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)[1]

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	0	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	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	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	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	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	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	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	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

[1] 20 CSR 4240-22.060(4)(B)9

P

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	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	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	308	304	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	1 092	2 125	2 125	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	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	1 294	1 366	1 363	1 107	1 108	1 099	870
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	-1 294	-1 366	-1 363	-1 107	-1 108	-1 099	-870

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	1 092	1 092	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	5 224
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	1 238	426	380	636	1 754	1 896	1 434	1 555	1 624	2 218	2 447	2 508	2 516	1 319	1 320	1 252	876	841	787	1 553
Purchases ( ) or sales (-)	-1 255	-1 238	-426	-380	-636	-1 754	-1 896	-1 434	-1 555	-1 624	-2 218	-2 447	-2 508	-2 516	-1 319	-1 320	-1 252	-876	-841	-787	-1 553

Plan J - No Additional DSM-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	313	309	305	301	342	338	333	328	323	383	377	371	366	360	360	360	360
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	1 092	1 092	1 092	1 092	1 092	2 184	2 184	2 184	2 184	3 217	3 217	3 217	4 191	4 191	4 191	5 224
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	1 238	351	282	371	1 362	1 436	906	895	844	1 321	1 436	1 385	1 389	1 236	1 248	1 192	827	792	738	471
Purchases ( ) or sales (-)	-1 255	-1 238	-351	-282	-371	-1 362	-1 436	-906	-895	-844	-1 321	-1 436	-1 385	-1 389	-1 236	-1 248	-1 192	-827	-792	-738	-471

Plan K - Renewables for Capacity Need (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	279	321	317	314	310	306	344	611	625	1 360	1 344	1 344	1 344	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	2 125	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	1 255	1 544	792	862	1 022	1 046	1 239	847	920	965	1 524	1 710	1 730	1 773	910	984	1 699	1 413	1 405	1 376	1 230
Purchases ( ) or sales (-)	-1 255	-1 544	-792	-862	-1 022	-1 046	-1 239	-847	-920	-965	-1 524	-1 710	-1 730	-1 773	-910	-984	-1 699	-1 413	-1 405	-1 376	-1 230

Plan L - Pumped Hydro w/ MAP 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	-8 374	-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	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	1 092	1 092	1 092	2 125
New Supply Side	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	594	594	594	594
Capacity Position after Adjustment	1 255	1 611	971	1 087	1 507	1 661	1 938	1 575	1 805	1 980	2 665	2 942	3 080	3 140	1 998	2 034	2 001	1 278	1 264	1 245	1 007
Purchases ( ) or sales (-)	-1 255	-1 611	-971	-1 087	-1 507	-1 661	-1 938	-1 575	-1 805	-1 980	-2 665	-2 942	-3 080	-3 140	-1 998	-2 034	-2 001	-1 278	-1 264	-1 245	-1 007

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	-8 374	-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	1 092	1 092	1 092	2 125
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	-8 374	-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	1 092	1 092	1 092	2 125
New Supply Side	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	821	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	2 769	2 769	2 769	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	3 158	3 158	3 158	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	1 316	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	3 995	3 995	3 995	2 769	2 769	2 769	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	2 125	2 125	3 158	3 158	3 158	3 158	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	1 597	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	4 783	3 995	3 995	3 995	3 995	3 995	3 995	3 995	2 769	2 769	2 769	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	2 184	3 276	3 276	3 276	3 276	3 276	3 276	3 276	3 158	3 158	3 158	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	1 571	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	-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

Plan R - 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	-8 374	-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	2 125	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	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 S - MAP 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	-8 374	-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	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	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 T - All Renewables (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	1 230	1 453	1 672	1 887	2 097	2 303	2 504	2 701	2 727	2 727	2 727	2 727
Battery Storage	0	0	0	0	0	0	190	475	475	475	3 325	3 325	3 325	3 325	3 325	3 325	3 325	3 325	3 325	3 325	3 325
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	0	0	0	0	0	0	0	0	0	0	0
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	1 492	1 696	1 972	4 327	4 546	4 784	4 999	4 075	4 336	4 514	3 236	3 228	3 199	1 922
Purchases ( ) or sales (-)	-1 255	-1 544	-866	-959	-1 347	-1 497	-1 758	-1 492	-1 696	-1 972	-4 327	-4 546	-4 784	-4 999	-4 075	-4 336	-4 514	-3 236	-3 228	-3 199	-1 922

Plan U - SC instead of First 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	0	0	0	0	0	0	0	1 033	1 033	1 033	2 066
New Supply Side	0	0	0	0	0	0	0	0	0	0	1 045	1 045	1 045	1 045	1 045	1 045	1 045	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	2 393	2 693	2 824	2 892	1 745	1 788	1 751	1 464	1 456	1 427	1 183
Purchases ( ) or sales (-)	-1 255	-1 544	-866	-959	-1 347	-1 497	-1 758	-1 397	-1 601	-1 765	-2 393	-2 693	-2 824	-2 892	-1 745	-1 788	-1 751	-1 464	-1 456	-1 427	-1 183

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	2 125	2 125	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	7 270	7 267	7 265	7 262	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	-7 784	-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
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	0	190	380	380	380	570	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	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	7 270	7 267	7 265	6 514	5 876	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	-7 784	-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
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	0	190	380	380	380	570	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	711	494	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	-711	-494	-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	7 270	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
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
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	0	190	380	380	380	570	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	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
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
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	0	190	380	380	380	570	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 E - MAP (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
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
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	0	190	380	380	380	570	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
Demand Response	0	9	11	13	15	17	18	20	22	23	25	26	28	29	30	31	32	33	34	36	37
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	602	-61	0	57	126	503	307	402	456	1 098	1 377	1 422	1 659	304	271	183	392	628	537	216
Purchases ( ) or sales (-)	-490	-602	61	0	-57	-126	-503	-307	-402	-456	-1 098	-1 377	-1 422	-1 659	-304	-271	-183	-392	-628	-537	-216

Plan F - RAP-RES Compliance (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
Existing Sales and Load	-7 591	-7 580	-7 552	-7 585	-7 651	-7 758	-7 803	-7 764	-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	18	18	26	26	26	26	31	31	31	31	31	36	36	36	36	36	36	36	36
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	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	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	490	577	-117	-82	-71	-109	101	854	901	861	1 413	1 606	1 568	1 733	373	336	247	394	615	511	180
Purchases ( ) or sales (-)	-490	-577	117	82	71	109	-101	-854	-901	-861	-1 413	-1 606	-1 568	-1 733	-373	-336	-247	-394	-615	-511	-180

