

# Chapter 9 - Appendix A

## Alternative Resource Plans

**Table 9A.1 Unconstrained RES Compliance Model with RAP DSM**

TERM 1												
	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033		
MW's Installed New Solar	0.0	200.0	0.0	175.0	0.0	0.0	0.0	100.0	0.0	0.0	475.0	
MW's Installed New Wind	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Revenue Requirement-1% Rate Cap limit	\$3,635	\$3,772	\$3,931	\$4,213	\$4,938	\$5,244	\$5,546	\$5,945	\$6,232	\$6,543	\$49,909	
% Increase											0.1%	

TERM 2												
	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043		
MW's Installed New Solar	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	
MW's Installed New Wind	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Revenue Requirement-1% Rate Cap limit	\$7,184	\$7,459	\$7,660	\$7,943	\$8,124	\$8,191	\$9,569	\$9,658	\$9,652	\$10,129	\$85,568	
% Increase											0.3%	

**Table 9A.2 Type, Size, Timing of Resource Addition/Retirement (Summer)<sup>1</sup>**

Plan A - Sioux Retired 2030 (Summer)																					
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
Existing Resources	8,843	8,843	7,806	7,806	7,806	7,806	7,806	7,160	6,372	6,372	6,372	6,372	6,372	6,372	5,223	5,223	5,223	3,997	3,997	3,997	2,769
Existing Sales and Load	-7,589	-7,605	-7,628	-7,695	-7,748	-7,845	-7,957	-8,027	-8,080	-8,126	-8,138	-8,208	-8,255	-8,310	-8,341	-8,323	-8,374	-8,481	-8,516	-8,569	-8,642
Renewables	0	0	247	268	578	701	765	829	1,002	1,117	1,230	1,340	1,447	1,510	1,493	1,476	1,459	1,442	1,442	1,442	1,442
Battery Storage	0	0	0	0	0	0	190	380	380	380	570	760	760	760	760	760	760	760	760	760	760
Energy Efficiency	0	108	219	330	440	548	658	746	832	917	991	1,060	1,123	1,178	1,224	1,263	1,295	1,322	1,346	1,369	1,388
Demand Response	0	198	222	250	271	287	296	309	306	315	323	325	332	337	341	344	344	346	349	351	356
CC	0	0	0	0	0	0	0	1,092	1,092	1,092	1,092	1,092	1,092	1,092	1,092	1,092	1,092	1,125	1,125	1,125	3,158
New Supply Side	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Capacity Position after Adjustment	1,255	1,544	866	959	1,347	1,497	1,758	1,397	1,905	2,068	2,440	2,740	2,871	2,939	1,792	1,835	1,798	1,511	1,503	1,474	1,230
Purchases (+) or sales (-)	-1,255	-1,544	-866	-959	-1,347	-1,497	-1,758	-1,397	-1,905	-2,068	-2,440	-2,740	-2,871	-2,939	-1,792	-1,835	-1,798	-1,511	-1,503	-1,474	-1,230

Plan B - Sioux Retired 2028 (Summer)																					
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
Existing Resources	8,843	8,843	7,806	7,806	7,806	7,806	7,018	6,372	6,372	6,372	6,372	6,372	6,372	6,372	5,223	5,223	5,223	3,997	3,997	3,997	2,769
Existing Sales and Load	-7,589	-7,605	-7,628	-7,695	-7,748	-7,845	-7,957	-8,027	-8,080	-8,126	-8,138	-8,208	-8,255	-8,310	-8,341	-8,323	-8,374	-8,481	-8,516	-8,569	-8,642
Renewables	0	0	247	268	578	701	765	829	1,002	1,117	1,230	1,340	1,447	1,510	1,493	1,476	1,459	1,442	1,442	1,442	1,442
Battery Storage	0	0	0	0	0	0	190	380	380	380	570	760	760	760	760	760	760	760	760	760	760
Energy Efficiency	0	108	219	330	440	548	658	746	832	917	991	1,060	1,123	1,178	1,224	1,263	1,295	1,322	1,346	1,369	1,388
Demand Response	0	198	222	250	271	287	296	309	306	315	323	325	332	337	341	344	344	346	349	351	356
CC	0	0	0	0	0	0	0	1,092	1,092	1,092	1,092	1,092	1,092	1,092	1,092	1,092	1,092	1,125	1,125	1,125	3,158
New Supply Side	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Capacity Position after Adjustment	1,255	1,544	866	959	1,347	1,497	2,062	1,701	1,905	2,068	2,440	2,740	2,871	2,939	1,792	1,835	1,798	1,511	1,503	1,474	1,230
Purchases (+) or sales (-)	-1,255	-1,544	-866	-959	-1,347	-1,497	-2,062	-1,701	-1,905	-2,068	-2,440	-2,740	-2,871	-2,939	-1,792	-1,835	-1,798	-1,511	-1,503	-1,474	-1,230

Plan C - RAP - Renewable Expansion (Summer)																					
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
Existing Resources	8,843	8,843	7,806	7,806	7,806	7,806	7,806	7,160	7,160	7,160	6,372	6,372	6,372	6,372	5,223	5,223	5,223	3,997	3,997	3,997	2,769
Existing Sales and Load	-7,589	-7,605	-7,628	-7,695	-7,748	-7,845	-7,957	-8,027	-8,080	-8,126	-8,138	-8,208	-8,255	-8,310	-8,341	-8,323	-8,374	-8,481	-8,516	-8,569	-8,642
Renewables	0	0	247	268	578	701	765	829	1,002	1,117	1,230	1,340	1,447	1,510	1,493	1,476	1,459	1,442	1,442	1,442	1,442
Battery Storage	0	0	0	0	0	0	190	380	380	380	570	760	760	760	760	760	760	760	760	760	760
Energy Efficiency	0	108	219	330	440	548	658	746	832	917	991	1,060	1,123	1,178	1,224	1,263	1,295	1,322	1,346	1,369	1,388
Demand Response	0	198	222	250	271	287	296	309	306	315	323	325	332	337	341	344	344	346	349	351	356
CC	0	0	0	0	0	0	0	0	0	0	1,092	1,092	1,092	1,092	1,092	1,092	1,092	1,125	1,125	1,125	3,158
New Supply Side	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Capacity Position after Adjustment	1,255	1,544	866	959	1,347	1,497	1,758	1,397	1,601	1,765	2,440	2,740	2,871	2,939	1,792	1,835	1,798	1,511	1,503	1,474	1,230
Purchases (+) or sales (-)	-1,255	-1,544	-866	-959	-1,347	-1,497	-1,758	-1,397	-1,601	-1,765	-2,440	-2,740	-2,871	-2,939	-1,792	-1,835	-1,798	-1,511	-1,503	-1,474	-1,230

Plan D - Labadie SCR (Summer)																					
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
Existing Resources	8,843	8,843	7,806	7,806	7,806	7,806	7,806	7,160	7,160	7,160	6,372	6,372	6,372	6,372	5,223	5,223	5,223	3,997	3,997	3,997	2,769
Existing Sales and Load	-7,589	-7,605	-7,628	-7,695	-7,748	-7,845	-7,957	-8,027	-8,080	-8,126	-8,138	-8,208	-8,255	-8,310	-8,341	-8,323	-8,374	-8,481	-8,516	-8,569	-8,642
Renewables	0	0	247	268	578	701	765	829	1,002	1,117	1,230	1,340	1,447	1,510	1,493	1,476	1,459	1,442	1,442	1,442	1,442
Battery Storage	0	0	0	0	0	0	190	380	380	380	570	760	760	760	760	760	760	760	760	760	760
Energy Efficiency	0	108	219	330	440	548	658	746	832	917	991	1,060	1,123	1,178	1,224	1,263	1,295	1,322	1,346	1,369	1,388
Demand Response	0	198	222	250	271	287	296	309	306	315	323	325	332	337	341	344	344	346	349	351	356
CC	0	0	0	0	0	0	0	0	0	0	1,092	1,092	1,092	1,092	1,092	1,092	1,092	1,125	1,125	1,125	3,158
New Supply Side	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Capacity Position after Adjustment	1,255	1,544	866	959	1,347	1,497	1,758	1,397	1,601	1,765	2,440	2,740	2,871	2,939	1,792	1,835	1,798	1,511	1,503	1,474	1,230
Purchases (+) or sales (-)	-1,255	-1,544	-866	-959	-1,347	-1,497	-1,758	-1,397	-1,601	-1,765	-2,440	-2,740	-2,871	-2,939	-1,792	-1,835	-1,798	-1,511	-1,503	-1,474	-1,230

<sup>1</sup> 20 CSR 4240-22.060(4)(B)9

Plan E - MAP (Summer)																					
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
Existing Resources	8,843	8,843	7,806	7,806	7,806	7,806	7,806	7,160	7,160	7,160	6,372	6,372	6,372	6,372	5,223	5,223	5,223	3,997	3,997	3,997	2,769
Existing Sales and Load	-7,589	-7,605	-7,628	-7,695	-7,748	-7,845	-7,957	-8,027	-8,080	-8,126	-8,138	-8,208	-8,255	-8,310	-8,341	-8,323	-8,374	-8,481	-8,516	-8,569	-8,642
Renewables	0	0	247	268	578	701	765	829	1,002	1,117	1,230	1,340	1,447	1,510	1,493	1,476	1,459	1,442	1,442	1,442	1,442
Battery Storage	0	0	0	0	0	0	190	380	380	380	570	760	760	760	760	760	760	760	760	760	760
Energy Efficiency	0	153	310	467	620	771	924	1,052	1,178	1,300	1,408	1,507	1,597	1,680	1,750	1,813	1,861	1,904	1,944	1,976	2,003
Demand Response	0	265	327	377	431	451	476	487	510	531	548	527	541	539	548	543	547	552	549	561	572
CC	0	0	0	0	0	0	0	0	0	0	1,092	1,092	1,092	1,092	1,092	1,092	1,092	1,215	1,215	1,215	3,158
New Supply Side	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Capacity Position after Adjustment	1,255	1,656	1,063	1,224	1,687	1,883	2,204	1,881	2,151	2,363	3,082	3,390	3,554	3,642	2,525	2,584	2,568	2,299	2,300	2,291	2,062
Purchases (+) or sales (-)	-1,255	-1,656	-1,063	-1,224	-1,687	-1,883	-2,204	-1,881	-2,151	-2,363	-3,082	-3,390	-3,554	-3,642	-2,525	-2,584	-2,568	-2,299	-2,300	-2,291	-2,062

Plan F - RAP-RES Compliance (Summer)																					
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
Existing Resources	8,843	8,843	7,806	7,806	7,806	7,806	7,806	7,160	7,160	7,160	6,372	6,372	6,372	6,372	5,223	5,223	5,223	3,997	3,997	3,997	2,769
Existing Sales and Load	-7,589	-7,605	-7,628	-7,695	-7,748	-7,845	-7,957	-8,027	-8,080	-8,126	-8,138	-8,208	-8,255	-8,310	-8,341	-8,323	-8,374	-8,481	-8,516	-8,569	-8,642
Renewables	0	0	173	171	253	249	246	243	285	281	277	273	270	208	204	299	295	290	290	290	290
Battery Storage	0	0	0	0	0	0	190	380	380	380	570	760	760	760	760	760	760	760	760	760	760
Energy Efficiency	0	108	219	330	440	548	658	746	832	917	991	1,060	1,123	1,178	1,224	1,263	1,295	1,322	1,346	1,369	1,388
Demand Response	0	198	222	250	271	287	296	309	306	315	323	325	332	337	341	344	344	346	349	351	356
CC	0	0	0	0	0	0	0	1,092	1,092	1,092	2,184	2,184	2,184	2,184	2,184	2,184	2,184	3,158	3,158	3,158	4,191
New Supply Side	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Capacity Position after Adjustment	1,255	1,544	792	862	1,022	1,046	1,239	1,903	1,976	2,021	2,580	2,766	2,785	2,829	1,695	1,750	1,726	1,392	1,384	1,355	1,111
Purchases (+) or sales (-)	-1,255	-1,544	-792	-862	-1,022	-1,046	-1,239	-1,903	-1,976	-2,021	-2,580	-2,766	-2,785	-2,829	-1,695	-1,750	-1,726	-1,392	-1,384	-1,355	-1,111

Plan G - MAP-RES Compliance (Summer)																					
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
Existing Resources	8,843	8,843	7,806	7,806	7,806	7,806	7,806	7,160	7,160	7,160	6,372	6,372	6,372	6,372	5,223	5,223	5,223	3,997	3,997	3,997	2,769
Existing Sales and Load	-7,589	-7,605	-7,628	-7,695	-7,748	-7,845	-7,957	-8,027	-8,080	-8,126	-8,138	-8,208	-8,255	-8,310	-8,341	-8,323	-8,374	-8,481	-8,516	-8,569	-8,642
Renewables	0	0	173	171	253	249	246	243	240	236	233	230	270	266	262	258	254	250	250	250	250
Battery Storage	0	0	0	0	0	0	190	380	380	380	570	760	760	760	760	760	760	760	760	760	760
Energy Efficiency	0	153	310	467	620	771	924	1,052	1,178	1,300	1,408	1,507	1,597	1,680	1,750	1,813	1,861	1,904	1,944	1,976	2,003
Demand Response	0	265	327	377	431	451	476	487	510	531	548	527	541	539	548	543	547	552	549	561	572
CC	0	0	0	0	0	0	0	0	0	0	1,092	1,092	1,092	1,092	2,125	2,125	2,125	3,158	3,158	3,158	4,191
New Supply Side	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Capacity Position after Adjustment	1,255	1,656	988	1,127	1,362	1,431	1,685	1,295	1,388	1,482	2,085	2,280	2,376	2,398	2,327	2,399	2,396	2,140	2,141	2,132	1,903
Purchases (+) or sales (-)	-1,255	-1,656	-988	-1,127	-1,362	-1,431	-1,685	-1,295	-1,388	-1,482	-2,085	-2,280	-2,376	-2,398	-2,327	-2,399	-2,396	-2,140	-2,141	-2,132	-1,903

Plan H - MAP LF-RES Compliance (Summer)																					
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
Existing Resources	8,843	8,843	7,806	7,806	7,806	7,806	7,806	7,160	7,160	7,160	6,372	6,372	6,372	6,372	5,223	5,223	5,223	3,997	3,997	3,997	2,769
Existing Sales and Load	-7,589	-7,605	-7,628	-7,695	-7,748	-7,845	-7,957	-8,027	-8,080	-8,126	-8,138	-8,208	-8,255	-8,310	-8,341	-8,323	-8,374	-8,481	-8,516	-8,569	-8,642
Renewables	0	0	173	171	253	249	246	243	240	236	233	230	270	266	262	258	254	250	250	250	250
Battery Storage	0	0	0	0	0	0	190	380	380	380	570	760	760	760	760	760	760	760	760	760	760
Energy Efficiency	0	153	310	467	620	771	924	1,052	1,178	1,300	1,408	1,507	1,597	1,680	1,750	1,813	1,861	1,904	1,944	1,976	2,003
Demand Response	0	265	327	377	431	451	476	487	510	531	548	527	541	539	548	543	547	552	549	561	572
CC	0	0	0	0	0	0	0	0	0	0	1,092	1,092	1,092	1,092	2,125	2,125	2,125	3,158	3,158	3,158	4,191
New Supply Side	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Capacity Position after Adjustment	1,255	1,656	988	1,127	1,362	1,431	1,685	1,295	1,388	1,482	2,085	2,280	2,376	2,398	2,327	2,399	2,396	2,140	2,141	2,132	1,903
Purchases (+) or sales (-)	-1,255	-1,656	-988	-1,127	-1,362	-1,431	-1,685	-1,295	-1,388	-1,482	-2,085	-2,280	-2,376	-2,398	-2,327	-2,399	-2,396	-2,140	-2,141	-2,132	-1,903

Plan I - No Additional DSM (Summer)																					
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
Existing Resources	8,843	8,843	7,806	7,806	7,806	7,806	7,806	7,160	7,160	7,160	6,372	6,372	6,372	6,372	5,223	5,223	5,223	3,997	3,997	3,997	2,769
Existing Sales and Load	-7,589	-7,605	-7,628	-7,695	-7,748	-7,845	-7,957	-8,027	-8,080	-8,126	-8,138	-8,208	-8,255	-8,310	-8,341	-8,323	-8,374	-8,481	-8,516	-8,569	-8,642
Renewables	0	0	247	268	578	701	765	829	1,002	1,117	1,230	1,340	1,447	1,510	1,493	1,476	1,459	1,442	1,442	1,442	1,442
Battery Storage	0	0	0	0	0	0	190	380	380	380	570	760	760	760	760	760	760	760	760	760	760
Energy Efficiency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Demand Response	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CC	0	0	0	0	0	0	1,092	1,092	1,092	1,092	1,092	1,092	1,092	1,092	1,092	1,092	1,092	2,066	2,066	2,066	3,099
New Supply Side	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,045	1,045	1,045	1,045	1,045	1,045	1,045
Capacity Position after Adjustment	1,255	1,238	426	380	636	1,754	1,896	1,434	1,555	1,624	1,126	1,355	1,416	1,424	1,272	1,273	1,205	829	794	740	473
Purchases (+) or sales (-)	-1,255	-1,238	-426	-380	-636	-1,754	-1,896	-1,434	-1,555	-1,624	-1,126	-1,355	-1,416	-1,424	-1						

Plan M - SC (Summer)																					
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
Existing Resources	8,843	8,843	7,806	7,806	7,806	7,806	7,806	7,160	7,160	7,160	6,372	6,372	6,372	6,372	5,223	5,223	5,223	3,997	3,997	3,997	2,769
Existing Sales and Load	-7,589	-7,605	-7,628	-7,695	-7,748	-7,845	-7,957	-8,027	-8,080	-8,126	-8,138	-8,208	-8,255	-8,310	-8,341	-8,323	-8,273	-8,481	-8,516	-8,569	-8,642
Renewables	0	0	247	268	578	701	765	829	1,002	1,117	1,230	1,340	1,447	1,510	1,493	1,476	1,459	1,442	1,442	1,442	1,442
Battery Storage	0	0	0	0	0	0	190	380	380	380	570	760	760	760	760	760	760	760	760	760	760
Energy Efficiency	0	108	219	320	440	548	658	746	832	917	991	1,060	1,123	1,178	1,224	1,263	1,295	1,322	1,346	1,369	1,388
Demand Response	0	198	222	250	271	287	296	309	306	315	323	325	332	337	341	344	344	346	349	351	356
CC	0	0	0	0	0	0	0	0	0	0	1,092	1,092	1,092	1,092	1,092	1,092	1,092	1,092	1,092	1,092	1,215
New Supply Side	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,045	1,045	1,045	1,045
Capacity Position after Adjustment	1,255	1,544	866	959	1,347	1,497	1,758	1,397	1,601	1,765	2,440	2,740	2,871	2,939	1,792	1,835	1,798	1,523	1,515	1,486	1,242
Purchases (+) or sales (-)	-1,255	-1,544	-866	-959	-1,347	-1,497	-1,758	-1,397	-1,601	-1,765	-2,440	-2,740	-2,871	-2,939	-1,792	-1,835	-1,798	-1,523	-1,515	-1,486	-1,242

Plan N - SMR w/ RAP LF (Summer)																					
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
Existing Resources	8,843	8,843	7,806	7,806	7,806	7,806	7,806	7,160	7,160	7,160	6,372	6,372	6,372	6,372	5,223	5,223	5,223	3,997	3,997	3,997	2,769
Existing Sales and Load	-7,589	-7,605	-7,628	-7,695	-7,748	-7,845	-7,957	-8,027	-8,080	-8,126	-8,138	-8,208	-8,255	-8,310	-8,341	-8,323	-8,273	-8,481	-8,516	-8,569	-8,642
Renewables	0	0	247	268	578	701	765	829	1,002	1,117	1,230	1,340	1,447	1,510	1,493	1,476	1,459	1,442	1,442	1,442	1,442
Battery Storage	0	0	0	0	0	0	190	380	380	380	570	760	760	760	760	760	760	760	760	760	760
Energy Efficiency	0	108	219	320	440	548	658	746	832	917	991	1,060	1,123	1,178	1,224	1,263	1,295	1,322	1,346	1,369	1,388
Demand Response	0	198	222	250	271	287	296	309	306	315	323	325	332	337	341	344	344	346	349	351	356
CC	0	0	0	0	0	0	0	0	0	0	1,092	1,092	1,092	1,092	1,092	1,092	1,092	1,092	1,092	1,092	1,215
New Supply Side	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	821	821	821
Capacity Position after Adjustment	1,255	1,544	866	959	1,347	1,497	1,758	1,397	1,601	1,765	2,440	2,740	2,871	2,939	1,792	1,835	1,798	1,299	1,291	1,262	1,018
Purchases (+) or sales (-)	-1,255	-1,544	-866	-959	-1,347	-1,497	-1,758	-1,397	-1,601	-1,765	-2,440	-2,740	-2,871	-2,939	-1,792	-1,835	-1,798	-1,299	-1,291	-1,262	-1,018

Plan O - Labadie 2039 (Summer)																					
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
Existing Resources	8,843	8,843	7,806	7,806	7,806	7,806	7,806	7,160	7,160	7,160	6,372	6,372	6,372	6,372	5,223	5,223	5,223	3,997	3,997	3,997	2,769
Existing Sales and Load	-7,589	-7,605	-7,628	-7,695	-7,748	-7,845	-7,957	-8,027	-8,080	-8,126	-8,138	-8,208	-8,255	-8,310	-8,341	-8,323	-8,273	-8,481	-8,516	-8,569	-8,642
Renewables	0	0	247	268	578	701	765	829	1,002	1,117	1,230	1,340	1,447	1,510	1,493	1,476	1,459	1,442	1,442	1,442	1,442
Battery Storage	0	0	0	0	0	0	190	380	380	380	570	760	760	760	760	760	760	760	760	760	760
Energy Efficiency	0	108	219	320	440	548	658	746	832	917	991	1,060	1,123	1,178	1,224	1,263	1,295	1,322	1,346	1,369	1,388
Demand Response	0	198	222	250	271	287	296	309	306	315	323	325	332	337	341	344	344	346	349	351	356
CC	0	0	0	0	0	0	0	0	0	0	1,092	1,092	1,092	1,092	1,092	1,092	1,092	1,358	1,358	1,358	1,358
New Supply Side	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Capacity Position after Adjustment	1,255	1,544	866	959	1,347	1,497	1,758	1,397	1,601	1,765	2,440	2,740	2,871	2,939	1,792	1,835	1,798	1,316	1,308	1,279	1,230
Purchases (+) or sales (-)	-1,255	-1,544	-866	-959	-1,347	-1,497	-1,758	-1,397	-1,601	-1,765	-2,440	-2,740	-2,871	-2,939	-1,792	-1,835	-1,798	-1,316	-1,308	-1,279	-1,230

Plan P - Labadie 2036 (Summer)																					
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
Existing Resources	8,843	8,843	7,806	7,806	7,806	7,806	7,806	7,160	7,160	7,160	6,372	6,372	6,372	6,372	5,223	5,223	5,223	3,997	3,997	3,997	2,769
Existing Sales and Load	-7,589	-7,605	-7,628	-7,695	-7,748	-7,845	-7,957	-8,027	-8,080	-8,126	-8,138	-8,208	-8,255	-8,310	-8,341	-8,323	-8,273	-8,481	-8,516	-8,569	-8,642
Renewables	0	0	247	268	578	701	765	829	1,002	1,117	1,230	1,340	1,447	1,510	1,493	1,476	1,459	1,442	1,442	1,442	1,442
Battery Storage	0	0	0	0	0	0	190	380	380	380	570	760	760	760	760	760	760	760	760	760	760
Energy Efficiency	0	108	219	320	440	548	658	746	832	917	991	1,060	1,123	1,178	1,224	1,263	1,295	1,322	1,346	1,369	1,388
Demand Response	0	198	222	250	271	287	296	309	306	315	323	325	332	337	341	344	344	346	349	351	356
CC	0	0	0	0	0	0	0	0	0	0	1,092	1,092	1,092	1,092	1,215	1,215	1,358	1,358	1,358	1,358	1,358
New Supply Side	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Capacity Position after Adjustment	1,255	1,544	866	959	1,347	1,497	1,758	1,397	1,601	1,765	2,440	2,740	2,871	2,939	1,597	1,640	2,636	1,316	1,308	1,279	1,230
Purchases (+) or sales (-)	-1,255	-1,544	-866	-959	-1,347	-1,497	-1,758	-1,397	-1,601	-1,765	-2,440	-2,740	-2,871	-2,939	-1,597	-1,640	-2,636	-1,316	-1,308	-1,279	-1,230

Plan Q - Labadie 2031 (Summer)																					
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
Existing Resources	8,843	8,843	7,806	7,806	7,806	7,806	7,806	7,160	7,160	7,160	6,372	6,372	6,372	6,372	5,223	5,223	5,223	3,997	3,997	3,997	2,769
Existing Sales and Load	-7,589	-7,605	-7,628	-7,695	-7,748	-7,845	-7,957	-8,027	-8,080	-8,126	-8,138	-8,208	-8,255	-8,310	-8,341	-8,323	-8,273	-8,481	-8,516	-8,569	-8,642
Renewables	0	0	247	268	578	701	765	829	1,002	1,117	1,230	1,340	1,447	1,510	1,493	1,476	1,459	1,442	1,442	1,442	1,442
Battery Storage	0	0	0	0	0	0	190	380	380	380	570	760	760	760	760	760	760	760	760	760	760
Energy Efficiency	0	108	219	320	440	548	658	746	832	917	991	1,060	1,123	1,178	1,224	1,263	1,295	1,322	1,346	1,369	1,388
Demand Response	0	198	222	250	271	287	296	309	306	315	323	325	332	337	341	344	344	346	349	351	356
CC	0	0	0	0	0	0	0	0	0	0	1,092	1,092	1,092	1,092	1,215	1,215	1,358	1,358	1,358	1,358	1,358
New Supply Side	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Capacity Position after Adjustment	1,255	1,544	866	959	1,347	1,497	1,758	1,397	1,601	1,571	2,246	2,547	2,677	2,745	2,748	2,791	2,754	1,316	1,308	1,279	1,230
Purchases (+) or sales (-)	-1,255	-1,544	-86																		

Plan V - CCS on 1st CC (Summer)																					
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
Existing Resources	8,843	8,843	7,806	7,806	7,806	7,806	7,806	7,160	7,160	7,160	6,372	6,372	6,372	6,372	5,223	5,223	5,223	3,997	3,997	3,997	2,769
Existing Sales and Load	-7,589	-7,605	-7,628	-7,695	-7,748	-7,845	-7,957	-8,027	-8,080	-8,126	-8,138	-8,208	-8,255	-8,310	-8,341	-8,323	-8,374	-8,481	-8,516	-8,569	-8,642
Renewables	0	0	247	268	578	701	765	829	1,002	1,117	1,230	1,340	1,447	1,510	1,493	1,476	1,459	1,442	1,442	1,442	1,442
Battery Storage	0	0	0	0	0	0	190	380	380	380	570	760	760	760	760	760	760	760	760	760	760
Energy Efficiency	0	108	219	330	440	548	658	746	832	917	991	1,060	1,123	1,178	1,224	1,263	1,295	1,322	1,346	1,369	1,388
Demand Response	0	198	222	250	271	287	296	309	306	315	323	325	332	337	341	344	344	346	349	351	356
CC	0	0	0	0	0	0	0	0	0	0	1,092	1,092	1,092	1,092	1,092	1,092	1,092	2,066	2,066	2,066	3,099
New Supply Side	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Capacity Position after Adjustment	1,255	1,544	866	959	1,347	1,497	1,758	1,397	1,601	1,765	2,440	2,740	2,871	2,939	1,792	1,835	1,798	1,452	1,444	1,415	1,171
Purchases (+) or sales (-)	-1,255	-1,544	-866	-959	-1,347	-1,497	-1,758	-1,397	-1,601	-1,765	-2,440	-2,740	-2,871	-2,939	-1,792	-1,835	-1,798	-1,452	-1,444	-1,415	-1,171

Plan W - RAP 80% (Summer)																					
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
Existing Resources	8,843	8,843	7,806	7,806	7,806	7,806	7,806	7,160	7,160	7,160	6,372	6,372	6,372	6,372	5,223	5,223	5,223	3,997	3,997	3,997	2,769
Existing Sales and Load	-7,589	-7,605	-7,628	-7,695	-7,748	-7,845	-7,957	-8,027	-8,080	-8,126	-8,138	-8,208	-8,255	-8,310	-8,341	-8,323	-8,374	-8,481	-8,516	-8,569	-8,642
Renewables	0	0	247	268	578	701	765	829	1,002	1,117	1,230	1,340	1,447	1,510	1,493	1,476	1,459	1,442	1,442	1,442	1,442
Battery Storage	0	0	0	0	0	0	190	380	380	380	570	760	760	760	760	760	760	760	760	760	760
Energy Efficiency	0	87	175	264	352	438	527	597	666	734	793	848	898	943	979	1,011	1,036	1,057	1,077	1,095	1,110
Demand Response	0	198	222	250	271	287	296	309	306	315	323	325	332	337	341	344	344	346	349	351	356
CC	0	0	0	0	0	0	0	0	0	0	1,092	1,092	1,092	1,092	1,092	1,092	1,092	2,125	2,125	2,125	4,191
New Supply Side	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Capacity Position after Adjustment	1,255	1,523	823	893	1,259	1,388	1,626	1,248	1,435	1,581	2,242	2,528	2,646	2,703	1,547	2,615	2,572	1,246	1,234	1,200	1,986
Purchases (+) or sales (-)	-1,255	-1,523	-823	-893	-1,259	-1,388	-1,626	-1,248	-1,435	-1,581	-2,242	-2,528	-2,646	-2,703	-1,547	-2,615	-2,572	-1,246	-1,234	-1,200	-1,986

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

Plan A - Sioux Retired 2030 (Winter)																					
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
Existing Resources	8,081	8,081	7,272	7,272	7,272	7,265	7,265	6,625	5,874	5,871	5,869	5,867	5,864	5,862	4,605	4,603	4,600	3,770	3,770	3,770	2,569
Existing Sales and Load	-7,591	-7,580	-7,552	-7,585	-7,651	-7,758	-7,803	-7,874	-7,789	-7,896	-7,939	-7,998	-8,097	-7,992	-8,145	-8,225	-8,353	-8,387	-8,203	-8,338	-8,531
Renewables	0	0	25	28	60	145	292	434	448	522	593	662	728	787	774	761	748	735	735	735	735
Battery Storage	0	0	0	0	0	190	380	380	380	570	760	760	760	760	760	760	760	760	760	760	760
Energy Efficiency	0	69	138	207	277	347	414	482	550	619	683	746	808	865	914	959	998	1,035	1,071	1,103	1,131
Demand Response	0	7	8	9	10	11	12	13	14	15	16	17	17	18	19	20	20	21	22	22	23
CC	0	0	0	0	0	0	1,092	1,092	1,092	1,092	1,092	1,092	1,092	1,092	1,092	1,092	1,092	2,125	2,125	2,125	3,158
New Supply Side	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Capacity Position after Adjustment	490	577	-110	-72	-37	10	367	150	569	602	883	1,145	1,173	1,391	19	-31	-134	59	280	177	-155
Purchases (+) or sales (-)	-490	-577	110	72	37	-10	-367	-150	-569	-602	-883	-1,145	-1,173	-1,391	-19	31	134	-59	-280	-177	155

Plan B - Sioux Retired 2028 (Winter)																					
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
Existing Resources	8,081	8,081	7,272	7,272	7,272	7,265	7,265	6,625	5,874	5,871	5,869	5,867	5,864	5,862	4,605	4,603	4,600	3,770	3,770	3,770	2,569
Existing Sales and Load	-7,591	-7,580	-7,552	-7,585	-7,651	-7,758	-7,803	-7,874	-7,789	-7,896	-7,939	-7,998	-8,097	-7,992	-8,145	-8,225	-8,353	-8,387	-8,203	-8,338	-8,531
Renewables	0	0	25	28	60	145	292	434	448	522	593	662	728	787	774	761	748	735	735	735	735
Battery Storage	0	0	0	0	0	190	380	380	380	570	760	760	760	760	760	760	760	760	760	760	760
Energy Efficiency	0	69	138	207	277	347	414	482	550	619	683	746	808	865	914	959	998	1,035	1,071	1,103	1,131
Demand Response	0	7	8	9	10	11	12	13	14	15	16	17	17	18	19	20	20	21	22	22	23
CC	0	0	0	0	0	0	1,092	1,092	1,092	1,092	1,092	1,092	1,092	1,092	1,092	1,092	1,092	2,125	2,125	2,125	3,158
New Supply Side	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Capacity Position after Adjustment	490	577	-110	-72	-37	10	367	150	569	602	883	1,145	1,173	1,391	19	-31	-134	59	280	177	-155
Purchases (+) or sales (-)	-490	-577	110	72	37	-10	-367	-150	-569	-602	-883	-1,145	-1,173	-1,391	-19	31	134	-59	-280	-177	155

Plan C - RAP - Renewable Expansion (Winter)																					
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
Existing Resources	8,081	8,081	7,272	7,272	7,272	7,265	7,265	6,625	6,622	6,620	5,869	5,867	5,864	5,862	4,605	4,603	4,600	3,770	3,770	3,770	2,569
Existing Sales and Load	-7,591	-7,580	-7,552	-7,585	-7,651	-7,758	-7,803	-7,874	-7,789	-7,896	-7,939	-7,998	-8,097	-7,992	-8,145	-8,225	-8,353	-8,387	-8,203	-8,338	-8,531
Renewables	0	0	25	28	60	145	292	434	448	522	593	662	728	787	774	761	748	735	735	735	735
Battery Storage	0	0	0	0	0	190	380	380	380	570	760	760	760	760	760	760	760	760	760	760	760
Energy Efficiency	0	69	138	207	277	347	414	482	550	619	683	746	808	865	914	959	998	1,035	1,071	1,103	1,131
Demand Response	0	7	8	9	10	11	12	13	14	15	16	17	17	18	19	20	20	21	22	22	23
CC	0	0	0	0	0	0	0	0	0	0	1,092	1,092	1,092	1,092	1,092	1,092	1,092	2,125	2,125	2,125	3,158
New Supply Side	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Capacity Position after Adjustment	490	577	-110	-72	-37	10	367	150	225	259	883	1,145	1,173	1,391	19	-31	-134	59	280	177	-155
Purchases (+) or sales (-)	-490	-577	110	72	37	-10	-367	-150	-225	-259	-883	-1,145	-1,173	-1,391	-19	31	134	-59	-280	-177	155

Plan D - Labadie SCR (Winter)																	
	2023	2024	2025	2026	2027	2028	2029										





Plan P - Labadie 2036 (Winter)																						
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	
Existing Resources	8,081	8,081	7,272	7,270	7,267	7,265	7,262	6,625	6,622	6,620	5,869	5,867	5,864	5,862	4,605	4,603	4,600	3,770	3,770	3,770	2,569	2,569
Existing Sales and Load	-7,591	-7,580	-7,552	-7,585	-7,651	-7,758	-7,803	-7,784	-7,789	-7,896	-7,939	-7,998	-8,097	-7,992	-8,145	-8,225	-8,353	-8,387	-8,203	-8,338	-8,531	-8,531
Renewables	0	0	25	28	60	145	292	434	448	522	593	662	728	787	774	761	748	735	735	735	735	735
Battery Storage	0	0	0	0	0	0	190	380	380	380	570	760	760	760	760	760	760	760	760	760	760	760
Energy Efficiency	0	69	138	207	277	347	414	482	550	619	683	746	808	865	914	959	998	1,035	1,071	1,103	1,131	1,131
Demand Response	0	7	8	9	10	11	12	13	14	15	16	17	17	18	19	20	20	21	22	22	22	23
CC	0	0	0	0	0	0	0	0	0	0	1,092	1,092	1,092	1,092	1,125	1,125	1,158	1,158	1,158	1,158	1,158	1,158
New Supply Side	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Capacity Position after Adjustment	490	577	-110	-72	-37	10	367	150	225	259	883	1,145	1,173	1,391	-150	-200	730	-109	112	8	-155	-155
Purchases (+) or sales (-)	-490	-577	110	72	37	-10	-367	-150	-225	-259	-883	-1,145	-1,173	-1,391	150	200	-730	109	-112	-8	155	155

Plan Q - Labadie 2031 (Winter)																						
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	
Existing Resources	8,081	8,081	7,272	7,270	7,267	7,265	7,262	6,625	6,622	6,620	5,869	5,867	5,864	5,862	4,605	4,603	4,600	3,770	3,770	3,770	2,569	2,569
Existing Sales and Load	-7,591	-7,580	-7,552	-7,585	-7,651	-7,758	-7,803	-7,784	-7,789	-7,896	-7,939	-7,998	-8,097	-7,992	-8,145	-8,225	-8,353	-8,387	-8,203	-8,338	-8,531	-8,531
Renewables	0	0	25	28	60	145	292	434	448	522	593	662	728	787	774	761	748	735	735	735	735	735
Battery Storage	0	0	0	0	0	0	190	380	380	380	570	760	760	760	760	760	760	760	760	760	760	760
Energy Efficiency	0	69	138	207	277	347	414	482	550	619	683	746	808	865	914	959	998	1,035	1,071	1,103	1,131	1,131
Demand Response	0	7	8	9	10	11	12	13	14	15	16	17	17	18	19	20	20	21	22	22	22	23
CC	0	0	0	0	0	0	0	0	0	0	1,092	1,092	1,092	1,092	1,125	1,125	1,158	1,158	1,158	1,158	1,158	1,158
New Supply Side	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Capacity Position after Adjustment	490	577	-110	-72	-37	10	367	150	225	-13	611	872	900	1,119	1,001	951	848	-109	112	8	-155	-155
Purchases (+) or sales (-)	-490	-577	110	72	37	-10	-367	-150	-225	13	-611	-872	-900	-1,119	-1,001	-951	-848	109	-112	-8	155	155

Plan R - RAP LF (Winter)																						
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	
Existing Resources	8,081	8,081	7,272	7,270	7,267	7,265	7,262	6,625	6,622	6,620	5,869	5,867	5,864	5,862	4,605	4,603	4,600	3,770	3,770	3,770	2,569	2,569
Existing Sales and Load	-7,591	-7,580	-7,552	-7,585	-7,651	-7,758	-7,803	-7,784	-7,789	-7,896	-7,939	-7,998	-8,097	-7,992	-8,145	-8,225	-8,353	-8,387	-8,203	-8,338	-8,531	-8,531
Renewables	0	0	25	28	60	145	292	434	448	522	593	662	728	787	774	761	748	735	735	735	735	735
Battery Storage	0	0	0	0	0	0	190	380	380	380	570	760	760	760	760	760	760	760	760	760	760	760
Energy Efficiency	0	69	138	207	277	347	414	482	550	619	683	746	808	865	914	959	998	1,035	1,071	1,103	1,131	1,131
Demand Response	0	165	195	235	264	281	284	292	283	287	291	288	291	292	293	291	287	286	285	283	282	282
CC	0	0	0	0	0	0	0	0	0	0	1,092	1,092	1,092	1,092	1,092	1,092	1,125	1,125	1,125	1,125	1,125	1,125
New Supply Side	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Capacity Position after Adjustment	490	735	77	154	218	280	639	429	495	531	1,158	1,416	1,446	1,665	292	241	133	324	544	438	105	105
Purchases (+) or sales (-)	-490	-735	-77	-154	-218	-280	-639	-429	-495	-531	-1,158	-1,416	-1,446	-1,665	-292	-241	-133	-324	-544	-438	-105	-105

Plan S - MAP LF (Winter)																						
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	
Existing Resources	8,081	8,081	7,272	7,270	7,267	7,265	7,262	6,625	6,622	6,620	5,869	5,867	5,864	5,862	4,605	4,603	4,600	3,770	3,770	3,770	2,569	2,569
Existing Sales and Load	-7,591	-7,580	-7,552	-7,585	-7,651	-7,758	-7,803	-7,784	-7,789	-7,896	-7,939	-7,998	-8,097	-7,992	-8,145	-8,225	-8,353	-8,387	-8,203	-8,338	-8,531	-8,531
Renewables	0	0	25	28	60	145	292	434	448	522	593	662	728	787	774	761	748	735	735	735	735	735
Battery Storage	0	0	0	0	0	0	190	380	380	380	570	760	760	760	760	760	760	760	760	760	760	760
Energy Efficiency	0	92	183	275	366	457	544	632	719	807	889	969	1,047	1,121	1,188	1,249	1,304	1,355	1,406	1,449	1,487	1,487
Demand Response	0	216	287	357	422	441	457	459	474	486	497	470	478	470	474	464	462	462	453	452	452	453
CC	0	0	0	0	0	0	0	0	0	0	1,092	1,092	1,092	1,092	1,092	1,092	1,125	1,125	1,125	1,125	1,125	1,125
New Supply Side	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Capacity Position after Adjustment	490	809	215	344	465	550	942	746	854	918	1,571	1,821	1,872	2,100	748	704	613	821	1,047	953	632	632
Purchases (+) or sales (-)	-490	-809	-215	-344	-465	-550	-942	-746	-854	-918	-1,571	-1,821	-1,872	-2,100	-748	-704	-613	-821	-1,047	-953	-632	-632

Plan T - All Renewables (Winter)																						
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	
Existing Resources	8,081	8,081	7,272	7,270	7,267	7,265	7,262	6,625	6,622	6,620	5,869	5,867	5,864	5,862	4,605	4,603	4,600	3,770	3,770	3,770	2,569	2,569
Existing Sales and Load	-7,591	-7,580	-7,552	-7,585	-7,651	-7,758	-7,803	-7,784	-7,789	-7,896	-7,939	-7,998	-8,097	-7,992	-8,145	-8,225	-8,353	-8,387	-8,203	-8,338	-8,531	-8,531
Renewables	0	0	25	28	60	145	292	434	448	522	593	662	728	787	774	761	748	735	735	735	735	735
Battery Storage	0	0	0	0	0	0	190	380	380	380	570	760	760	760	760	760	760	760	760	760	760	760
Energy Efficiency	0	69	138	207	277	347	414	482	550	619	683	746	808	865	914	959	998	1,035	1,071	1,103	1,131	1,131
Demand Response	0	7	8	9	10	11	12	13	14	15	16	17	17	18	19	20	20	21	22	22	22	23
CC	0	0	0	0	0	0	0	0	0	0	1,092	1,092	1,092	1,092	1,092	1,092	1,125	1,125	1,125	1,125	1,125	1,125
New Supply Side	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Capacity Position after Adjustment	490	577	-110	-72	-37	10	367	245	320	449	2,734	2,894	3,008	3,314	2,095	2,192	2,231	1,464	1,685	1,582	217	217
Purchases (+) or sales (-)	-490	-577	110	72	37	-10	-367	-245	-320	-449	-2,734	-2,894	-3,008	-3,314	-2,095	-2,192	-2,231	-1,464	-1,685	-1,582	-217	-217

Plan U - SC instead of First CC (Winter)																	
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Table 9A.4 Uncertainty Ranges<sup>2</sup>

Estimate Class	Degree of Project Definition (Expressed as % of complete definition)	Established Standard	Maturing	Evolving	Emerging
Class 5	0% to 2%	Low: -20%, High: +30%	Low: -25%, High: +45%	Low: -30%, High: +75%	Low: -35%, High: +120%
Class 4	1% to 15%	Low: -15%, High: +20%	Low: -20%, High: +35%	Low: -25%, High: +55%	Low: -30%, High: +90%
Class 3	10% to 40%	Low: -10%, High: +10%	Low: -15%, High: +25%	Low: -20%, High: +45%	Low: -25%, High: +70%
Class 2	30% to 75%	Low: -5%, High: +5%	Low: -10%, High: +15%	Low: -15%, High: +35%	Low: -20%, High: +55%
Class 1	65% to 100%	Low: -3%, High: +3%	Low: -5%, High: +8%	Low: -10%, High: +17%	Low: -15%, High: +40%

Ameren Missouri used the project cost grid above to establish the DSM cost ranges in the "DSM Cost Only" uncertainty. Subject matter experts determined energy efficiency in in "Class 4-Maturing" category and demand response is in "Class 3-Maturing" category.

