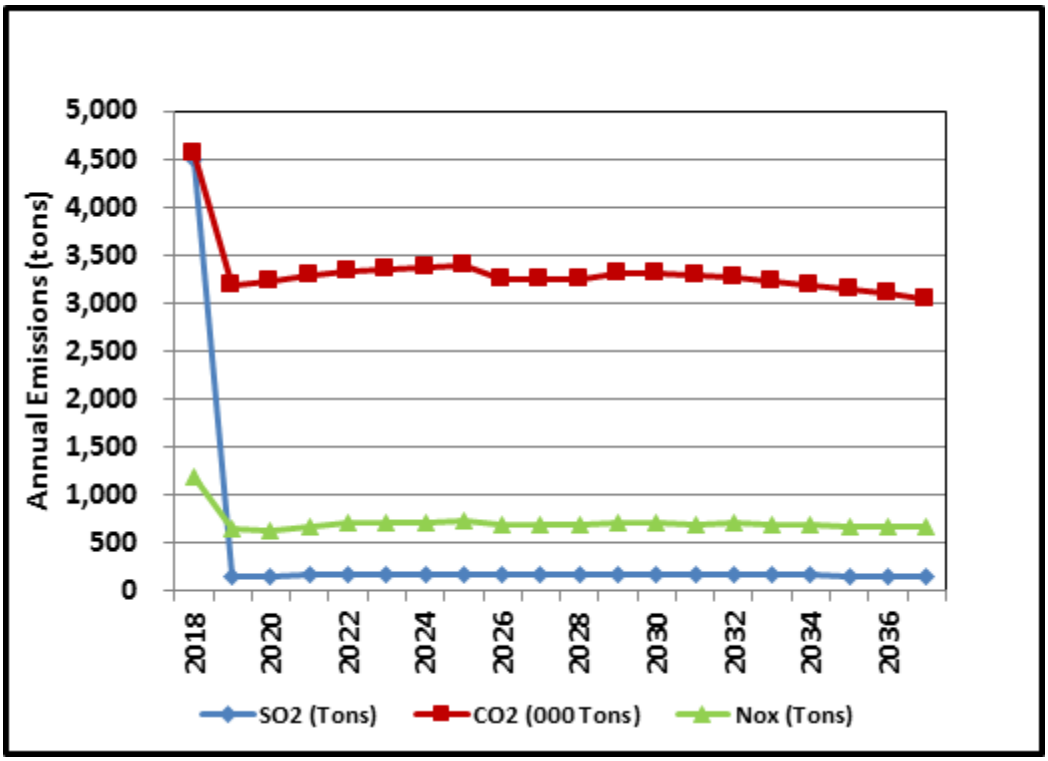


Chart 57: Annual Emissions GAABD

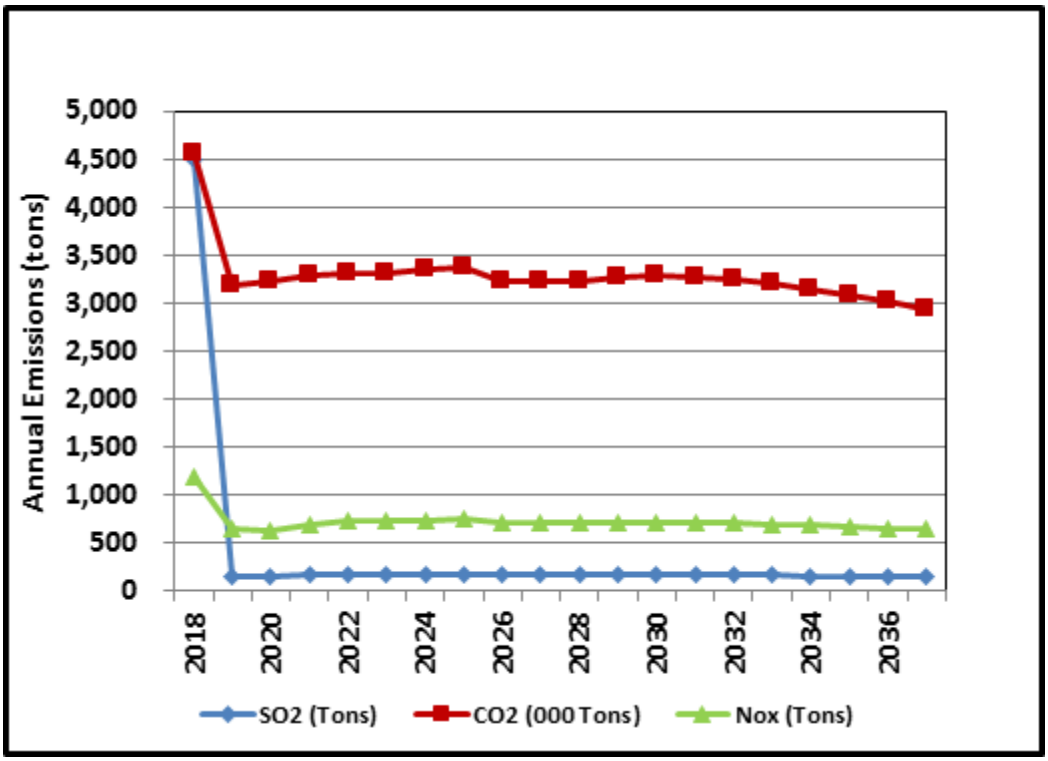


Chart 51: Annual Emissions GAABW

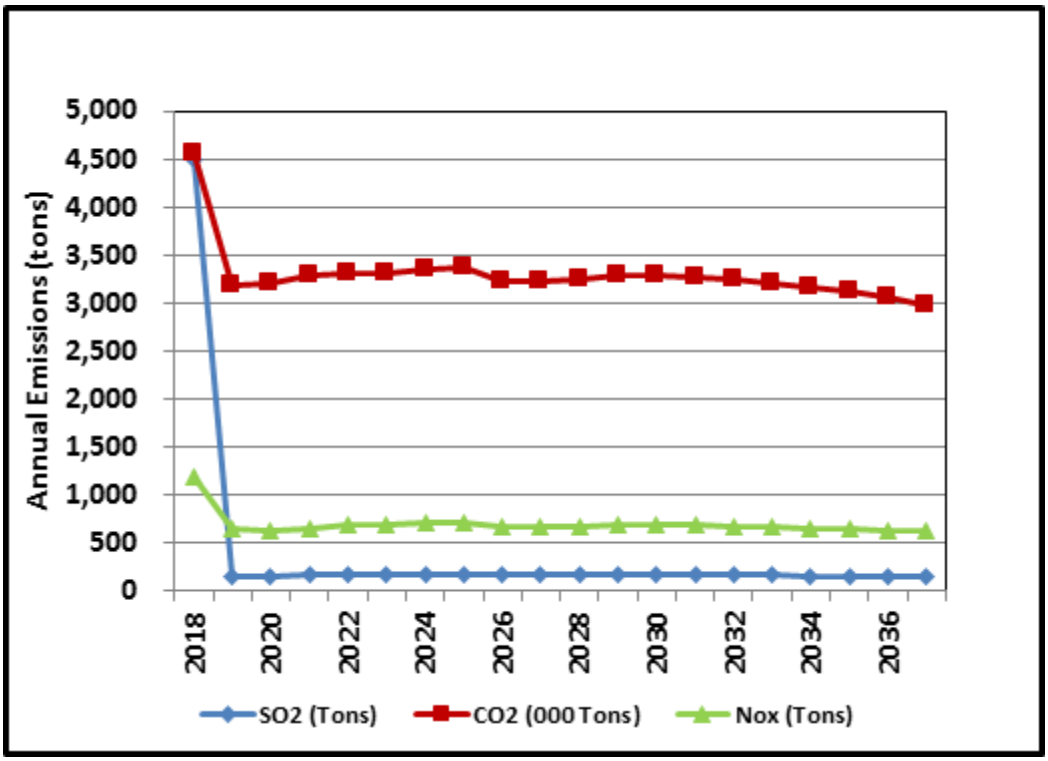


Chart 58: Annual Emissions GAACA

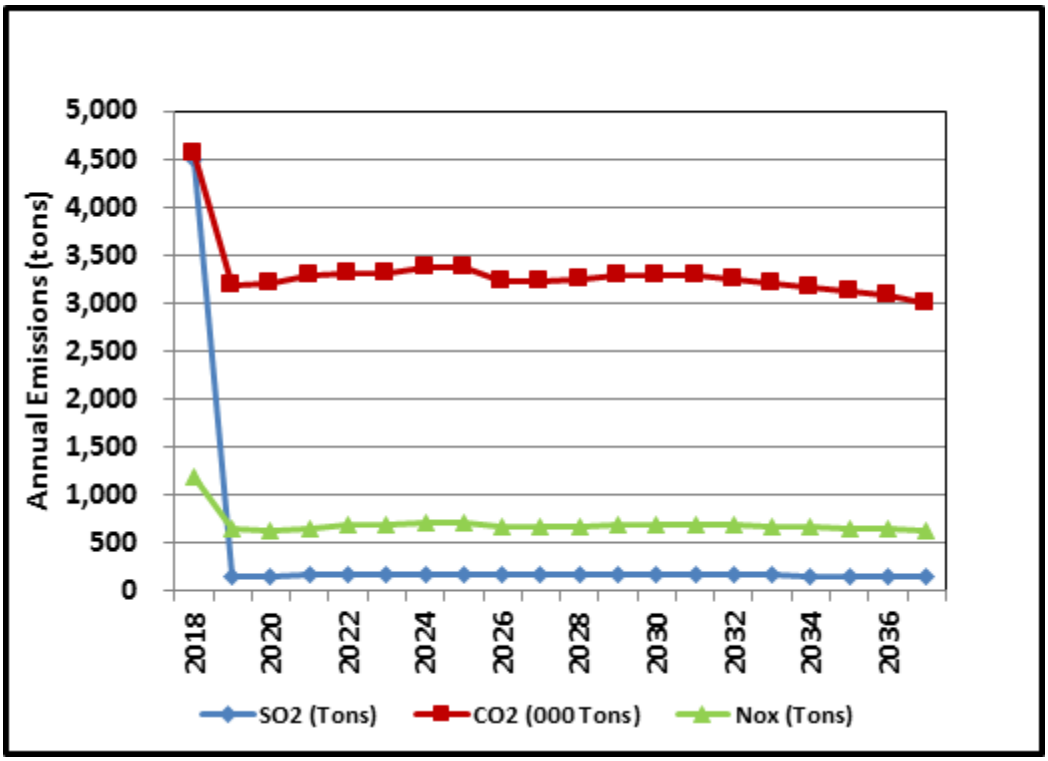


Chart 59: Annual Emissions GAADA

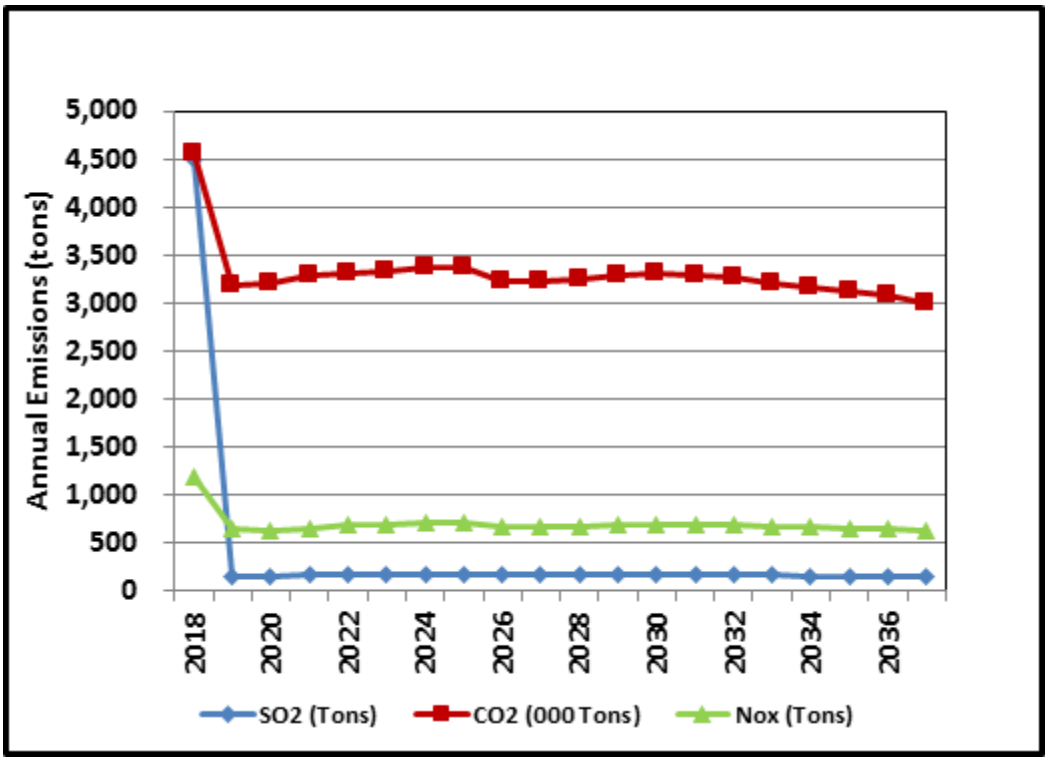


Chart 60: Annual Emissions GAAEA

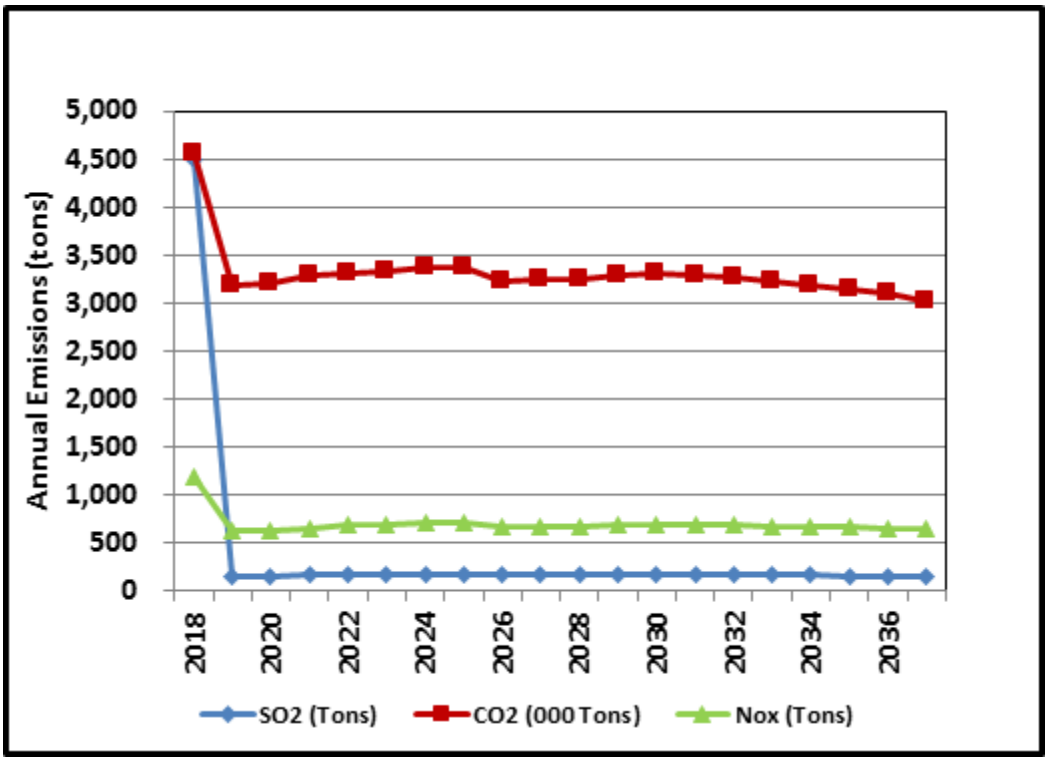


Chart 61: Annual Emissions GAAFA

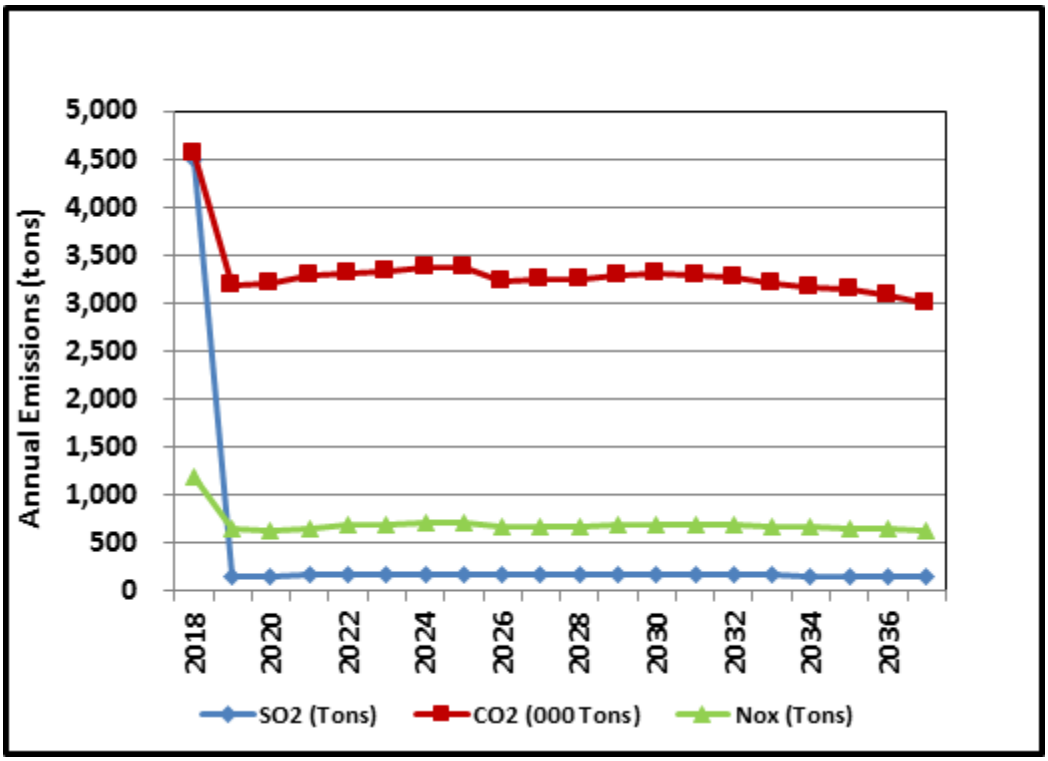


Chart 62: Annual Emissions GAAFC

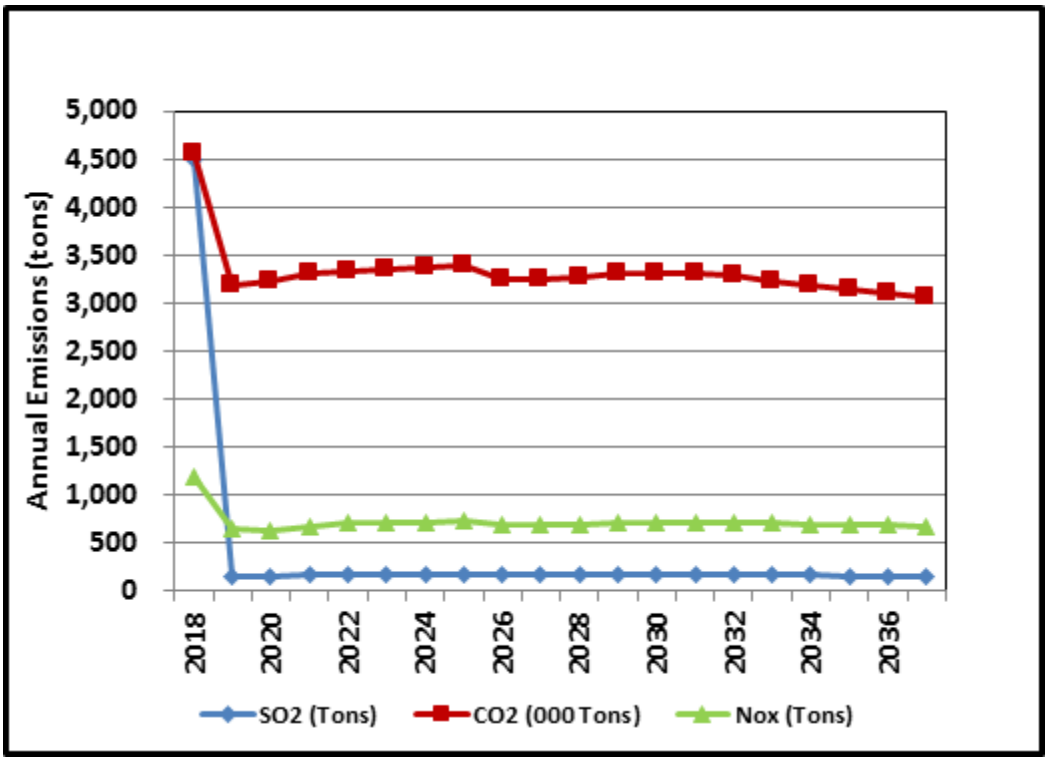


Chart 63: Annual Emissions GAAFN

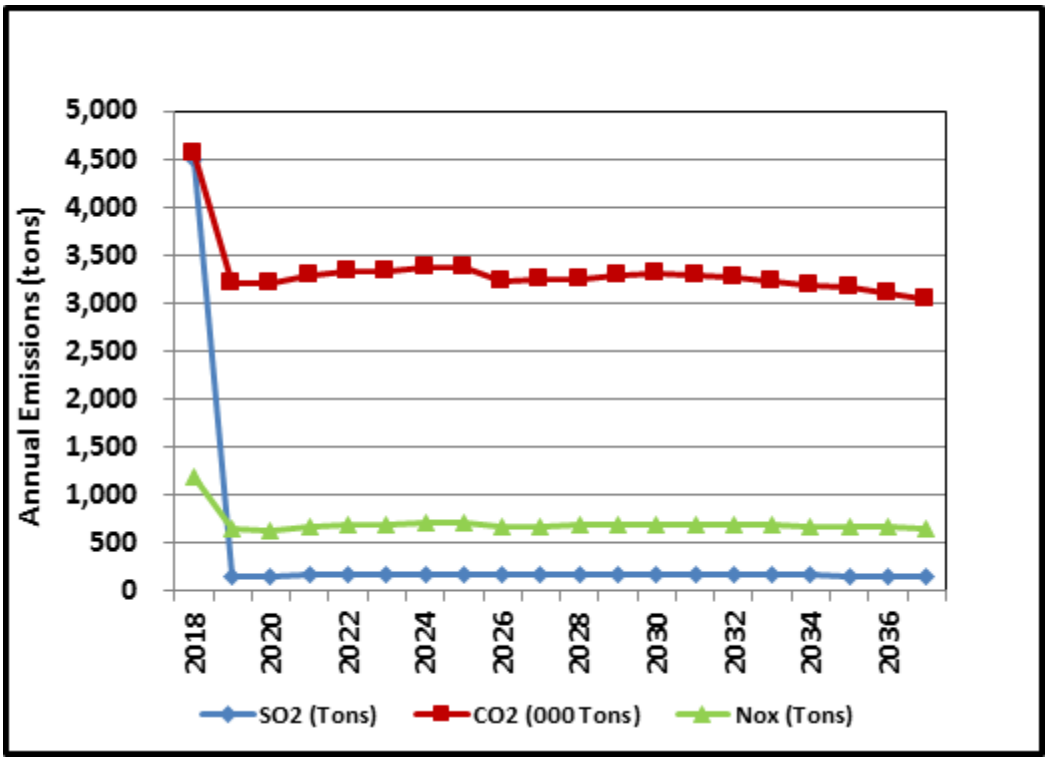


Chart 64: Annual Emissions GAAGC

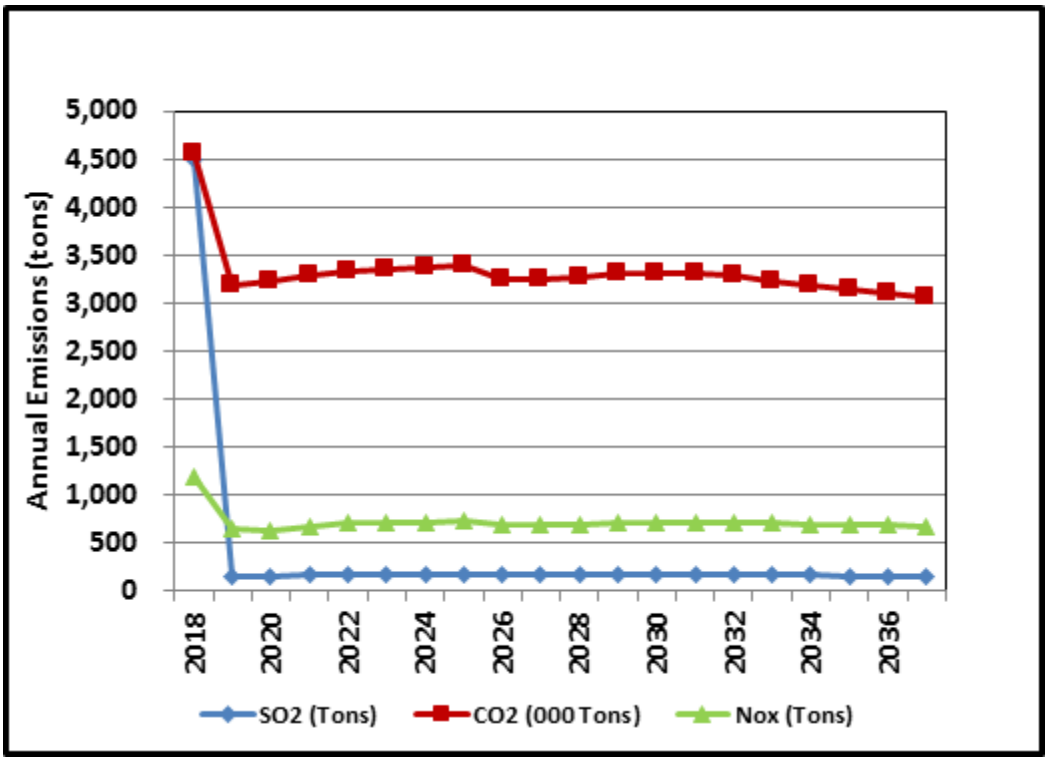
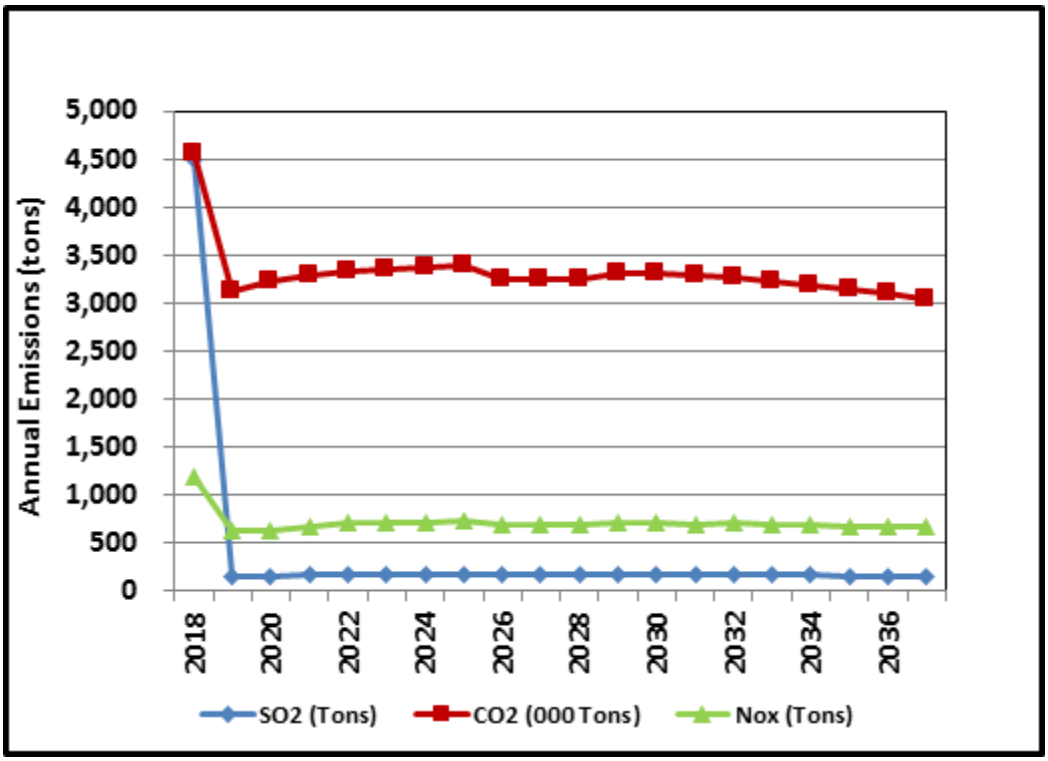


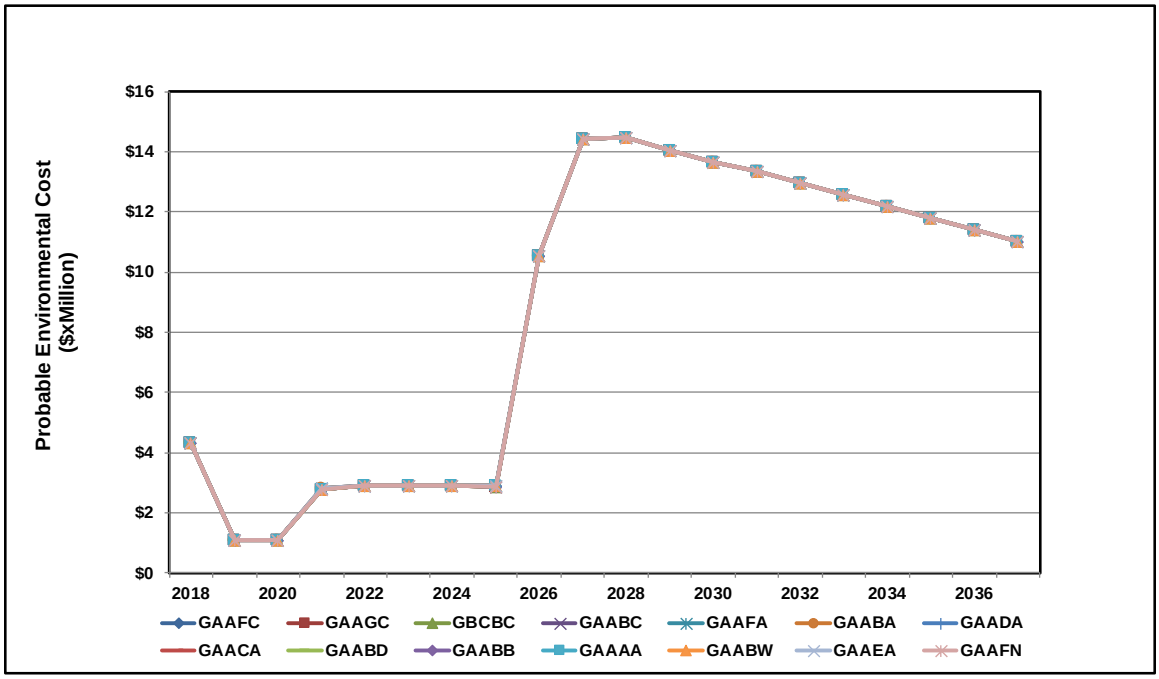
Chart 65: Annual Emissions GBCBC



8. Annual probable environmental costs

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

Chart 66: Probable Environmental Costs



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

The following tables provide the GMO 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 GAAAA

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
A. System Generating Capacity (GMO share)																				
Base Capacity																				
Iatan I	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126
Iatan II	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159
Jeffrey Energy Center 1	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58
Jeffrey Energy Center 2	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
Jeffrey Energy Center 3	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
Sibley 2	42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sibley 3	364	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Base Capacity	863	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457
Intermediate Capacity	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Peaking Capacity																				
Greenwood 1	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61
Greenwood 2	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
Greenwood 3	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63
Greenwood 4	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58
KCI 1	-	-	-	-	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
KCI 2	-	-	-	-	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
Lake Road 1	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
Lake Road 2	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
Lake Road 3	8	8	8	8	8	8	8	8	8	8	8		8	8	8	8	8	8	8	8
Lake Road 4	97	97	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lake Road 5	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62
Lake Road 6	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
Lake Road 7	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
Ralph Green 3	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71
Nevada	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
South Harper 1	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101
South Harper 2	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102
South Harper 3	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Cross Roads Unit 1	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74
Cross Roads Unit 2	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74
Cross Roads Unit 3	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72
Cross Roads Unit 4	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72
SJLP Landfill Gas	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
New CT			414	414	414	414	414	414	414	414	414	414	414	414	414	414	414	414	414	414
Total Peaking Capacity	1,171	1,171	1,488	1,488	1,522	1,522	1,522	1,522	1,522	1,522	1,522	1,514	1,522	1,522	1,522	1,522	1,522	1,522	1,522	1,522