Plan G - MAP-RES Compliance (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
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
Renewables	0	0	18	18	26	26	26	26	26	26	26	26	31	31	31	31	31	31	31	31	31
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	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
Demand Response	0	9	11	13	15	17	18	20	22	23	25	26	28	29	30	31	32	33	34	36	37
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	490	602	-69	-10	23	7	237	-101	-19	-40	532	742	725	903	594	574	500	721	957	866	545
Purchases ( ) or sales (-)	-490	-602	69	10	-23	-7	-237	101	19	40	-532	-742	-725	-903	-594	-574	-500	-721	-957	-866	-545

Plan H - MAP LF-RES Compliance (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
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
Renewables	0	0	18	18	26	26	26	26	26	26	26	26	31	31	31	31	31	31	31	31	31
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	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
Demand Response	0	216	287	357	422	441	457	459	474	486	497	470	478	470	474	464	462	462	453	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	1 092	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	809	207	334	431	431	676	338	433	423	1 004	1 186	1 175	1 345	5	-26	-103	117	343	249	-72
Purchases ( ) or sales (-)	-490	-809	-207	-334	-431	-431	-676	-338	-433	-423	-1 004	-1 186	-1 175	-1 345	-5	26	103	-117	-343	-249	72

Plan I - No Additional DSM (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
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
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	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	1 092	1 092	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	5 224
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	501	-255	-288	-324	744	1 033	747	753	717	1 277	1 474	1 439	1 601	178	82	-61	36	221	85	757
Purchases ( ) or sales (-)	-490	-501	255	288	324	-744	-1 033	-747	-753	-717	-1 277	-1 474	-1 439	-1 601	-178	-82	61	-36	-221	-85	-757

Plan J - No Additional DSM-RES Compliance (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
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
Renewables	0	0	18	18	33	33	33	33	38	38	38	38	38	45	45	45	45	45	45	45	45
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	1 092	1 092	1 092	1 092	1 092	2 184	2 184	2 184	2 184	3 217	3 217	3 217	4 191	4 191	4 191	5 224
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	501	-263	-298	-351	631	773	345	343	233	721	850	749	859	482	400	270	379	564	428	67
Purchases ( ) or sales (-)	-490	-501	263	298	351	-631	-773	-345	-343	-233	-721	-850	-749	-859	-482	-400	-270	-379	-564	-428	-67

Plan K - Renewables for Capacity Need (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
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
Renewables	0	0	18	18	26	26	26	99	103	102	100	99	98	101	579	599	707	695	695	695	735
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	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	-117	-82	-71	-109	101	-185	-120	-161	390	582	542	706	-176	-192	-174	19	240	137	-155
Purchases ( ) or sales (-)	-490	-577	117	82	71	109	-101	185	120	161	-390	-582	-542	-706	176	192	174	-19	-240	-137	155

Plan L - Pumped Hydro w/ 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
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
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	0	190	380	380	380	570	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	216	287	357	422	441	457	459	474	486	497	470	478	470	474	464	462	462	453	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	1 092	1 092	1 092	1 092	2 125
New Supply Side	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	564	564	564	564
Capacity Position after Adjustment	490	787	169	276	375	440	812	597	685	730	1 365	1 598	1 633	1 843	474	413	308	32	243	138	-193
Purchases ( ) or sales (-)	-490	-787	-169	-276	-375	-440	-812	-597	-685	-730	-1 365	-1 598	-1 633	-1 843	-474	-413	-308	-32	-243	-138	193

Plan M - SC (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
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
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	0	190	380	380	380	570	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	1 092	1 092	1 092	2 125
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	490	577	-110	-72	-37	10	367	150	225	259	883	1 145	1 173	1 391	19	-31	-134	71	292	189	-143
Purchases ( ) or sales (-)	-490	-577	110	72	37	-10	-367	-150	-225	-259	-883	-1 145	-1 173	-1 391	-19	31	134	-71	-292	-189	143

Plan N - SMR w/ 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
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
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	0	190	380	380	380	570	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	165	195	235	264	281	284	292	283	287	291	288	291	292	293	291	287	286	285	283	282
CC	0	0	0	0	0	0	0	0	0	0	1 092	1 092	1 092	1 092	1 092	1 092	1 092	1 092	1 092	1 092	2 125
New Supply Side	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	821	821	821	821
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	112	332	226	-107
Purchases ( ) or sales (-)	-490	-735	-77	-154	-218	-280	-639	-429	-495	-531	-1 158	-1 416	-1 446	-1 665	-292	-241	-133	-112	-332	-226	107

Plan O - Labadie 2039 (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	2 569	2 569	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
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	0	190	380	380	380	570	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	3 158	3 158	3 158	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	-109	112	8	-155
Purchases ( ) or sales (-)	-490	-577	110	72	37	-10	-367	-150	-225	-259	-883	-1 145	-1 173	-1 391	-19	31	134	109	-112	-8	155

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	3 403	3 401	3 398	2 569	2 569	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
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	0	190	380	380	380	570	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	2 125	2 125	3 158	3 158	3 158	3 158	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	-150	-200	730	-109	112	8	-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

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	4 164	3 413	3 410	3 408	3 406	3 403	3 401	3 398	2 569	2 569	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
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	0	190	380	380	380	570	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	2 184	3 276	3 276	3 276	3 276	3 276	3 276	3 276	3 158	3 158	3 158	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	-13	611	872	900	1 119	1 001	951	848	-109	112	8	-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

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
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
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	0	190	380	380	380	570	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	165	195	235	264	281	284	292	283	287	291	288	291	292	293	291	287	286	285	283	282
CC	0	0	0	0	0	0	0	0	0	0	1 092	1 092	1 092	1 092	1 092	1 092	1 092	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	735	77	154	218	280	639	429	495	531	1 158	1 416	1 446	1 665	292	241	133	324	544	438	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

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
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
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	0	190	380	380	380	570	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
Demand Response	0	216	287	357	422	441	457	459	474	486	497	470	478	470	474	464	462	462	453	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	1 092	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	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
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

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
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
Renewables	0	0	25	28	60	145	292	434	448	617	781	938	1 090	1 236	1 376	1 511	1 640	1 700	1 700	1 700	1 700
Battery Storage	0	0	0	0	0	0	190	475	475	475	3 325	3 325	3 325	3 325	3 325	3 325	3 325	3 325	3 325	3 325	3 325
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	0	0	0	0	0	0	0	0	0	0	0
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	245	320	449	2 734	2 894	3 008	3 314	2 095	2 192	2 231	1 464	1 685	1 582	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

Plan U - SC instead of First CC (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
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	-8 528
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	0	190	380	380	380	570	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	0	0	0	0	0	0	0	1 033	1 033	1 033	2 066
New Supply Side	0	0	0	0	0	0	0	0	0	0	1 045	1 045	1 045	1 045	1 045	1 045	1 045	1 045	1 045	1 045	1 045
Capacity Position after Adjustment	490	577	-110	-72	-37	10	367	150	225	259	836	1 098	1 126	1 344	-28	-78	-181	12	233	130	-199
Purchases ( ) or sales (-)	-490	-577	110	72	37	-10	-367	-150	-225	-259	-836	-1 098	-1 126	-1 344	28	78	181	-12	-233	-130	199

