

Chapter 9 - Appendix A

Alternative Resource Plans

Table 9A.1 RES Compliance Plan 2026-2028¹

TERM 1											
	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	
MW's Installed New Solar	0	0	425	400	0	0	0	300	0	0	1,125
MW's Installed New Wind	0	0	0	0	0	0	0	0	0	0	0
Revenue Requirement-1% Rate Cap limit	\$3,604	\$3,830	\$4,270	\$5,368	\$6,085	\$6,697	\$7,138	\$7,964	\$8,362	\$9,023	\$62,342
% Increase											0.7%
TERM 2											
	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	
MW's Installed New Solar	0	0	250	0	250	0	0	0	0	100	600
MW's Installed New Wind	0	0	0	0	0	0	0	0	0	0	0
Revenue Requirement-1% Rate Cap limit	\$9,327	\$9,573	\$10,690	\$11,125	\$11,293	\$14,808	\$14,783	\$14,812	\$15,511	\$15,523	\$127,443
% Increase											49.5%
Total MW											1,725

Table 9A.2 Type, Size, Timing of Resource Addition/Retirement (Summer)²

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¹ As filed with the Missouri Public Commission in April 2026² 20 CSR 4240-22.060(4)(B)9

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Table 9A.3 Type, Size, Timing of Resource Addition/Retirement (Winter)

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Table 9A.4 Uncertainty Ranges³

ESTIMATE CLASS	Primary Characteristic	Secondary Characteristic			
	LEVEL OF PROJECT DEFINITION Expressed as % of complete definition	END USAGE Typical purpose of estimate	METHODOLOGY Typical estimating method	EXPECTED ACCURACY RANGE Typical variation in low and high ranges [a]	PREPARATION EFFORT Typical degree of effort relative to least cost index of 1 [b]
Class 5	0% to 2%	Concept Screening	Capacity Factored, Parametric Models, Judgment, or Analogy	L: -20% to -50% H: +30% to +100%	1
Class 4	1% to 15%	Study or Feasibility	Equipment Factored or Parametric Models	L: -15% to -30% H: +20% to +50%	2 to 4
Class 3	10% to 40%	Budget, Authorization, or Control	Semi-Detailed Unit Costs with Assembly Level Line Items	L: -10% to -20% H: +10% to +30%	3 to 10
Class 2	30% to 70%	Control or Bid/Tender	Detailed Unit Cost with Forced Detailed Take-Off	L: -5% to -15% H: +5% to +20%	4 to 20
Class 1	50% to 100%	Check Estimate or Bid/Tender	Detailed Unit Cost with Detailed Take-Off	L: -3% to -10% H: +3% to +15%	5 to 100

Notes:

[a] The state of process technology and availability of applicable reference cost data affect the range markedly. The +/- value represents typical percentage variation of actual costs from the cost estimate after application of contingency (typically at a 50% level of confidence) for given scope.

[b] If the range index value of "1" represents 0.005% of project costs, then an index value of 100 represents 0.5%. Estimate preparation effort is highly dependent upon the size of the project and the quality of estimating data and tools.

Ameren Missouri used the project cost uncertainty grid above to establish the transmission upgrades needed after retirement of energy centers and new resource additions. Subject matter experts determined Class 5 was appropriate for this purpose.

³ 20 CSR 4240-22.060(7)(C)1A; 20 CSR 4240-22.060(7)(C)1B

Table 9A.5 Sensitivity Analysis: *Change in PVRR Ranking*⁴

Plan	Integration Ranking	DSM Load Impact & Cost			ROE-Interest Rate			Project Cost			Project Schedule			Fixed and Variable O&M		
		PWA	Low	High	PWA	Low	High	PWA	Low	High	PWA	Low	High	PWA	Low	High
A-No LL, Sx31, Lb36-42, EE LTR-DR RAP	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B-Base LL, Sx35, Lb42-42, EE MEEIA 4-DR MEEIA 4, RES Compliance Only	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C-Base LL, Sx35, Lb42-42, EE LTR-DR RAP, RES Compliance Only	13	0	1	0	0	1	-1	0	2	-1	0	0	-1	0	2	-1
D-Base LL, Sx35, Lb42-42, EE MAP-DR MAP, RES Compliance Only	8	0	0	0	0	0	0	0	0	-2	0	0	-1	0	0	0
E-Low LL, Sx35, Lb42-42, EE LTR-DR RAP, RES Compliance Only	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
F-High LL, Sx35, Lb42-42, EE LTR-DR RAP, RES Compliance Only	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
G-Base LL, Sx31, Lb36-42, EE LTR-DR RAP	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H-Base LL, Sx35, Lb36-42, EE LTR-DR RAP	16	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0
I-Base LL, Sx31, Lb42-42, EE LTR-DR RAP	12	0	0	0	0	0	1	0	0	1	0	0	1	0	0	1
J-Base LL, Sx35, Lb36-36, EE LTR-DR RAP	21	0	0	0	0	0	0	0	1	0	0	-1	0	0	0	0
K-Base LL, Sx35, Lb42-42-Cofire, EE LTR-DR RAP	17	0	0	0	0	0	0	0	0	-1	0	0	-1	0	0	0
L-Base LL, Sx35, Lb42-42-FGD-SCR, EE LTR-DR RAP	20	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
M-Base LL, Sx35, Lb42-42, EE LTR-DR RAP	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N-Low LL, Sx35, Lb42-42, EE LTR-DR RAP	3	0	0	0	0	0	0	0	-1	0	0	0	0	0	0	0
O-High LL, Sx35, Lb42-42, EE LTR-DR RAP	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P-Base LL, Sx35, Lb42-42, EE LTR-DR RAP, Pumped Storage	22	0	0	0	0	0	0	0	-1	0	0	0	0	0	0	0
Q-Base LL, Sx35, Lb42-42, EE LTR-DR RAP, No New Nuke	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R-Base LL, Sx35, Lb42-42, EE RAP-DR RAP	7	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0
S-Base LL, Sx35, Lb42-42, EE MAP-DR MAP	6	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
T-Base LL, Sx35, Lb42-42, EE LTR25%-DR RAP	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
U-Base LL, Sx35, Lb42-42, EE LTR-DR MAP	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
V-Base LL, Sx35, Lb42-42, EE MEEIA 4-DR MEEIA 4	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
W-Base LL, Sx35, Lb42-42, EE MEEIA 4-DR RAP	14	0	-1	0	0	-1	0	0	-1	0	0	0	0	0	-1	0
X-Base LL, Sx35, Lb42-42, EE MEEIA 4-DR MAP	15	0	0	0	0	0	0	0	-1	0	0	0	0	0	-1	0
Y-Base to Low LL, Sx35, Lb42-42, EE LTR-DR RAP	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Z-High to Base LL, Sx35, Lb42-42, EE LTR-DR RAP	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

⁴ 20 CSR 4240-22.060(6)

Table 9A.6 Sensitivity Analysis: *Change in PVRR*⁵

Plan	Integration PVRR (\$Million)	DSM Load Impact & Cost			ROE-Interest Rate			Project Cost			Project Schedule			Fixed and Variable O&M		
		PWA	Low	High	PWA	Low	High	PWA	Low	High	PWA	Low	High	PWA	Low	High
A-No LL, Sx31, Lb36-42, EE LTR-DR RAP	98,520	0	106	(102)	(6)	(910)	846	166	(3,470)	5,130	47	(767)	1,241	(2)	(551)	535
B-Base LL, Sx35, Lb42-42, EE MEEIA 4-DR MEEIA 4, RES Compliance Only	145,220	1	9	(4)	(9)	(1,412)	1,321	494	(6,556)	11,494	53	(1,624)	2,156	(1)	(1,258)	1,244
C-Base LL, Sx35, Lb42-42, EE LTR-DR RAP, RES Compliance Only	141,422	0	106	(102)	(9)	(1,321)	1,235	438	(5,952)	10,332	47	(1,378)	1,846	(1)	(1,131)	1,121
D-Base LL, Sx35, Lb42-42, EE MAP-DR MAP, RES Compliance Only	139,373	29	423	(131)	(8)	(1,289)	1,204	430	(5,722)	10,021	42	(1,292)	1,713	(1)	(1,110)	1,102
E-Low LL, Sx35, Lb42-42, EE LTR-DR RAP, RES Compliance Only	125,605	0	106	(102)	(8)	(1,145)	1,068	358	(4,676)	8,253	26	(925)	1,189	0	(761)	762
F-High LL, Sx35, Lb42-42, EE LTR-DR RAP, RES Compliance Only	161,676	0	106	(102)	(10)	(1,576)	1,475	571	(7,799)	13,504	74	(2,023)	2,761	(2)	(1,592)	1,573
G-Base LL, Sx31, Lb36-42, EE LTR-DR RAP	142,318	0	106	(102)	(9)	(1,409)	1,317	472	(6,288)	11,006	71	(1,476)	2,184	(1)	(1,278)	1,269
H-Base LL, Sx35, Lb36-42, EE LTR-DR RAP	141,919	0	106	(102)	(9)	(1,400)	1,308	466	(6,222)	10,882	70	(1,451)	2,153	(1)	(1,268)	1,257
I-Base LL, Sx31, Lb42-42, EE LTR-DR RAP	141,373	0	106	(102)	(9)	(1,386)	1,295	461	(6,141)	10,754	69	(1,411)	2,104	(1)	(1,253)	1,244
J-Base LL, Sx35, Lb36-36, EE LTR-DR RAP	142,852	0	106	(102)	(9)	(1,406)	1,314	466	(6,284)	10,947	72	(1,496)	2,215	(1)	(1,275)	1,265
K-Base LL, Sx35, Lb42-42-Cofire, EE LTR-DR RAP	141,997	0	106	(102)	(9)	(1,383)	1,292	460	(6,123)	10,718	69	(1,386)	2,073	(1)	(1,243)	1,232
L-Base LL, Sx35, Lb42-42-FGD-SCR, EE LTR-DR RAP	142,743	0	106	(102)	(9)	(1,394)	1,303	452	(6,395)	10,916	69	(1,386)	2,073	(1)	(1,243)	1,232
M-Base LL, Sx35, Lb42-42, EE LTR-DR RAP	140,974	0	106	(102)	(9)	(1,378)	1,287	456	(6,075)	10,630	69	(1,386)	2,073	(1)	(1,243)	1,232
N-Low LL, Sx35, Lb42-42, EE LTR-DR RAP	125,811	0	106	(102)	(8)	(1,230)	1,147	382	(5,044)	8,869	59	(963)	1,553	0	(922)	923
O-High LL, Sx35, Lb42-42, EE LTR-DR RAP	159,299	0	106	(102)	(10)	(1,578)	1,476	543	(7,585)	13,013	91	(1,903)	2,815	(2)	(1,574)	1,559
P-Base LL, Sx35, Lb42-42, EE LTR-DR RAP, Pumped Storage	143,140	0	106	(102)	(9)	(1,439)	1,346	533	(6,756)	12,085	75	(1,515)	2,266	(1)	(1,255)	1,246
Q-Base LL, Sx35, Lb42-42, EE LTR-DR RAP, No New Nuke	134,341	0	106	(102)	(8)	(1,210)	1,129	388	(4,157)	8,033	33	(1,089)	1,423	2	(1,158)	1,176
R-Base LL, Sx35, Lb42-42, EE RAP-DR RAP	139,187	15	329	(180)	(9)	(1,358)	1,268	450	(5,941)	10,445	67	(1,327)	1,994	(1)	(1,233)	1,225
S-Base LL, Sx35, Lb42-42, EE MAP-DR MAP	139,083	29	423	(131)	(9)	(1,353)	1,264	449	(5,919)	10,413	66	(1,319)	1,983	(1)	(1,232)	1,224
T-Base LL, Sx35, Lb42-42, EE LTR25%-DR RAP	140,636	5	171	(125)	(9)	(1,377)	1,286	456	(6,075)	10,630	69	(1,386)	2,073	(1)	(1,243)	1,232
U-Base LL, Sx35, Lb42-42, EE LTR-DR MAP	141,029	1	105	(96)	(9)	(1,377)	1,287	456	(6,075)	10,630	69	(1,386)	2,073	(1)	(1,243)	1,232
V-Base LL, Sx35, Lb42-42, EE MEEIA 4-DR MEEIA 4	142,542	1	9	(4)	(9)	(1,412)	1,319	465	(6,311)	10,963	72	(1,479)	2,199	(1)	(1,257)	1,247
W-Base LL, Sx35, Lb42-42, EE MEEIA 4-DR RAP	141,479	(7)	(0)	(68)	(9)	(1,384)	1,293	456	(6,119)	10,683	69	(1,408)	2,103	(1)	(1,246)	1,236
X-Base LL, Sx35, Lb42-42, EE MEEIA 4-DR MAP	141,535	(6)	(1)	(60)	(9)	(1,384)	1,293	456	(6,119)	10,683	69	(1,408)	2,103	(1)	(1,246)	1,236
Y-Base to Low LL, Sx35, Lb42-42, EE LTR-DR RAP	129,937	0	106	(102)	(9)	(1,299)	1,213	431	(5,540)	9,852	62	(1,157)	1,775	(1)	(1,111)	1,104
Z-High to Base LL, Sx35, Lb42-42, EE LTR-DR RAP	145,416	0	106	(102)	(9)	(1,440)	1,345	486	(6,595)	11,455	76	(1,540)	2,301	(1)	(1,300)	1,293

⁵ 20 CSR 4240-22.060(6)

Table 9A.7 DSM Participant Costs (\$1000s)⁶

DSM Program	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046
RAP EE	20,585	25,226	27,402	29,906	31,542	34,717	36,378	37,987	38,532	38,673	39,539	39,660	38,854	36,582	34,076	45,279	45,568	49,111	45,203	44,133
MAP EE	0	0	0	102	109	417	635	685	782	1,049	4,261	4,998	5,958	6,043	5,966	17,843	18,888	17,807	18,532	18,523
LTR EE	5,076	5,933	6,479	6,777	6,841	7,013	6,762	6,459	6,203	5,941	6,547	6,514	6,509	6,167	6,270	11,268	11,629	12,112	12,144	11,740
LTR 25% EE	10,196	12,133	12,939	13,604	13,887	14,638	14,710	14,892	14,800	14,668	15,200	15,273	15,045	14,251	13,618	20,221	20,635	22,324	20,678	20,003
RAP DR	111	257	413	275	100	33	15	11	9	10	10	10	10	10	11	10	11	11	11	12
MAP DR	196	454	730	487	177	58	26	18	17	17	17	17	18	18	18	19	19	20	20	21

⁶ 20 CSR 4240-22.060(2)(A)3

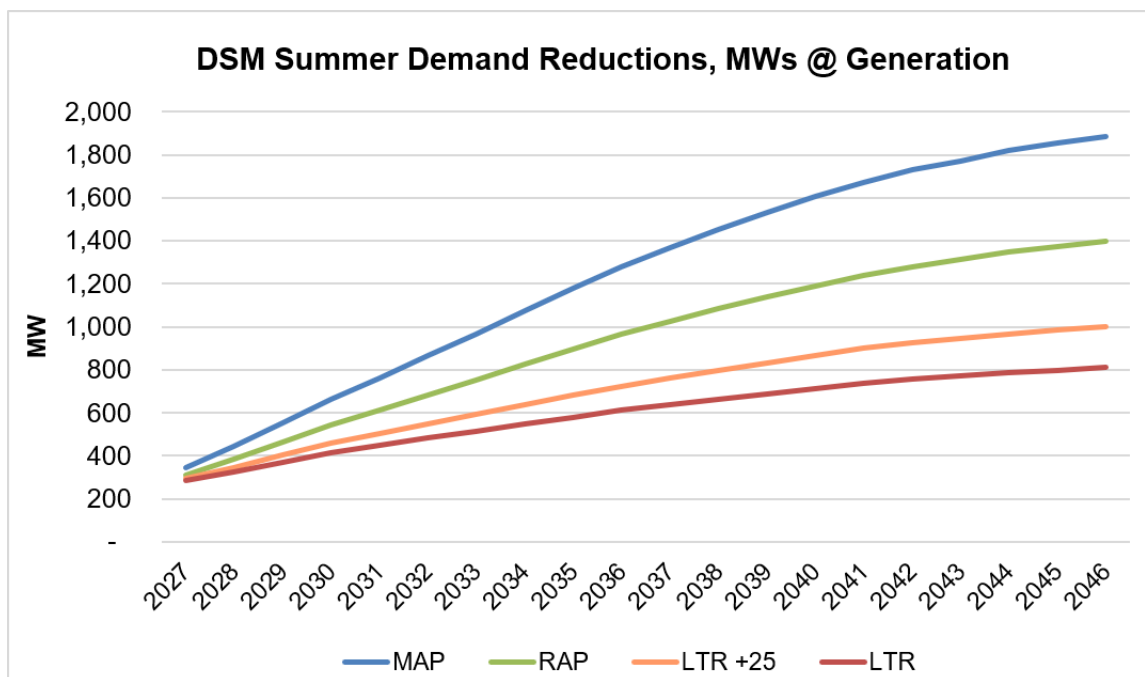
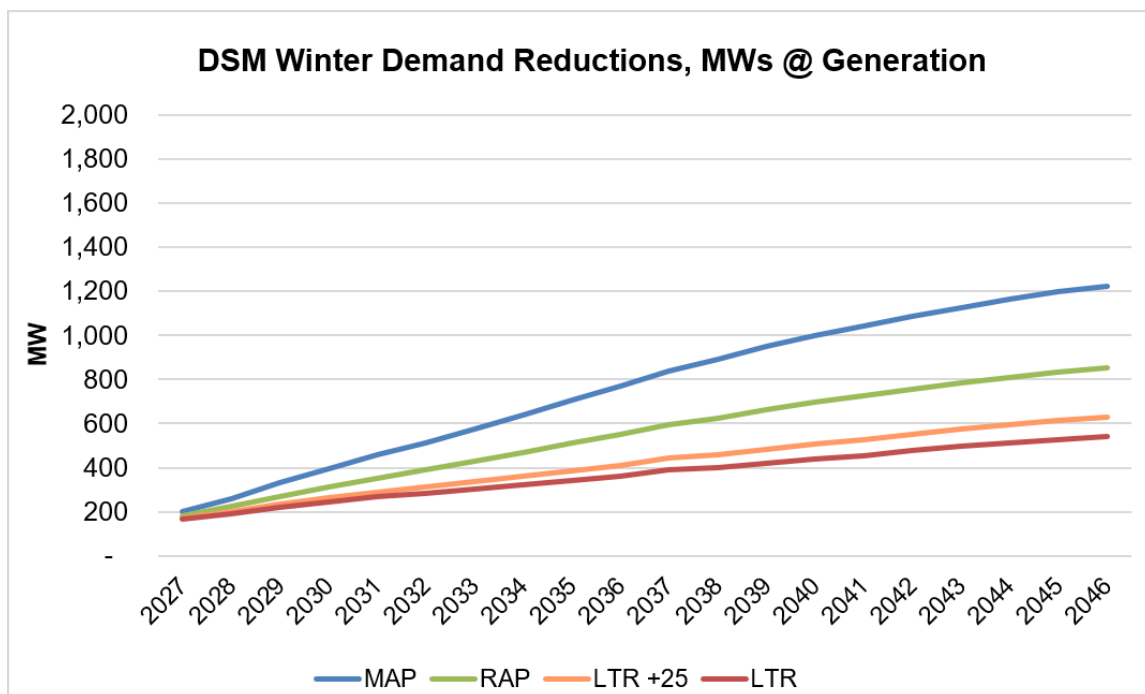
Figure 9A.1 Combined Impact of DSM on Summer Peak Demand⁷Figure 9A.2 Combined Impact of DSM on Winter Peak Demand⁸⁷ 20 CSR 4240-22.060(4)(B)1⁸ 20 CSR 4240-22.060(4)(B)1

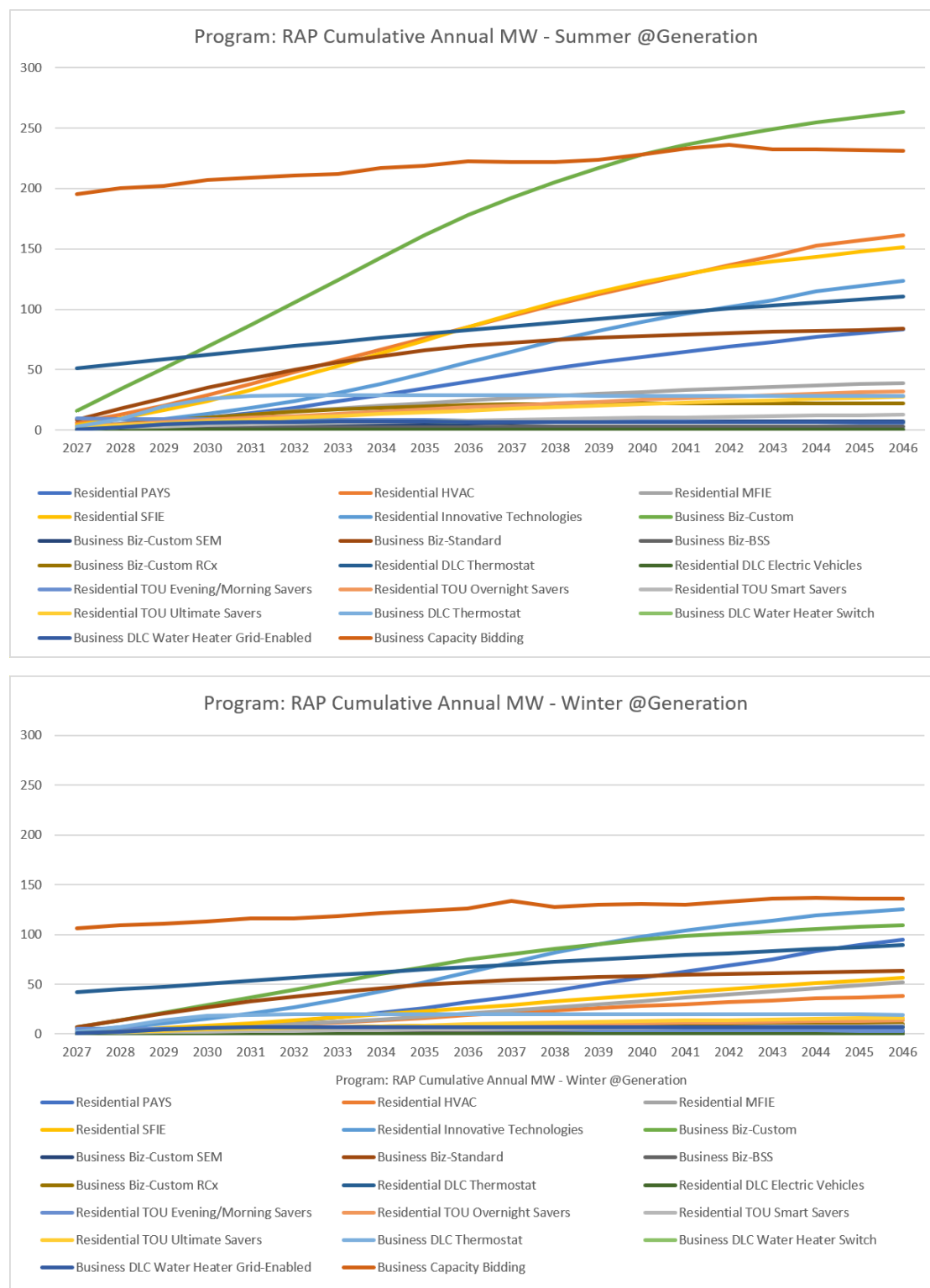
Figure 9A.3 Stacked Programs for RAP DSM Capacity⁹⁹ 20 CSR 4240-22.060(4)(B)2

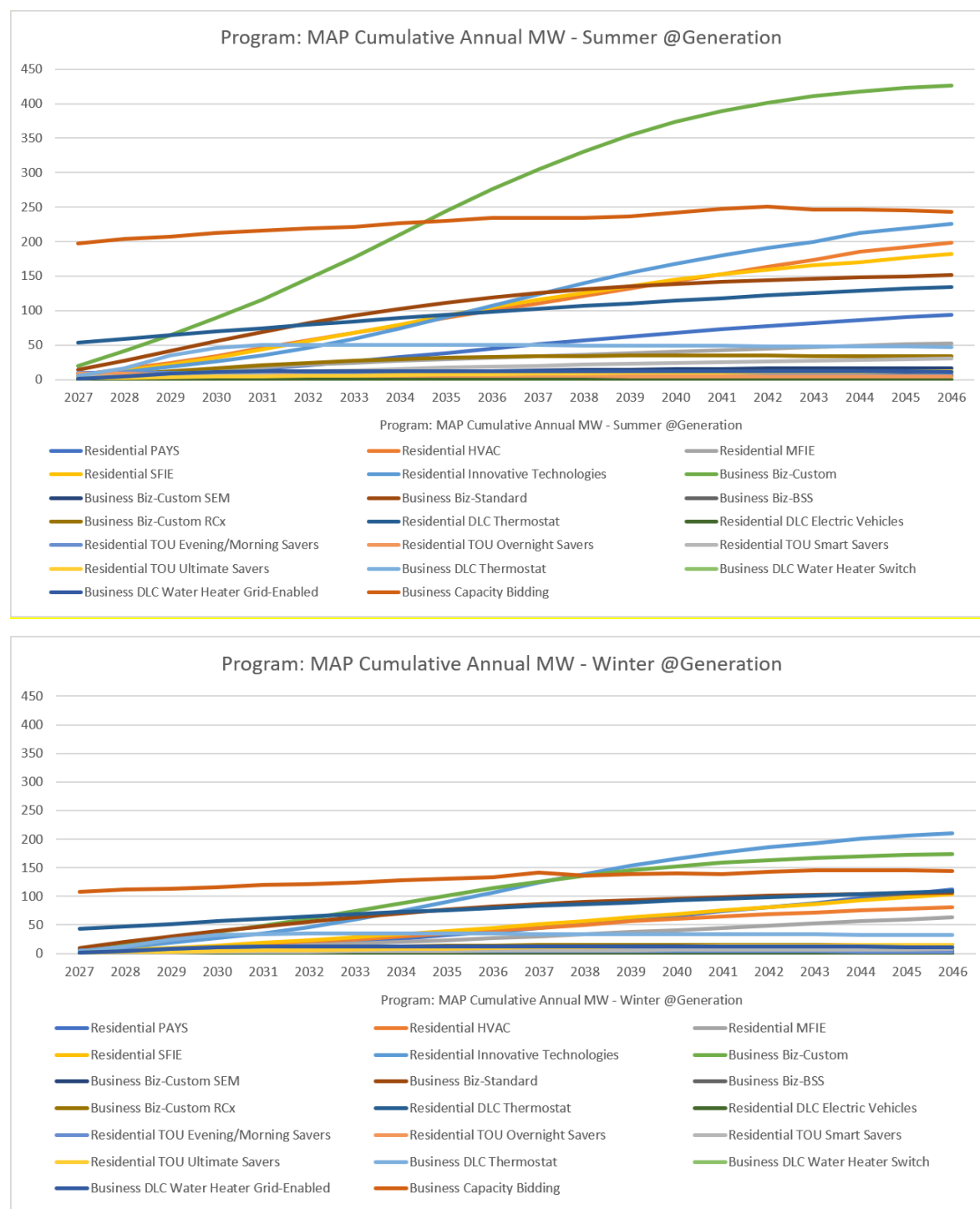
Figure 9A.4 Stacked Programs for MAP DSM Capacity¹⁰¹⁰ 20 CSR 4240-22.060(4)(B)2

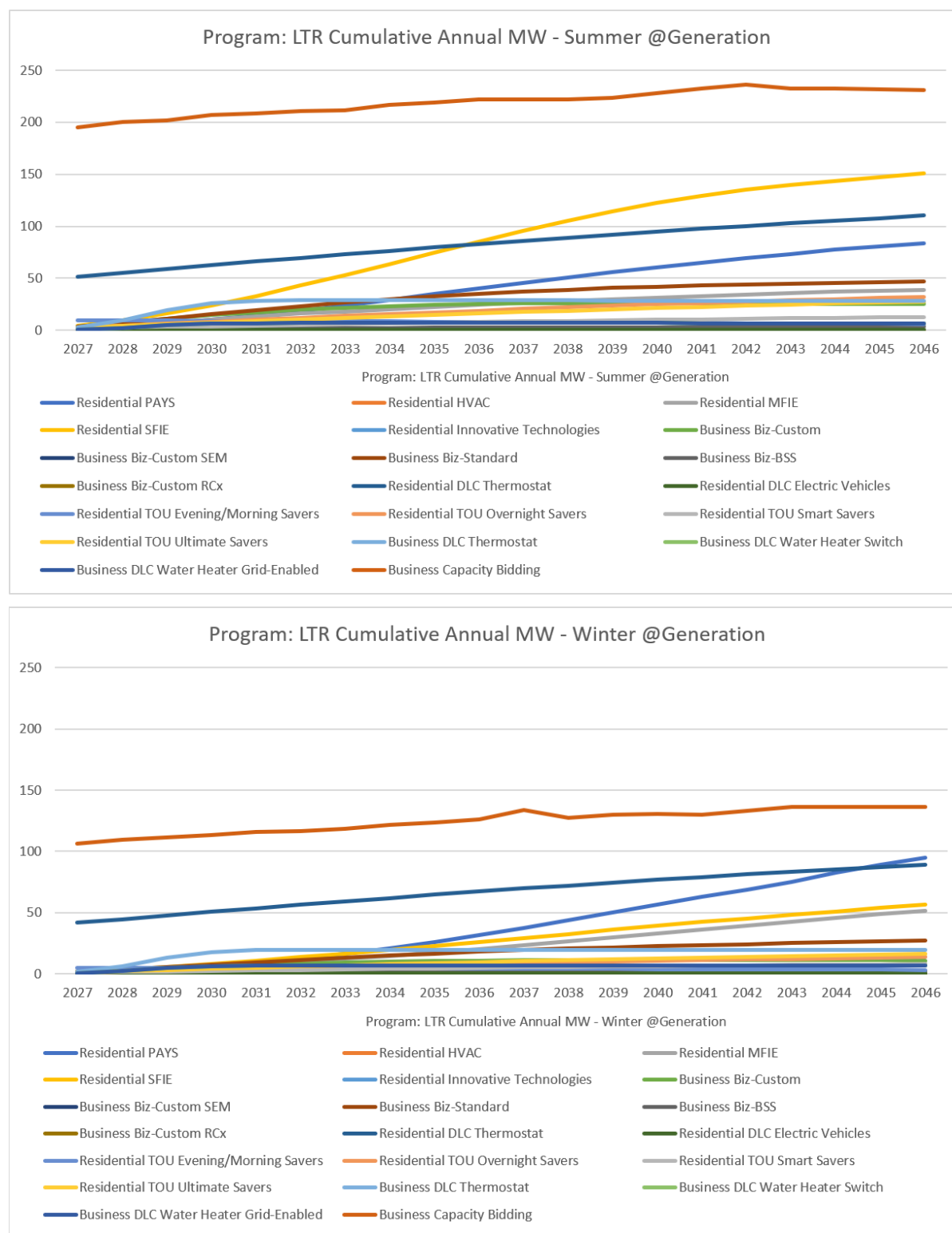
Figure 9A.5 Stacked Programs for LTR DSM Capacity¹¹¹¹ 20 CSR 4240-22.060(4)(B)2