Intermittent Capacity (Nameplate)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Percent Accredited Intermittent Capacity	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total Accredited Intermittent Capacity	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wind Additions																				
Solar Additions											1	1	1	1	1	1	1	1	1	1
Total Intermittent Capacity with Additions	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1
Total Generation Capacity (TGC)	**2,034**	**1,628**	**1,944**	**1,944**	**1,978**	**1,978**	**1,978**	**1,978**	**1,978**	**1,978**	**1,979**	**1,972**	**1,979**	**1,979**	**1,979**	**1,979**	**1,979**	**1,979**	**1,979**	**1,979**
B. Capacity Transactions																				
Purchases:																				
KCP&L	60	125	35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NextEra Gray County (60 MW)	9	9	9	9	9	9	9	9	9	9	9	9	9	9	-	-	-	-	-	-
NextEra Ensign (98.9 MW)	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	-	-	-	-	-
Enel Rock Creek (120 MW)	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
NextEra Osborn (80 MW)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
NextEra Pratt (146 MW)	-	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69
EDPR Prairie Queen (120 MW)	-	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
PPA Purchase		125																		
Reduction in Capacity due to Steam Customers	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)
Total Capacity Purchases (P)	133	431	216	181	181	181	181	181	181	181	181	181	181	181	172	135	135	135	135	135
Sales:																				
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Capacity Sales (S)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Transactions (NT)	**133**	**431**	**216**	**181**	**181**	**181**	**181**	**181**	**181**	**181**	**181**	**181**	**181**	**181**	**172**	**135**	**135**	**135**	**135**	**135**
Total System Capacity (TSC)	**2,166**	**2,058**	**2,160**	**2,125**	**2,159**	**2,159**	**2,159**	**2,159**	**2,159**	**2,159**	**2,160**	**2,152**	**2,160**	**2,160**	**2,151**	**2,114**	**2,114**	**2,114**	**2,114**	**2,114**
C. System Peaks & Reserves																				
Peak Demands																				
Forecasted Peak	**1,900**	**1,910**	**1,965**	**1,970**	**1,982**	**1,995**	**2,007**	**2,011**	**2,024**	**2,036**	**2,052**	**2,063**	**2,076**	**2,089**	**2,104**	**2,116**	**2,131**	**2,147**	**2,165**	**2,179**
Less DSM:																				
Demand Response		(41)	(82)	(105)	(129)	(150)	(164)	(175)	(186)	(197)	(209)	(213)	(210)	(201)	(191)	(186)	(186)	(188)	(189)	(190)
Energy Efficiency		(10)	(25)	(34)	(43)	(51)	(60)	(69)	(77)	(87)	(97)	(105)	(114)	(122)	(131)	(140)	(148)	(158)	(169)	(179)
MEEIA	(78)	(27)	(26)	(25)	(25)	(24)	(24)	(24)	(23)	(20)	(10)	(1)	(0)	(0)	(0)	1	2	2	2	3
Demand-Side Rates																				
Peak Forecast less DSM (PF)	**1,822**	**1,833**	**1,832**	**1,806**	**1,785**	**1,770**	**1,760**	**1,744**	**1,738**	**1,732**	**1,736**	**1,743**	**1,752**	**1,766**	**1,783**	**1,791**	**1,798**	**1,804**	**1,810**	**1,813**
Capacity Reserves (CR)	**345**	**225**	**328**	**319**	**374**	**389**	**400**	**415**	**421**	**427**	**424**	**409**	**408**	**394**	**368**	**323**	**316**	**310**	**304**	**301**
D. Capacity Needs																				
% Reserve Margin	19%	12%	18%	18%	21%	22%	23%	24%	24%	25%	24%	23%	23%	22%	21%	18%	18%	17%	17%	17%
% Capacity Margin	16%	11%	15%	15%	17%	18%	19%	19%	20%	20%	20%	19%	19%	18%	17%	15%	15%	15%	14%	14%
Required Capacity (RC)	**2,040**	**2,053**	**2,052**	**2,022**	**1,999**	**1,982**	**1,971**	**1,953**	**1,946**	**1,940**	**1,945**	**1,952**	**1,962**	**1,977**	**1,997**	**2,006**	**2,014**	**2,020**	**2,027**	**2,031**
Capacity Balance	**126**	**6**	**108**	**103**	**160**	**177**	**188**	**206**	**213**	**220**	**216**	**200**	**198**	**183**	**155**	**108**	**100**	**94**	**87**	**83**