Plan V - CCS on 1st CC (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
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	-8 516
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	0	190	380	380	380	570	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	2 066	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	490	577	-110	-72	-37	10	367	150	225	259	883	1 145	1 173	1 391	19	-31	-134	0	221	118	-199
Purchases ( ) or sales (-)	-490	-577	110	72	37	-10	-367	-150	-225	-259	-883	-1 145	-1 173	-1 391	-19	31	134	0	-221	-118	199

Plan W - RAP 80% (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
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
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	0	190	380	380	380	570	760	760	760	760	760	760	760	760	760	760
Energy Efficiency	0	55	110	166	222	278	332	386	440	495	546	597	646	692	731	767	799	828	857	882	905
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	2 125	2 125	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	490	563	-137	-113	-92	-59	285	54	115	135	747	995	1 011	1 218	-164	810	700	-148	66	-43	652
Purchases ( ) or sales (-)	-490	-563	137	113	92	59	-285	-54	-115	-135	-747	-995	-1 011	-1 218	164	-810	-700	148	-66	43	-652

Table 9A.4 Uncertainty Ranges[2]

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.

	Primary Characteristic	*Secondary Characteristic*			
ESTIMATE CLASS	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.

[2] 20 CSR 4240-22.060(7)(C)1A; 20 CSR 4240-22.060(7)(C)1B

Project Schedule Uncertainty Distribution [3]

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%

[3] 20 CSR 4240-22.060(5)(F)

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

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
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
C-RAP	7	0	0	-1	0	0	-1	0	-1	0	**-1**	0	-2	0	1	0	0	-1	-1	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
E-MAP	12	0	-1	1	**1**	-1	3	0	0	0	**-1**	0	-1	0	0	1	0	0	1	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
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
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
I-No Additional DSM	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	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	-1	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
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
M-SC	1	0	0	0	0	0	0	0	0	0	0	1	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
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
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
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
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
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
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
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
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
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

[4] 20 CSR 4240-22.060(6)

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

Plan	Integration PVRR	DSM Load Impact & Cost PWA	Low	High	DSM Cost Only PWA	Low	High	ROE-Interest Rate PWA	Low	High	Project Cost PWA	Low	High	Project Schedule PWA	Low	High	Fixed and Variable O&M PWA	Low	High	Coal Price 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	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	86,227	-	-	-	-	-	-	**13**	(1,390)	1,516	**113**	(2,056)	3,182	**28**	(259)	544	**71**	(1,825)	2,538	**(26)**	(350)	88
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
U-SC instead 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
V-CCS on 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

[5] 20 CSR 4240-22.060(6)

Table 9A.7 DSM Participant Costs ($Million)[6]

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	5	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

[6] 20 CSR 4240-22.060(2)(A)3

Figure 9A.1 Combined Impact of DSM on Summer Peak Demand[7]