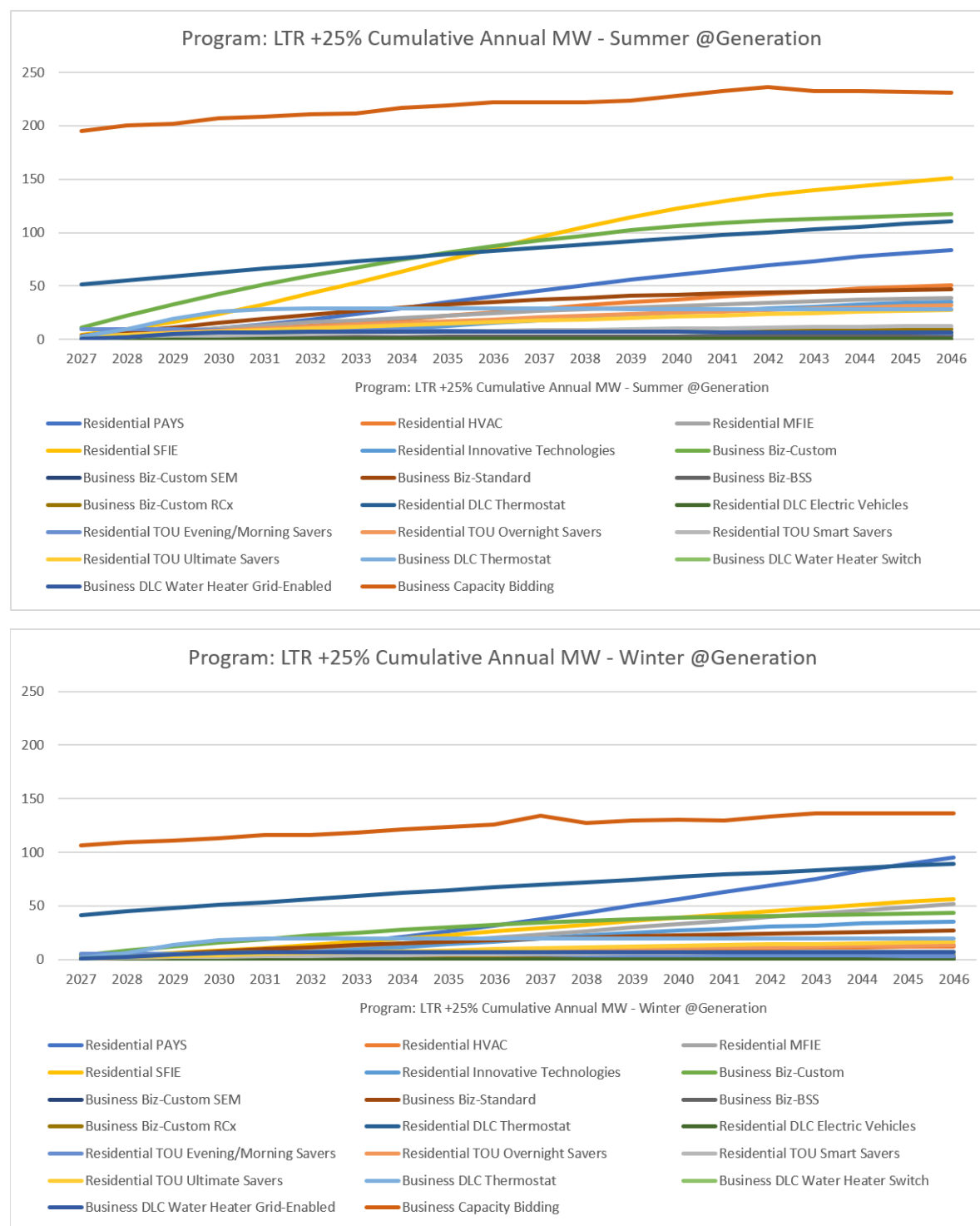
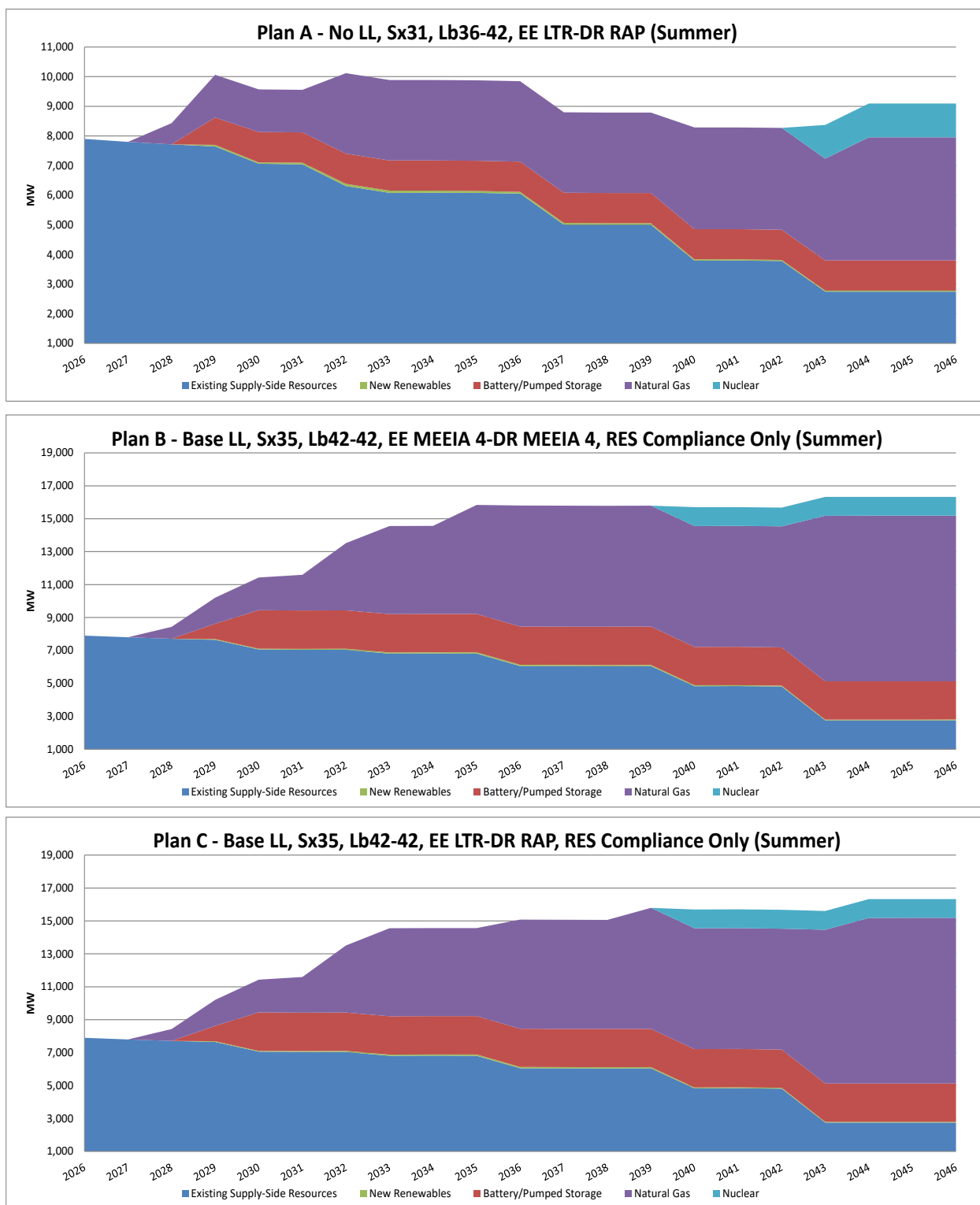
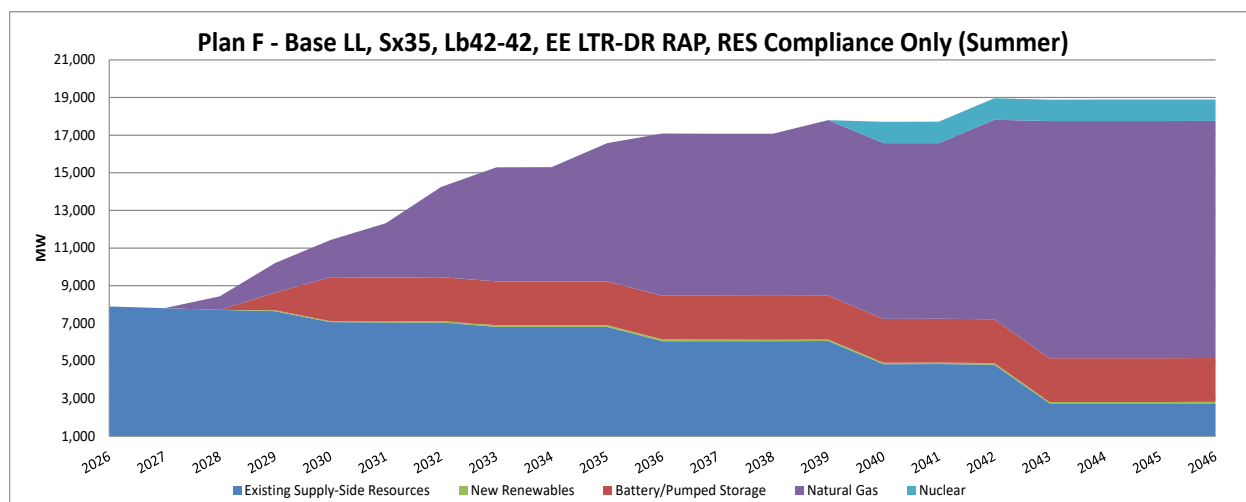
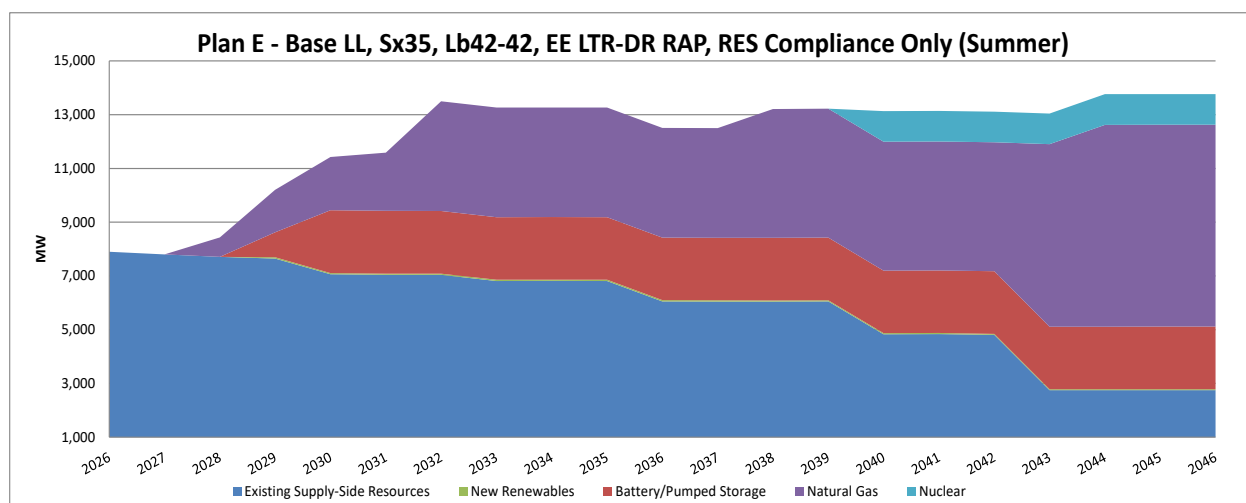
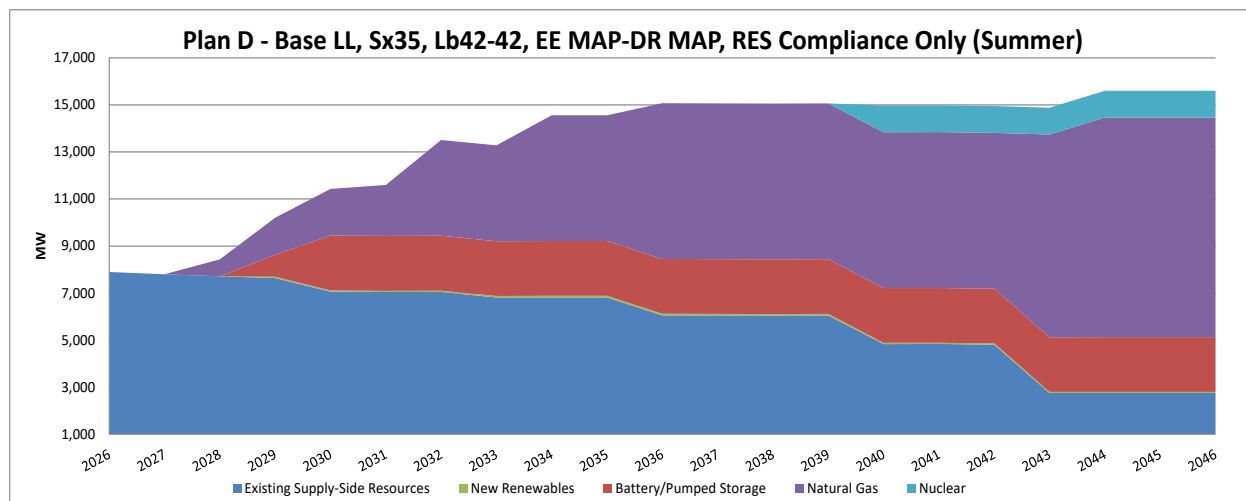
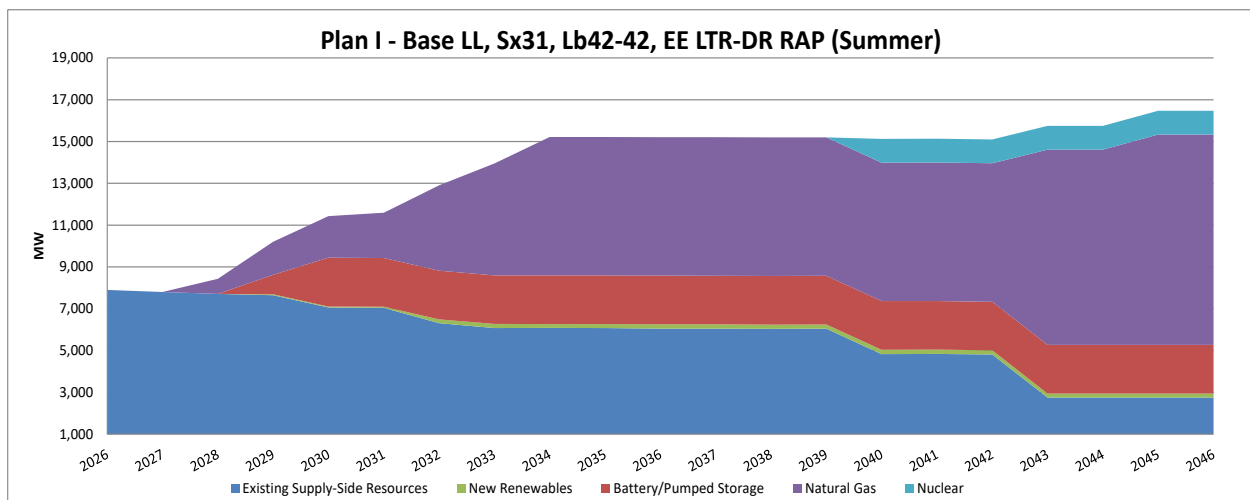
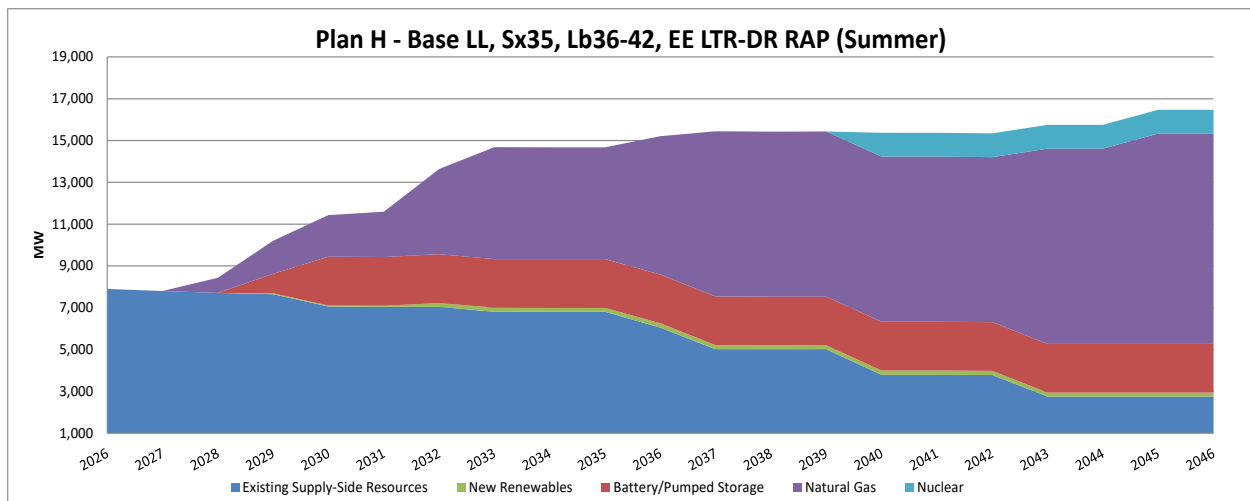
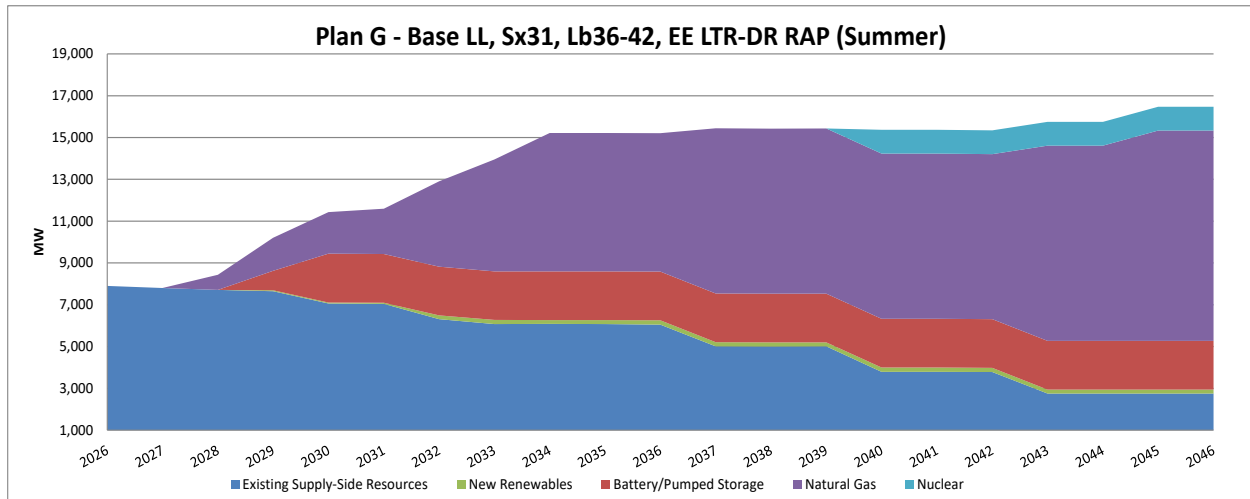
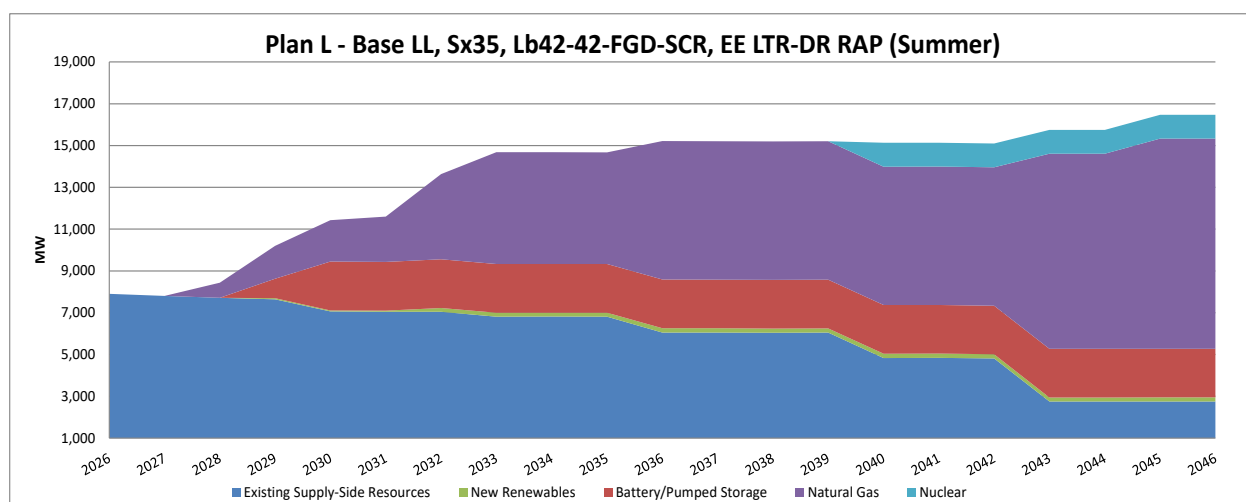
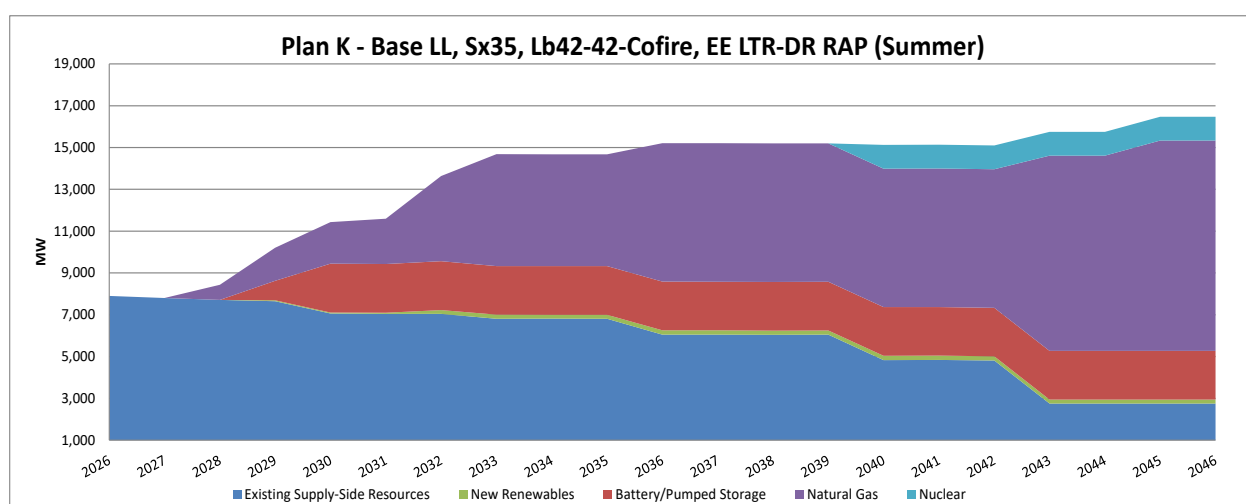
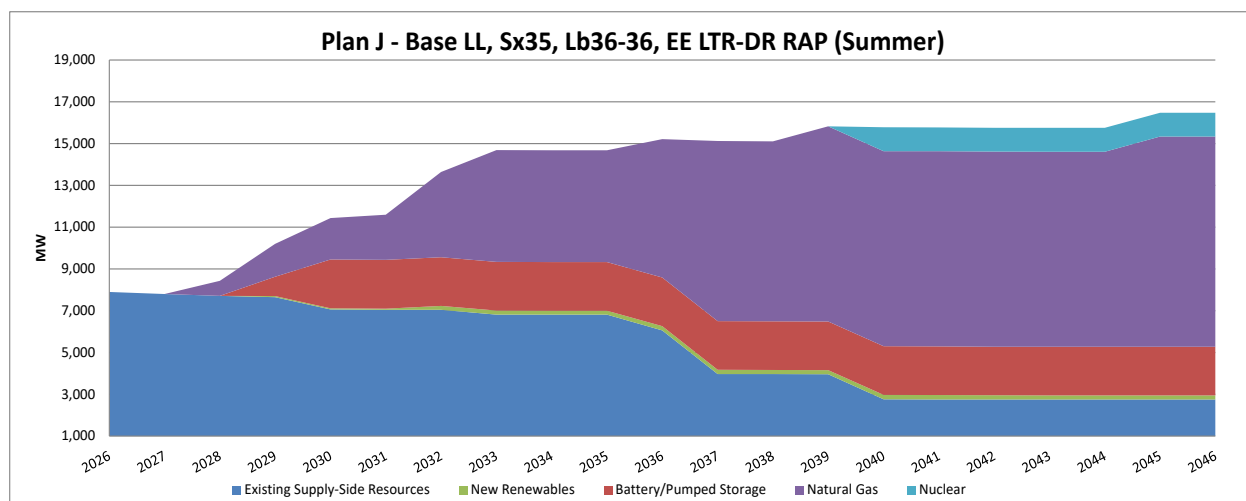
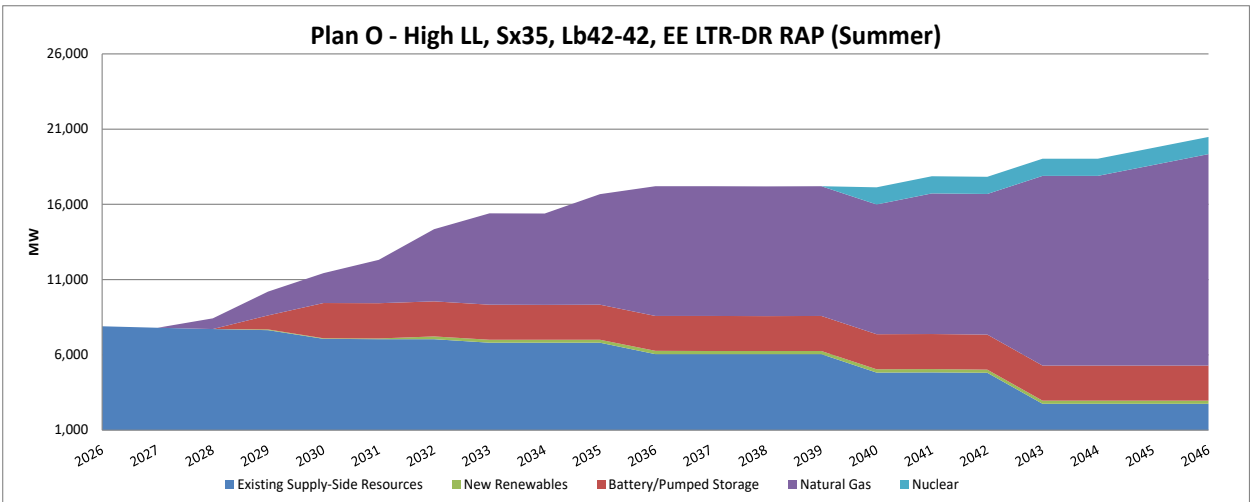
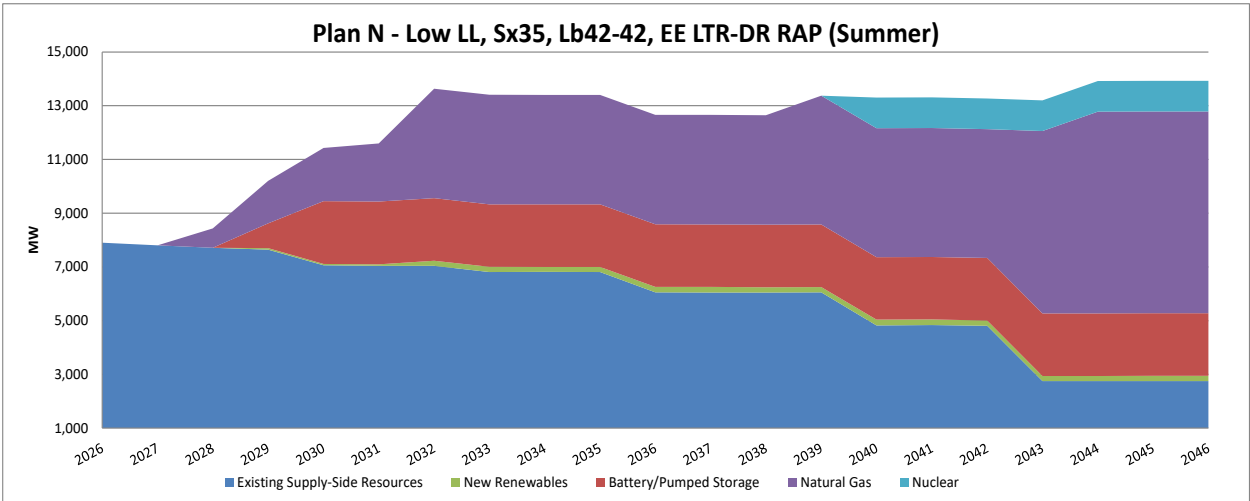
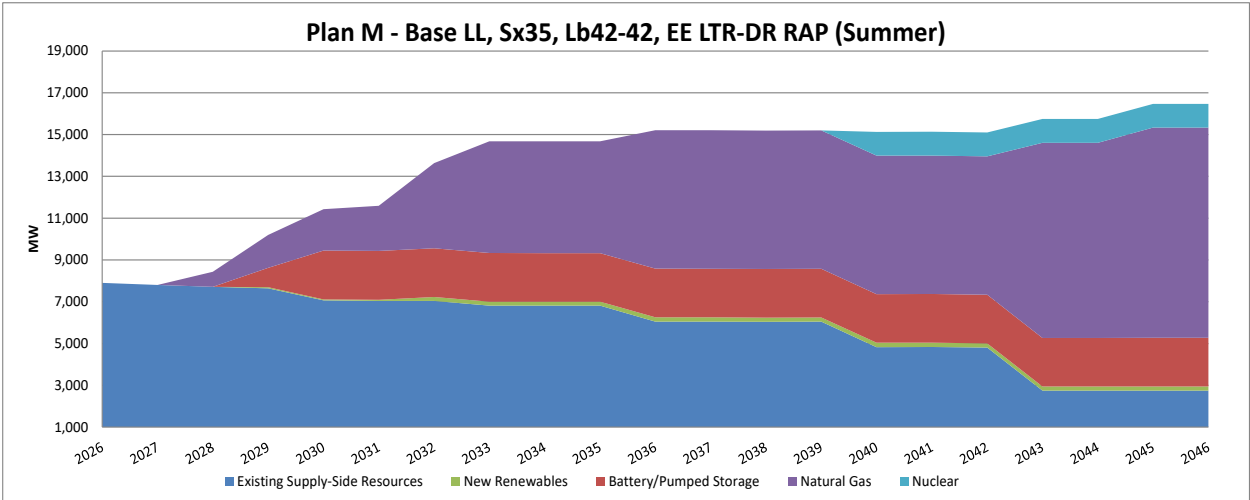
Figure 9A.6 Stacked Programs for LTR 25% DSM Capacity¹²¹² 20 CSR 4240-22.060(4)(B)2

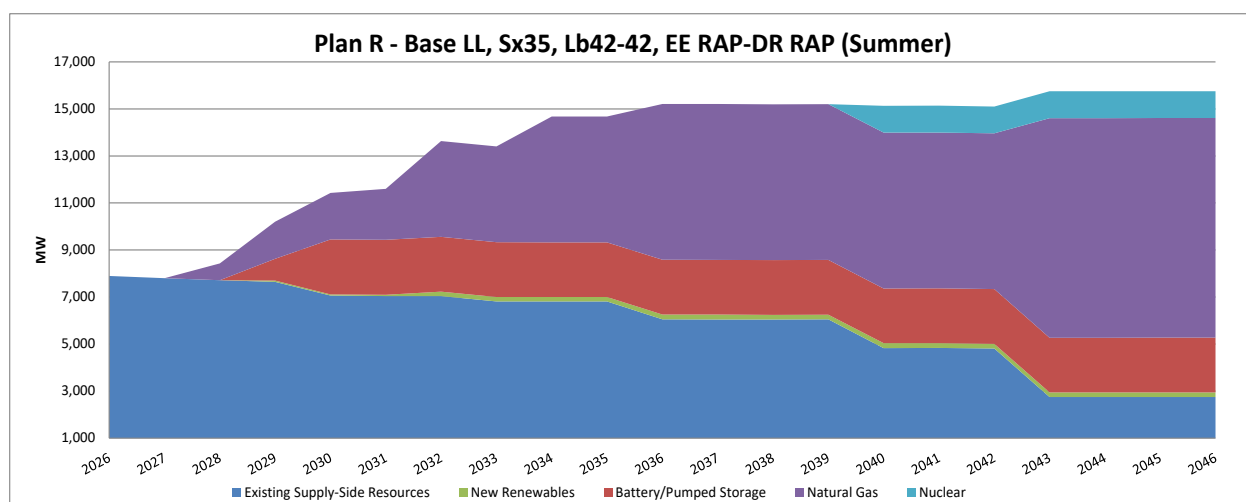
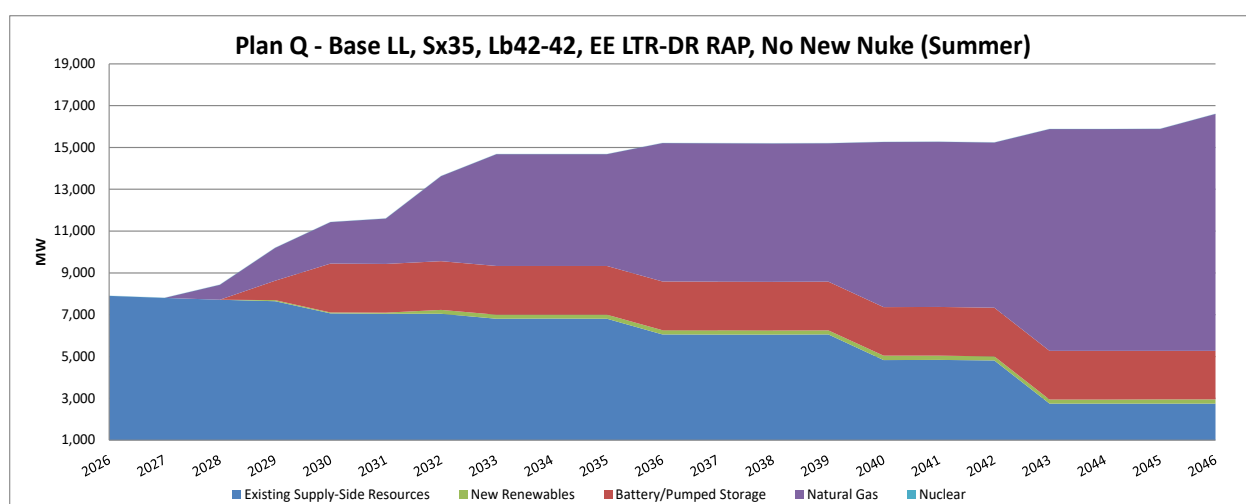
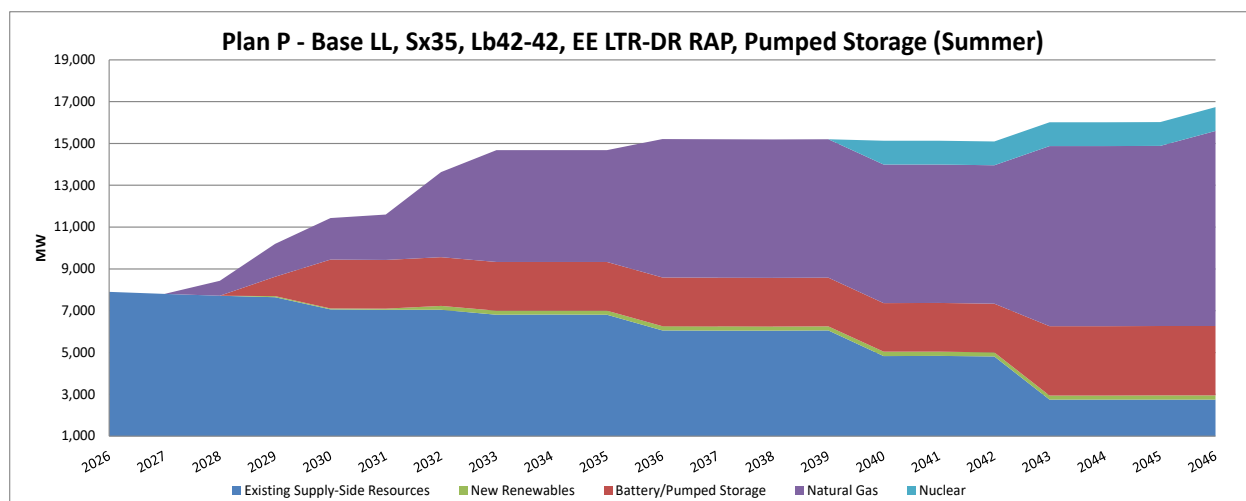
Figure 9A.7 Composition of Capacity (Summer)¹³¹³ 20 CSR 4240-22.060(4)(B)3

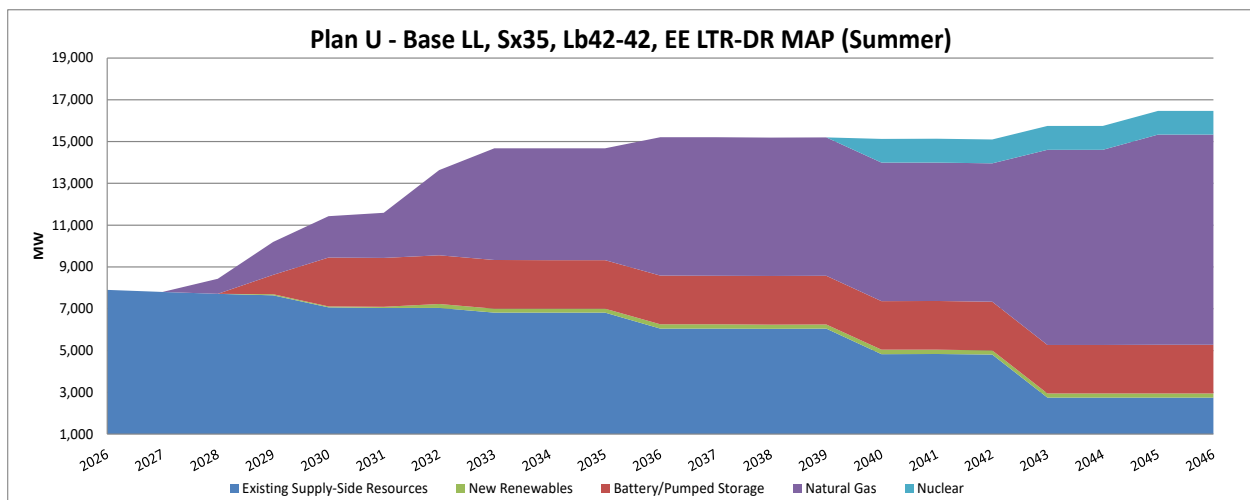
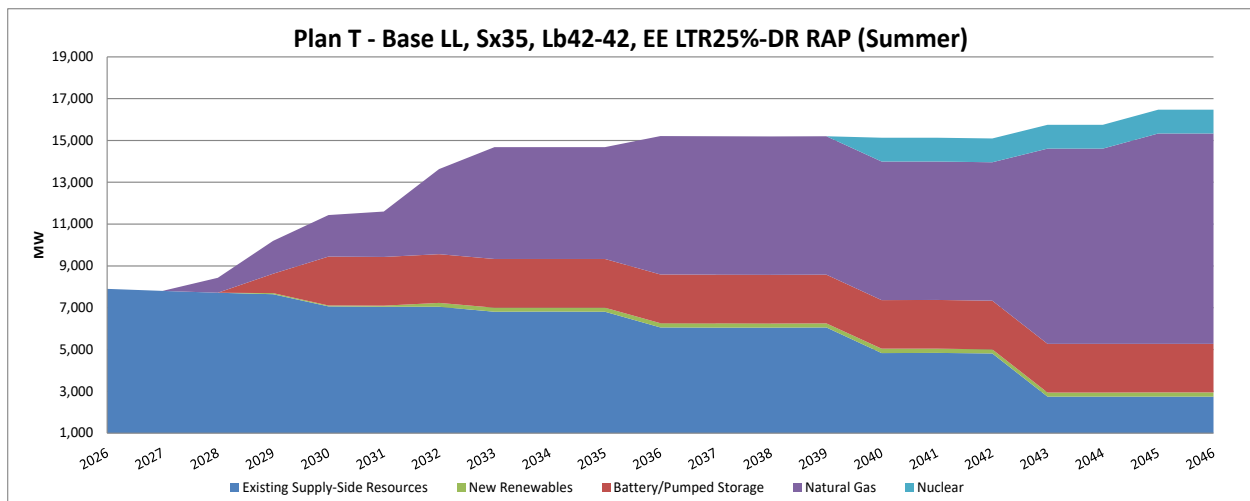
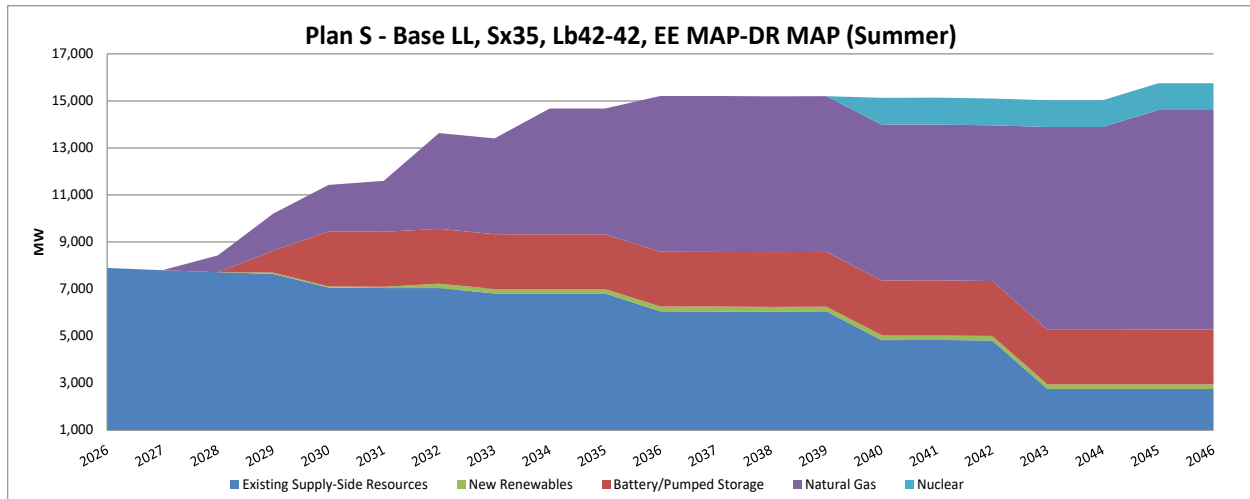


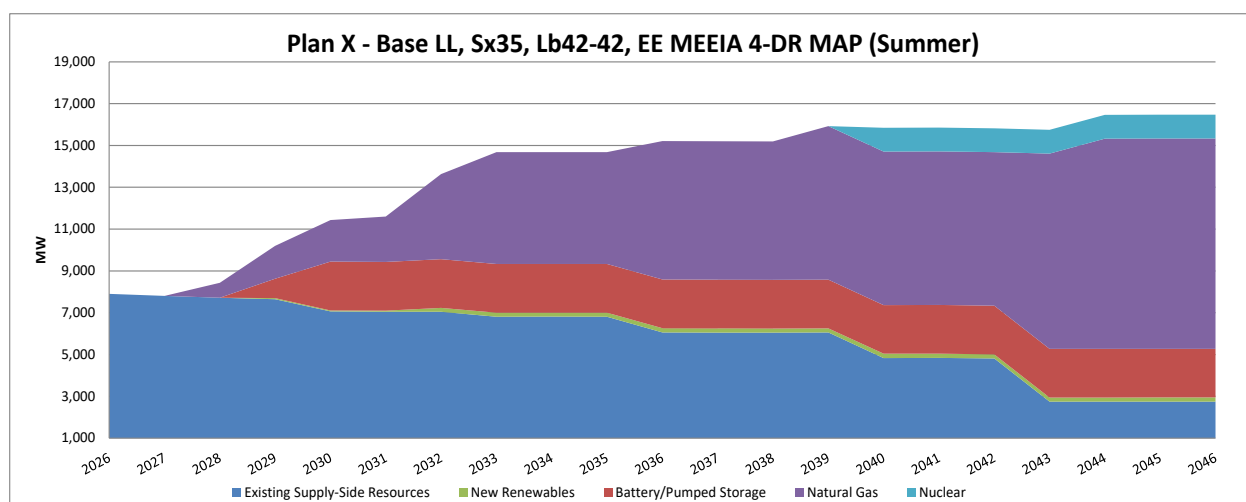
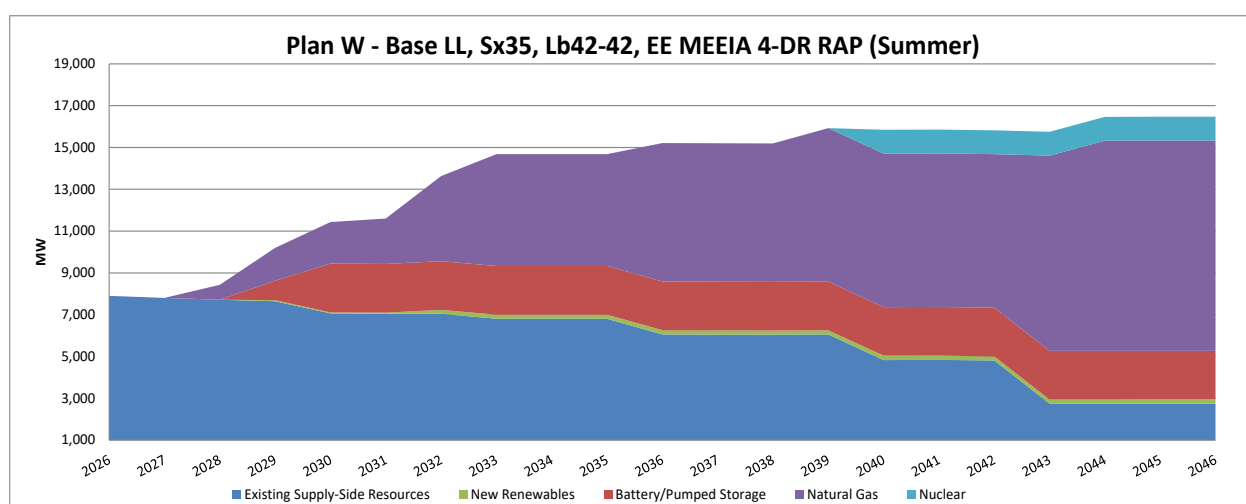
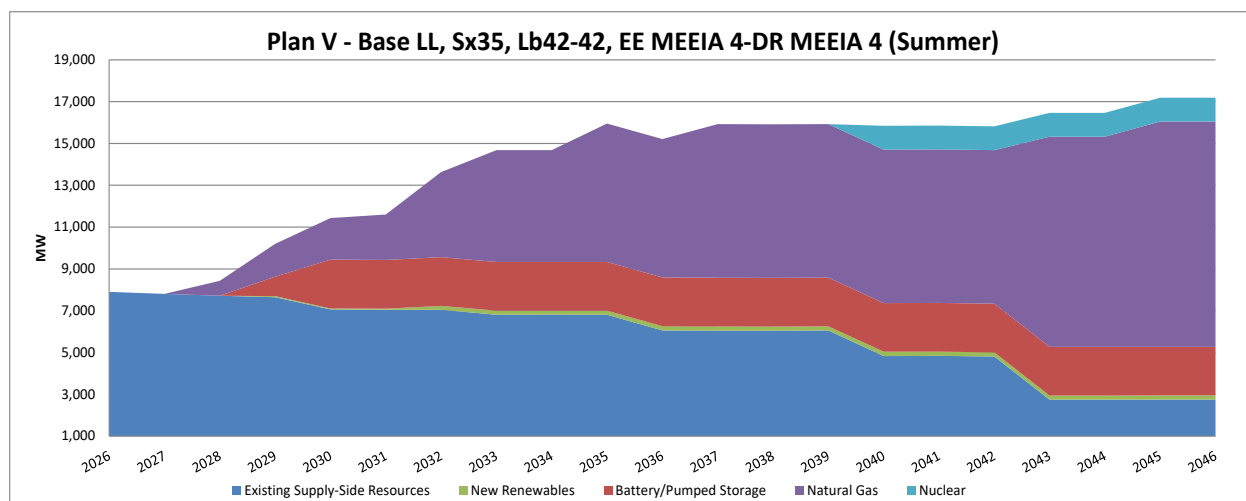