Table 26: Capacity Forecast - Alternative Resource Plan GAABA

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
A. System Generating Capacity (GMO share)																				
Base Capacity																				
Iatan I	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126
Iatan II	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159
Jeffrey Energy Center 1	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58
Jeffrey Energy Center 2	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
Jeffrey Energy Center 3	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
Sibley 2	42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sibley 3	364	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Base Capacity	863	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457
Intermediate Capacity	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Peaking Capacity																				
Greenwood 1	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61
Greenwood 2	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
Greenwood 3	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63
Greenwood 4	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58
KCI 1	-	-	-	-	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
KCI 2	-	-	-	-	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
Lake Road 1	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
Lake Road 2	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
Lake Road 3	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Lake Road 4	97	97	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lake Road 5	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62
Lake Road 6	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
Lake Road 7	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
Ralph Green 3	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71
Nevada	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
South Harper 1	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101
South Harper 2	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102
South Harper 3	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Cross Roads Unit 1	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74
Cross Roads Unit 2	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74
Cross Roads Unit 3	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72
Cross Roads Unit 4	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72
SJLP Landfill Gas	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
New CT			414	414	414	414	414	414	414	414	414	414	414	414	414	414	414	414	414	414
Total Peaking Capacity	1,171	1,171	1,488	1,488	1,522	1,522	1,522	1,522	1,522	1,522	1,522	1,522	1,522	1,522	1,522	1,522	1,522	1,522	1,522	1,522
Intermittent Capacity (Nameplate)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Percent Accredited Intermittent Capacity	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total Accredited Intermittent Capacity	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wind Additions																				
Solar Additions											1	1	1	1	1	1	1	1	1	1
Total Intermittent Capacity with Additions	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1
Total Generation Capacity (TGC)	**2,034**	**1,628**	**1,944**	**1,944**	**1,978**	**1,978**	**1,978**	**1,978**	**1,978**	**1,978**	**1,979**	**1,979**	**1,979**	**1,979**	**1,979**	**1,979**	**1,979**	**1,979**	**1,979**	**1,979**
B. Capacity Transactions																				
Purchases:																				
KCP&L	60	125	35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NextEra Gray County (60 MW)	9	9	9	9	9	9	9	9	9	9	9	9	9	9	-	-	-	-	-	-
NextEra Ensign (98.9 MW)	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	-	-	-	-	-
Enel Rock Creek (120 MW)	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
NextEra Osborn (80 MW)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
NextEra Pratt (146 MW)	-	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69
EDPR Prairie Queen (120 MW)	-	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
PPA Purchase		125																		
Reduction in Capacity due to Steam Customers	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)
Total Capacity Purchases (P)	133	431	216	181	181	181	181	181	181	181	181	181	181	181	172	135	135	135	135	135
Sales:																				
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Capacity Sales (S)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Transactions (NT)	**133**	**431**	**216**	**181**	**181**	**181**	**181**	**181**	**181**	**181**	**181**	**181**	**181**	**181**	**172**	**135**	**135**	**135**	**135**	**135**
Total System Capacity (TSC)	**2,166**	**2,058**	**2,160**	**2,125**	**2,159**	**2,159**	**2,159**	**2,159**	**2,159**	**2,159**	**2,160**	**2,160**	**2,160**	**2,160**	**2,151**	**2,114**	**2,114**	**2,114**	**2,114**	**2,114**
C. System Peaks & Reserves																				
Peak Demands																				
Forecasted Peak	**1,900**	**1,910**	**1,965**	**1,970**	**1,982**	**1,995**	**2,007**	**2,011**	**2,024**	**2,036**	**2,052**	**2,063**	**2,076**	**2,089**	**2,104**	**2,116**	**2,131**	**2,147**	**2,165**	**2,179**
Less DSM:																				
Demand Response		(40)	(76)	(92)	(109)	(122)	(131)	(141)	(150)	(159)	(168)	(172)	(170)	(164)	(157)	(154)	(154)	(155)	(156)	(157)
Energy Efficiency		(7)	(18)	(26)	(33)	(39)	(46)	(53)	(60)	(66)	(73)	(79)	(85)	(91)	(97)	(103)	(109)	(115)	(123)	(130)
MEEIA	(78)	(27)	(26)	(25)	(25)	(24)	(24)	(24)	(23)	(20)	(10)	(1)	(0)	(0)	(0)	1	2	2	2	3
Demand-Side Rates	-	(0)	(5)	(12)	(20)	(27)	(35)	(41)	(45)	(48)	(48)	(48)	(47)	(48)	(49)	(50)	(51)	(52)	(52)	(53)
Peak Forecast less DSM (PF)	**1,822**	**1,837**	**1,839**	**1,815**	**1,796**	**1,783**	**1,771**	**1,753**	**1,747**	**1,743**	**1,751**	**1,762**	**1,773**	**1,786**	**1,802**	**1,810**	**1,819**	**1,827**	**1,836**	**1,842**
Capacity Reserves (CR)	**345**	**221**	**321**	**310**	**363**	**376**	**388**	**406**	**413**	**416**	**409**	**398**	**387**	**374**	**350**	**304**	**295**	**287**	**278**	**272**
D. Capacity Needs																				
% Reserve Margin	19%	12%	17%	17%	20%	21%	22%	23%	24%	24%	23%	23%	22%	21%	19%	17%	16%	16%	15%	15%
% Capacity Margin	16%	11%	15%	15%	17%	17%	18%	19%	19%	19%	19%	18%	18%	17%	16%	14%	14%	14%	13%	13%
Required Capacity (RC)	**2,040**	**2,057**	**2,060**	**2,033**	**2,012**	**1,997**	**1,984**	**1,964**	**1,956**	**1,952**	**1,962**	**1,974**	**1,986**	**2,000**	**2,018**	**2,027**	**2,037**	**2,046**	**2,056**	**2,063**
Capacity Balance	**126**	**1**	**100**	**93**	**147**	**163**	**176**	**195**	**203**	**207**	**198**	**186**	**175**	**160**	**133**	**87**	**77**	**68**	**58**	**51**

Table 27: Capacity Forecast - Alternative Resource Plan GAABB

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
A. System Generating Capacity (GMO share)																				
Base Capacity																				
Iatan I	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126
Iatan II	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159
Jeffrey Energy Center 1	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58
Jeffrey Energy Center 2	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
Jeffrey Energy Center 3	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
Sibley 2	42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sibley 3	364	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Base Capacity	863	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457
Intermediate Capacity	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Peaking Capacity																				
Greenwood 1	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61
Greenwood 2	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
Greenwood 3	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63
Greenwood 4	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58
KCI 1	-	-	-	-	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
KCI 2	-	-	-	-	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
Lake Road 1	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
Lake Road 2	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
Lake Road 3	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Lake Road 4	97	97	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lake Road 5	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62
Lake Road 6	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
Lake Road 7	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
Ralph Green 3	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71
Nevada	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
South Harper 1	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101
South Harper 2	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102
South Harper 3	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Cross Roads Unit 1	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74
Cross Roads Unit 2	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74
Cross Roads Unit 3	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72
Cross Roads Unit 4	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72
SJLP Landfill Gas	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
New CT			207	207	207	207	207	207	207	207	207	207	207	207	207	207	207	207	207	207
Total Peaking Capacity	1,171	1,171	1,281	1,281	1,315	1,315	1,315	1,315	1,315	1,315	1,315	1,315	1,315	1,315	1,315	1,315	1,315	1,315	1,315	1,315
Intermittent Capacity (Nameplate)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Percent Accredited Intermittent Capacity	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total Accredited Intermittent Capacity	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wind Additions																				
Solar Additions											1	1	1	1	1	1	1	1	1	1
Total Intermittent Capacity with Additions	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1
Total Generation Capacity (TGC)	2,034	1,628	1,737	1,737	1,771	1,771	1,771	1,771	1,771	1,771	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772
B. Capacity Transactions																				
Purchases:																				
KCP&L	60	125	35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NextEra Gray County (60 MW)	9	9	9	9	9	9	9	9	9	9	9	9	9	9	-	-	-	-	-	-
NextEra Ensign (98.9 MW)	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	-	-	-	-	-
Enel Rock Creek (120 MW)	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
NextEra Osborn (80 MW)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
NextEra Pratt (146 MW)	-	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69
EDPR Prairie Queen (120 MW)	-	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
PPA Purchase		25	25	25																
Reduction in Capacity due to Steam Customers	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)
Total Capacity Purchases (P)	133	331	241	206	181	181	181	181	181	181	181	181	181	181	172	135	135	135	135	135
Sales:																				
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Capacity Sales (S)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Transactions (NT)	133	331	241	206	181	181	181	181	181	181	181	181	181	181	172	135	135	135	135	135
Total System Capacity (TSC)	2,166	1,958	1,978	1,943	1,952	1,952	1,952	1,952	1,952	1,952	1,953	1,953	1,953	1,953	1,944	1,907	1,907	1,907	1,907	1,907
C. System Peaks & Reserves																				
Peak Demands																				
Forecasted Peak	1,900	1,910	1,965	1,970	1,982	1,995	2,007	2,011	2,024	2,036	2,052	2,063	2,076	2,089	2,104	2,116	2,131	2,147	2,165	2,179
Less DSM:																				
Demand Response		(40)	(76)	(92)	(109)	(122)	(131)	(141)	(150)	(159)	(168)	(172)	(170)	(164)	(157)	(154)	(154)	(155)	(156)	(157)
Energy Efficiency		(7)	(18)	(26)	(33)	(39)	(46)	(53)	(60)	(66)	(73)	(79)	(85)	(91)	(97)	(103)	(109)	(115)	(123)	(130)
MEEIA	(78)	(27)	(26)	(25)	(25)	(24)	(24)	(24)	(23)	(20)	(10)	(1)	(0)	(0)	(0)	1	2	2	2	3
Demand-Side Rates	-	(0)	(5)	(12)	(20)	(27)	(35)	(41)	(45)	(48)	(48)	(48)	(47)	(48)	(49)	(50)	(51)	(52)	(52)	(53)
Peak Forecast less DSM (PF)	1,822	1,837	1,839	1,815	1,796	1,783	1,771	1,753	1,747	1,743	1,751	1,762	1,773	1,786	1,802	1,810	1,819	1,827	1,836	1,842
Capacity Reserves (CR)	345	121	139	128	156	169	181	199	206	209	202	191	180	167	143	97	88	80	71	65
D. Capacity Needs																				
% Reserve Margin	19%	7%	8%	7%	9%	10%	10%	11%	12%	12%	12%	11%	10%	9%	8%	5%	5%	4%	4%	4%
% Capacity Margin	16%	6%	7%	7%	8%	9%	9%	10%	11%	11%	10%	10%	9%	9%	7%	5%	5%	4%	4%	3%
Required Capacity (RC)	2,040	2,057	2,060	2,033	2,012	1,997	1,984	1,964	1,956	1,952	1,962	1,974	1,986	2,000	2,018	2,027	2,037	2,046	2,056	2,063
Capacity Balance	126	(99)	(82)	(89)	(60)	(44)	(31)	(12)	(4)	0	(9)	(21)	(32)	(47)	(74)	(120)	(130)	(139)	(149)	(156)

Table 28: Capacity Forecast - Alternative Resource Plan GAABC

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
A. System Generating Capacity (GMO share)																				
Base Capacity																				
Iatan I	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126
Iatan II	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159
Jeffrey Energy Center 1	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58
Jeffrey Energy Center 2	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
Jeffrey Energy Center 3	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
Sibley 2	42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sibley 3	364	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Base Capacity	863	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457
Intermediate Capacity	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Peaking Capacity																				
Greenwood 1	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61
Greenwood 2	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
Greenwood 3	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63
Greenwood 4	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58
KCI 1	-	-	-	-	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
KCI 2	-	-	-	-	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
Lake Road 1	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
Lake Road 2	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
Lake Road 3	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Lake Road 4	97	97	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lake Road 5	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62
Lake Road 6	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
Lake Road 7	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
Ralph Green 3	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71
Nevada	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
South Harper 1	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101
South Harper 2	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102
South Harper 3	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Cross Roads Unit 1	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74
Cross Roads Unit 2	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74
Cross Roads Unit 3	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72
Cross Roads Unit 4	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72
SJLP Landfill Gas	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Total Peaking Capacity	1,171	1,171	1,074	1,074	1,108	1,108	1,108	1,108	1,108	1,108	1,108	1,108	1,108	1,108	1,108	1,108	1,108	1,108	1,108	1,108
Intermittent Capacity (Nameplate)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Percent Accredited Intermittent Capacity	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total Accredited Intermittent Capacity	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wind Additions																				
Solar Additions											1	1	1	1	1	1	1	1	1	1
Total Intermittent Capacity with Additions	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1
Total Generation Capacity (TGC)	**2,034**	**1,628**	**1,530**	**1,530**	**1,564**	**1,564**	**1,564**	**1,564**	**1,564**	**1,564**	**1,565**	**1,565**	**1,565**	**1,565**	**1,565**	**1,565**	**1,565**	**1,565**	**1,565**	**1,565**
B. Capacity Transactions																				
Purchases:																				
KCP&L	60	125	35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NextEra Gray County (60 MW)	9	9	9	9	9	9	9	9	9	9	9	9	9	9	-	-	-	-	-	-
NextEra Ensign (98.9 MW)	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	-	-	-	-	-
Enel Rock Creek (120 MW)	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
NextEra Osborn (80 MW)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
NextEra Pratt (146 MW)	-	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69
EDPR Prairie Queen (120 MW)	-	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
PPA Purchase		134	324	332	277	262	249	229	221	213	227	239	251	265	292	338	348	357	367	385
Reduction in Capacity due to Steam Customers	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)
Total Capacity Purchases (P)	133	440	540	513	458	443	430	410	402	394	408	420	432	446	464	473	483	492	502	520
Sales:																				
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Capacity Sales (S)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Transactions (NT)	**133**	**440**	**540**	**513**	**458**	**443**	**430**	**410**	**402**	**394**	**408**	**420**	**432**	**446**	**464**	**473**	**483**	**492**	**502**	**520**
Total System Capacity (TSC)	**2,166**	**2,067**	**2,070**	**2,043**	**2,022**	**2,007**	**1,994**	**1,974**	**1,966**	**1,958**	**1,973**	**1,985**	**1,997**	**2,011**	**2,029**	**2,038**	**2,048**	**2,057**	**2,067**	**2,085**
C. System Peaks & Reserves																				
Peak Demands																				
Forecasted Peak	**1,900**	**1,910**	**1,965**	**1,970**	**1,982**	**1,995**	**2,007**	**2,011**	**2,024**	**2,036**	**2,052**	**2,063**	**2,076**	**2,089**	**2,104**	**2,116**	**2,131**	**2,147**	**2,165**	**2,179**
Less DSM:																				
Demand Response		(40)	(76)	(92)	(109)	(122)	(131)	(141)	(150)	(159)	(168)	(172)	(170)	(164)	(157)	(154)	(154)	(155)	(156)	(157)
Energy Efficiency		(7)	(18)	(26)	(33)	(39)	(46)	(53)	(60)	(66)	(73)	(79)	(85)	(91)	(97)	(103)	(109)	(115)	(123)	(130)
MEEIA	(78)	(27)	(26)	(25)	(25)	(24)	(24)	(24)	(23)	(20)	(10)	(1)	(0)	(0)	(0)	1	2	2	2	3
Demand-Side Rates	-	(0)	(5)	(12)	(20)	(27)	(35)	(41)	(45)	(48)	(48)	(48)	(47)	(48)	(49)	(50)	(51)	(52)	(52)	(53)
Peak Forecast less DSM (PF)	**1,822**	**1,837**	**1,839**	**1,815**	**1,796**	**1,783**	**1,771**	**1,753**	**1,747**	**1,743**	**1,751**	**1,762**	**1,773**	**1,786**	**1,802**	**1,810**	**1,819**	**1,827**	**1,836**	**1,842**
Capacity Reserves (CR)	**345**	**230**	**231**	**228**	**226**	**224**	**223**	**221**	**220**	**215**	**222**	**223**	**224**	**225**	**228**	**228**	**229**	**230**	**231**	**243**
D. Capacity Needs																				
% Reserve Margin	19%	13%	13%	13%	13%	13%	13%	13%	13%	12%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%
% Capacity Margin	16%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	12%
Required Capacity (RC)	**2,040**	**2,057**	**2,060**	**2,033**	**2,012**	**1,997**	**1,984**	**1,964**	**1,956**	**1,952**	**1,962**	**1,974**	**1,986**	**2,000**	**2,018**	**2,027**	**2,037**	**2,046**	**2,056**	**2,063**
Capacity Balance	**126**	**10**	**10**	**11**	**10**	**11**	**11**	**10**	**10**	**6**	**11**	**11**	**12**	**11**	**11**	**11**	**11**	**11**	**11**	**22**

Table 29: Capacity Forecast - Alternative Resource Plan GAABD

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
A. System Generating Capacity (GMO share)																				
Base Capacity																				
Iatan I	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126
Iatan II	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159
Jeffrey Energy Center 1	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58
Jeffrey Energy Center 2	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
Jeffrey Energy Center 3	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
Sibley 2	42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sibley 3	364	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Base Capacity	863	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457
Intermediate Capacity	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Peaking Capacity																				
Greenwood 1	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61
Greenwood 2	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
Greenwood 3	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63
Greenwood 4	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58
KCI 1	-	-	-	-	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
KCI 2	-	-	-	-	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
Lake Road 1	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
Lake Road 2	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
Lake Road 3	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Lake Road 4	97	97	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lake Road 5	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62
Lake Road 6	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
Lake Road 7	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
Ralph Green 3	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71
Nevada	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
South Harper 1	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101
South Harper 2	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102
South Harper 3	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Cross Roads Unit 1	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74
Cross Roads Unit 2	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74
Cross Roads Unit 3	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72
Cross Roads Unit 4	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72
SJLP Landfill Gas	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
New CC			400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400
Total Peaking Capacity	1,171	1,171	1,474	1,474	1,508	1,508	1,508	1,508	1,508	1,508	1,508	1,508	1,508	1,508	1,508	1,508	1,508	1,508	1,508	1,508
Intermittent Capacity (Nameplate)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Percent Accredited Intermittent Capacity	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total Accredited Intermittent Capacity	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wind Additions																				
Solar Additions											1	1	1	1	1	1	1	1	1	1
Total Intermittent Capacity with Additions	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1
Total Generation Capacity (TGC)	**2,034**	**1,628**	**1,930**	**1,930**	**1,964**	**1,964**	**1,964**	**1,964**	**1,964**	**1,964**	**1,965**	**1,965**	**1,965**	**1,965**	**1,965**	**1,965**	**1,965**	**1,965**	**1,965**	**1,965**
B. Capacity Transactions																				
Purchases:																				
KCP&L	60	125	35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NextEra Gray County (60 MW)	9	9	9	9	9	9	9	9	9	9	9	9	9	9	-	-	-	-	-	-
NextEra Ensign (98.9 MW)	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	-	-	-	-	-
Enel Rock Creek (120 MW)	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
NextEra Osborn (80 MW)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
NextEra Pratt (146 MW)	-	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69
EDPR Prairie Queen (120 MW)	-	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
PPA Purchase		125																		
Reduction in Capacity due to Steam Customers	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)
Total Capacity Purchases (P)	133	431	216	181	181	181	181	181	181	181	181	181	181	181	172	135	135	135	135	135
Sales:																				
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Capacity Sales (S)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Transactions (NT)	**133**	**431**	**216**	**181**	**181**	**181**	**181**	**181**	**181**	**181**	**181**	**181**	**181**	**181**	**172**	**135**	**135**	**135**	**135**	**135**
Total System Capacity (TSC)	**2,166**	**2,058**	**2,146**	**2,111**	**2,145**	**2,145**	**2,145**	**2,145**	**2,145**	**2,145**	**2,146**	**2,146**	**2,146**	**2,146**	**2,137**	**2,100**	**2,100**	**2,100**	**2,100**	**2,100**
C. System Peaks & Reserves																				
Peak Demands																				
Forecasted Peak	**1,900**	**1,910**	**1,965**	**1,970**	**1,982**	**1,995**	**2,007**	**2,011**	**2,024**	**2,036**	**2,052**	**2,063**	**2,076**	**2,089**	**2,104**	**2,116**	**2,131**	**2,147**	**2,165**	**2,179**
Less DSM:																				
Demand Response		(40)	(76)	(92)	(109)	(122)	(131)	(141)	(150)	(159)	(168)	(172)	(170)	(164)	(157)	(154)	(154)	(155)	(156)	(157)
Energy Efficiency		(7)	(18)	(26)	(33)	(39)	(46)	(53)	(60)	(66)	(73)	(79)	(85)	(91)	(97)	(103)	(109)	(115)	(123)	(130)
MEEIA	(78)	(27)	(26)	(25)	(25)	(24)	(24)	(24)	(23)	(20)	(10)	(1)	(0)	(0)	(0)	1	2	2	2	3
Demand-Side Rates	-	(0)	(5)	(12)	(20)	(27)	(35)	(41)	(45)	(48)	(48)	(48)	(47)	(48)	(49)	(50)	(51)	(52)	(52)	(53)
Peak Forecast less DSM (PF)	**1,822**	**1,837**	**1,839**	**1,815**	**1,796**	**1,783**	**1,771**	**1,753**	**1,747**	**1,743**	**1,751**	**1,762**	**1,773**	**1,786**	**1,802**	**1,810**	**1,819**	**1,827**	**1,836**	**1,842**
Capacity Reserves (CR)	**345**	**221**	**307**	**296**	**349**	**362**	**374**	**392**	**399**	**402**	**395**	**384**	**373**	**360**	**336**	**290**	**281**	**273**	**264**	**258**
D. Capacity Needs																				
% Reserve Margin	19%	12%	17%	16%	19%	20%	21%	22%	23%	23%	23%	22%	21%	20%	19%	16%	15%	15%	14%	14%
% Capacity Margin	16%	11%	14%	14%	16%	17%	17%	18%	19%	19%	18%	18%	17%	17%	16%	14%	13%	13%	13%	12%
Required Capacity (RC)	**2,040**	**2,057**	**2,060**	**2,033**	**2,012**	**1,997**	**1,984**	**1,964**	**1,956**	**1,952**	**1,962**	**1,974**	**1,986**	**2,000**	**2,018**	**2,027**	**2,037**	**2,046**	**2,056**	**2,063**
Capacity Balance	**126**	**1**	**86**	**79**	**133**	**149**	**162**	**181**	**189**	**193**	**184**	**172**	**161**	**146**	**119**	**73**	**63**	**54**	**44**	**37**