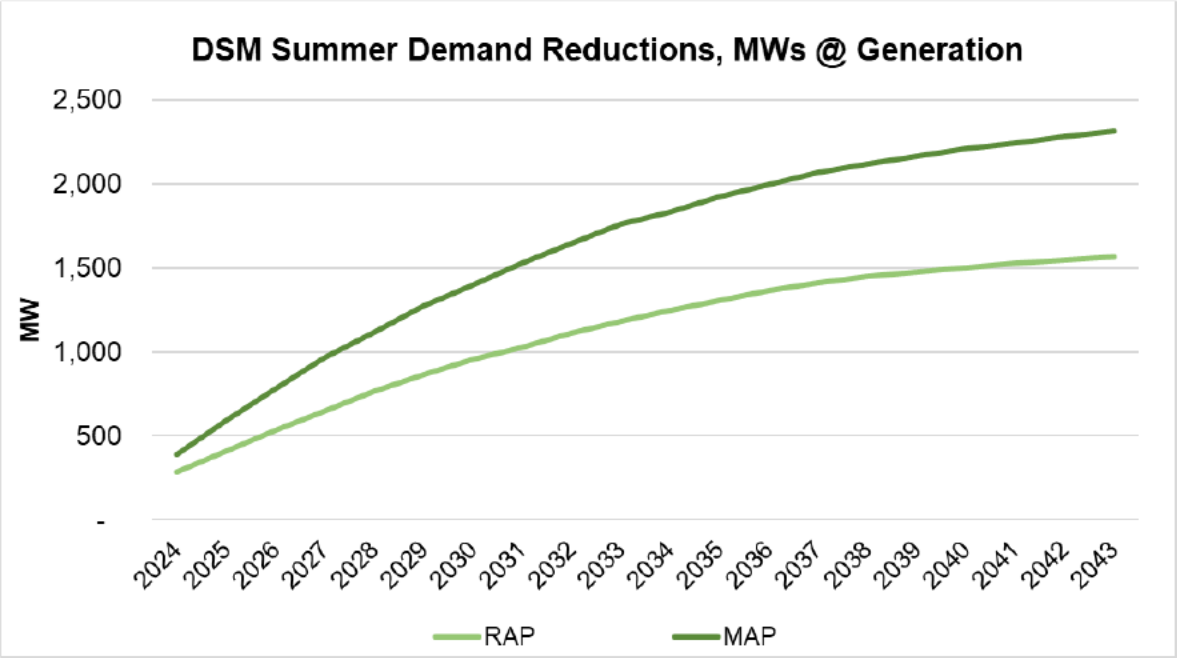
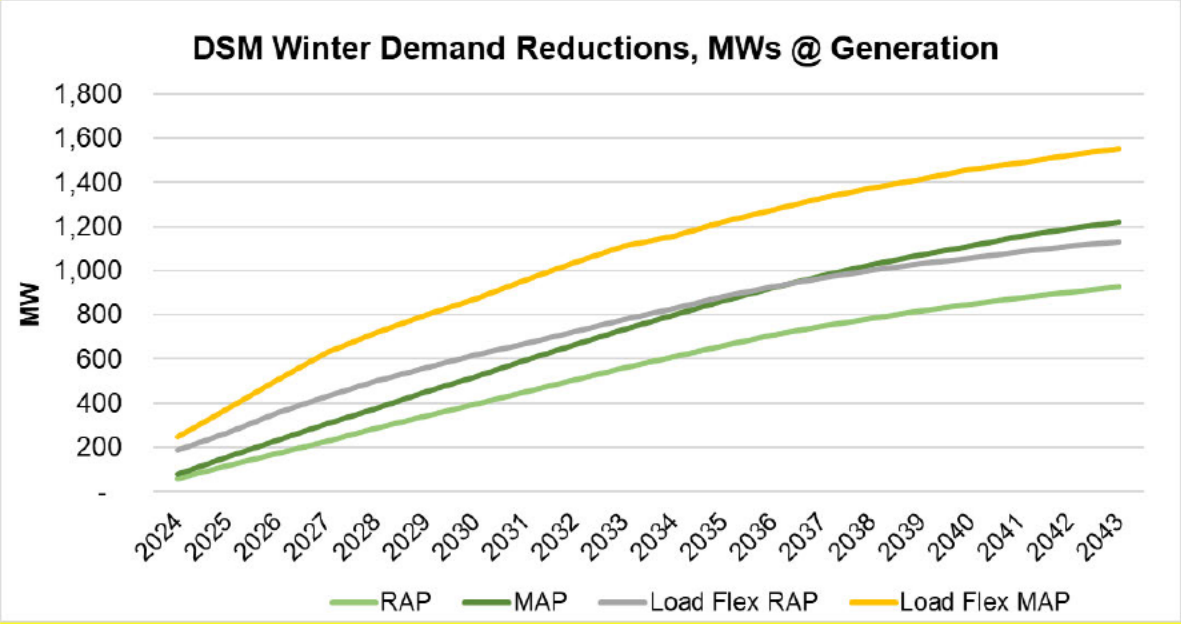
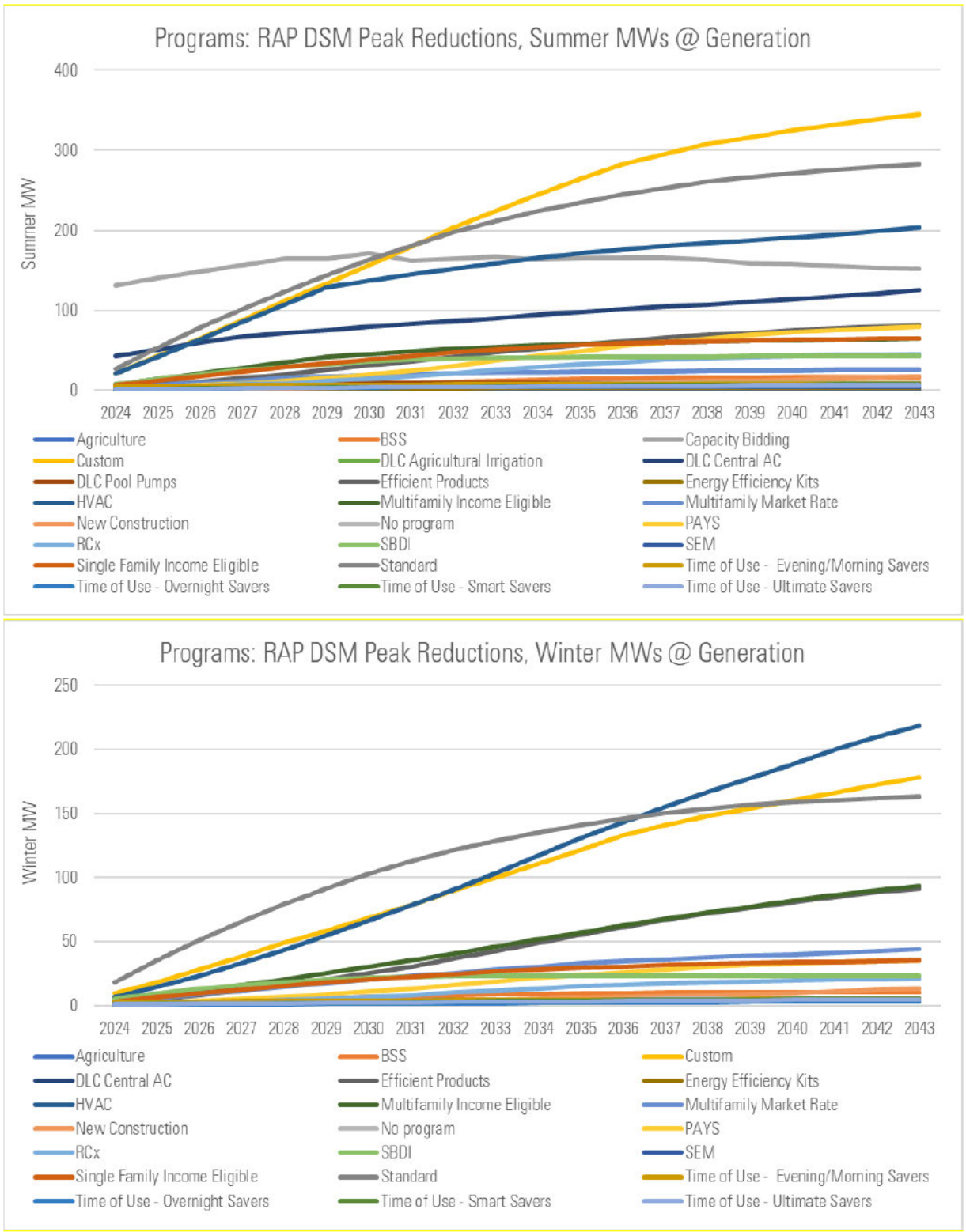


Figure 9A.2 Combined Impact of DSM on Winter Peak Demand[8]