For transmission upgrades needed after retirement of energy centers, uncertainty grid below was used. Subject matter experts determined Class 5 was appropriate for this purpose.

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.

<sup>2</sup> 20 CSR 4240-22.060(7)(C)1A; 20 CSR 4240-22.060(7)(C)1B

**Project Schedule Uncertainty Distribution <sup>3</sup>**

Technology	Item	Low	Low Mid Point	Expected Value	High Mid Point	High
Combined Cycle	Deviation	-30%	-15%	0%	20%	40%
	Probability	5%	25%	50%	15%	5%
Simple Cycle	Deviation	-30%	-15%	0%	20%	40%
	Probability	5%	25%	50%	15%	5%
Nuclear	Deviation	-30%	-15%	0%	20%	40%
	Probability	5%	25%	40%	25%	5%
Pumped Storage	Deviation	-30%	-15%	0%	20%	40%
	Probability	5%	25%	40%	25%	5%
Hydro	Deviation	-30%	-15%	0%	20%	40%
	Probability	5%	25%	40%	25%	5%
Li-Ion 4hr - Battery	Deviation	-30%	-15%	0%	20%	40%
	Probability	5%	25%	40%	25%	5%
Wind	Deviation	-30%	-15%	0%	20%	40%
	Probability	5%	25%	40%	25%	5%
Solar PV	Deviation	-30%	-15%	0%	20%	40%
	Probability	5%	25%	40%	25%	5%

<sup>3</sup> 20 CSR 4240-22.060(5)(F)

Table 9A.5 Sensitivity Analysis: *Change in PVRR Ranking* <sup>4</sup>

Plan	Integration Ranking	DSM Load Impact & Cost			DSM Cost Only			ROE-Interest Rate			Project Cost			Project Schedule			Fixed and Variable O&M			Coal Price				
		PWA	Low	High	PWA	Low	High	PWA	Low	High	PWA	Low	High	PWA	Low	High	PWA	Low	High	PWA	Low	High		
A-Sioux Retired 2030	8	0	0	-1	0	0	-1	0	-1	0	0	-2	-2	0	-1	0	0	-3	0	0	0	0	0	0
B-Sioux Retired 2028	6	0	0	-1	0	0	-1	0	-1	0	-1	-1	1	0	0	0	0	-2	3	0	0	0	0	0
C-RAP - Renewable Expansion	7	0	0	-1	0	0	-1	0	-1	0	-1	0	-2	0	1	0	0	-1	-1	0	0	0	0	0
D-Labadie SCR	11	0	1	0	0	2	0	0	0	2	1	0	3	0	0	1	0	0	1	0	0	0	0	0
E-MAP	12	0	-1	1	1	-1	3	0	0	0	-1	0	-1	0	0	1	0	0	1	0	0	0	0	0
F-RAP-RES Compliance	17	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
G-MAP-RES Compliance	20	0	0	0	0	-2	0	0	0	-1	0	0	-1	0	0	-2	0	0	-1	0	0	0	0	0
H-MAP LF-RES Compliance	4	0	0	4	0	0	6	0	5	0	0	5	-1	0	0	0	0	3	1	0	0	0	0	0
I-No Additional DSM	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
J-No Additional DSM-RES Compliance	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
K-Renewables for Capacity Need	13	0	0	-1	-1	1	-1	0	0	-2	0	0	-1	0	0	-2	0	1	-2	0	0	0	0	0
L-Pumped Hydro w/ MAP LF	3	0	0	0	0	0	0	0	0	0	0	0	-1	0	0	0	0	0	0	0	0	0	0	0
M-SC	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
N-SMR w/ RAP LF	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
O-Labadie 2039	10	0	0	0	0	0	-1	0	0	0	0	0	0	0	0	0	0	-1	0	0	0	0	0	0
P-Labadie 2036	15	0	0	-1	0	0	-2	0	0	0	0	-1	0	0	0	0	0	-2	1	0	0	0	0	0
Q-Labadie 2031	18	0	0	0	0	1	1	0	-1	0	0	0	0	0	0	1	0	0	2	0	1	0	0	0
R-RAP LF	9	0	0	0	0	0	-1	0	-1	0	0	-1	-1	0	0	0	0	-1	-2	0	0	0	0	0
S-MAP LF	14	0	0	1	0	-2	2	0	0	0	0	1	-1	0	0	0	0	1	0	0	0	0	0	0
T-All Renewables	2	0	0	0	0	0	0	0	0	0	0	-1	2	0	0	0	0	0	0	0	0	0	0	0
U-SC instead of First CC	5	0	0	-1	0	0	-1	0	-1	0	2	-1	4	0	0	0	0	5	-1	0	0	0	0	0
V-CCS on 1st CC	16	0	0	0	0	0	-2	0	0	0	0	0	0	0	0	0	0	0	-1	0	0	0	0	0
W-RAP 80%	19	0	0	0	0	1	-1	0	0	1	0	0	1	0	0	1	0	0	-2	0	-1	0	0	0

<sup>4</sup> 20 CSR 4240-22.060(6)

Table 9A.6 Sensitivity Analysis: *Change in PVRR*<sup>5</sup>

Plan	Integration PVRR (\$Million)	DSM Load Impact & Cost			DSM Cost Only			ROE-Interest Rate			Project Cost			Project Schedule			Fixed and Variable O&M			Coal Price		
		PWA	Low	High	PWA	Low	High	PWA	Low	High	PWA	Low	High	PWA	Low	High	PWA	Low	High	PWA	Low	High
A-Sioux Retired 2030	81,670	17	214	(45)	21	(278)	485	11	(1,271)	1,385	80	-1,488	2,287	25	(179)	430	42	(1,190)	1,610	(26)	(348)	87
B-Sioux Retired 2028	81,658	17	214	(45)	21	(278)	485	11	(1,273)	1,388	80	-1,507	2,303	25	(182)	434	45	(1,244)	1,693	(26)	(344)	84
C-RAP - Renewable Expansion	81,667	17	214	(45)	21	(278)	485	11	(1,269)	1,383	80	-1,471	2,273	25	(175)	425	39	(1,141)	1,535	(26)	(350)	88
D-Labadie SCR	82,344	17	214	(45)	21	(278)	485	12	(1,284)	1,399	87	-1,573	2,444	25	(175)	425	39	(1,141)	1,535	(23)	(350)	91
E-MAP	82,350	26	188	68	43	(574)	1,000	11	(1,265)	1,379	80	-1,471	2,273	25	(175)	425	39	(1,141)	1,535	(26)	(350)	88
F-RAP-RES Compliance	83,241	17	214	(45)	21	(278)	485	10	(1,166)	1,270	83	-1,594	2,423	7	(176)	248	61	(1,441)	2,051	(26)	(350)	88
G-MAP-RES Compliance	83,577	26	188	68	43	(574)	1,000	10	(1,142)	1,245	96	-1,477	2,438	6	(160)	224	52	(1,302)	1,825	(26)	(350)	88
H-MAP LF-RES Compliance	81,582	26	186	75	44	(597)	1,039	10	(1,085)	1,182	68	-1,198	1,879	5	(120)	168	39	(986)	1,380	(26)	(350)	88
I-No Additional DSM	85,720	(17)	(17)	(17)	(17)	(17)	(17)	(5)	(1,382)	1,470	118	-1,974	3,294	10	(247)	484	46	(1,676)	2,279	(44)	(367)	71
J-No Additional DSM-RES Compliance	86,406	-	-	-	-	-	-	11	(1,245)	1,357	111	-1,930	3,040	9	(224)	316	77	(1,817)	2,588	(26)	(350)	88
K-Renewables for Capacity Need	82,371	17	214	(45)	21	(278)	485	11	(1,197)	1,304	87	-1,456	2,330	18	(152)	333	39	(1,082)	1,475	(26)	(350)	88
L-Pumped Hydro w/ MAP LF	80,902	17	213	(38)	24	(322)	558	11	(1,257)	1,370	58	-1,377	1,954	26	(193)	452	29	(906)	1,201	(26)	(350)	88
M-SC	80,551	17	214	(45)	21	(278)	485	11	(1,242)	1,353	58	-1,342	1,919	24	(158)	399	29	(910)	1,204	(26)	(350)	88
N-SMR w/ RAP LF	84,553	17	212	(40)	22	(293)	509	13	(1,401)	1,530	126	-1,929	3,190	42	(355)	774	54	(971)	1,315	(26)	(350)	88
O-Labadie 2039	82,035	17	214	(45)	21	(278)	485	11	(1,274)	1,389	85	-1,512	2,363	25	(182)	435	42	(1,207)	1,627	(25)	(338)	88
P-Labadie 2036	82,521	17	214	(45)	21	(278)	485	12	(1,282)	1,398	91	-1,558	2,469	26	(193)	449	46	(1,306)	1,767	(24)	(321)	85
Q-Labadie 2031	83,365	17	214	(45)	21	(278)	485	12	(1,304)	1,422	69	-1,711	2,404	27	(219)	487	60	(1,530)	2,130	(17)	(246)	73
R-RAP LF	81,741	17	212	(40)	22	(293)	509	11	(1,269)	1,383	80	-1,471	2,273	25	(175)	425	39	(1,141)	1,535	(26)	(350)	88
S-MAP LF	82,469	26	186	75	44	(597)	1,039	11	(1,265)	1,379	80	-1,471	2,273	25	(175)	425	39	(1,141)	1,535	(26)	(350)	88
T-All Renewables	80,767	17	214	(45)	21	(278)	485	12	(1,378)	1,501	99	-1,813	2,807	41	(152)	562	19	(967)	1,159	(26)	(350)	88
stead of First CC	81,637	17	214	(45)	21	(278)	485	11	(1,272)	1,386	113	-1,540	2,668	25	(173)	420	22	(779)	996	(26)	(350)	88
in 1st CC	82,634	17	214	(45)	21	(278)	485	12	(1,296)	1,413	95	-1,615	2,561	26	(196)	454	39	(1,141)	1,535	(26)	(350)	88
W-RAP 80%	83,412	14	171	(36)	17	(229)	397	12	(1,313)	1,432	101	-1,681	2,693	26	(205)	468	49	(1,365)	1,851	(26)	(350)	88

<sup>5</sup> 20 CSR 4240-22.060(6)

Table 9A.7 DSM Participant Costs (\$Million)<sup>6</sup>

DSM Program	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
RAP EE	60	61	60	59	56	55	55	54	51	50	60	59	57	52	48	75	71	67	65	61
MAP EE	0	0	0	0	0	1	1	2	2	2	15	17	18	17	15	39	37	35	34	32
RAP 80% EE	48	49	48	47	45	44	44	43	41	40	48	47	45	42	38	60	57	54	52	49
RAP DR	1	1	2	2	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2
MAP DR	3	3	4	3	2	2	2	2	2	2	5	5	6	5	4	4	4	4	4	4
RAP with LF DR	3	4	5	4	4	4	4	4	4	4	3	4	4	4	3	4	4	4	4	5
MAP with LF DR	3	3	4	3	2	2	2	2	2	2	5	5	6	5	4	4	4	4	4	4

<sup>6</sup> 20 CSR 4240-22.060(2)(A)3

Figure 9A.1 Combined Impact of DSM on Summer Peak Demand<sup>7</sup>

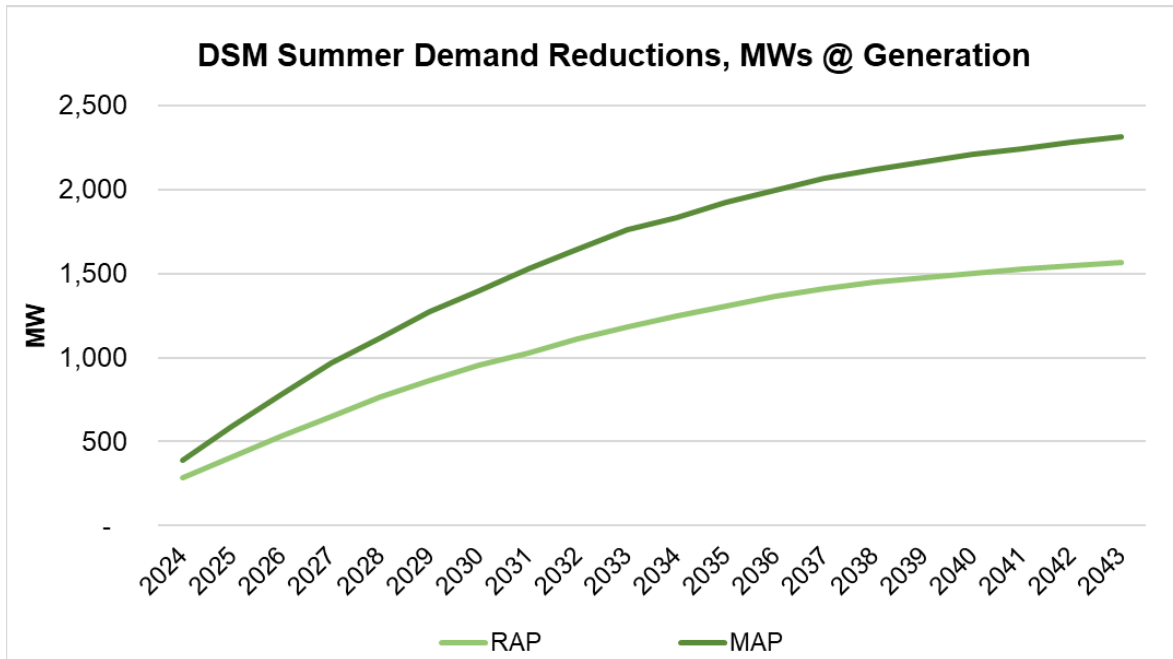
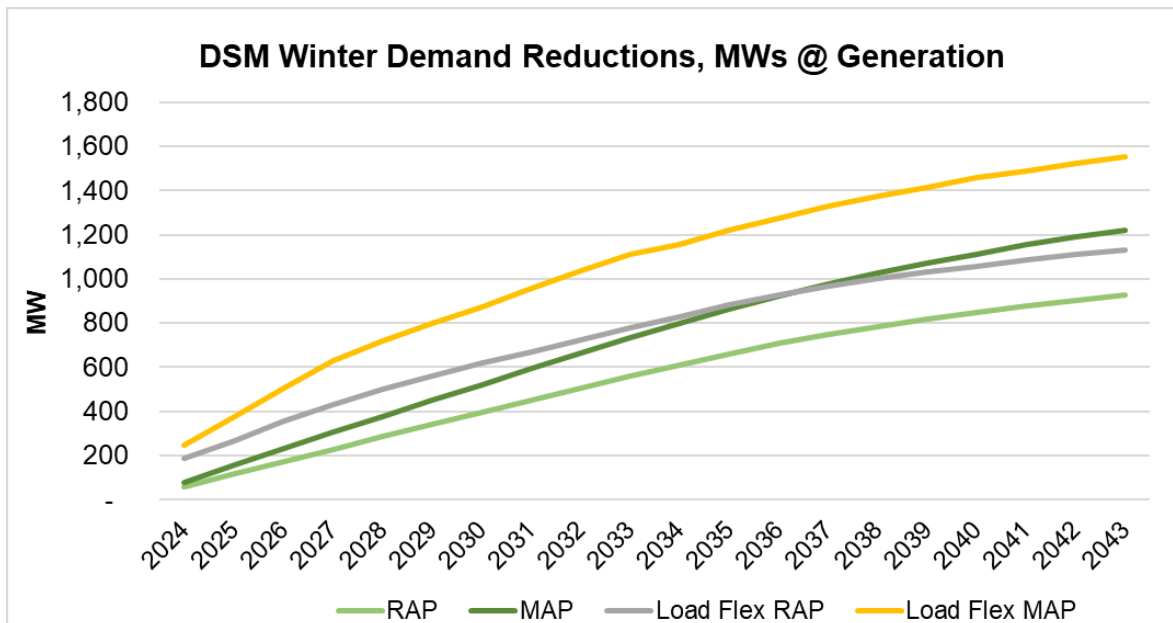


Figure 9A.2 Combined Impact of DSM on Winter Peak Demand<sup>8</sup>

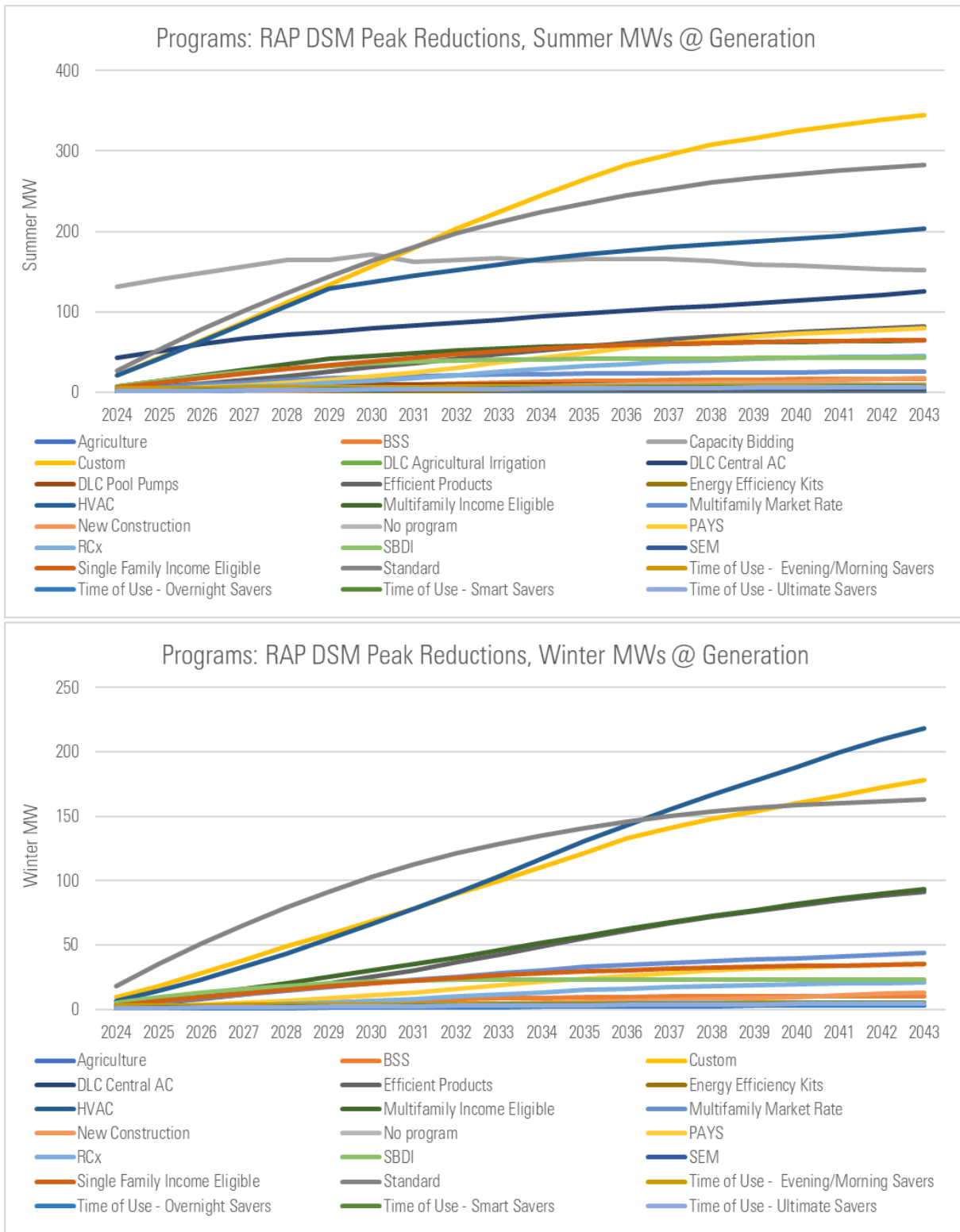


<sup>7</sup> 20 CSR 4240-22.060(4)(B)1

<sup>8</sup> 20 CSR 4240-22.060(4)(B)1

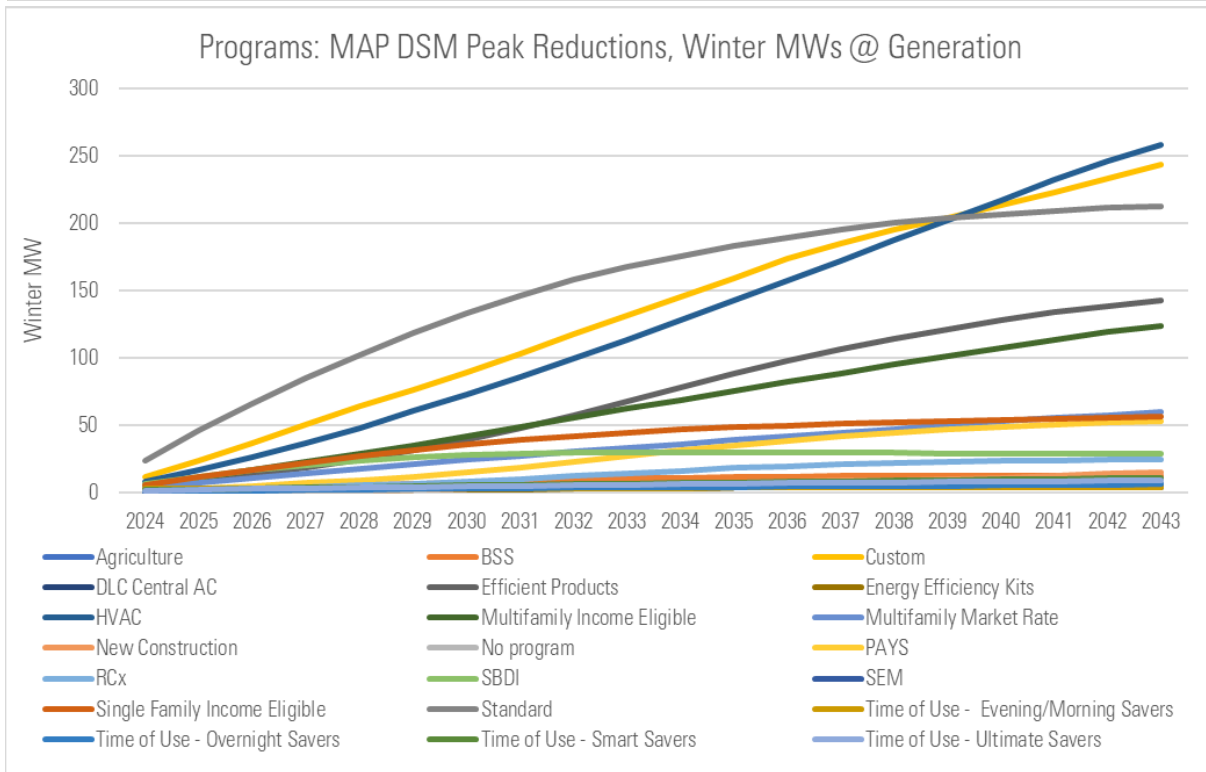
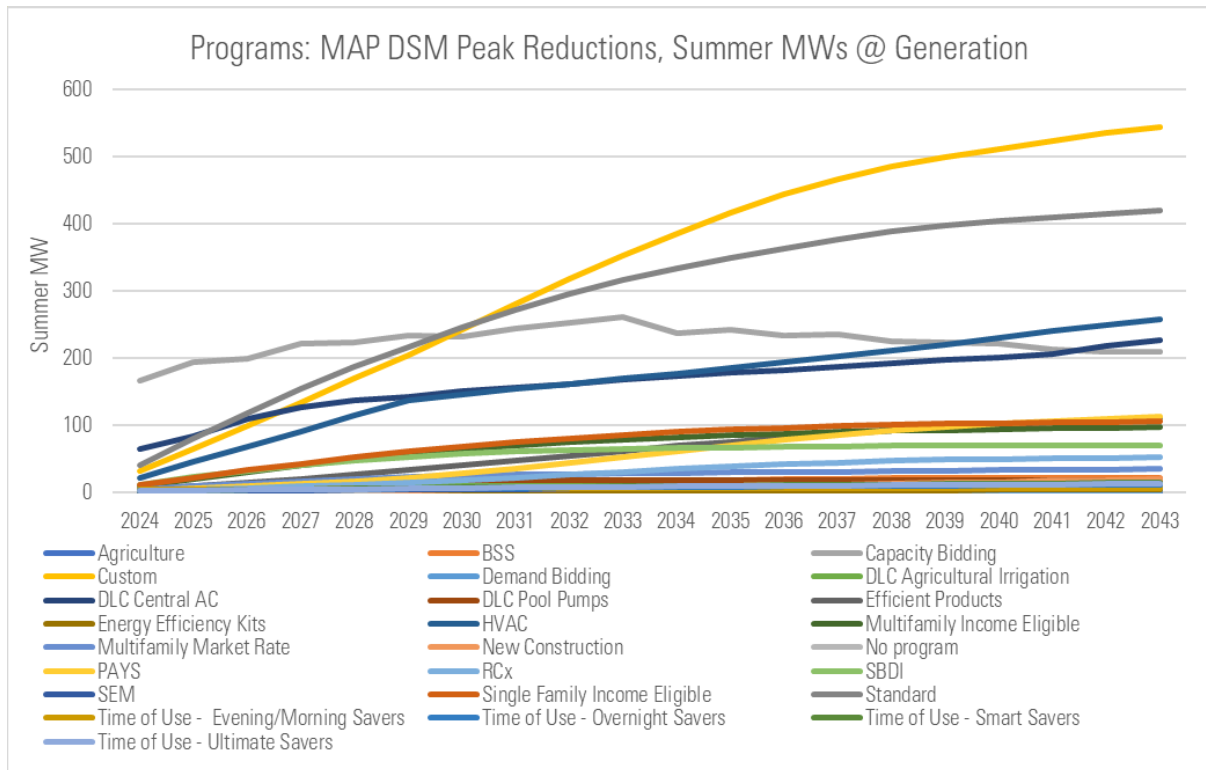


Figure 9A.3 Stacked Programs for RAP DSM Capacity<sup>9</sup>



<sup>9</sup> 20 CSR 4240-22.060(4)(B)2

Figure 9A.4 Stacked Programs for MAP DSM Capacity<sup>10</sup>



<sup>10</sup> 20 CSR 4240-22.060(4)(B)2

Figure 9A.5 Stacked Programs for RAP DSM with Load Flexibility Capacity<sup>11</sup>

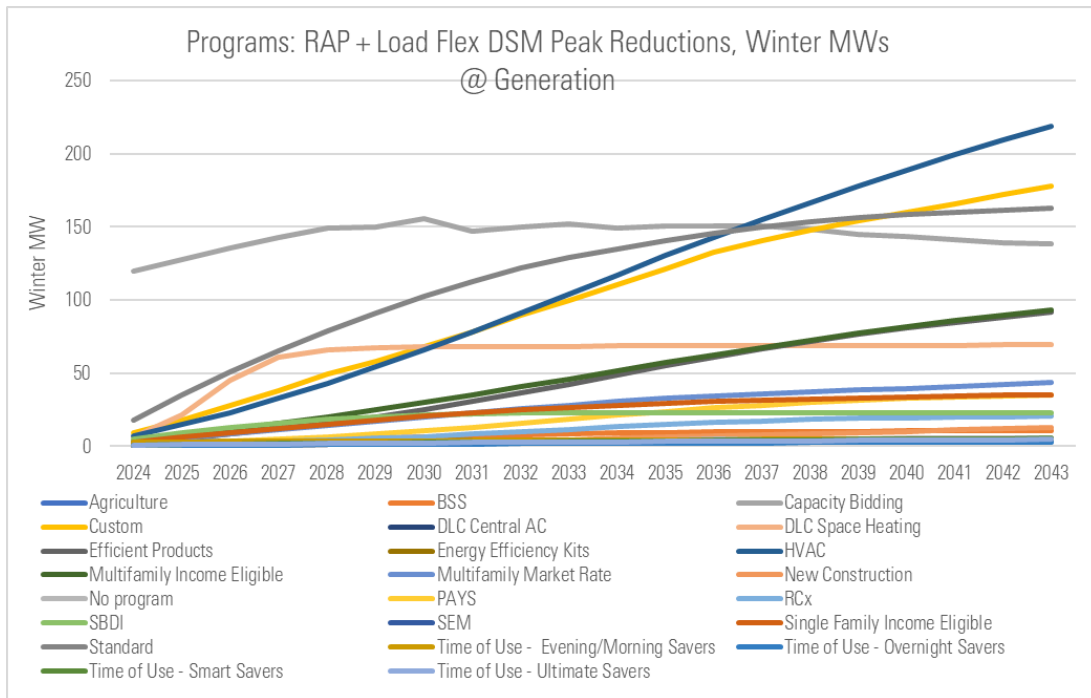
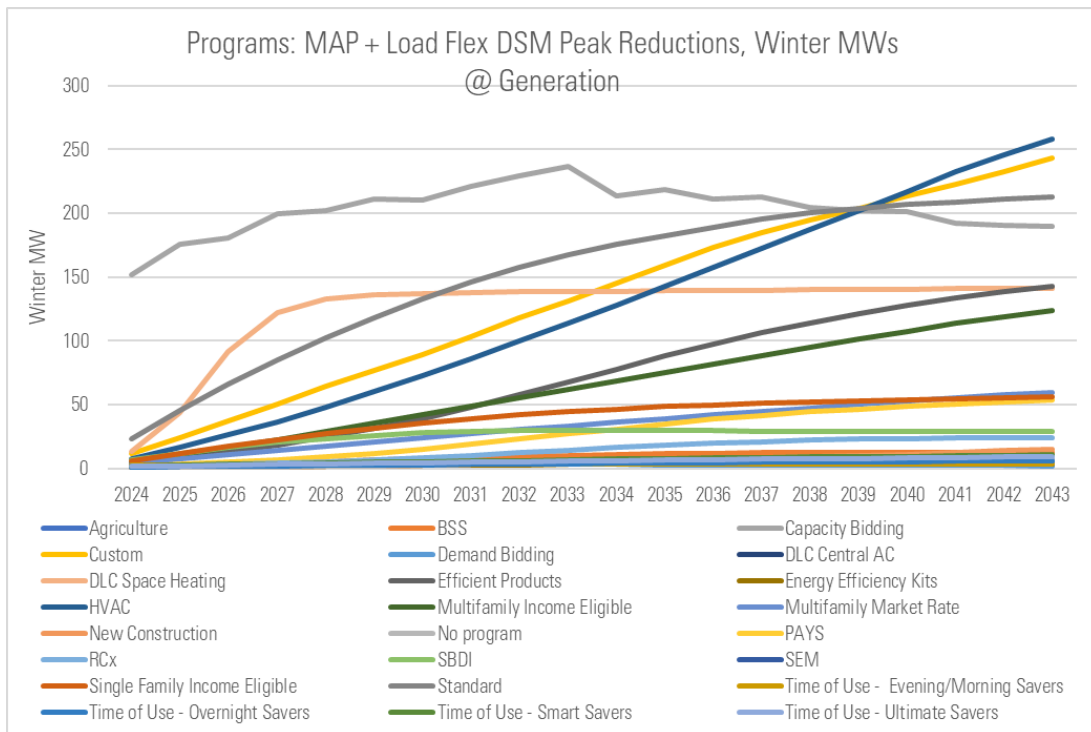


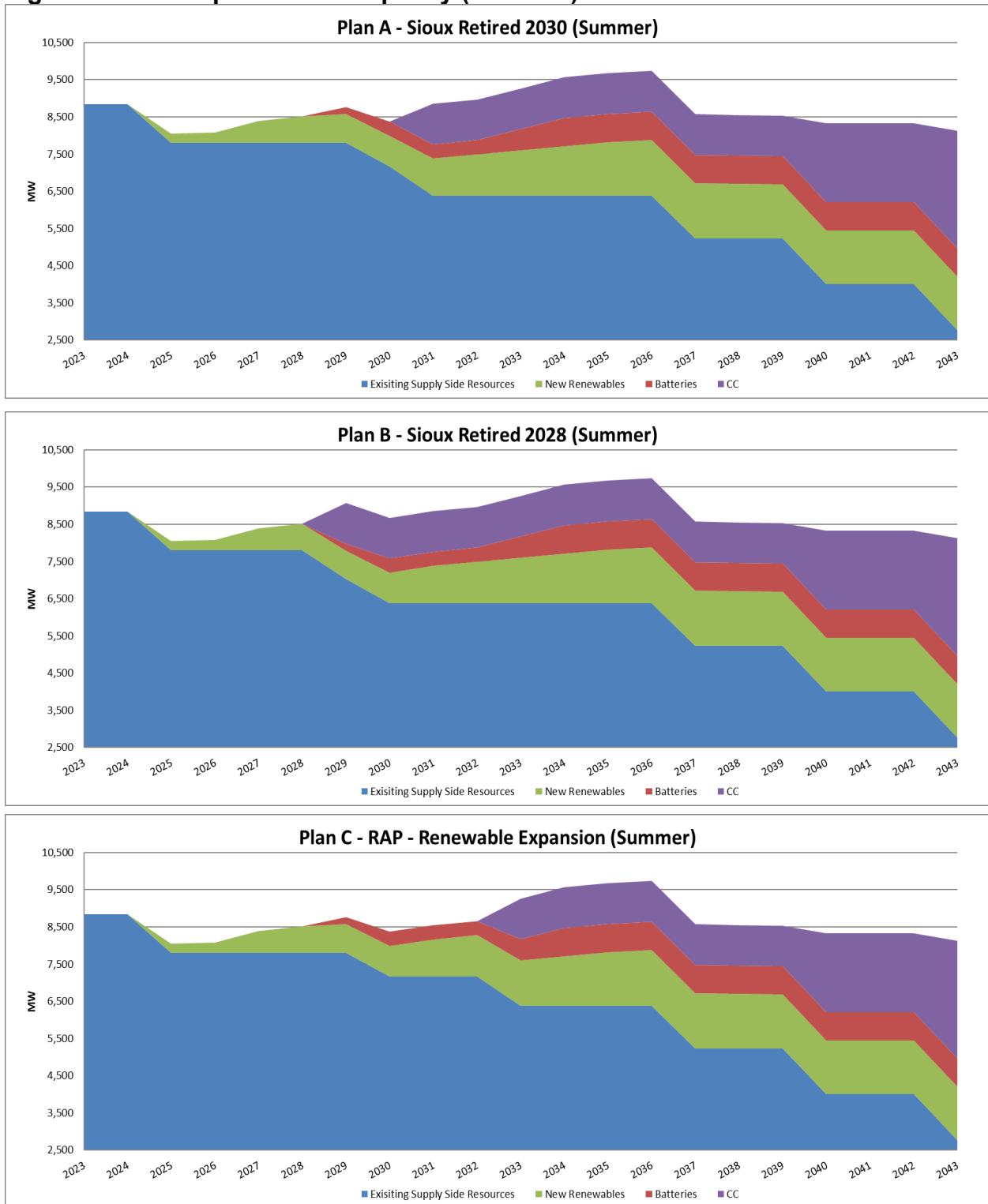
Figure 9A.6 Stacked Programs for MAP DSM with Load Flexibility Capacity<sup>12</sup>