Table 30: Capacity Forecast - Alternative Resource Plan GAABW

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
A. System Generating Capacity (GMO share)																				
Base Capacity																				
Iatan I	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126
Iatan II	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159
Jeffrey Energy Center 1	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58
Jeffrey Energy Center 2	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
Jeffrey Energy Center 3	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
Sibley 2	42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sibley 3	364	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Base Capacity	863	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457
Intermediate Capacity	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Peaking Capacity																				
Greenwood 1	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61
Greenwood 2	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
Greenwood 3	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63
Greenwood 4	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58
KCI 1	-	-	-	-	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
KCI 2	-	-	-	-	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
Lake Road 1	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
Lake Road 2	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
Lake Road 3	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Lake Road 4	97	97	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lake Road 5	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62
Lake Road 6	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
Lake Road 7	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
Ralph Green 3	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71
Nevada	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
South Harper 1	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101
South Harper 2	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102
South Harper 3	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Cross Roads Unit 1	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74
Cross Roads Unit 2	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74
Cross Roads Unit 3	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72
Cross Roads Unit 4	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72
SJLP Landfill Gas	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
New CT			414	414	414	414	414	414	414	414	414	414	414	414	414	414	414	414	414	414
Total Peaking Capacity	1,171	1,171	1,488	1,488	1,522	1,522	1,522	1,522	1,522	1,522	1,522	1,522	1,522	1,522	1,522	1,522	1,522	1,522	1,522	1,522
Intermittent Capacity (Nameplate)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Percent Accredited Intermittent Capacity	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total Accredited Intermittent Capacity	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wind Additions			100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Solar Additions											1	1	1	1	1	1	1	1	1	1
Total Intermittent Capacity with Additions	-	-	100	100	100	100	100	100	100	100	101	101	101	101	101	101	101	101	101	101
Total Generation Capacity (TGC)	**2,034**	**1,628**	**2,044**	**2,044**	**2,078**	**2,078**	**2,078**	**2,078**	**2,078**	**2,078**	**2,079**	**2,079**	**2,079**	**2,079**	**2,079**	**2,079**	**2,079**	**2,079**	**2,079**	**2,079**
B. Capacity Transactions																				
Purchases:																				
KCP&L	60	125	35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NextEra Gray County (60 MW)	9	9	9	9	9	9	9	9	9	9	9	9	9	9	-	-	-	-	-	-
NextEra Ensign (98.9 MW)	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	-	-	-	-	-
Enel Rock Creek (120 MW)	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
NextEra Osborn (80 MW)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
NextEra Pratt (146 MW)	-	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69
EDPR Prairie Queen (120 MW)	-	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
PPA Purchase		125																		
Reduction in Capacity due to Steam Customers	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)
Total Capacity Purchases (P)	133	431	216	181	181	181	181	181	181	181	181	181	181	181	172	135	135	135	135	135
Sales:																				
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Capacity Sales (S)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Transactions (NT)	**133**	**431**	**216**	**181**	**181**	**181**	**181**	**181**	**181**	**181**	**181**	**181**	**181**	**181**	**172**	**135**	**135**	**135**	**135**	**135**
Total System Capacity (TSC)	**2,166**	**2,058**	**2,260**	**2,225**	**2,259**	**2,259**	**2,259**	**2,259**	**2,259**	**2,259**	**2,260**	**2,260**	**2,260**	**2,260**	**2,251**	**2,214**	**2,214**	**2,214**	**2,214**	**2,214**
C. System Peaks & Reserves																				
Peak Demands																				
Forecasted Peak	**1,900**	**1,910**	**1,965**	**1,970**	**1,982**	**1,995**	**2,007**	**2,011**	**2,024**	**2,036**	**2,052**	**2,063**	**2,076**	**2,089**	**2,104**	**2,116**	**2,131**	**2,147**	**2,165**	**2,179**
Less DSM:																				
Demand Response		(40)	(76)	(92)	(109)	(122)	(131)	(141)	(150)	(159)	(168)	(172)	(170)	(164)	(157)	(154)	(154)	(155)	(156)	(157)
Energy Efficiency		(7)	(18)	(26)	(33)	(39)	(46)	(53)	(60)	(66)	(73)	(79)	(85)	(91)	(97)	(103)	(109)	(115)	(123)	(130)
MEEIA	(78)	(27)	(26)	(25)	(25)	(24)	(24)	(24)	(23)	(20)	(10)	(1)	(0)	(0)	(0)	1	2	2	2	3
Demand-Side Rates	-	(0)	(5)	(12)	(20)	(27)	(35)	(41)	(45)	(48)	(48)	(48)	(47)	(48)	(49)	(50)	(51)	(52)	(52)	(53)
Peak Forecast less DSM (PF)	**1,822**	**1,837**	**1,839**	**1,815**	**1,796**	**1,783**	**1,771**	**1,753**	**1,747**	**1,743**	**1,751**	**1,762**	**1,773**	**1,786**	**1,802**	**1,810**	**1,819**	**1,827**	**1,836**	**1,842**
Capacity Reserves (CR)	**345**	**221**	**421**	**410**	**463**	**476**	**488**	**506**	**513**	**516**	**509**	**498**	**487**	**474**	**450**	**404**	**395**	**387**	**378**	**372**
D. Capacity Needs																				
% Reserve Margin	19%	12%	23%	23%	26%	27%	28%	29%	29%	30%	29%	28%	27%	27%	25%	22%	22%	21%	21%	20%
% Capacity Margin	16%	11%	19%	18%	20%	21%	22%	22%	23%	23%	23%	22%	22%	21%	20%	18%	18%	17%	17%	17%
Required Capacity (RC)	**2,040**	**2,057**	**2,060**	**2,033**	**2,012**	**1,997**	**1,984**	**1,964**	**1,956**	**1,952**	**1,962**	**1,974**	**1,986**	**2,000**	**2,018**	**2,027**	**2,037**	**2,046**	**2,056**	**2,063**
Capacity Balance	**126**	**1**	**200**	**193**	**247**	**263**	**276**	**295**	**303**	**307**	**298**	**286**	**275**	**260**	**233**	**187**	**177**	**168**	**158**	**151**

Table 31: Capacity Forecast - Alternative Resource Plan GAACA

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
A. System Generating Capacity (GMO share)																				
Base Capacity																				
Iatan I	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126
Iatan II	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159
Jeffrey Energy Center 1	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58
Jeffrey Energy Center 2	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
Jeffrey Energy Center 3	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
Sibley 2	42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sibley 3	364	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Base Capacity	863	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457
Intermediate Capacity	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Peaking Capacity																				
Greenwood 1	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61
Greenwood 2	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
Greenwood 3	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63
Greenwood 4	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58
KCI 1	-	-	-	-	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
KCI 2	-	-	-	-	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
Lake Road 1	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
Lake Road 2	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
Lake Road 3	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Lake Road 4	97	97	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lake Road 5	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62
Lake Road 6	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
Lake Road 7	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
Ralph Green 3	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71
Nevada	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
South Harper 1	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101
South Harper 2	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102
South Harper 3	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Cross Roads Unit 1	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74
Cross Roads Unit 2	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74
Cross Roads Unit 3	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72
Cross Roads Unit 4	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72
SJLP Landfill Gas	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
New CT			414	414	414	414	414	414	414	414	414	414	414	414	414	414	414	414	414	414
Total Peaking Capacity	1,171	1,171	1,488	1,488	1,522	1,522	1,522	1,522	1,522	1,522	1,522	1,522	1,522	1,522	1,522	1,522	1,522	1,522	1,522	1,522
Intermittent Capacity (Nameplate)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Percent Accredited Intermittent Capacity	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total Accredited Intermittent Capacity	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wind Additions																				
Solar Additions											1	1	1	1	1	1	1	1	1	1
Total Intermittent Capacity with Additions	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1
Total Generation Capacity (TGC)	2,034	1,628	1,944	1,944	1,978	1,978	1,978	1,978	1,978	1,978	1,979	1,979	1,979	1,979	1,979	1,979	1,979	1,979	1,979	1,979
B. Capacity Transactions																				
Purchases:																				
KCP&L	60	125	35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NextEra Gray County (60 MW)	9	9	9	9	9	9	9	9	9	9	9	9	9	9	-	-	-	-	-	-
NextEra Ensign (98.9 MW)	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	-	-	-	-	-
Enel Rock Creek (120 MW)	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
NextEra Osborn (80 MW)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
NextEra Pratt (146 MW)	-	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69
EDPR Prairie Queen (120 MW)	-	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
PPA Purchase		125																		
Reduction in Capacity due to Steam Customers	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)
Total Capacity Purchases (P)	133	431	216	181	181	181	181	181	181	181	181	181	181	181	172	135	135	135	135	135
Sales:																				
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Capacity Sales (S)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Transactions (NT)	133	431	216	181	181	181	181	181	181	181	181	181	181	181	172	135	135	135	135	135
Total System Capacity (TSC)	2,166	2,058	2,160	2,125	2,159	2,159	2,159	2,159	2,159	2,159	2,160	2,160	2,160	2,160	2,151	2,114	2,114	2,114	2,114	2,114
C. System Peaks & Reserves																				
Peak Demands																				
Forecasted Peak	1,900	1,910	1,965	1,970	1,982	1,995	2,007	2,011	2,024	2,036	2,052	2,063	2,076	2,089	2,104	2,116	2,131	2,147	2,165	2,179
Less DSM:																				
Demand Response		(40)	(76)	(92)	(109)	(122)	(131)	(141)	(150)	(159)	(168)	(172)	(170)	(164)	(157)	(154)	(154)	(155)	(156)	(157)
Energy Efficiency		(7)	(18)	(26)	(33)	(39)	(46)	(53)	(60)	(66)	(73)	(79)	(85)	(91)	(97)	(103)	(109)	(115)	(123)	(130)
MEEIA	(78)	(27)	(26)	(25)	(25)	(24)	(24)	(24)	(23)	(20)	(10)	(1)	(0)	(0)	(0)	1	2	2	2	3
Demand-Side Rates																				
Peak Forecast less DSM (PF)	1,822	1,837	1,845	1,827	1,816	1,809	1,806	1,794	1,791	1,790	1,800	1,810	1,820	1,834	1,851	1,860	1,870	1,878	1,888	1,895
Capacity Reserves (CR)	345	221	315	298	343	350	354	365	368	369	360	350	340	326	301	254	244	236	226	219
D. Capacity Needs																				
% Reserve Margin	19%	12%	17%	16%	19%	19%	20%	20%	21%	21%	20%	19%	19%	18%	16%	14%	13%	13%	12%	12%
% Capacity Margin	16%	11%	15%	14%	16%	16%	16%	17%	17%	17%	17%	16%	16%	15%	14%	12%	12%	11%	11%	10%
Required Capacity (RC)	2,040	2,058	2,066	2,046	2,034	2,027	2,022	2,009	2,006	2,005	2,016	2,027	2,039	2,054	2,073	2,084	2,094	2,104	2,115	2,122
Capacity Balance	126	0	94	79	125	132	137	150	153	154	144	133	121	106	79	30	20	10	(1)	(8)

Table 32: Capacity Forecast - Alternative Resource Plan GAADA

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
A. System Generating Capacity (GMO share)																				
Base Capacity																				
Iatan I	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126
Iatan II	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159
Jeffrey Energy Center 1	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58
Jeffrey Energy Center 2	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
Jeffrey Energy Center 3	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
Sibley 2	42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sibley 3	364	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Base Capacity	863	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457
Intermediate Capacity	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Peaking Capacity																				
Greenwood 1	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61
Greenwood 2	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
Greenwood 3	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63
Greenwood 4	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58
KCI 1	-	-	-	-	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
KCI 2	-	-	-	-	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
Lake Road 1	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
Lake Road 2	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
Lake Road 3	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Lake Road 4	97	97	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lake Road 5	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62
Lake Road 6	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
Lake Road 7	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
Ralph Green 3	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71
Nevada	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
South Harper 1	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101
South Harper 2	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102
South Harper 3	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Cross Roads Unit 1	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74
Cross Roads Unit 2	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74
Cross Roads Unit 3	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72
Cross Roads Unit 4	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72
SJLP Landfill Gas	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
New CT			414	414	414	414	414	414	414	414	414	414	414	414	414	414	414	414	414	414
Total Peaking Capacity	1,171	1,171	1,488	1,488	1,522	1,522	1,522	1,522	1,522	1,522	1,522	1,522	1,522	1,522	1,522	1,522	1,522	1,522	1,522	1,522
Intermittent Capacity (Nameplate)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Percent Accredited Intermittent Capacity	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total Accredited Intermittent Capacity	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wind Additions																				
Solar Additions											1	1	1	1	1	1	1	1	1	1
Total Intermittent Capacity with Additions	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1
Total Generation Capacity (TGC)	**2,034**	**1,628**	**1,944**	**1,944**	**1,978**	**1,978**	**1,978**	**1,978**	**1,978**	**1,978**	**1,979**	**1,979**	**1,979**	**1,979**	**1,979**	**1,979**	**1,979**	**1,979**	**1,979**	**1,979**
B. Capacity Transactions																				
Purchases:																				
KCP&L	60	125	35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NextEra Gray County (60 MW)	9	9	9	9	9	9	9	9	9	9	9	9	9	9	-	-	-	-	-	-
NextEra Ensign (98.9 MW)	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	-	-	-	-	-
Enel Rock Creek (120 MW)	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
NextEra Osborn (80 MW)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
NextEra Pratt (146 MW)	-	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69
EDPR Prairie Queen (120 MW)	-	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
PPA Purchase		150																		
Reduction in Capacity due to Steam Customers	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)
Total Capacity Purchases (P)	133	456	216	181	181	181	181	181	181	181	181	181	181	181	172	135	135	135	135	135
Sales:																				
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Capacity Sales (S)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Transactions (NT)	**133**	**456**	**216**	**181**	**181**	**181**	**181**	**181**	**181**	**181**	**181**	**181**	**181**	**181**	**172**	**135**	**135**	**135**	**135**	**135**
Total System Capacity (TSC)	**2,166**	**2,083**	**2,160**	**2,125**	**2,159**	**2,159**	**2,159**	**2,159**	**2,159**	**2,159**	**2,160**	**2,160**	**2,160**	**2,160**	**2,151**	**2,114**	**2,114**	**2,114**	**2,114**	**2,114**
C. System Peaks & Reserves																				
Peak Demands																				
Forecasted Peak	**1,900**	**1,910**	**1,965**	**1,970**	**1,982**	**1,995**	**2,007**	**2,011**	**2,024**	**2,036**	**2,052**	**2,063**	**2,076**	**2,089**	**2,104**	**2,116**	**2,131**	**2,147**	**2,165**	**2,179**
Less DSM:																				
Demand Response		(30)	(57)	(69)	(82)	(91)	(99)	(105)	(112)	(119)	(126)	(129)	(128)	(123)	(118)	(115)	(116)	(116)	(117)	(118)
Energy Efficiency		(4)	(13)	(19)	(24)	(29)	(35)	(40)	(45)	(50)	(56)	(60)	(65)	(69)	(73)	(78)	(82)	(87)	(93)	(98)
MEEIA	(78)	(27)	(26)	(25)	(25)	(24)	(24)	(24)	(23)	(20)	(10)	(1)	(0)	(0)	(0)	1	2	2	2	3
Demand-Side Rates																				
Peak Forecast less DSM (PF)	**1,822**	**1,850**	**1,869**	**1,857**	**1,852**	**1,850**	**1,850**	**1,842**	**1,843**	**1,846**	**1,859**	**1,872**	**1,883**	**1,897**	**1,913**	**1,924**	**1,935**	**1,945**	**1,957**	**1,966**
Capacity Reserves (CR)	**345**	**233**	**291**	**268**	**308**	**309**	**309**	**317**	**316**	**313**	**301**	**288**	**277**	**264**	**238**	**190**	**179**	**169**	**157**	**148**
D. Capacity Needs																				
% Reserve Margin	19%	13%	16%	14%	17%	17%	17%	17%	17%	17%	16%	15%	15%	14%	12%	10%	9%	9%	8%	8%
% Capacity Margin	16%	11%	13%	13%	14%	14%	14%	15%	15%	14%	14%	13%	13%	12%	11%	9%	8%	8%	7%	7%
Required Capacity (RC)	**2,040**	**2,072**	**2,093**	**2,080**	**2,074**	**2,072**	**2,072**	**2,063**	**2,064**	**2,068**	**2,083**	**2,096**	**2,109**	**2,124**	**2,143**	**2,154**	**2,167**	**2,179**	**2,192**	**2,202**
Capacity Balance	**126**	**11**	**67**	**45**	**85**	**87**	**87**	**96**	**95**	**92**	**77**	**64**	**51**	**36**	**9**	**(40)**	**(53)**	**(65)**	**(78)**	**(87)**