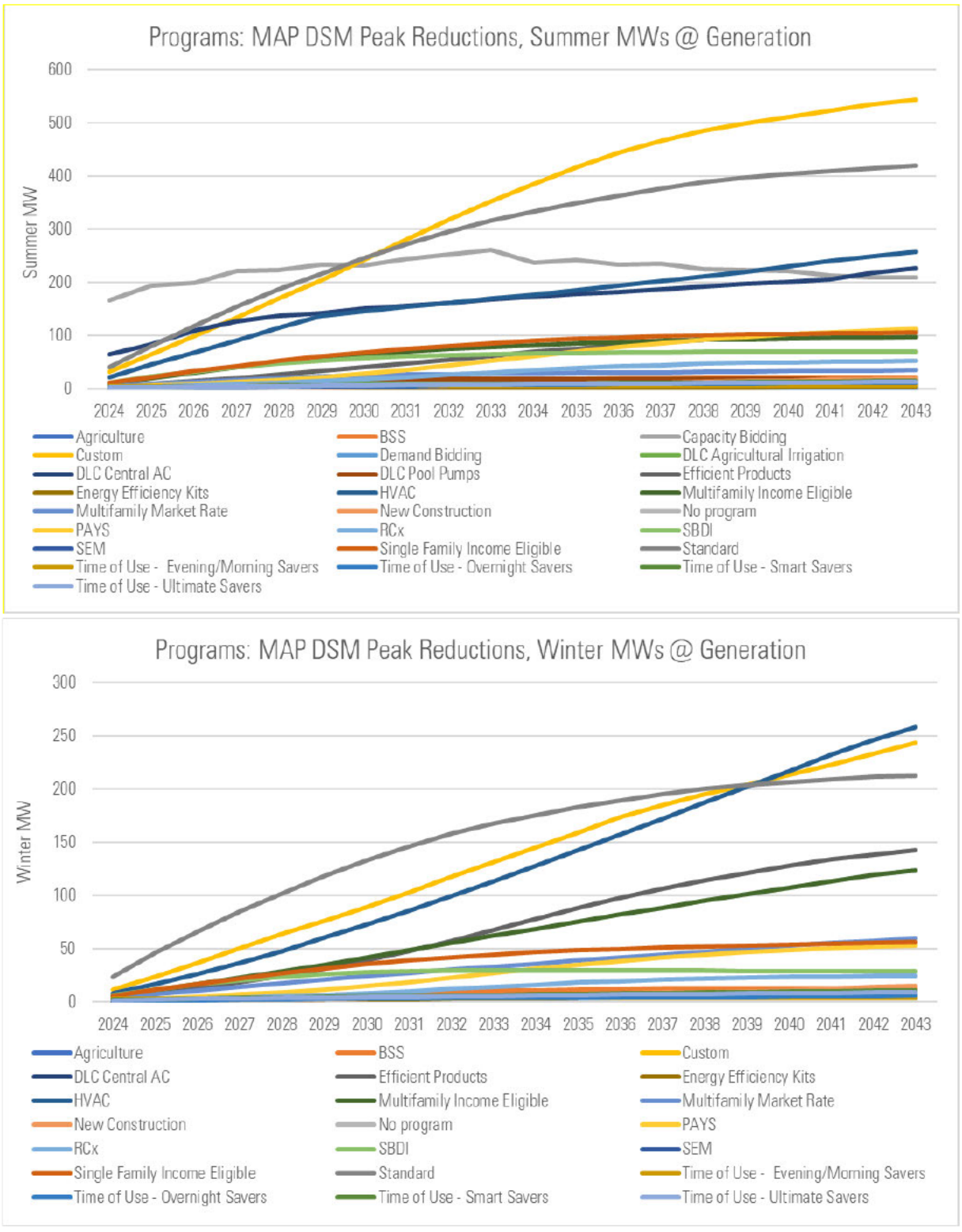
[7] 20 CSR 4240-22.060(4)(B)1
[8] 20 CSR 4240-22.060(4)(B)1

Figure 9A.3 Stacked Programs for RAP DSM Capacity[9]



[9] 20 CSR 4240-22.060(4)(B)2

Figure 9A.4 Stacked Programs for MAP DSM Capacity[10]



[10] 20 CSR 4240-22.060(4)(B)2

Figure 9A.5 Stacked Programs for RAP DSM with Load Flexibility Capacity[11]

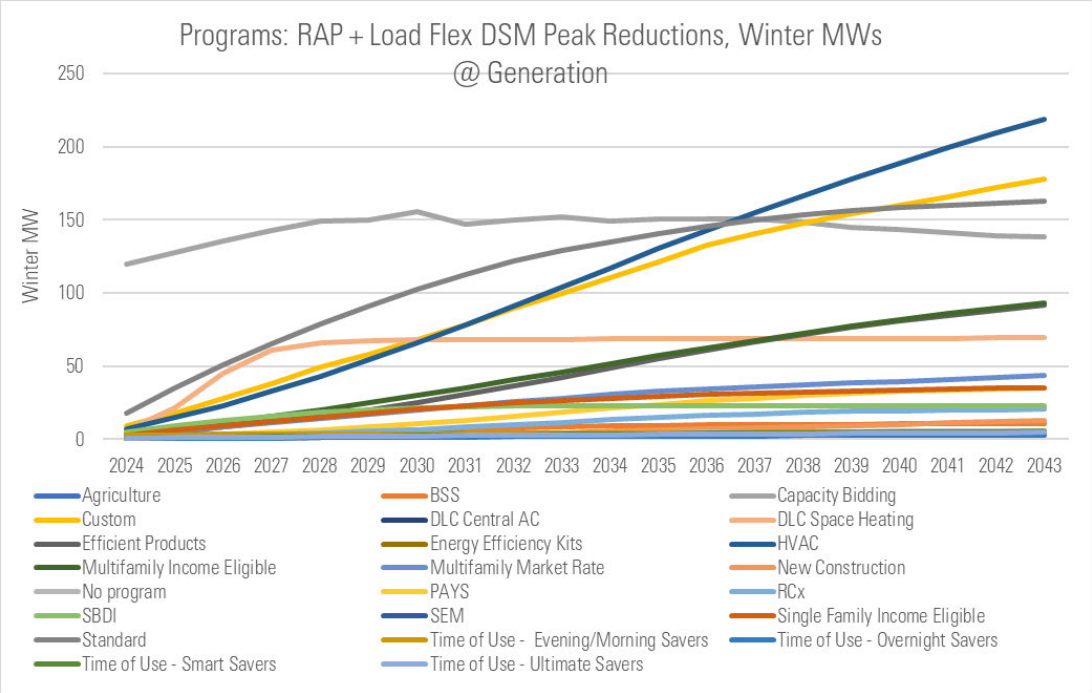
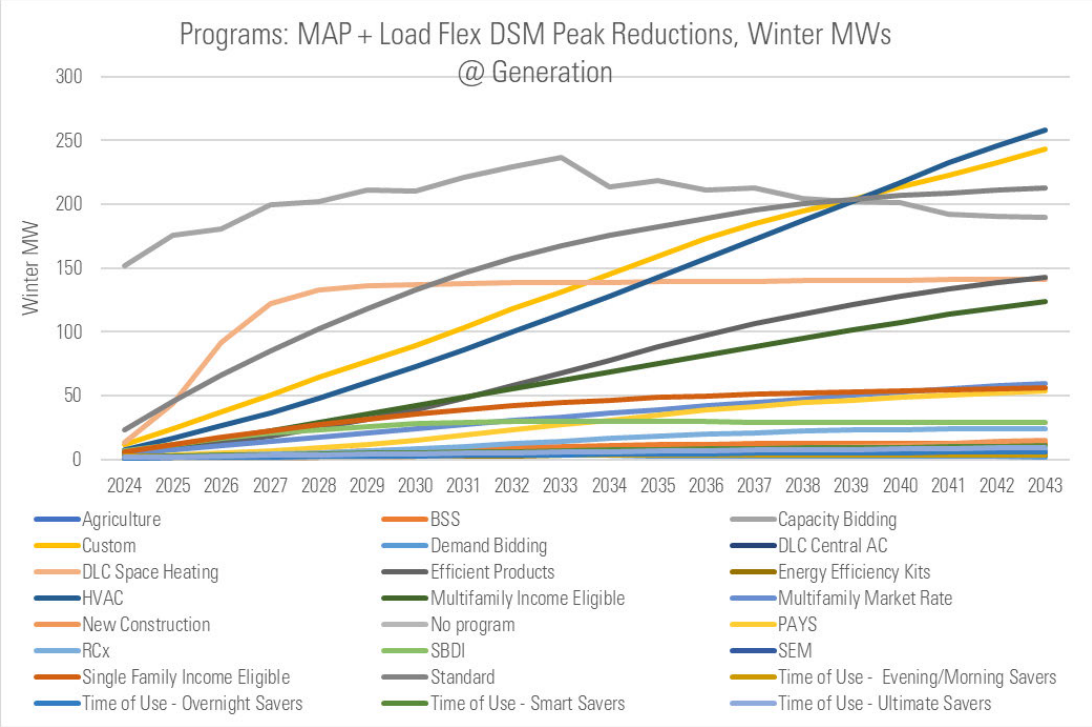
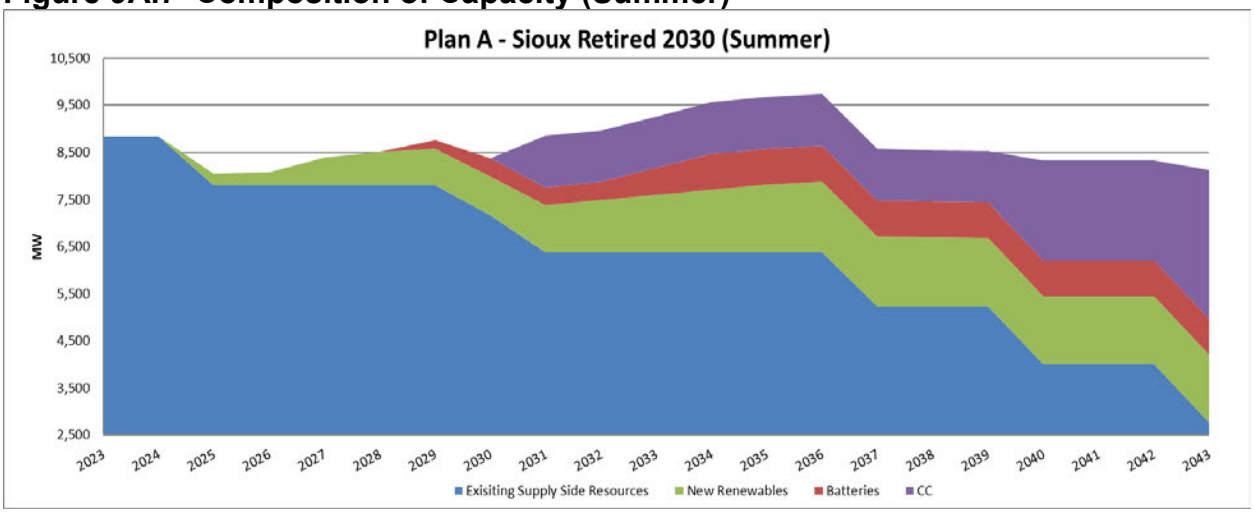