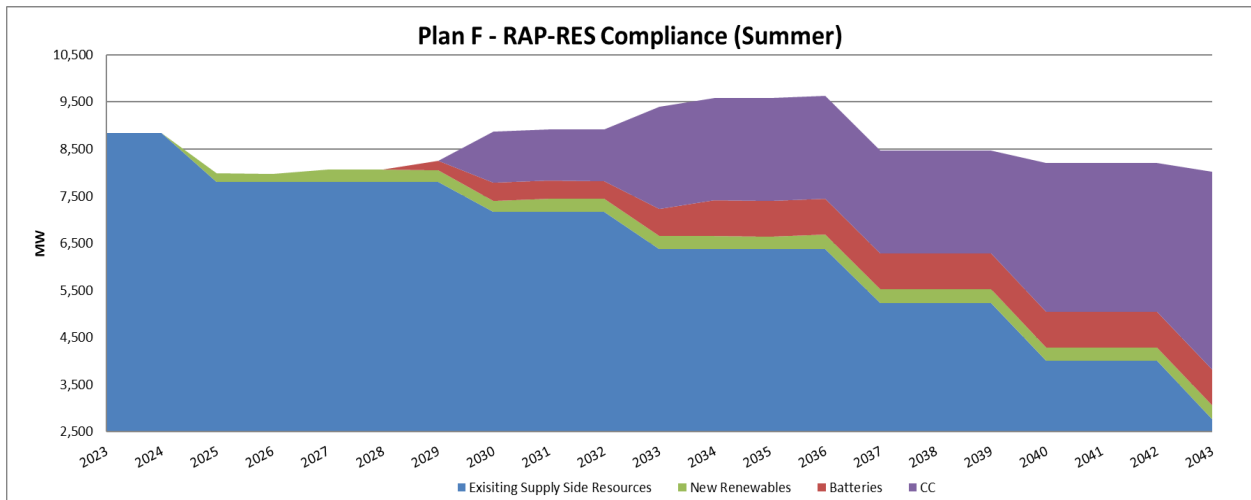
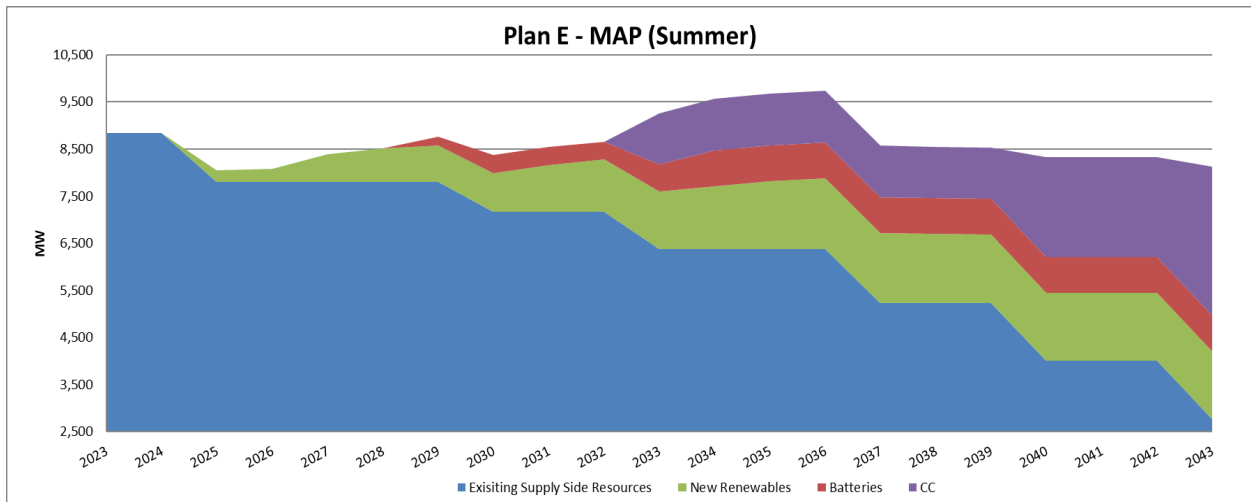
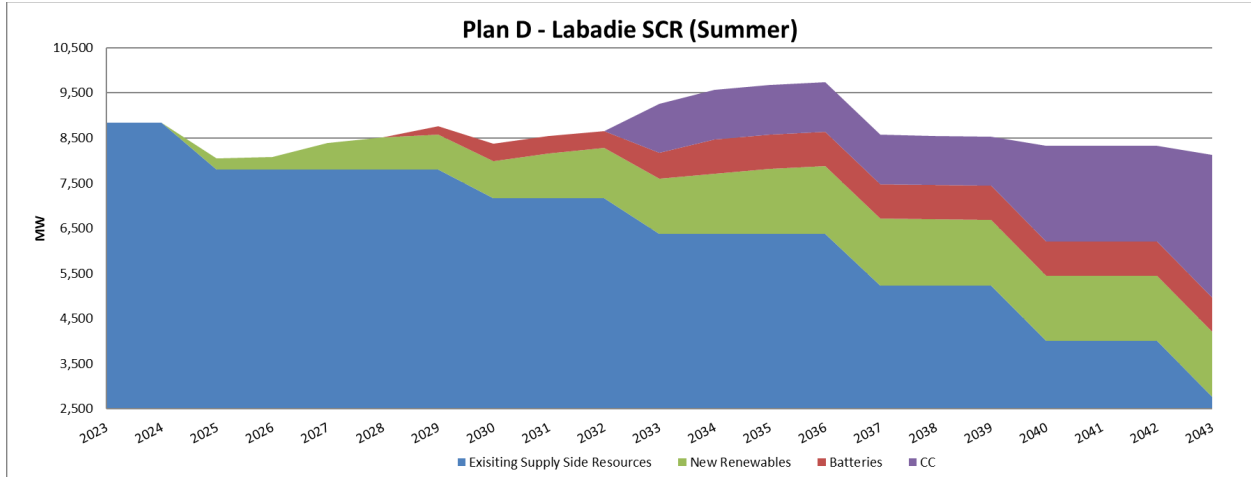
<sup>11</sup> 20 CSR 4240-22.060(4)(B)2

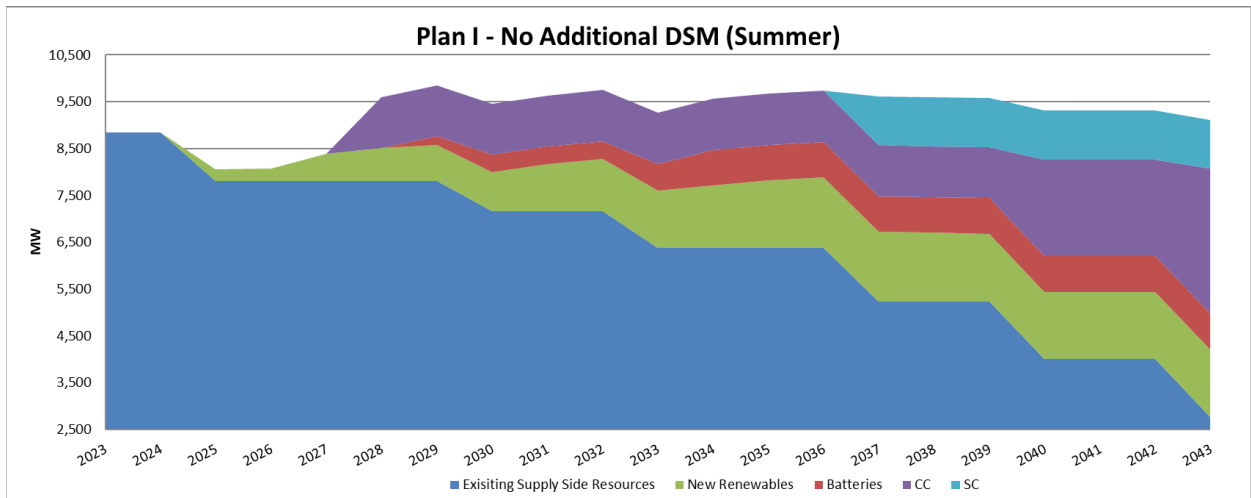
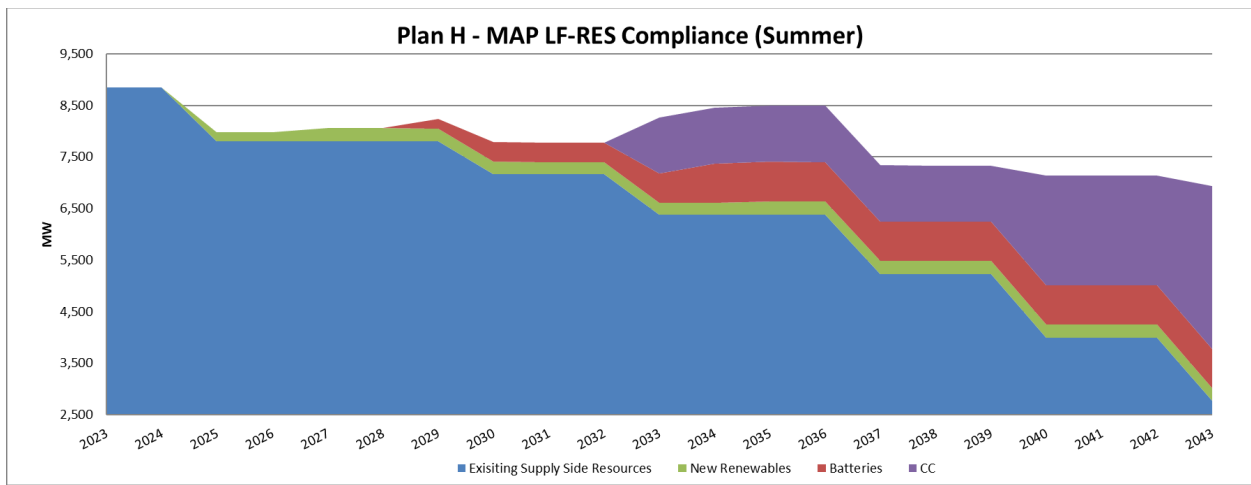
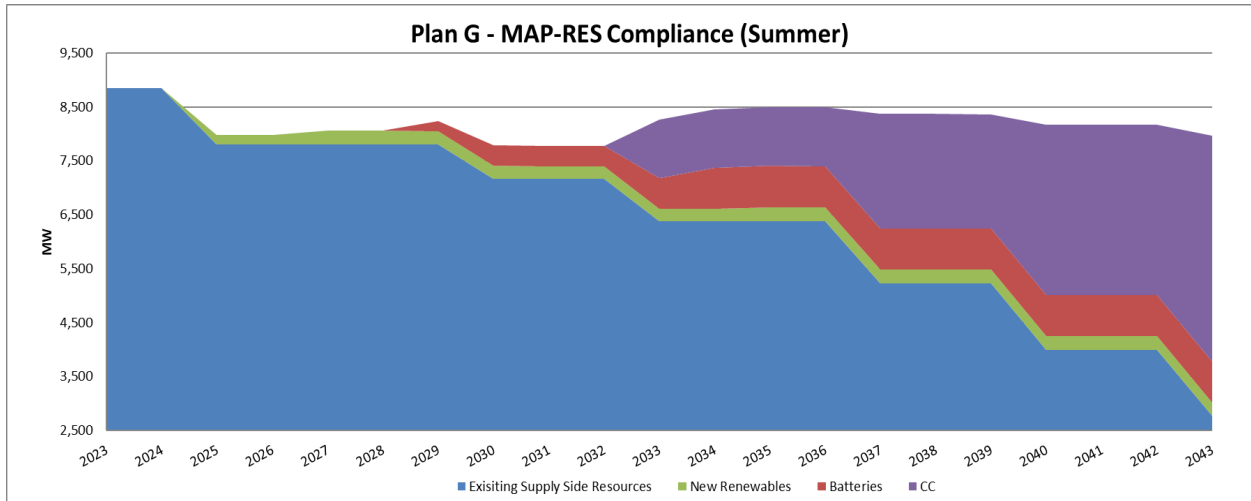
<sup>12</sup> 20 CSR 4240-22.060(4)(B)2

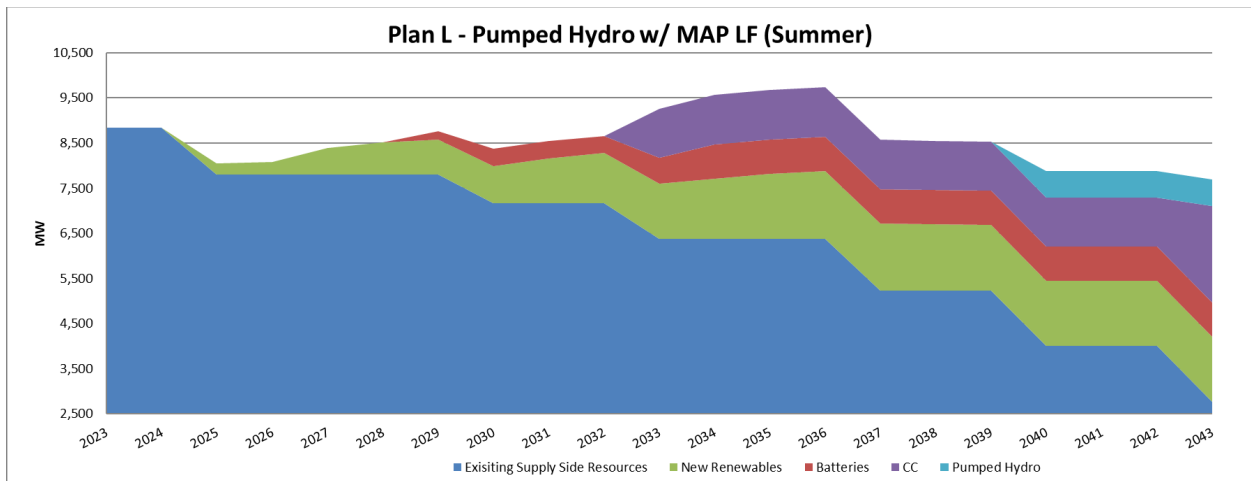
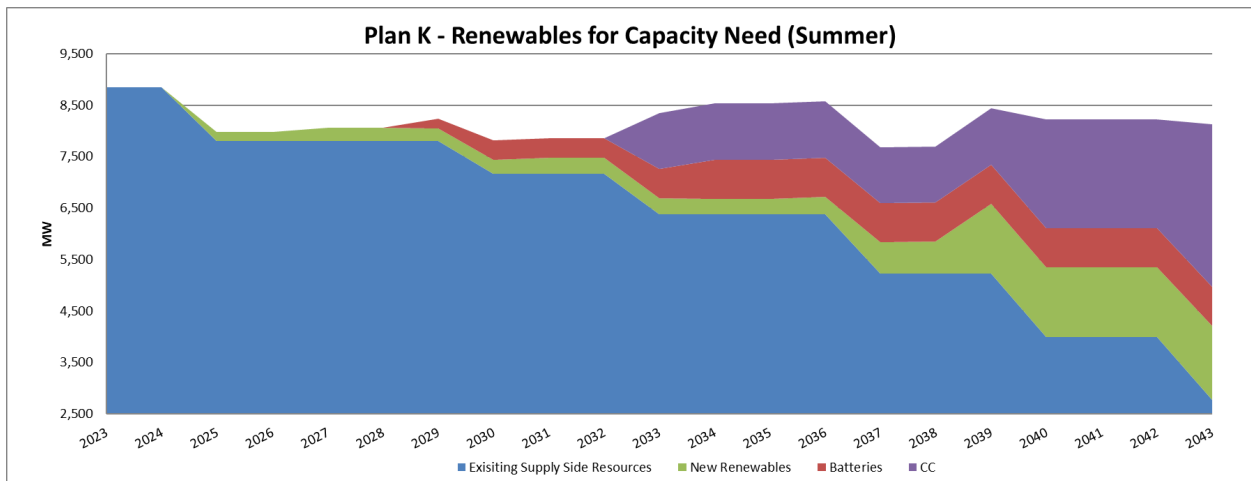
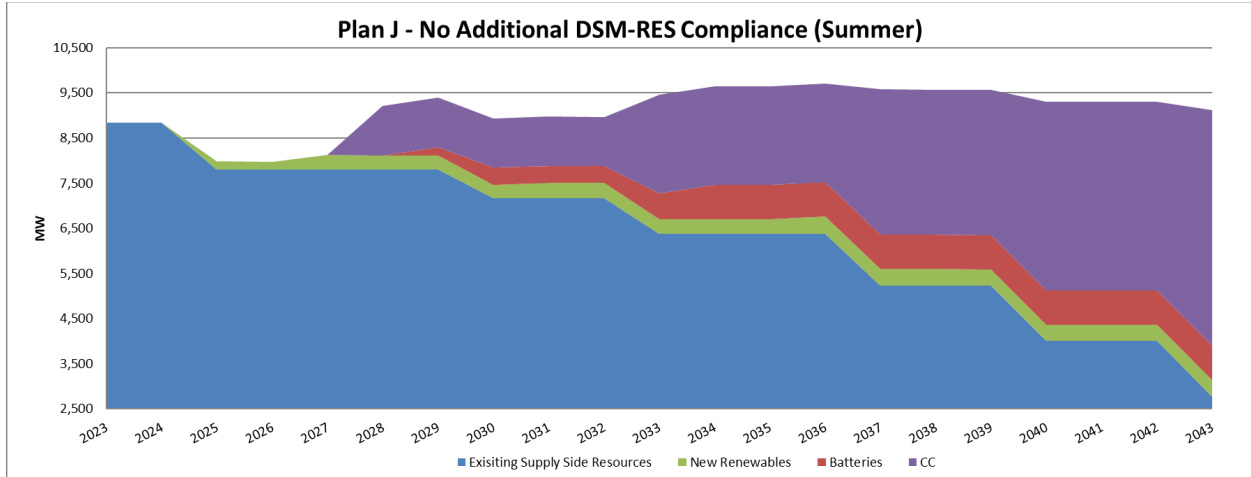
Figure 9A.7 Composition of Capacity (Summer)<sup>13</sup>

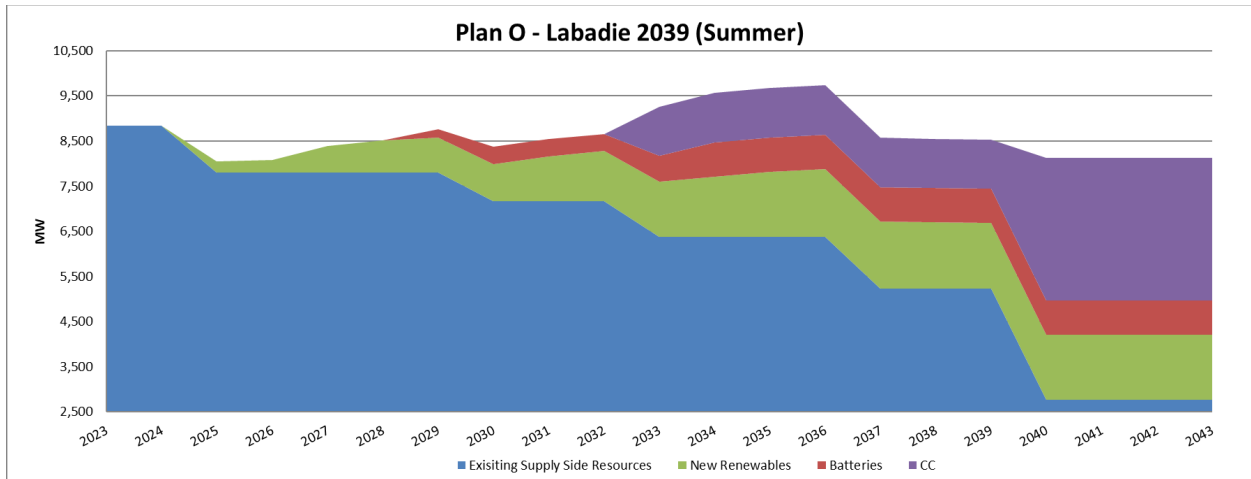
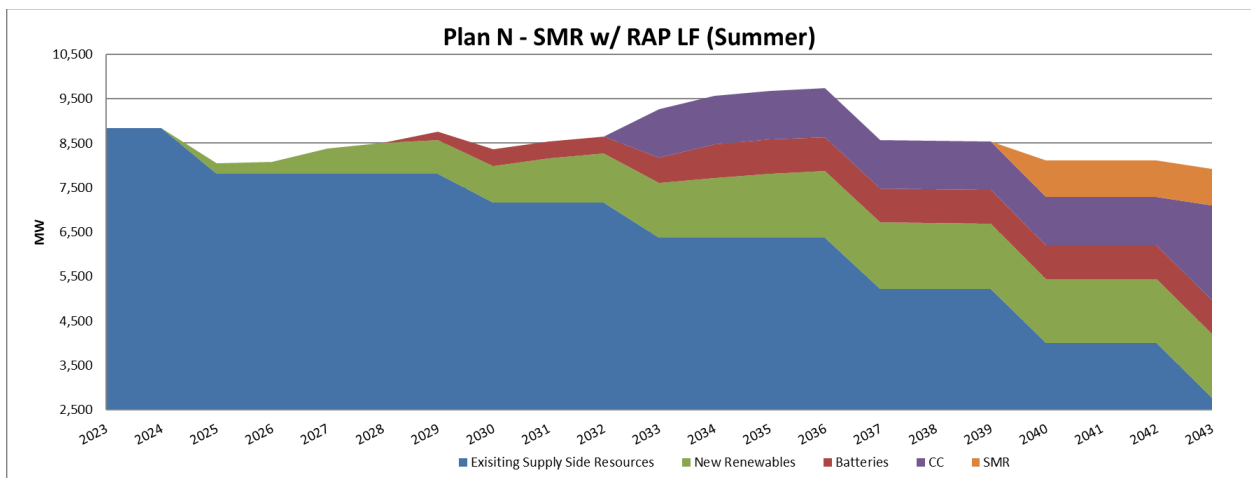
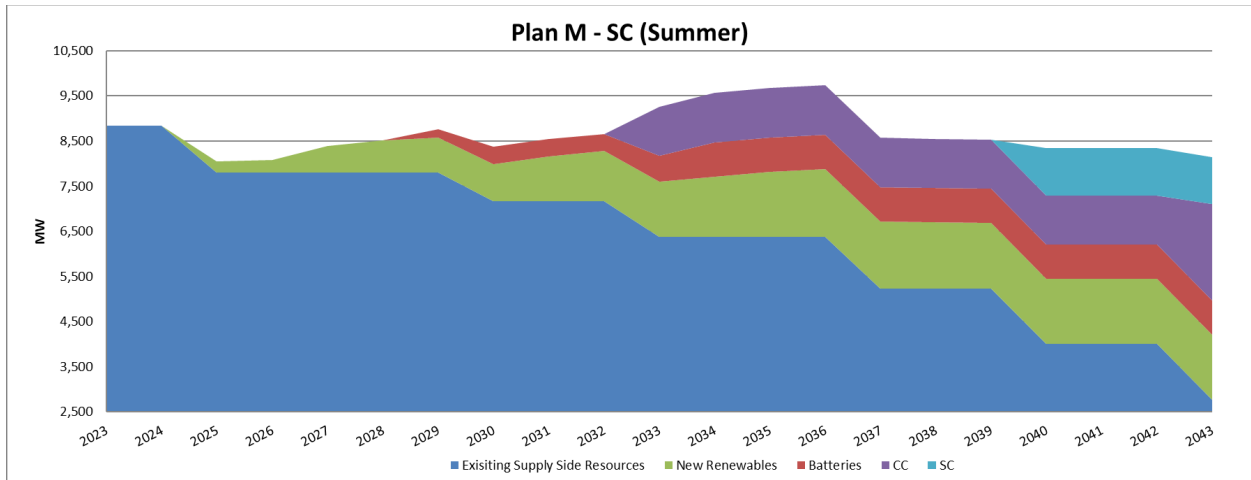


<sup>13</sup> 20 CSR 4240-22.060(4)(B)3

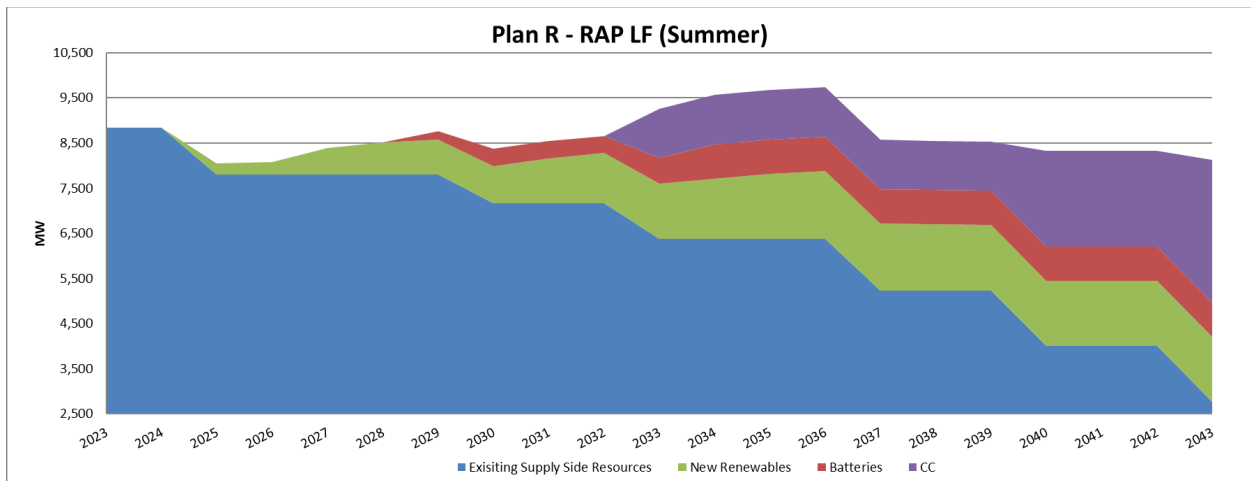
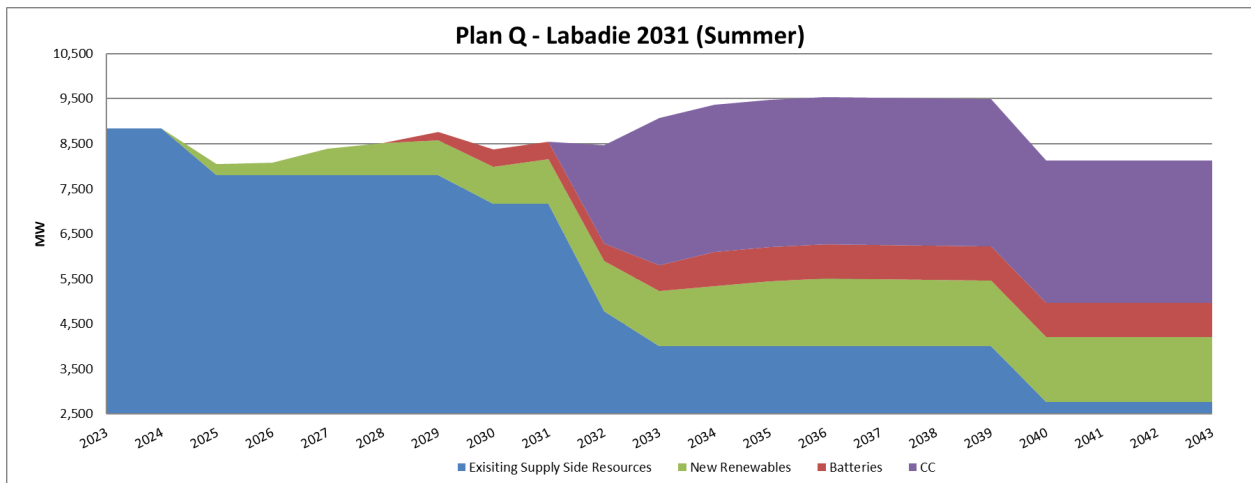
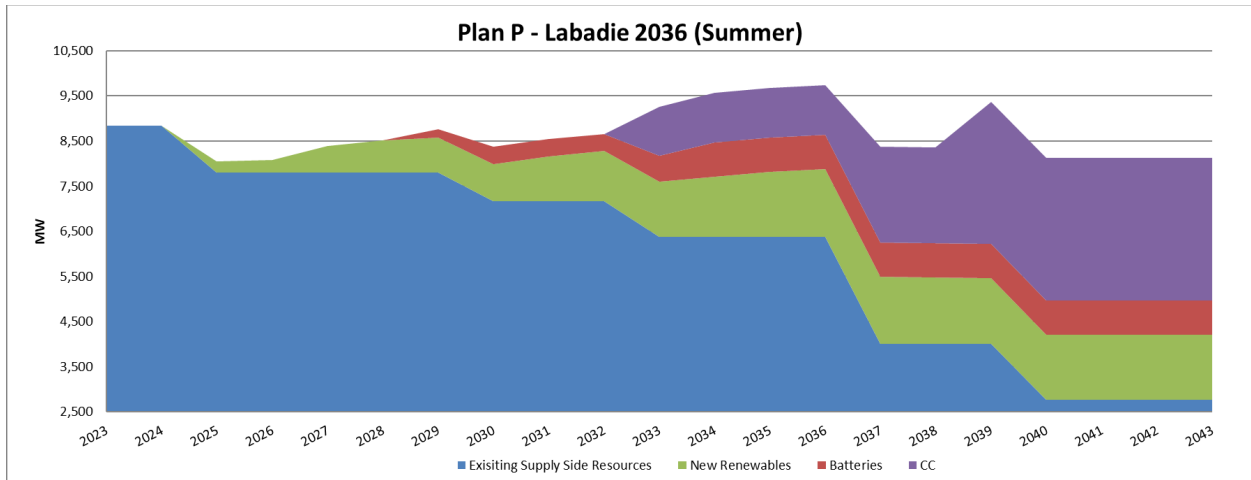


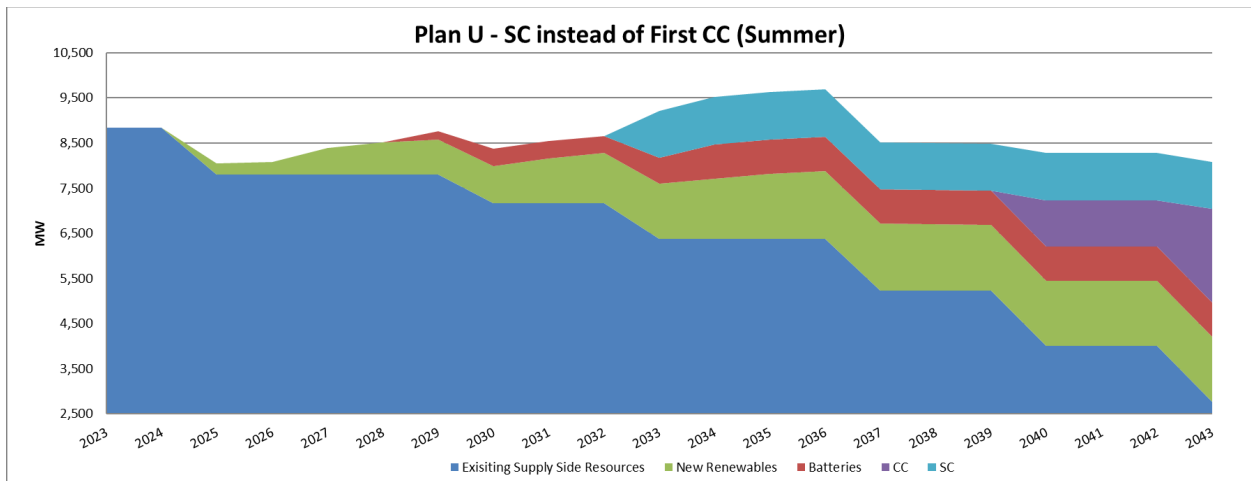
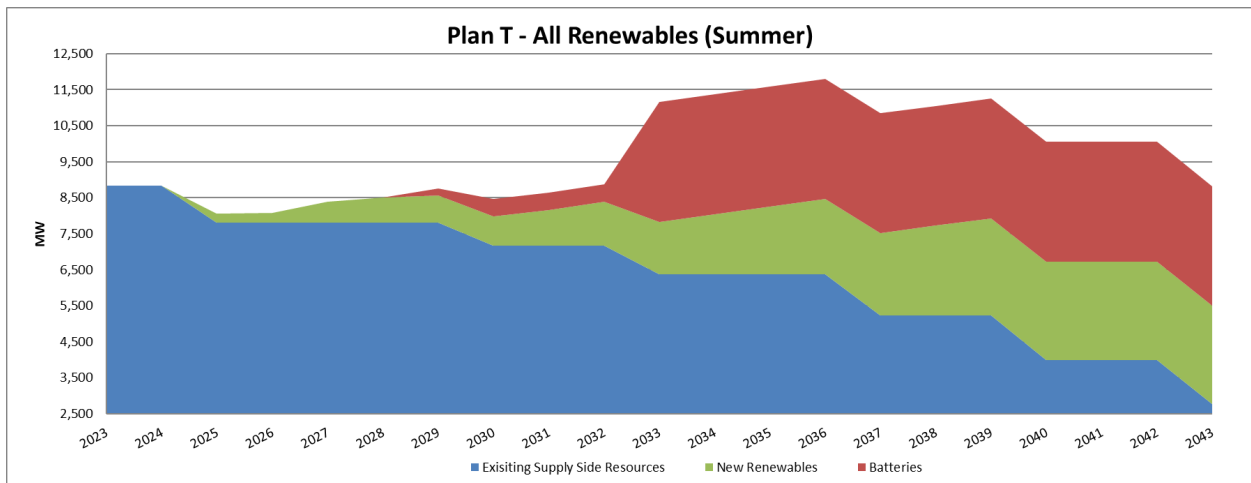
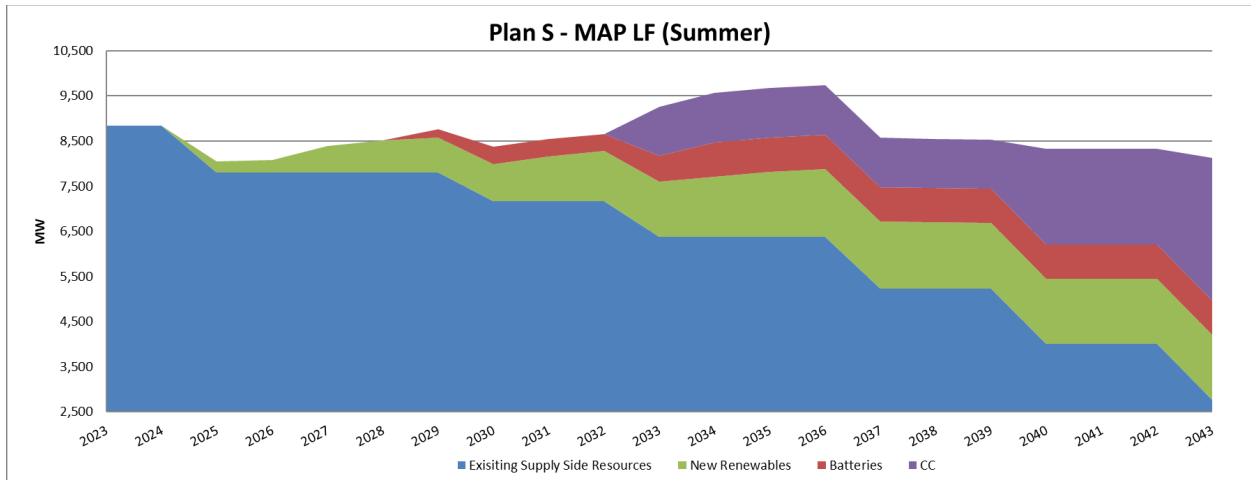