Table 33: Capacity Forecast - Alternative Resource Plan GAAEA

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
A. System Generating Capacity (GMO share)																				
Base Capacity																				
Iatan I	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126
Iatan II	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159
Jeffrey Energy Center 1	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58
Jeffrey Energy Center 2	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
Jeffrey Energy Center 3	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
Sibley 2	42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sibley 3	364	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Base Capacity	863	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457
Intermediate Capacity	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Peaking Capacity																				
Greenwood 1	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61
Greenwood 2	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
Greenwood 3	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63
Greenwood 4	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58
KCI 1	-	-	-	-	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
KCI 2	-	-	-	-	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
Lake Road 1	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
Lake Road 2	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
Lake Road 3	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Lake Road 4	97	97	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lake Road 5	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62
Lake Road 6	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
Lake Road 7	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
Ralph Green 3	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71
Nevada	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
South Harper 1	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101
South Harper 2	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102
South Harper 3	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Cross Roads Unit 1	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74
Cross Roads Unit 2	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74
Cross Roads Unit 3	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72
Cross Roads Unit 4	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72
SJLP Landfill Gas	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
New CT		207	414	414	414	414	414	414	414	621	621	621	621	621	621	621	621	621	828	828
Total Peaking Capacity	1,171	1,378	1,488	1,488	1,522	1,522	1,522	1,522	1,522	1,729	1,729	1,729	1,729	1,729	1,729	1,729	1,729	1,729	1,936	1,936
Intermittent Capacity (Nameplate)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Percent Accredited Intermittent Capacity	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total Accredited Intermittent Capacity	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wind Additions																				
Solar Additions											1	1	1	1	1	1	1	1	1	1
Total Intermittent Capacity with Additions	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1
Total Generation Capacity (TGC)	**2,034**	**1,835**	**1,944**	**1,944**	**1,978**	**1,978**	**1,978**	**1,978**	**1,978**	**2,185**	**2,186**	**2,186**	**2,186**	**2,186**	**2,186**	**2,186**	**2,186**	**2,186**	**2,393**	**2,393**
B. Capacity Transactions																				
Purchases:																				
KCP&L	60	125	35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NextEra Gray County (60 MW)	9	9	9	9	9	9	9	9	9	9	9	9	9	9	-	-	-	-	-	-
NextEra Ensign (98.9 MW)	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	-	-	-	-	-
Enel Rock Creek (120 MW)	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
NextEra Osborn (80 MW)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
NextEra Pratt (146 MW)	-	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69
EDPR Prairie Queen (120 MW)	-	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
PPA Purchase		25	75	50	75	75	75	100							25	75	75	100	-	-
Reduction in Capacity due to Steam Customers	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)
Total Capacity Purchases (P)	133	331	291	231	256	256	256	281	181	181	181	181	181	181	197	210	210	235	135	135
Sales:																				
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Capacity Sales (S)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Transactions (NT)	**133**	**331**	**291**	**231**	**256**	**256**	**256**	**281**	**181**	**181**	**181**	**181**	**181**	**181**	**197**	**210**	**210**	**235**	**135**	**135**
Total System Capacity (TSC)	**2,166**	**2,165**	**2,235**	**2,175**	**2,234**	**2,234**	**2,234**	**2,259**	**2,159**	**2,366**	**2,367**	**2,367**	**2,367**	**2,367**	**2,383**	**2,396**	**2,396**	**2,421**	**2,528**	**2,528**
C. System Peaks & Reserves																				
Peak Demands																				
Forecasted Peak	**1,900**	**1,910**	**1,965**	**1,970**	**1,982**	**1,995**	**2,007**	**2,011**	**2,024**	**2,036**	**2,052**	**2,063**	**2,076**	**2,089**	**2,104**	**2,116**	**2,131**	**2,147**	**2,165**	**2,179**
Less DSM:																				
Demand Response																				
Energy Efficiency																				
MEEIA	(78)	(27)	(26)	(25)	(25)	(24)	(24)	(24)	(23)	(20)	(10)	(1)	(0)	(0)	(0)	1	2	2	2	3
Demand-Side Rates																				
Peak Forecast less DSM (PF)	**1,822**	**1,883**	**1,939**	**1,945**	**1,957**	**1,971**	**1,983**	**1,987**	**2,001**	**2,016**	**2,042**	**2,062**	**2,076**	**2,089**	**2,104**	**2,117**	**2,133**	**2,149**	**2,167**	**2,182**
Capacity Reserves (CR)	**345**	**282**	**296**	**231**	**277**	**263**	**251**	**272**	**158**	**350**	**325**	**305**	**292**	**279**	**279**	**279**	**263**	**272**	**361**	**346**
D. Capacity Needs																				
% Reserve Margin	19%	15%	15%	12%	14%	13%	13%	14%	8%	17%	16%	15%	14%	13%	13%	13%	12%	13%	17%	16%
% Capacity Margin	16%	13%	13%	11%	12%	12%	11%	12%	7%	15%	14%	13%	12%	12%	12%	12%	11%	11%	14%	14%
Required Capacity (RC)	**2,040**	**2,109**	**2,171**	**2,178**	**2,192**	**2,207**	**2,221**	**2,226**	**2,241**	**2,258**	**2,287**	**2,309**	**2,325**	**2,339**	**2,356**	**2,371**	**2,389**	**2,407**	**2,427**	**2,444**
Capacity Balance	**126**	**56**	**64**	**(3)**	**42**	**27**	**13**	**33**	**(82)**	**108**	**80**	**58**	**42**	**28**	**27**	**25**	**7**	**14**	**101**	**84**

Table 34: Capacity Forecast - Alternative Resource Plan GAAFA

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
A. System Generating Capacity (GMO share)																				
Base Capacity																				
latan I	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126
latan II	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159
Jeffrey Energy Center 1	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58
Jeffrey Energy Center 2	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
Jeffrey Energy Center 3	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
Sibley 2	42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sibley 3	364	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Base Capacity	863	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457
Intermediate Capacity	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Peaking Capacity																				
Greenwood 1	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61
Greenwood 2	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
Greenwood 3	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63
Greenwood 4	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58
KCI 1	-	-	-	-	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
KCI 2	-	-	-	-	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
Lake Road 1	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
Lake Road 2	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
Lake Road 3	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Lake Road 4	97	97	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lake Road 5	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62
Lake Road 6	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
Lake Road 7	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
Ralph Green 3	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71
Nevada	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
South Harper 1	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101
South Harper 2	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102
South Harper 3	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Cross Roads Unit 1	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74
Cross Roads Unit 2	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74
Cross Roads Unit 3	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72
Cross Roads Unit 4	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72
SJLP Landfill Gas	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
New CT			414	414	414	414	414	414	414	414	414	414	414	414	414	414	414	414	414	414
Total Peaking Capacity	1,171	1,171	1,488	1,488	1,522	1,522	1,522	1,522	1,522	1,522	1,522	1,522	1,522	1,522	1,522	1,522	1,522	1,522	1,522	1,522
Intermittent Capacity (Nameplate)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Percent Accredited Intermittent Capacity	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total Accredited Intermittent Capacity	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wind Additions																				
Solar Additions											1	1	1	1	1	1	1	1	1	1
Total Intermittent Capacity with Additions	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1
Total Generation Capacity (TGC)	2,034	1,628	1,944	1,944	1,978	1,978	1,978	1,978	1,978	1,978	1,979	1,979	1,979	1,979	1,979	1,979	1,979	1,979	1,979	1,979
B. Capacity Transactions																				
Purchases:																				
KCP&L	60	125	35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NextEra Gray County (60 MW)	9	9	9	9	9	9	9	9	9	9	9	9	9	9	-	-	-	-	-	-
NextEra Ensign (98.9 MW)	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	-	-	-	-	-
Enel Rock Creek (120 MW)	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
NextEra Osborn (80 MW)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
NextEra Pratt (146 MW)	-	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69
EDPR Prairie Queen (120 MW)	-	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
PPA Purchase		150																25	25	50
Reduction in Capacity due to Steam Customers	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)
Total Capacity Purchases (P)	133	456	216	181	181	181	181	181	181	181	181	181	181	181	172	135	135	160	160	185
Sales:																				
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Capacity Sales (S)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Transactions (NT)	133	456	216	181	181	181	181	181	181	181	181	181	181	181	172	135	135	160	160	185
Total System Capacity (TSC)	2,166	2,083	2,160	2,125	2,159	2,159	2,159	2,159	2,159	2,159	2,160	2,160	2,160	2,160	2,151	2,114	2,114	2,139	2,139	2,164
C. System Peaks & Reserves																				
Peak Demands																				
Forecasted Peak	**1,895**	**1,905**	**1,960**	**1,965**	**1,977**	**1,990**	**2,002**	**2,011**	**2,024**	**2,036**	**2,052**	**2,063**	**2,076**	**2,089**	**2,104**	**2,116**	**2,131**	**2,147**	**2,165**	**2,179**
Less DSM:																				
Demand Response		(30)	(57)	(69)	(82)	(91)	(99)	(105)	(112)	(119)	(126)	(129)	(128)	(123)	(118)	(115)	(116)	(116)	(117)	(118)
Energy Efficiency		(4)	(13)	(19)	(24)	(29)	(35)	(40)	(45)	(50)	(56)	(60)	(65)	(69)	(73)	(78)	(82)	(87)	(93)	(98)
MEEIA	(78)	(27)	(26)	(25)	(25)	(24)	(24)	(24)	(23)	(20)	(10)	(1)	(0)	(0)	(0)	1	2	2	2	3
Demand-Side Rates	(0)	(0)	(5)	(12)	(20)	(27)	(35)	(41)	(45)	(48)	(48)	(48)	(47)	(48)	(49)	(50)	(51)	(52)	(52)	(53)
Peak Forecast less DSM (PF)	**1,816**	**1,844**	**1,859**	**1,840**	**1,827**	**1,818**	**1,810**	**1,801**	**1,798**	**1,798**	**1,811**	**1,824**	**1,836**	**1,849**	**1,864**	**1,873**	**1,884**	**1,894**	**1,905**	**1,913**
Capacity Reserves (CR)	**350**	**239**	**301**	**285**	**332**	**341**	**349**	**358**	**361**	**361**	**349**	**336**	**324**	**311**	**287**	**241**	**230**	**245**	**234**	**251**
D. Capacity Needs																				
% Reserve Margin	19%	13%	16%	16%	18%	19%	19%	20%	20%	20%	19%	18%	18%	17%	15%	13%	12%	13%	12%	13%
% Capacity Margin	16%	11%	14%	13%	15%	16%	16%	17%	17%	17%	16%	16%	15%	14%	13%	11%	11%	11%	11%	12%
Required Capacity (RC)	**2,034**	**2,066**	**2,082**	**2,060**	**2,046**	**2,036**	**2,028**	**2,018**	**2,014**	**2,014**	**2,028**	**2,043**	**2,056**	**2,071**	**2,088**	**2,098**	**2,110**	**2,121**	**2,134**	**2,142**
Capacity Balance	**132**	**18**	**78**	**65**	**113**	**123**	**132**	**142**	**145**	**145**	**132**	**117**	**104**	**89**	**63**	**16**	**4**	**18**	**6**	**22**

Table 35: Capacity Forecast - Alternative Resource Plan GAAFC

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
A. System Generating Capacity (GMO share)																				
Base Capacity																				
Iatan I	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126
Iatan II	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159
Jeffrey Energy Center 1	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58
Jeffrey Energy Center 2	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
Jeffrey Energy Center 3	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
Sibley 2	42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sibley 3	364	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Base Capacity	863	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457
Intermediate Capacity	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Peaking Capacity																				
Greenwood 1	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61
Greenwood 2	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
Greenwood 3	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63
Greenwood 4	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58
KCI 1	-	-	-	-	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
KCI 2	-	-	-	-	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
Lake Road 1	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
Lake Road 2	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
Lake Road 3	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Lake Road 4	97	97	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lake Road 5	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62
Lake Road 6	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
Lake Road 7	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
Ralph Green 3	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71
Nevada	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
South Harper 1	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101
South Harper 2	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102
South Harper 3	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Cross Roads Unit 1	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74
Cross Roads Unit 2	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74
Cross Roads Unit 3	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72
Cross Roads Unit 4	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72
SJLP Landfill Gas	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Total Peaking Capacity	1,171	1,171	1,074	1,074	1,108	1,108	1,108	1,108	1,108	1,108	1,108	1,108	1,108	1,108	1,108	1,108	1,108	1,108	1,108	1,108
Intermittent Capacity (Nameplate)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Percent Accredited Intermittent Capacity	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total Accredited Intermittent Capacity	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wind Additions																				
Solar Additions											1	1	1	1	1	1	1	1	1	1
Total Intermittent Capacity with Additions	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1
Total Generation Capacity (TGC)	**2,034**	**1,628**	**1,530**	**1,530**	**1,564**	**1,564**	**1,564**	**1,564**	**1,564**	**1,564**	**1,565**	**1,565**	**1,565**	**1,565**	**1,565**	**1,565**	**1,565**	**1,565**	**1,565**	**1,565**
B. Capacity Transactions																				
Purchases:																				
KCP&L	60	125	35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NextEra Gray County (60 MW)	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	-	-	-	-	-
NextEra Ensign (98.9 MW)	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	-	-	-	-	-
Enel Rock Creek (120 MW)	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
NextEra Osborn (80 MW)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
NextEra Pratt (146 MW)	-	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69
EDPR Prairie Queen (120 MW)	-	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
PPA Purchase		159	349	357	327	312	299	279	271	288	302	314	326	340	367	413	423	432	442	460
Reduction in Capacity due to Steam Customers	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)
Total Capacity Purchases (P)	133	465	565	538	508	493	480	460	452	469	483	495	507	521	539	548	558	567	577	595
Sales:																				
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Capacity Sales (S)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Transactions (NT)	**133**	**465**	**565**	**538**	**508**	**493**	**480**	**460**	**452**	**469**	**483**	**495**	**507**	**521**	**539**	**548**	**558**	**567**	**577**	**595**
Total System Capacity (TSC)	**2,166**	**2,092**	**2,095**	**2,068**	**2,072**	**2,057**	**2,044**	**2,024**	**2,016**	**2,033**	**2,048**	**2,060**	**2,072**	**2,086**	**2,104**	**2,113**	**2,123**	**2,132**	**2,142**	**2,160**
C. System Peaks & Reserves																				
Peak Demands																				
Forecasted Peak	**1,900**	**1,910**	**1,965**	**1,970**	**1,982**	**1,995**	**2,007**	**2,011**	**2,024**	**2,036**	**2,052**	**2,063**	**2,076**	**2,089**	**2,104**	**2,116**	**2,131**	**2,147**	**2,165**	**2,179**
Less DSM:																				
Demand Response		(30)	(57)	(69)	(82)	(91)	(99)	(105)	(112)	(119)	(126)	(129)	(128)	(123)	(118)	(115)	(116)	(116)	(117)	(118)
Energy Efficiency		(4)	(13)	(19)	(24)	(29)	(35)	(40)	(45)	(50)	(56)	(60)	(65)	(69)	(73)	(78)	(82)	(87)	(93)	(98)
MEEIA	(78)	(27)	(26)	(25)	(25)	(24)	(24)	(24)	(23)	(20)	(10)	(1)	(0)	(0)	(0)	1	2	2	2	3
Demand-Side Rates	(0)	(0)	(5)	(12)	(20)	(27)	(35)	(41)	(45)	(48)	(48)	(48)	(47)	(48)	(49)	(50)	(51)	(52)	(52)	(53)
Peak Forecast less DSM (PF)	**1,821**	**1,849**	**1,864**	**1,845**	**1,832**	**1,823**	**1,815**	**1,801**	**1,798**	**1,798**	**1,811**	**1,824**	**1,836**	**1,849**	**1,864**	**1,873**	**1,884**	**1,894**	**1,905**	**1,913**
Capacity Reserves (CR)	**345**	**243**	**231**	**223**	**240**	**234**	**229**	**223**	**218**	**235**	**237**	**236**	**236**	**237**	**240**	**240**	**239**	**238**	**237**	**247**
D. Capacity Needs																				
% Reserve Margin	19%	13%	12%	12%	13%	13%	13%	12%	12%	13%	13%	13%	13%	13%	13%	13%	13%	13%	12%	13%
% Capacity Margin	16%	12%	11%	11%	12%	11%	11%	11%	11%	12%	12%	11%	11%	11%	11%	11%	11%	11%	11%	11%
Required Capacity (RC)	**2,040**	**2,071**	**2,087**	**2,066**	**2,052**	**2,042**	**2,033**	**2,018**	**2,014**	**2,014**	**2,028**	**2,043**	**2,056**	**2,071**	**2,088**	**2,098**	**2,110**	**2,121**	**2,134**	**2,142**
Capacity Balance	**126**	**21**	**8**	**2**	**20**	**15**	**11**	**7**	**2**	**19**	**20**	**17**	**16**	**15**	**16**	**15**	**13**	**11**	**9**	**18**