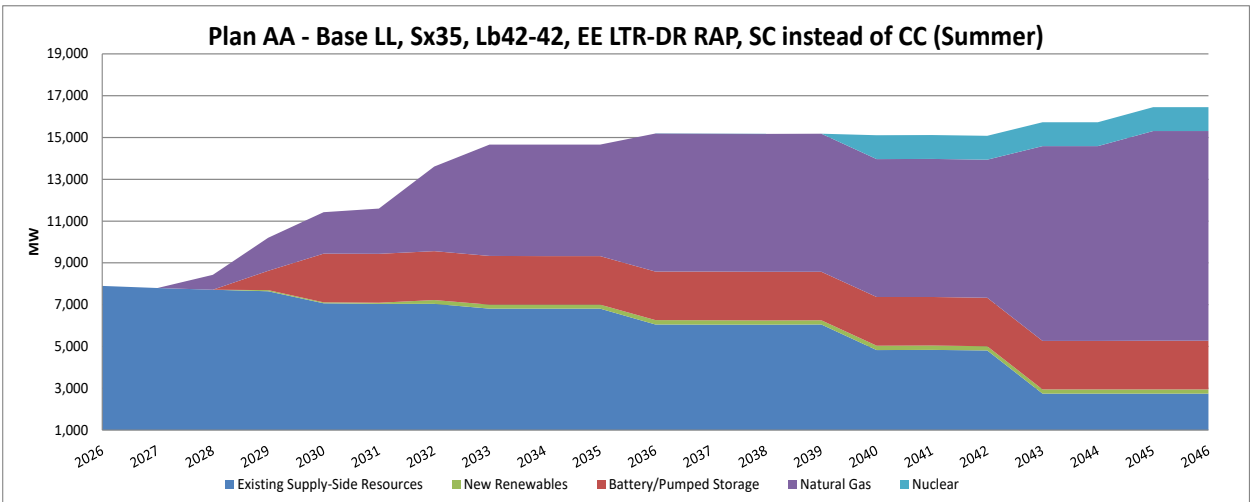
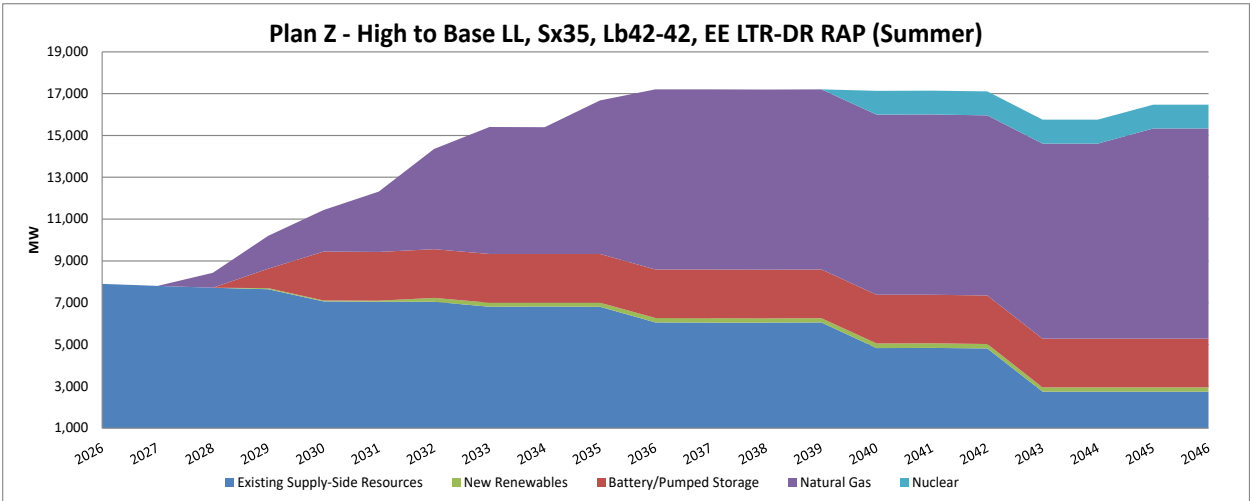
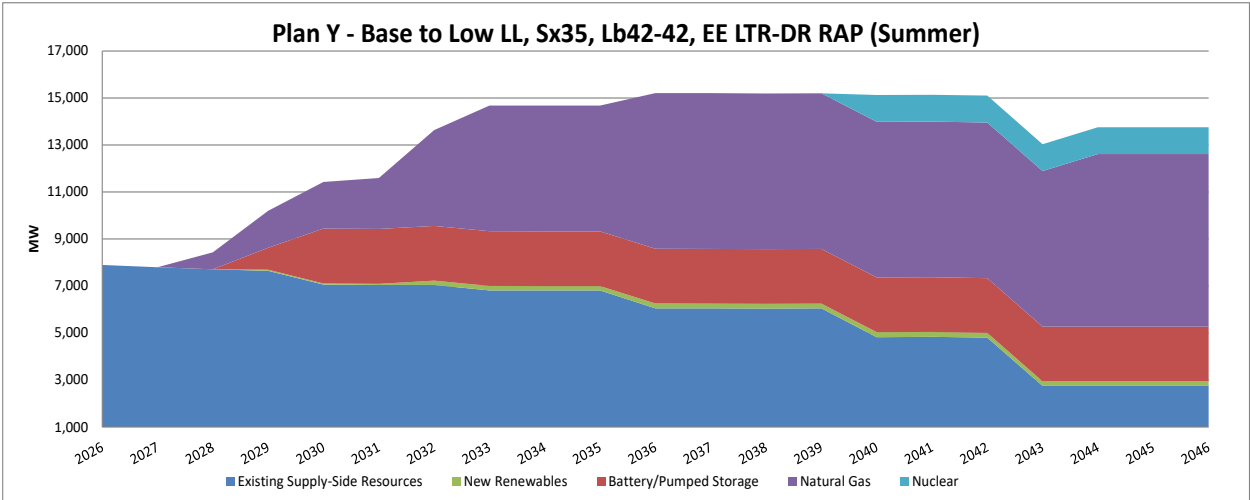












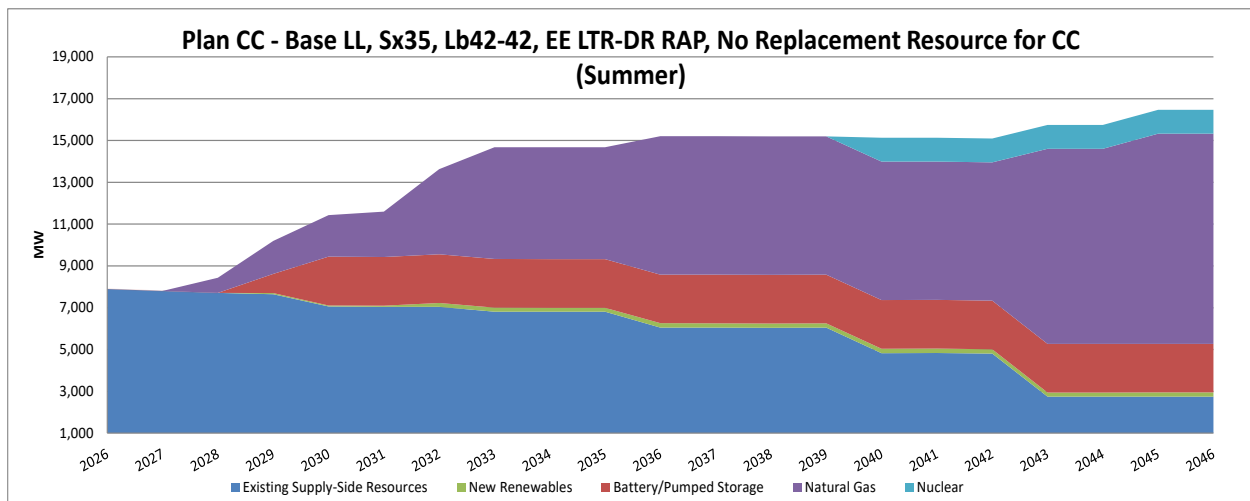
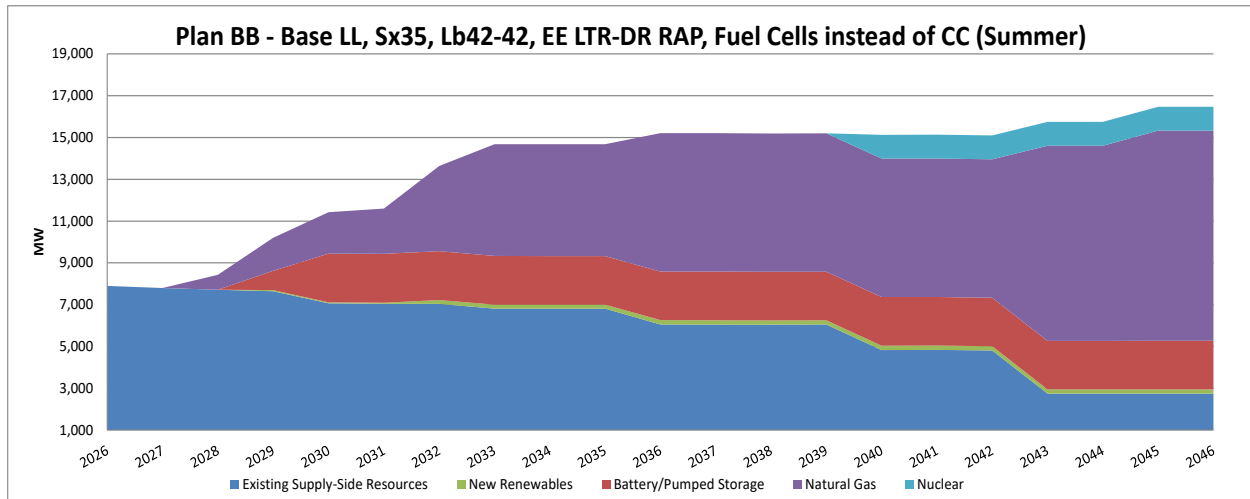
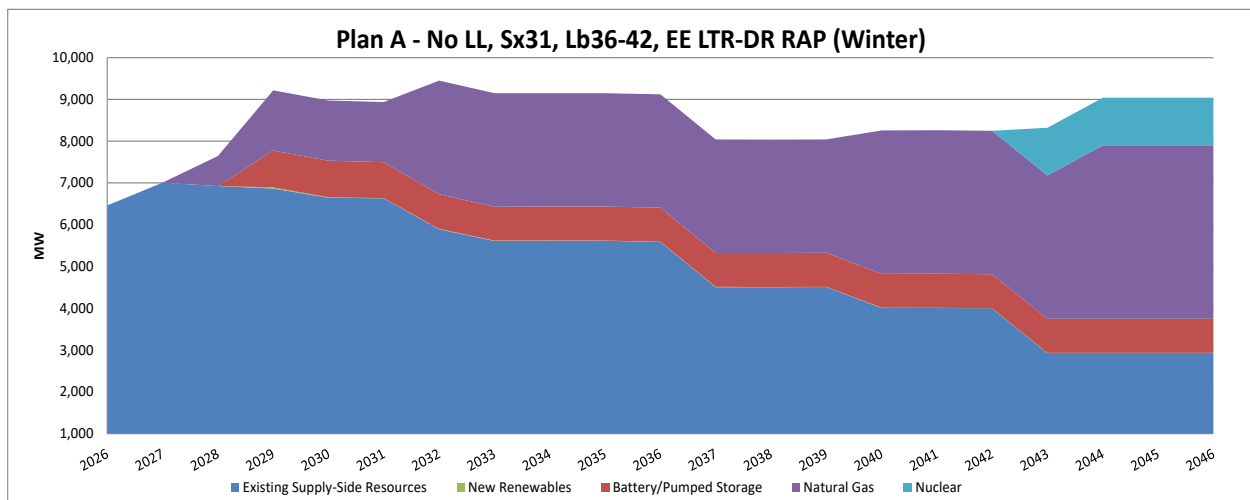
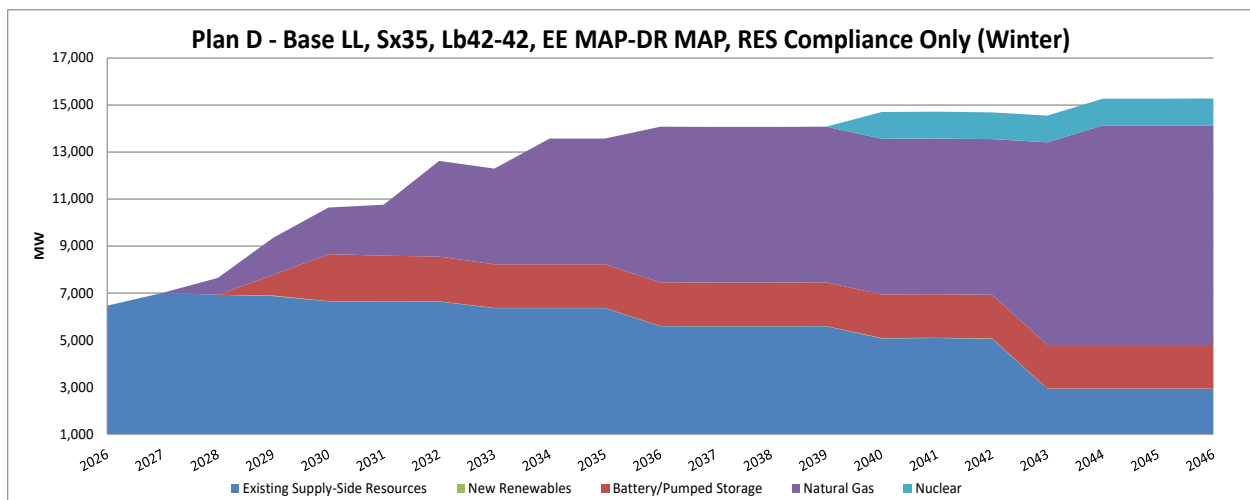
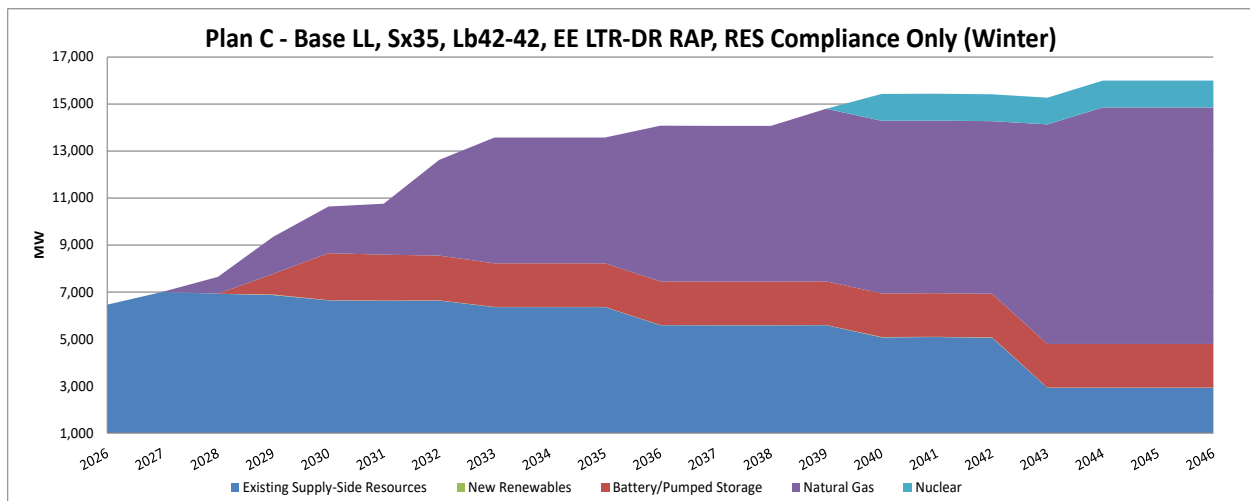
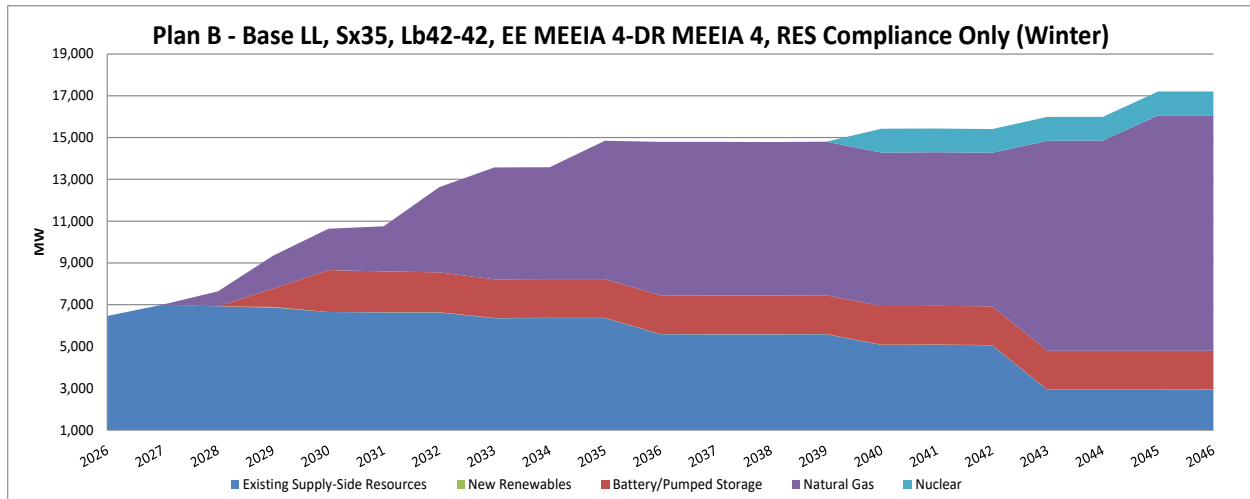
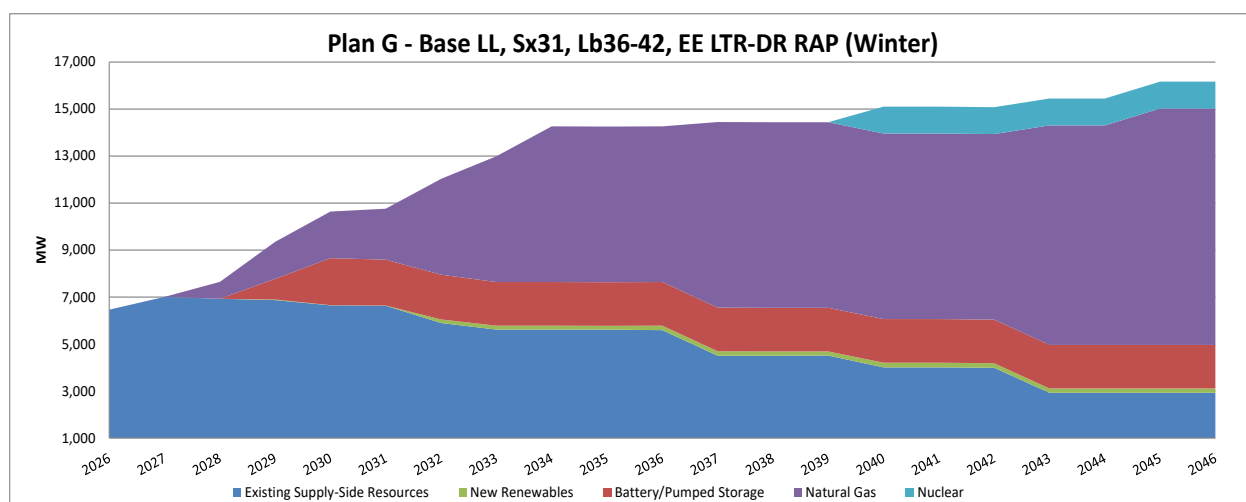
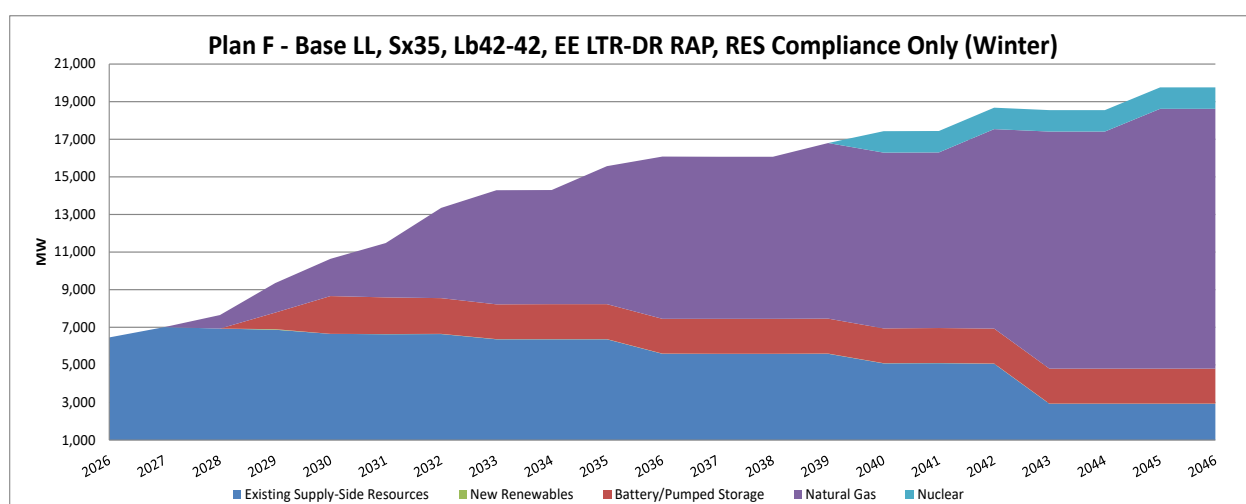
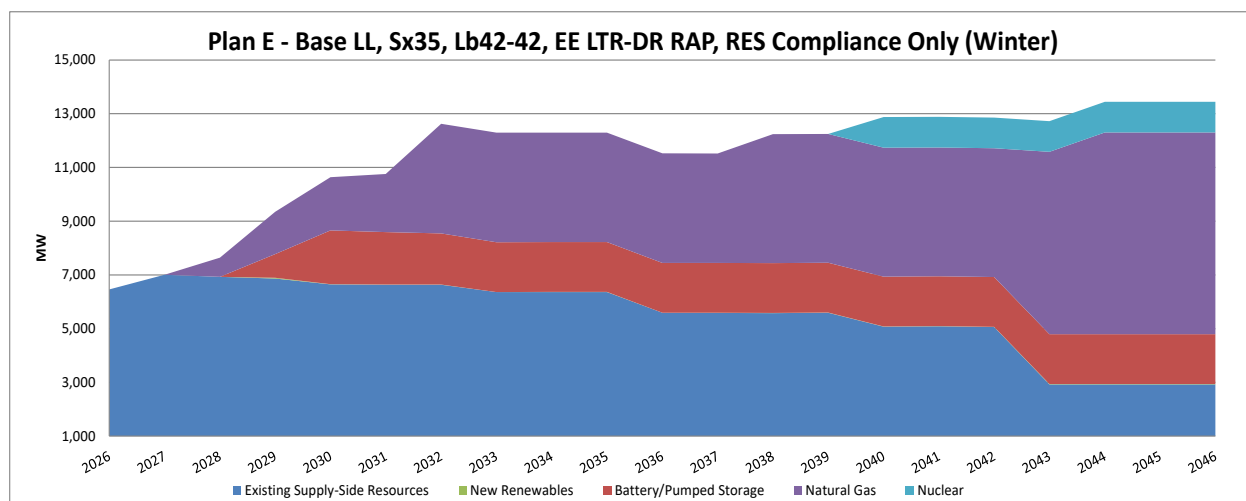
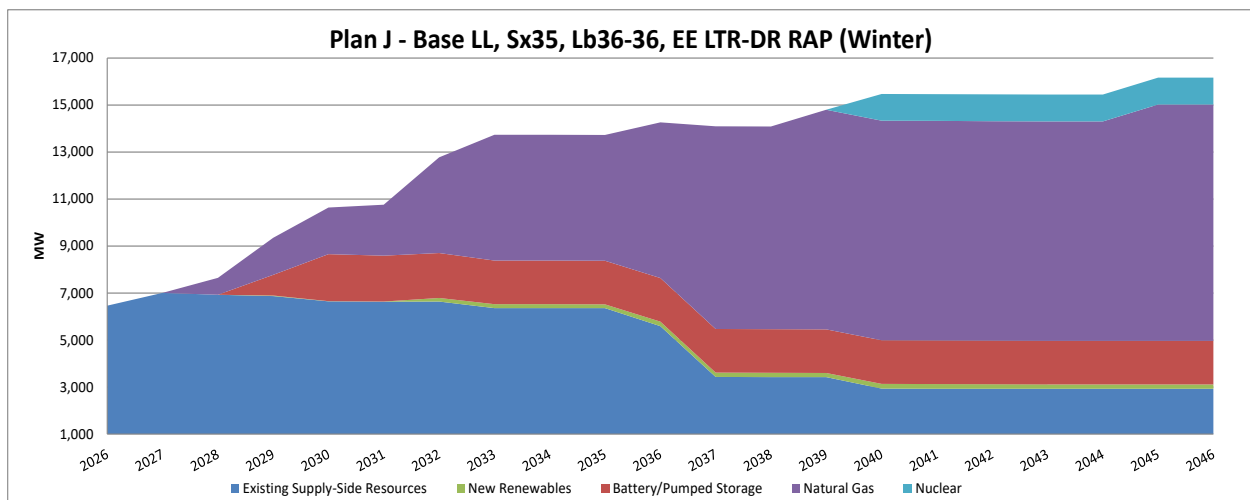
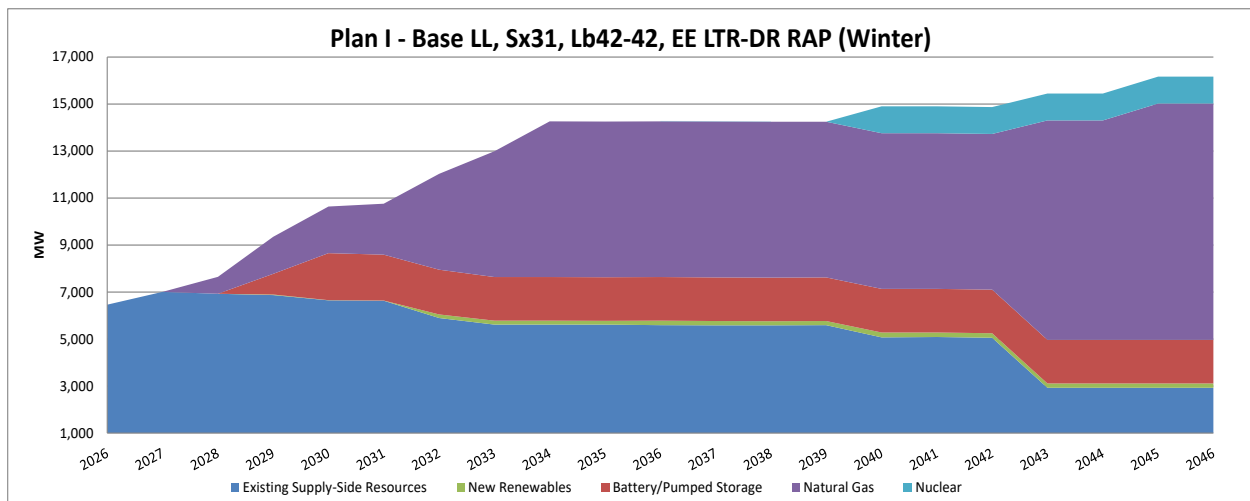
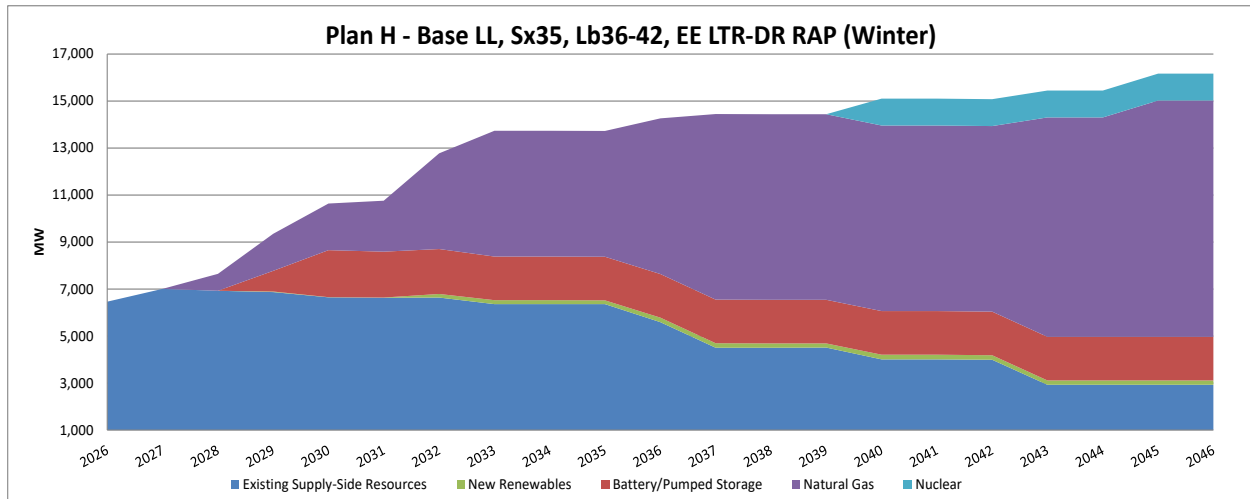


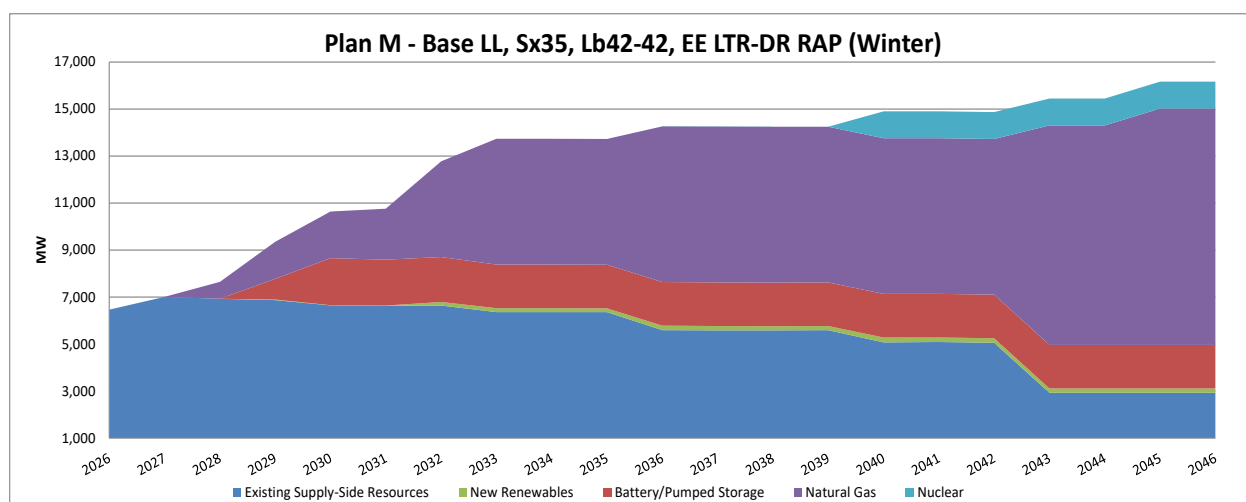
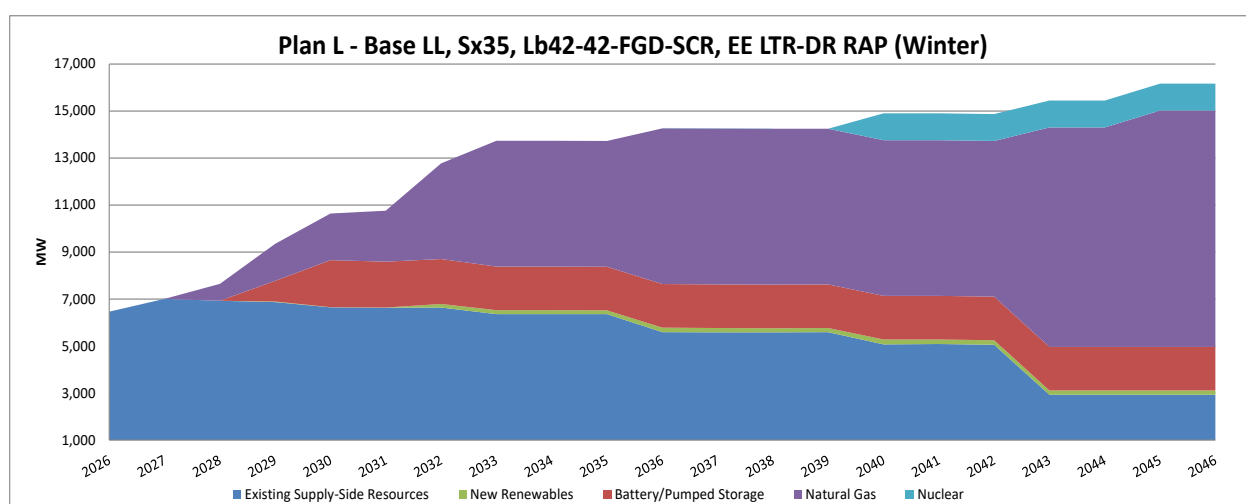
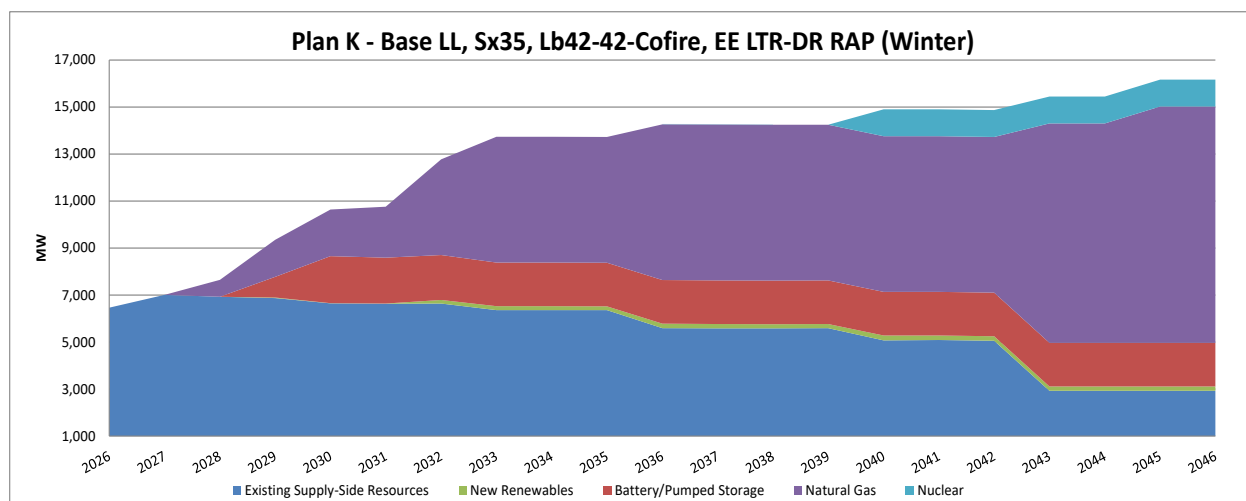
Figure 9A.8 Composition of Capacity (Winter)

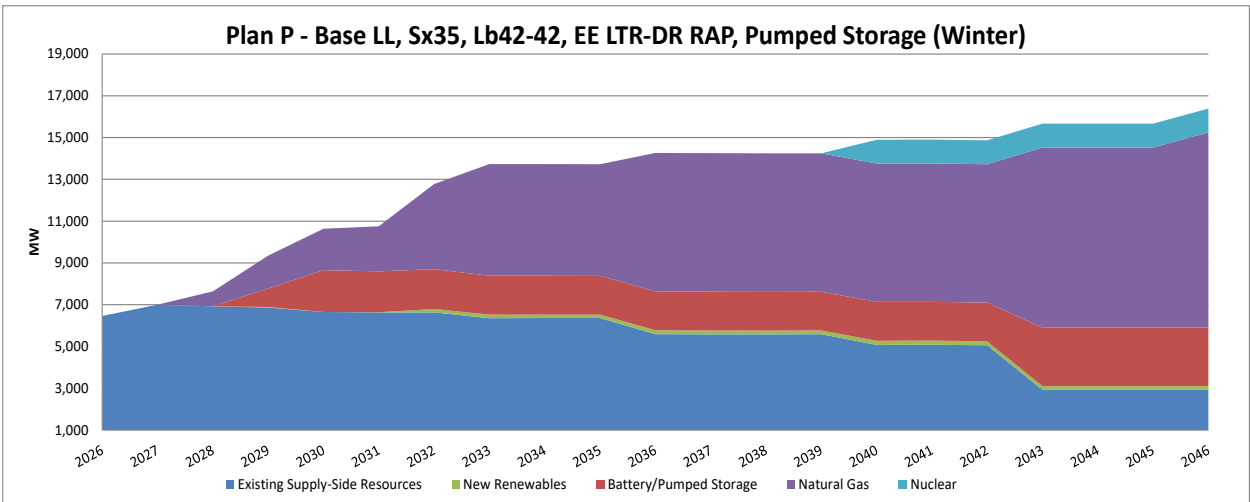
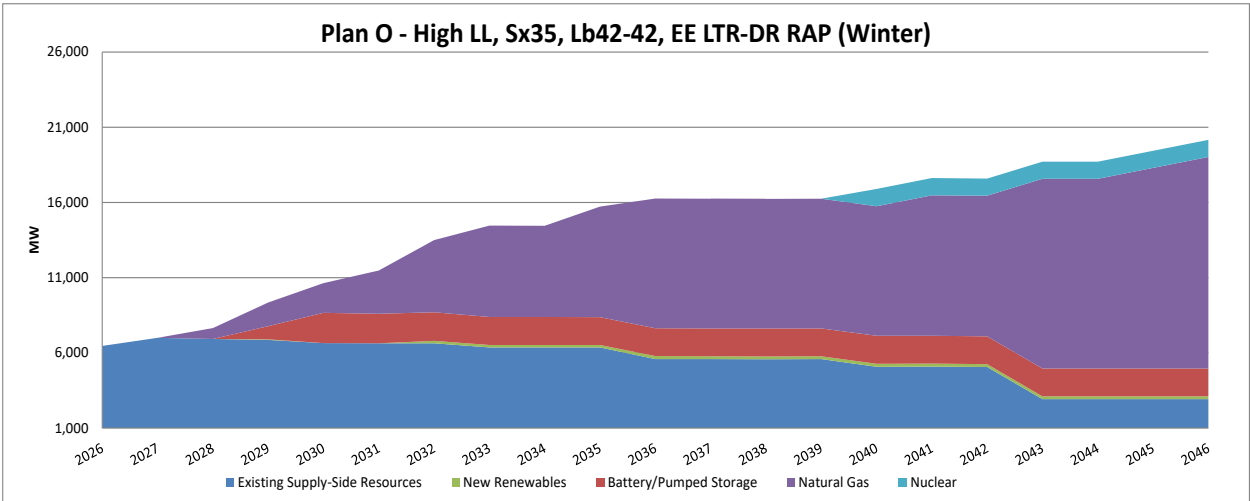
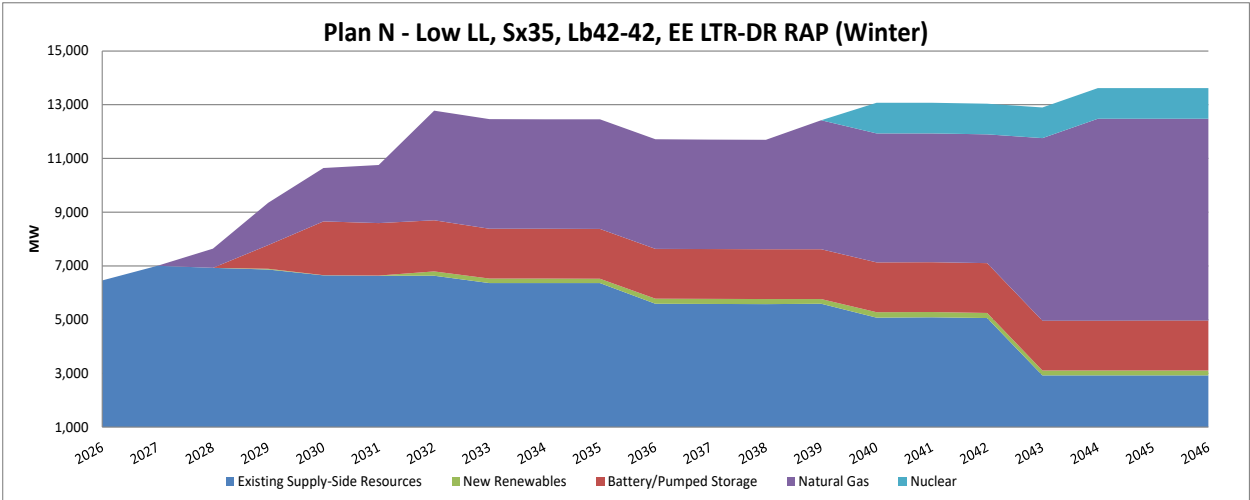