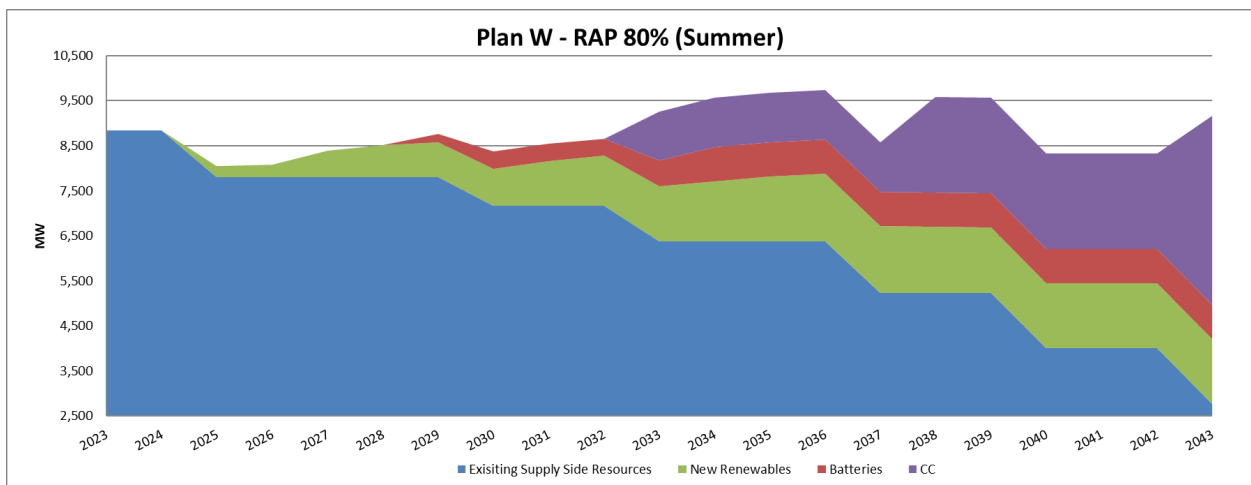
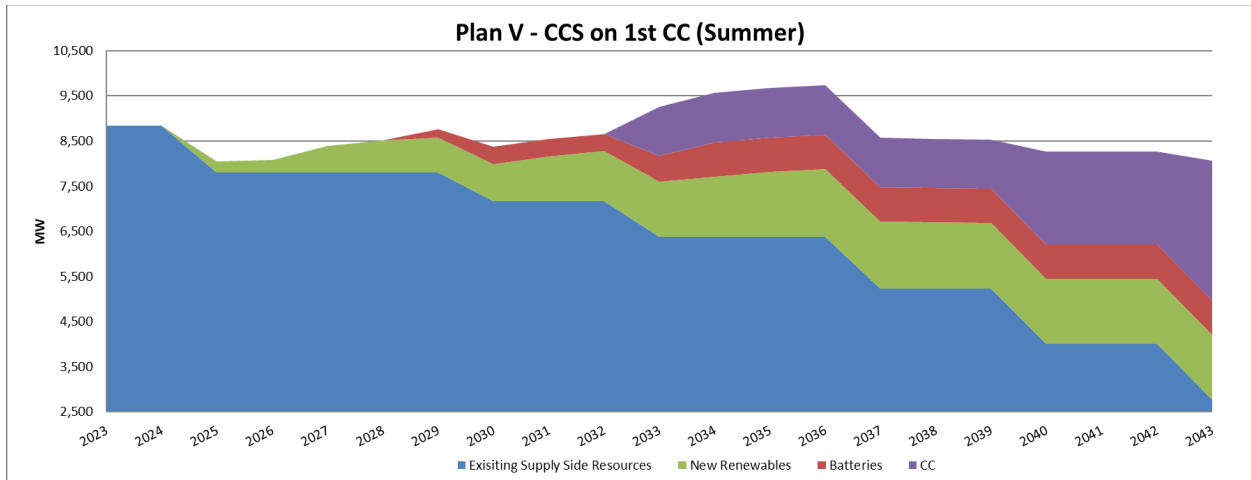
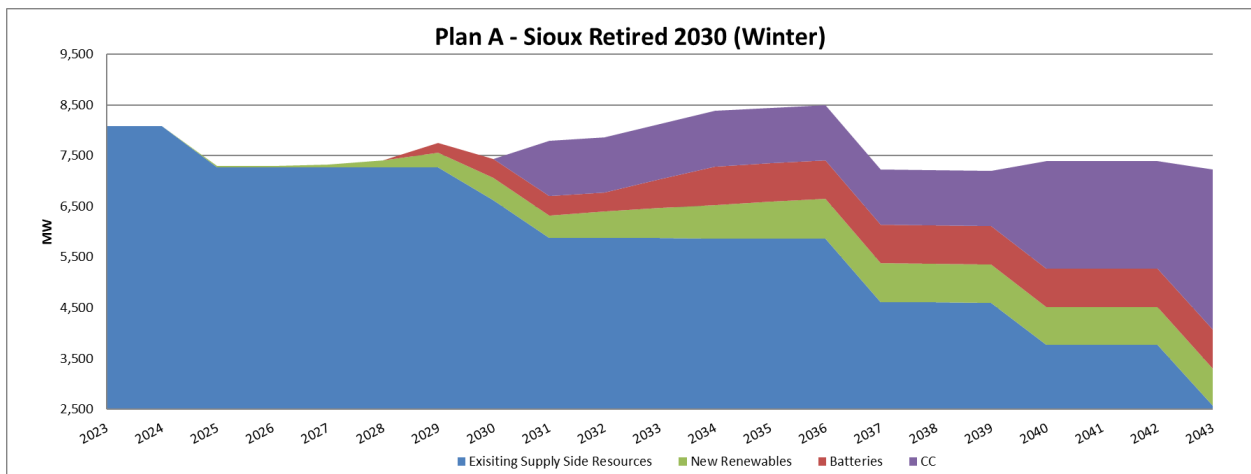
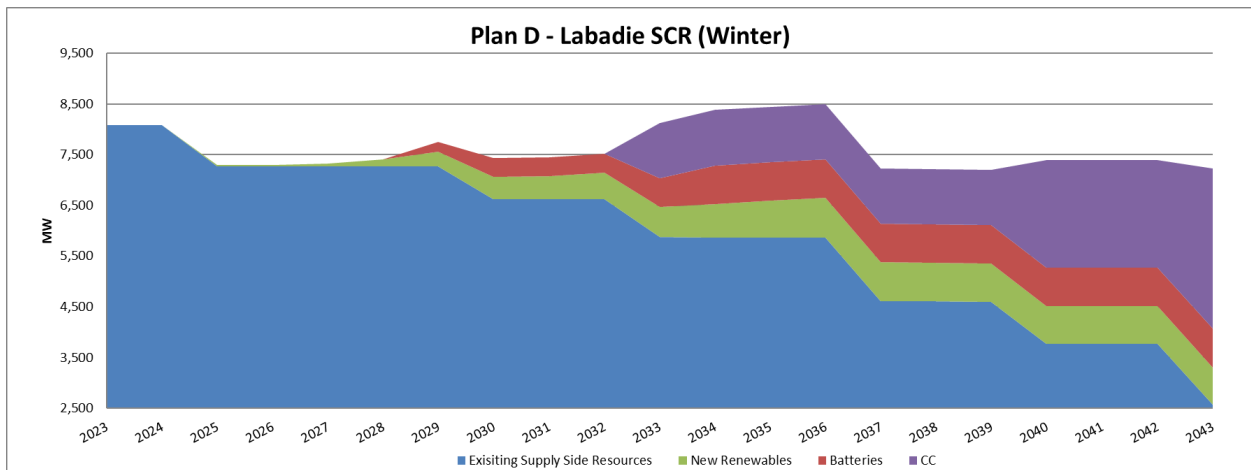
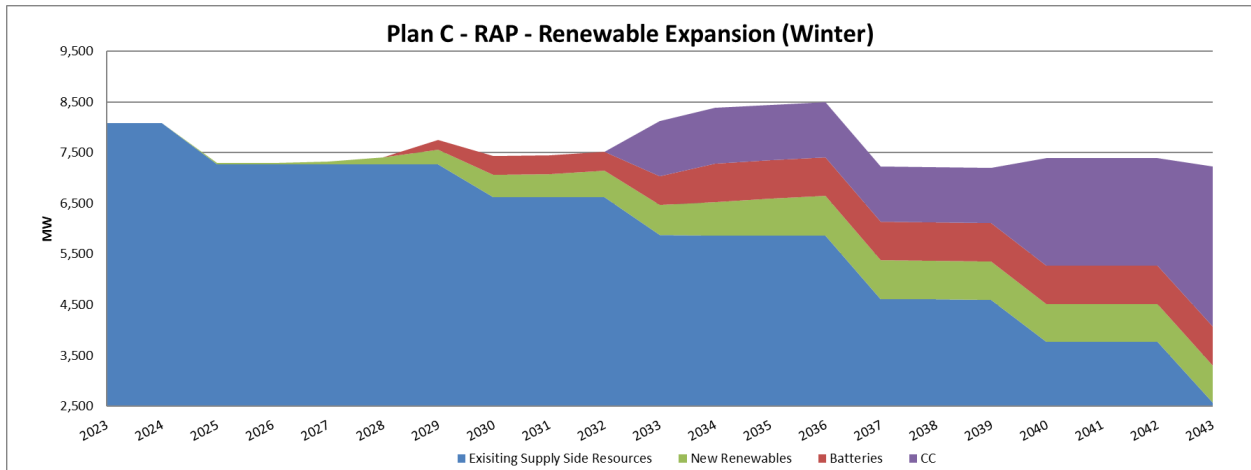
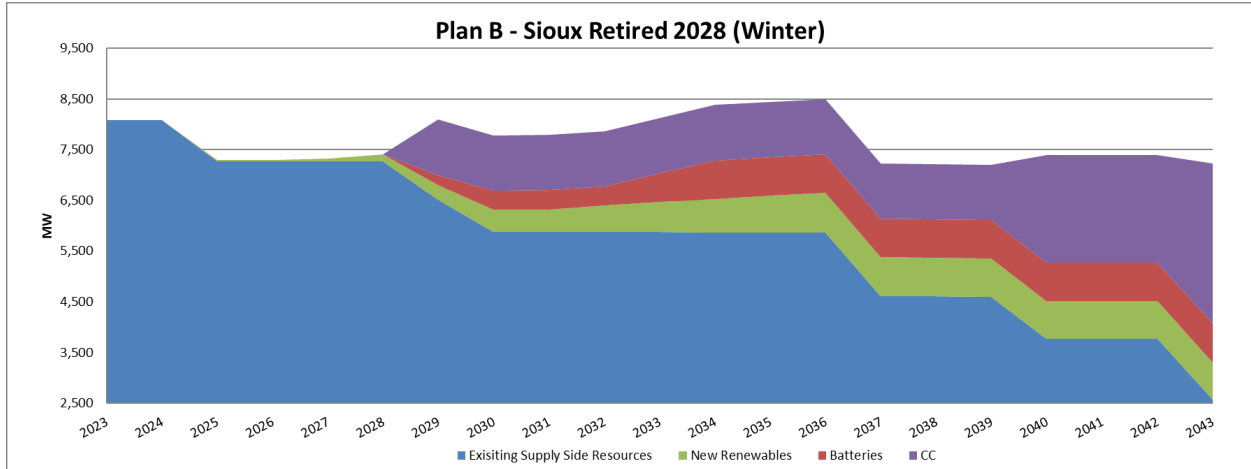
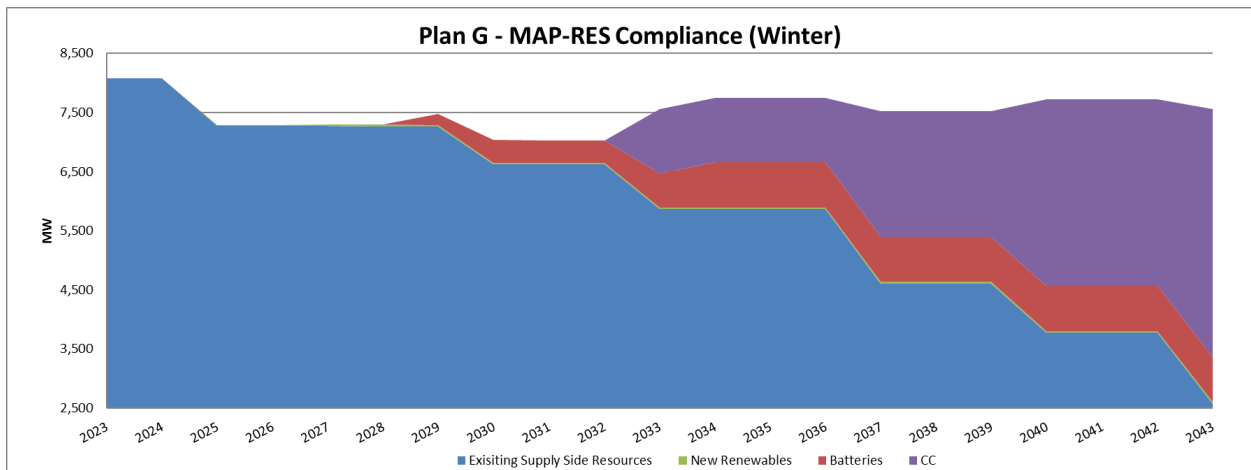
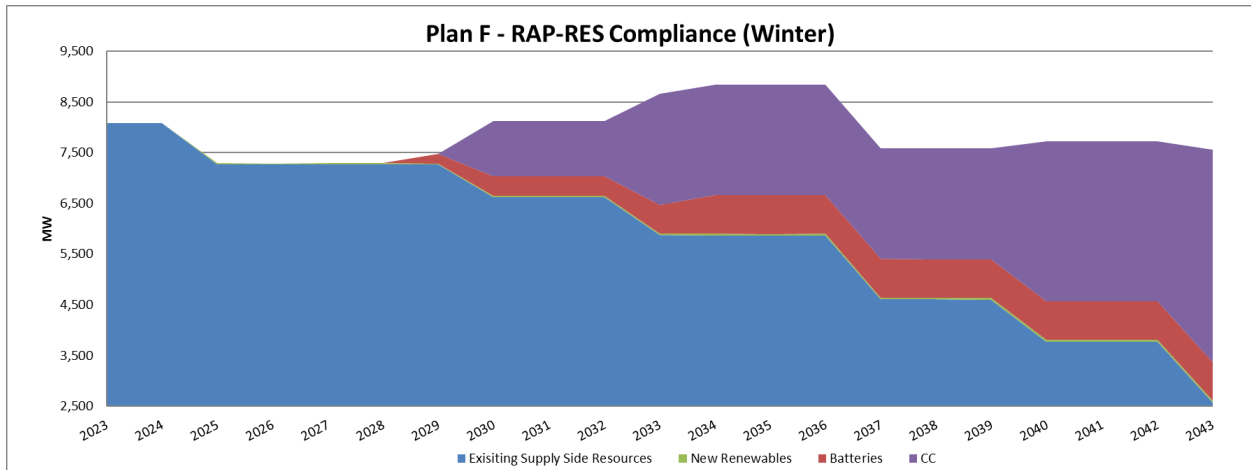
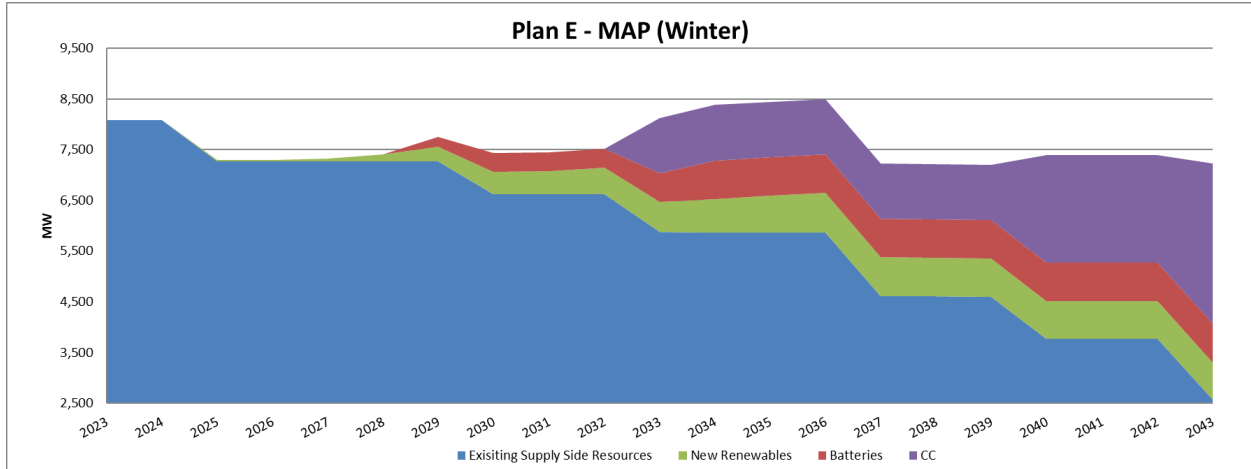
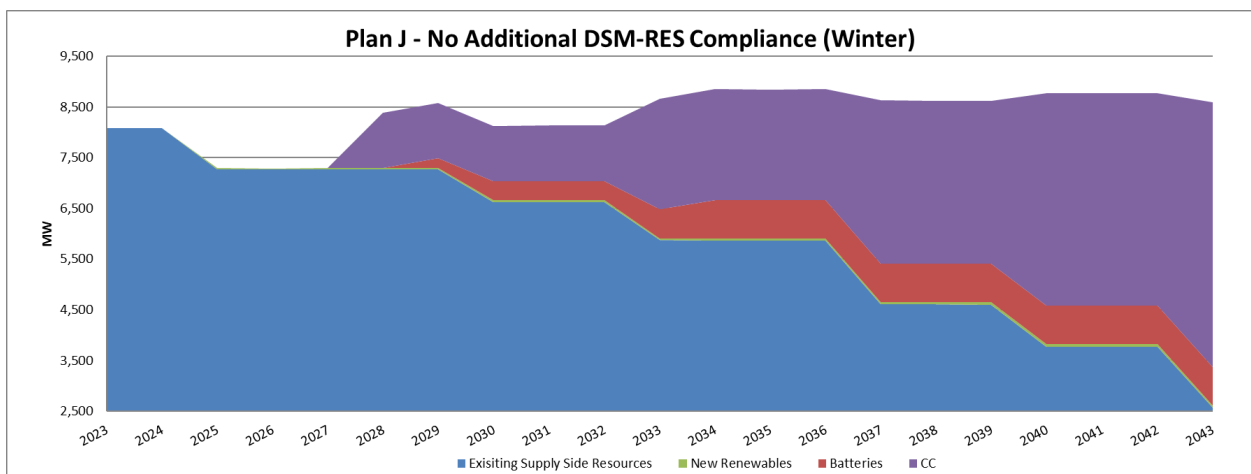
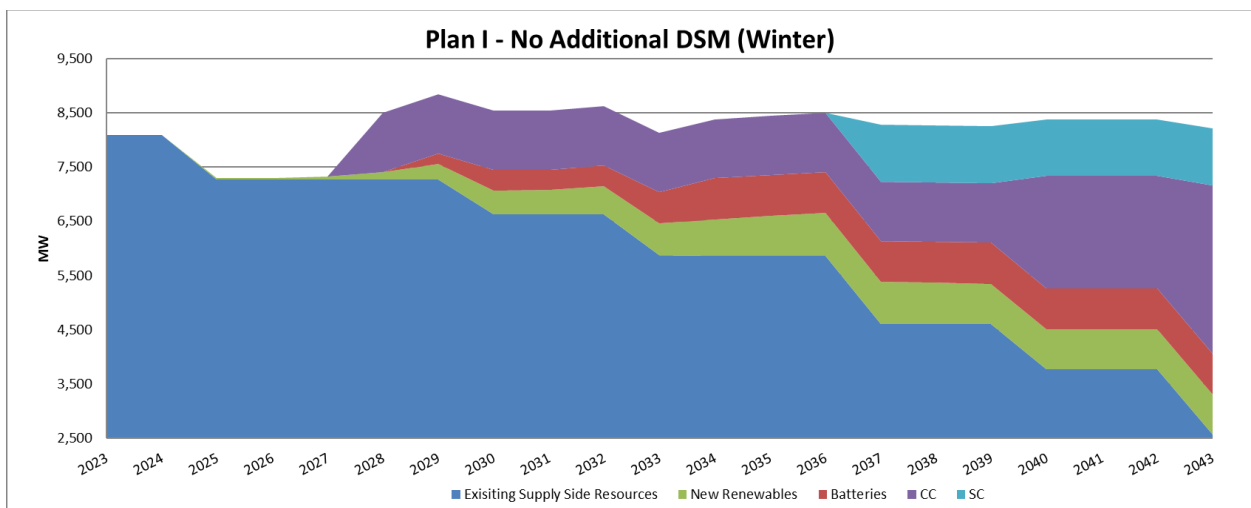
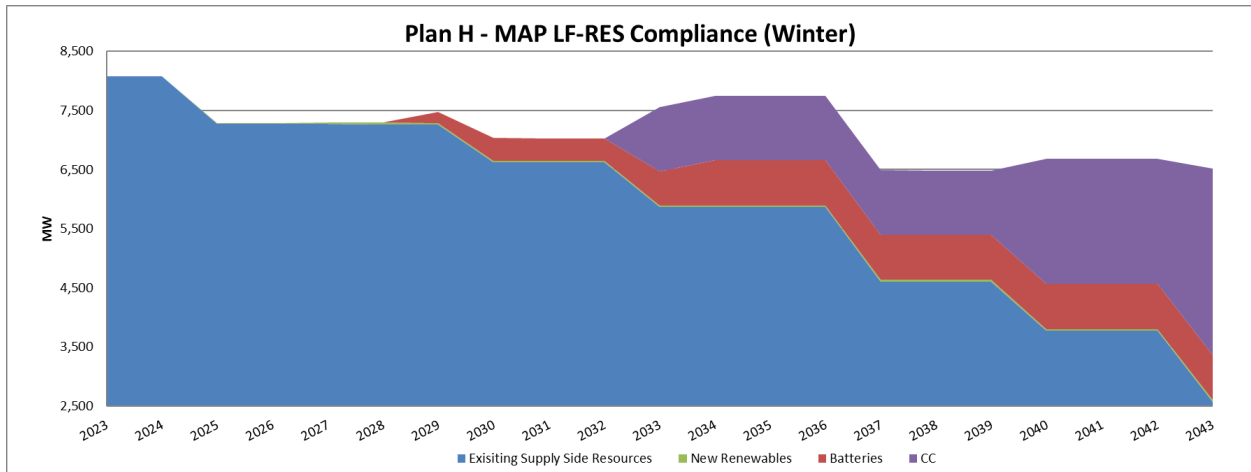


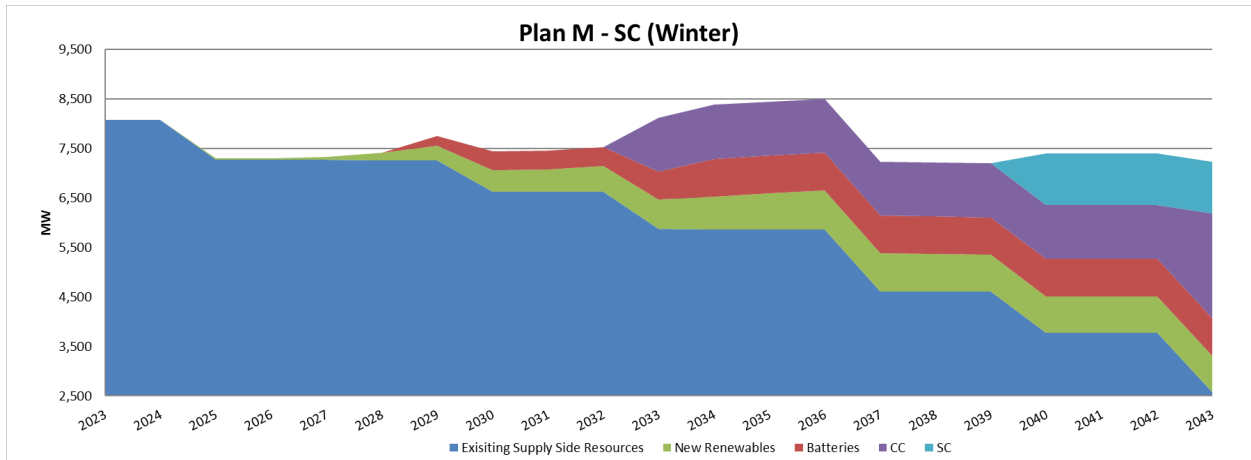
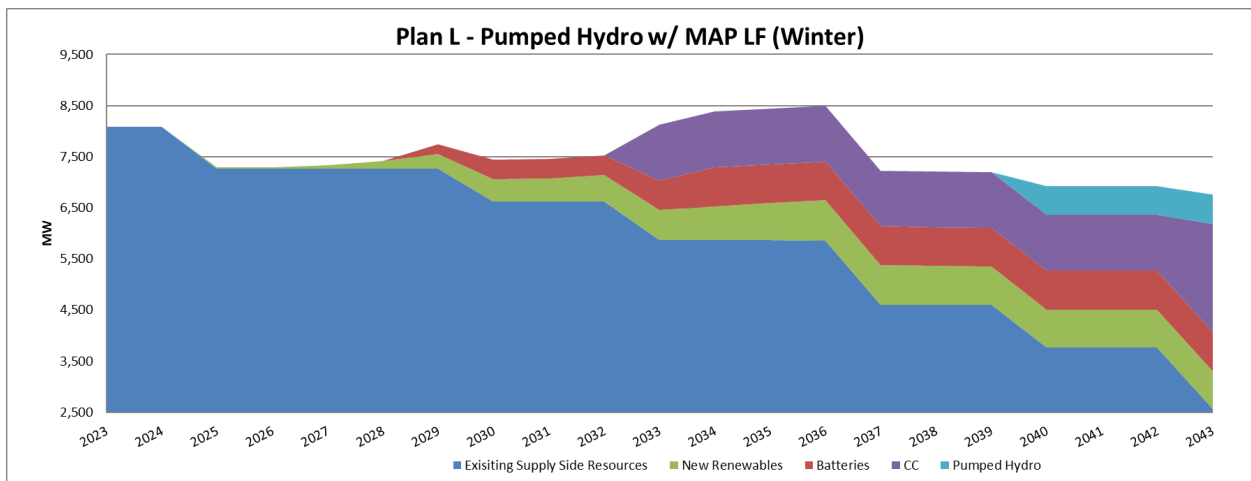
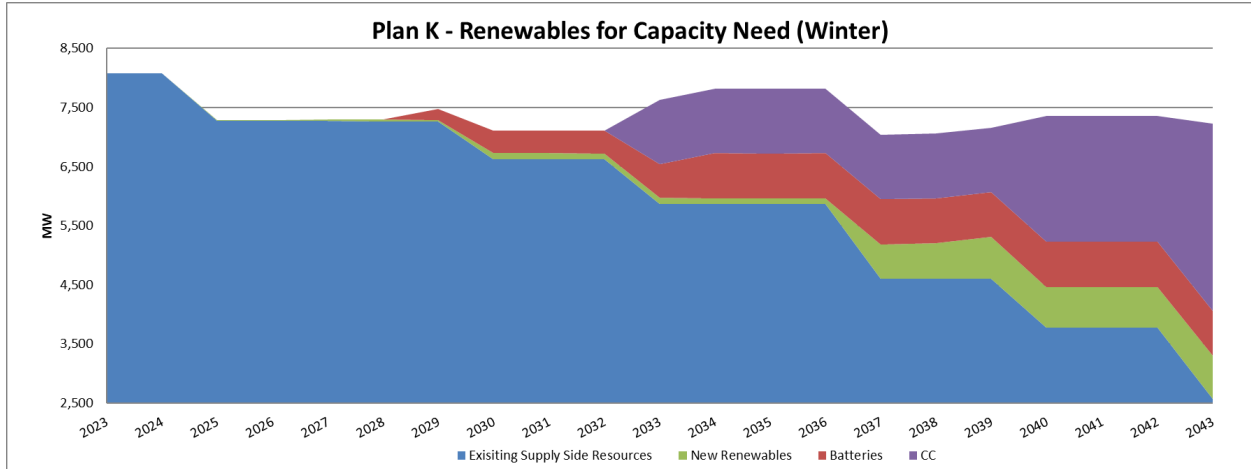
Figure 9A.8 Composition of Capacity (Winter)

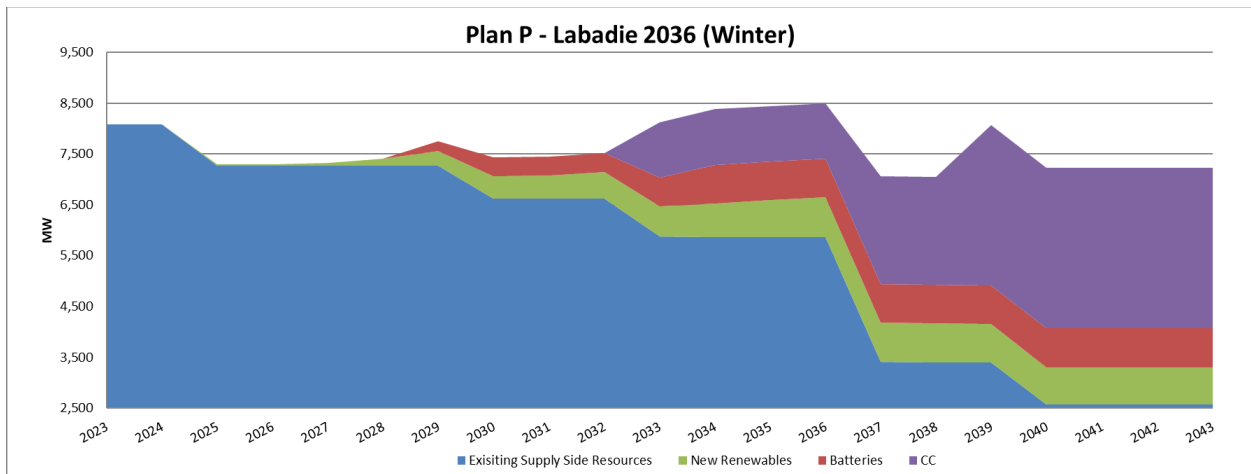
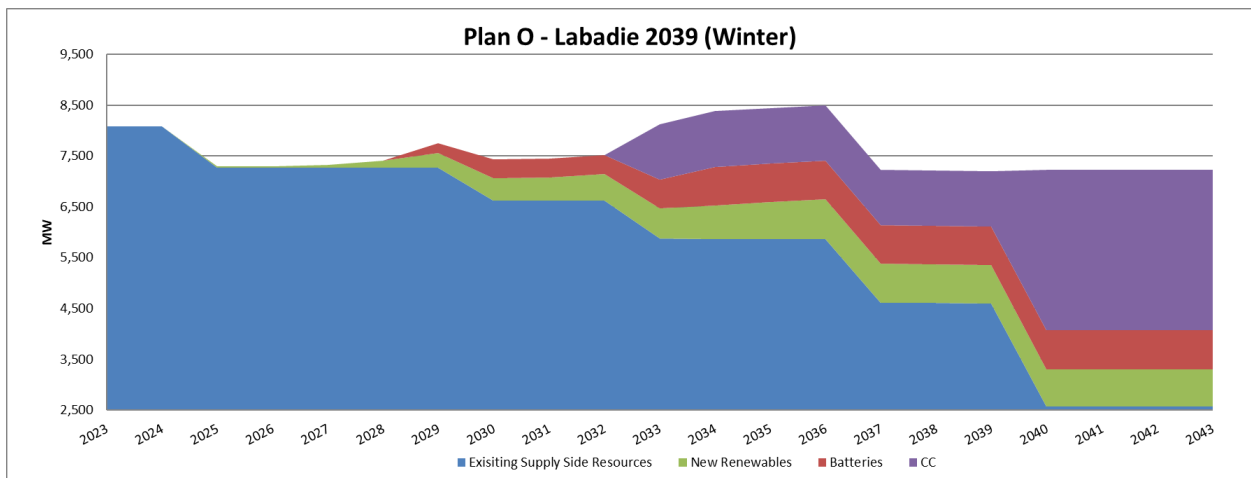
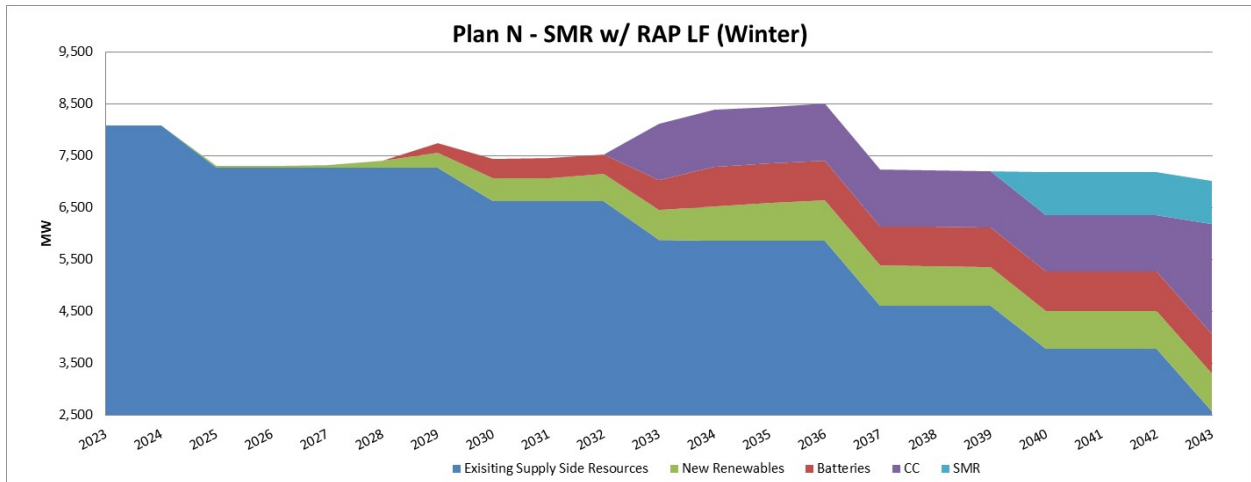




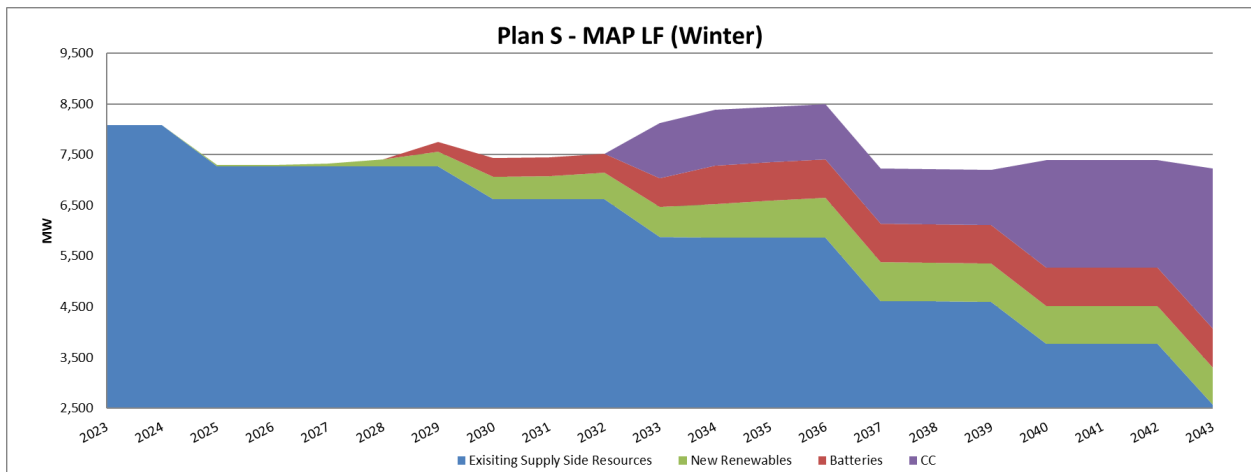
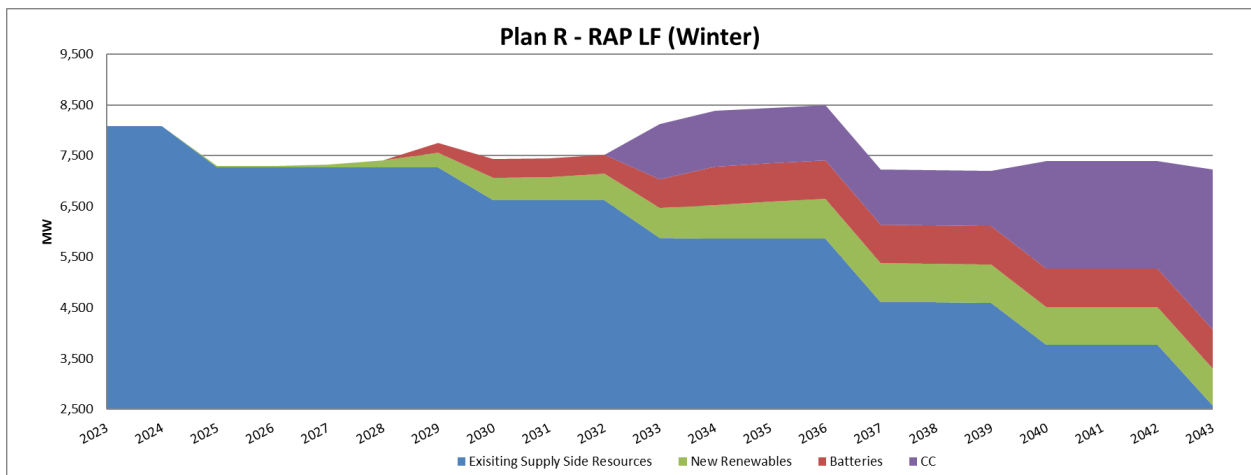
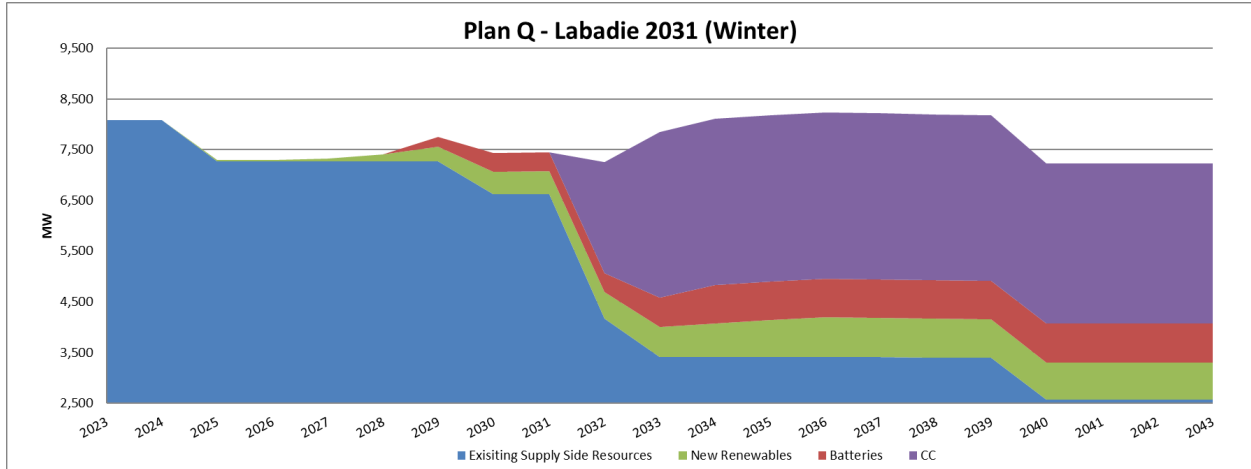