Table 36: Capacity Forecast - Alternative Resource Plan GAAFN

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
A. System Generating Capacity (GMO share)																				
Base Capacity																				
Iatan I	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126
Iatan II	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159
Jeffrey Energy Center 1	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58
Jeffrey Energy Center 2	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
Jeffrey Energy Center 3	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
Sibley 2	42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sibley 3	364	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Base Capacity	863	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457
Intermediate Capacity	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Peaking Capacity																				
Greenwood 1	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61
Greenwood 2	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
Greenwood 3	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63
Greenwood 4	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58
KCI 1	-	-	-	-	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
KCI 2	-	-	-	-	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
Lake Road 1	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
Lake Road 2	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
Lake Road 3	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Lake Road 4	97	97	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lake Road 5	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62
Lake Road 6	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
Lake Road 7	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
Ralph Green 3	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71
Nevada	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
South Harper 1	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101
South Harper 2	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102
South Harper 3	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Cross Roads Unit 1	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74
Cross Roads Unit 2	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74
Cross Roads Unit 3	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72
Cross Roads Unit 4	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72
SJLP Landfill Gas	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
New CT																207	207	207	414	414
Total Peaking Capacity	1,171	1,171	1,074	1,074	1,108	1,108	1,108	1,108	1,108	1,108	1,108	1,108	1,108	1,108	1,108	1,315	1,315	1,315	1,522	1,522
Intermittent Capacity (Nameplate)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Percent Accredited Intermittent Capacity	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total Accredited Intermittent Capacity	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wind Additions																				
Solar Additions											1	1	1	1	1	1	1	1	1	1
Total Intermittent Capacity with Additions	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1
Total Generation Capacity (TGC)	**2,034**	**1,628**	**1,530**	**1,530**	**1,564**	**1,564**	**1,564**	**1,564**	**1,564**	**1,564**	**1,565**	**1,565**	**1,565**	**1,565**	**1,565**	**1,772**	**1,772**	**1,772**	**1,979**	**1,979**
B. Capacity Transactions																				
Purchases:																				
KCP&L	60	125	35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NextEra Gray County (60 MW)	9	9	9	9	9	9	9	9	9	9	9	9	9	9	-	-	-	-	-	-
NextEra Ensign (98.9 MW)	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	-	-	-	-	-
Enel Rock Creek (120 MW)	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
NextEra Osborn (80 MW)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
NextEra Pratt (146 MW)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EDPR Prairie Queen (120 MW)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PPA Purchase	-	251	449	468	420	410	401	386	382	379	396	411	424	439	440	380	360	340	180	170
Reduction in Capacity due to Steam Customers	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)
Total Capacity Purchases (P)	133	449	557	541	493	483	474	459	455	452	469	484	497	512	504	407	387	367	207	197
Sales:																				
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Capacity Sales (S)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Transactions (NT)	**133**	**449**	**557**	**541**	**493**	**483**	**474**	**459**	**455**	**452**	**469**	**484**	**497**	**512**	**504**	**407**	**387**	**367**	**207**	**197**
Total System Capacity (TSC)	**2,166**	**2,076**	**2,087**	**2,071**	**2,057**	**2,047**	**2,038**	**2,023**	**2,019**	**2,016**	**2,034**	**2,049**	**2,062**	**2,077**	**2,069**	**2,179**	**2,159**	**2,139**	**2,186**	**2,176**
C. System Peaks & Reserves																				
Peak Demands																				
Forecasted Peak	**1,900**	**1,910**	**1,965**	**1,970**	**1,982**	**1,995**	**2,007**	**2,011**	**2,024**	**2,036**	**2,052**	**2,063**	**2,076**	**2,089**	**2,104**	**2,116**	**2,131**	**2,147**	**2,165**	**2,179**
Less DSM:																				
Demand Response		(30)	(57)	(69)	(82)	(91)	(99)	(105)	(112)	(119)	(126)	(129)	(128)	(123)	(118)	(115)	(116)	(116)	(117)	(118)
Energy Efficiency		(4)	(13)	(19)	(24)	(29)	(35)	(40)	(45)	(50)	(56)	(60)	(65)	(69)	(73)	(78)	(82)	(87)	(93)	(98)
MEEIA	(78)	(27)	(26)	(25)	(25)	(24)	(24)	(24)	(23)	(20)	(10)	(1)	(0)	(0)	(0)	1	2	2	2	3
Demand-Side Rates	-	(0)	(5)	(12)	(20)	(27)	(35)	(41)	(45)	(48)	(48)	(48)	(47)	(48)	(49)	(50)	(51)	(52)	(52)	(53)
Peak Forecast less DSM (PF)	**1,822**	**1,849**	**1,864**	**1,845**	**1,832**	**1,823**	**1,815**	**1,801**	**1,798**	**1,798**	**1,811**	**1,824**	**1,836**	**1,849**	**1,864**	**1,873**	**1,884**	**1,894**	**1,905**	**1,913**
Capacity Reserves (CR)	**345**	**227**	**223**	**226**	**225**	**224**	**223**	**222**	**221**	**218**	**223**	**225**	**226**	**228**	**205**	**306**	**275**	**245**	**281**	**263**
D. Capacity Needs																				
% Reserve Margin	19%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	11%	16%	15%	13%	15%	14%
% Capacity Margin	16%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	10%	14%	13%	11%	13%	12%
Required Capacity (RC)	**2,040**	**2,071**	**2,087**	**2,066**	**2,052**	**2,042**	**2,033**	**2,018**	**2,014**	**2,014**	**2,028**	**2,043**	**2,056**	**2,071**	**2,088**	**2,098**	**2,110**	**2,121**	**2,134**	**2,142**
Capacity Balance	**126**	**5**	**(0)**	**5**	**5**	**5**	**5**	**6**	**5**	**2**	**6**	**6**	**6**	**6**	**(19)**	**81**	**49**	**18**	**53**	**34**

Table 37: Capacity Forecast - Alternative Resource Plan GAAGC

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
A. System Generating Capacity (GMO share)																				
Base Capacity																				
Iatan I	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126
Iatan II	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159
Jeffrey Energy Center 1	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58
Jeffrey Energy Center 2	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
Jeffrey Energy Center 3	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
Sibley 2	42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sibley 3	364	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Base Capacity	863	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457
Intermediate Capacity	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Peaking Capacity																				
Greenwood 1	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61
Greenwood 2	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
Greenwood 3	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63
Greenwood 4	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58
KCI 1	-	-	-	-	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
KCI 2	-	-	-	-	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
Lake Road 1	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
Lake Road 2	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
Lake Road 3	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Lake Road 4	97	97	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lake Road 5	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62
Lake Road 6	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
Lake Road 7	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
Ralph Green 3	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71
Nevada	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
South Harper 1	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101
South Harper 2	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102
South Harper 3	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Cross Roads Unit 1	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74
Cross Roads Unit 2	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74
Cross Roads Unit 3	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72
Cross Roads Unit 4	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72
SJLP Landfill Gas	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Total Peaking Capacity	1,171	1,171	1,074	1,074	1,108	1,108	1,108	1,108	1,108	1,108	1,108	1,108	1,108	1,108	1,108	1,108	1,108	1,108	1,108	1,108
Intermittent Capacity (Nameplate)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Percent Accredited Intermittent Capacity	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total Accredited Intermittent Capacity	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wind Additions																				
Solar Additions											1	1	1	1	1	1	1	1	1	1
Total Intermittent Capacity with Additions	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1
Total Generation Capacity (TGC)	**2,034**	**1,628**	**1,530**	**1,530**	**1,564**	**1,564**	**1,564**	**1,564**	**1,564**	**1,564**	**1,565**	**1,565**	**1,565**	**1,565**	**1,565**	**1,565**	**1,565**	**1,565**	**1,565**	**1,565**
B. Capacity Transactions																				
Purchases:																				
KCP&L	60	125	35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NextEra Gray County (60 MW)	9	9	9	9	9	9	9	9	9	9	9	9	9	9	-	-	-	-	-	-
NextEra Ensign (98.9 MW)	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	-	-	-	-	-
Enel Rock Creek (120 MW)	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
NextEra Osborn (80 MW)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
NextEra Pratt (146 MW)	-	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69
EDPR Prairie Queen (120 MW)	-	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
PPA Purchase	-	134	324	332	302	287	299	279	271	263	302	314	326	340	367	413	423	432	467	460
Reduction in Capacity due to Steam Customers	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)
Total Capacity Purchases (P)	133	440	540	513	483	468	480	460	452	444	483	495	507	521	539	548	558	567	602	595
Sales:																				
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Capacity Sales (S)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Transactions (NT)	**133**	**440**	**540**	**513**	**483**	**468**	**480**	**460**	**452**	**444**	**483**	**495**	**507**	**521**	**539**	**548**	**558**	**567**	**602**	**595**
Total System Capacity (TSC)	**2,166**	**2,067**	**2,070**	**2,043**	**2,047**	**2,032**	**2,044**	**2,024**	**2,016**	**2,008**	**2,048**	**2,060**	**2,072**	**2,086**	**2,104**	**2,113**	**2,123**	**2,132**	**2,167**	**2,160**
C. System Peaks & Reserves																				
Peak Demands																				
Forecasted Peak	**1,900**	**1,910**	**1,965**	**1,970**	**1,982**	**1,995**	**2,007**	**2,011**	**2,024**	**2,036**	**2,052**	**2,063**	**2,076**	**2,089**	**2,104**	**2,116**	**2,131**	**2,147**	**2,165**	**2,179**
Less DSM:																				
Demand Response		(39)	(75)	(90)	(94)	(97)	(103)	(109)	(115)	(121)	(127)	(127)	(122)	(114)	(107)	(105)	(105)	(106)	(107)	(107)
Energy Efficiency		(7)	(18)	(26)	(30)	(34)	(39)	(44)	(49)	(55)	(60)	(64)	(68)	(72)	(76)	(80)	(84)	(89)	(94)	(99)
MEEIA	(78)	(27)	(26)	(25)	(25)	(24)	(24)	(24)	(23)	(20)	(10)	(1)	(0)	(0)	(0)	1	2	2	2	3
Demand-Side Rates	(0)	(0)	(5)	(12)	(20)	(27)	(35)	(41)	(45)	(48)	(48)	(48)	(47)	(48)	(49)	(50)	(51)	(52)	(52)	(53)
Peak Forecast less DSM (PF)	**1,821**	**1,837**	**1,840**	**1,817**	**1,813**	**1,813**	**1,806**	**1,793**	**1,792**	**1,793**	**1,807**	**1,822**	**1,838**	**1,855**	**1,872**	**1,882**	**1,892**	**1,903**	**1,915**	**1,923**
Capacity Reserves (CR)	**345**	**230**	**230**	**226**	**234**	**219**	**238**	**231**	**224**	**215**	**241**	**238**	**234**	**231**	**232**	**231**	**231**	**229**	**253**	**237**
D. Capacity Needs																				
% Reserve Margin	19%	13%	12%	12%	13%	12%	13%	13%	13%	12%	13%	13%	13%	12%	12%	12%	12%	12%	13%	12%
% Capacity Margin	16%	11%	11%	11%	11%	11%	12%	11%	11%	11%	12%	12%	11%	11%	11%	11%	11%	11%	12%	11%
Required Capacity (RC)	**2,040**	**2,058**	**2,061**	**2,035**	**2,031**	**2,030**	**2,023**	**2,009**	**2,007**	**2,008**	**2,023**	**2,041**	**2,058**	**2,078**	**2,097**	**2,107**	**2,119**	**2,131**	**2,144**	**2,153**
Capacity Balance	**126**	**10**	**9**	**8**	**16**	**2**	**21**	**15**	**9**	**0**	**25**	**19**	**14**	**8**	**7**	**6**	**4**	**1**	**23**	**7**

Table 38: Capacity Forecast - Alternative Resource Plan GBCBC

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
A. System Generating Capacity (GMO share)																				
Base Capacity																				
latan I	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126
latan II	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159
Jeffrey Energy Center 1	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58
Jeffrey Energy Center 2	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
Jeffrey Energy Center 3	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
Sibley 2	42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sibley 3	364	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Base Capacity	863	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457
Intermediate Capacity	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Peaking Capacity																				
Greenwood 1	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61
Greenwood 2	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
Greenwood 3	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63
Greenwood 4	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58
KCI 1	-	-	-	-	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
KCI 2	-	-	-	-	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
Lake Road 1	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
Lake Road 2	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
Lake Road 3	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Lake Road 4	97	97	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lake Road 5	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62
Lake Road 6	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
Lake Road 7	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
Ralph Green 3	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71
Nevada	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
South Harper 1	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101
South Harper 2	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102
South Harper 3	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Cross Roads Unit 1	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74
Cross Roads Unit 2	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74
Cross Roads Unit 3	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72
Cross Roads Unit 4	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72
SJLP Landfill Gas	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Total Peaking Capacity	1,171	1,171	1,074	1,074	1,108	1,108	1,108	1,108	1,108	1,108	1,108	1,108	1,108	1,108	1,108	1,108	1,108	1,108	1,108	1,108
Intermittent Capacity (Nameplate)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Percent Accredited Intermittent Capacity	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total Accredited Intermittent Capacity	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wind Additions																				
Solar Additions											1	1	1	1	1	1	1	1	1	1
Total Intermittent Capacity with Additions	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1
Total Generation Capacity (TGC)	**2,034**	**1,628**	**1,530**	**1,530**	**1,564**	**1,564**	**1,564**	**1,564**	**1,564**	**1,564**	**1,565**	**1,565**	**1,565**	**1,565**	**1,565**	**1,565**	**1,565**	**1,565**	**1,565**	**1,565**
B. Capacity Transactions																				
Purchases:																				
KCP&L	60	125	35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NextEra Gray County (60 MW)	9	9	9	9	9	9	9	9	9	9	9	9	9	9	-	-	-	-	-	-
NextEra Ensign (98.9 MW)	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	-	-	-	-	-
Enel Rock Creek (120 MW)	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
NextEra Osborn (80 MW)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
NextEra Pratt (146 MW)	-	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69
EDPR Prairie Queen (120 MW)	-	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
PPA Purchase		226	319	327	272	257	244	224	216	208	222	234	246	260	287	333	343	352	362	369
Reduction in Capacity due to Steam Customers	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)
Total Capacity Purchases (P)	133	532	535	508	453	438	425	405	397	389	403	415	427	441	459	468	478	487	497	504
Sales:																				
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Capacity Sales (S)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Transactions (NT)	**133**	**532**	**535**	**508**	**453**	**438**	**425**	**405**	**397**	**389**	**403**	**415**	**427**	**441**	**459**	**468**	**478**	**487**	**497**	**504**
Total System Capacity (TSC)	**2,166**	**2,159**	**2,065**	**2,038**	**2,017**	**2,002**	**1,989**	**1,969**	**1,961**	**1,953**	**1,968**	**1,980**	**1,992**	**2,006**	**2,024**	**2,033**	**2,043**	**2,052**	**2,062**	**2,069**
C. System Peaks & Reserves																				
Peak Demands																				
Forecasted Peak	**1,900**	**1,910**	**1,965**	**1,970**	**1,982**	**1,995**	**2,007**	**2,011**	**2,024**	**2,036**	**2,052**	**2,063**	**2,076**	**2,089**	**2,104**	**2,116**	**2,131**	**2,147**	**2,165**	**2,179**
Less DSM:																				
Demand Response		(40)	(76)	(92)	(109)	(122)	(131)	(141)	(150)	(159)	(168)	(172)	(170)	(164)	(157)	(154)	(154)	(155)	(156)	(157)
Energy Efficiency		(7)	(18)	(26)	(33)	(39)	(46)	(53)	(60)	(66)	(73)	(79)	(85)	(91)	(97)	(103)	(109)	(115)	(123)	(130)
MEEIA	(78)	(27)	(26)	(25)	(25)	(24)	(24)	(24)	(23)	(20)	(10)	(1)	(0)	(0)	(0)	1	2	2	2	3
Demand-Side Rates	-	(0)	(5)	(12)	(20)	(27)	(35)	(41)	(45)	(48)	(48)	(48)	(47)	(48)	(49)	(50)	(51)	(52)	(52)	(53)
Peak Forecast less DSM (PF)	**1,822**	**1,837**	**1,839**	**1,815**	**1,796**	**1,783**	**1,771**	**1,753**	**1,747**	**1,743**	**1,751**	**1,762**	**1,773**	**1,786**	**1,802**	**1,810**	**1,819**	**1,827**	**1,836**	**1,842**
Capacity Reserves (CR)	**345**	**322**	**226**	**223**	**221**	**219**	**218**	**216**	**215**	**210**	**217**	**218**	**219**	**220**	**223**	**223**	**224**	**225**	**226**	**227**
D. Capacity Needs																				
% Reserve Margin	19%	18%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%
% Capacity Margin	16%	15%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%
Required Capacity (RC)	**2,040**	**2,057**	**2,060**	**2,033**	**2,012**	**1,997**	**1,984**	**1,964**	**1,956**	**1,952**	**1,962**	**1,974**	**1,986**	**2,000**	**2,018**	**2,027**	**2,037**	**2,046**	**2,056**	**2,063**
Capacity Balance	**126**	**102**	**5**	**6**	**5**	**6**	**6**	**5**	**5**	**1**	**6**	**6**	**7**	**6**	**6**	**6**	**6**	**6**	**6**	**6**

(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 tables 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 GAAAA

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	812	812	0.09	0.09	0.00%	0.00%	3.34	47.70	1.43
2019	813	813	0.09	0.09	0.29%	0.29%	3.16	47.70	0.77
2020	874	869	0.10	0.10	7.73%	7.09%	3.39	47.70	0.53
2021	894	888	0.10	0.10	2.52%	2.54%	3.09	47.70	1.36
2022	898	898	0.10	0.10	0.24%	0.83%	3.00	47.70	1.42
2023	918	912	0.10	0.10	1.82%	1.15%	2.93	47.70	1.33
2024	936	930	0.11	0.11	1.58%	1.59%	2.94	47.70	1.35
2025	942	942	0.11	0.11	0.66%	1.31%	2.83	47.70	1.28
2026	1,002	998	0.11	0.11	5.95%	5.55%	2.85	47.70	1.35
2027	1,024	1,020	0.12	0.12	1.81%	1.81%	2.85	47.70	1.16
2028	1,034	1,034	0.12	0.12	0.22%	0.59%	2.78	47.70	1.49
2029	1,055	1,052	0.12	0.12	1.51%	1.23%	2.79	47.70	1.49
2030	1,068	1,065	0.12	0.12	0.78%	0.78%	2.77	47.70	1.42
2031	1,087	1,087	0.12	0.12	1.27%	1.55%	2.75	47.70	1.41
2032	1,107	1,105	0.12	0.12	1.20%	1.00%	2.74	47.70	1.36
2033	1,131	1,129	0.12	0.12	1.75%	1.75%	2.69	47.70	1.37
2034	1,158	1,158	0.13	0.13	1.63%	1.83%	2.67	47.70	1.34
2035	1,189	1,189	0.13	0.13	2.02%	1.95%	2.67	47.70	1.38
2036	1,222	1,221	0.13	0.13	1.89%	1.89%	2.68	47.70	1.36
2037	1,247	1,247	0.13	0.13	1.57%	1.64%	2.67	47.70	1.36

Table 40: Economic Impact of Alternative Resource Plan GAABA

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	812	812	0.09	0.09	0.00%	0.00%	3.34	47.70	1.43
2019	804	804	0.09	0.09	-0.97%	-0.97%	3.16	47.70	0.72
2020	865	860	0.10	0.10	7.72%	7.08%	3.39	47.70	0.50
2021	884	879	0.10	0.10	2.42%	2.44%	3.09	47.70	1.27
2022	888	888	0.10	0.10	0.17%	0.76%	3.00	47.70	1.32
2023	908	902	0.10	0.10	1.79%	1.17%	2.93	47.70	1.23
2024	925	919	0.10	0.10	1.53%	1.55%	2.94	47.70	1.26
2025	932	932	0.11	0.11	0.67%	1.28%	2.83	47.70	1.18
2026	991	987	0.11	0.11	5.90%	5.51%	2.84	47.70	1.25
2027	1,011	1,007	0.11	0.11	1.52%	1.53%	2.85	47.70	1.07
2028	1,021	1,021	0.11	0.11	0.07%	0.44%	2.78	47.70	1.37
2029	1,041	1,038	0.12	0.11	1.37%	1.09%	2.79	47.70	1.36
2030	1,055	1,052	0.12	0.12	0.67%	0.67%	2.76	47.70	1.29
2031	1,074	1,074	0.12	0.12	1.20%	1.47%	2.75	47.70	1.28
2032	1,094	1,092	0.12	0.12	1.03%	0.88%	2.73	47.70	1.23
2033	1,118	1,117	0.12	0.12	1.73%	1.73%	2.69	47.70	1.24
2034	1,146	1,146	0.12	0.12	1.64%	1.79%	2.67	47.70	1.21
2035	1,177	1,177	0.12	0.12	1.88%	1.82%	2.67	47.70	1.24
2036	1,209	1,209	0.13	0.13	1.76%	1.76%	2.67	47.70	1.22
2037	1,236	1,236	0.13	0.13	1.54%	1.60%	2.67	47.70	1.22