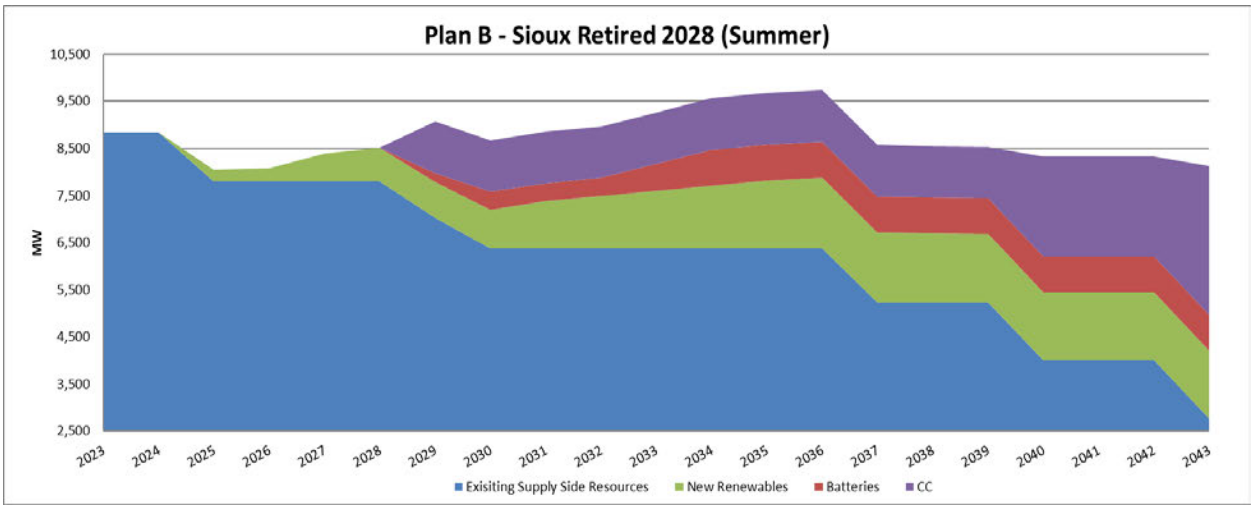
Figure 9A.6 Stacked Programs for MAP DSM with Load Flexibility Capacity[12]