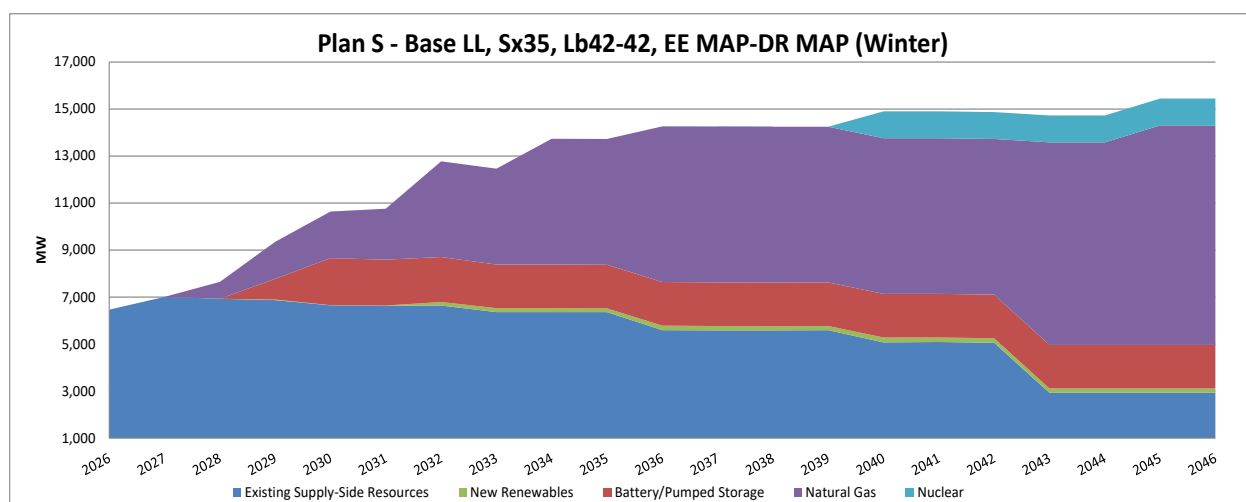
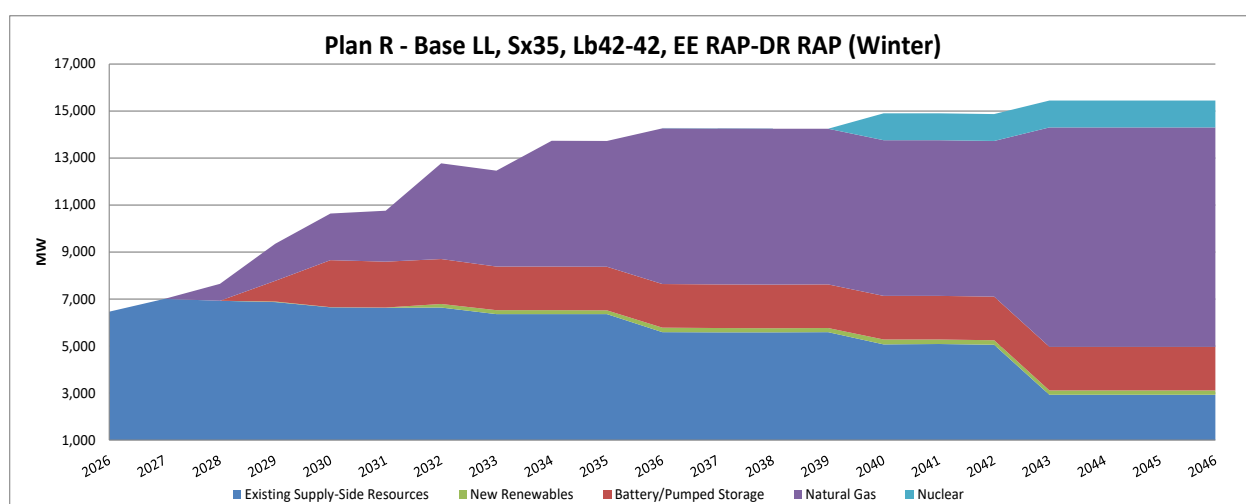
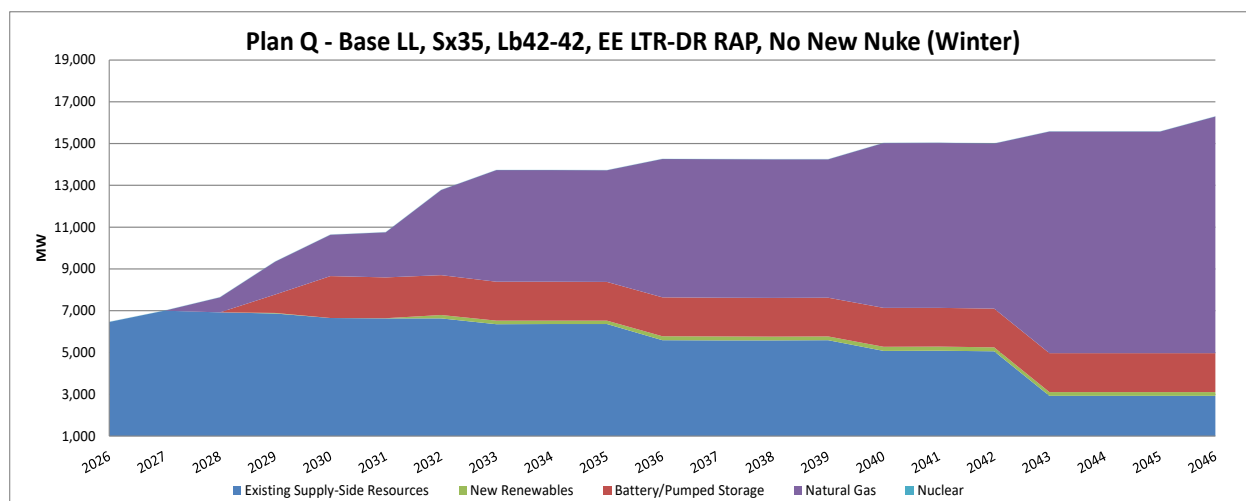


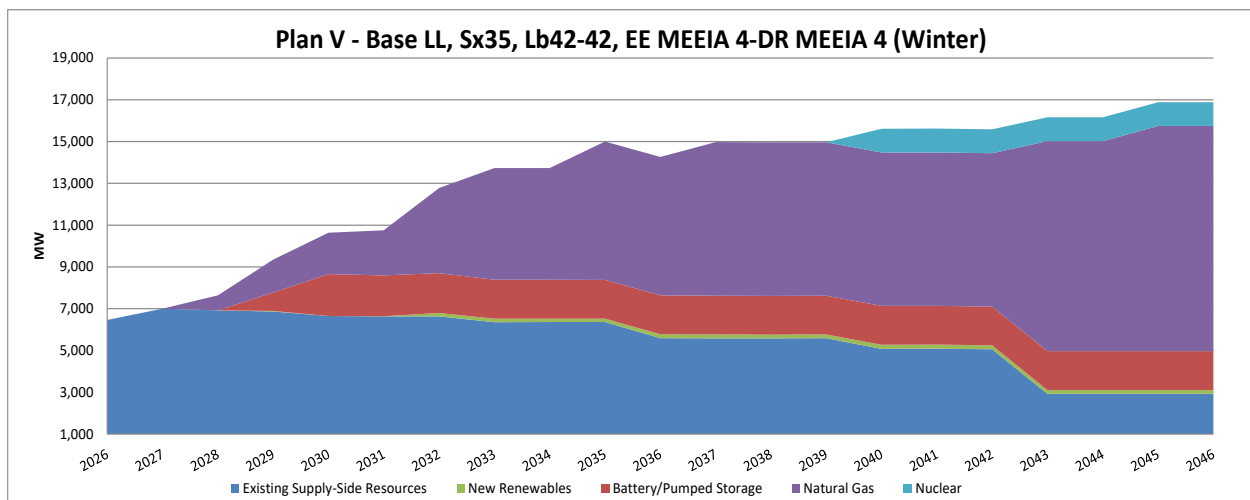
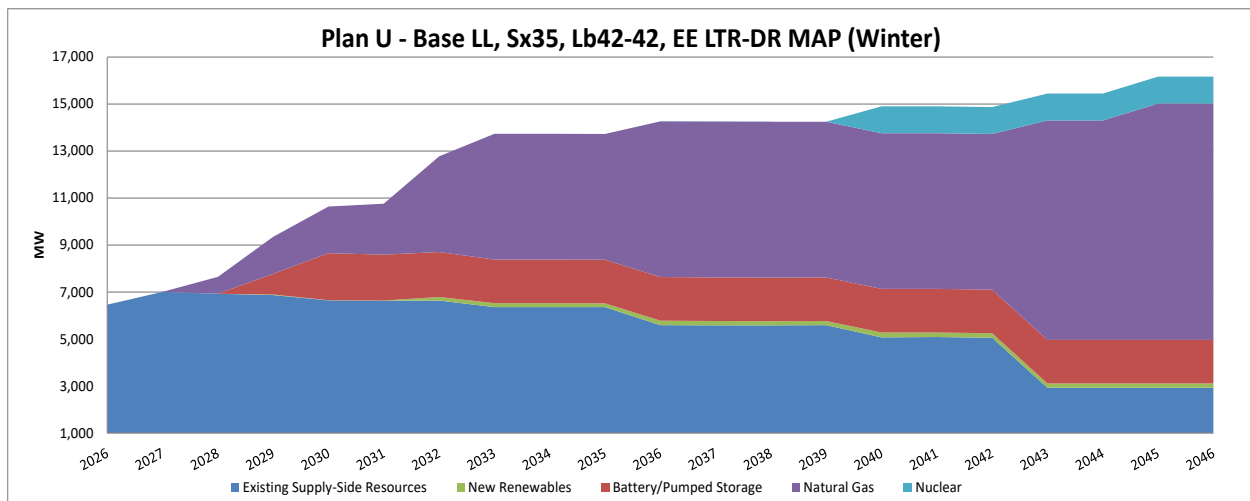
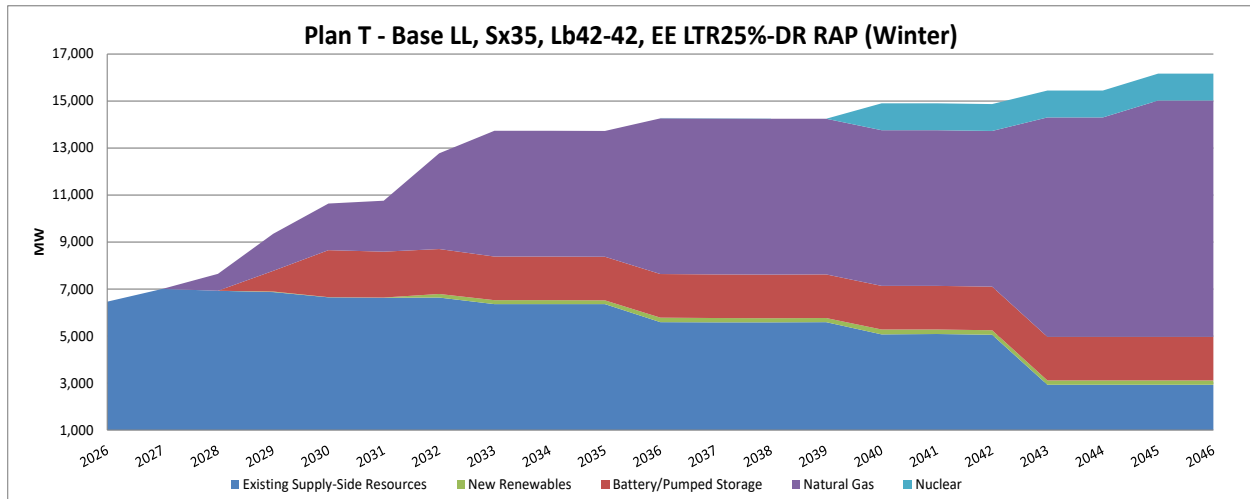


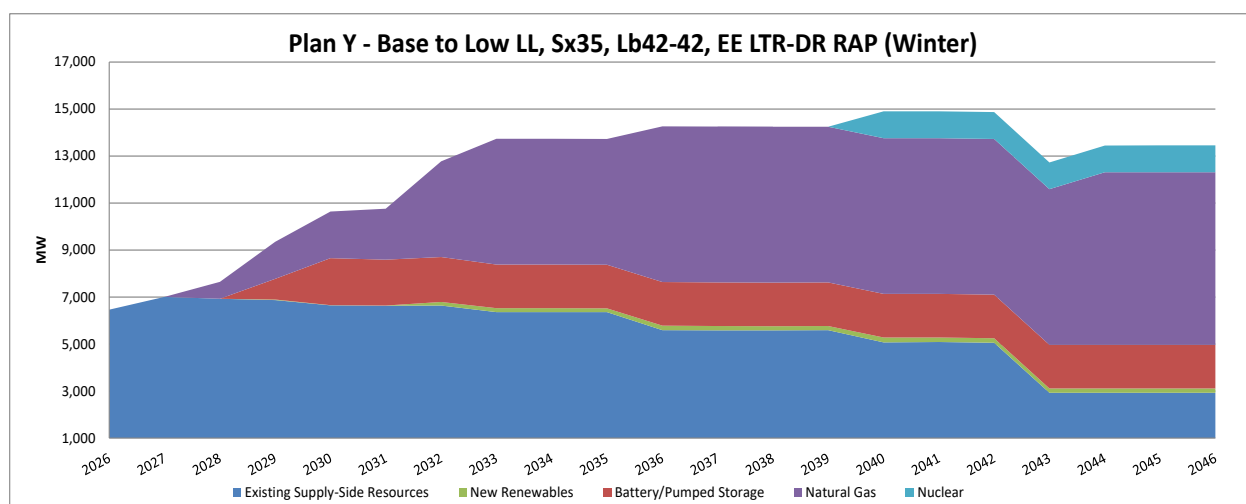
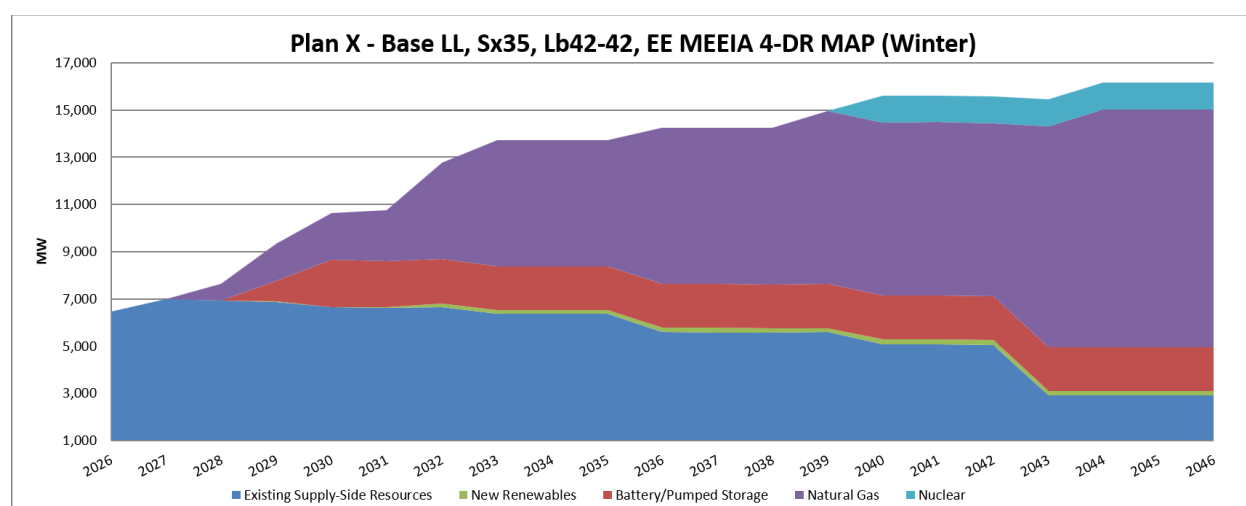
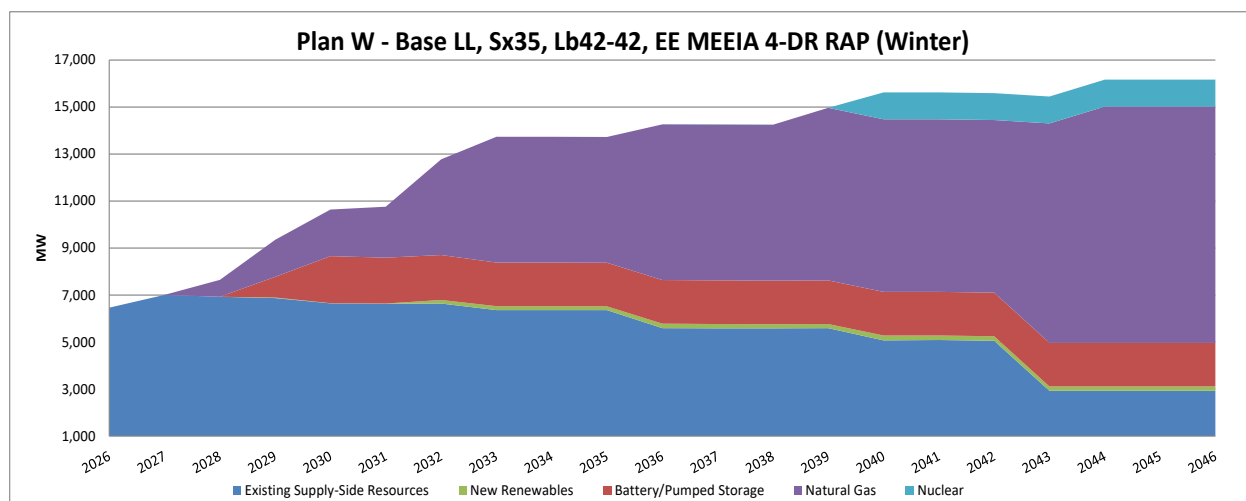


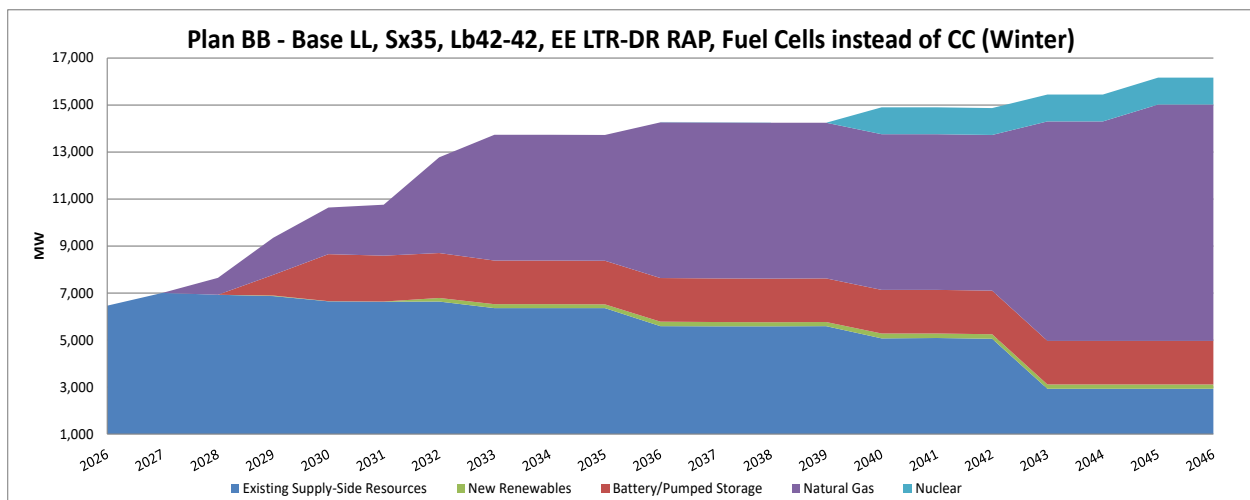
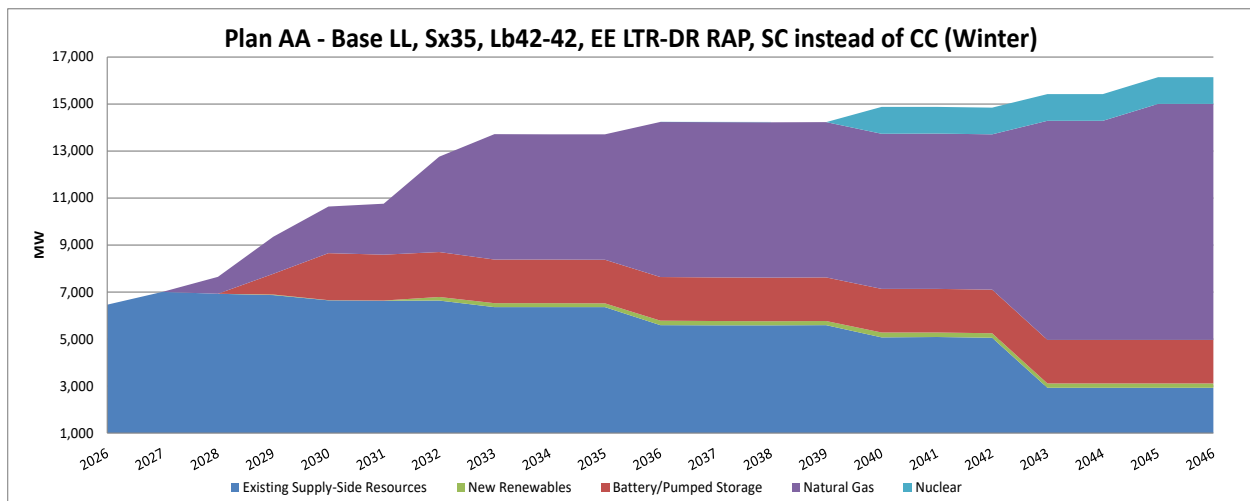
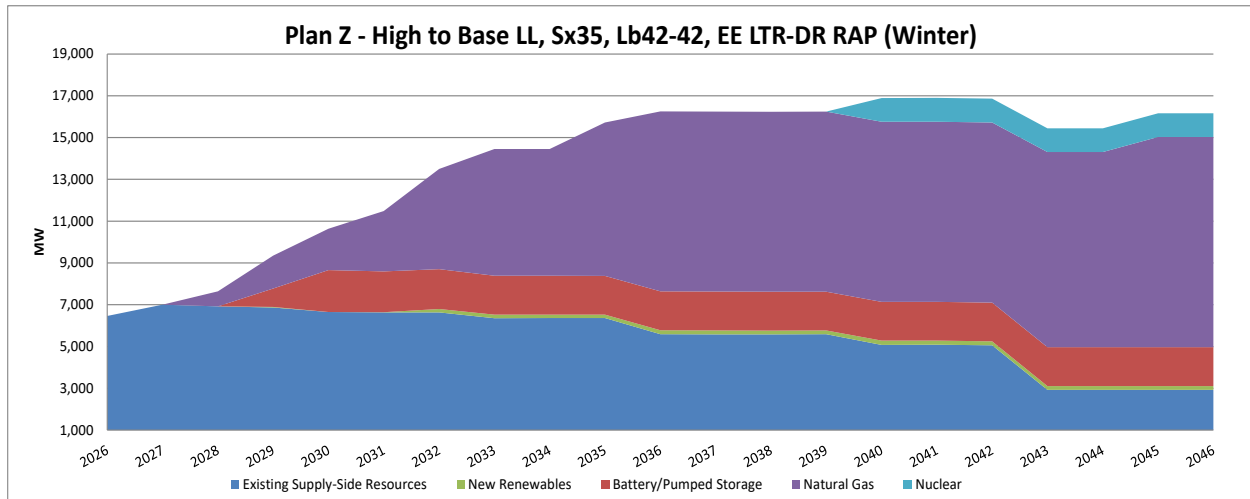












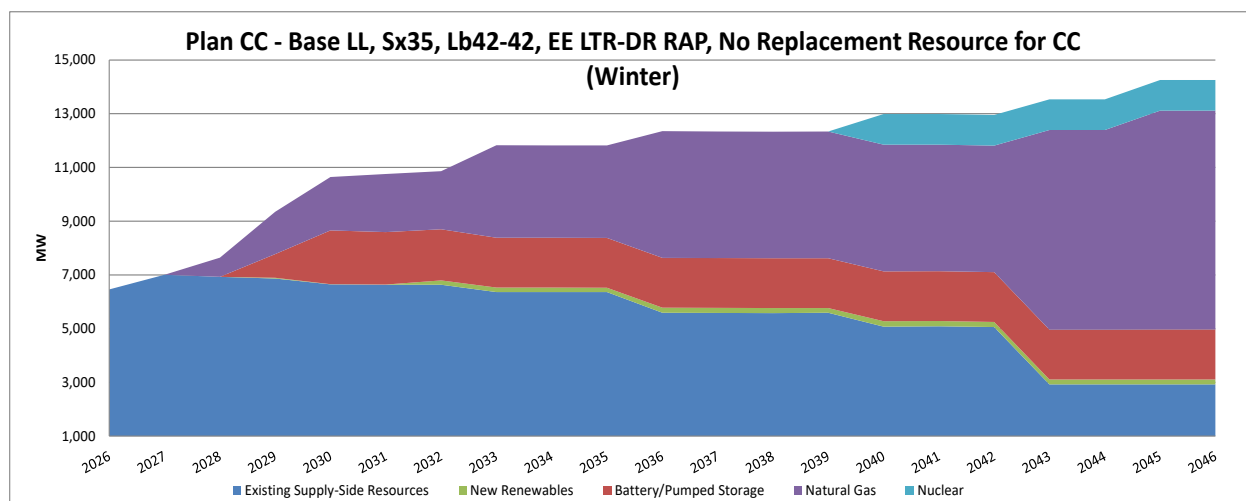
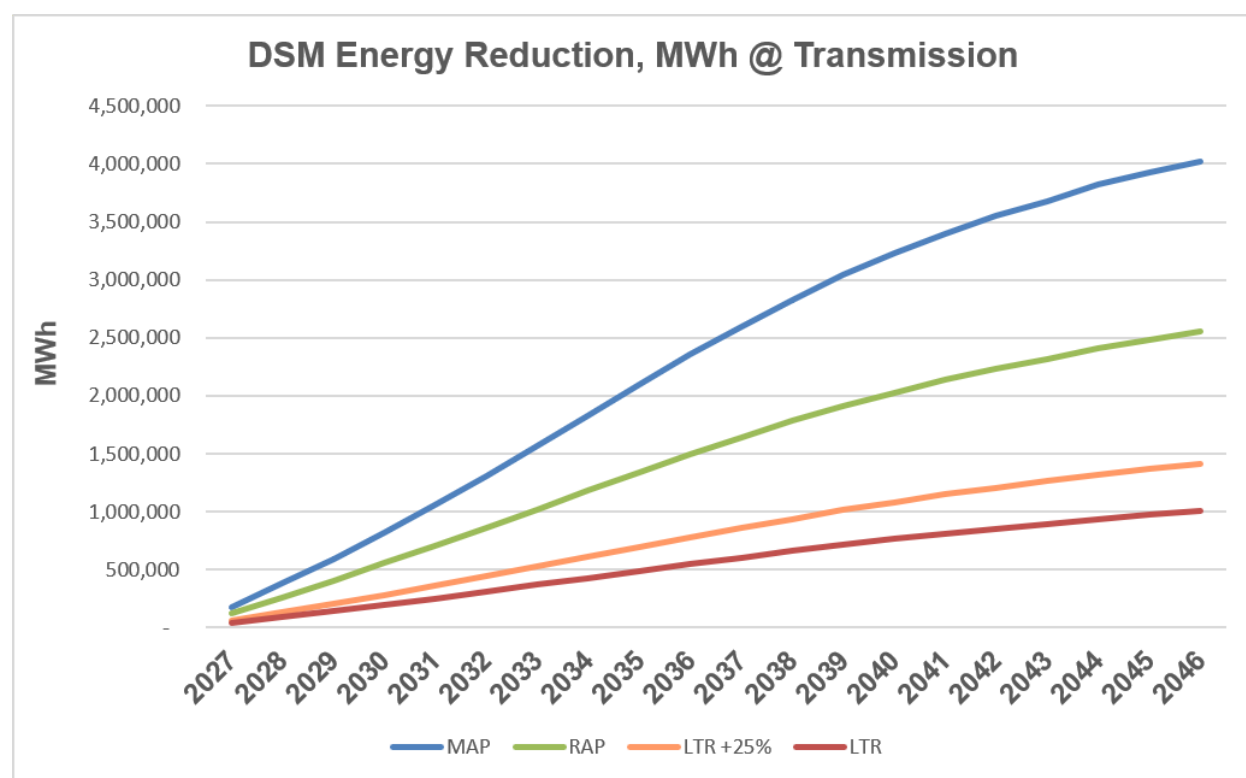


Figure 9A.9 Combined Impact of DSM Resources on Energy¹⁴



¹⁴ 20 CSR 4240-22.060(4)(B)4

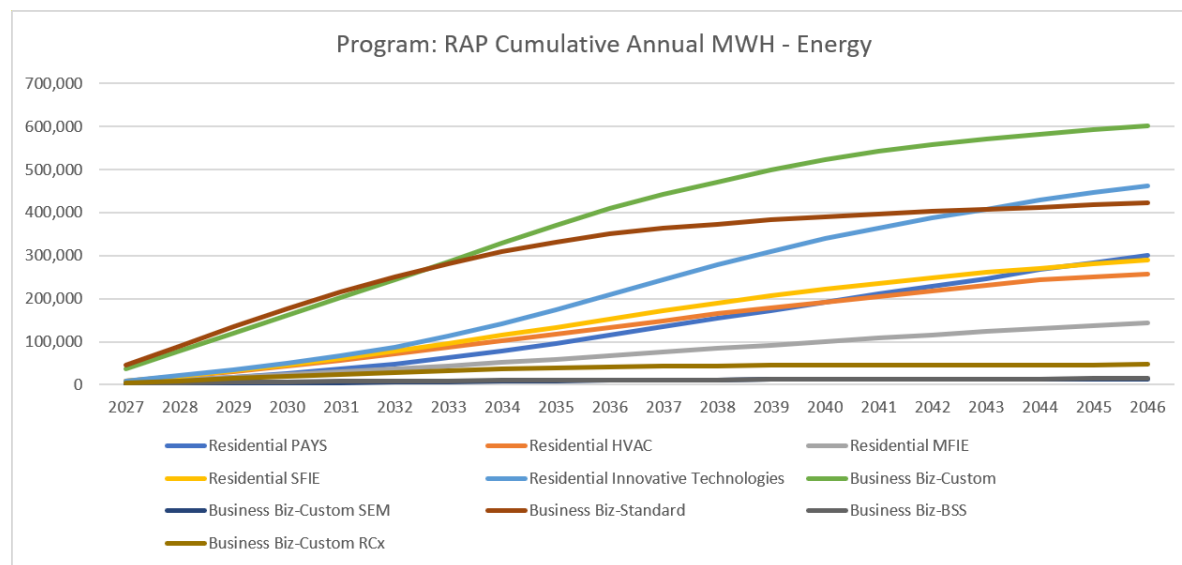
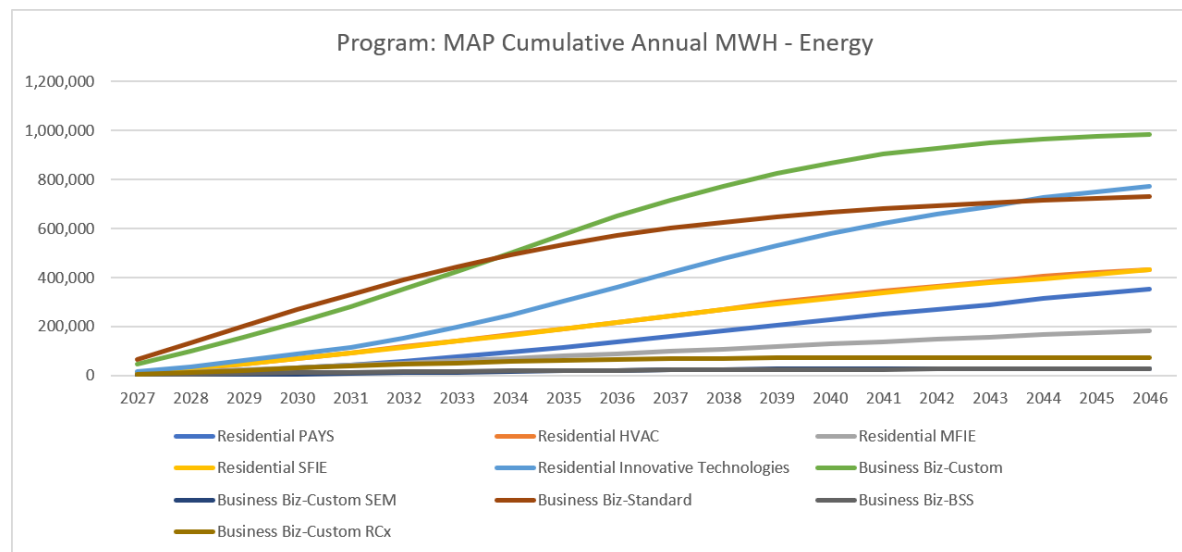
Figure 9A.10 Programs for RAP DSM Energy¹⁵**Figure 9A.11 Programs for MAP DSM Energy¹⁶**¹⁵ 20 CSR 4240-22.060(4)(B)5¹⁶ 20 CSR 4240-22.060(4)(B)5

Figure 9A.12 Programs for LTR DSM Energy¹⁷

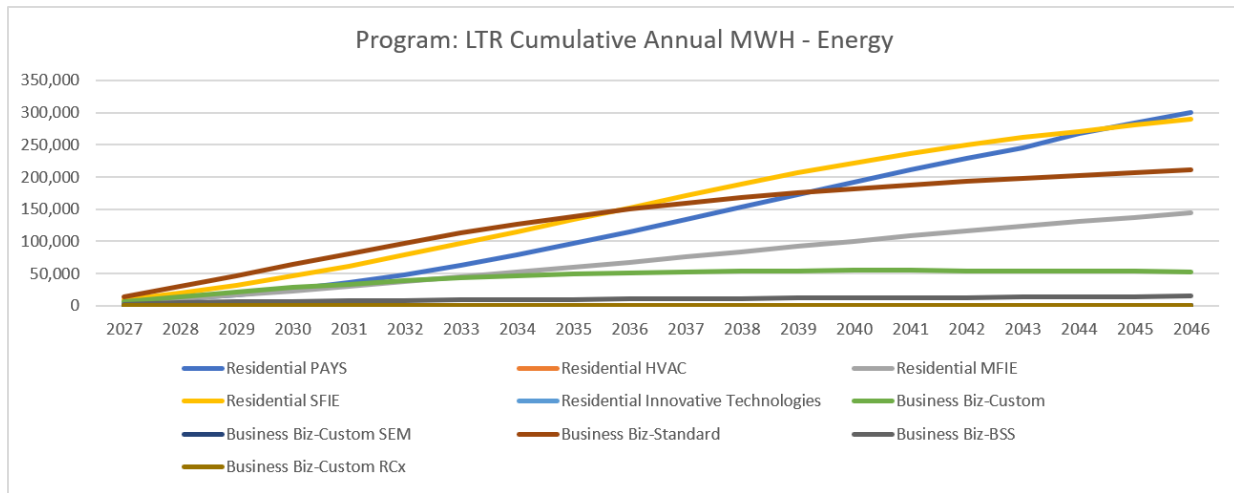
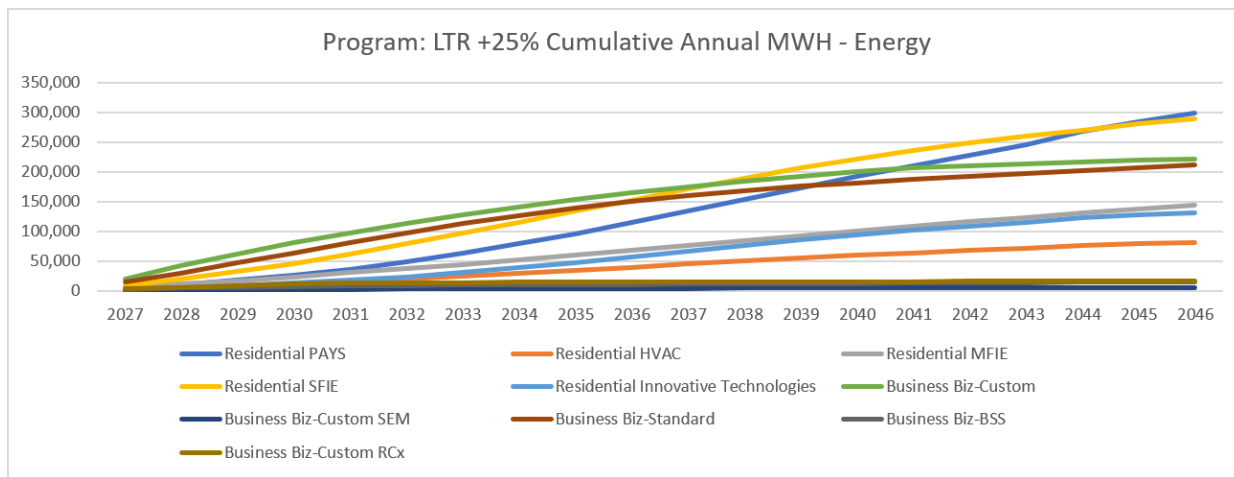