Table 41: Economic Impact of Alternative Resource Plan GAABB

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	812	812	0.09	0.09	0.00%	0.00%	3.34	47.70	1.43
2019	829	829	0.09	0.09	2.10%	2.10%	3.28	47.70	0.51
2020	865	860	0.10	0.10	4.48%	3.85%	3.27	47.70	0.75
2021	884	879	0.10	0.10	2.48%	2.49%	3.09	47.70	1.26
2022	890	890	0.10	0.10	0.26%	0.85%	3.00	47.70	1.30
2023	910	904	0.10	0.10	1.90%	1.28%	2.93	47.70	1.22
2024	928	923	0.11	0.10	1.69%	1.71%	2.94	47.70	1.25
2025	936	936	0.11	0.11	0.74%	1.34%	2.83	47.70	1.17
2026	993	989	0.11	0.11	5.63%	5.24%	2.84	47.70	1.24
2027	1,011	1,007	0.11	0.11	1.32%	1.33%	2.85	47.70	1.06
2028	1,021	1,021	0.11	0.11	0.11%	0.47%	2.78	47.70	1.35
2029	1,043	1,040	0.12	0.12	1.45%	1.17%	2.79	47.70	1.35
2030	1,057	1,054	0.12	0.12	0.75%	0.76%	2.76	47.70	1.28
2031	1,077	1,077	0.12	0.12	1.28%	1.55%	2.75	47.70	1.27
2032	1,098	1,096	0.12	0.12	1.13%	0.98%	2.73	47.70	0.90
2033	1,157	1,155	0.12	0.12	4.83%	4.83%	2.83	47.70	0.64
2034	1,187	1,187	0.13	0.13	1.81%	1.96%	2.69	47.70	1.28
2035	1,218	1,217	0.13	0.13	1.74%	1.68%	2.69	47.70	1.31
2036	1,249	1,248	0.13	0.13	1.54%	1.55%	2.69	47.70	1.29
2037	1,275	1,275	0.13	0.13	1.52%	1.58%	2.68	47.70	1.29

Table 42: Economic Impact of Alternative Resource Plan GAABC

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	812	812	0.09	0.09	0.00%	0.00%	3.34	47.70	1.43
2019	804	804	0.09	0.09	-0.98%	-0.98%	3.18	47.70	1.16
2020	819	813	0.09	0.09	1.97%	1.32%	3.18	47.70	1.33
2021	840	834	0.10	0.10	2.77%	2.79%	3.11	47.70	1.13
2022	849	849	0.10	0.10	0.78%	1.40%	3.01	47.70	1.17
2023	873	867	0.10	0.10	2.41%	1.76%	2.92	47.70	1.10
2024	894	888	0.10	0.10	2.07%	2.09%	2.94	47.70	1.13
2025	904	904	0.10	0.10	1.01%	1.65%	2.81	47.70	1.06
2026	963	960	0.11	0.11	6.17%	5.77%	2.83	47.70	1.14
2027	984	981	0.11	0.11	1.68%	1.68%	2.84	47.70	0.97
2028	995	995	0.11	0.11	0.21%	0.58%	2.77	47.70	1.24
2029	1,018	1,015	0.11	0.11	1.64%	1.35%	2.78	47.70	1.25
2030	1,033	1,031	0.11	0.11	0.91%	0.91%	2.75	47.70	1.18
2031	1,055	1,055	0.12	0.12	1.43%	1.71%	2.74	47.70	1.17
2032	1,077	1,075	0.12	0.12	1.29%	1.14%	2.73	47.70	1.13
2033	1,105	1,103	0.12	0.12	2.06%	2.06%	2.68	47.70	1.14
2034	1,135	1,135	0.12	0.12	1.89%	2.05%	2.66	47.70	1.11
2035	1,167	1,167	0.12	0.12	2.01%	1.95%	2.66	47.70	1.16
2036	1,200	1,199	0.13	0.13	1.85%	1.85%	2.66	47.70	1.16
2037	1,228	1,228	0.13	0.13	1.67%	1.73%	2.66	47.70	1.16

Table 43: Economic Impact of Alternative Resource Plan GAABD

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	812	812	0.09	0.09	0.00%	0.00%	3.27	47.70	0.46
2019	804	804	0.09	0.09	-0.94%	-0.94%	3.03	47.70	0.59
2020	856	851	0.10	0.10	6.54%	5.89%	3.45	47.70	0.96
2021	897	892	0.10	0.10	5.04%	5.06%	3.09	47.70	1.29
2022	901	901	0.10	0.10	0.08%	0.67%	3.01	47.70	1.33
2023	921	915	0.10	0.10	1.82%	1.20%	2.93	47.70	1.24
2024	939	933	0.11	0.11	1.59%	1.60%	2.94	47.70	1.27
2025	946	946	0.11	0.11	0.68%	1.28%	2.83	47.70	1.20
2026	996	992	0.11	0.11	4.83%	4.45%	2.85	47.70	1.26
2027	1,015	1,011	0.11	0.11	1.42%	1.43%	2.85	47.70	1.08
2028	1,025	1,025	0.11	0.11	0.11%	0.47%	2.79	47.70	1.37
2029	1,046	1,044	0.12	0.12	1.46%	1.18%	2.80	47.70	1.37
2030	1,058	1,055	0.12	0.12	0.44%	0.44%	2.77	47.70	1.30
2031	1,076	1,076	0.12	0.12	1.17%	1.45%	2.76	47.70	1.29
2032	1,096	1,094	0.12	0.12	0.96%	0.81%	2.74	47.70	1.24
2033	1,121	1,119	0.12	0.12	1.76%	1.77%	2.70	47.70	1.24
2034	1,147	1,147	0.12	0.12	1.55%	1.70%	2.68	47.70	1.22
2035	1,176	1,175	0.12	0.12	1.66%	1.60%	2.68	47.70	1.25
2036	1,207	1,207	0.13	0.13	1.69%	1.69%	2.68	47.70	1.22
2037	1,234	1,234	0.13	0.13	1.57%	1.63%	2.68	47.70	1.22

Table 44: Economic Impact of Alternative Resource Plan GAABW

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	812	812	0.09	0.09	0.00%	0.00%	3.31	47.70	0.75
2019	858	858	0.10	0.10	5.67%	5.67%	3.37	47.70	0.38
2020	886	881	0.10	0.10	3.46%	2.86%	3.33	47.70	0.63
2021	901	896	0.10	0.10	1.84%	1.85%	3.07	47.70	1.53
2022	901	901	0.10	0.10	-0.34%	0.24%	2.99	47.70	1.59
2023	917	911	0.10	0.10	1.41%	0.80%	2.92	47.70	1.47
2024	931	926	0.11	0.11	1.21%	1.22%	2.94	47.70	1.44
2025	936	936	0.11	0.11	0.44%	1.04%	2.83	47.70	1.31
2026	992	988	0.11	0.11	5.47%	5.08%	2.85	47.70	1.37
2027	1,010	1,006	0.11	0.11	1.33%	1.33%	2.85	47.70	1.17
2028	1,017	1,017	0.11	0.11	-0.11%	0.25%	2.79	47.70	1.49
2029	1,036	1,033	0.11	0.11	1.16%	0.88%	2.80	47.70	1.48
2030	1,067	1,064	0.12	0.12	2.34%	2.35%	2.77	47.70	1.40
2031	1,084	1,084	0.12	0.12	0.98%	1.25%	2.75	47.70	1.39
2032	1,102	1,100	0.12	0.12	0.85%	0.70%	2.74	47.70	1.34
2033	1,124	1,122	0.12	0.12	1.48%	1.48%	2.69	47.70	1.34
2034	1,149	1,149	0.12	0.12	1.40%	1.55%	2.67	47.70	1.30
2035	1,177	1,176	0.12	0.12	1.60%	1.54%	2.67	47.70	1.34
2036	1,206	1,205	0.13	0.13	1.49%	1.49%	2.67	47.70	1.31
2037	1,230	1,230	0.13	0.13	1.39%	1.45%	2.66	47.70	1.31

Table 45: Economic Impact of Alternative Resource Plan GAACA

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	812	812	0.09	0.09	0.00%	0.00%	3.34	47.70	1.43
2019	803	803	0.09	0.09	-1.01%	-1.01%	3.16	47.70	0.71
2020	864	859	0.10	0.10	7.65%	7.00%	3.39	47.70	0.50
2021	884	879	0.10	0.10	2.39%	2.40%	3.09	47.70	1.27
2022	889	889	0.10	0.10	0.15%	0.74%	3.00	47.70	1.32
2023	908	903	0.10	0.10	1.71%	1.14%	2.92	47.70	1.23
2024	927	922	0.10	0.10	1.61%	1.62%	2.94	47.70	1.25
2025	936	936	0.11	0.11	0.80%	1.36%	2.83	47.70	1.18
2026	993	990	0.11	0.11	5.60%	5.31%	2.84	47.70	1.25
2027	1,012	1,010	0.11	0.11	1.42%	1.42%	2.84	47.70	1.06
2028	1,024	1,024	0.11	0.11	0.24%	0.51%	2.78	47.70	1.37
2029	1,044	1,042	0.11	0.11	1.31%	1.09%	2.79	47.70	1.36
2030	1,058	1,055	0.12	0.12	0.68%	0.68%	2.76	47.70	1.29
2031	1,077	1,077	0.12	0.12	1.26%	1.49%	2.74	47.70	1.28
2032	1,098	1,097	0.12	0.12	1.10%	0.95%	2.73	47.70	1.23
2033	1,125	1,123	0.12	0.12	1.89%	1.89%	2.68	47.70	1.24
2034	1,154	1,154	0.12	0.12	1.79%	1.94%	2.67	47.70	1.21
2035	1,186	1,185	0.13	0.12	1.85%	1.80%	2.67	47.70	1.24
2036	1,218	1,218	0.13	0.13	1.79%	1.79%	2.67	47.70	1.22
2037	1,246	1,246	0.13	0.13	1.60%	1.65%	2.66	47.70	1.22

Table 46: Economic Impact of Alternative Resource Plan GAADA

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	812	812	0.09	0.09	0.00%	0.00%	3.34	47.70	1.43
2019	799	799	0.09	0.09	-1.72%	-1.72%	3.16	47.70	0.69
2020	860	854	0.10	0.10	7.57%	6.92%	3.39	47.70	0.48
2021	879	874	0.10	0.10	2.31%	2.32%	3.09	47.70	1.22
2022	885	885	0.10	0.10	0.15%	0.75%	3.00	47.70	1.26
2023	904	900	0.10	0.10	1.56%	1.13%	2.92	47.70	1.17
2024	923	919	0.10	0.10	1.60%	1.61%	2.93	47.70	1.19
2025	934	934	0.10	0.10	0.95%	1.37%	2.82	47.70	1.13
2026	990	988	0.11	0.11	5.41%	5.19%	2.83	47.70	1.19
2027	1,010	1,007	0.11	0.11	1.33%	1.34%	2.83	47.70	1.02
2028	1,022	1,022	0.11	0.11	0.25%	0.45%	2.77	47.70	1.31
2029	1,043	1,041	0.11	0.11	1.28%	1.11%	2.78	47.70	1.30
2030	1,057	1,055	0.11	0.11	0.70%	0.70%	2.75	47.70	1.23
2031	1,079	1,079	0.12	0.12	1.37%	1.54%	2.74	47.70	1.22
2032	1,100	1,099	0.12	0.12	1.08%	0.97%	2.72	47.70	1.17
2033	1,127	1,126	0.12	0.12	1.82%	1.83%	2.68	47.70	1.17
2034	1,158	1,158	0.12	0.12	1.81%	1.92%	2.66	47.70	1.15
2035	1,189	1,188	0.12	0.12	1.78%	1.74%	2.66	47.70	1.18
2036	1,222	1,221	0.13	0.13	1.74%	1.74%	2.66	47.70	1.15
2037	1,250	1,250	0.13	0.13	1.59%	1.63%	2.66	47.70	1.16

Table 47: Economic Impact of Alternative Resource Plan GAAEA

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	812	812	0.09	0.09	0.00%	0.00%	3.33	47.70	1.06
2019	811	811	0.09	0.09	-0.60%	-0.60%	3.28	47.70	0.50
2020	849	844	0.10	0.10	4.19%	3.55%	3.27	47.70	0.66
2021	870	864	0.10	0.10	2.07%	2.09%	3.09	47.70	1.11
2022	878	878	0.10	0.10	0.15%	0.75%	3.00	47.70	1.14
2023	895	895	0.10	0.10	1.15%	1.15%	2.90	47.70	1.04
2024	917	917	0.10	0.10	1.63%	1.63%	2.91	47.70	1.06
2025	935	935	0.10	0.10	1.39%	1.39%	2.81	47.70	1.03
2026	992	992	0.11	0.11	5.20%	5.20%	2.81	47.70	0.80
2027	1,035	1,035	0.11	0.11	3.39%	3.39%	2.93	47.70	0.54
2028	1,049	1,049	0.11	0.11	0.03%	0.03%	2.77	47.70	1.28
2029	1,068	1,068	0.11	0.11	0.84%	0.84%	2.77	47.70	1.25
2030	1,084	1,084	0.11	0.11	0.60%	0.60%	2.74	47.70	1.17
2031	1,108	1,108	0.11	0.11	1.35%	1.35%	2.73	47.70	1.17
2032	1,128	1,128	0.12	0.12	0.74%	0.74%	2.71	47.70	1.11
2033	1,156	1,156	0.12	0.12	1.64%	1.64%	2.67	47.70	1.11
2034	1,188	1,188	0.12	0.12	1.70%	1.70%	2.65	47.70	1.08
2035	1,220	1,220	0.12	0.12	1.59%	1.59%	2.64	47.70	0.80
2036	1,280	1,280	0.13	0.13	3.66%	3.66%	2.80	47.70	0.57
2037	1,305	1,305	0.13	0.13	1.04%	1.04%	2.67	47.70	1.17

Table 48: Economic Impact of Alternative Resource Plan GAAFA

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	812	812	0.09	0.09	0.00%	0.00%	3.34	47.70	1.43
2019	804	804	0.09	0.09	-0.98%	-0.98%	3.18	47.70	1.16
2020	819	813	0.09	0.09	1.97%	1.32%	3.18	47.70	1.33
2021	840	834	0.10	0.10	2.77%	2.79%	3.11	47.70	1.13
2022	849	849	0.10	0.10	0.78%	1.40%	3.01	47.70	1.17
2023	873	867	0.10	0.10	2.41%	1.76%	2.92	47.70	1.10
2024	894	888	0.10	0.10	2.07%	2.09%	2.94	47.70	1.13
2025	904	904	0.10	0.10	1.01%	1.65%	2.81	47.70	1.06
2026	963	960	0.11	0.11	6.17%	5.77%	2.83	47.70	1.14
2027	984	981	0.11	0.11	1.68%	1.68%	2.84	47.70	0.97
2028	995	995	0.11	0.11	0.21%	0.58%	2.77	47.70	1.24
2029	1,018	1,015	0.11	0.11	1.64%	1.35%	2.78	47.70	1.25
2030	1,033	1,031	0.11	0.11	0.91%	0.91%	2.75	47.70	1.18
2031	1,055	1,055	0.12	0.12	1.43%	1.71%	2.74	47.70	1.17
2032	1,077	1,075	0.12	0.12	1.29%	1.14%	2.73	47.70	1.13
2033	1,105	1,103	0.12	0.12	2.06%	2.06%	2.68	47.70	1.14
2034	1,135	1,135	0.12	0.12	1.89%	2.05%	2.66	47.70	1.11
2035	1,167	1,167	0.12	0.12	2.01%	1.95%	2.66	47.70	1.16
2036	1,200	1,199	0.13	0.13	1.85%	1.85%	2.66	47.70	1.16
2037	1,228	1,228	0.13	0.13	1.67%	1.73%	2.66	47.70	1.16

Table 49: Economic Impact of Alternative Resource Plan GAAFC

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	812	812	0.09	0.09	0.00%	0.00%	3.34	47.70	1.43
2019	799	799	0.09	0.09	-1.69%	-1.69%	3.18	47.70	1.12
2020	814	809	0.09	0.09	1.86%	1.21%	3.18	47.70	1.28
2021	835	830	0.10	0.09	2.67%	2.69%	3.11	47.70	1.08
2022	845	845	0.10	0.10	0.81%	1.44%	3.01	47.70	1.12
2023	868	864	0.10	0.10	2.28%	1.77%	2.91	47.70	1.04
2024	890	886	0.10	0.10	2.07%	2.08%	2.93	47.70	1.08
2025	902	902	0.10	0.10	1.16%	1.66%	2.81	47.70	1.02
2026	962	959	0.11	0.11	6.08%	5.75%	2.83	47.70	1.08
2027	984	981	0.11	0.11	1.75%	1.75%	2.83	47.70	0.93
2028	996	996	0.11	0.11	0.28%	0.59%	2.77	47.70	1.19
2029	1,019	1,016	0.11	0.11	1.52%	1.28%	2.77	47.70	1.19
2030	1,035	1,032	0.11	0.11	0.87%	0.87%	2.75	47.70	1.12
2031	1,057	1,057	0.11	0.11	1.44%	1.67%	2.73	47.70	1.12
2032	1,079	1,078	0.12	0.12	1.21%	1.09%	2.72	47.70	1.07
2033	1,107	1,106	0.12	0.12	1.99%	1.99%	2.67	47.70	1.07
2034	1,138	1,138	0.12	0.12	1.90%	2.02%	2.66	47.70	1.06
2035	1,170	1,170	0.12	0.12	1.94%	1.89%	2.66	47.70	1.10
2036	1,203	1,203	0.12	0.12	1.80%	1.80%	2.66	47.70	1.09
2037	1,232	1,232	0.13	0.13	1.66%	1.71%	2.65	47.70	1.10

Table 50: Economic Impact of Alternative Resource Plan GAAFN

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	812	812	0.09	0.09	0.00%	0.00%	3.31	47.70	0.84
2019	855	855	0.10	0.10	5.22%	5.22%	3.39	47.70	0.46
2020	872	867	0.10	0.10	2.02%	1.42%	3.15	47.70	1.45
2021	894	889	0.10	0.10	2.53%	2.55%	3.09	47.70	1.21
2022	902	902	0.10	0.10	0.50%	1.08%	3.00	47.70	1.26
2023	922	918	0.10	0.10	1.78%	1.30%	2.92	47.70	1.17
2024	943	939	0.11	0.11	1.86%	1.87%	2.93	47.70	1.20
2025	954	954	0.11	0.11	0.96%	1.43%	2.82	47.70	1.13
2026	1,015	1,012	0.11	0.11	5.88%	5.56%	2.84	47.70	1.20
2027	1,036	1,033	0.12	0.12	1.46%	1.47%	2.84	47.70	1.02
2028	1,049	1,049	0.12	0.12	0.24%	0.53%	2.78	47.70	1.30
2029	1,071	1,068	0.12	0.12	1.39%	1.17%	2.78	47.70	1.30
2030	1,088	1,085	0.12	0.12	0.88%	0.88%	2.76	47.70	1.23
2031	1,110	1,110	0.12	0.12	1.37%	1.59%	2.74	47.70	1.22
2032	1,132	1,131	0.12	0.12	1.10%	0.99%	2.73	47.70	1.17
2033	1,160	1,159	0.12	0.12	1.87%	1.88%	2.67	47.70	0.85
2034	1,217	1,217	0.13	0.13	3.94%	4.06%	2.81	47.70	0.60
2035	1,246	1,245	0.13	0.13	1.48%	1.43%	2.68	47.70	1.25
2036	1,279	1,278	0.13	0.13	1.65%	1.65%	2.68	47.70	1.23
2037	1,307	1,307	0.13	0.13	1.52%	1.57%	2.68	47.70	1.23