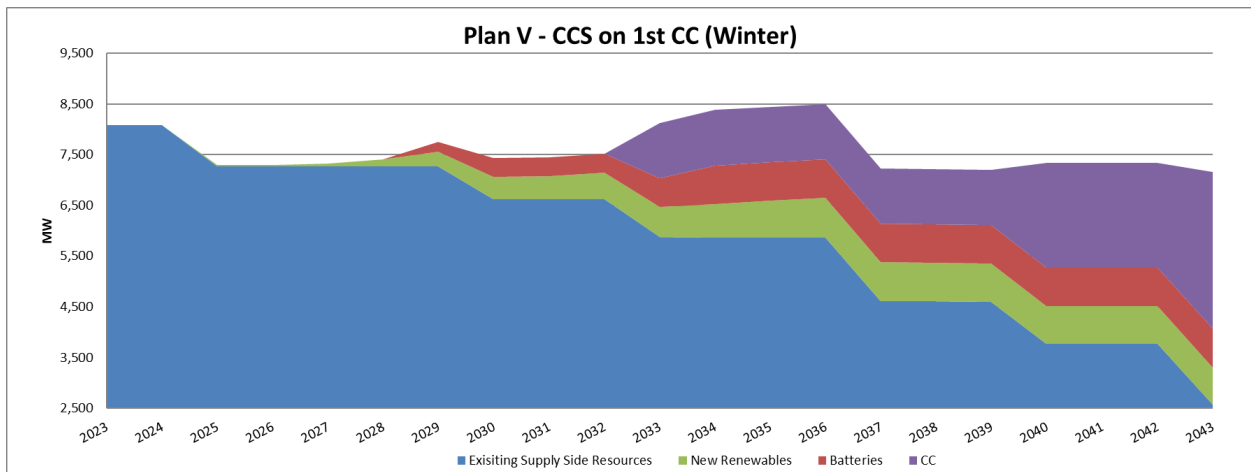
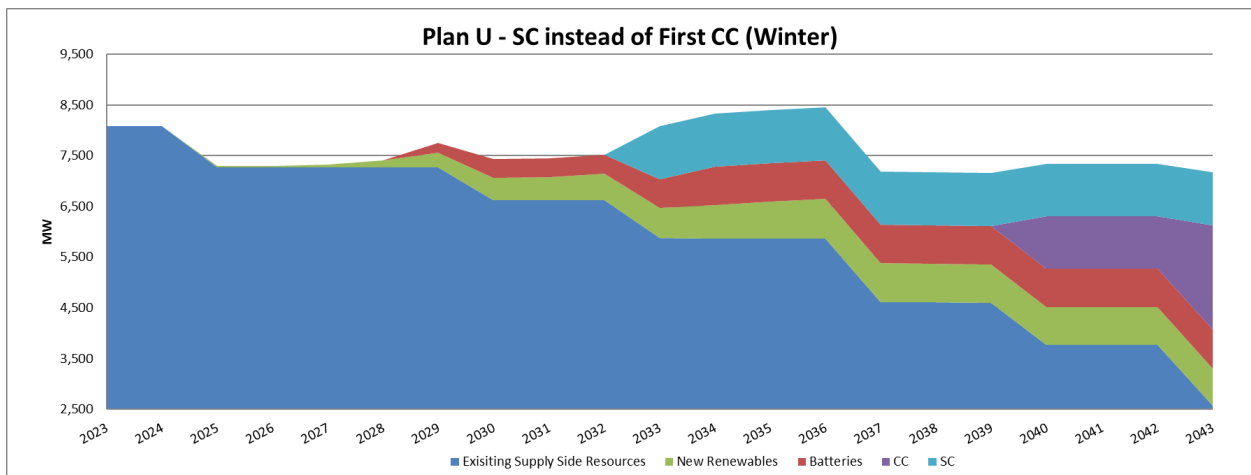
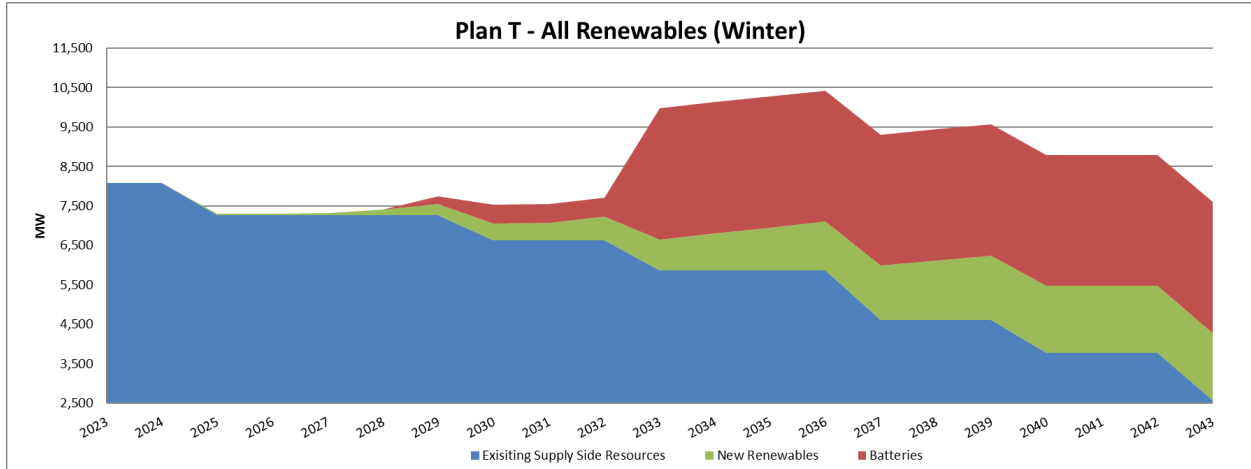












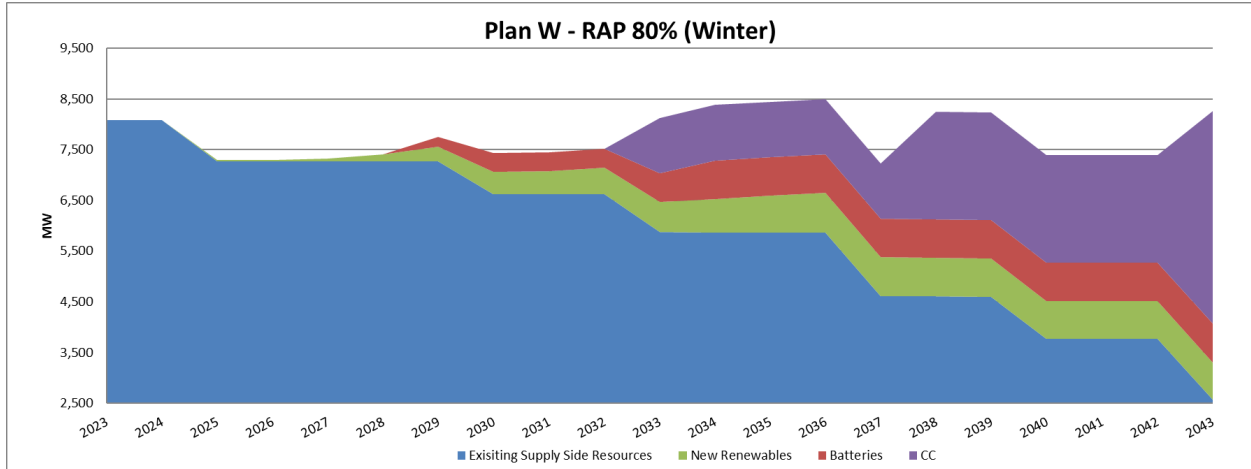
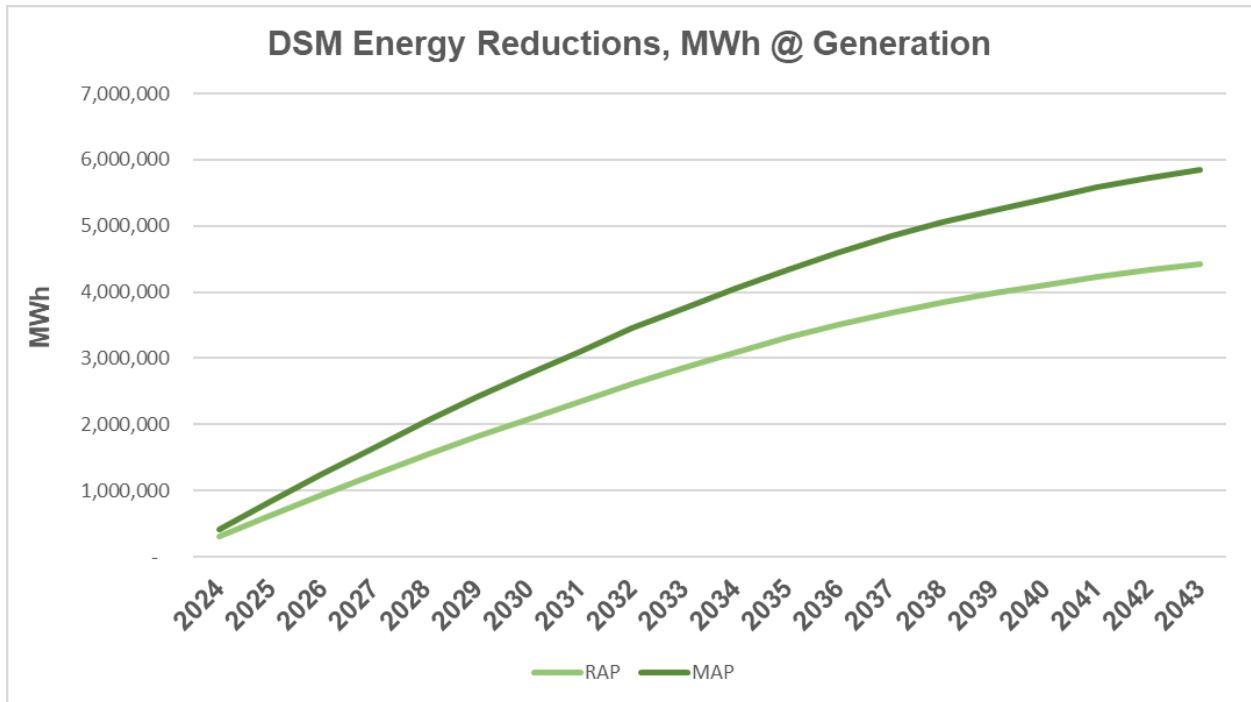


Figure 9A.9 Combined Impact of DSM Resources on Energy<sup>14</sup>



<sup>14</sup> 20 CSR 4240-22.060(4)(B)4

Figure 9A.10 Programs for RAP DSM Energy<sup>15</sup>

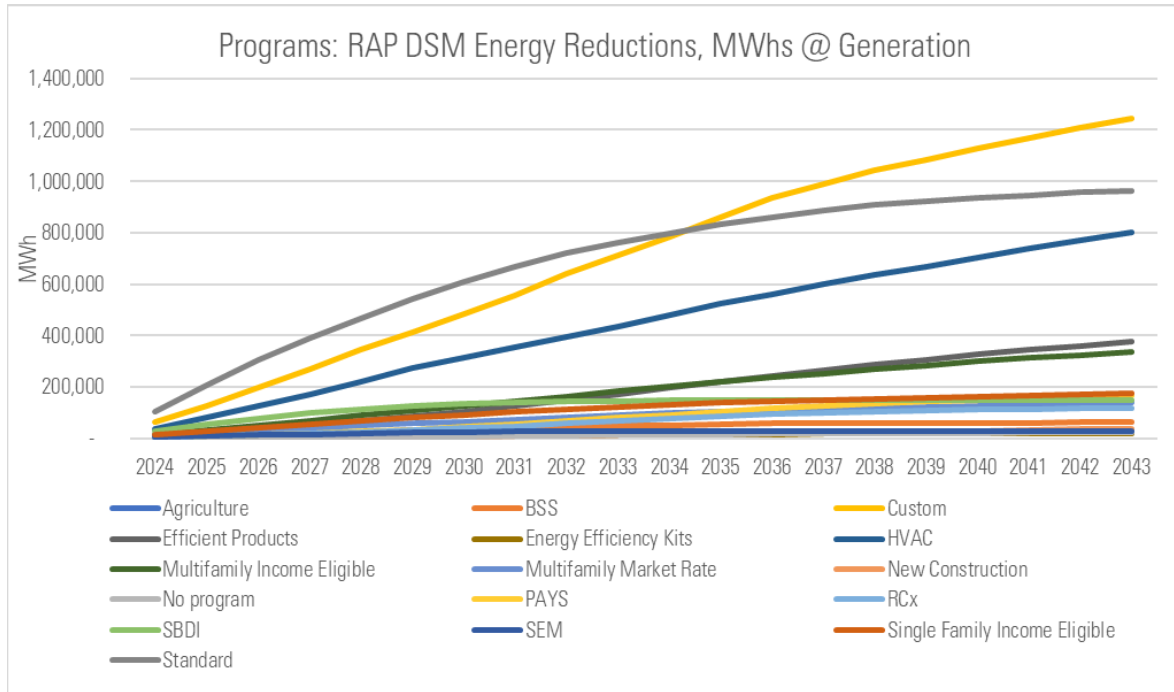
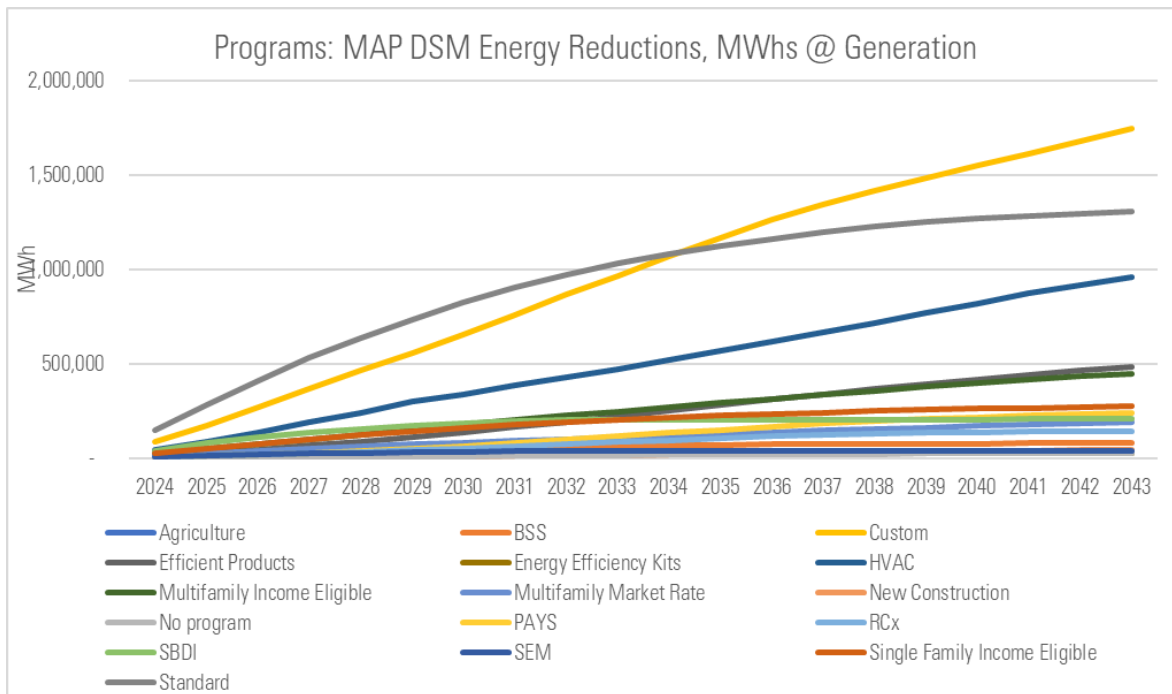


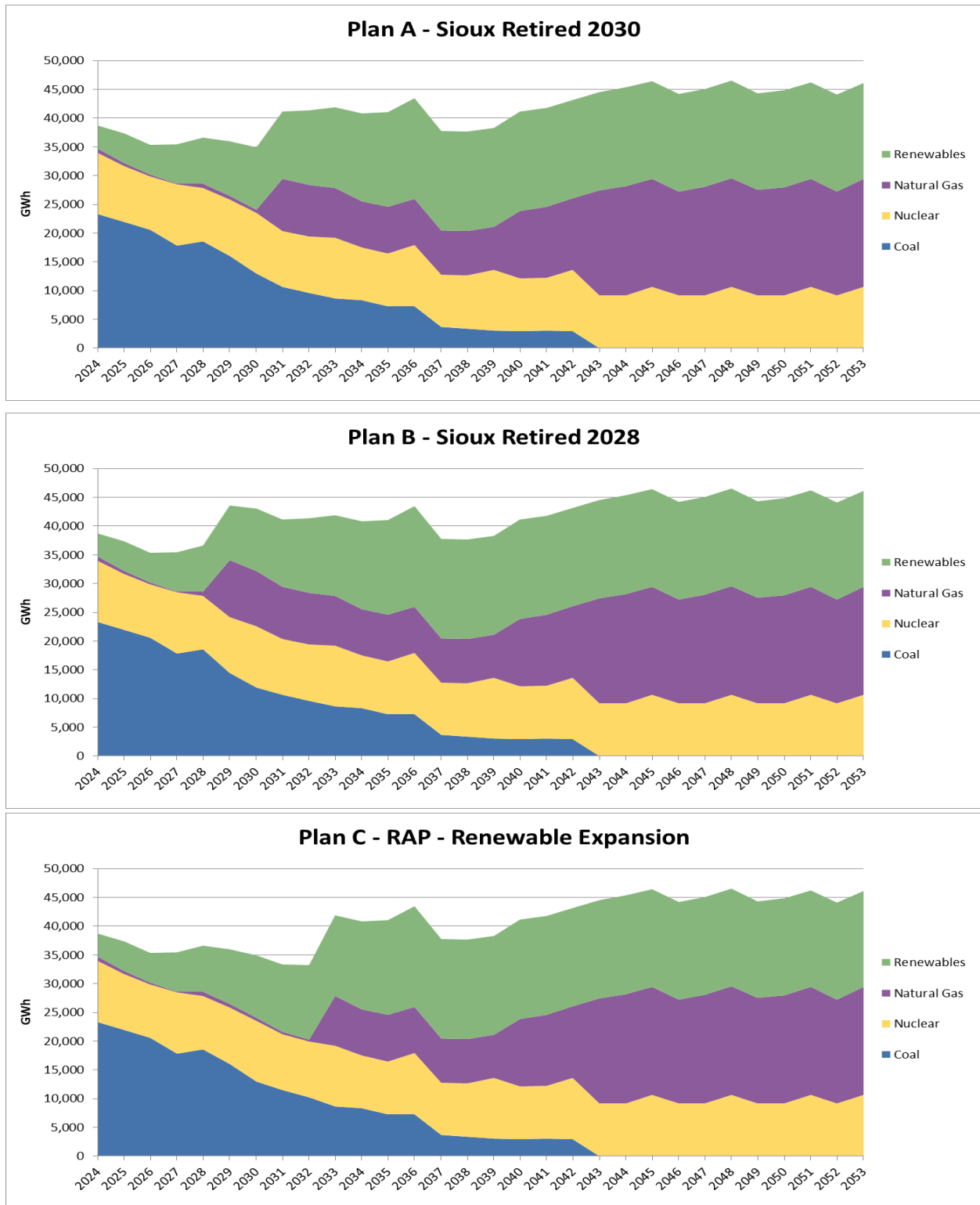
Figure 9A.11 Programs for MAP DSM Energy<sup>16</sup>



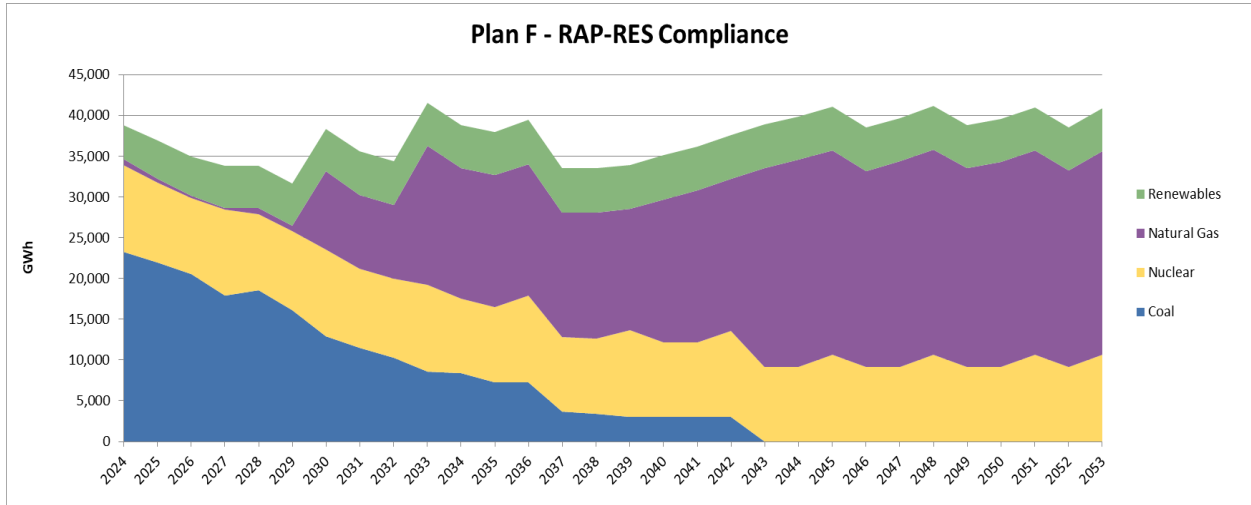
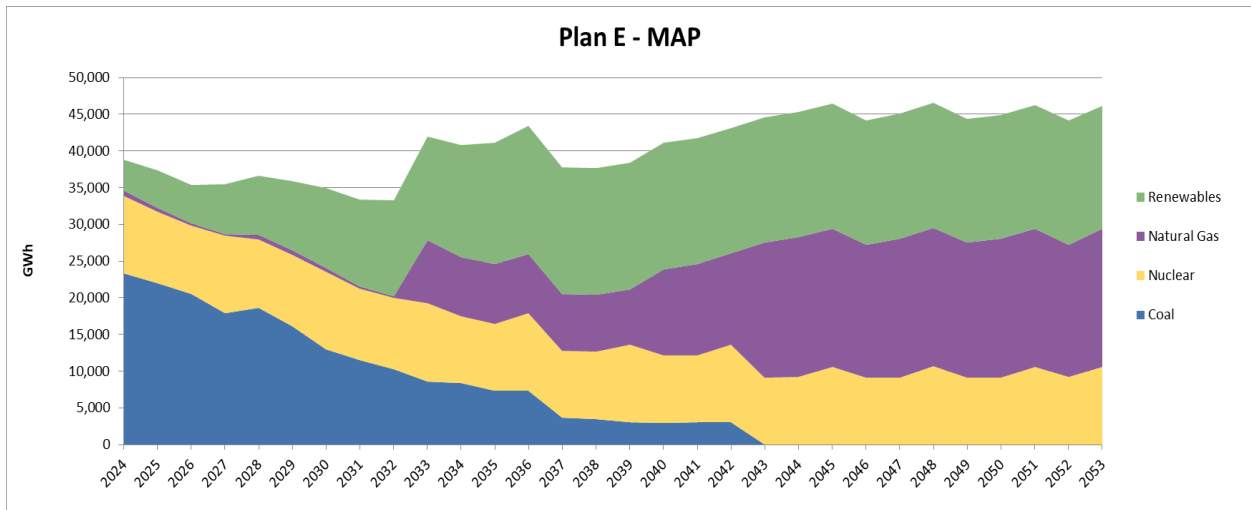
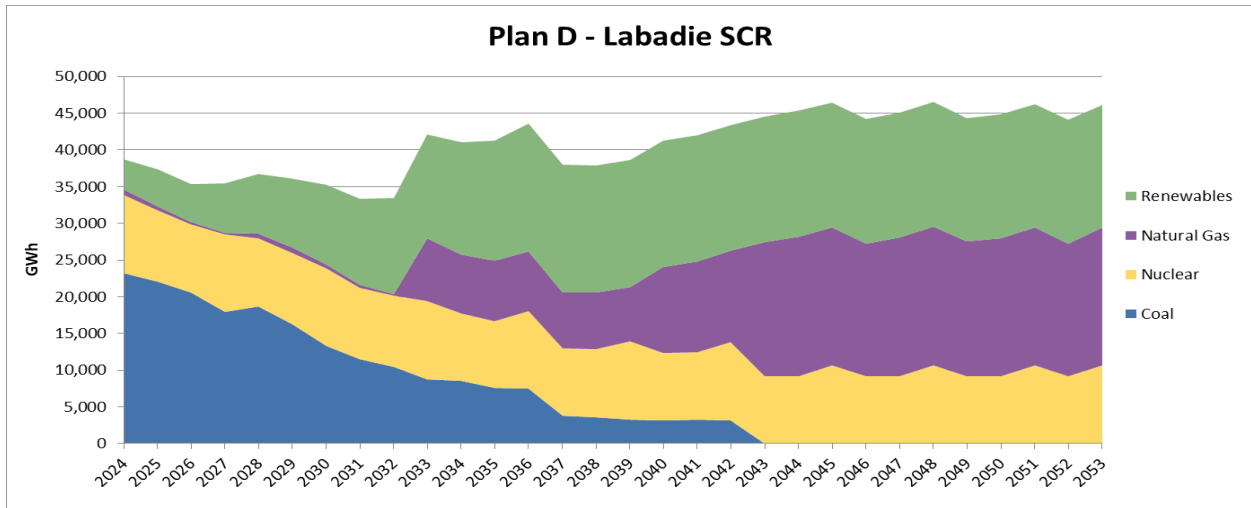
<sup>15</sup> 20 CSR 4240-22.060(4)(B)5

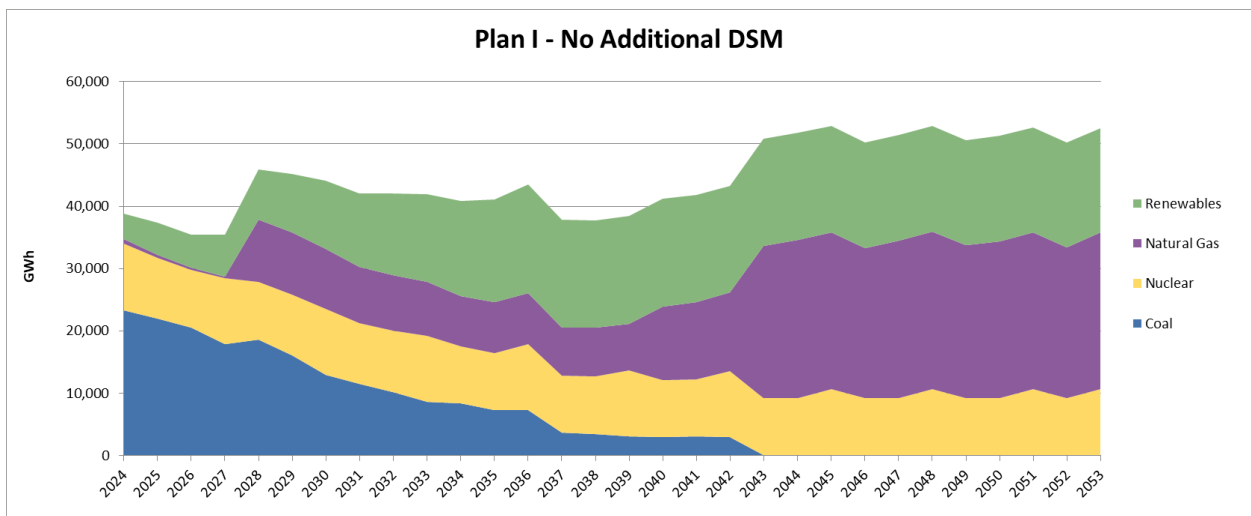
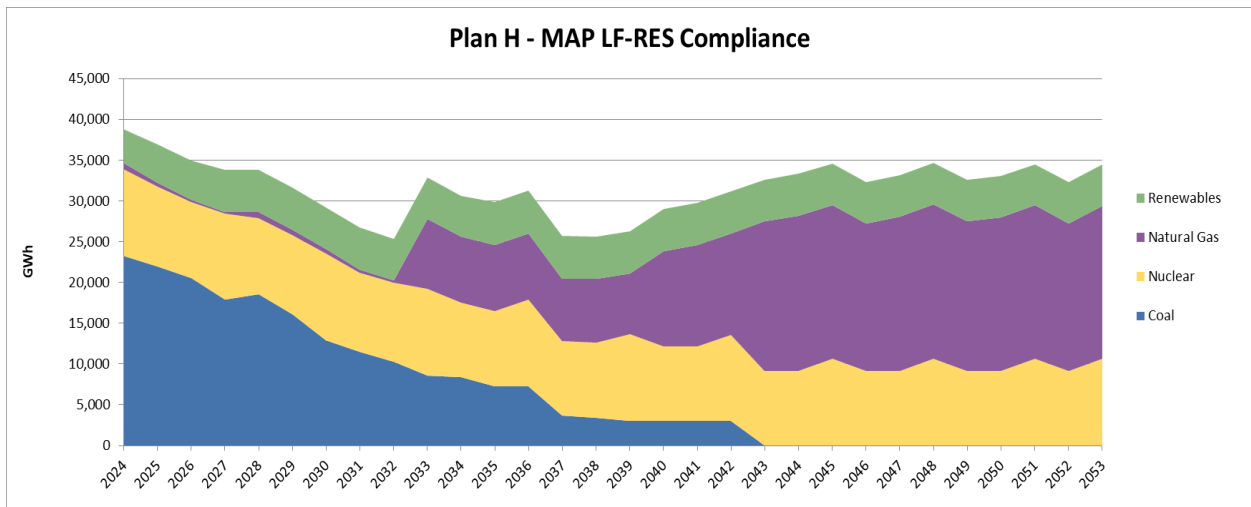
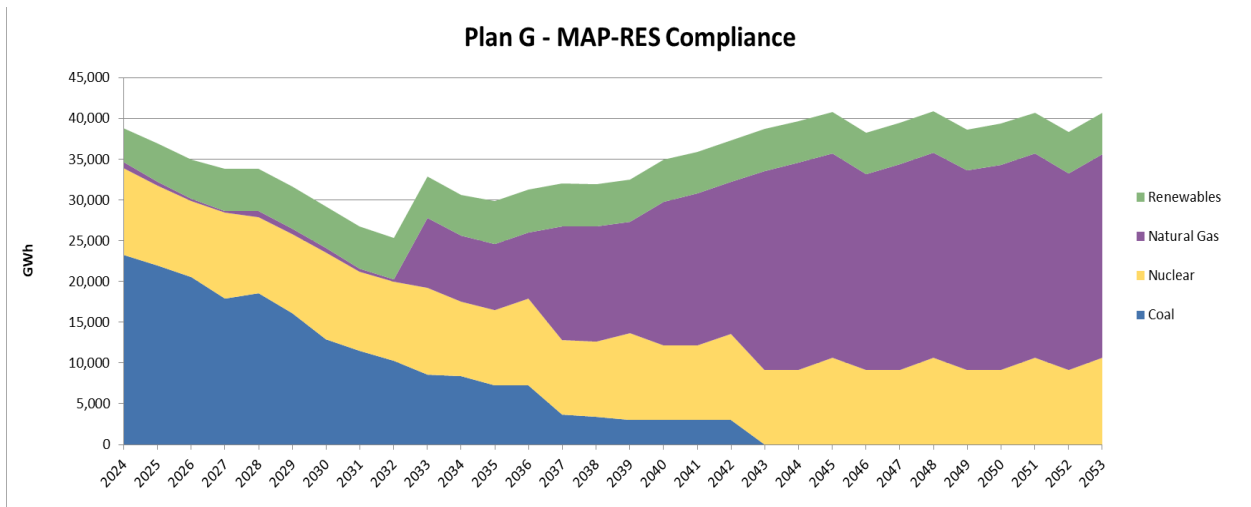
<sup>16</sup> 20 CSR 4240-22.060(4)(B)5

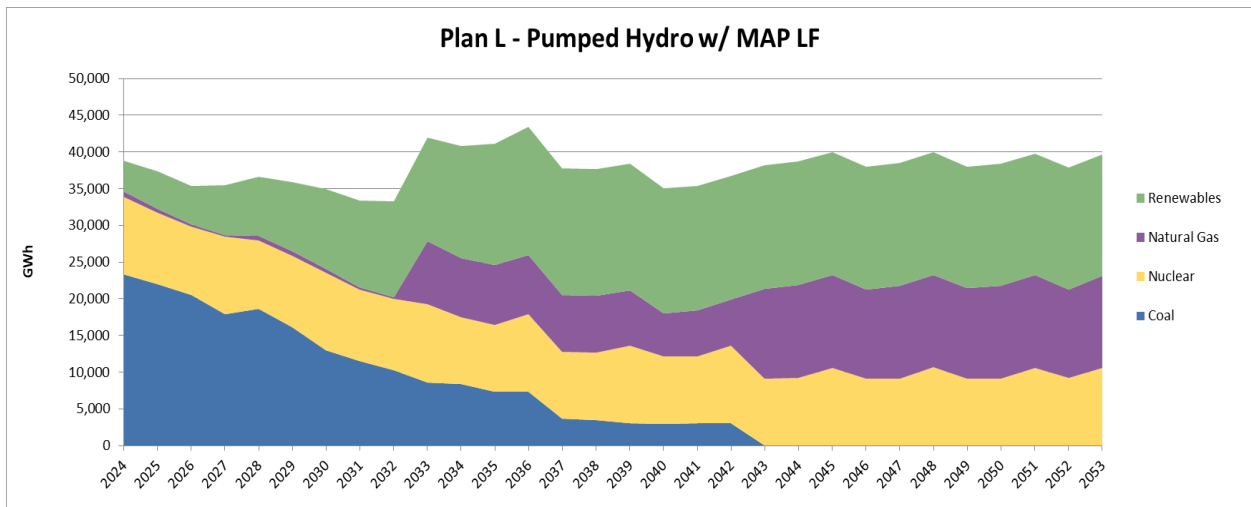
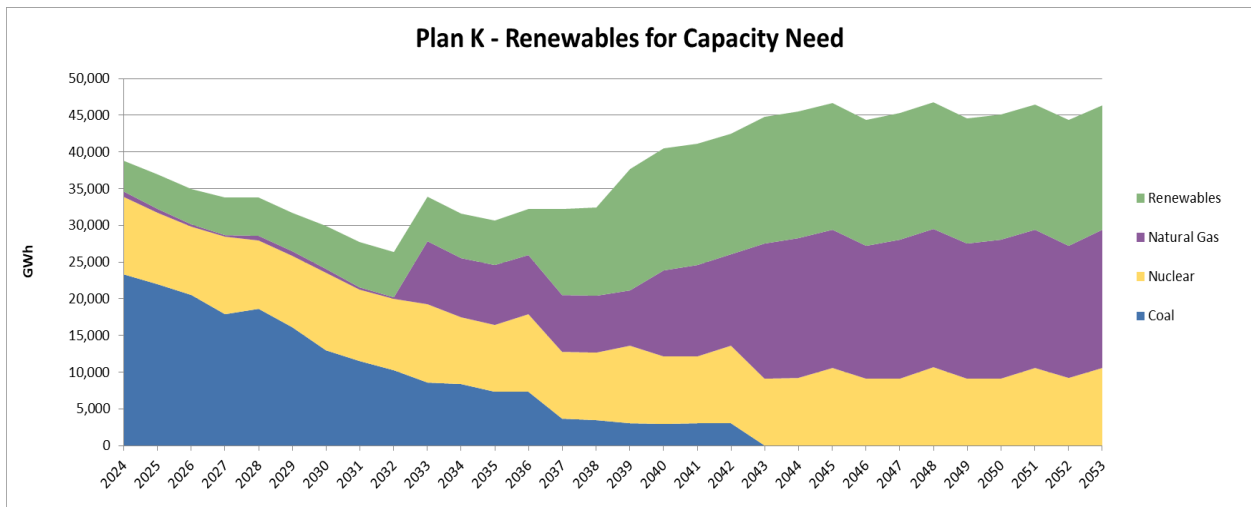
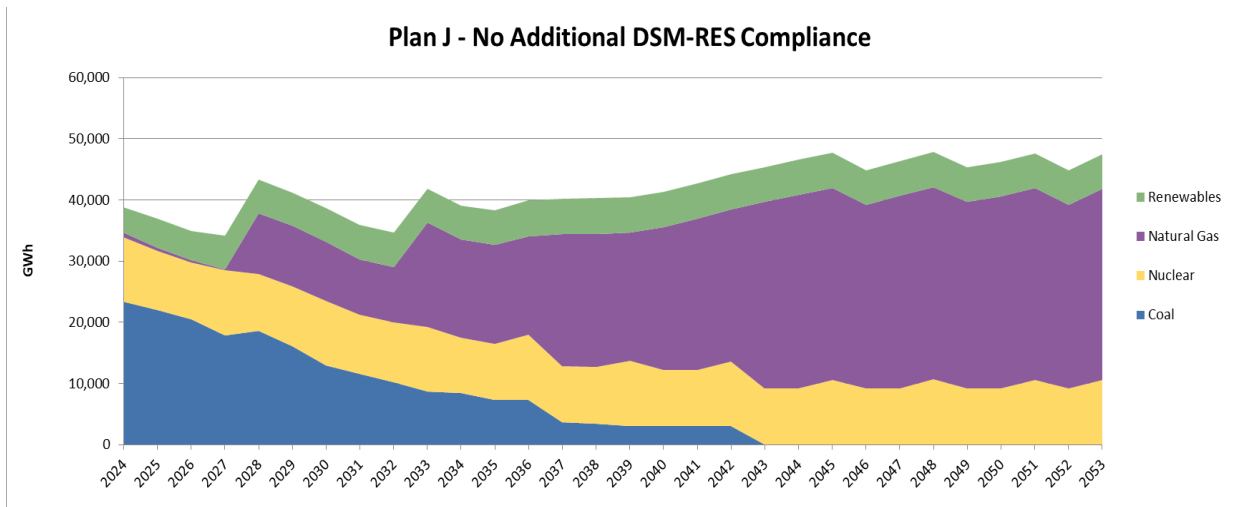
Figure 9A.12 Composition of Energy by Supply-Side Resource<sup>17</sup>



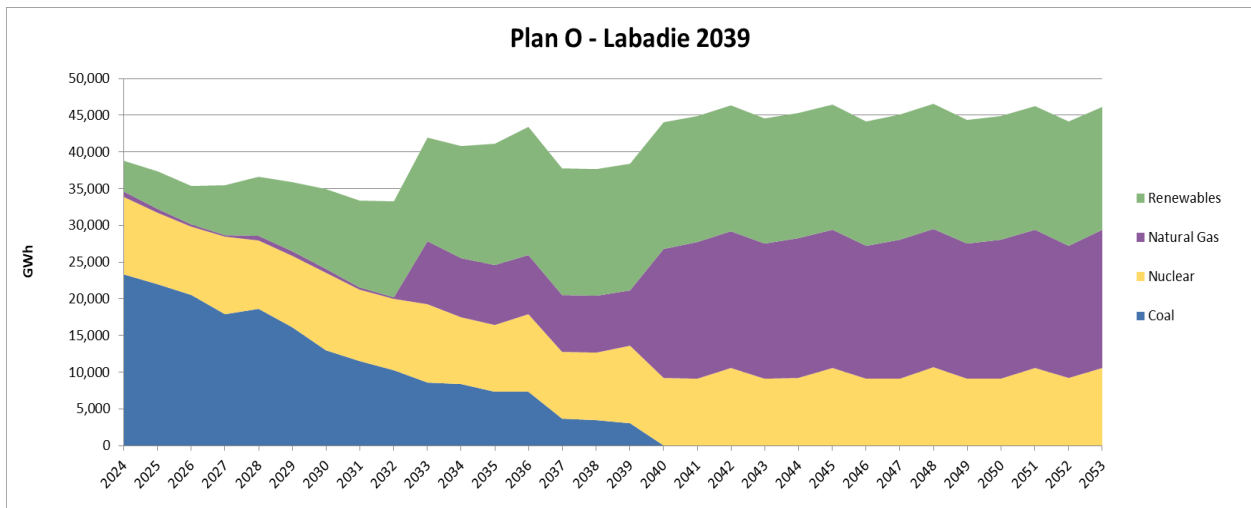
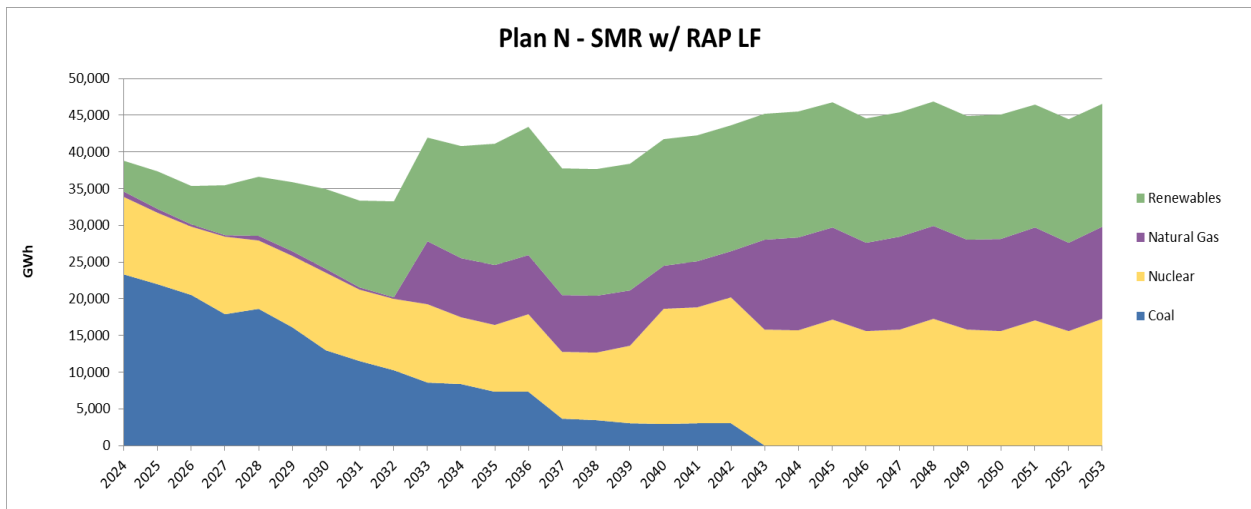
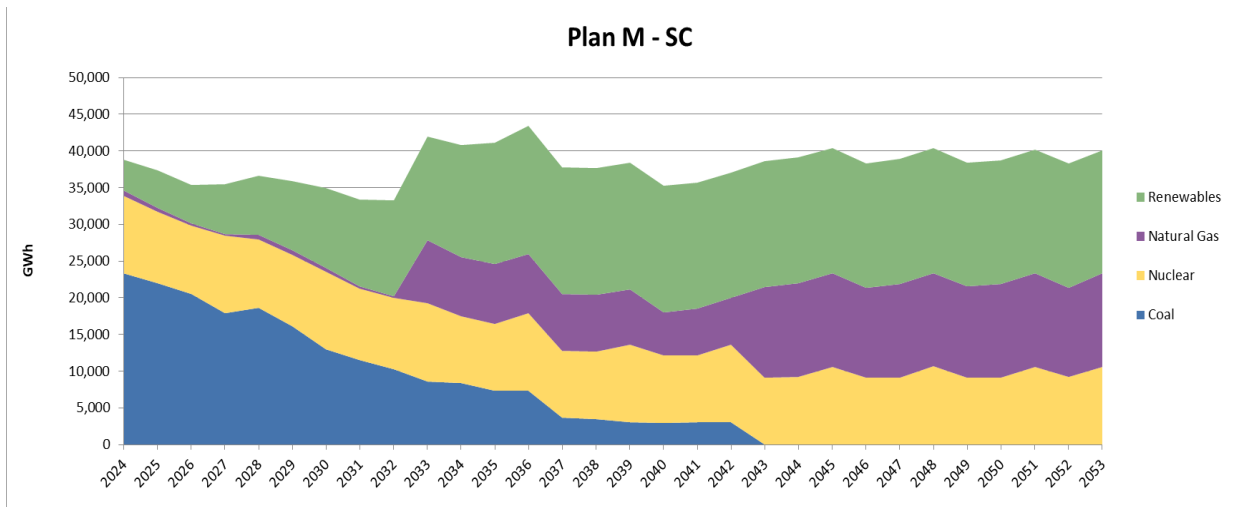
<sup>17</sup> 20 CSR 4240-22.060(4)(B)6; Energy from storage resources taken out of renewables generation since pump/charge energy is higher than produced energy.