Figure 9A.13 Programs for LTR 25% DSM Energy¹⁸

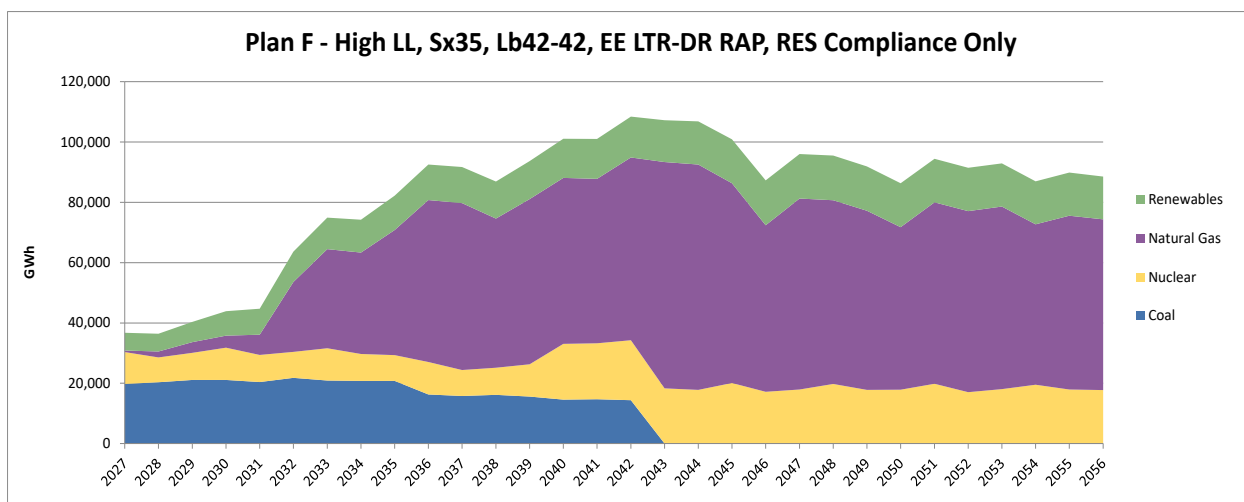
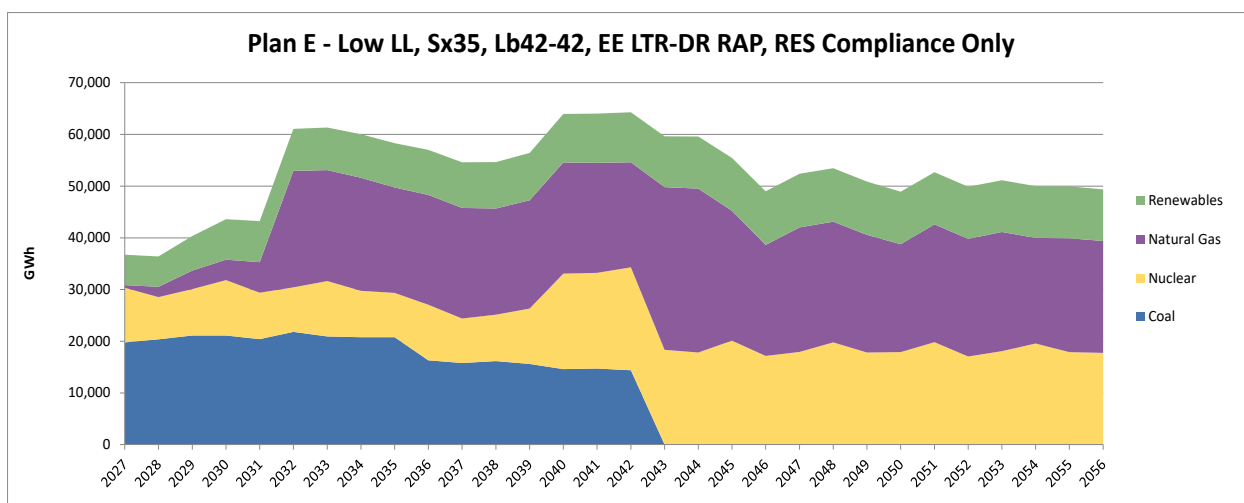
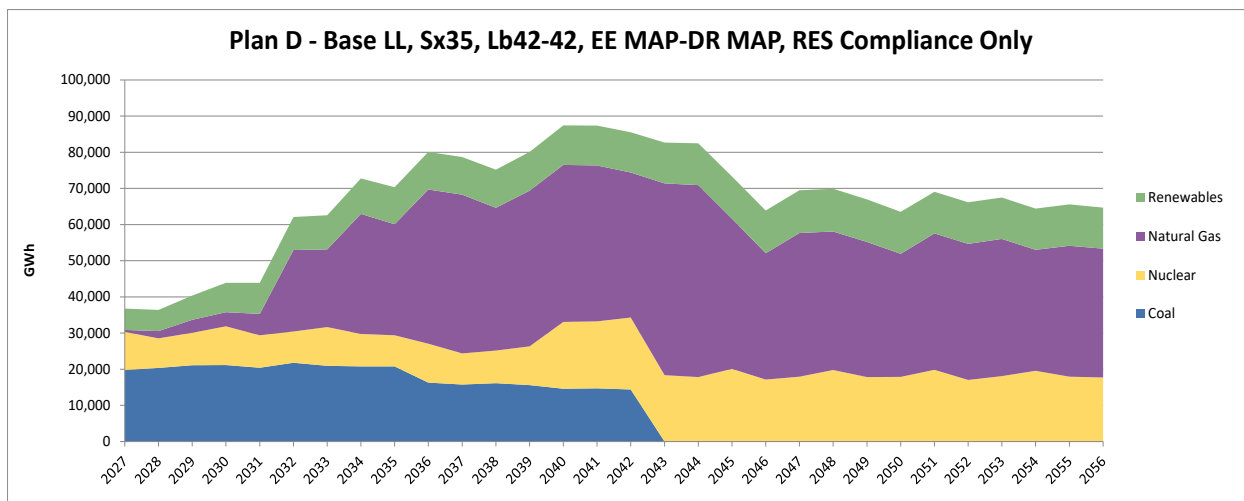


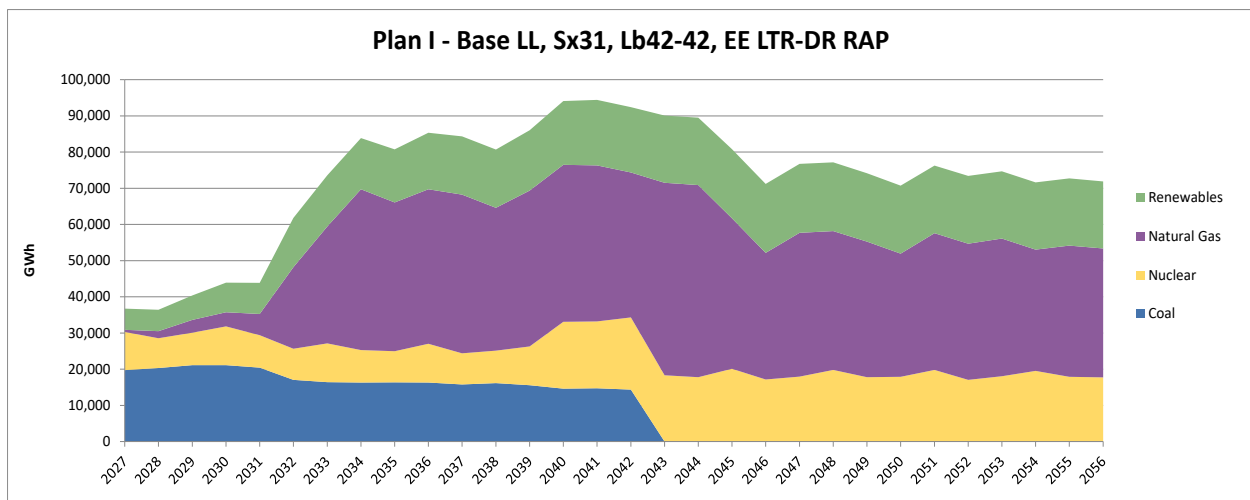
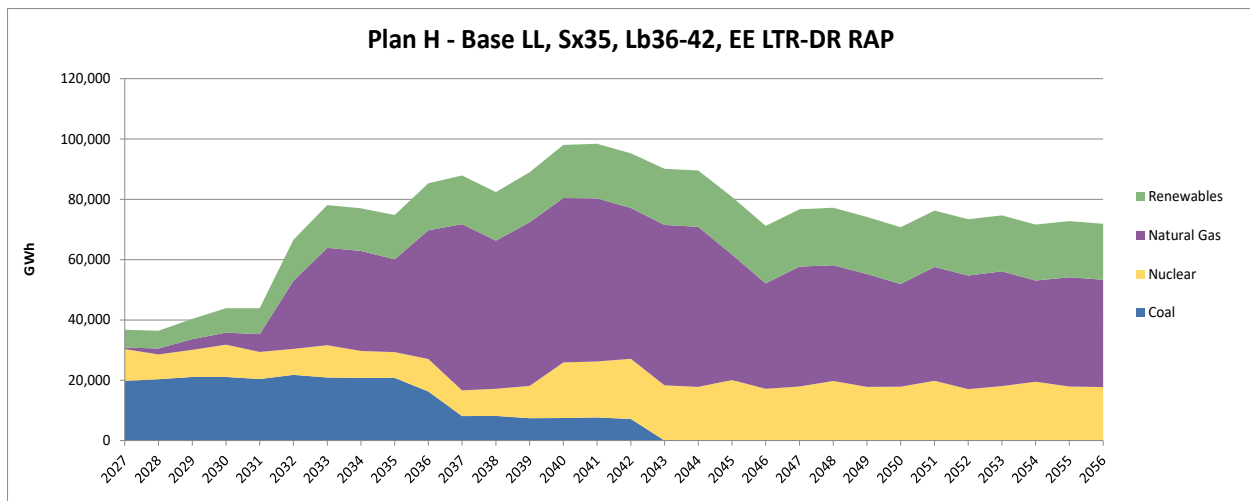
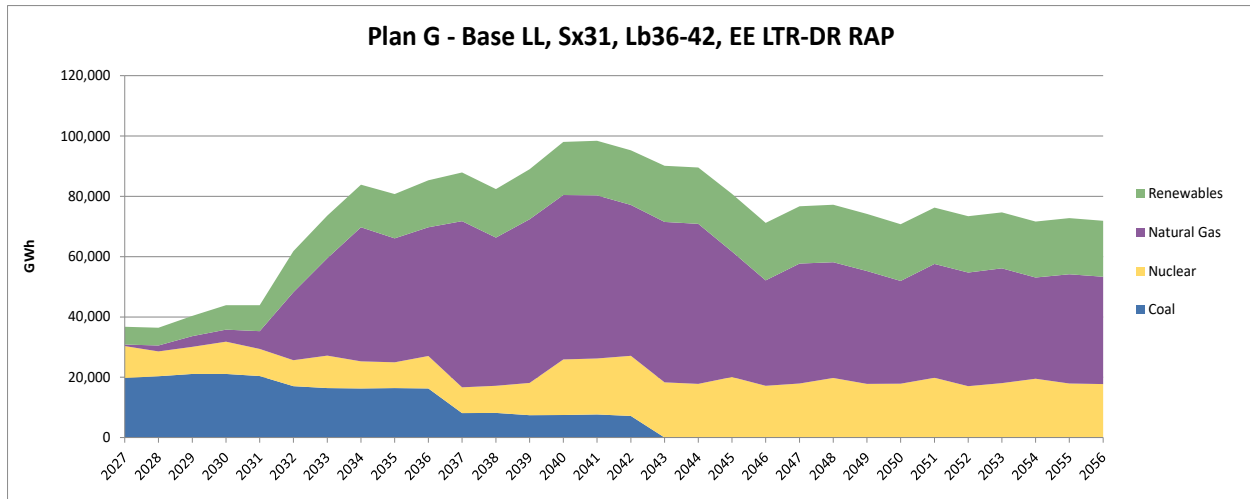
¹⁷ 20 CSR 4240-22.060(4)(B)5

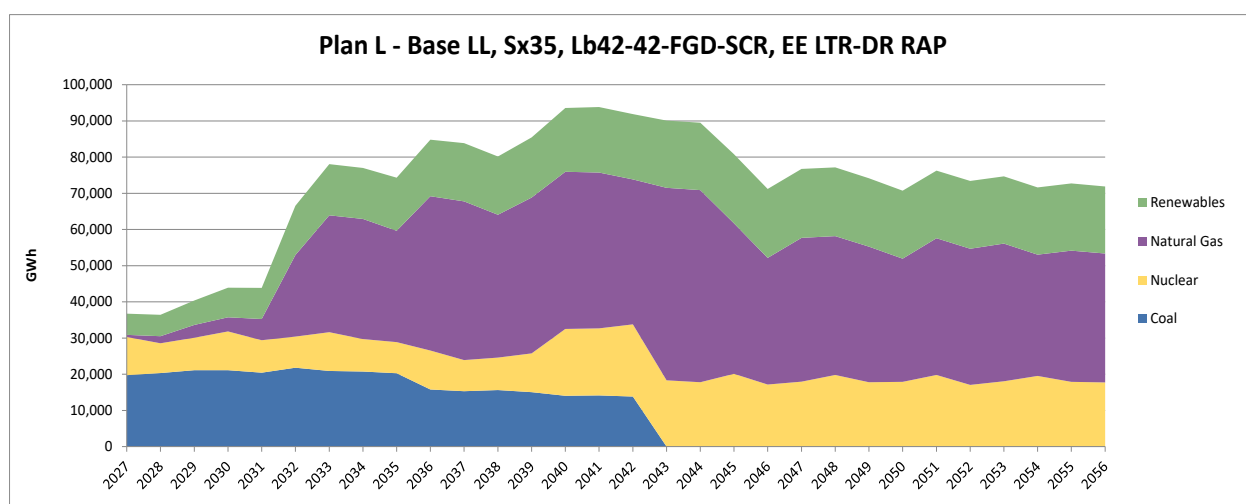
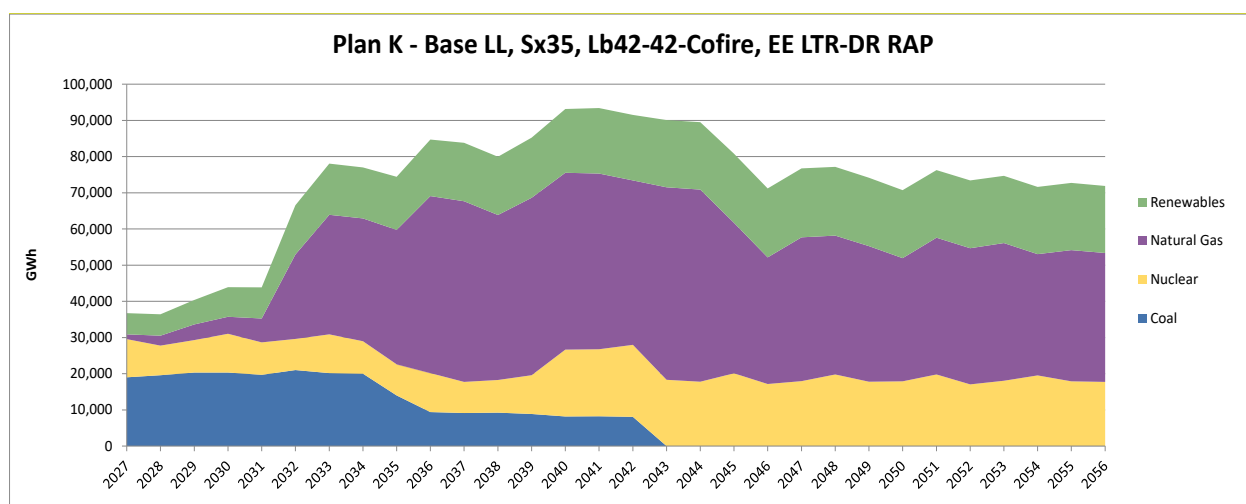
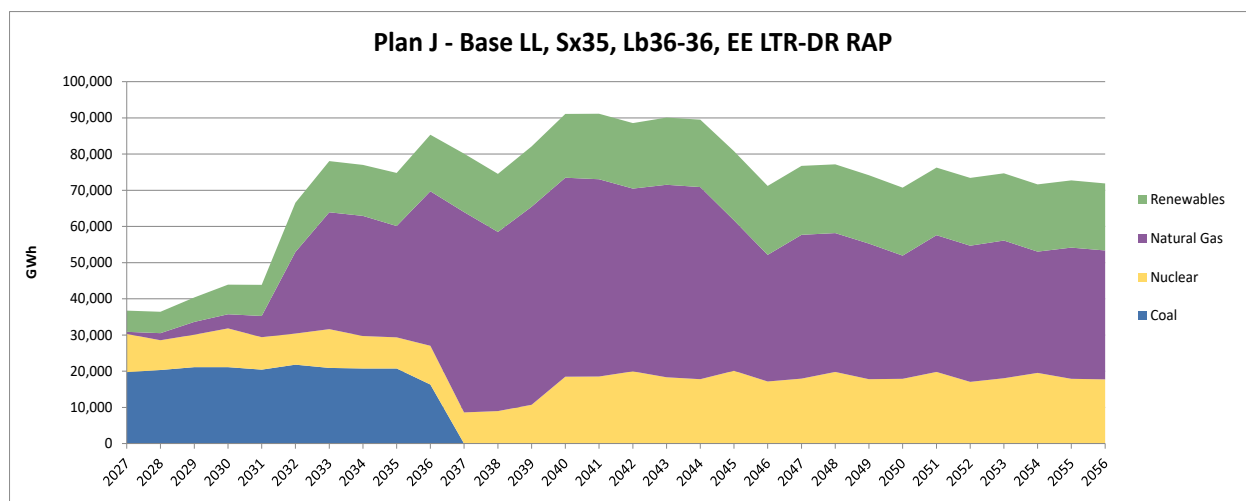
¹⁸ 20 CSR 4240-22.060(4)(B)5

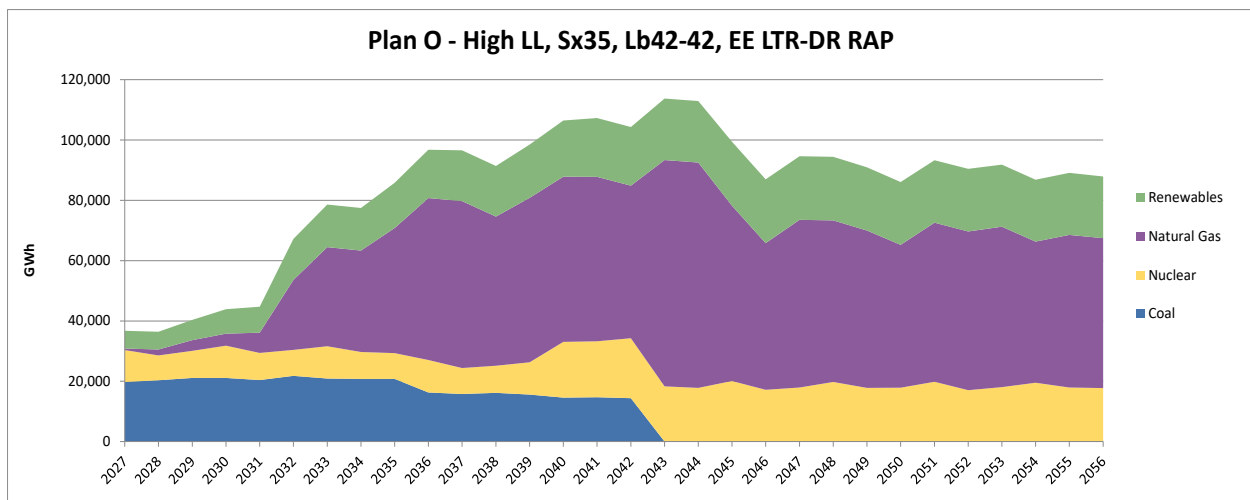
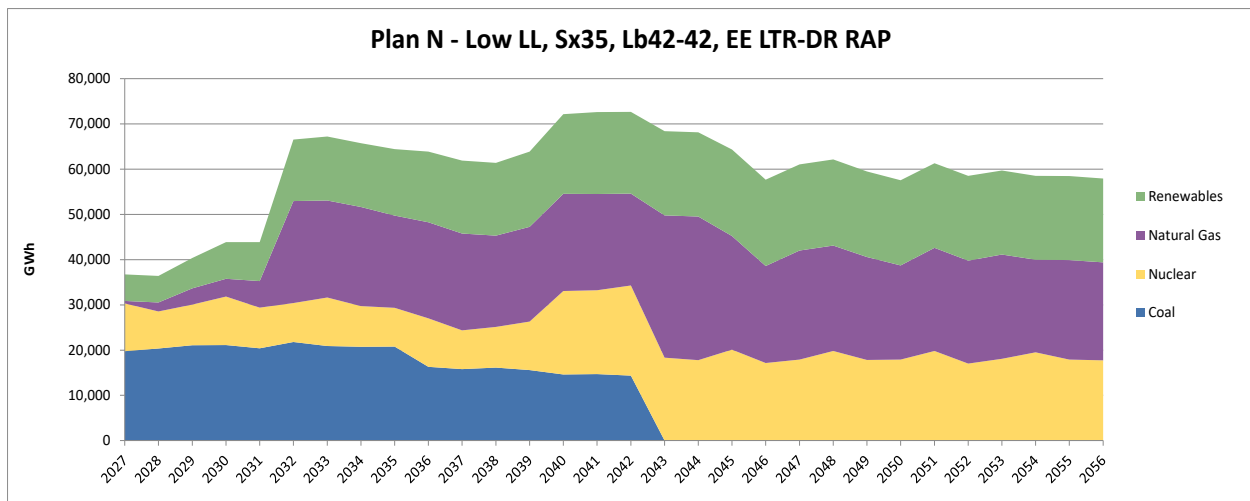
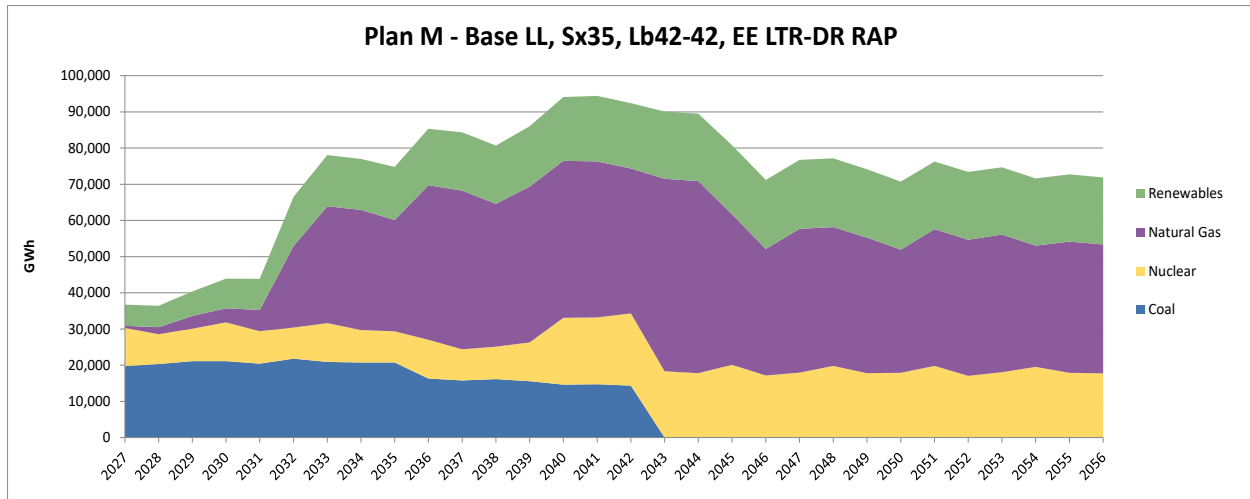
Figure 9A.14 Composition of Energy by Supply-Side Resource¹⁹

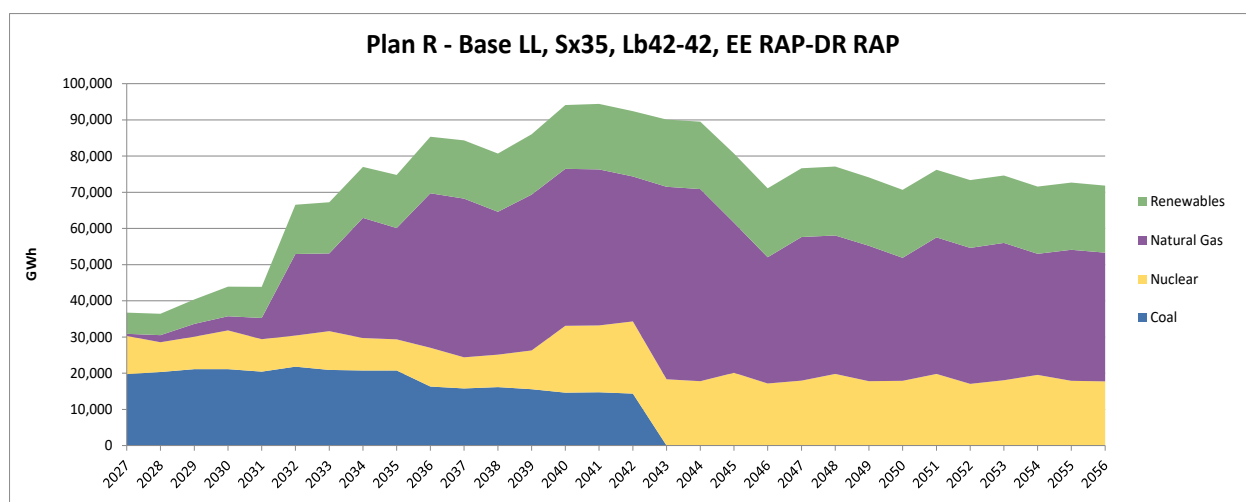
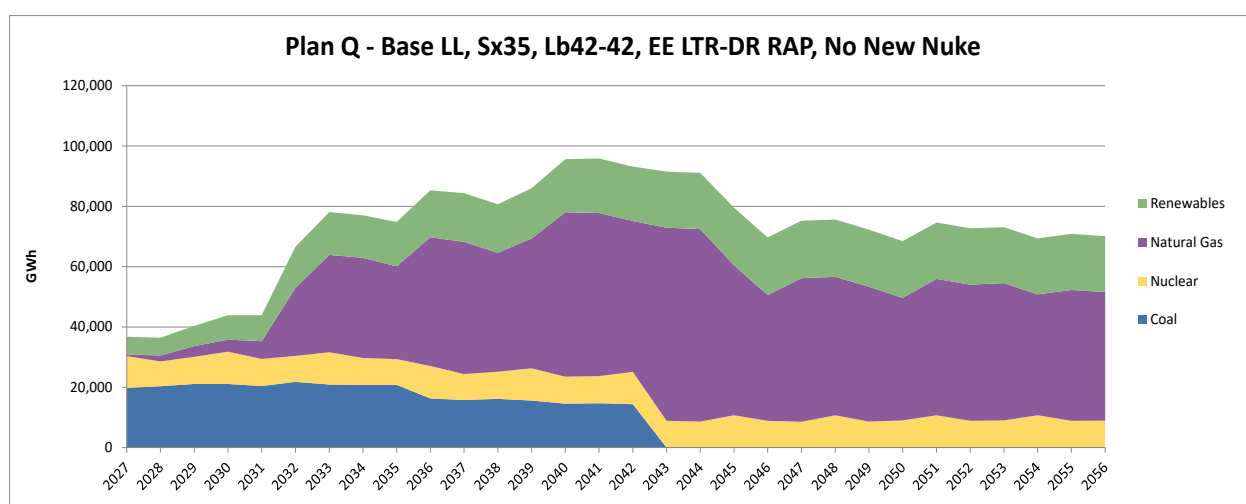
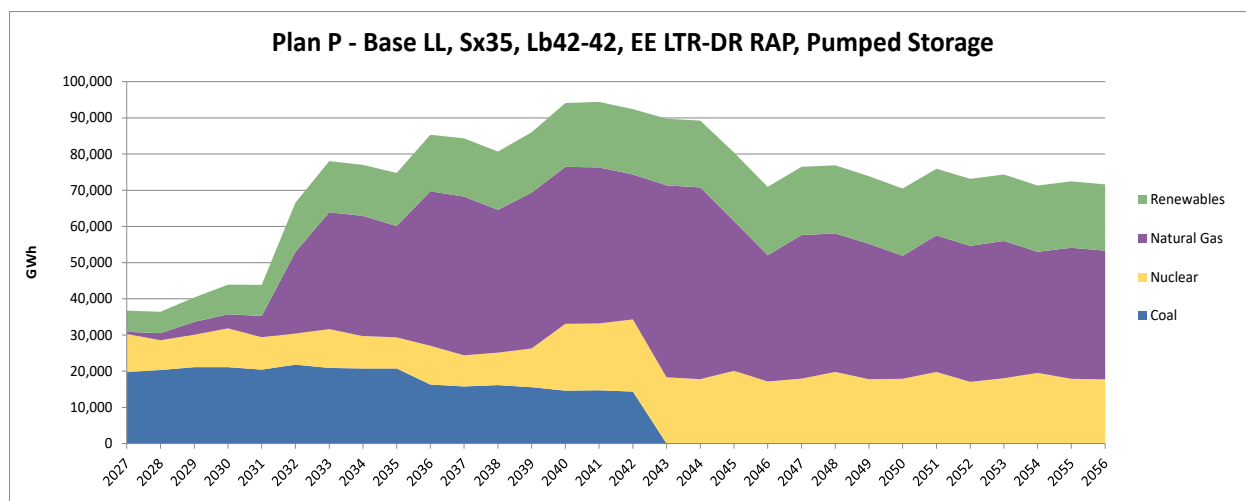
¹⁹ 20 CSR 4240-22.060(4)(B)6; Energy from storage resources taken out of renewables generation since pump/charge energy is higher than produced energy.

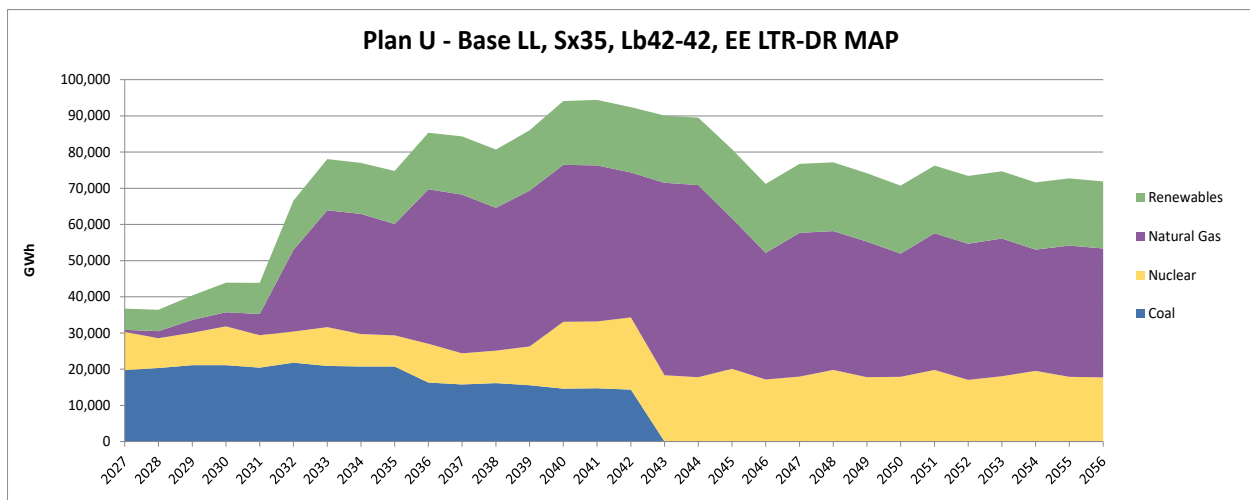
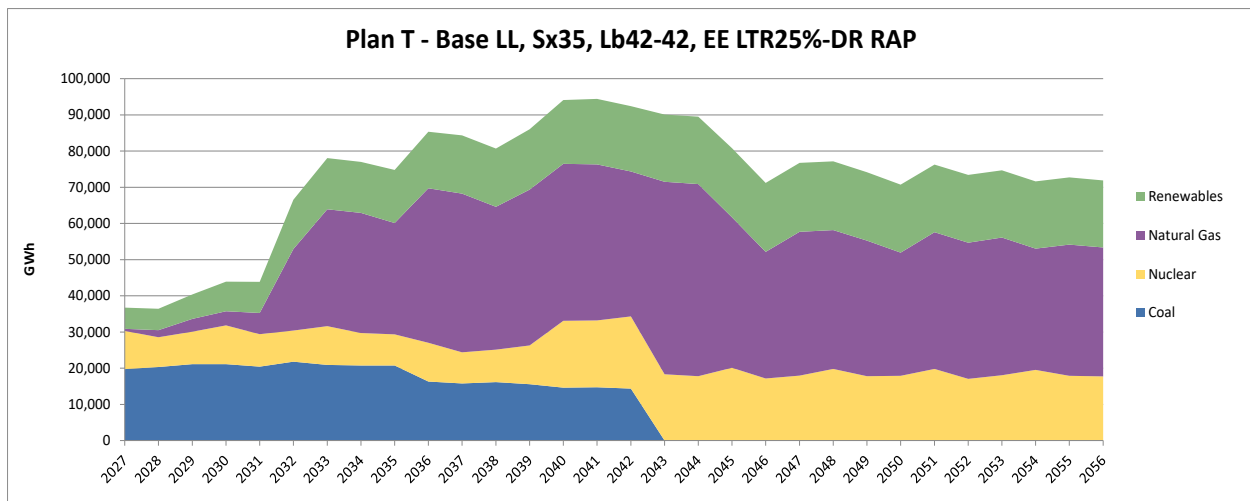
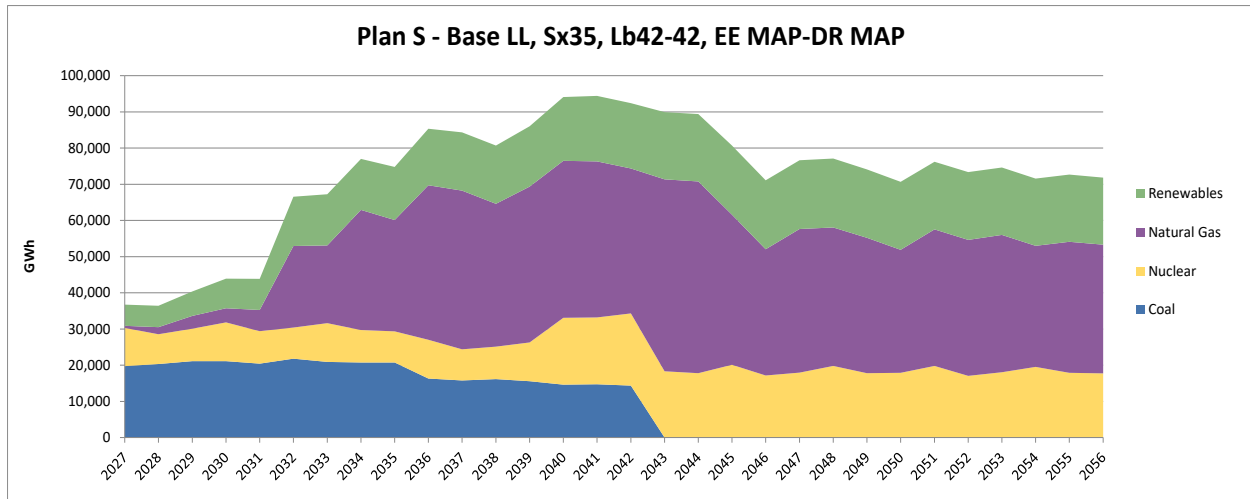


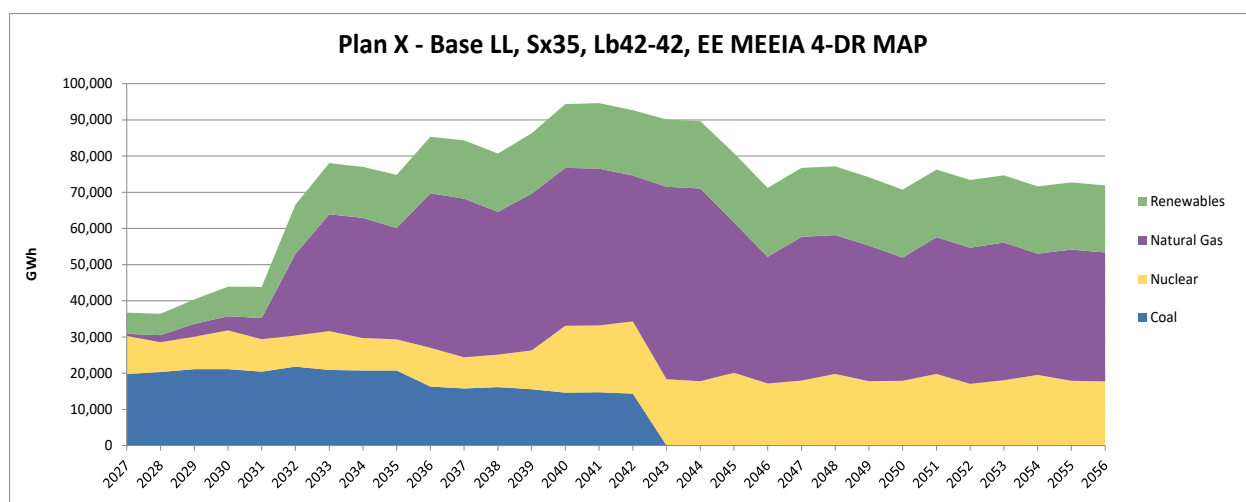
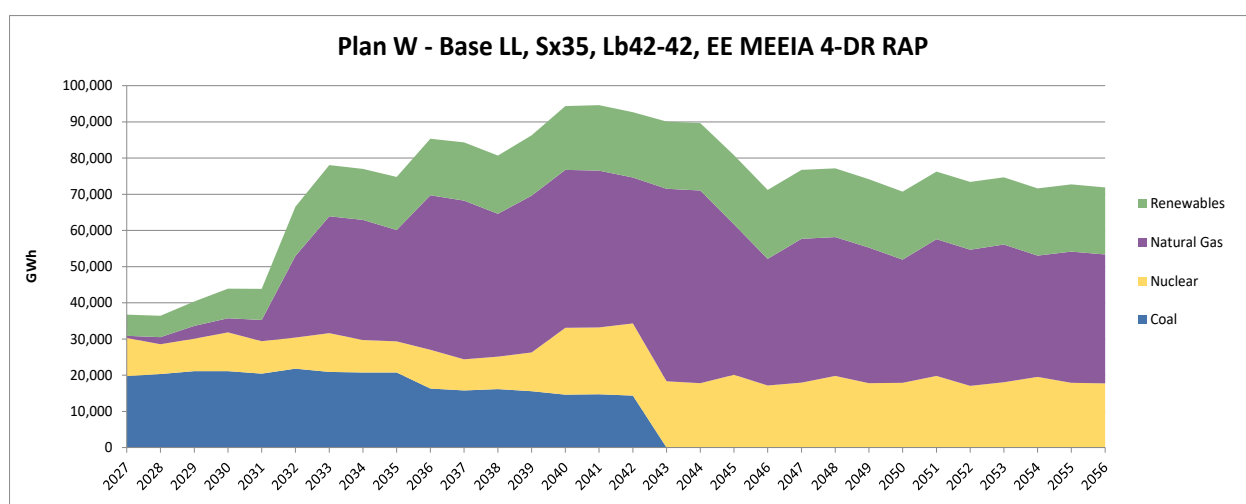
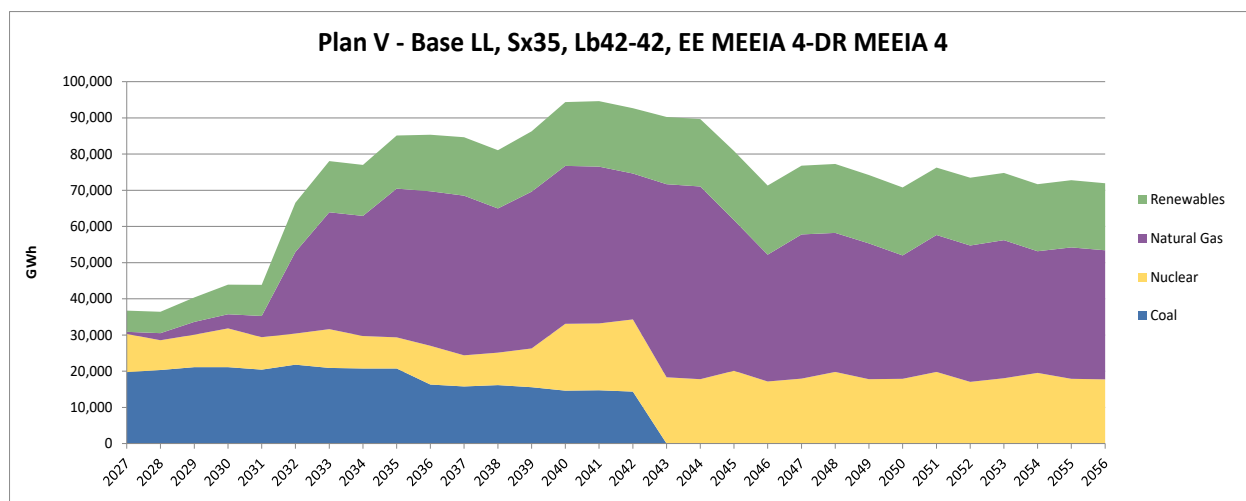