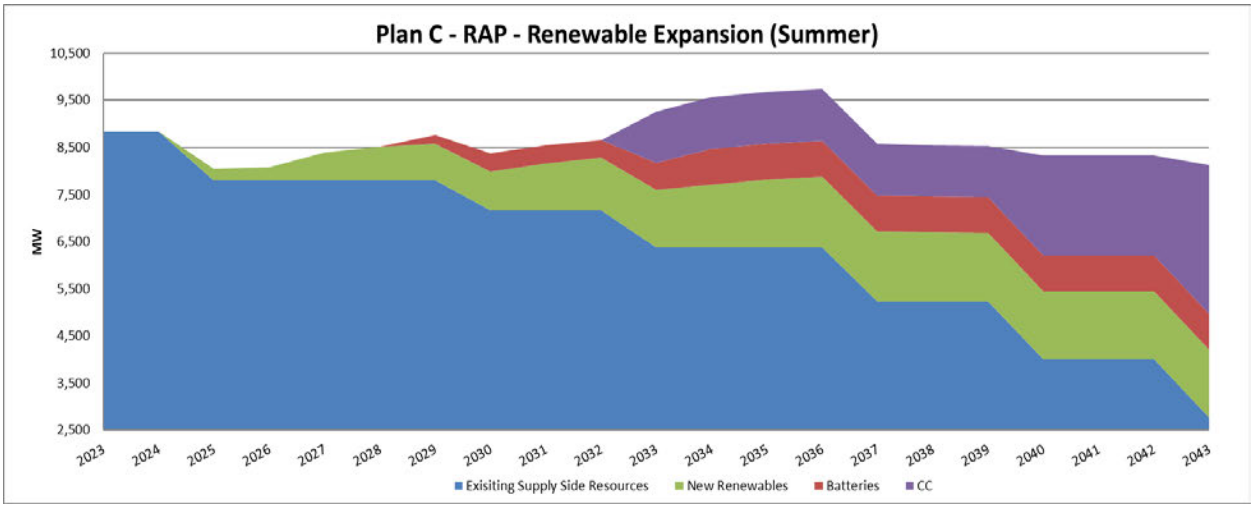


[11] 20 CSR 4240-22.060(4)(B)2
[12] 20 CSR 4240-22.060(4)(B)2

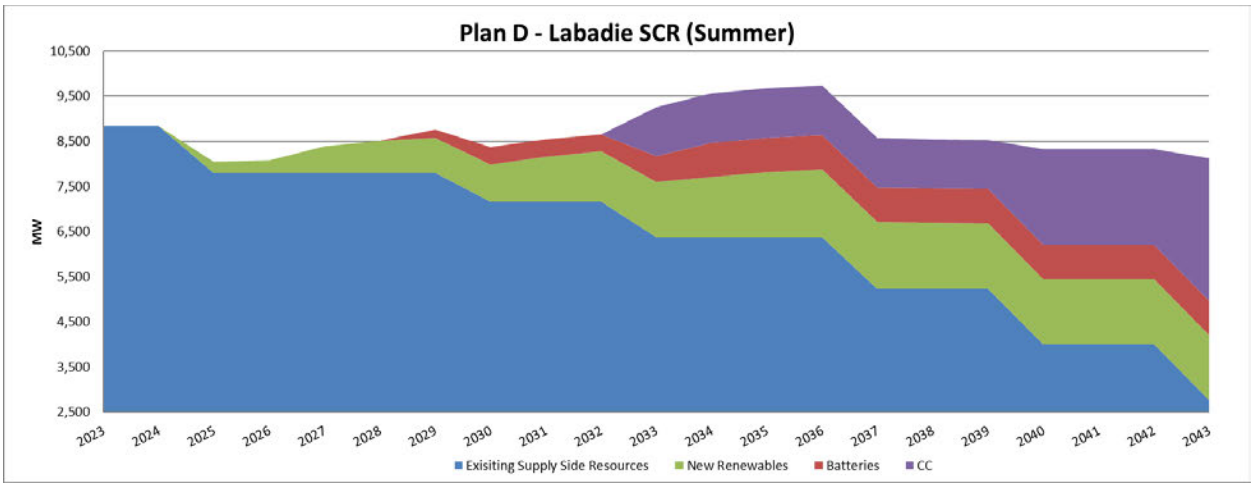
Figure 9A.7 Composition of Capacity (Summer)[13]