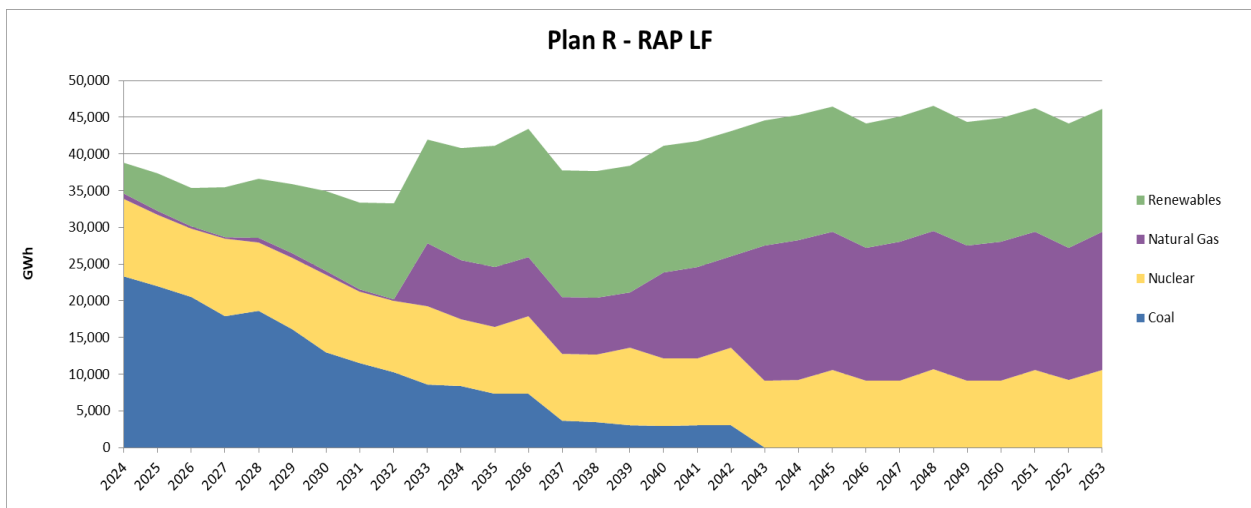
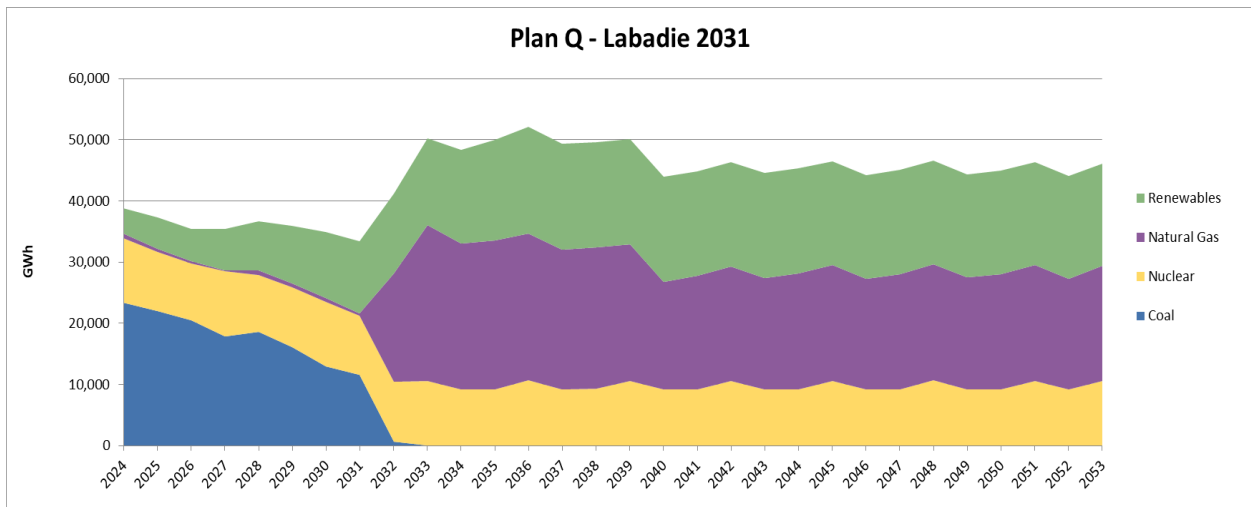
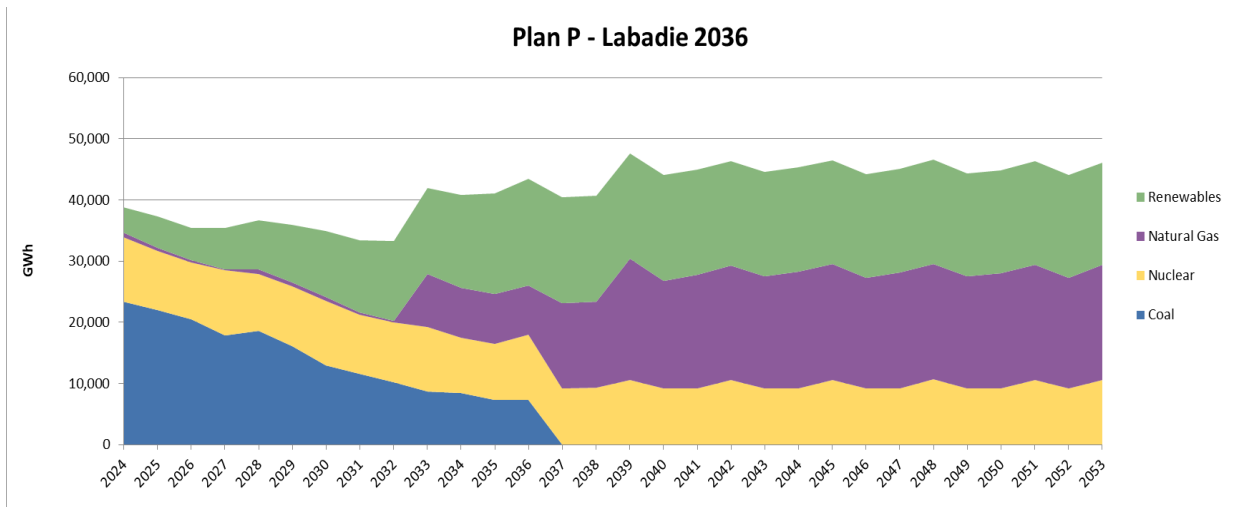


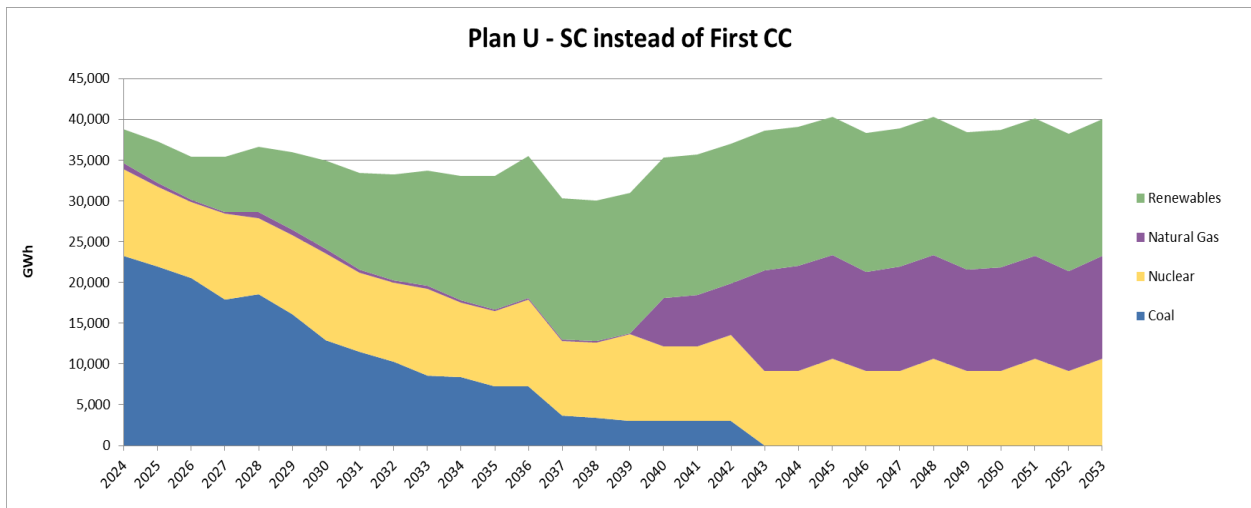
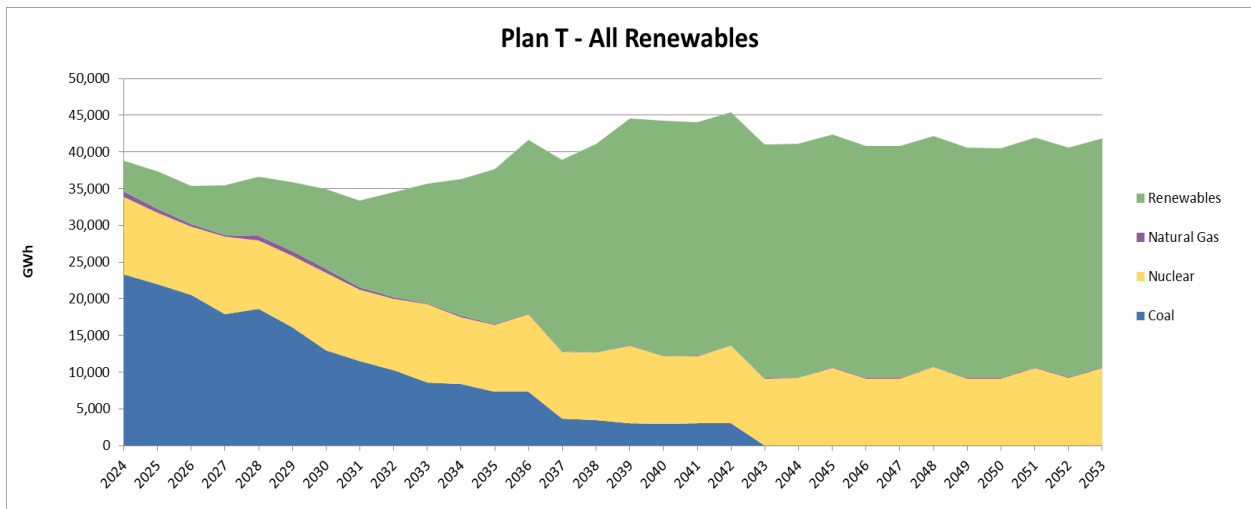
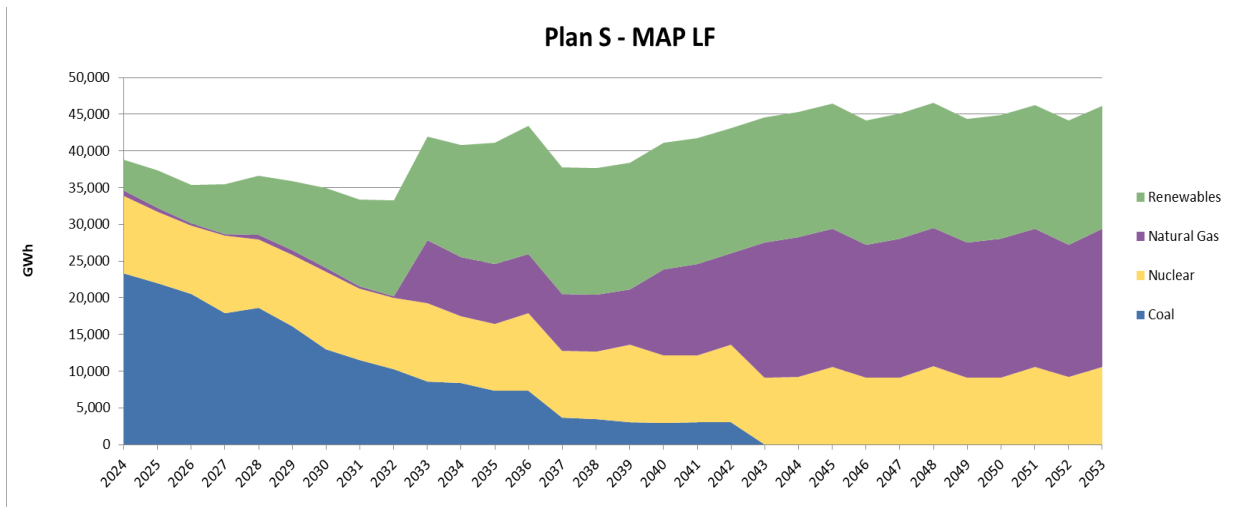


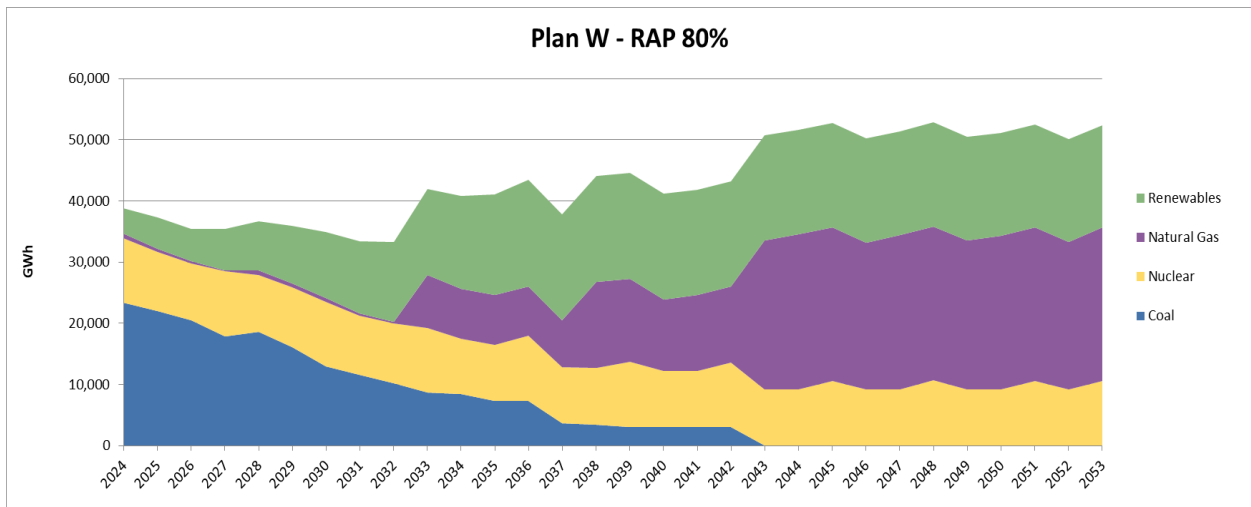
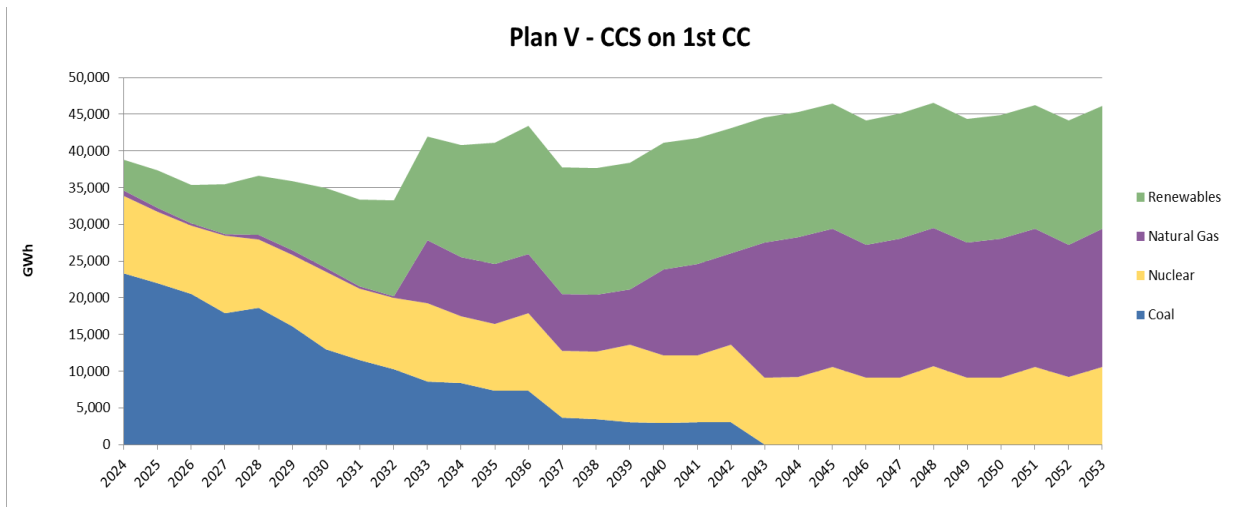












**Figure 9A.13 Financial Measures<sup>18</sup>**

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<sup>18</sup> 20 CSR 4240-22.060(2)(A)6

**\*\***

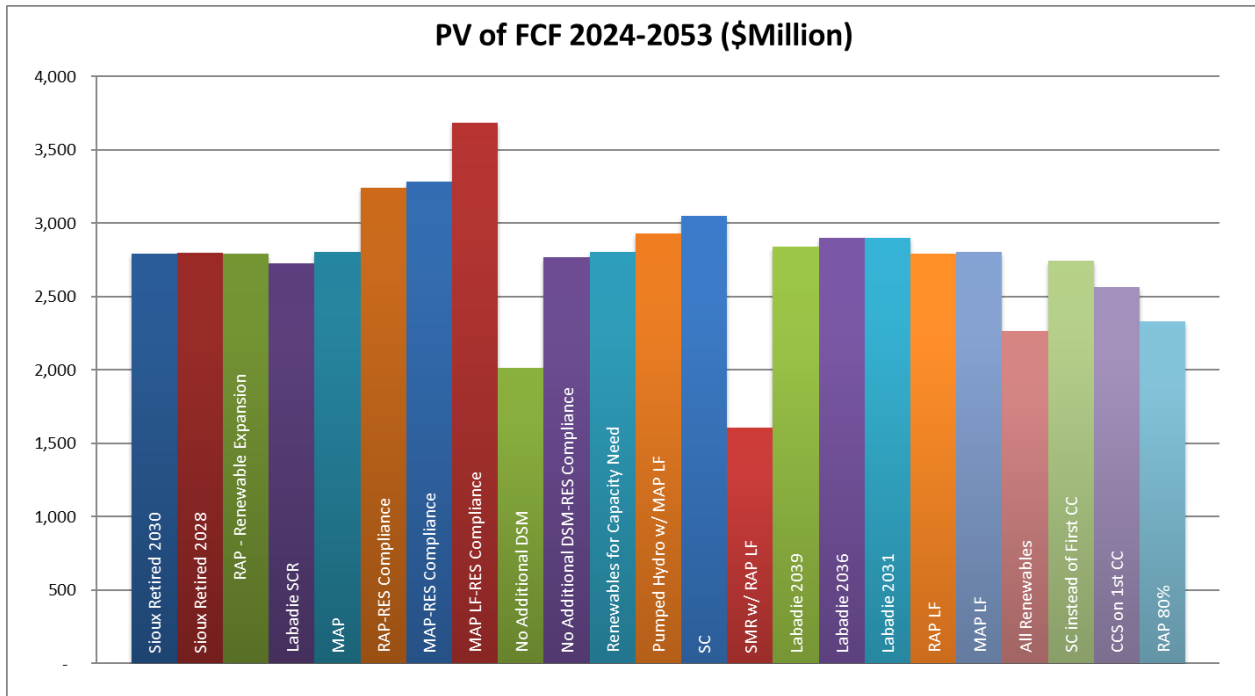
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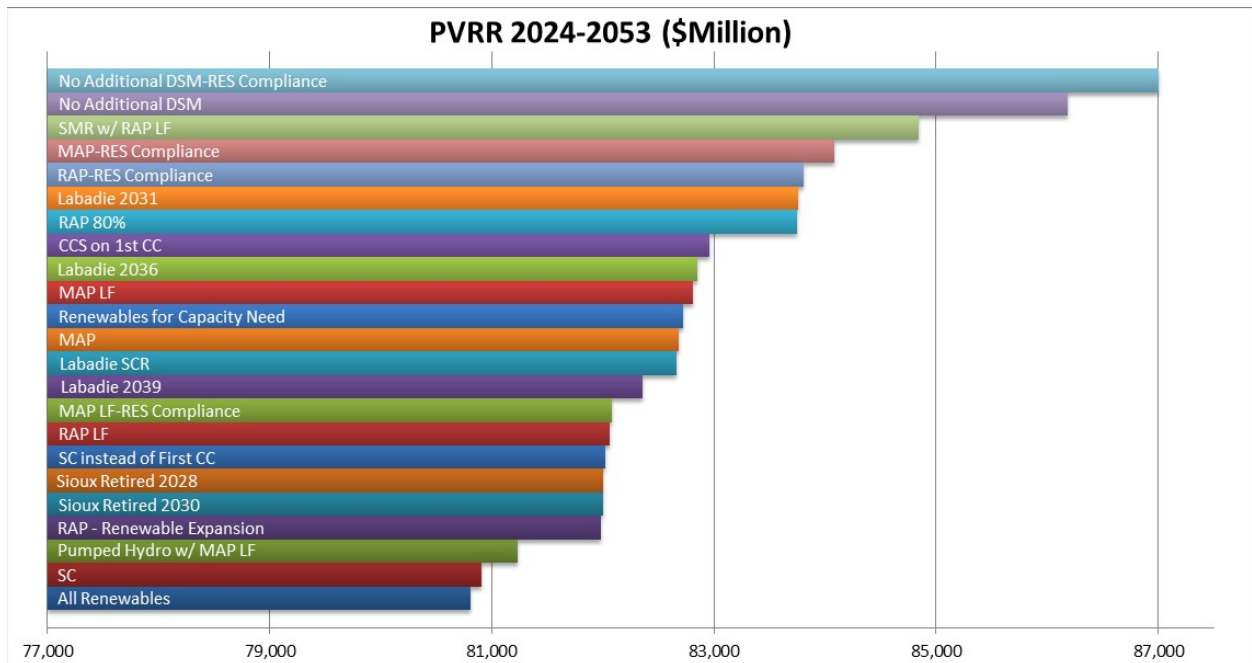
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Figure 9A.14 Revenue Requirements and Rates<sup>19</sup>

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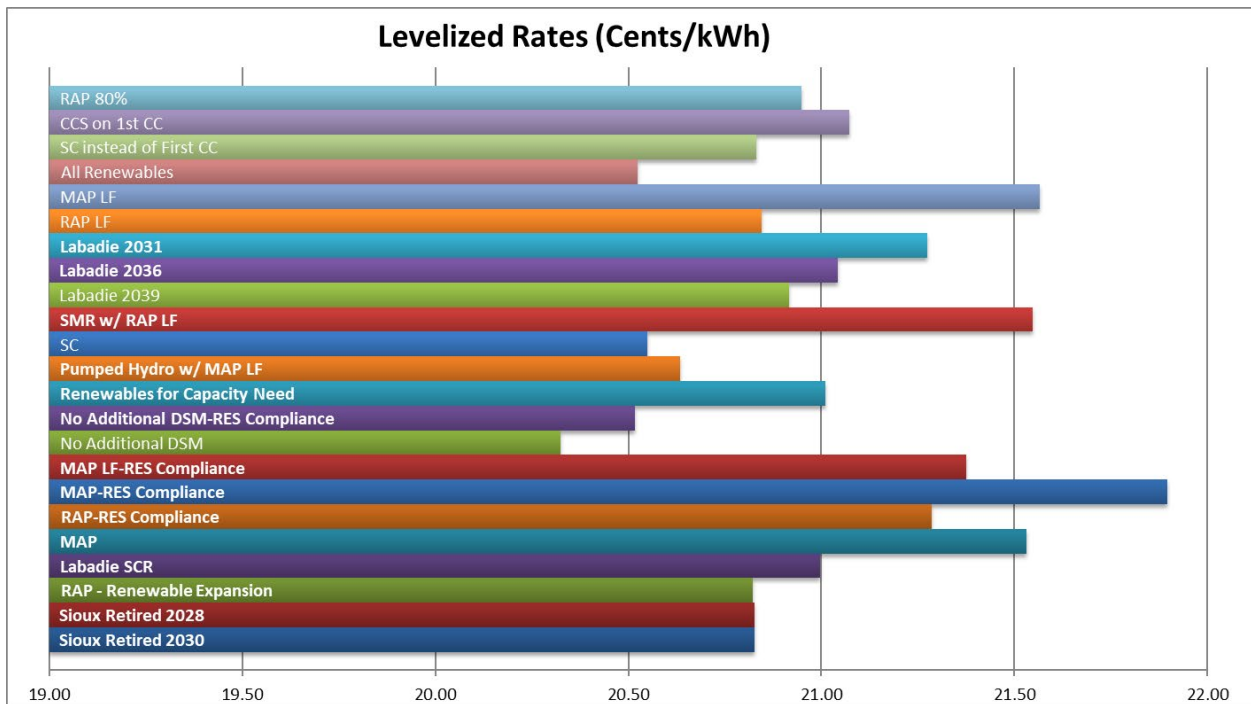
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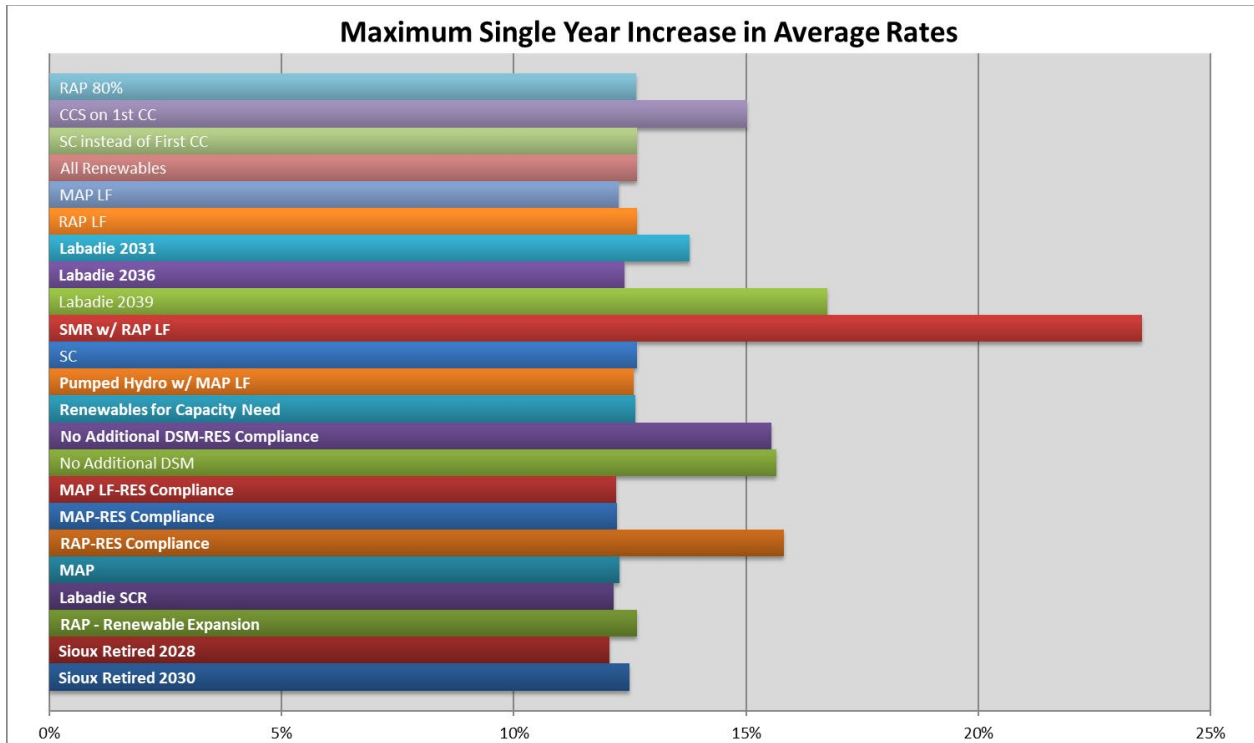


<sup>19</sup> 20 CSR 4240-22.060(2)(A)4; 20 CSR 4240-22.060(2)(A)5

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**Figure 9A.15 Results with Financial Incentives for DSM<sup>20</sup>  
Annual Revenue Requirements<sup>21</sup>**

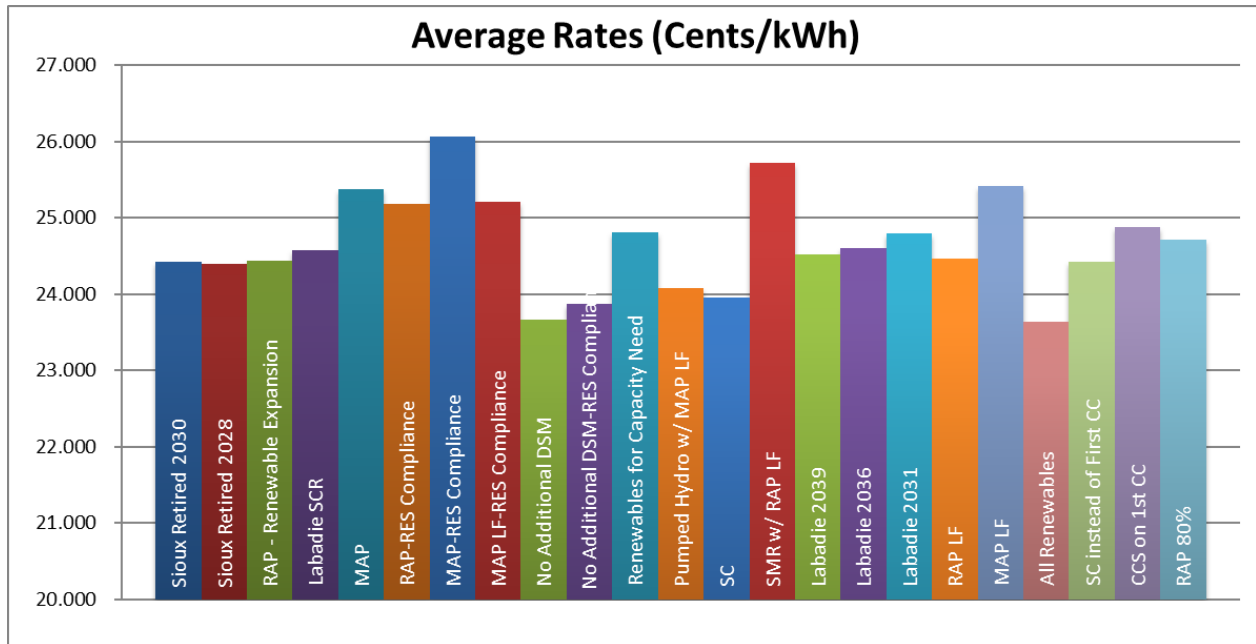
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<sup>20</sup> 20 CSR 4240-22.060(4)(C)

<sup>21</sup> 20 CSR 4240-22.060(4)(C)1A

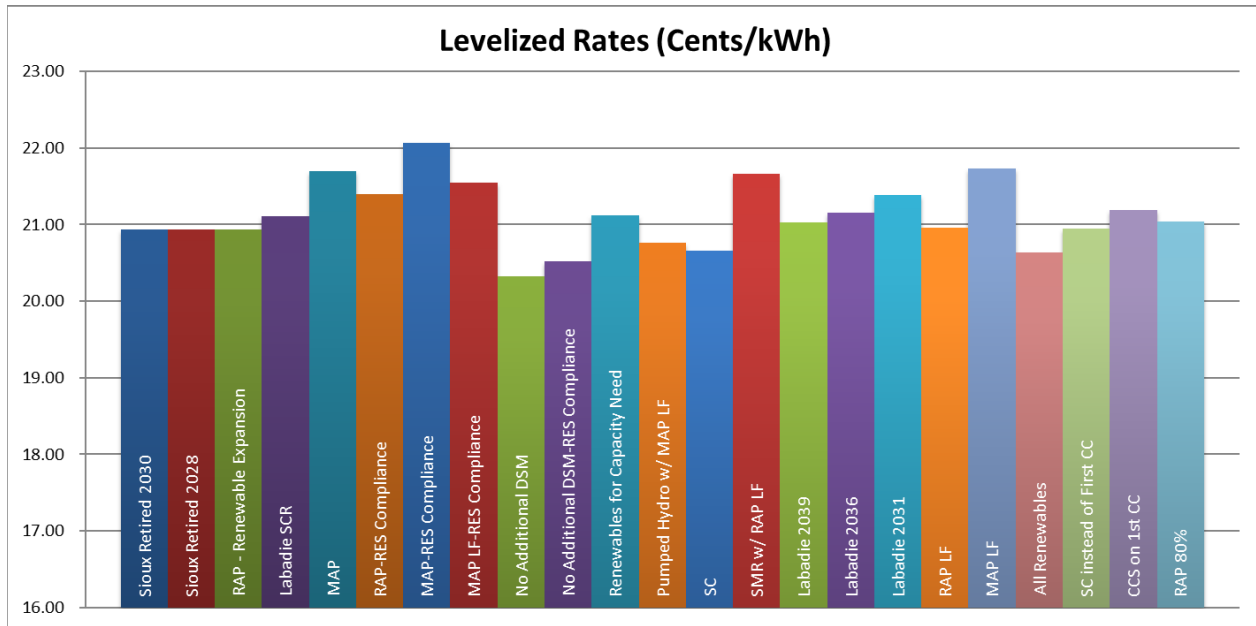
Annual Average Rates<sup>22</sup>



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<sup>22</sup> 20 CSR 4240-22.060(4)(C)1B; 20 CSR 4240-22.060(4)(C)1C

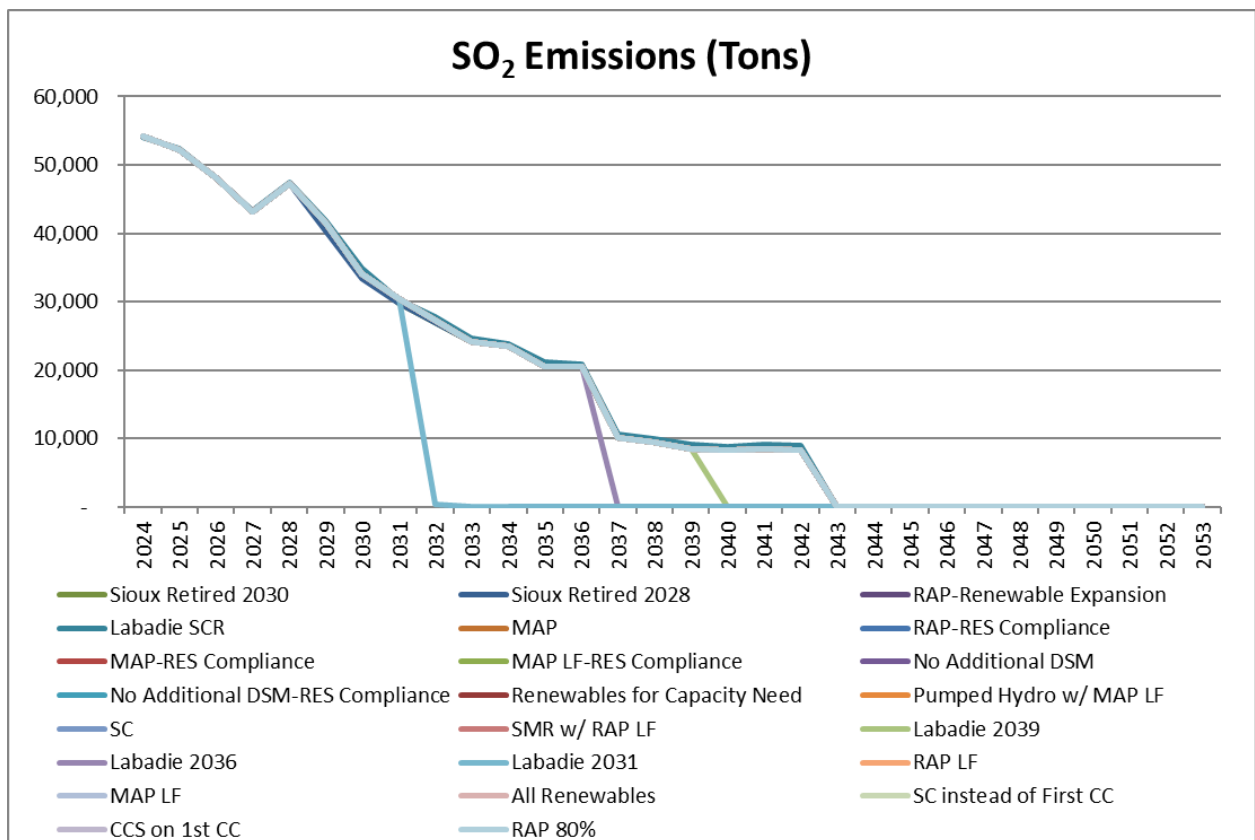
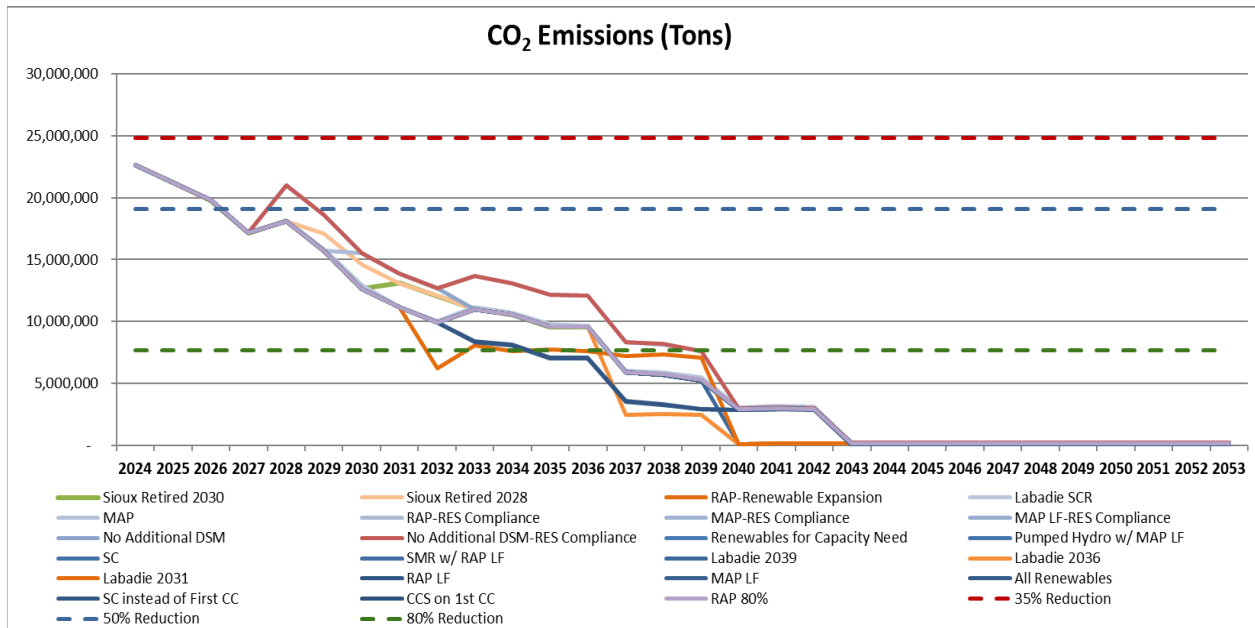


Tabulation for annual % increases in rates with and without financial incentives is provided in the workpapers.