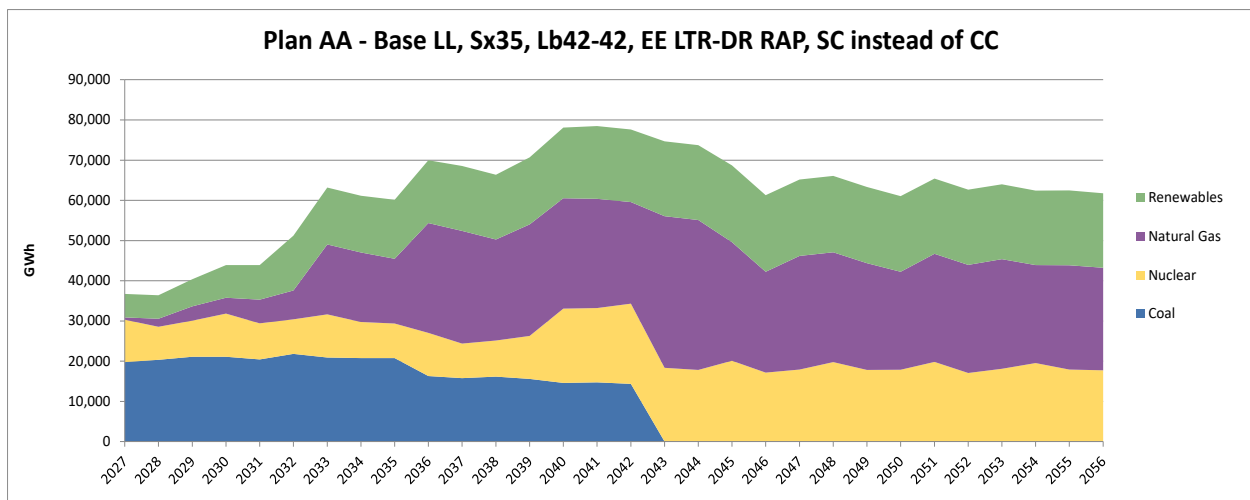
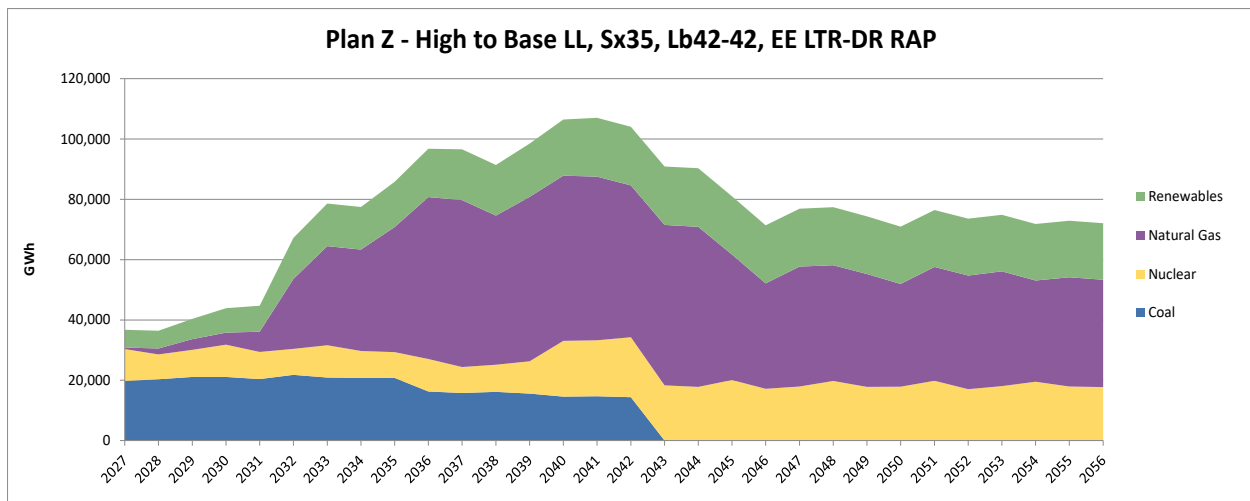
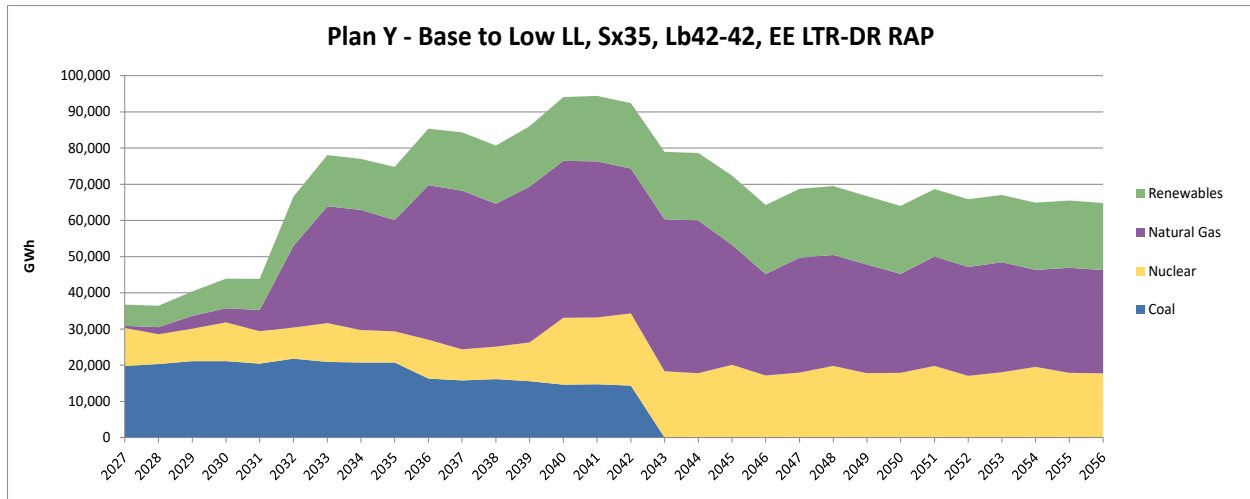












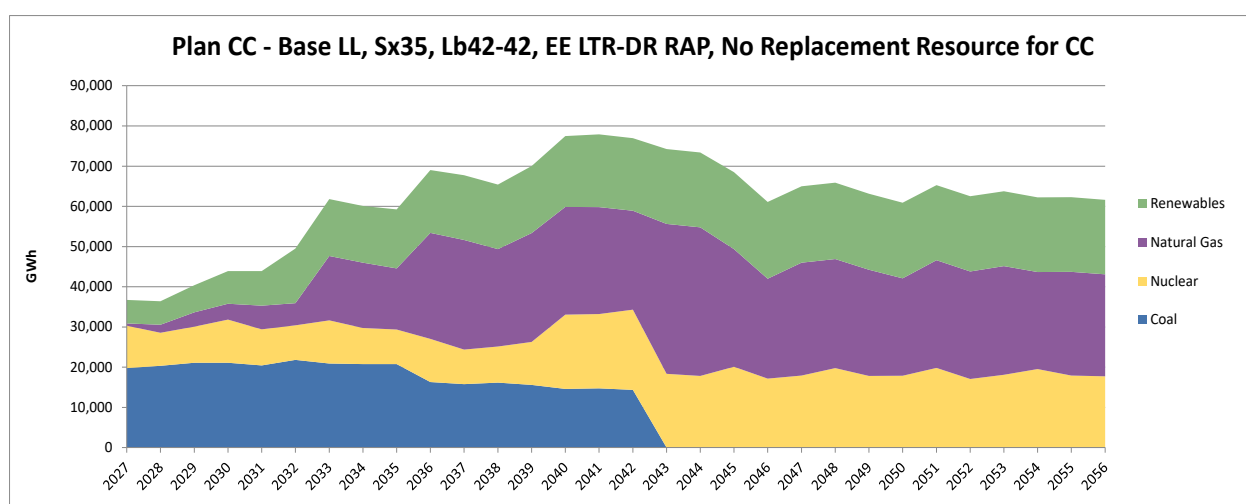
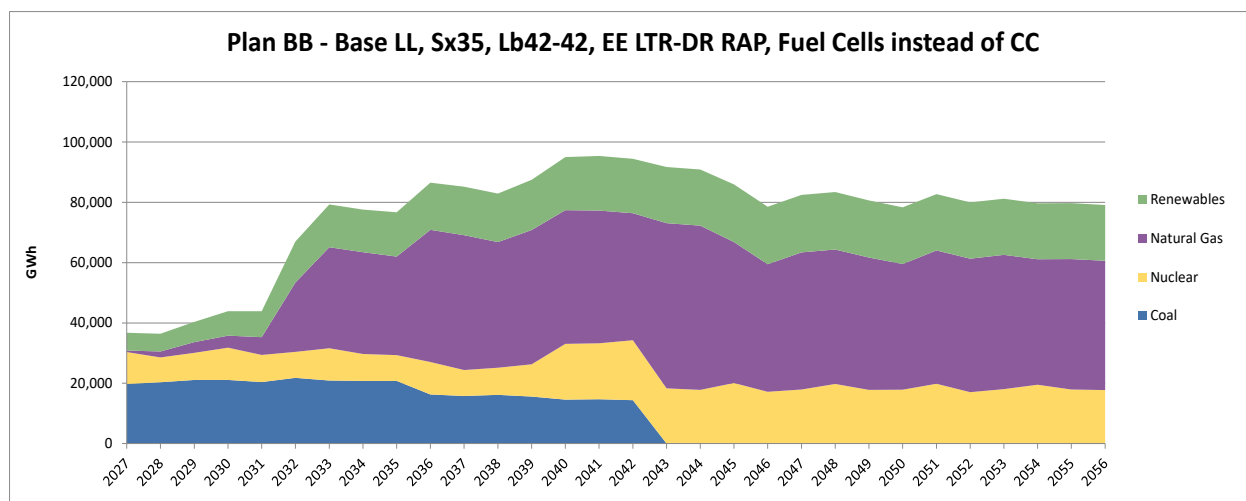


Figure 9A.15 Financial Measures²⁰

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²⁰ 20 CSR 4240-22.060(2)(A)6

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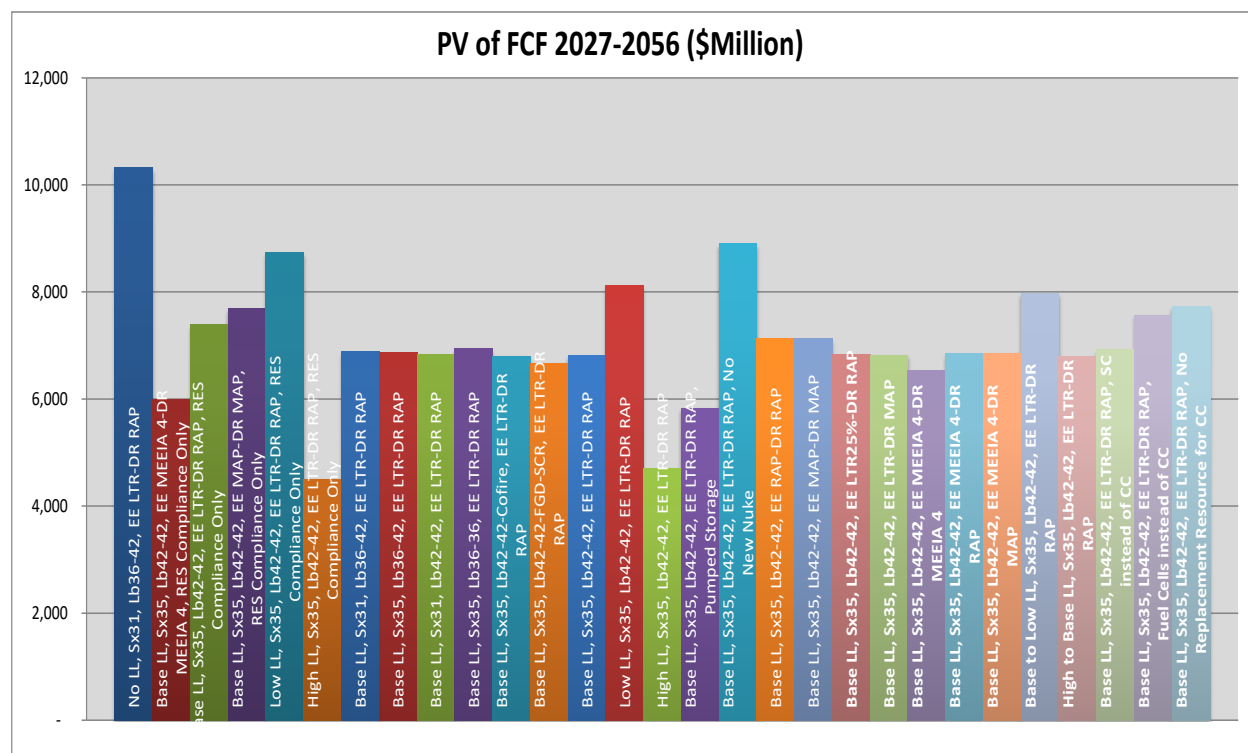
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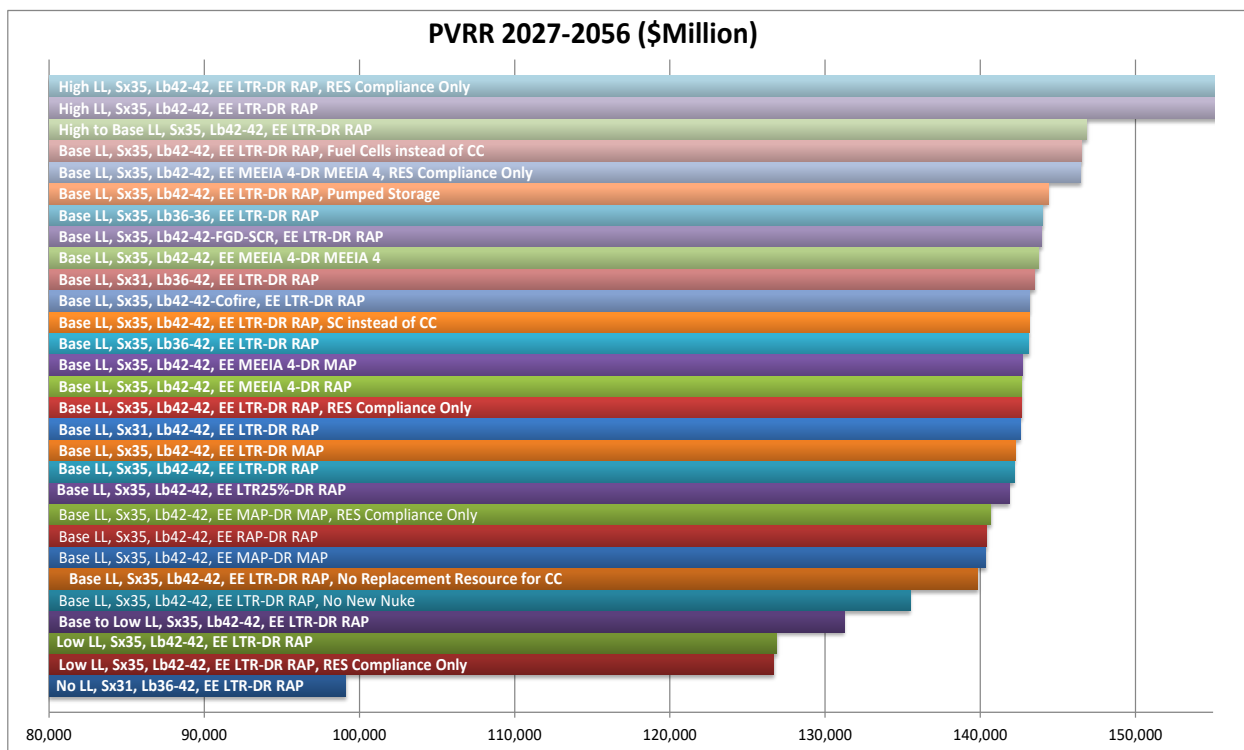
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Figure 9A.16 Revenue Requirements and Rates²¹

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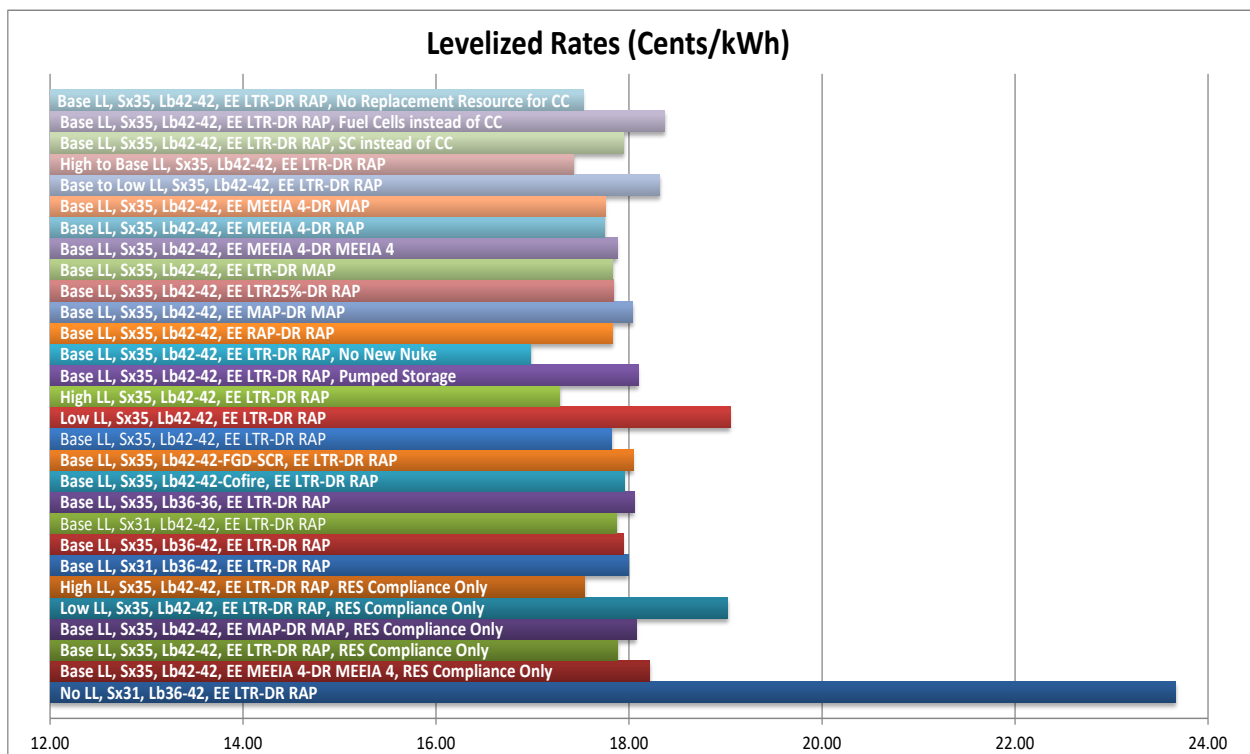
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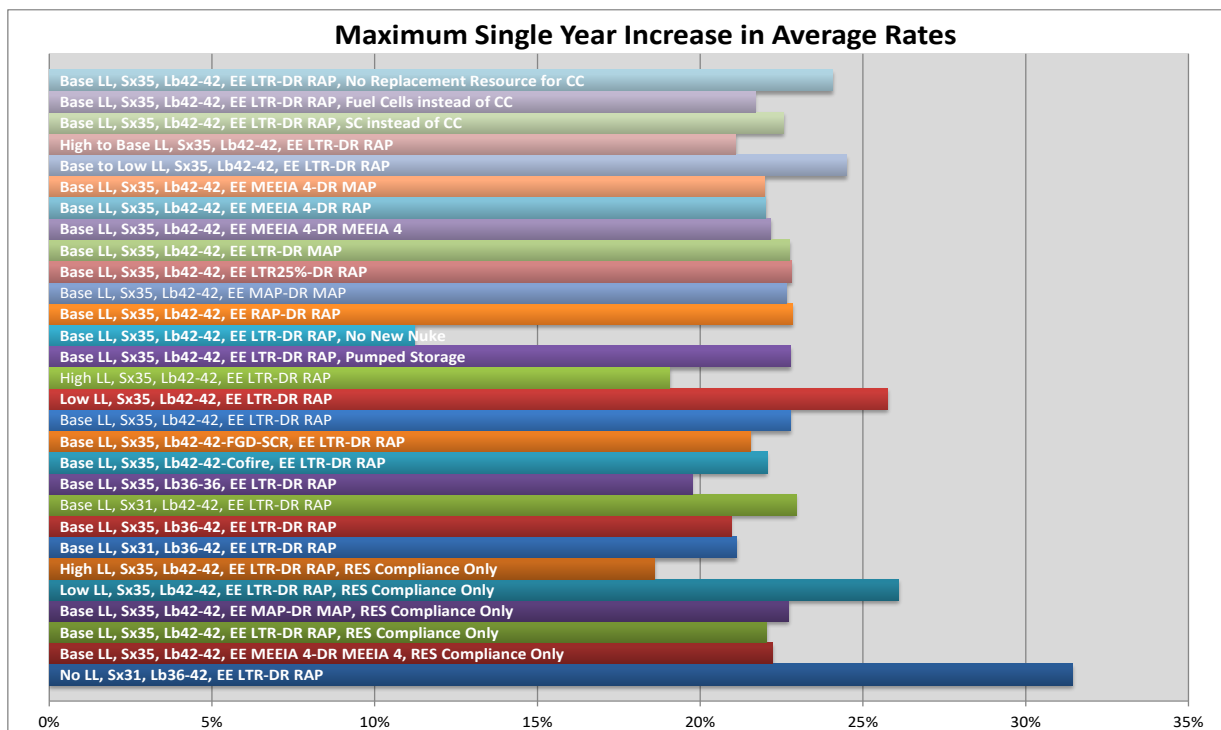


²¹ 20 CSR 4240-22.060(2)(A)4; 20 CSR 4240-22.060(2)(A)5

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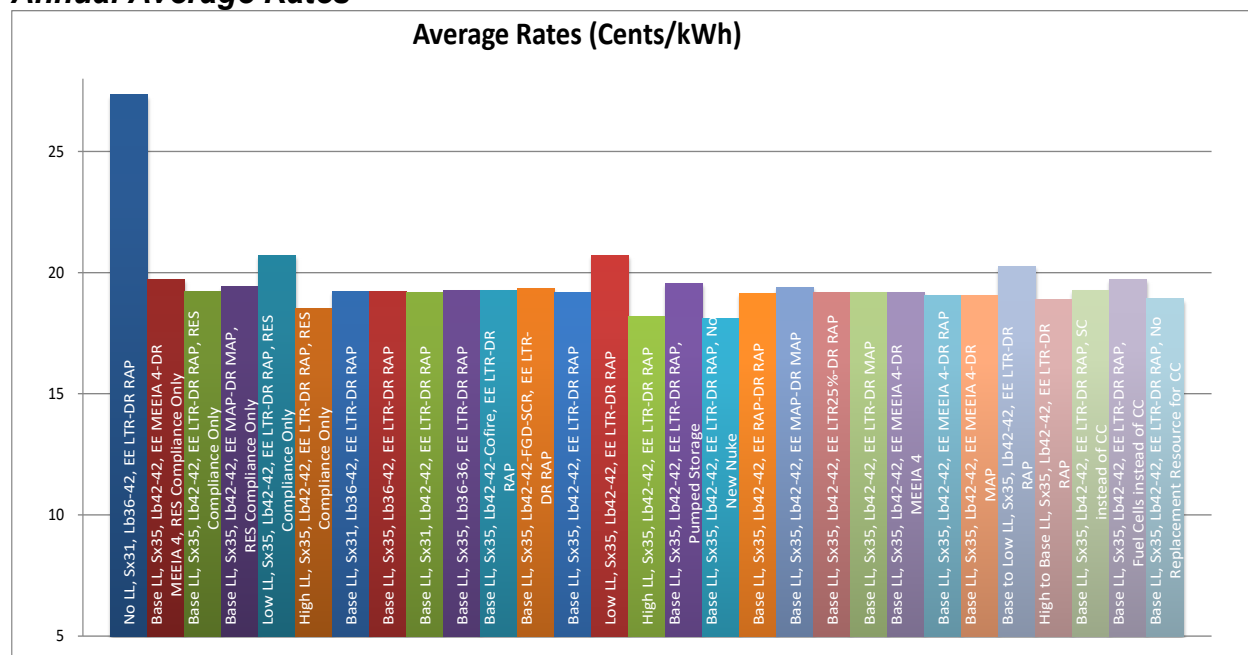
**Figure 9A.17 Results with Financial Incentives for DSM²²
Annual Revenue Requirements²³**

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²² 20 CSR 4240-22.060(4)(C)

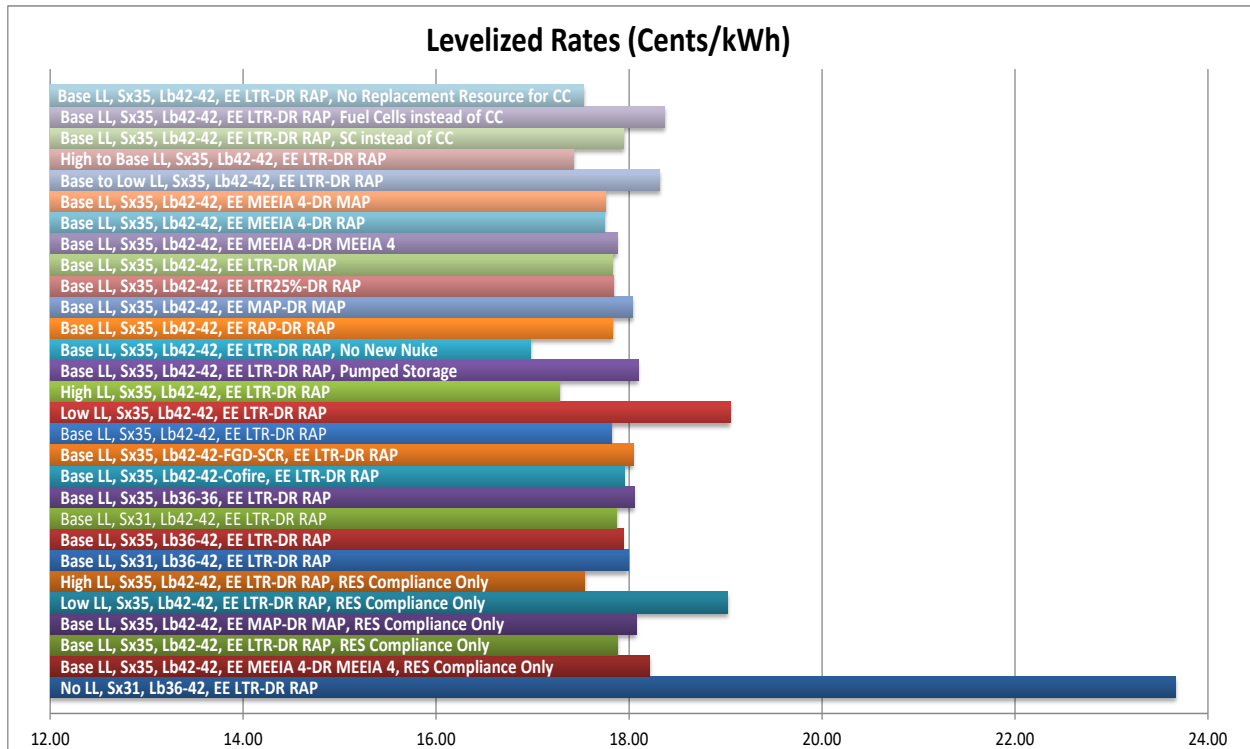
²³ 20 CSR 4240-22.060(4)(C)1A

Annual Average Rates²⁴

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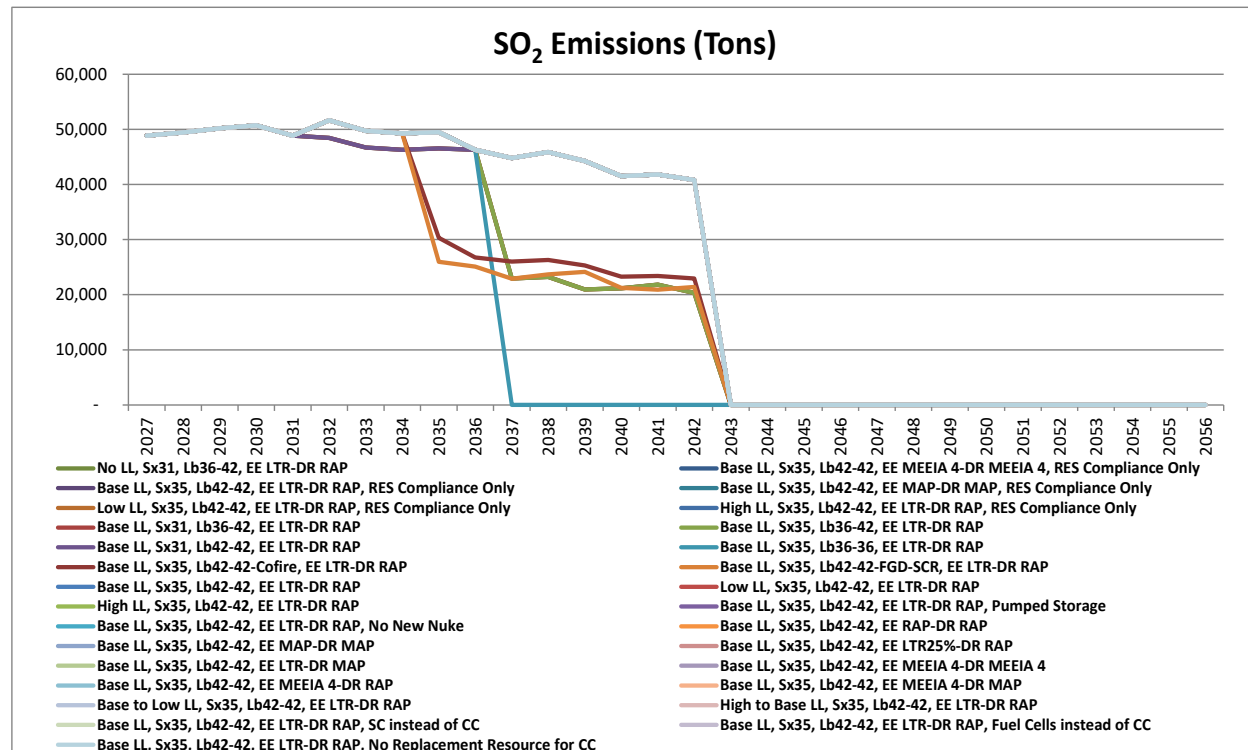
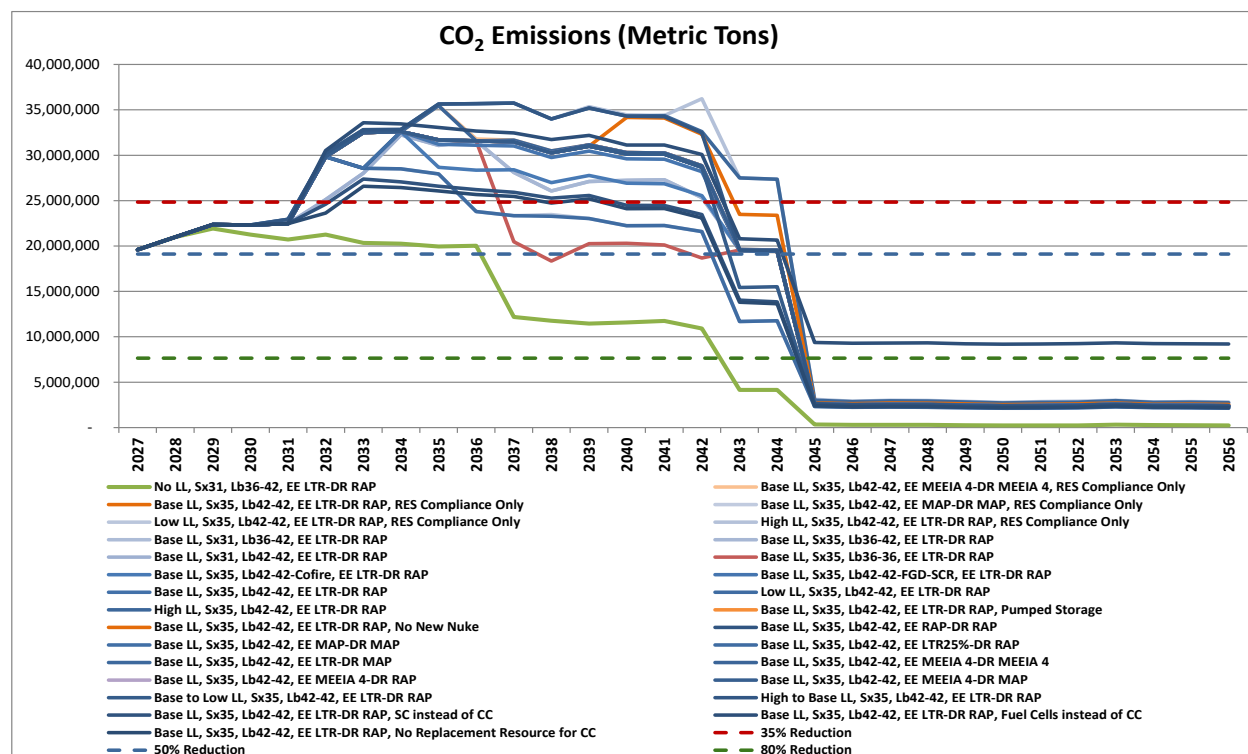
²⁴ 20 CSR 4240-22.060(4)(C)1B; 20 CSR 4240-22.060(4)(C)1C

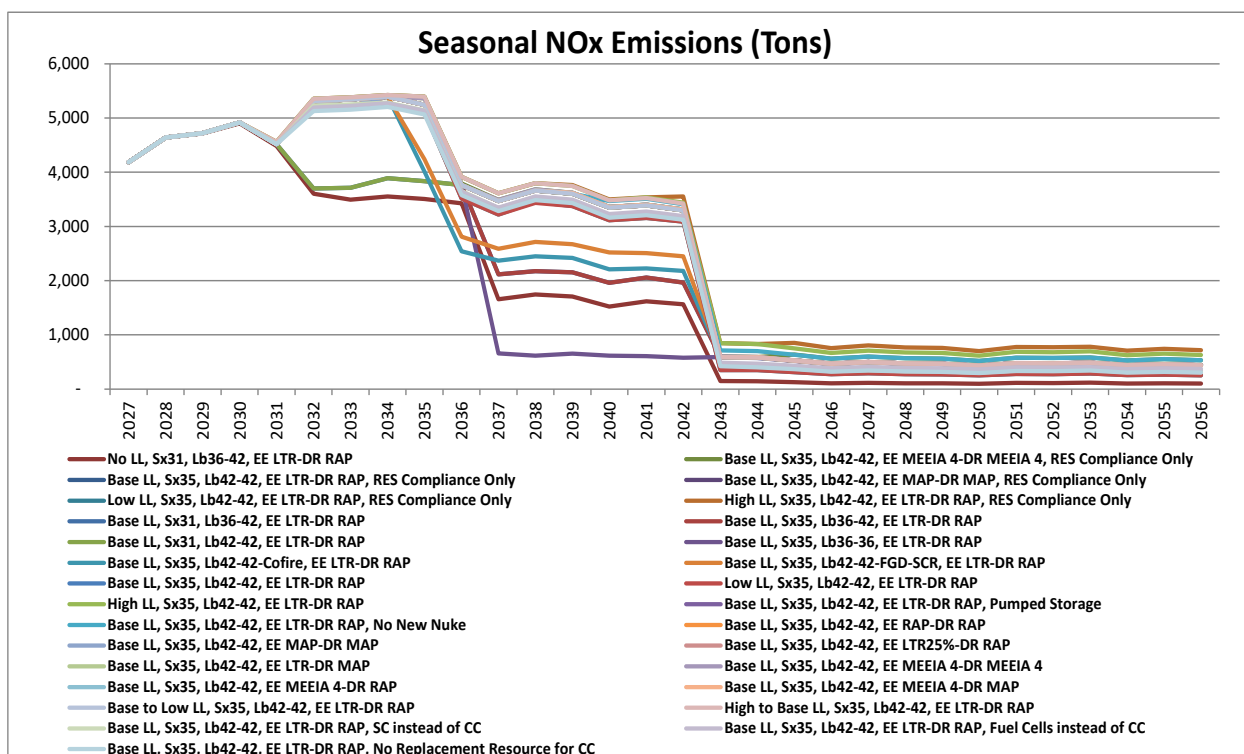
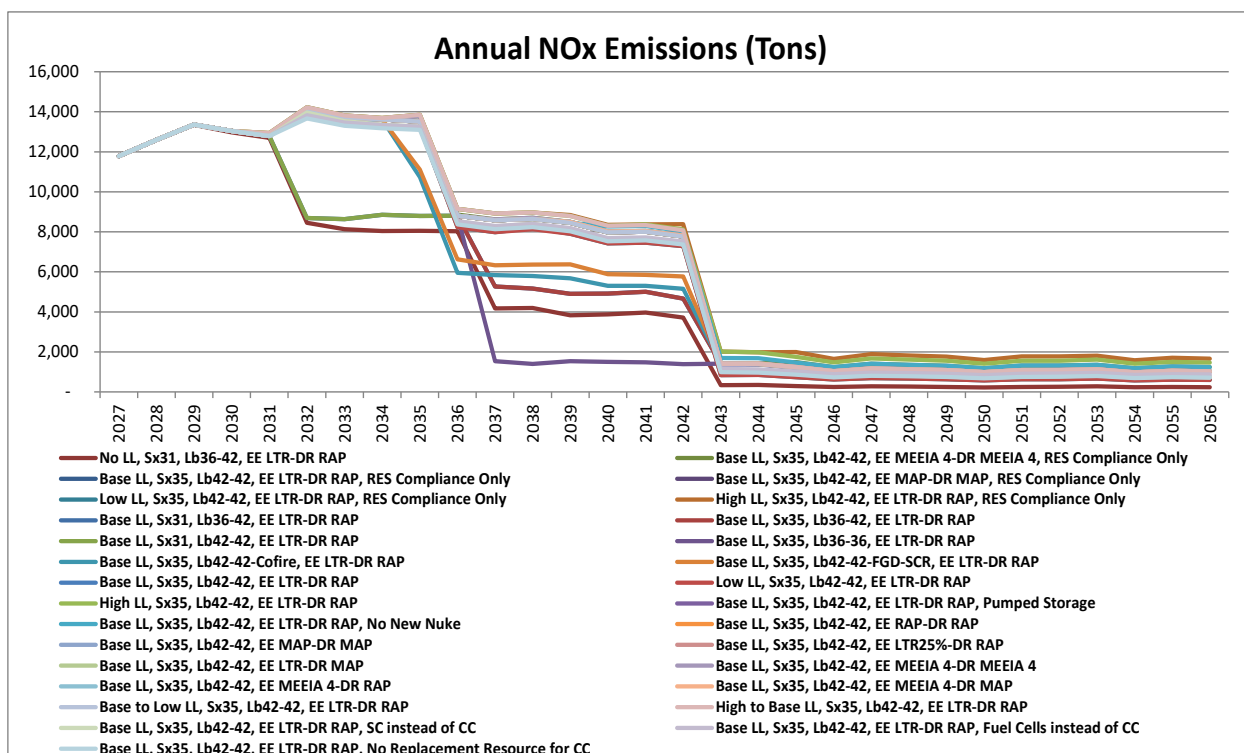