Table 51: Economic Impact of Alternative Resource Plan GAAGC

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	812	812	0.09	0.09	0.00%	0.00%	3.34	47.70	1.43
2019	799	799	0.09	0.09	-1.69%	-1.69%	3.18	47.70	1.12
2020	814	809	0.09	0.09	1.86%	1.21%	3.18	47.70	1.28
2021	835	830	0.10	0.09	2.67%	2.69%	3.11	47.70	1.08
2022	845	845	0.10	0.10	0.81%	1.44%	3.01	47.70	1.12
2023	868	864	0.10	0.10	2.28%	1.77%	2.91	47.70	1.04
2024	890	886	0.10	0.10	2.07%	2.08%	2.93	47.70	1.08
2025	902	902	0.10	0.10	1.16%	1.66%	2.81	47.70	1.02
2026	962	959	0.11	0.11	6.08%	5.75%	2.83	47.70	1.08
2027	984	981	0.11	0.11	1.75%	1.75%	2.83	47.70	0.93
2028	996	996	0.11	0.11	0.28%	0.59%	2.77	47.70	1.19
2029	1,019	1,016	0.11	0.11	1.52%	1.28%	2.77	47.70	1.19
2030	1,035	1,032	0.11	0.11	0.87%	0.87%	2.75	47.70	1.12
2031	1,057	1,057	0.11	0.11	1.44%	1.67%	2.73	47.70	1.12
2032	1,079	1,078	0.12	0.12	1.21%	1.09%	2.72	47.70	1.07
2033	1,107	1,106	0.12	0.12	1.99%	1.99%	2.67	47.70	1.07
2034	1,138	1,138	0.12	0.12	1.90%	2.02%	2.66	47.70	1.06
2035	1,170	1,170	0.12	0.12	1.94%	1.89%	2.66	47.70	1.10
2036	1,203	1,203	0.12	0.12	1.80%	1.80%	2.66	47.70	1.09
2037	1,232	1,232	0.13	0.13	1.66%	1.71%	2.65	47.70	1.10

Table 52: Economic Impact of Alternative Resource Plan GBCBC

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	812	812	0.09	0.09	0.00%	0.00%	3.34	47.70	1.43
2019	805	805	0.09	0.09	-0.88%	-0.88%	3.18	47.70	1.17
2020	819	814	0.09	0.09	1.94%	1.29%	3.18	47.70	1.33
2021	840	834	0.10	0.10	2.69%	2.70%	3.11	47.70	1.13
2022	849	849	0.10	0.10	0.77%	1.40%	3.01	47.70	1.17
2023	872	867	0.10	0.10	2.41%	1.75%	2.92	47.70	1.10
2024	893	888	0.10	0.10	2.07%	2.08%	2.94	47.70	1.13
2025	903	903	0.10	0.10	1.01%	1.64%	2.81	47.70	1.06
2026	963	959	0.11	0.11	6.17%	5.76%	2.83	47.70	1.14
2027	984	980	0.11	0.11	1.67%	1.68%	2.84	47.70	0.97
2028	995	995	0.11	0.11	0.21%	0.58%	2.77	47.70	1.24
2029	1,018	1,015	0.11	0.11	1.64%	1.35%	2.78	47.70	1.25
2030	1,033	1,030	0.11	0.11	0.91%	0.91%	2.75	47.70	1.18
2031	1,054	1,054	0.12	0.12	1.43%	1.71%	2.74	47.70	1.17
2032	1,077	1,075	0.12	0.12	1.29%	1.14%	2.73	47.70	1.13
2033	1,104	1,103	0.12	0.12	2.06%	2.06%	2.68	47.70	1.14
2034	1,134	1,134	0.12	0.12	1.89%	2.05%	2.66	47.70	1.11
2035	1,167	1,166	0.12	0.12	2.01%	1.95%	2.66	47.70	1.16
2036	1,200	1,199	0.13	0.13	1.85%	1.86%	2.66	47.70	1.16
2037	1,227	1,227	0.13	0.13	1.63%	1.69%	2.66	47.70	1.16

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;

Rule 240.060(3)(A)2 requires the company to study a larger build of renewable resources beyond the current Missouri RPS standard requirement. To meet this requirement and review the potential impact of a proposal to increase RES requirements in Missouri, the company included a plan 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 derate 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-2015-0041, 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-2018-0045		
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 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	0.870566733			
R Square	0.757886436			
Adjusted R Square	0.74991562			
Standard Error	165.6077642			
Observations	252			
ANOVA				
	df	*SS*	*MS*	*F*
Regression	8	20861843.18	2607730.398	95.0826553
Residual	243	6664501.372	27425.93157	
Total	251	27526344.55		
	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	9700.411	33.805	286.956	0.000
CO2	313.001	25.554	12.249	0.000
HGas	149.376	46.068	3.243	0.001
LGas	-128.041	40.404	-3.169	0.002
HLoad	265.045	40.404	6.560	0.000
LLoad	-259.702	40.404	-6.428	0.000
Load/Gas(+)	27.087	49.485	0.547	0.585
Load/Gas(-)	-26.902	49.485	-0.544	0.587
GAS/CO2	-7.902	44.261	-0.179	0.858

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.

A table of the expected value of each performance measure is provided below.

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
GAAFC	9,594	72	19.70	0.108	6.08%	2.86	47.70	1.11
GAAGC	9,598	72	20.35	0.108	6.00%	2.86	47.70	1.12
GBCBC	9,608	72	22.55	0.109	6.17%	2.86	47.70	1.17
GAABC	9,609	72	22.55	0.109	6.17%	2.86	47.70	1.17
GAAFA	9,824	72	19.70	0.110	7.65%	2.87	47.70	1.14
GAABA	9,849	72	22.55	0.112	7.72%	2.88	47.70	1.19
GAADA	9,854	72	17.50	0.110	7.57%	2.87	47.70	1.14
GAACA	9,873	72	20.47	0.111	7.65%	2.88	47.70	1.19
GAABD	9,898	72	22.55	0.112	6.54%	2.88	47.70	1.17
GAABB	9,939	72	22.55	0.113	5.63%	2.89	47.70	1.16
GAAAA	9,954	72	23.76	0.114	7.73%	2.88	47.70	1.30
GAABW	9,955	72	22.55	0.112	5.67%	2.88	47.70	1.27
GAAEA	9,957	72	8.09	0.109	5.20%	2.87	47.70	0.98
GAAFN	10,128	72	19.70	0.114	5.88%	2.88	47.70	1.12

(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.

The standard deviation of each performance measure by plan is detailed in the table below.

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
GAAFC	286	0.25	0.00	0.006	1.26%	0.00	0.00	0.00
GAAGC	285	0.26	0.00	0.006	1.26%	0.00	0.00	0.00
GBCBC	284	0.26	0.00	0.006	1.29%	0.00	0.00	0.00
GAABC	284	0.25	0.00	0.006	1.29%	0.00	0.00	0.00
GAAFA	291	0.26	0.00	0.006	1.24%	0.00	0.00	0.00
GAABA	290	0.25	0.00	0.006	1.28%	0.00	0.00	0.00
GAADA	292	0.26	0.00	0.006	1.23%	0.00	0.00	0.00
GAACA	291	0.25	0.00	0.006	1.27%	0.00	0.00	0.00
GAABD	266	0.25	0.00	0.006	1.24%	0.00	0.00	0.00
GAABB	288	0.25	0.00	0.006	1.34%	0.00	0.00	0.00
GAAAA	288	0.25	0.00	0.006	1.34%	0.00	0.00	0.00
GAABW	276	0.25	0.00	0.006	1.25%	0.00	0.00	0.00
GAAEA	299	0.25	0.00	0.005	1.16%	0.00	0.00	0.00
GAAFN	315	0.26	0.00	0.006	1.34%	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 of each driver 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 price risk.

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

Chart 67: Cumulative Probability - NPVRR

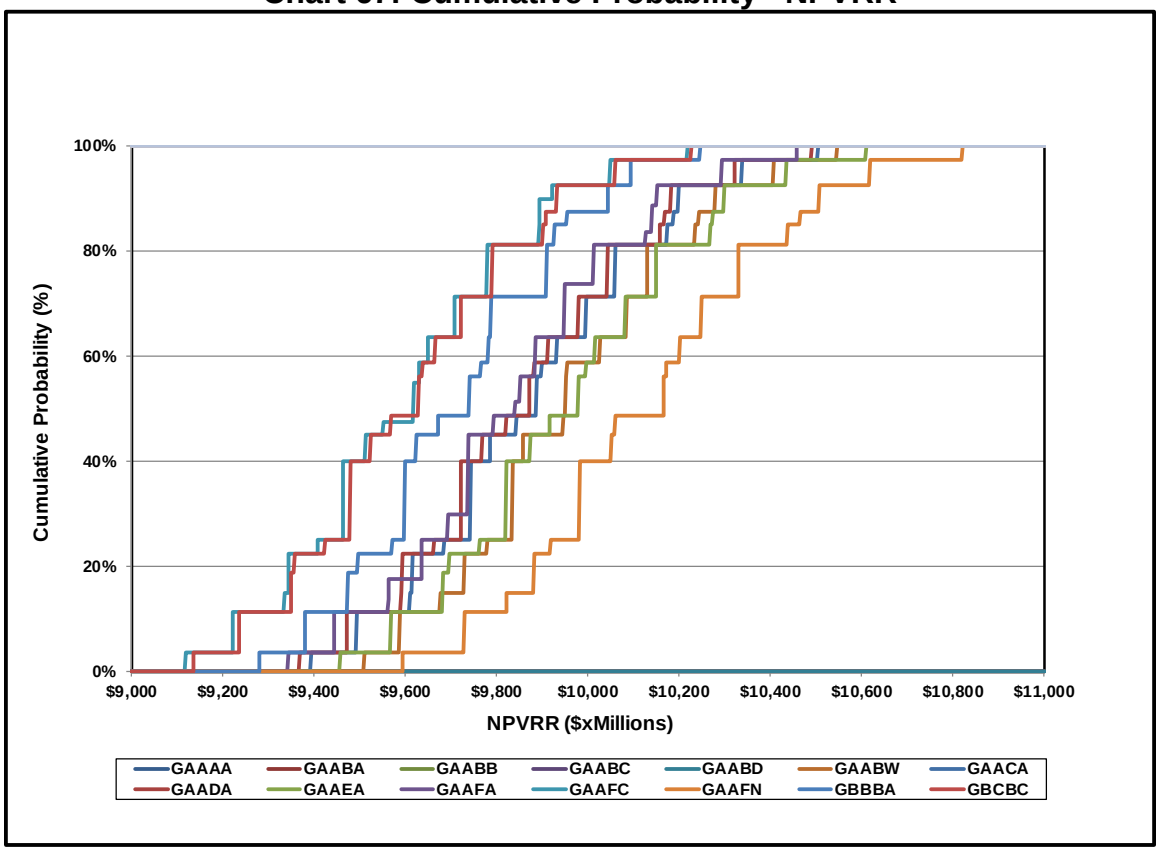


Chart 68: Cumulative Probability - Annual Average Rate

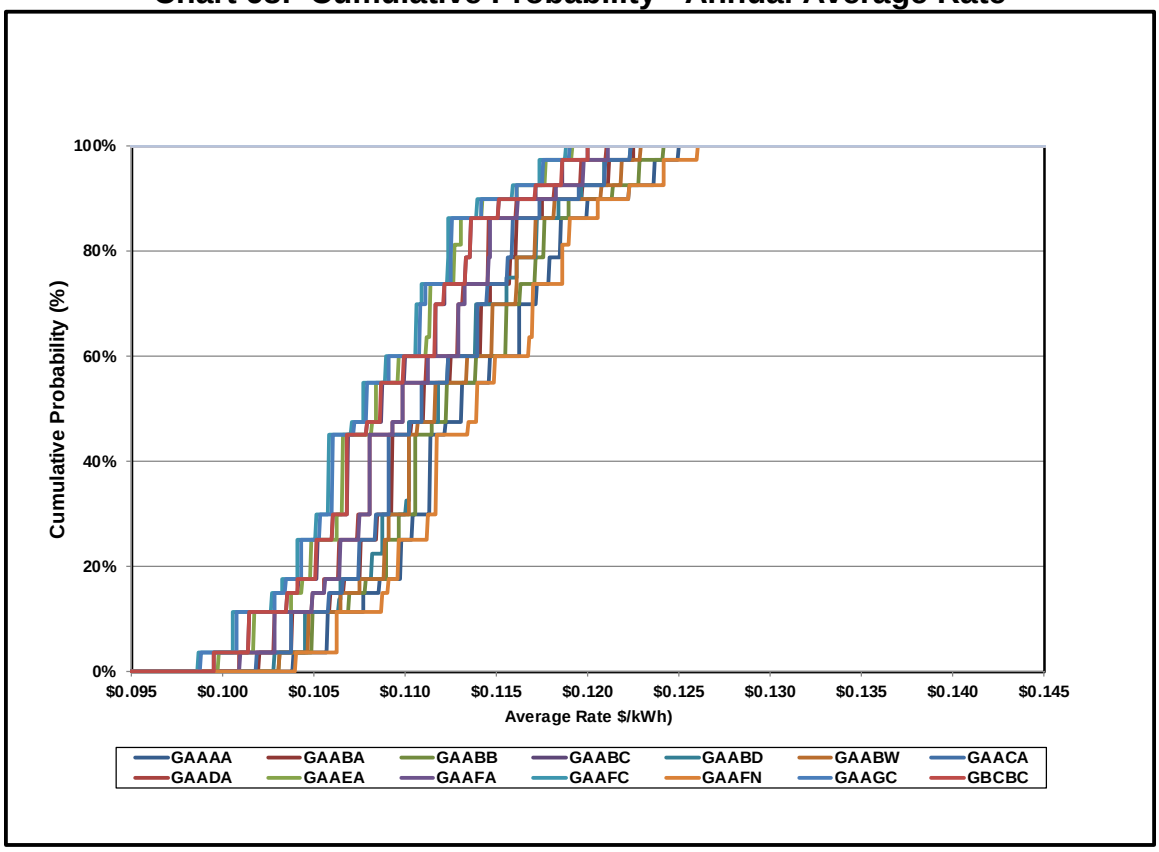
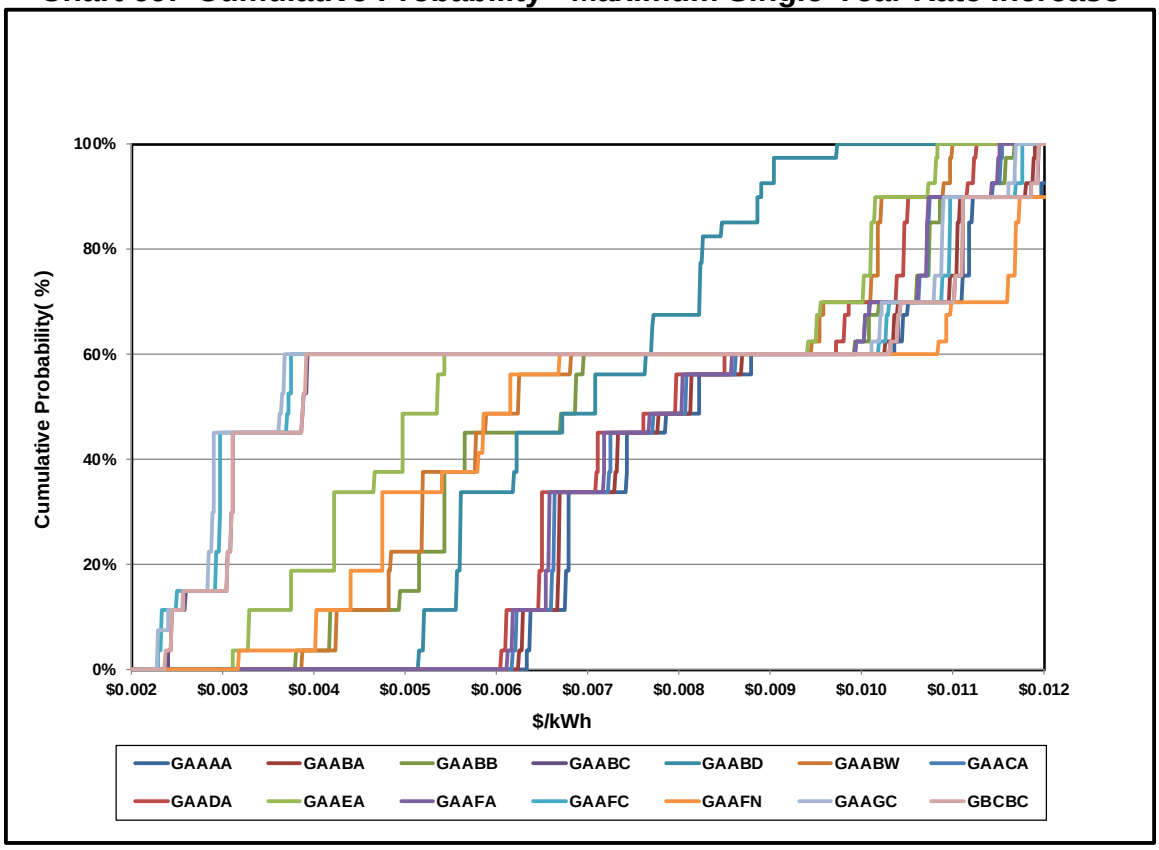


Chart 69: Cumulative Probability - Maximum Single-Year Rate Increase



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
GAAFC	9,594	72	19.70	0.108	6.08%	2.86	47.70	1.11
GAAGC	9,598	72	20.35	0.108	6.00%	2.86	47.70	1.12
GBCBC	9,608	72	22.55	0.109	6.17%	2.86	47.70	1.17
GAABC	9,609	72	22.55	0.109	6.17%	2.86	47.70	1.17
GAAFA	9,824	72	19.70	0.110	7.65%	2.87	47.70	1.14
GAABA	9,849	72	22.55	0.112	7.72%	2.88	47.70	1.19
GAADA	9,854	72	17.50	0.110	7.57%	2.87	47.70	1.14
GAACA	9,873	72	20.47	0.111	7.65%	2.88	47.70	1.19
GAABD	9,898	72	22.55	0.112	6.54%	2.88	47.70	1.17
GAABB	9,939	72	22.55	0.113	5.63%	2.89	47.70	1.16
GAAAA	9,954	72	23.76	0.114	7.73%	2.88	47.70	1.30
GAABW	9,955	72	22.55	0.112	5.67%	2.88	47.70	1.27
GAAEA	9,957	72	8.09	0.109	5.20%	2.87	47.70	0.98
GAAFN	10,128	72	19.70	0.114	5.88%	2.88	47.70	1.12

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
GAAFC	286	0.25	0.00	0.006	1.26%	0.00	0.00	0.00
GAAGC	285	0.26	0.00	0.006	1.26%	0.00	0.00	0.00
GBCBC	284	0.26	0.00	0.006	1.29%	0.00	0.00	0.00
GAABC	284	0.25	0.00	0.006	1.29%	0.00	0.00	0.00
GAAFA	291	0.26	0.00	0.006	1.24%	0.00	0.00	0.00
GAABA	290	0.25	0.00	0.006	1.28%	0.00	0.00	0.00
GAADA	292	0.26	0.00	0.006	1.23%	0.00	0.00	0.00
GAACA	291	0.25	0.00	0.006	1.27%	0.00	0.00	0.00
GAABD	266	0.25	0.00	0.006	1.24%	0.00	0.00	0.00
GAABB	288	0.25	0.00	0.006	1.34%	0.00	0.00	0.00
GAAAA	288	0.25	0.00	0.006	1.34%	0.00	0.00	0.00
GAABW	276	0.25	0.00	0.006	1.25%	0.00	0.00	0.00
GAAEA	299	0.25	0.00	0.005	1.16%	0.00	0.00	0.00
GAAFN	315	0.26	0.00	0.006	1.34%	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.