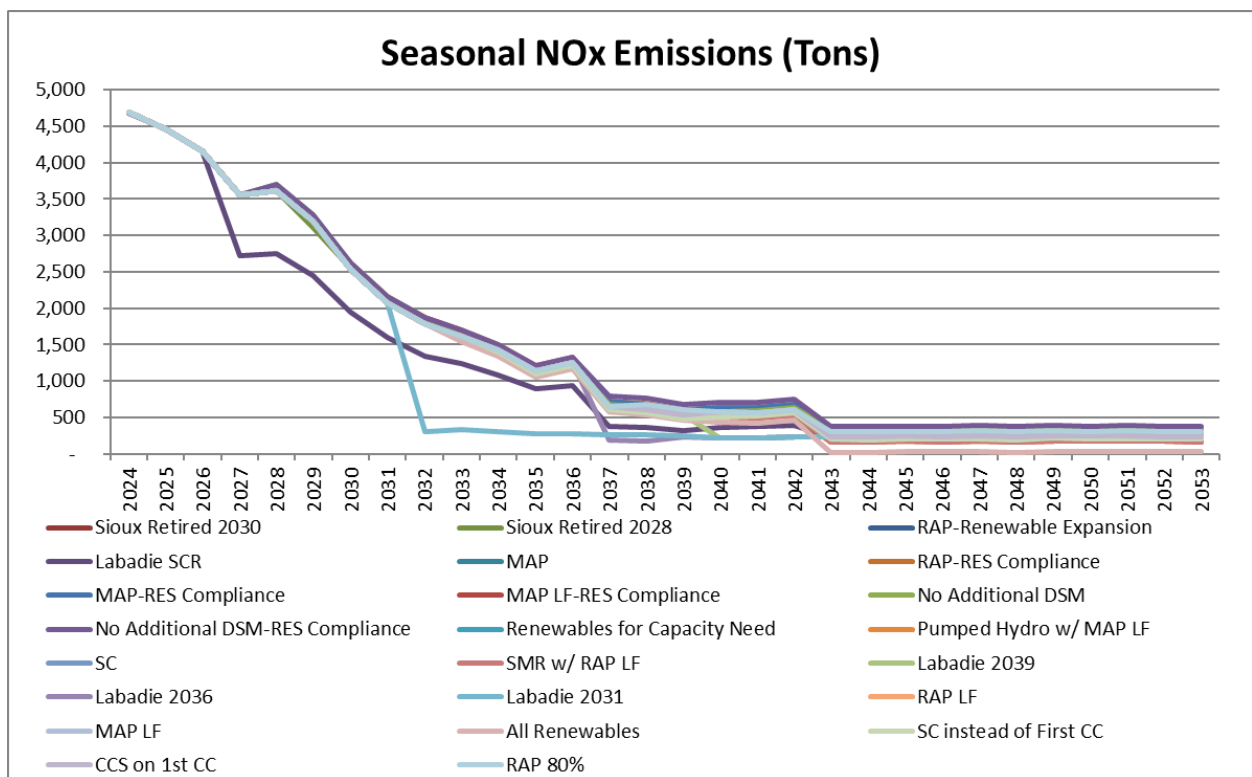
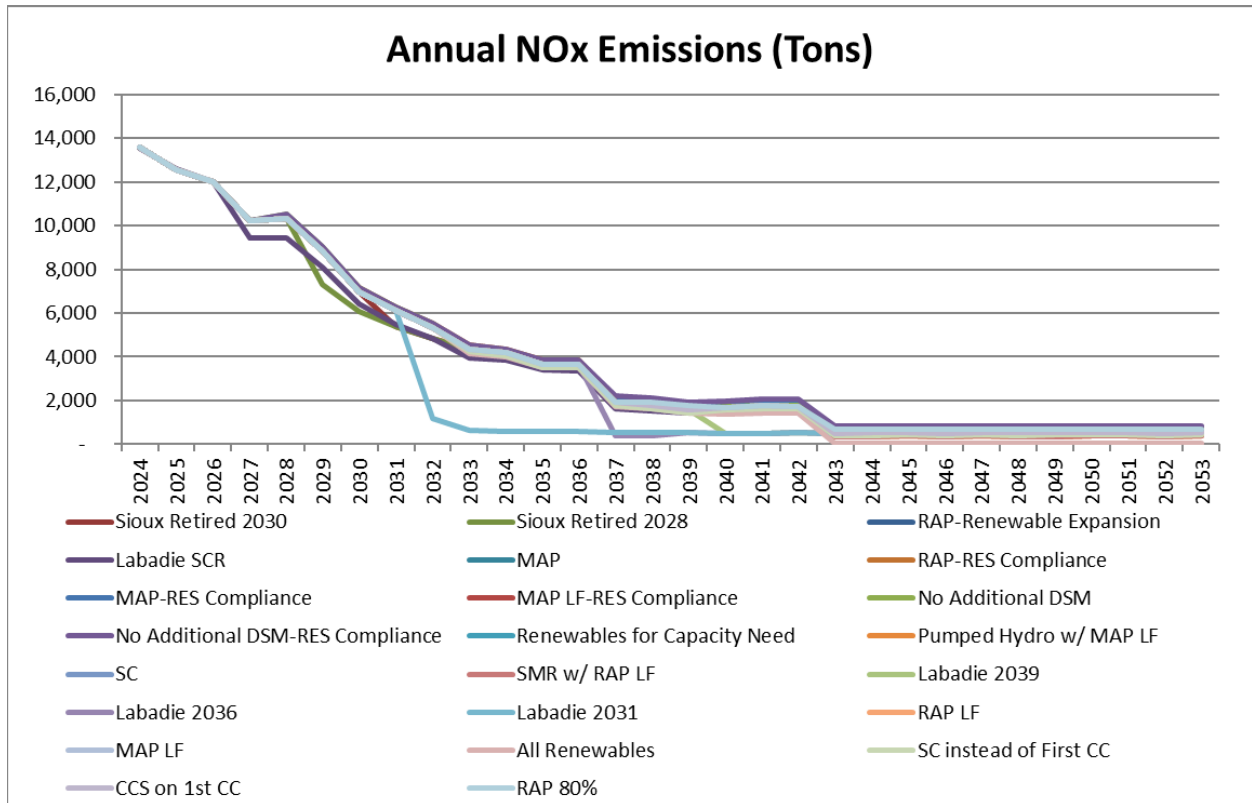
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Figure 9A.16 Annual Emissions<sup>23</sup>



<sup>23</sup> 20 CSR 4240-22.060(4)(B)7





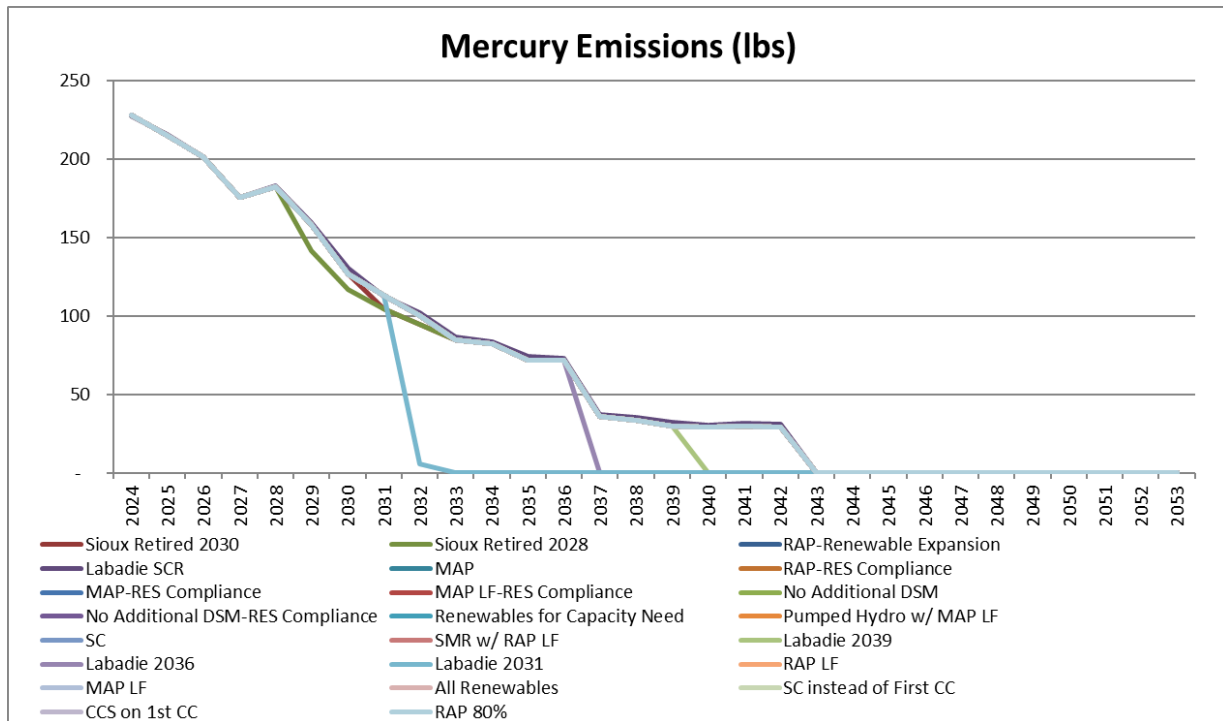
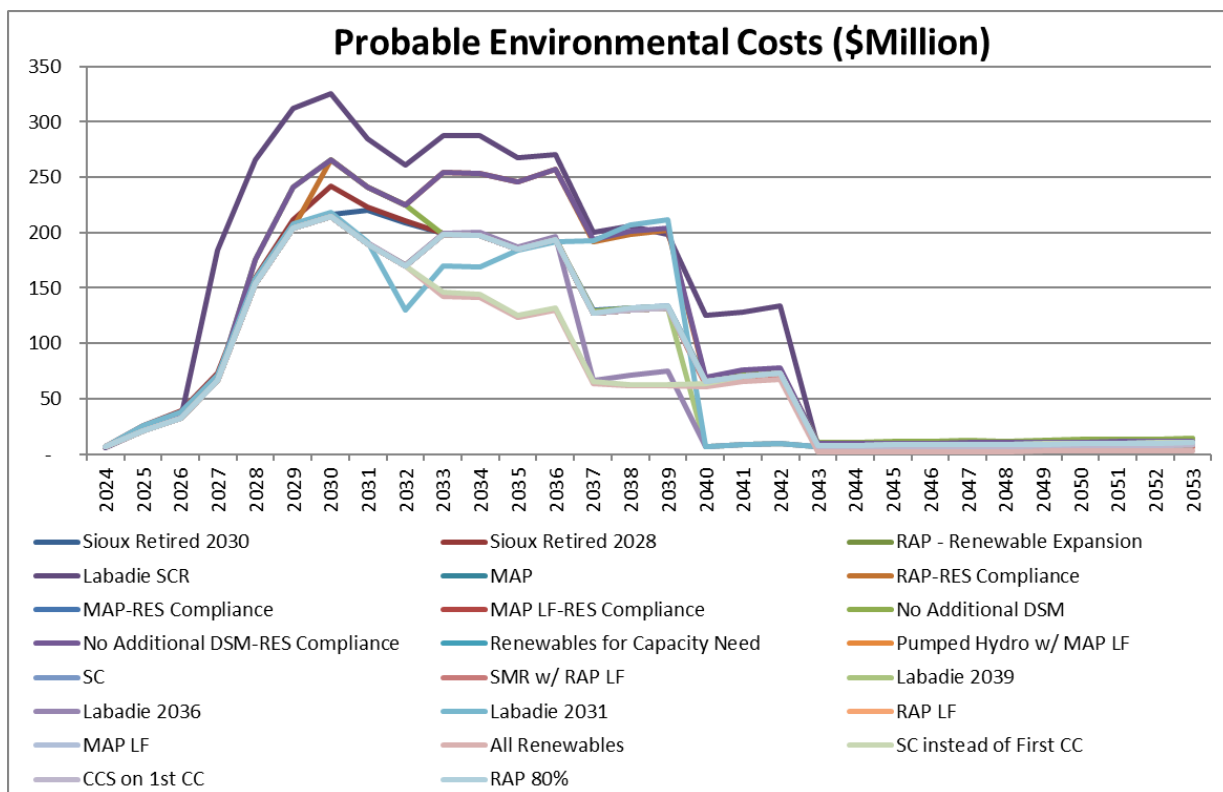
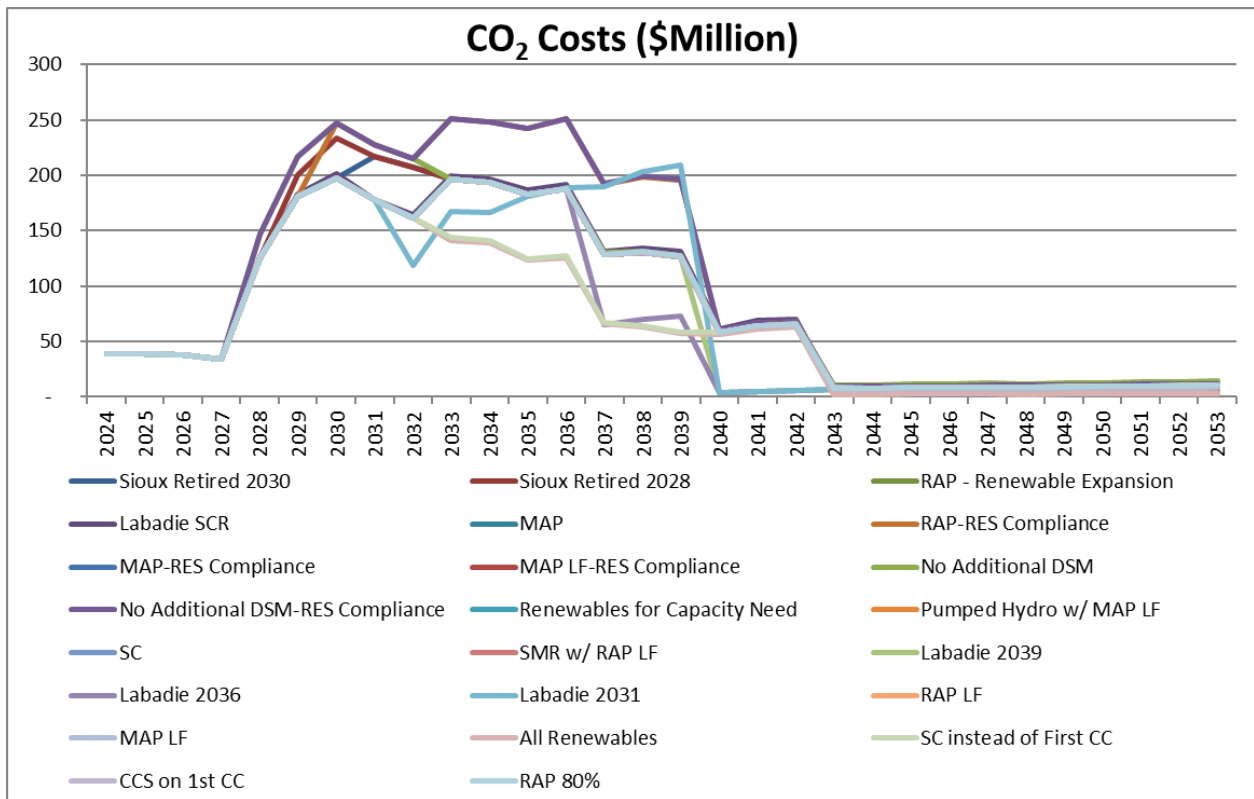
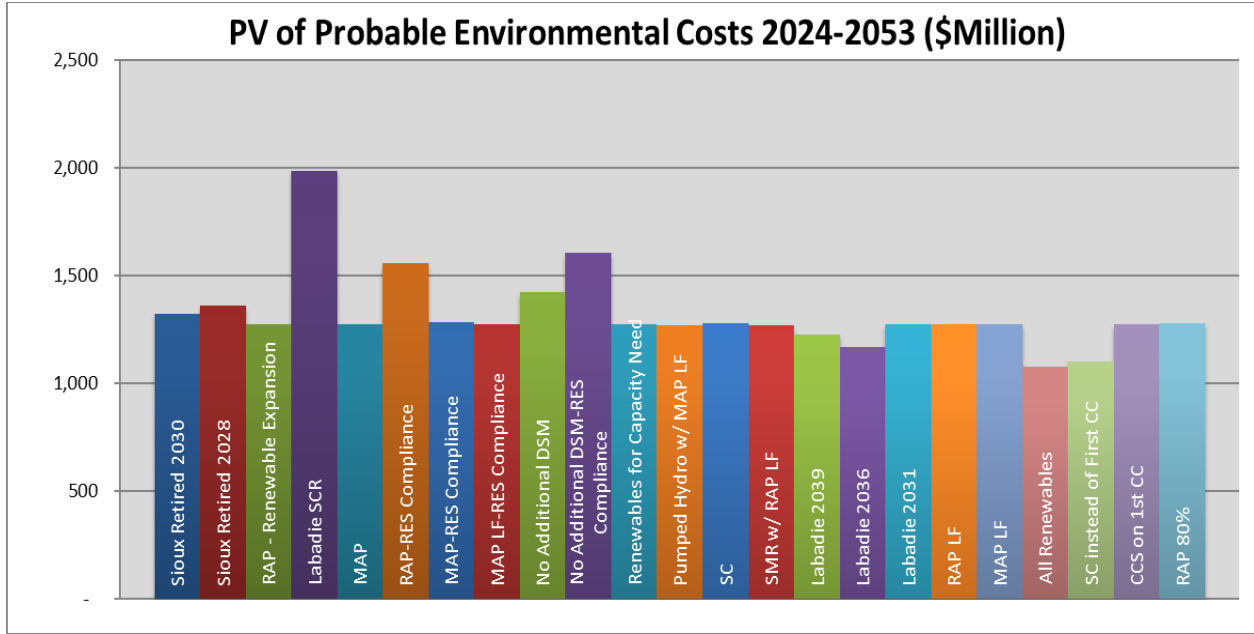
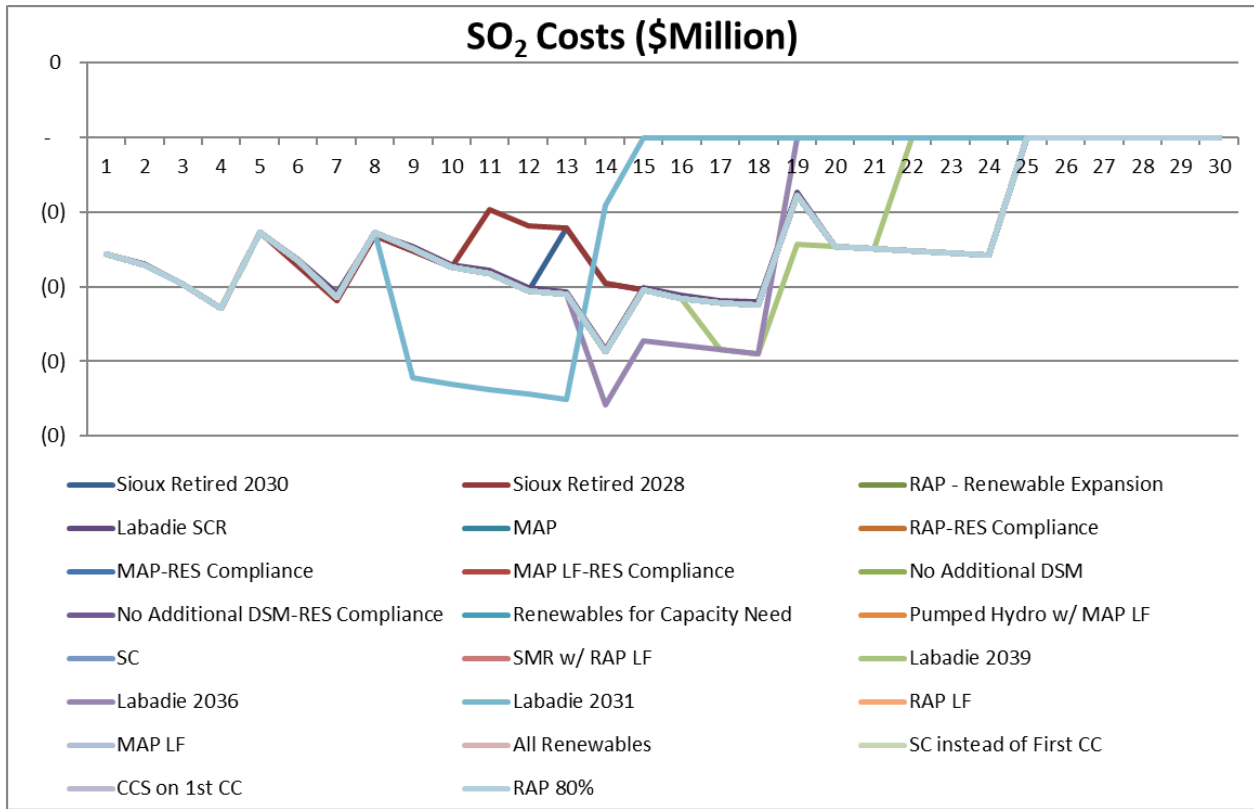
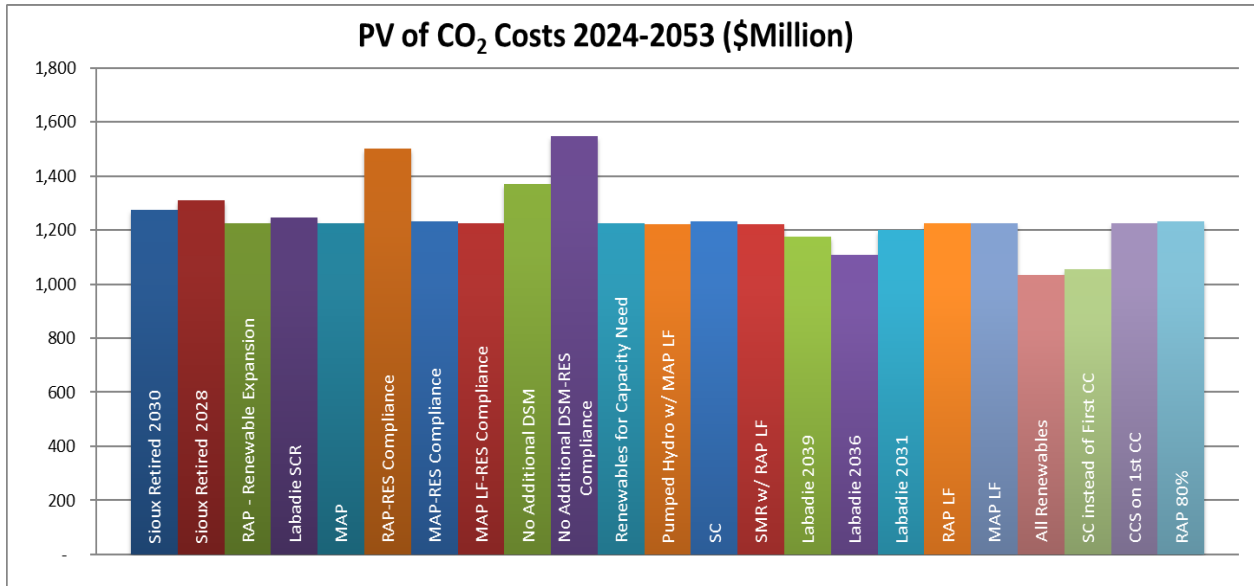


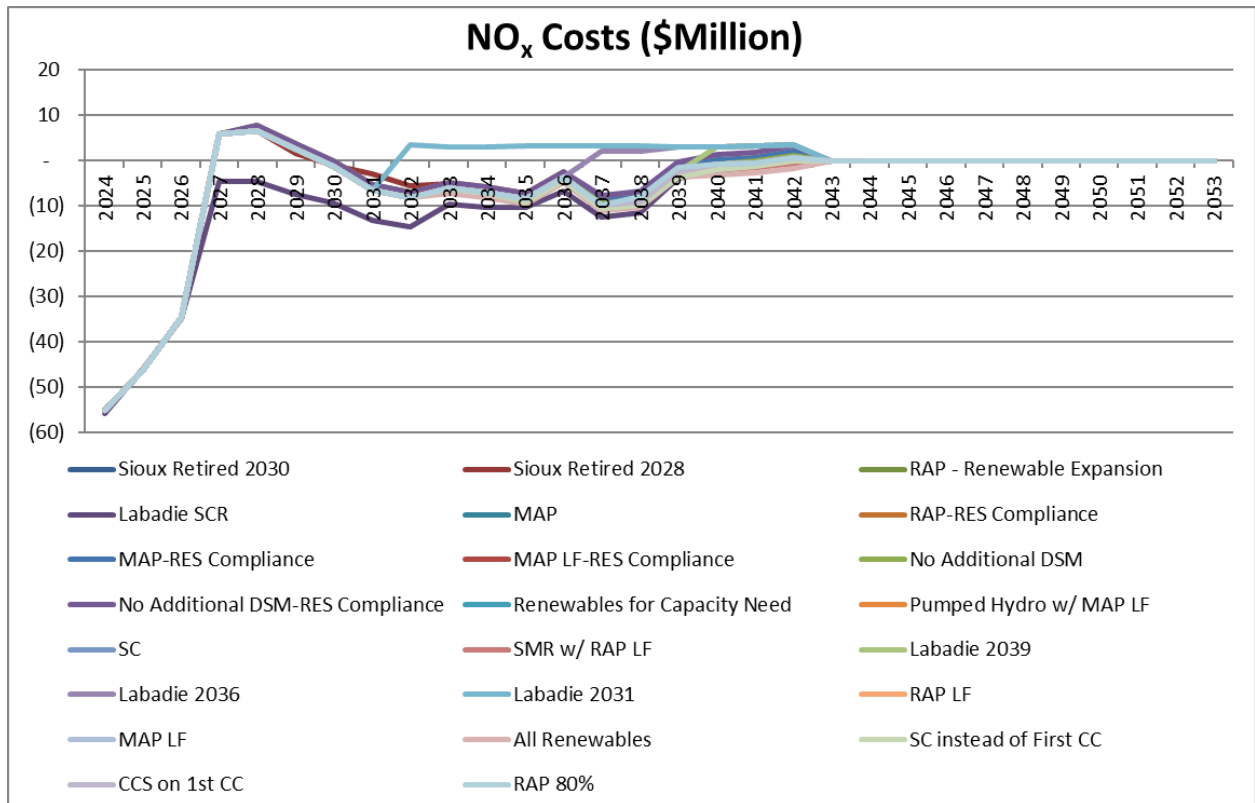
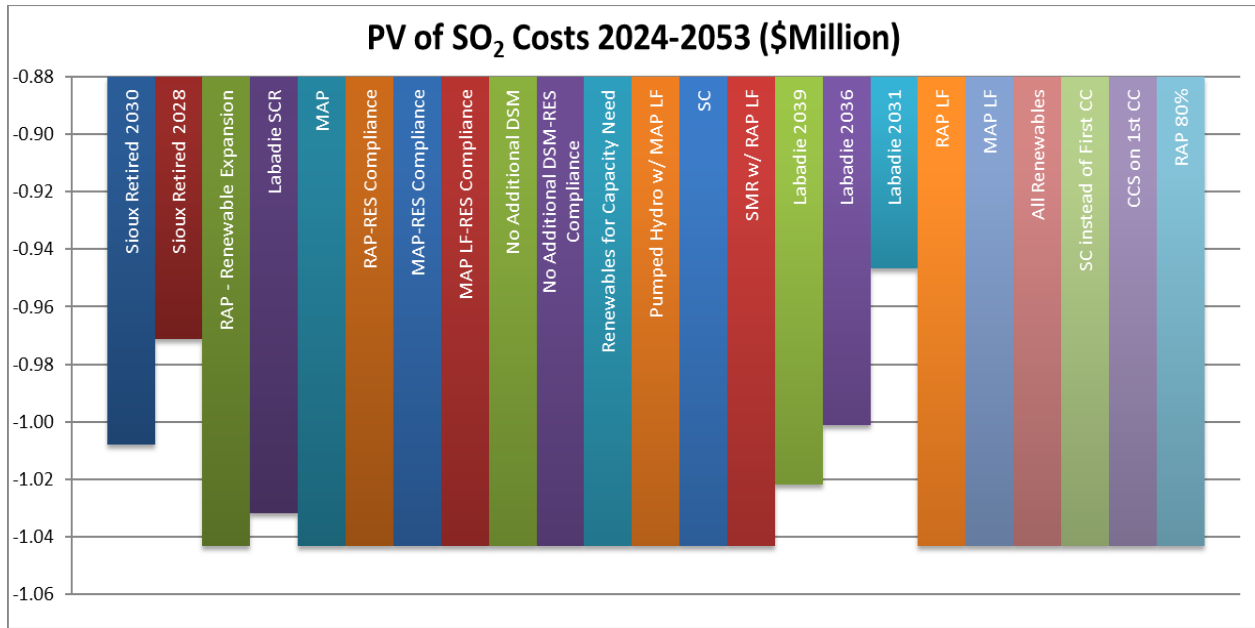
Figure 9A.17 Probable Environmental Costs<sup>24</sup>

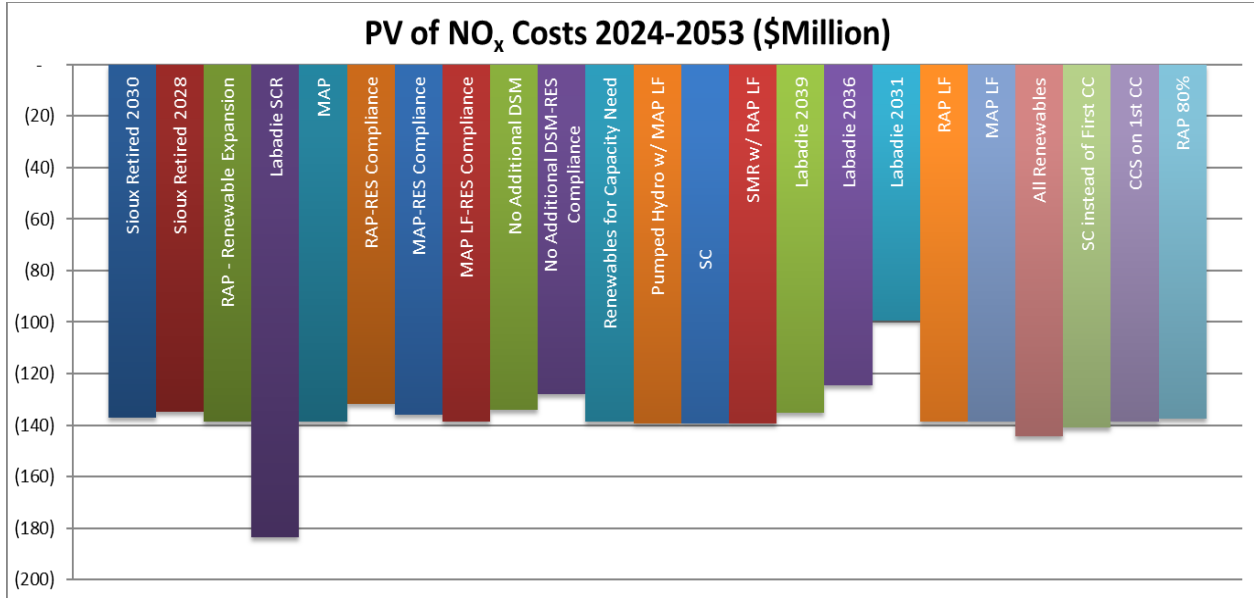


<sup>24</sup> 20 CSR 4240-22.060(2)(A)2; 20 CSR 4240-22.060(4)(B)8









### Expected Values, Rankings and Cumulative Probability Distributions for Selected Performance Measures<sup>25</sup>

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.<sup>26</sup>

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.<sup>27</sup>

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<sup>25</sup> 20 CSR 4240-22.060(7)

<sup>26</sup> 20 CSR 4240-22.060(2)