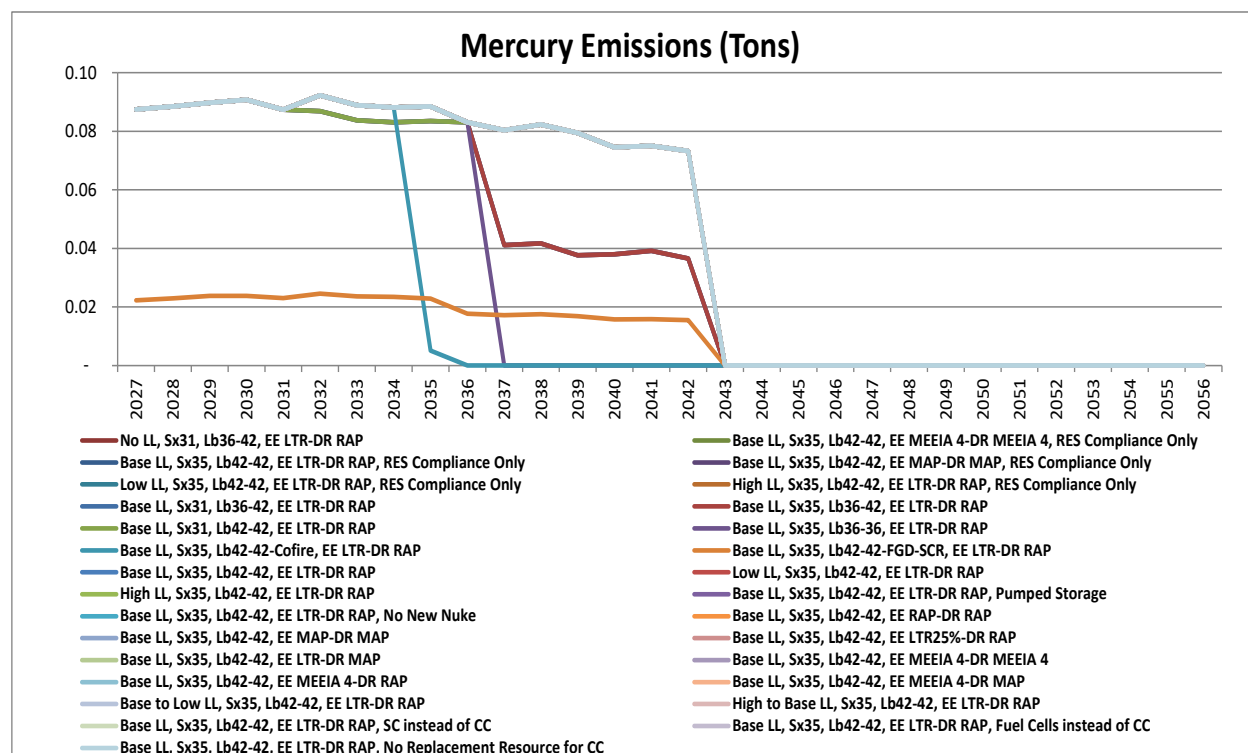
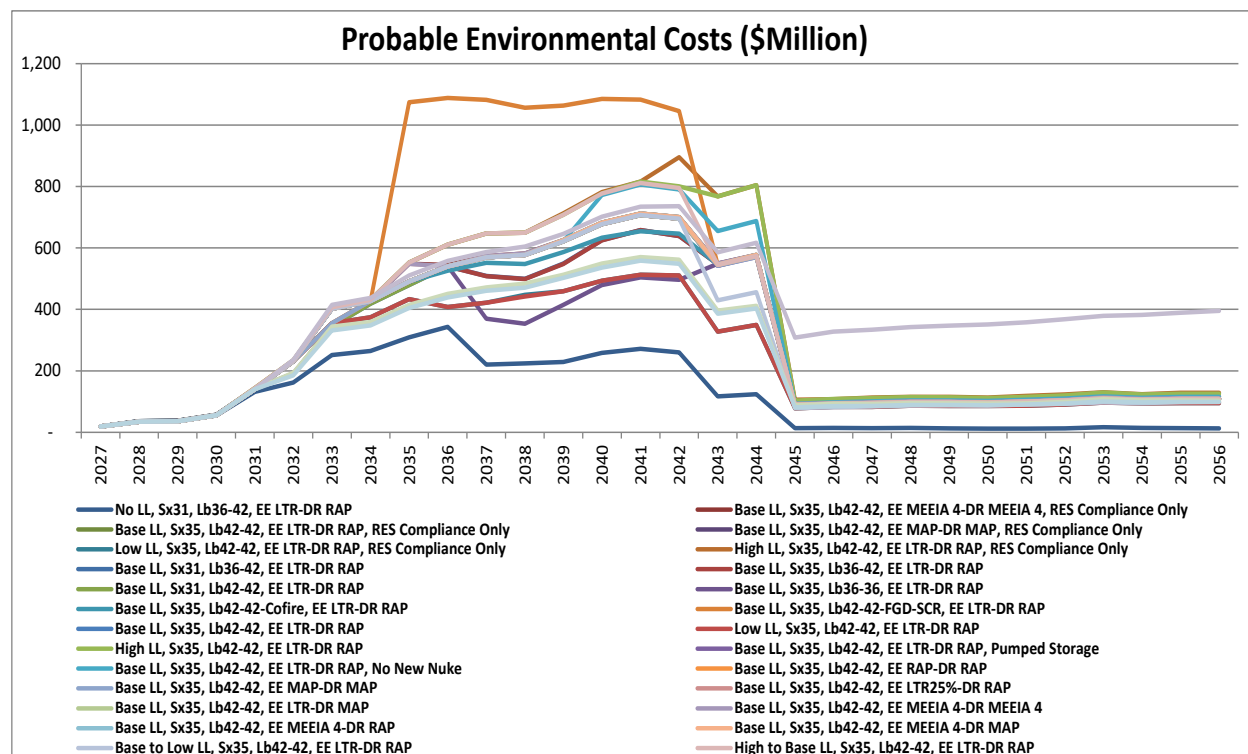
Tabulation for annual % increases in rates with and without financial incentives is provided in the workpapers.

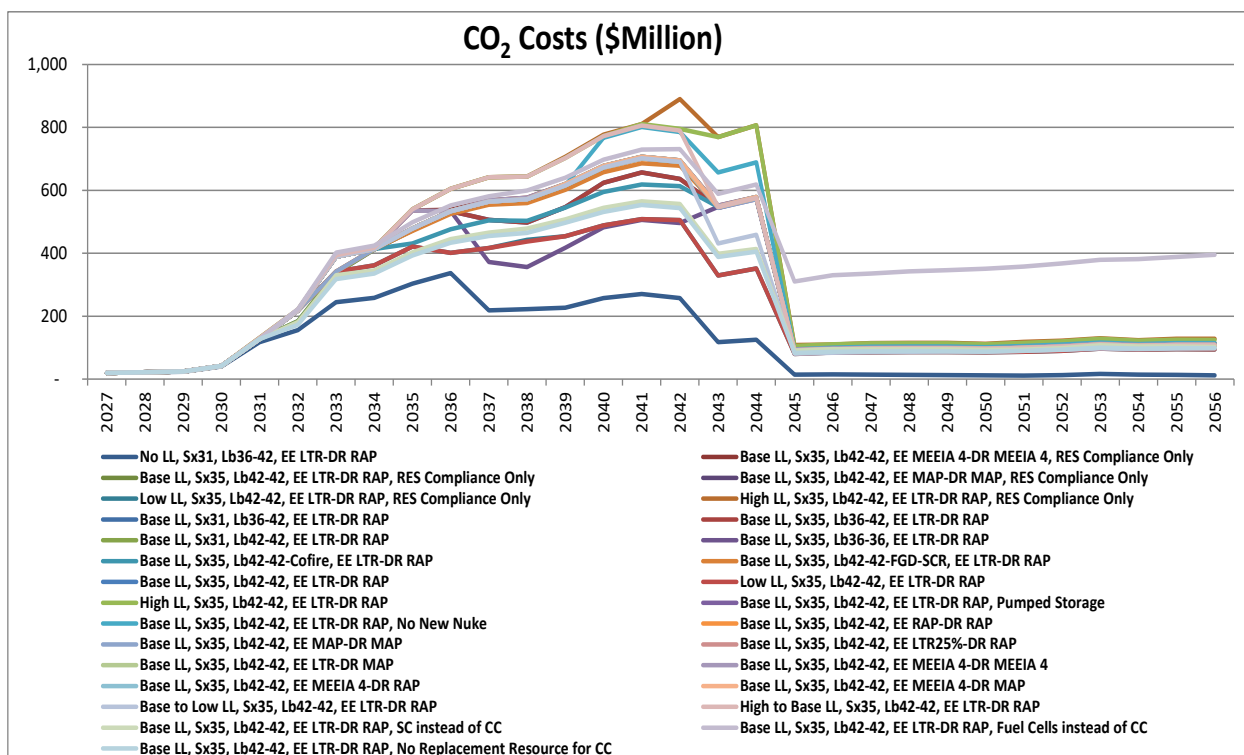
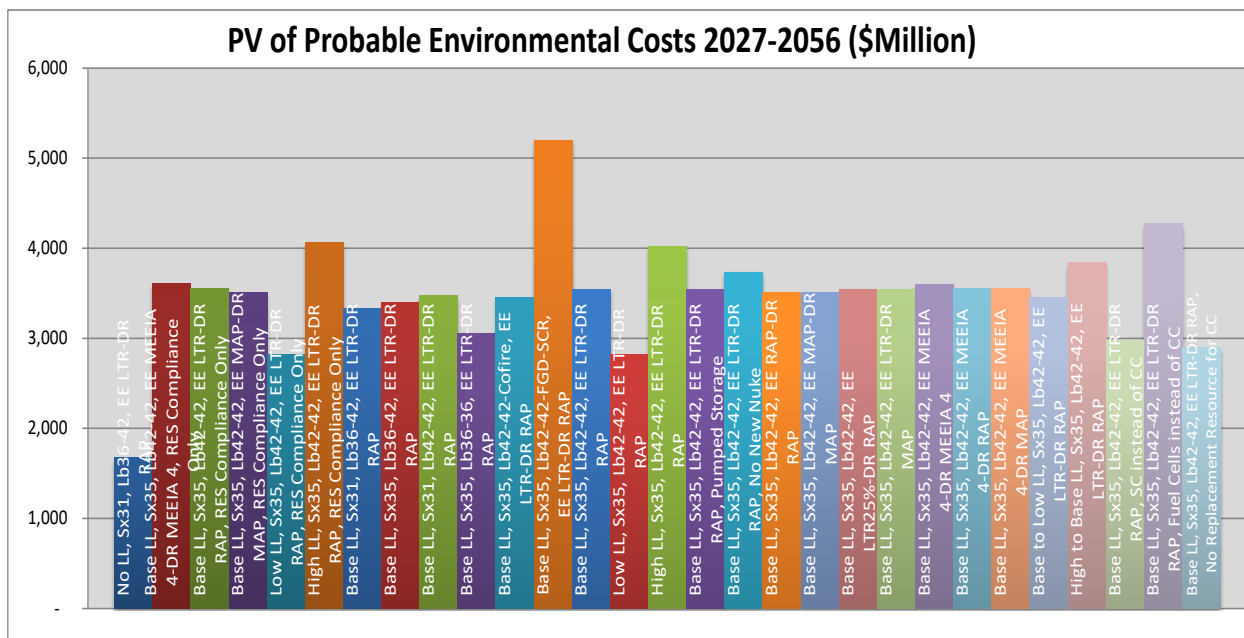
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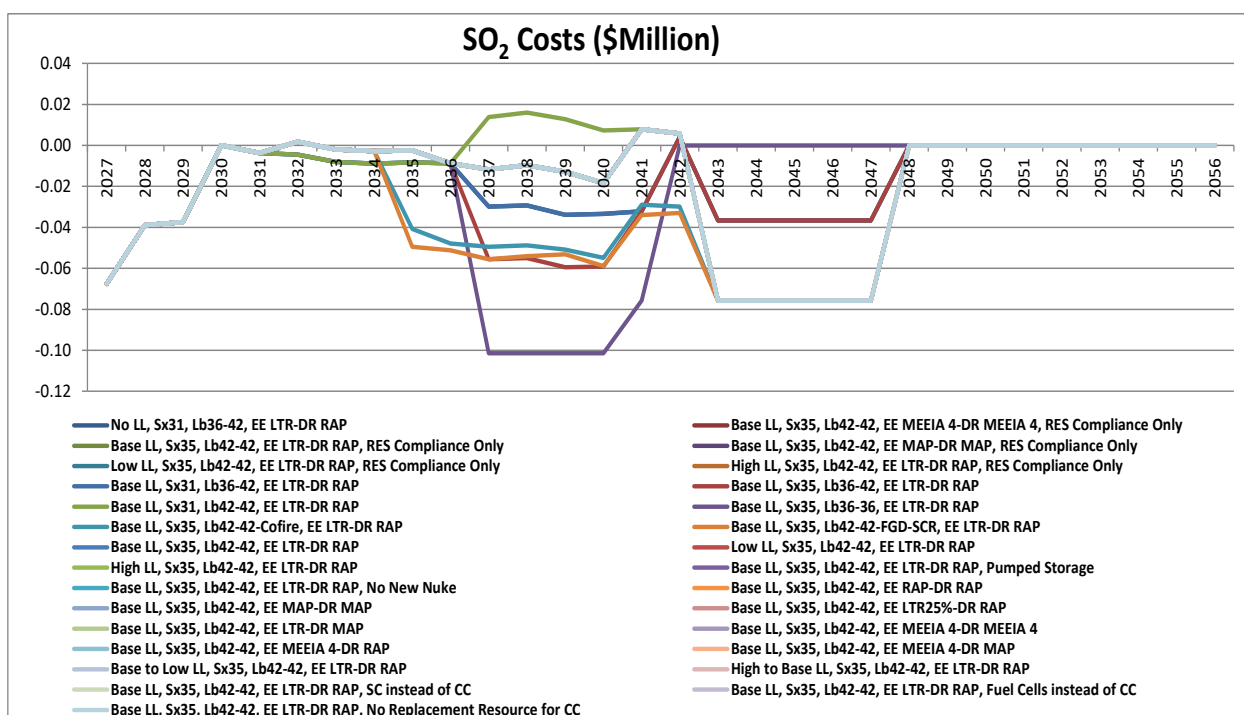
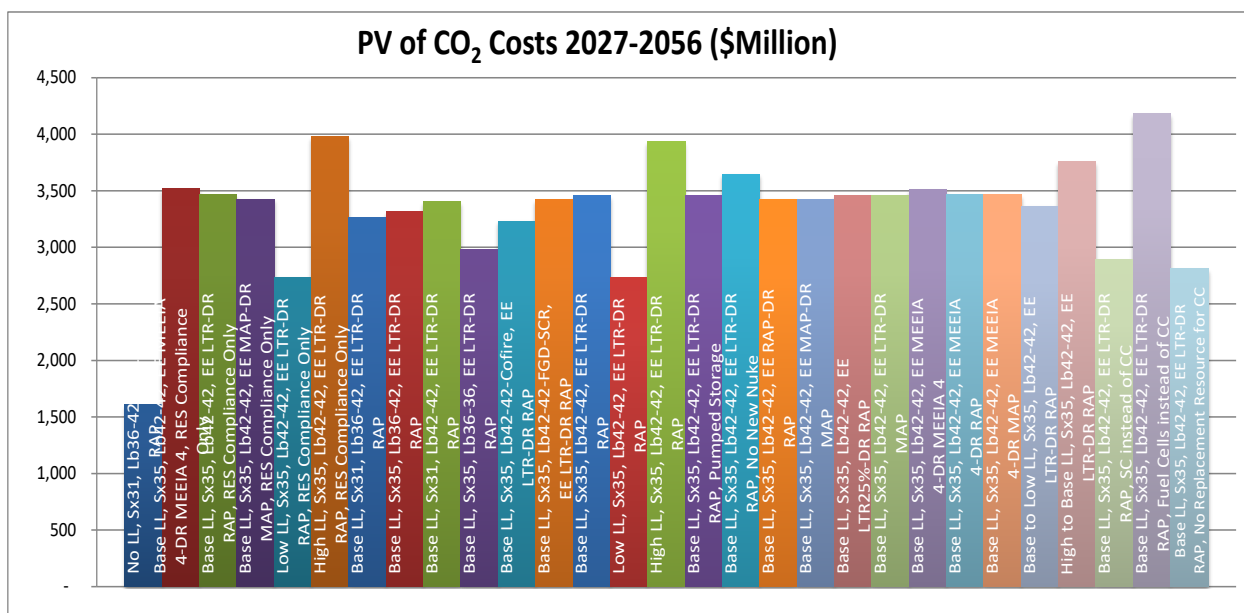
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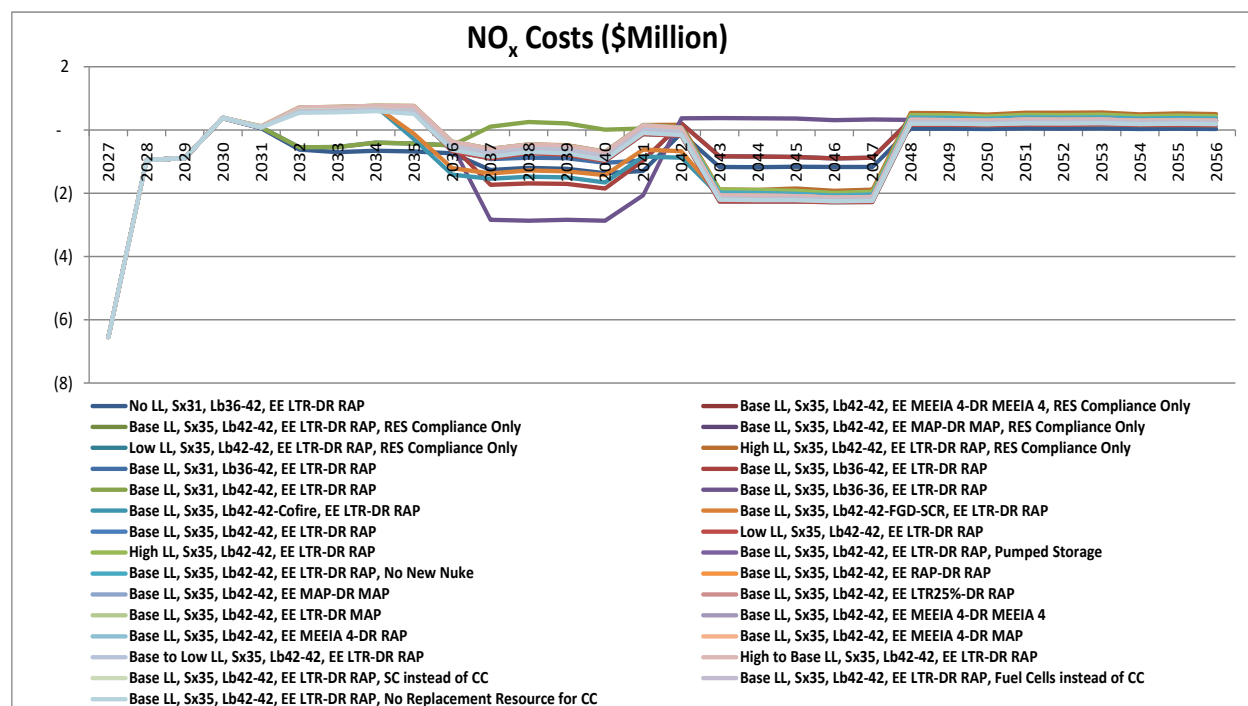
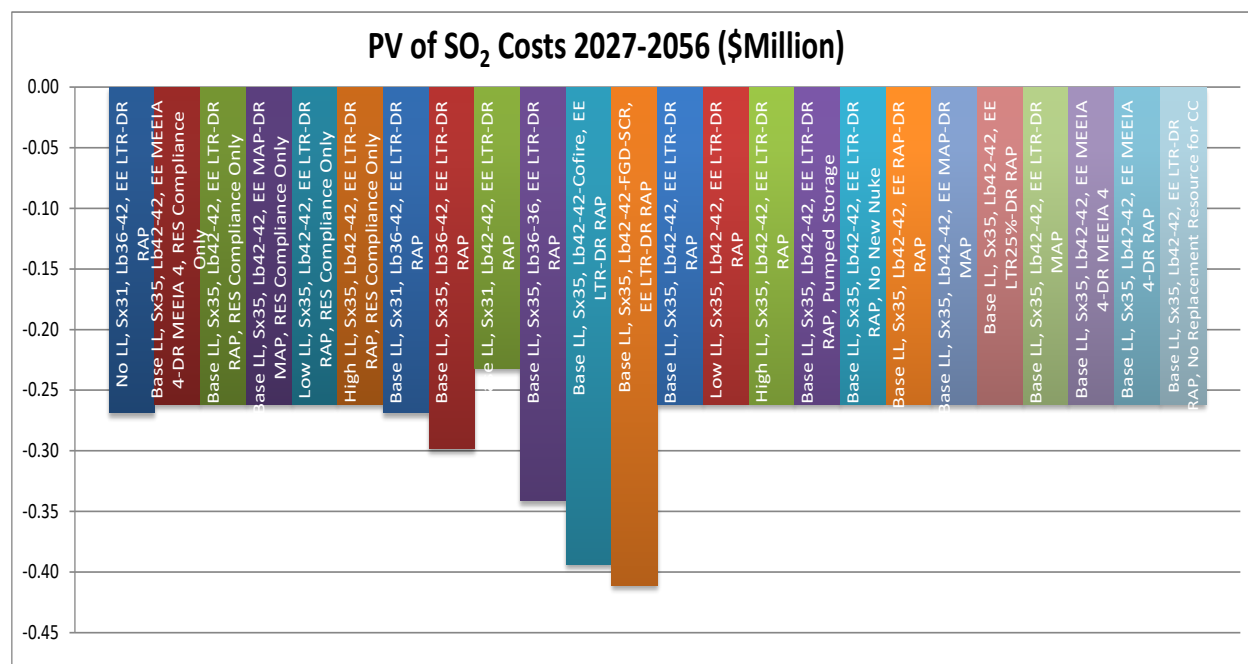
Figure 9A.18 Annual Emissions²⁵²⁵ 20 CSR 4240-22.060(4)(B)7

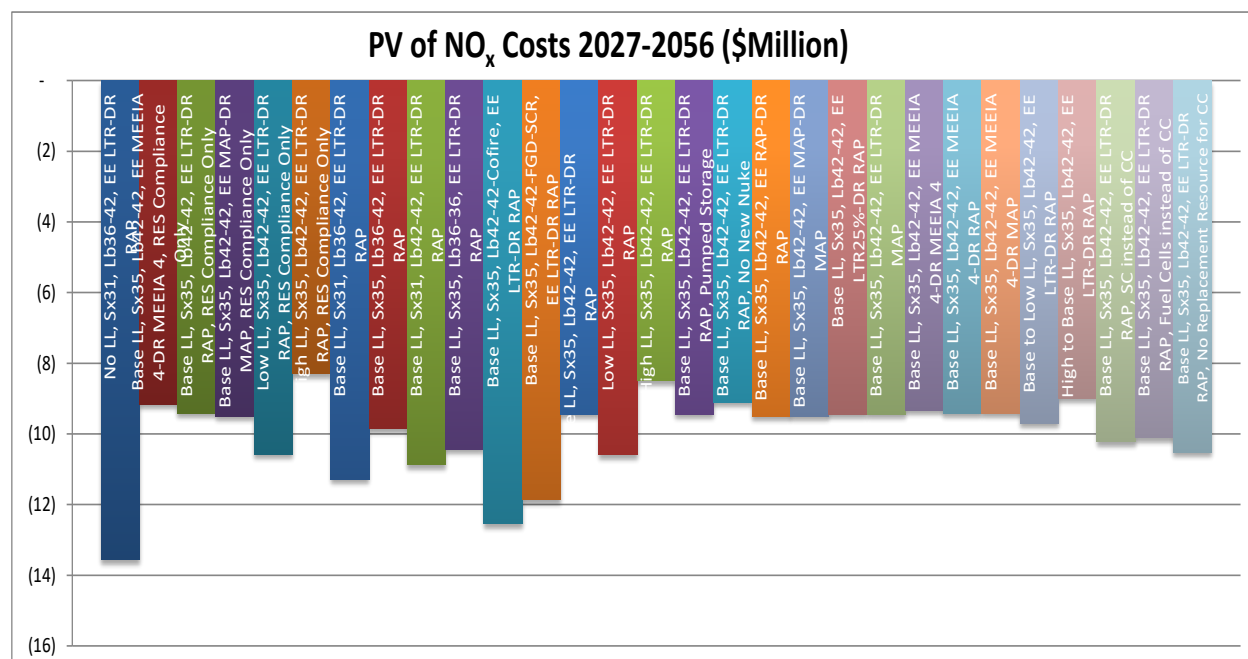


Figure 9A.19 Probable Environmental Costs²⁶²⁶ 20 CSR 4240-22.060(2)(A)2; 20 CSR 4240-22.060(4)(B)8









Expected Values, Rankings and Cumulative Probability Distributions for Selected Performance Measures²⁷

Ameren Missouri first examined the ranks of the alternative resource plans using the probability-weighted averages or the expected values for the selected performance measures. The electronic workpapers also provide data for the alternative resource plans and the performance of each plan by each selected performance measure: PVRR, PVRR with utility financial incentives, PVRR with PV of out-of-pocket costs to participants in DSM programs, PV of probable environmental costs, emissions, levelized annual average rates, annual and maximum single-year increase in average rates, pre-tax interest coverage, FFO/interest coverage, FFO/debt, debt/capitalization, ROE, PV of FCF, EPS and FTE jobs.²⁸

The expected value data for the measures and their ranks on each measure are shown in Table 9A.8 and Table 9A.9, respectively.

Since Ameren Missouri is a market participant in MISO, the modeling used in integration analysis assumes electric energy can be bought and sold within MISO market. Any energy unable to be served with Ameren Missouri resources is served with other MISO market resources; therefore, the unserved hours will always be zero.²⁹

²⁷ 20 CSR 4240-22.060(7)

²⁸ 20 CSR 4240-22.060(2)

²⁹ 20 CSR 4240-22.060(7)(C)4

Table 9A.8 Expected Values for Selected Performance Measures³⁰

Plan	EXPECTED VALUE														
	PVRR \$MM	PVRR w/ Incentives \$MM	Levelized Rates Cents/kWh	Max Single Yr Rate Increase	PV of Participant Cost \$MM	PV of Probable Environmental Cost \$MM	Avg CO2 Emissions (MM Metric Tons)	PreTax Interest Coverage	FFO-Interest Coverage	FFO/Debt	Debt/ Capitalization	ROE	FCF \$MM	EPS	Jobs
A-No LL, Sx31, Lb36-42, EE LTR-DR RAP	99,107	99,242	23.67	31%	76	1,674	10	3.19	5.12	23%	45%	11.2%	10,323	7.83	24,955
B-Base LL, Sx35, Lb42-42, EE MEEIA 4-DR MEEIA 4, RES Compliance Only	146,462	146,474	18.22	22%	76	3,607	17	3.10	4.90	22%	45%	10.7%	5,995	10.82	32,483
C-Base LL, Sx35, Lb42-42, EE LTR-DR RAP, RES Compliance Only	142,672	142,807	17.88	22%	76	3,553	17	3.12	5.00	22%	45%	10.8%	7,385	10.06	37,040
D-Base LL, Sx35, Lb42-42, EE MAP-DR MAP, RES Compliance Only	140,653	140,895	18.07	23%	76	3,509	17	3.13	5.01	22%	45%	10.8%	7,692	9.85	53,120
E-Low LL, Sx35, Lb42-42, EE LTR-DR RAP, RES Compliance Only	126,686	126,821	19.02	26%	76	2,820	14	3.14	5.06	23%	45%	10.9%	8,740	9.11	32,040
F-High LL, Sx35, Lb42-42, EE LTR-DR RAP, RES Compliance Only	163,098	163,233	17.54	19%	76	4,063	19	3.08	4.85	21%	45%	10.5%	4,503	11.84	45,326
G-Base LL, Sx31, Lb36-42, EE LTR-DR RAP	143,522	143,657	17.99	21%	76	3,325	16	3.09	5.02	23%	44%	10.8%	6,878	10.43	39,388
H-Base LL, Sx35, Lb36-42, EE LTR-DR RAP	143,123	143,258	17.94	21%	76	3,395	17	3.09	5.02	22%	44%	10.7%	6,867	10.44	39,928
I-Base LL, Sx31, Lb42-42, EE LTR-DR RAP	142,581	142,716	17.87	23%	76	3,476	17	3.09	5.01	22%	44%	10.7%	6,828	10.41	40,072
J-Base LL, Sx35, Lb36-36, EE LTR-DR RAP	144,019	144,154	18.05	20%	76	3,054	15	3.09	5.05	23%	44%	10.8%	6,950	10.41	38,508
K-Base LL, Sx35, Lb42-42-Cofire, EE LTR-DR RAP	143,191	143,326	17.95	22%	76	3,448	16	3.08	5.00	22%	44%	10.7%	6,802	10.43	41,223
L-Base LL, Sx35, Lb42-42-FGD-SCR, EE LTR-DR RAP	143,943	144,078	18.04	22%	76	5,201	17	3.08	5.03	23%	44%	10.7%	6,666	10.48	41,762
M-Base LL, Sx35, Lb42-42, EE LTR-DR RAP	142,182	142,317	17.82	23%	76	3,545	17	3.08	5.00	22%	44%	10.7%	6,817	10.42	40,612
N-Low LL, Sx35, Lb42-42, EE LTR-DR RAP	126,872	127,007	19.05	26%	76	2,818	14	3.09	5.08	23%	44%	10.8%	8,115	9.59	37,288
O-High LL, Sx35, Lb42-42, EE LTR-DR RAP	160,699	160,834	17.28	19%	76	4,023	19	3.06	4.90	22%	44%	10.6%	4,695	11.73	46,063
P-Base LL, Sx35, Lb42-42, EE LTR-DR RAP, Pumped Storage	144,367	144,502	18.10	23%	76	3,537	17	3.06	4.91	22%	44%	10.6%	5,830	10.96	42,067
Q-Base LL, Sx35, Lb42-42, EE LTR-DR RAP, No New Nuke	135,477	135,612	16.98	11%	76	3,733	18	3.10	5.11	23%	45%	10.8%	8,903	9.05	21,879
R-Base LL, Sx35, Lb42-42, EE RAP-DR RAP	140,411	140,595	17.83	23%	76	3,511	17	3.09	5.02	22%	44%	10.8%	7,132	10.25	44,320
S-Base LL, Sx35, Lb42-42, EE MAP-DR MAP	140,357	140,599	18.03	23%	76	3,508	17	3.09	5.02	22%	44%	10.8%	7,132	10.23	57,009
T-Base LL, Sx35, Lb42-42, EE LTR25%-DR RAP	141,867	142,014	17.84	23%	76	3,545	17	3.08	5.00	22%	44%	10.7%	6,823	10.41	41,740
U-Base LL, Sx35, Lb42-42, EE LTR-DR MAP	142,248	142,397	17.83	23%	76	3,545	17	3.08	5.00	22%	44%	10.7%	6,818	10.41	40,697
V-Base LL, Sx35, Lb42-42, EE MEEIA 4-DR MEEIA 4	143,747	143,759	17.88	22%	76	3,596	17	3.08	4.99	22%	44%	10.7%	6,527	10.60	33,382
W-Base LL, Sx35, Lb42-42, EE MEEIA 4-DR RAP	142,675	142,782	17.75	22%	76	3,553	17	3.09	5.01	22%	44%	10.7%	6,854	10.42	34,697
X-Base LL, Sx35, Lb42-42, EE MEEIA 4-DR MAP	142,742	142,863	17.75	22%	76	3,553	17	3.09	5.01	22%	44%	10.7%	6,855	10.42	34,782
Y-Base to Low LL, Sx35, Lb42-42, EE LTR-DR RAP	131,232	131,367	18.31	24%	76	3,449	17	3.11	5.08	23%	44%	10.9%	7,979	9.73	38,521
Z-High to Base LL, Sx35, Lb42-42, EE LTR-DR RAP	146,850	146,985	17.43	21%	76	3,842	18	3.10	5.03	23%	44%	10.8%	6,792	10.51	41,244
AA-Base LL, Sx35, Lb42-42, EE LTR-DR RAP, SC instead of CC	143,143	143,277	17.94	23%	76	2,975	15	3.10	5.05	23%	44%	10.7%	6,923	10.24	39,066
BB-Base LL, Sx35, Lb42-42, EE LTR-DR RAP, Fuel Cells instead of CC	146,530	146,664	18.37	22%	76	4,269	20	3.06	5.16	23%	44%	10.7%	7,570	10.22	38,853
CC-Base LL, Sx35, Lb42-42, EE LTR-DR RAP, No Replacement Resource for CC	139,825	139,960	17.53	24%	76	2,895	15	3.09	5.09	23%	44%	10.8%	7,719	9.75	37,966

³⁰ 20 CSR 4240-22.060(4)(A); 20 CSR 4240-22.060(7)(A); 20 CSR 4240-22.060(7)(C)3

Table 9A.9 Rankings for Selected Performance Measures

Plan	RANKING														
	PVRR SMM	PVRR w/ Incentives SMM	Levelized Rates Cents/kWh	Max Single Yr Rate Increase	PV of Participant Cost SMM	PV of Probable Environmental Cost SMM	Avg CO2 Emissions (MM Tons)	PreTax Interest Coverage	FFO-Interest Coverage	FFO/Debt	Debt/ Capitalization	ROE	FCF SMM	EPS	Jobs
A-No LL, Sx31, Lb36-42, EE LTR-DR RAP	1	1	29	29	1	1	1	1	2	3	27	1	1	29	28
B-Base LL, Sx35, Lb42-42, EE MEEIA 4-DR MEEIE 4, RES Compliance Only	25	25	24	15	1	23	24	9	28	28	29	26	26	4	26
C-Base LL, Sx35, Lb42-42, EE LTR-DR RAP, RES Compliance Only	14	15	14	12	1	19	20	4	24	21	25	8	9	22	22
D-Base LL, Sx35, Lb42-42, EE MAP-DR MAP, RES Compliance Only	9	9	22	18	1	13	13	3	18	18	26	6	7	23	2
E-Low LL, Sx35, Lb42-42, EE LTR-DR RAP, RES Compliance Only	2	2	27	28	1	3	3	2	7	6	24	2	3	27	27
F-High LL, Sx35, Lb42-42, EE LTR-DR RAP, RES Compliance Only	29	29	5	2	1	27	28	26	29	29	28	29	29	1	4
G-Base LL, Sx31, Lb36-42, EE LTR-DR RAP	20	20	18	7	1	7	7	11	12	12	8	13	14	9	15
H-Base LL, Sx35, Lb36-42, EE LTR-DR RAP	17	17	15	5	1	8	9	14	14	14	9	14	15	8	14
I-Base LL, Sx31, Lb42-42, EE LTR-DR RAP	13	13	12	24	1	11	11	17	19	19	15	19	18	17	13
J-Base LL, Sx35, Lb36-36, EE LTR-DR RAP	23	23	21	4	1	6	6	10	9	8	7	9	12	15	19
K-Base LL, Sx35, Lb42-42-Cofire, EE LTR-DR RAP	19	19	17	13	1	9	8	21	20	20	14	20	22	10	10
L-Base LL, Sx35, Lb42-42-FGD-SCR, EE LTR-DR RAP	22	22	20	8	1	29	15	25	10	11	20	24	24	7	7
M-Base LL, Sx35, Lb42-42, EE LTR-DR RAP	11	11	8	20	1	16	17	22	22	23	16	23	21	13	12
N-Low LL, Sx35, Lb42-42, EE LTR-DR RAP	3	3	28	27	1	2	2	12	6	5	2	4	4	26	21
O-High LL, Sx35, Lb42-42, EE LTR-DR RAP	28	28	2	3	1	26	27	27	27	27	21	28	28	2	3
P-Base LL, Sx35, Lb42-42, EE LTR-DR RAP, Pumped Storage	24	24	23	20	1	15	16	28	26	26	22	27	27	3	6
Q-Base LL, Sx35, Lb42-42, EE LTR-DR RAP, No New Nuke	5	5	1	1	1	24	25	8	3	2	23	5	2	28	29
R-Base LL, Sx35, Lb42-42, EE RAP-DR RAP	8	7	9	23	1	14	14	15	13	13	13	10	10	18	5
S-Base LL, Sx35, Lb42-42, EE MAP-DR MAP	7	8	19	17	1	12	12	19	15	15	18	12	11	20	1
T-Base LL, Sx35, Lb42-42, EE LTR25%-DR RAP	10	10	11	22	1	16	17	24	21	22	19	21	19	16	8
U-Base LL, Sx35, Lb42-42, EE LTR-DR MAP	12	12	10	19	1	16	17	23	23	24	17	22	20	14	11
V-Base LL, Sx35, Lb42-42, EE MEEIE 4-DR MEEIE 4	21	21	13	14	1	22	23	20	25	25	12	25	25	5	25
W-Base LL, Sx35, Lb42-42, EE MEEIE 4-DR RAP	15	14	6	11	1	19	20	16	16	16	10	18	17	11	24
X-Base LL, Sx35, Lb42-42, EE MEEIE 4-DR MAP	16	16	7	10	1	19	20	18	17	17	11	17	16	12	23
Y-Base to Low LL, Sx35, Lb42-42, EE LTR-DR RAP	4	4	25	26	1	10	10	5	5	4	3	3	5	25	18
Z-High to Base LL, Sx35, Lb42-42, EE LTR-DR RAP	27	27	3	6	1	25	26	6	11	9	6	11	23	6	9
AA-Base LL, Sx35, Lb42-42, EE LTR-DR RAP, SC instead of CC	18	18	16	16	1	5	5	7	8	10	4	16	13	19	16
BB-Base LL, Sx35, Lb42-42, EE LTR-DR RAP, Fuel Cells instead of CC	26	26	26	9	1	28	29	29	1	1	1	15	8	21	17
CC-Base LL, Sx35, Lb42-42, EE LTR-DR RAP, No Replacement Resource for CC	6	6	4	25	1	4	4	13	4	7	5	7	6	24	20

Since only project cost out of two (ROE& interest rates) that would cause variability in financial measures within the end points of each plan was found to be critical in the sensitivity analysis, CDFs for these measures are not as meaningful; therefore, the CDFs for financial measures are not included in this report but can be found in the workpapers. CDFs for the remaining performance measures are shown in Figures 9A.18 – 22.³¹

To create the CDFs, Ameren Missouri looked at the unique outcomes for the performance measures for each of the 135 branches on the full probability tree for each alternative resource plan and their associated joint probabilities. To create the CDF for PVRR for each plan, for example, the 135 PVRR values were sorted from lowest to highest, and the associated probabilities were accumulated. The lowest PVRR would then be assigned the probability of its same branch, the second lowest PVRR would be assigned its own branch summed with the probability of the lowest PVRR, the third lowest PVRR would have a cumulative probability of its own and of the lower two, and so on. This process essentially shows the PVRR values (or the values for the other selected performance measures) and the percentiles for a plan.³²

Figure 9A.20a Cumulative Probability Distribution of PVRR

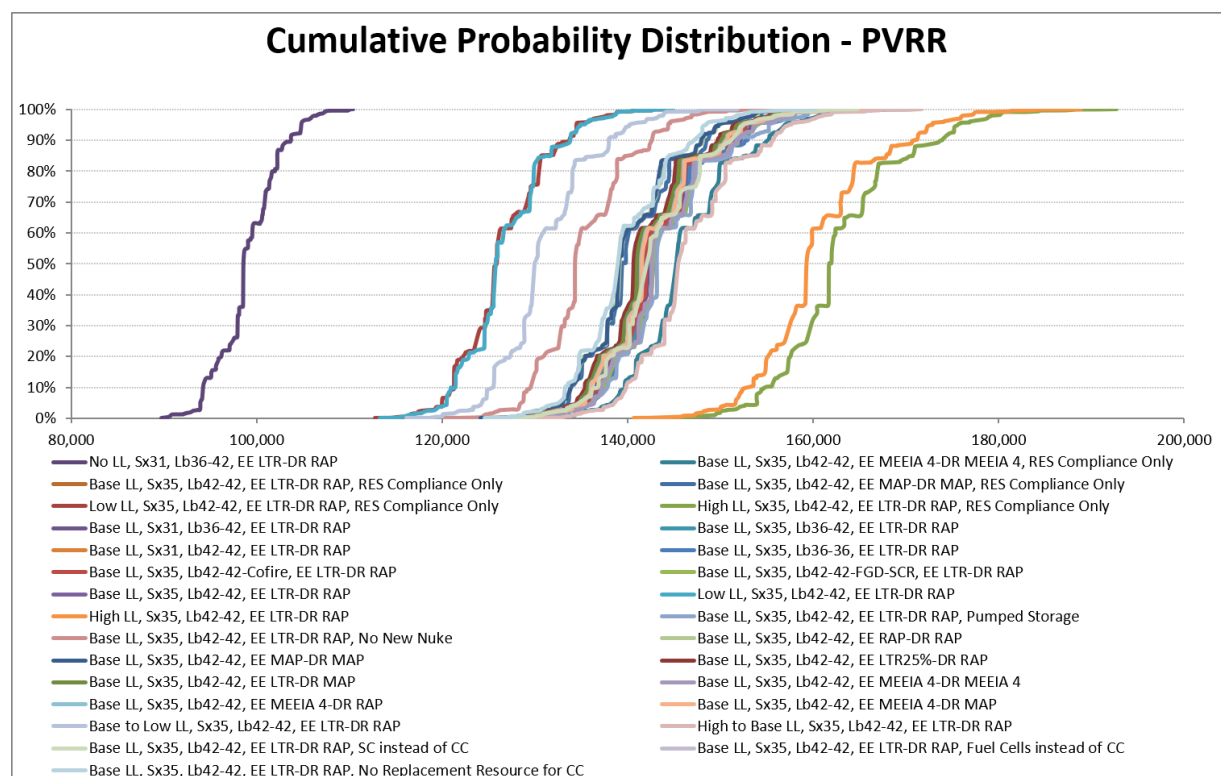


Figure 9A.20b Cumulative Probability Distribution of PVRR with Utility Incentives

³¹ 20 CSR 4240-22.060(7)(C)2

³² 20 CSR 4240-22.060(7)(C)1

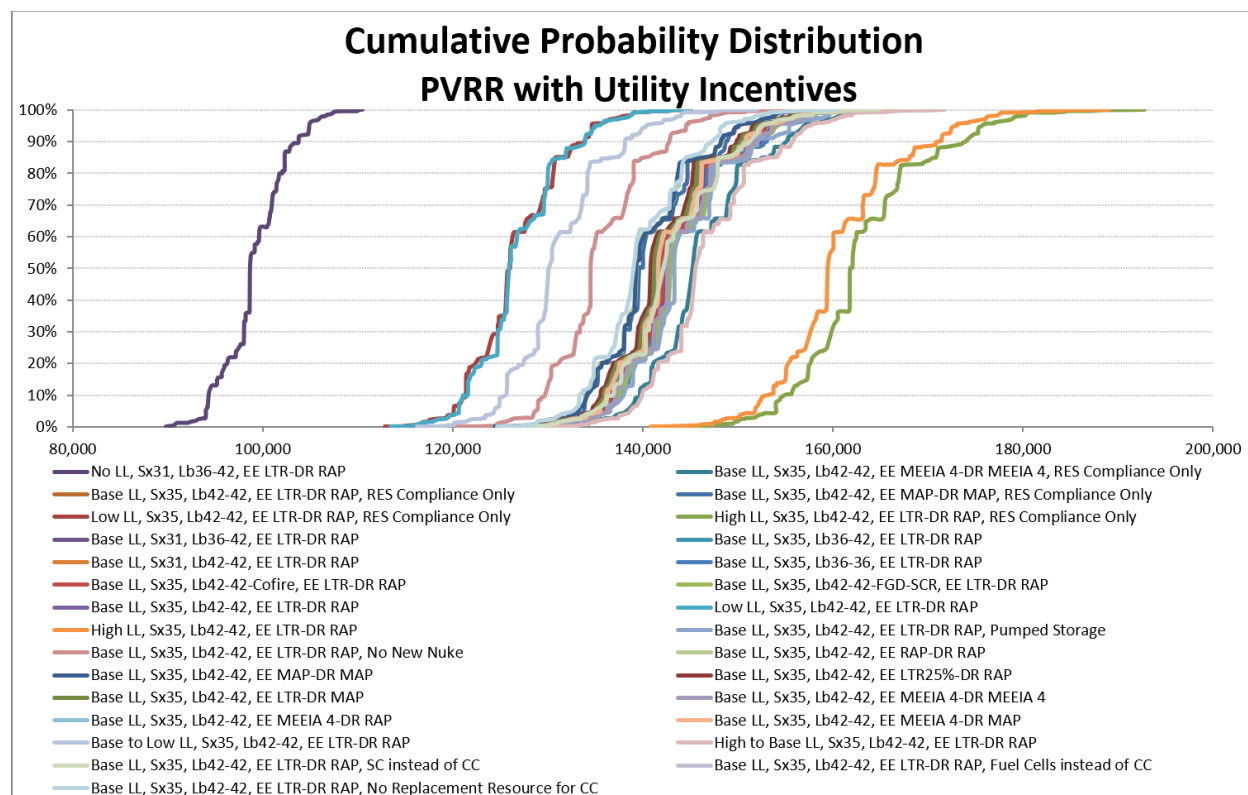


Figure 9A.21 Cumulative Probability Distribution of PV of Environmental Costs

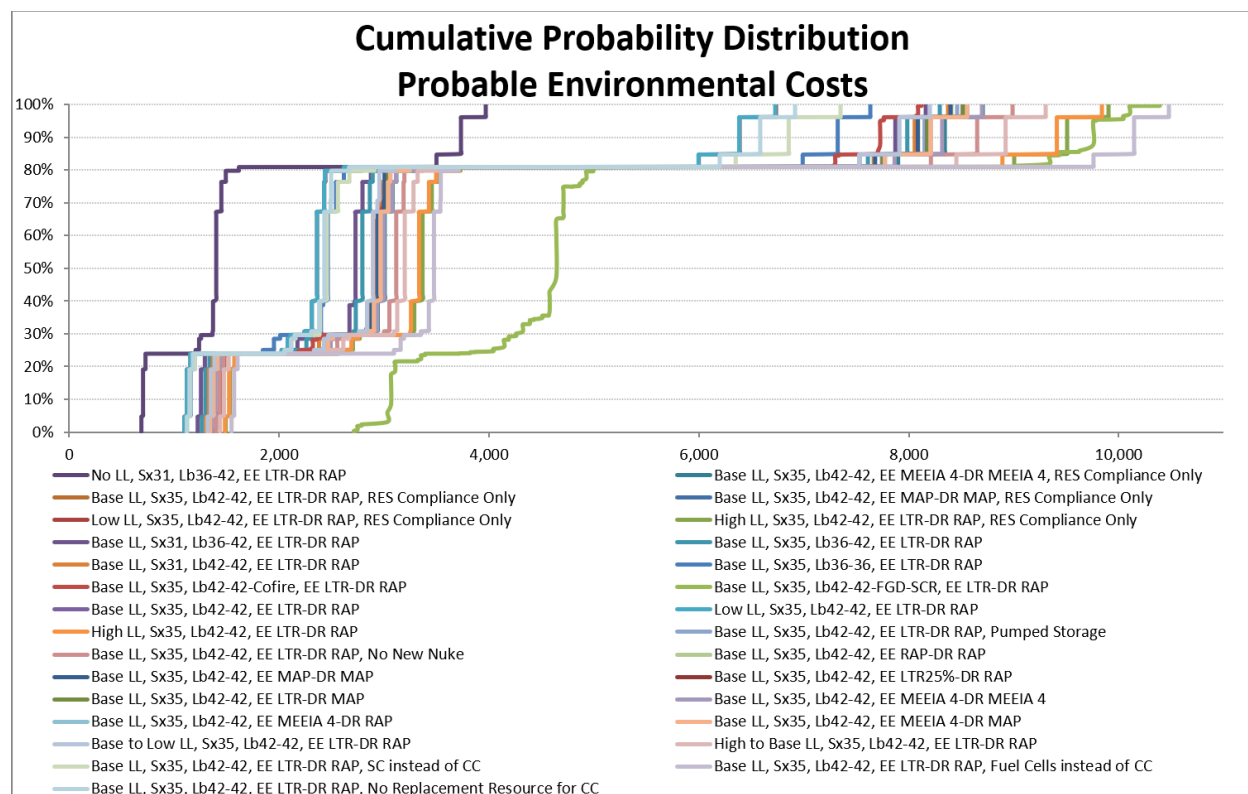


Figure 9A.22 Cumulative Probability Distribution of PV of CO₂ Costs

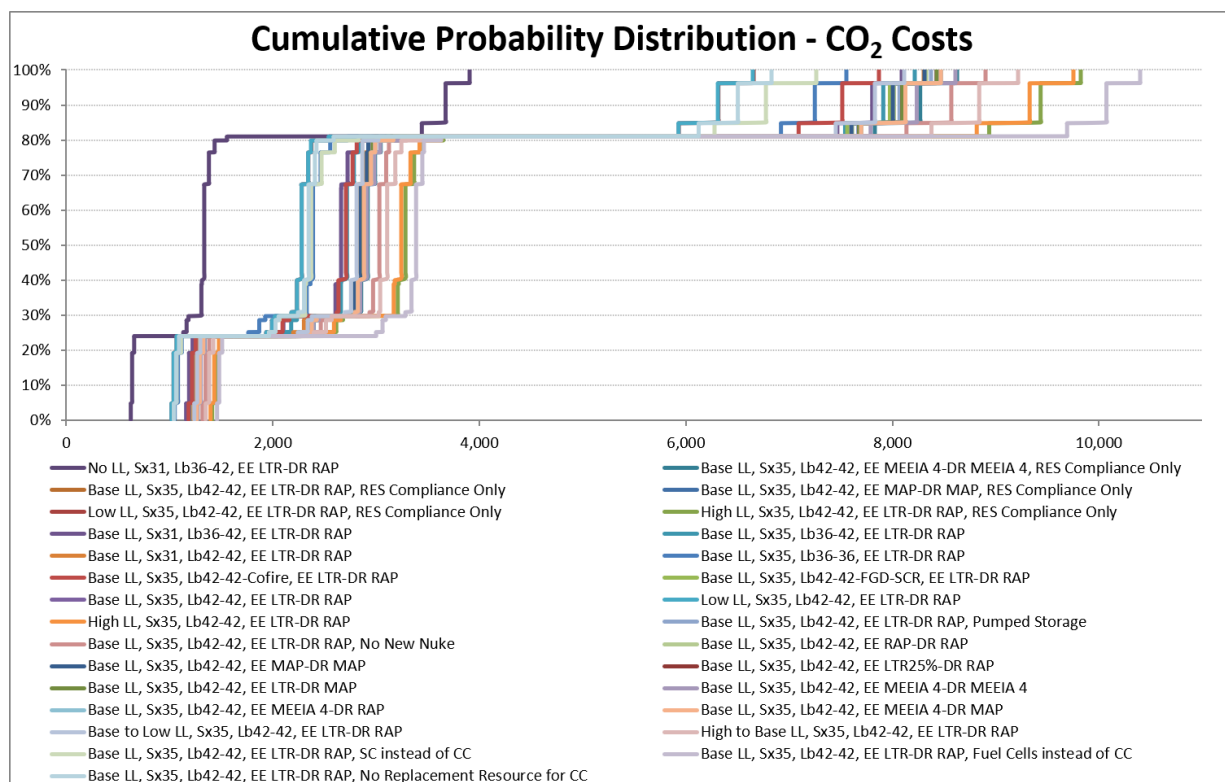


Figure 9A.23 Cumulative Probability Distribution of Levelized Rates

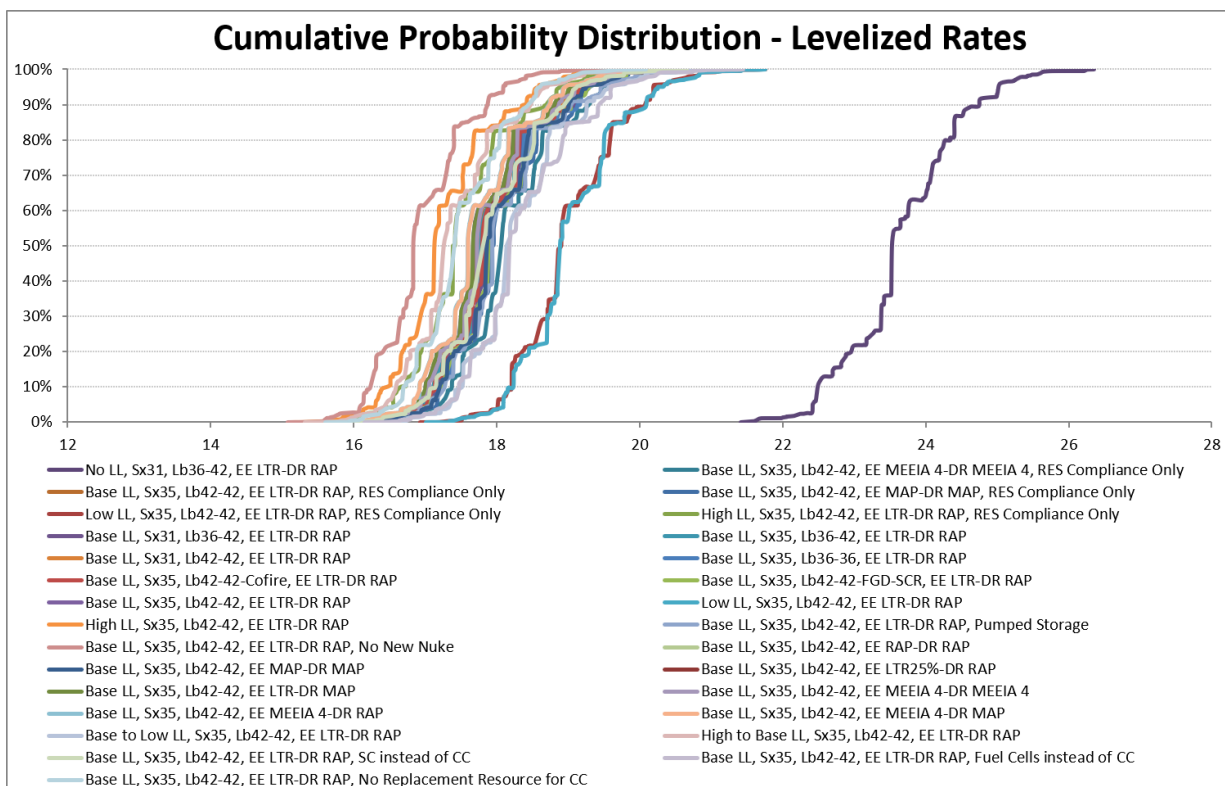
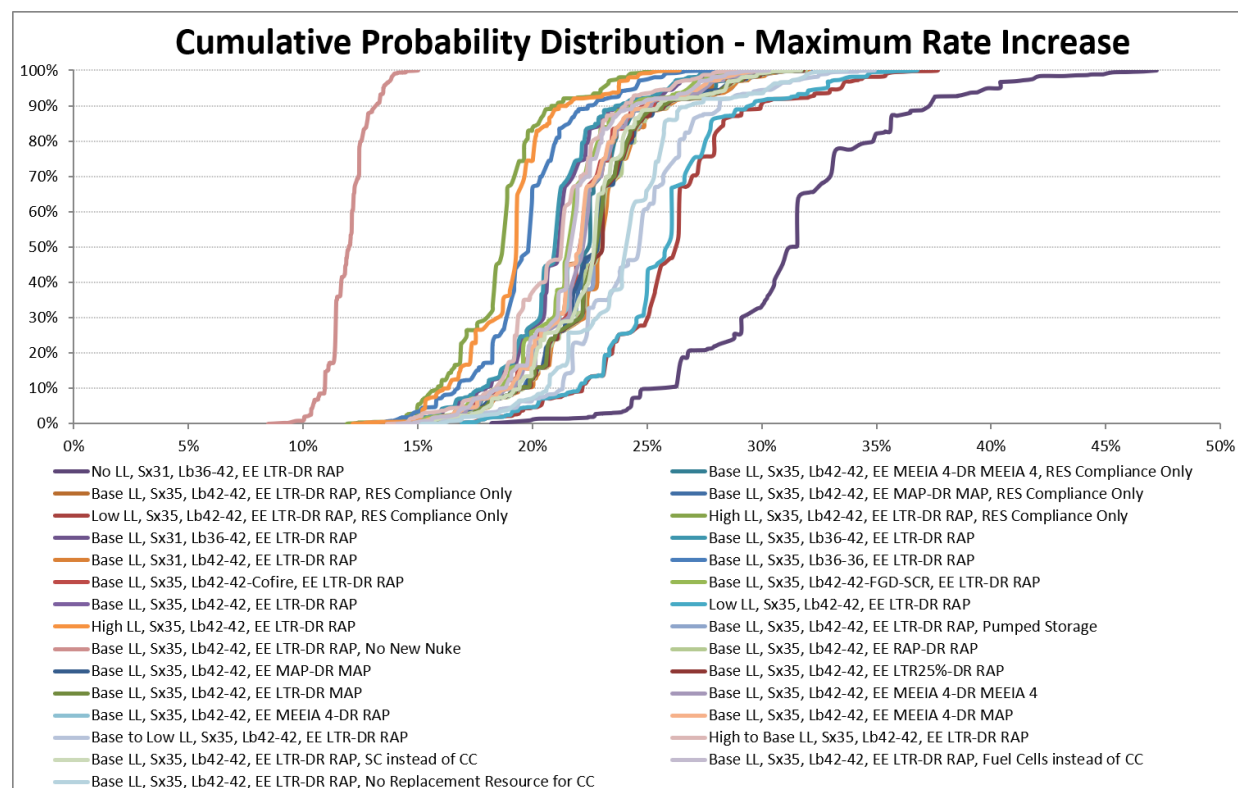


Figure 9A.24 Cumulative Probability Distribution of Max Single Year Rate Increase



Measures of Dispersion

Ameren Missouri also estimated the standard deviation of the performance measures shown as in Table 9A.10.

Table 9A.10 Standard Deviation for Selected Performance Measures³³

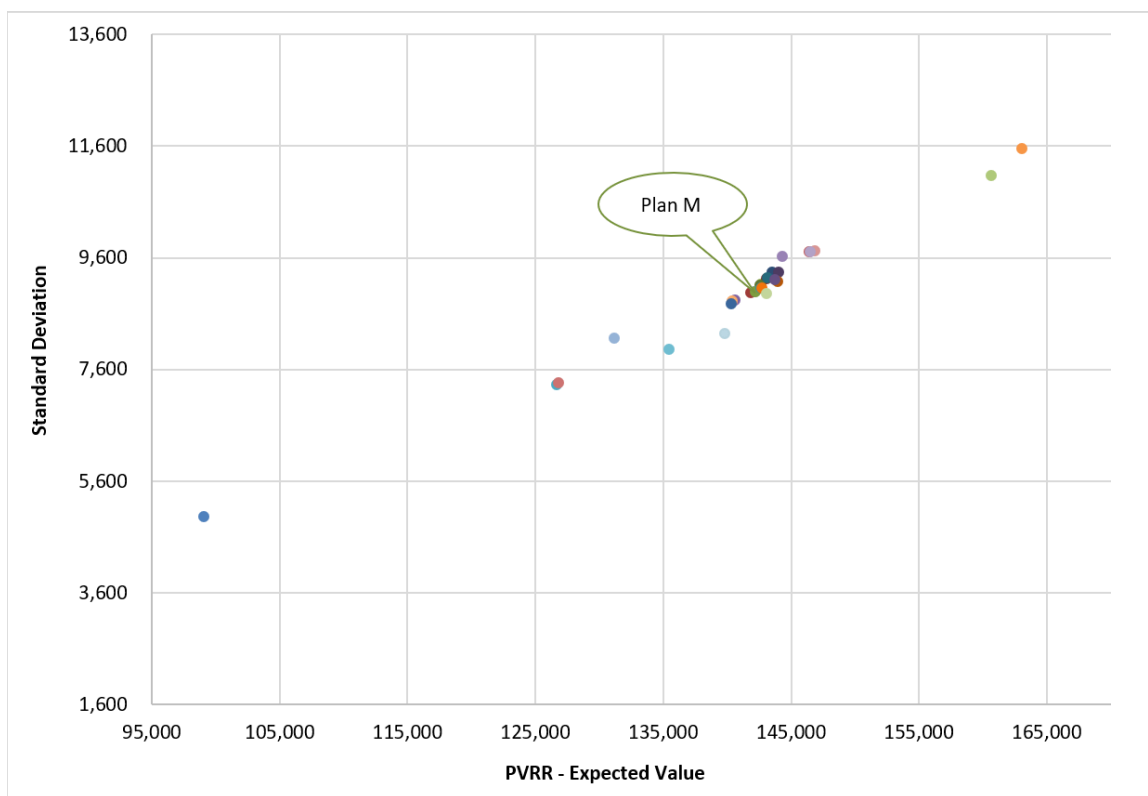
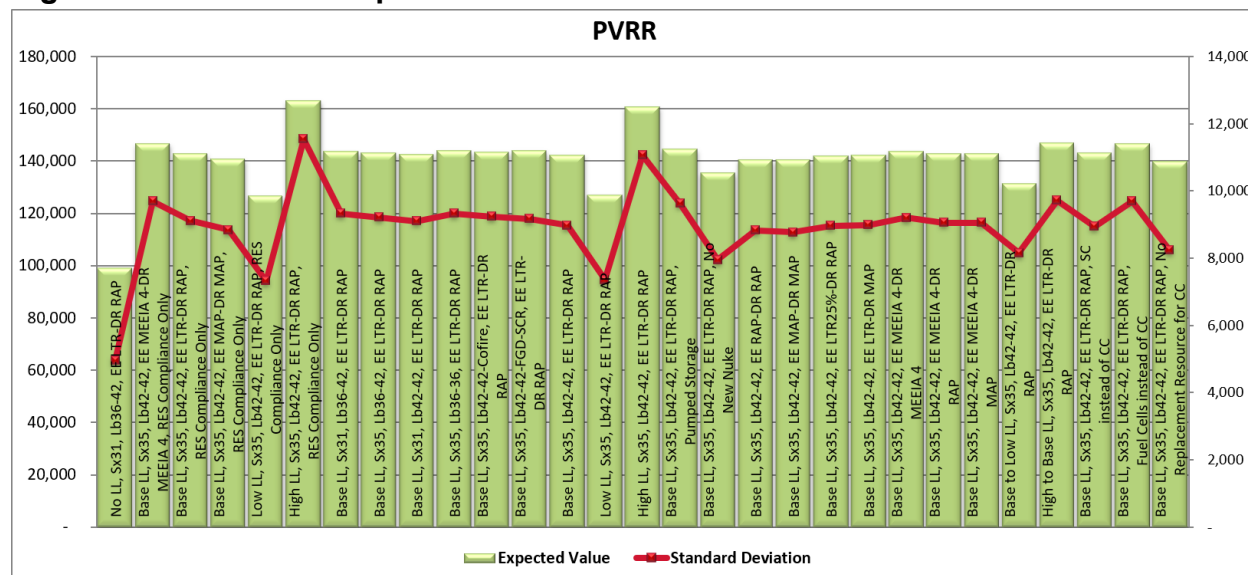
Plan	STANDARD DEVIATION														
	PVRR SMM	PVRR w/ Incentives SMM	Levelized Rates Cents/kWh	Max Single Yr Rate Increase	PV of Participant Cost SMM	PV of Probable Environmental Cost SMM	Avg CO2 Emissions (MM Tons)	PreTax Interest Coverage	FFO-Interest Coverage	FFO/Debt	Debt/ Capitalization	ROE	FCF SMM	EPS	Jobs
A-No LL, Sx31, Lb36-42, EE LTR-DR RAP	4,966	4,966	1.19	7%	0	1,055	0.55	0.02	0.06	0.4%	0.02%	0.1%	794	0.56	N/A
B-Base LL, Sx35, Lb42-42, EE MEEIA 4-DR MEEIA 4, RES Compliance Only	9,694	9,694	1.21	5%	0	2,421	1.24	0.02	0.06	0.3%	0.01%	0.1%	1,481	1.04	N/A
C-Base LL, Sx35, Lb42-42, EE LTR-DR RAP, RES Compliance Only	9,112	9,112	1.14	5%	0	2,377	1.20	0.02	0.06	0.3%	0.03%	0.1%	1,229	0.90	N/A
D-Base LL, Sx35, Lb42-42, EE MAP-DR MAP, RES Compliance Only	8,833	8,833	1.13	5%	0	2,338	1.14	0.02	0.06	0.3%	0.03%	0.1%	1,189	0.87	N/A
E-Low LL, Sx35, Lb42-42, EE LTR-DR RAP, RES Compliance Only	7,317	7,317	1.10	6%	0	1,824	0.85	0.02	0.05	0.3%	0.03%	0.1%	1,003	0.74	N/A
F-High LL, Sx35, Lb42-42, EE LTR-DR RAP, RES Compliance Only	11,544	11,544	1.24	4%	0	2,786	1.56	0.02	0.06	0.3%	0.01%	0.1%	1,740	1.21	N/A
G-Base LL, Sx31, Lb36-42, EE LTR-DR RAP	9,333	9,333	1.17	4%	0	2,323	1.28	0.02	0.05	0.3%	0.02%	0.1%	1,264	0.93	N/A
H-Base LL, Sx35, Lb36-42, EE LTR-DR RAP	9,211	9,211	1.15	4%	0	2,346	1.22	0.02	0.05	0.3%	0.02%	0.1%	1,262	0.93	N/A
I-Base LL, Sx31, Lb42-42, EE LTR-DR RAP	9,096	9,096	1.14	5%	0	2,342	1.22	0.02	0.05	0.3%	0.02%	0.1%	1,273	0.92	N/A
J-Base LL, Sx35, Lb36-36, EE LTR-DR RAP	9,330	9,330	1.17	4%	0	2,182	1.25	0.02	0.05	0.3%	0.03%	0.1%	1,248	0.92	N/A
K-Base LL, Sx35, Lb42-42-Cofire, EE LTR-DR RAP	9,233	9,233	1.16	5%	0	2,202	1.37	0.02	0.05	0.3%	0.02%	0.1%	1,273	0.93	N/A
L-Base LL, Sx35, Lb42-42-FGD-SCR, EE LTR-DR RAP	9,173	9,173	1.15	4%	0	2,342	1.18	0.02	0.05	0.3%	0.02%	0.1%	1,293	0.94	N/A
M-Base LL, Sx35, Lb42-42, EE LTR-DR RAP	8,978	8,978	1.13	5%	0	2,366	1.17	0.02	0.05	0.3%	0.02%	0.1%	1,271	0.93	N/A
N-Low LL, Sx35, Lb42-42, EE LTR-DR RAP	7,356	7,356	1.10	6%	0	1,821	0.84	0.02	0.05	0.3%	0.03%	0.1%	1,055	0.79	N/A
O-High LL, Sx35, Lb42-42, EE LTR-DR RAP	11,065	11,065	1.19	4%	0	2,757	1.55	0.02	0.06	0.3%	0.01%	0.1%	1,620	1.14	N/A
P-Base LL, Sx35, Lb42-42, EE LTR-DR RAP, Pumped Storage	9,622	9,622	1.21	5%	0	2,354	1.15	0.02	0.07	0.4%	0.01%	0.1%	1,612	1.12	N/A
Q-Base LL, Sx35, Lb42-42, EE LTR-DR RAP, No New Nuke	7,954	7,954	1.00	1%	0	2,514	1.28	0.01	0.03	0.2%	0.01%	0.1%	766	0.59	N/A
R-Base LL, Sx35, Lb42-42, EE RAP-DR RAP	8,824	8,824	1.12	5%	0	2,339	1.15	0.02	0.05	0.3%	0.02%	0.1%	1,227	0.90	N/A
S-Base LL, Sx35, Lb42-42, EE MAP-DR MAP	8,765	8,765	1.13	5%	0	2,336	1.14	0.02	0.05	0.3%	0.02%	0.1%	1,230	0.90	N/A
T-Base LL, Sx35, Lb42-42, EE LTR25%-DR RAP	8,968	8,968	1.13	5%	0	2,366	1.17	0.02	0.05	0.3%	0.02%	0.1%	1,271	0.93	N/A
U-Base LL, Sx35, Lb42-42, EE LTR-DR MAP	8,981	8,981	1.13	5%	0	2,366	1.17	0.02	0.05	0.3%	0.02%	0.1%	1,271	0.93	N/A
V-Base LL, Sx35, Lb42-42, EE MEEIA 4-DR MEEIA 4	9,206	8,158	1.14	5%	0	2,278	1.08	0.01	0.05	0.3%	0.03%	0.1%	1,101	0.82	N/A
W-Base LL, Sx35, Lb42-42, EE MEEIA 4-DR RAP	9,054	9,206	1.14	4%	0	2,413	1.24	0.02	0.05	0.3%	0.02%	0.1%	1,309	0.95	N/A
X-Base LL, Sx35, Lb42-42, EE MEEIA 4-DR MAP	9,056	9,054	1.13	4%	0	2,377	1.20	0.02	0.05	0.3%	0.02%	0.1%	1,262	0.92	N/A
Y-Base to Low LL, Sx35, Lb42-42, EE LTR-DR RAP	8,158	9,056	1.13	4%	0	2,377	1.20	0.02	0.05	0.3%	0.02%	0.1%	1,262	0.92	N/A
Z-High to Base LL, Sx35, Lb42-42, EE LTR-DR RAP	9,720	9,720	1.15	4%	0	2,599	1.38	0.01	0.05	0.3%	0.03%	0.1%	1,284	0.95	N/A
AA-Base LL, Sx35, Lb42-42, EE LTR-DR RAP, SC instead of CC	8,945	8,945	1.12	5%	0	1,988	1.13	0.02	0.05	0.3%	0.02%	0.1%	1,287	0.92	N/A
BB-Base LL, Sx35, Lb42-42, EE LTR-DR RAP, Fuel Cells instead of CC	9,697	9,697	1.22	4%	0	2,982	0.87	0.02	0.05	0.3%	0.03%	0.1%	1,194	0.92	N/A
CC-Base LL, Sx35, Lb42-42, EE LTR-DR RAP, No Replacement Resource	8,235	8,235	1.03	5%	0	1,884	0.87	0.02	0.05	0.3%	0.02%	0.1%	1,163	0.85	N/A

Standard deviation for “Jobs” has not been estimated since there was only one estimate per plan, it would be 0.

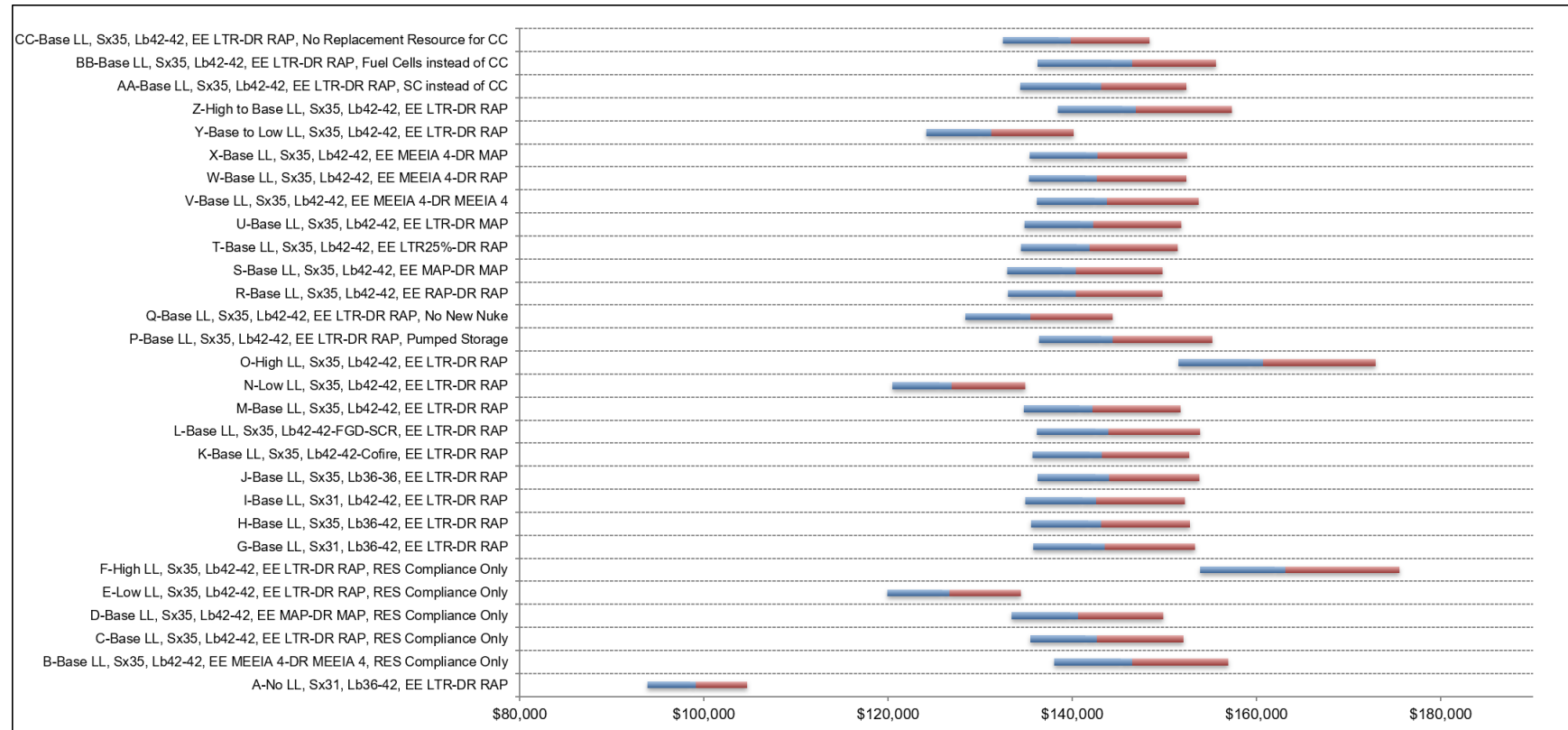
³³ 20 CSR 4240-22.060(7)(C)3

Charts in Figure 9A.23 display the expected value and standard deviation for each plan's PVRR. Also, in Figure 9A.24, the 5th and 95th percentiles along with the expected PVRR are shown.³⁴

Figure 9A.25 PVRR – Expected Value and Standard Deviation



³⁴ 20 CSR 4240-22.060(7)(B)

Figure 9A.26 PVRR – Expected Value, 5th and 95th Percentiles

Compliance References

20 CSR 4240-22.060(2)	66
20 CSR 4240-22.060(2)(A)2	61
20 CSR 4240-22.060(2)(A)3	11
20 CSR 4240-22.060(2)(A)4	54
20 CSR 4240-22.060(2)(A)5	54
20 CSR 4240-22.060(2)(A)6	49
20 CSR 4240-22.060(4)(A)	67
20 CSR 4240-22.060(4)(B)1	12
20 CSR 4240-22.060(4)(B)2	13, 14, 15, 16
20 CSR 4240-22.060(4)(B)3	17
20 CSR 4240-22.060(4)(B)4	36
20 CSR 4240-22.060(4)(B)5	37, 38
20 CSR 4240-22.060(4)(B)6	39
20 CSR 4240-22.060(4)(B)7	59
20 CSR 4240-22.060(4)(B)8	61
20 CSR 4240-22.060(4)(B)9	1
20 CSR 4240-22.060(4)(C)	56
20 CSR 4240-22.060(4)(C)1A	56
20 CSR 4240-22.060(4)(C)1B	57
20 CSR 4240-22.060(4)(C)1C	57
20 CSR 4240-22.060(6)	9, 10
20 CSR 4240-22.060(7)	66
20 CSR 4240-22.060(7)(A)	67
20 CSR 4240-22.060(7)(B)	74
20 CSR 4240-22.060(7)(C)1	69
20 CSR 4240-22.060(7)(C)1A	8
20 CSR 4240-22.060(7)(C)1B	8
20 CSR 4240-22.060(7)(C)2	69
20 CSR 4240-22.060(7)(C)3	67, 73
20 CSR 4240-22.060(7)(C)4	66