<sup>27</sup> 20 CSR 4240-22.060(7)(C)4

Table 9A.8 Expected Values for Selected Performance Measures<sup>28</sup>

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 CO <sub>2</sub> Emissions (MM Tons)	PreTax Interest Coverage	FFO-Interest Coverage	FFO/Debt	Debt/ Capitalization	ROE	FCF \$MM	EPS	Jobs
A -Sioux Retired 2030	82,002	82,446	20.83	12%	639	1,322	7	3.04	5.18	23%	44%	9.4%	2,795	5.45	20,742
B -Sioux Retired 2028	82,003	82,447	20.83	12%	639	1,357	7	3.04	5.19	23%	44%	9.4%	2,797	5.45	20,564
C -RAP - Renewable Expansion	81,985	82,430	20.82	13%	639	1,274	7	3.04	5.18	23%	44%	9.4%	2,791	5.46	20,920
D -Labadie SCR	82,668	83,113	21.00	12%	639	1,985	7	3.04	5.19	23%	44%	9.4%	2,730	5.49	21,350
E -MAP	82,680	83,332	21.53	12%	128	1,274	7	3.04	5.17	23%	44%	9.4%	2,804	5.44	35,780
F -RAP-RES Compliance	83,807	84,251	21.29	16%	639	1,557	8	3.20	5.14	22%	45%	9.4%	3,242	5.14	18,355
G -MAP-RES Compliance	84,087	84,739	21.90	12%	128	1,282	7	3.20	5.11	22%	45%	9.4%	3,285	5.10	32,800
H -MAP LF-RES Compliance	82,080	82,732	21.37	12%	129	1,274	7	3.20	5.14	22%	45%	9.4%	3,684	4.81	31,253
I -No Additional DSM	86,182	86,182	20.32	16%	0	1,421	8	3.05	5.13	22%	44%	9.4%	2,014	5.91	10,758
J -No Additional DSM-RES Compliance	87,002	87,002	20.52	16%	0	1,606	8	3.20	5.13	22%	45%	9.4%	2,770	5.48	7,156
K -Renewables for Capacity Need	82,721	83,166	21.01	13%	639	1,274	7	3.18	5.14	22%	45%	9.4%	2,805	5.37	20,040
L -Pumped Hydro w/ MAP LF	81,238	81,760	20.63	13%	659	1,269	7	3.03	5.17	23%	44%	9.5%	2,929	5.38	22,557
M -SC	80,907	81,352	20.55	13%	639	1,278	7	3.04	5.20	23%	44%	9.5%	3,050	5.30	19,840
N -SMR w/ RAP LF	84,840	85,284	21.55	24%	666	1,269	7	3.01	5.09	22%	44%	9.5%	1,610	6.22	24,776
O -Labadie 2039	82,356	82,801	20.92	17%	639	1,223	7	3.04	5.19	23%	44%	9.5%	2,844	5.47	20,668
P -Labadie 2036	82,848	83,293	21.04	12%	639	1,165	7	3.05	5.21	23%	44%	9.5%	2,903	5.47	20,477
Q -Labadie 2031	83,758	84,203	21.27	14%	639	1,270	7	3.05	5.26	23%	45%	9.5%	2,901	5.51	19,749
R -RAP LF	82,067	82,512	20.84	13%	666	1,274	7	3.04	5.18	23%	44%	9.4%	2,791	5.46	21,850
S -MAP LF	82,813	83,464	21.57	12%	129	1,274	7	3.04	5.17	23%	44%	9.4%	2,804	5.44	36,870
T -All Renewables	80,808	81,253	20.52	13%	639	1,075	7	2.97	5.35	24%	44%	9.4%	2,266	5.87	22,537
U -SC instead of First CC	82,020	82,465	20.83	13%	639	1,099	7	3.04	5.17	23%	44%	9.4%	2,748	5.48	19,659
V -CCS on 1st CC	82,963	83,408	21.07	15%	639	1,274	7	3.04	5.17	23%	45%	9.4%	2,564	5.61	22,520
W -RAP 80%	83,749	84,132	20.95	13%	515	1,279	7	3.04	5.15	23%	45%	9.4%	2,334	5.71	20,826

<sup>28</sup> 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

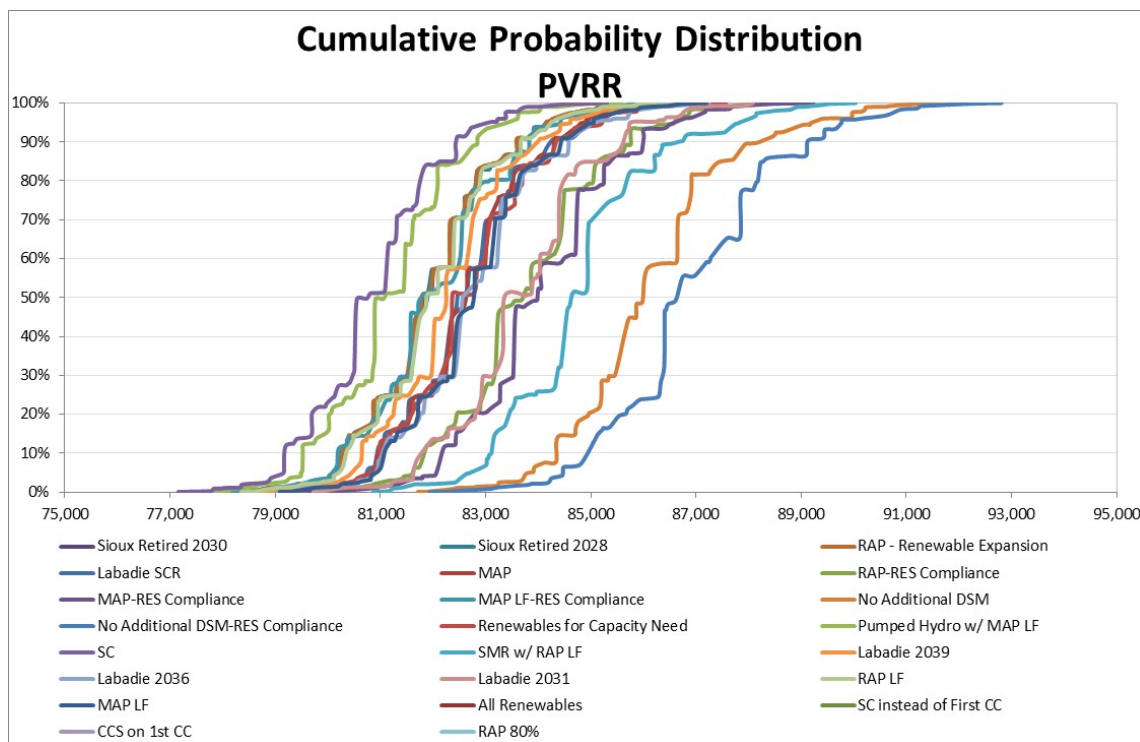
Plan	RANKING														
	PVRR \$MM	PVRR w/ Incentives \$MM	Levelized Rates Cents/kWh	Max Single Yr Rate Increase	PV of Participant Cost \$MM	PV of Probable Environmental Cost \$MM	Avg CO <sub>2</sub> Emissions (MM Tons)	PreTax Interest Coverage	FFO-Interest Coverage	FFO/Debt	Debt/ Capitalization	ROE	FCF \$MM	EPS	Jobs
A -Sioux Retired 2030	5	5	7	8	13	18	19	12	8	8	7	9	13	14	13
B -Sioux Retired 2028	6	6	8	1	13	19	20	11	6	7	9	7	12	15	15
C -RAP - Renewable Expansion	4	4	6	13	18	8	8	16	9	9	5	10	14	13	11
D -Labadie SCR	11	11	13	2	9	23	18	10	7	6	8	8	18	7	10
E -MAP	12	14	20	6	4	8	8	19	11	11	10	13	10	16	2
F -RAP-RES Compliance	19	19	18	21	9	21	22	1	18	18	22	18	3	21	21
G -MAP-RES Compliance	20	20	23	4	3	17	17	3	22	22	23	21	2	22	3
H -MAP LF-RES Compliance	9	9	19	3	5	8	8	4	19	17	21	20	1	23	4
I -No Additional DSM	22	22	1	20	1	20	21	7	20	20	14	17	22	2	22
J -No Additional DSM-RES Compliance	23	23	2	19	1	22	23	2	21	21	20	15	16	8	23
K -Renewables for Capacity Need	13	12	14	10	18	8	8	5	17	19	19	23	9	19	17
L -Pumped Hydro w/ MAP LF	3	3	5	9	21	5	6	21	15	15	4	6	5	18	6
M -SC	2	2	4	13	18	15	15	18	4	4	2	5	4	20	18
N -SMR w/ RAP LF	21	21	21	23	22	5	6	22	23	23	15	1	23	1	5
O -Labadie 2039	10	10	11	22	9	4	5	9	5	5	13	4	8	11	14
P -Labadie 2036	15	13	15	7	13	3	2	8	3	3	12	3	6	10	16
Q -Labadie 2031	18	18	17	17	13	7	3	6	2	2	18	2	7	6	19
R -RAP LF	8	8	10	12	22	8	8	16	9	9	5	10	14	12	9
S -MAP LF	14	16	22	5	6	8	8	20	11	12	10	14	10	16	1
T -All Renewables	1	1	3	13	8	1	1	23	1	1	1	22	21	3	7
U -SC instead of First CC	7	7	9	13	9	2	4	13	13	13	3	12	17	9	20
V -CCS on 1st CC	16	15	16	18	13	8	8	15	14	14	16	16	19	5	8
W -RAP 80%	17	17	12	11	7	16	16	14	16	16	17	19	20	4	12



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, and hence, 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.<sup>29</sup>

To create the CDFs, Ameren Missouri looked at the unique outcomes for the performance measures for each of the 81 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 81 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.<sup>30</sup>

**Figure 9A.18 Cumulative Probability Distribution of PVRR**



<sup>29</sup> 20 CSR 4240-22.060(7)(C)2

<sup>30</sup> 20 CSR 4240-22.060(7)(C)1

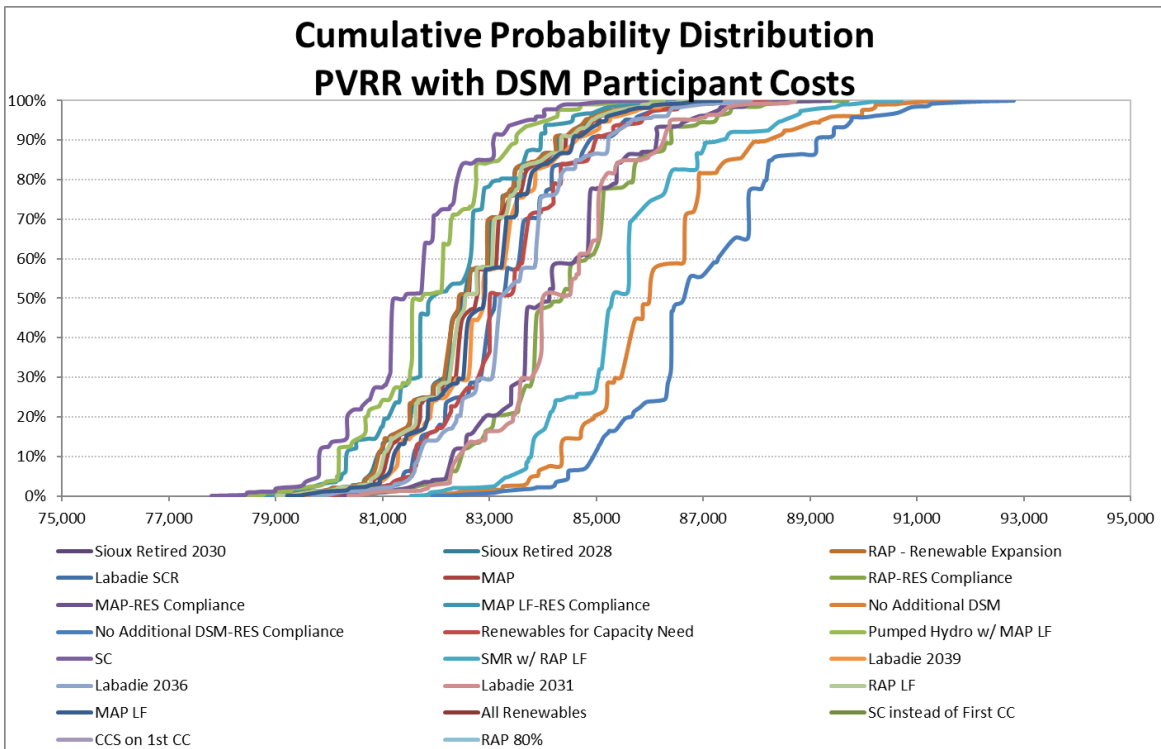
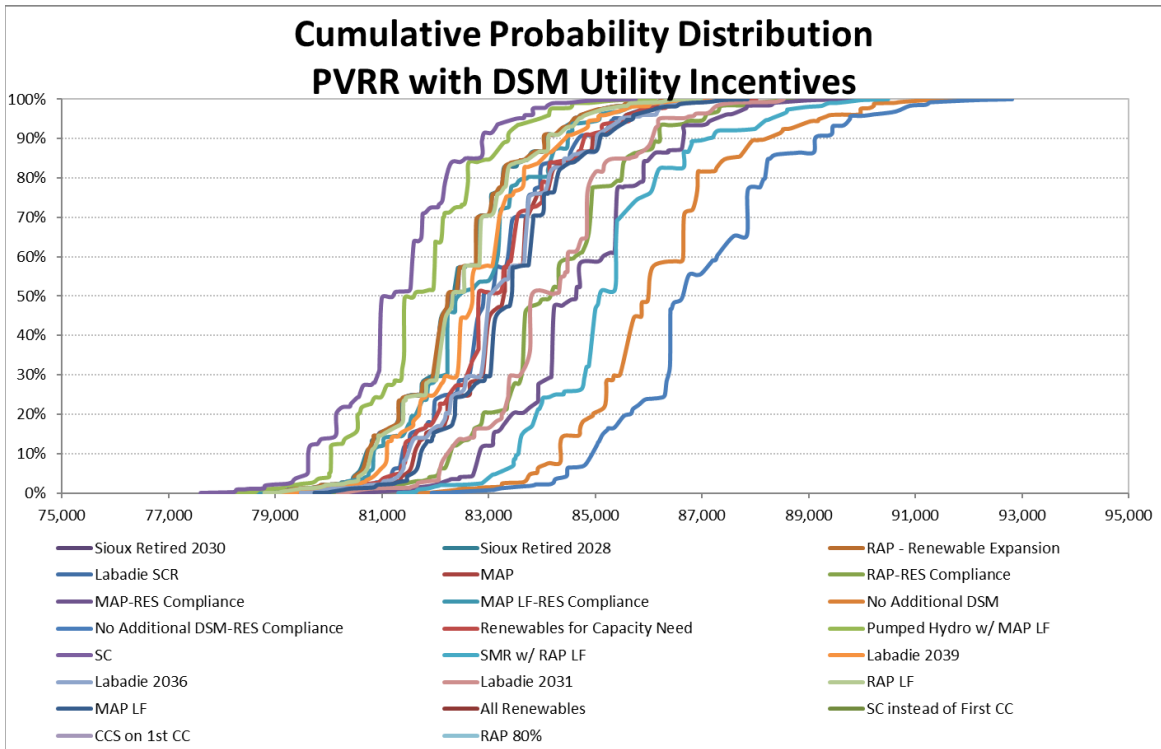


Figure 9A.19 Cumulative Probability Distribution of PV of Environmental Costs

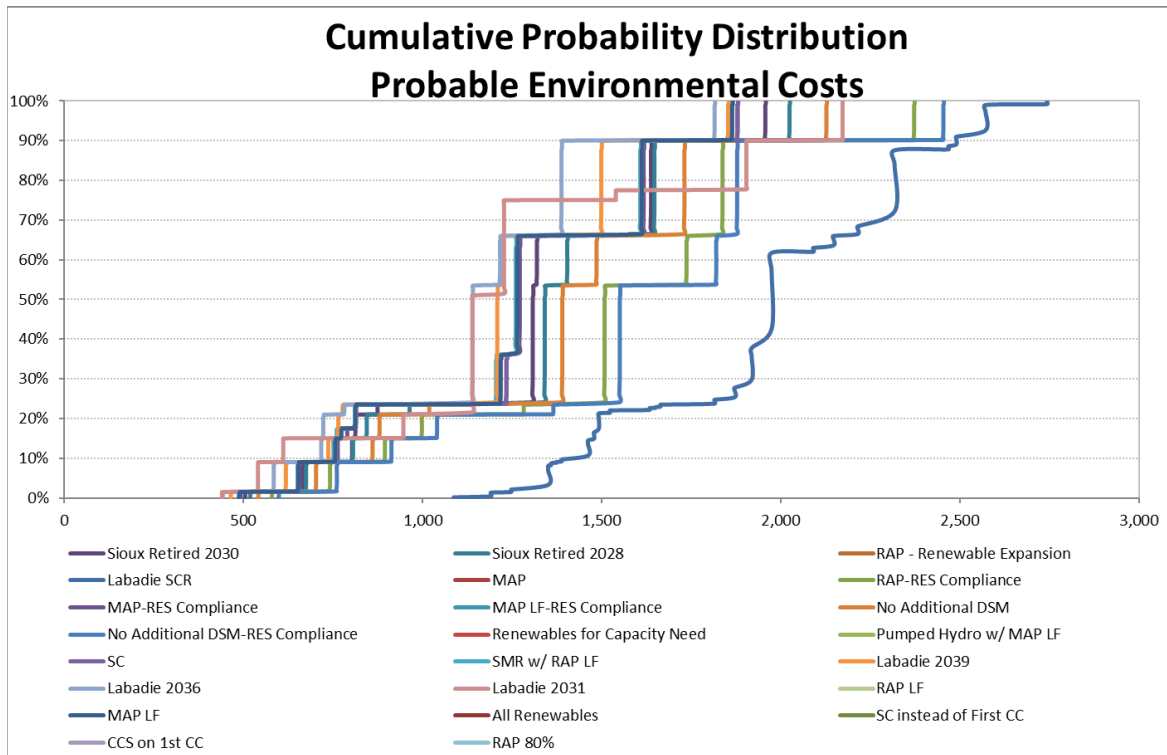


Figure 9A.20 Cumulative Probability Distribution of PV of CO<sub>2</sub> Costs

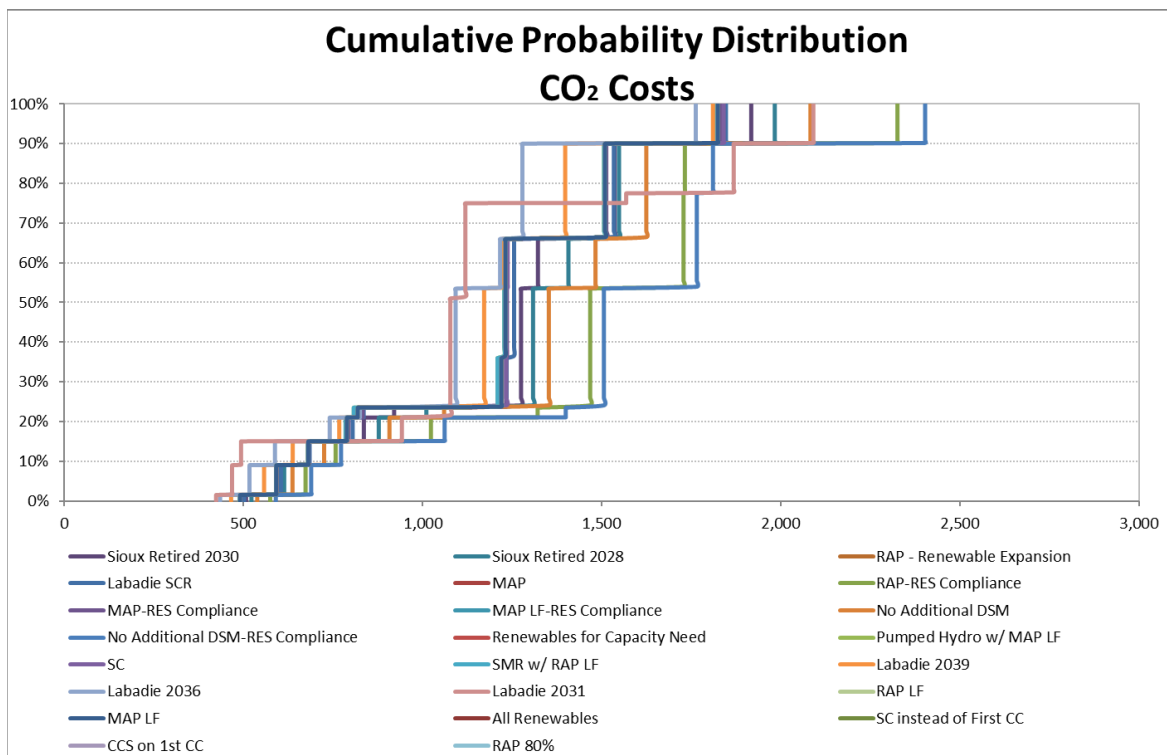


Figure 9A.21 Cumulative Probability Distribution of Levelized Rates

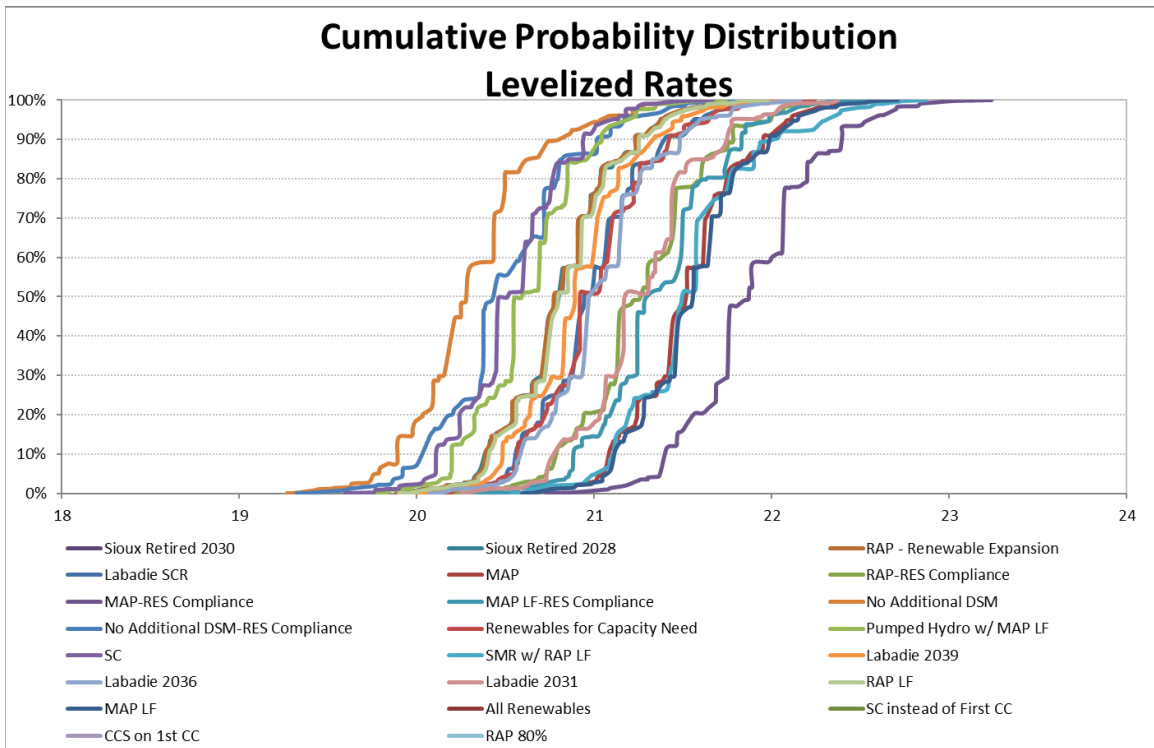
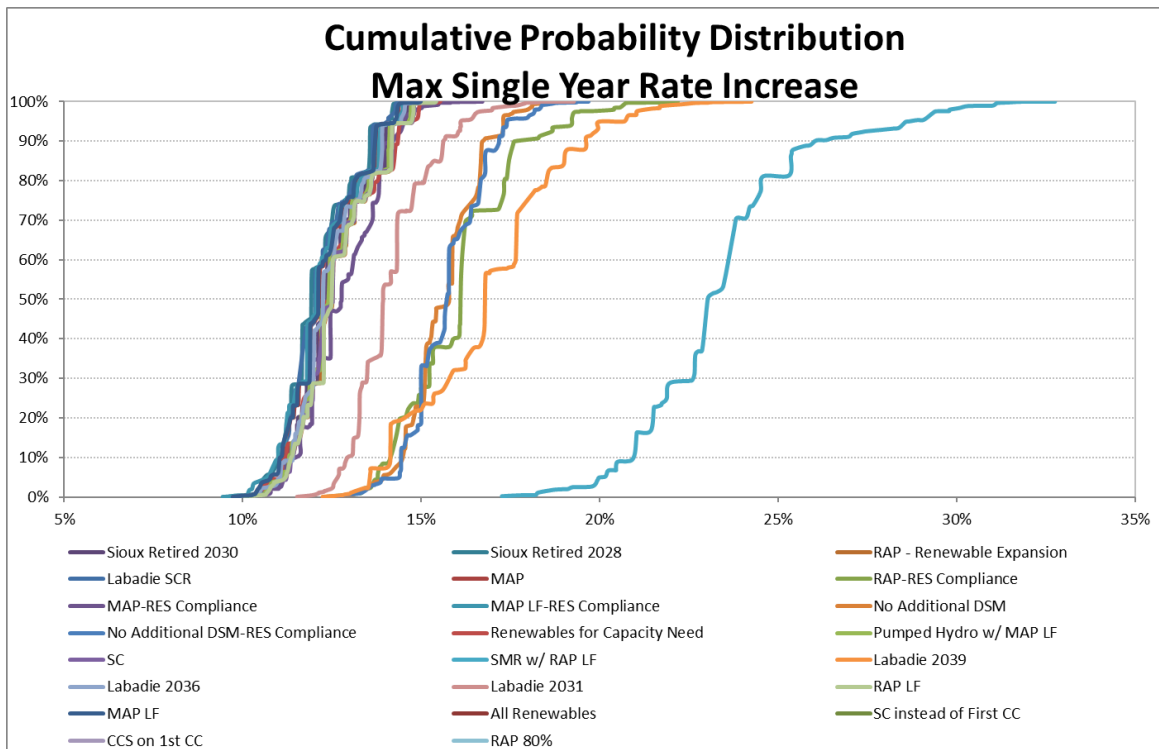


Figure 9A.22 Cumulative Probability Distribution of Max Single Year Rate Increase



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 Measures<sup>31</sup>

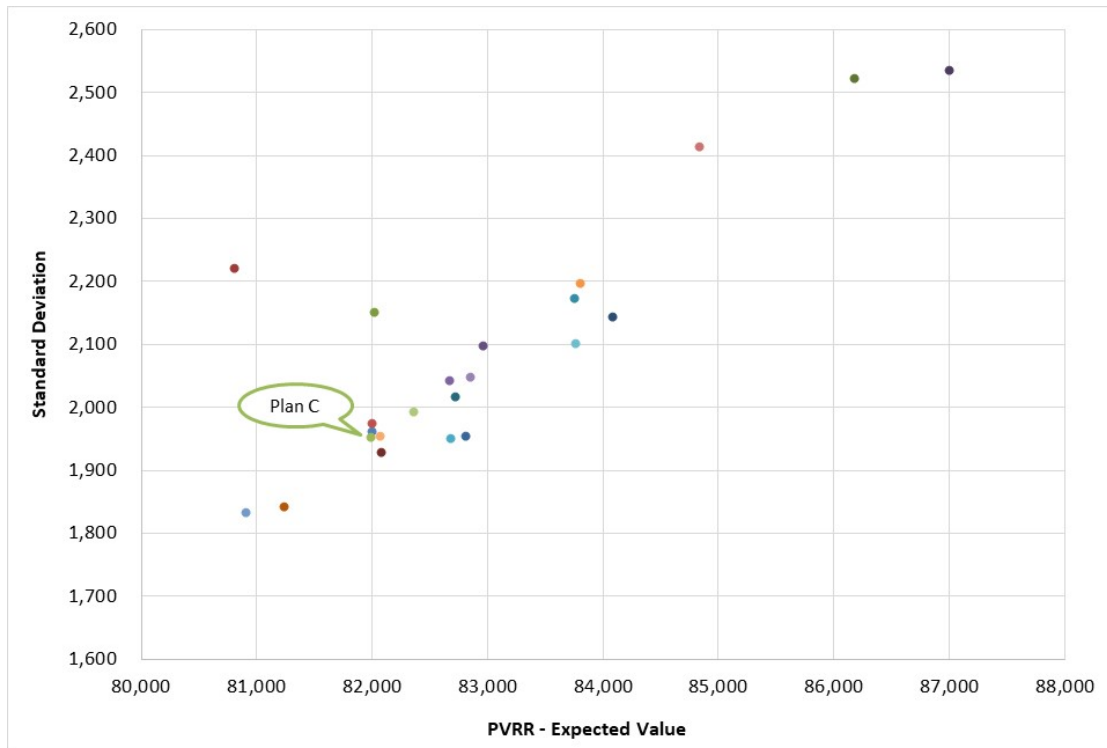
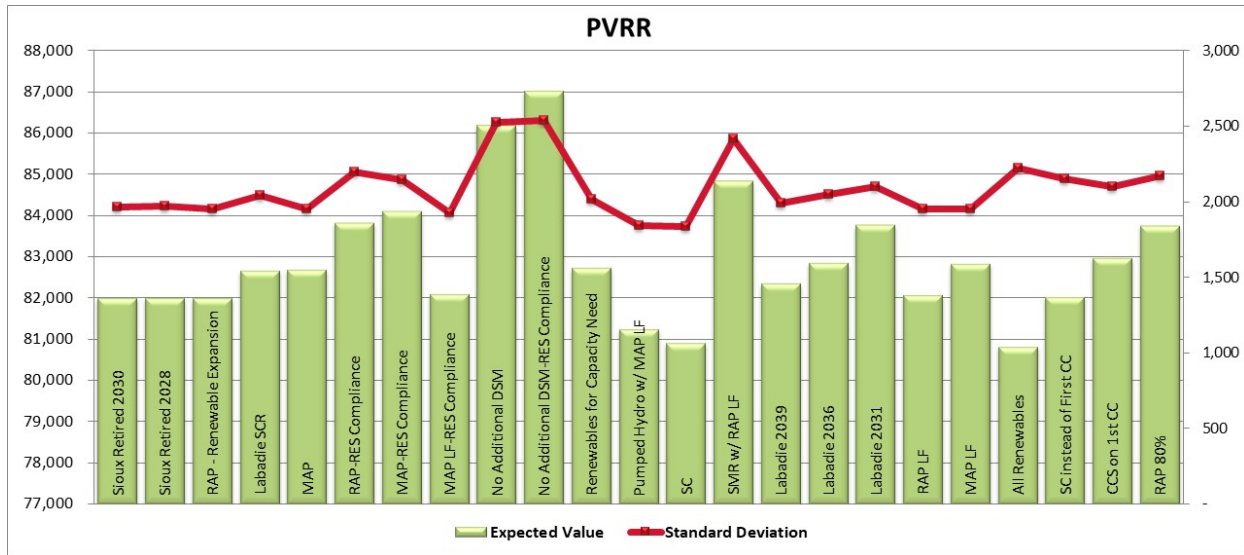
Plan	STANDARD DEVIATION														
	PVRR \$MM	PVRR w/ Incentives \$MM	Levelized Rates Cents/kWh	Max Single Yr Rate Increase	PV of Participant Cost \$MM	PV of Probable Environmental Cost \$MM	Avg CO2 Emissions (MM Tons)	PreTax Interest Coverage	FFO-Interest Coverage	FFO/Debt	Debt/ Capitalization	ROE	FCF \$MM	EPS	Jobs
A -Sioux Retired 2030	1,962	1,962	0.50	1%	0	460	1.75	0.01	0.00	0%	0%	0%	216	0.19	N/A
B -Sioux Retired 2028	1,974	1,974	0.50	1%	0	472	1.69	0.01	0.00	0%	0%	0%	215	0.19	N/A
C -RAP - Renewable Expansion	1,952	1,952	0.50	1%	0	443	1.79	0.01	0.00	0%	0%	0%	218	0.19	N/A
D -Labadie SCR	2,043	2,043	0.52	1%	0	461	1.81	0.01	0.00	0%	0%	0%	223	0.20	N/A
E -MAP	1,951	1,951	0.51	1%	0	443	1.79	0.01	0.00	0%	0%	0%	218	0.19	N/A
F -RAP-RES Compliance	2,197	2,197	0.56	2%	0	556	1.79	0.00	0.00	0%	0%	0%	238	0.21	N/A
G -MAP-RES Compliance	2,144	2,144	0.56	1%	0	445	1.78	0.00	0.01	0%	0%	0%	252	0.21	N/A
H -MAP LF-RES Compliance	1,928	1,928	0.50	1%	0	443	1.79	0.00	0.00	0%	0%	0%	186	0.16	N/A
I -No Additional DSM	2,523	2,513	0.59	2%	0	574	1.78	0.01	0.01	0%	0%	0%	357	0.28	N/A
J -No Additional DSM-RES Compliance	2,536	2,536	0.60	2%	0	576	1.78	0.00	0.01	0%	0%	0%	302	0.26	N/A
K -Renewables for Capacity Need	2,018	2,018	0.51	1%	0	443	1.79	0.00	0.00	0%	0%	0%	260	0.21	N/A
L -Pumped Hydro w/ MAP LF	1,843	1,843	0.47	1%	0	441	1.79	0.00	0.00	0%	0%	0%	173	0.17	N/A
M -SC	1,833	1,833	0.47	1%	0	447	1.78	0.01	0.00	0%	0%	0%	159	0.16	N/A
N -SMR w/ RAP LF	2,414	2,414	0.61	4%	0	441	1.79	0.00	0.02	0%	0%	0%	411	0.33	N/A
O -Labadie 2039	1,993	1,993	0.51	3%	0	434	1.57	0.01	0.00	0%	0%	0%	202	0.19	N/A
P -Labadie 2036	2,049	2,049	0.52	1%	0	420	1.35	0.01	0.00	0%	0%	0%	182	0.20	N/A
Q -Labadie 2031	2,102	2,102	0.53	2%	0	578	0.65	0.01	0.01	0%	0%	0%	151	0.18	N/A
R -RAP LF	1,955	1,955	0.50	1%	0	443	1.79	0.01	0.00	0%	0%	0%	218	0.19	N/A
S -MAP LF	1,955	1,955	0.51	1%	0	443	1.79	0.01	0.00	0%	0%	0%	218	0.19	N/A
T -All Renewables	2,221	2,221	0.56	1%	0	393	1.79	0.01	0.01	0%	0%	0%	213	0.21	N/A
U -SC instead of First CC	2,151	2,151	0.55	1%	0	397	1.77	0.01	0.01	0%	0%	0%	259	0.22	N/A
V -CCS on 1st CC	2,097	2,097	0.53	2%	0	443	1.79	0.01	0.00	0%	0%	0%	258	0.22	N/A
W -RAP 80%	2,174	2,174	0.54	2%	0	445	2	0.01	0.01	0%	0%	0.0%	304	0.24	N/A

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

<sup>31</sup> 20 CSR 4240-22.060(7)(C)3

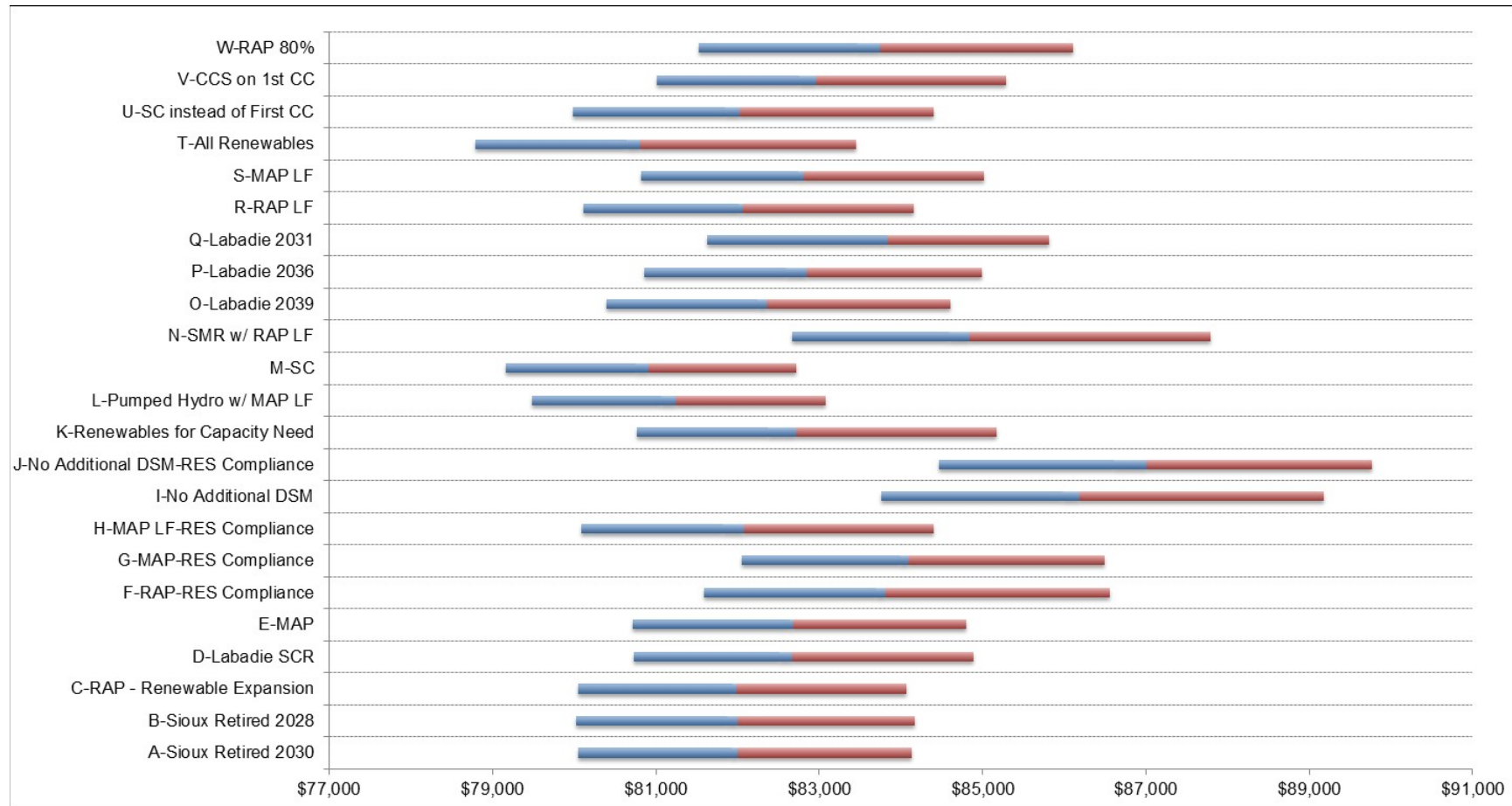
Charts in Figure 9A.23 display the expected value and standard deviation for each plan’s PVRR. Also, in Figure 9A.24, the 5<sup>th</sup> and 95<sup>th</sup> percentiles along with the expected PVRR are shown.<sup>32</sup>

**Figure 9A.23 PVRR – Expected Value and Standard Deviation**



<sup>32</sup> 20 CSR 4240-22.060(7)(B)

Figure 9A.24 PVRR – Expected Value, 5<sup>th</sup> and 95<sup>th</sup> Percentiles



## Compliance References

20 CSR 4240-22.060(2) .....	58
20 CSR 4240-22.060(2)(A)2 .....	54
20 CSR 4240-22.060(2)(A)3 .....	11
20 CSR 4240-22.060(2)(A)4 .....	46
20 CSR 4240-22.060(2)(A)5 .....	46
20 CSR 4240-22.060(2)(A)6 .....	41
20 CSR 4240-22.060(4)(A) .....	59
20 CSR 4240-22.060(4)(B)1 .....	12
20 CSR 4240-22.060(4)(B)2 .....	13, 14, 15
20 CSR 4240-22.060(4)(B)3 .....	16
20 CSR 4240-22.060(4)(B)4 .....	31
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