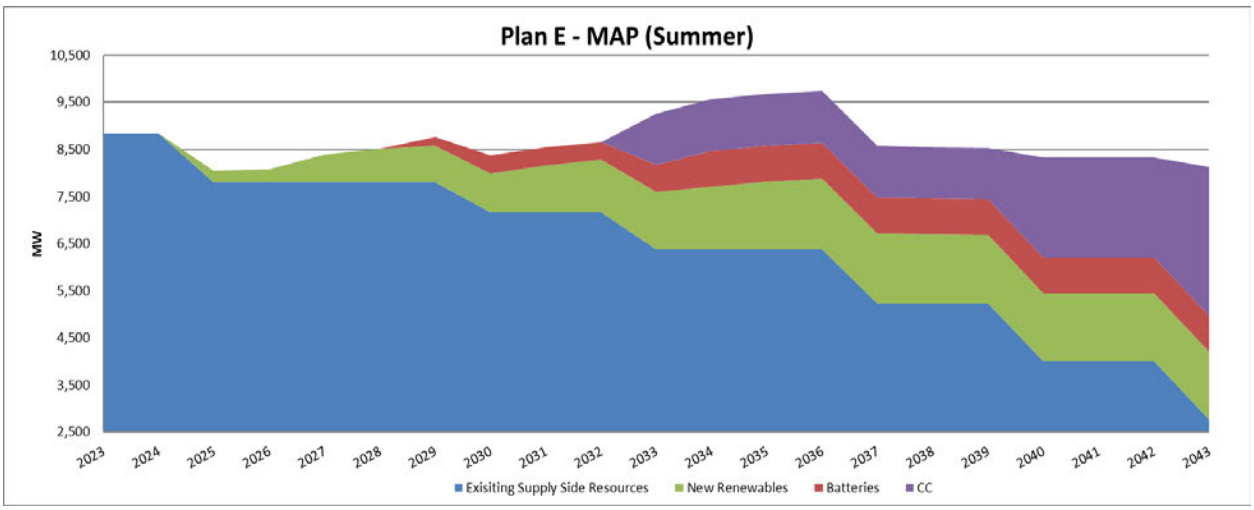


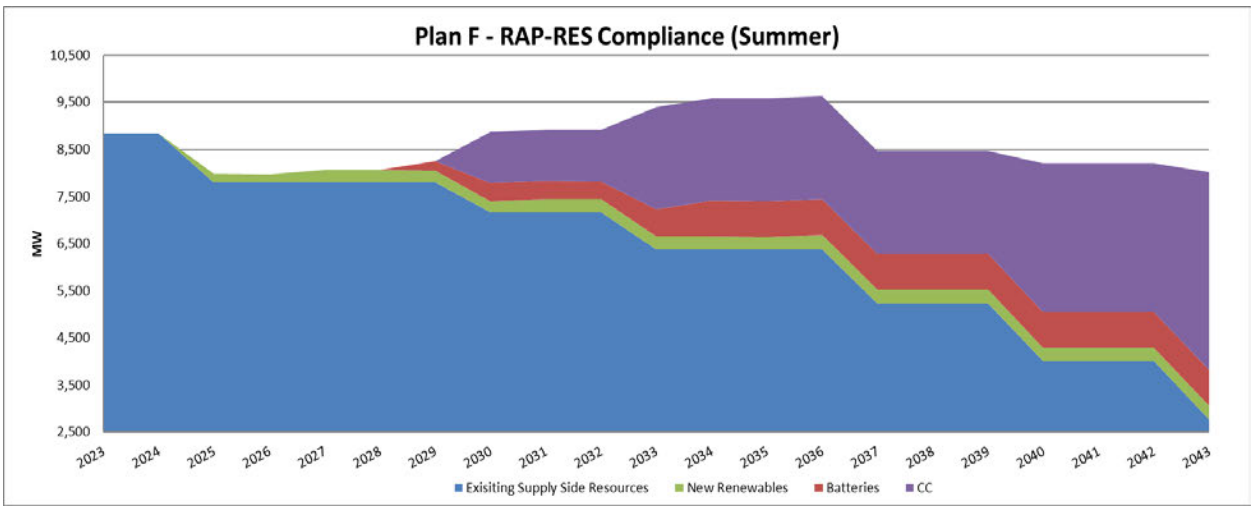


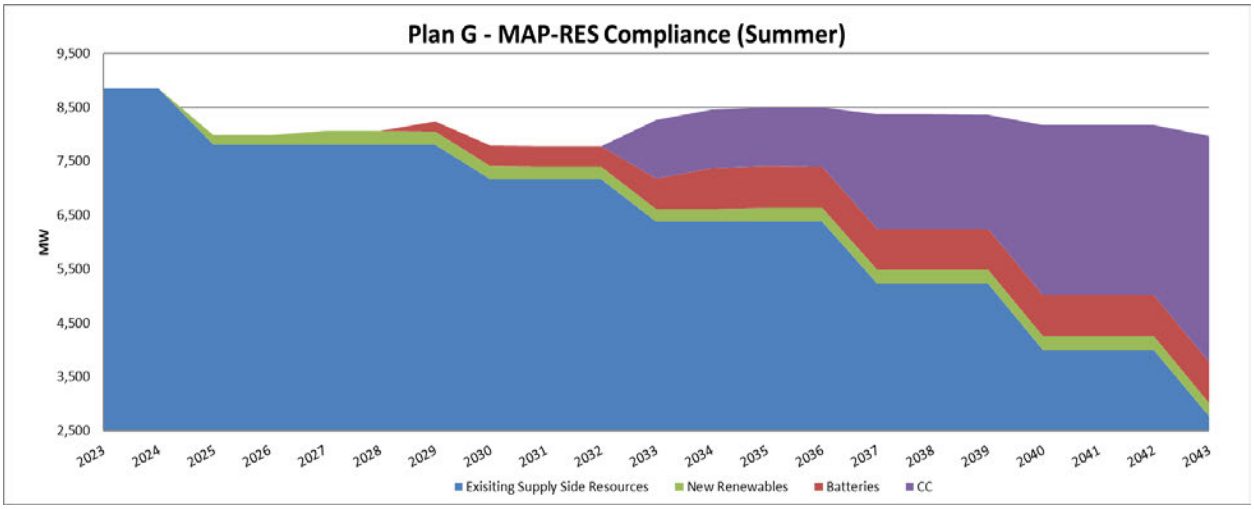


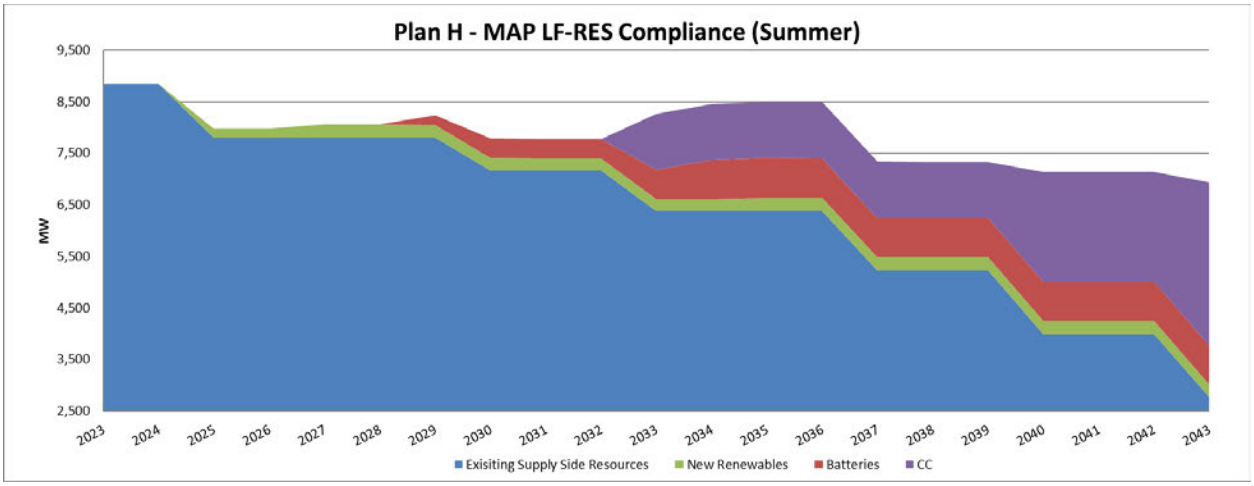
[13] 20 CSR 4240-22.060(4)(B)3

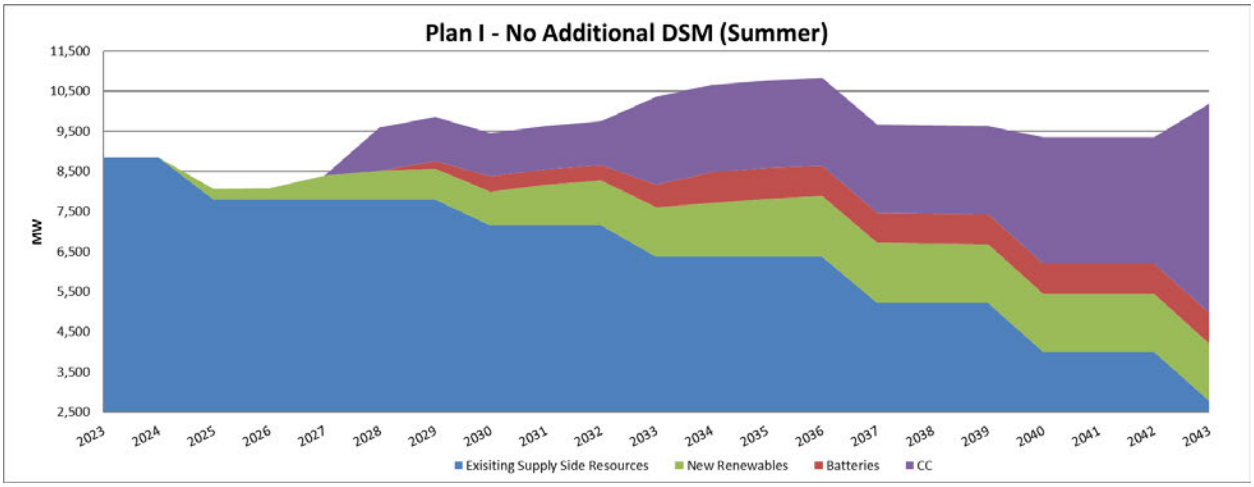

Plan D - Labadie SCR (Summer)
MW
10,500
9,500
8,500
7,500
6,500
5,500
4,500
3,500
2,500
2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043
Exisiting Supply Side Resources
New Renewables
Batteries
CC

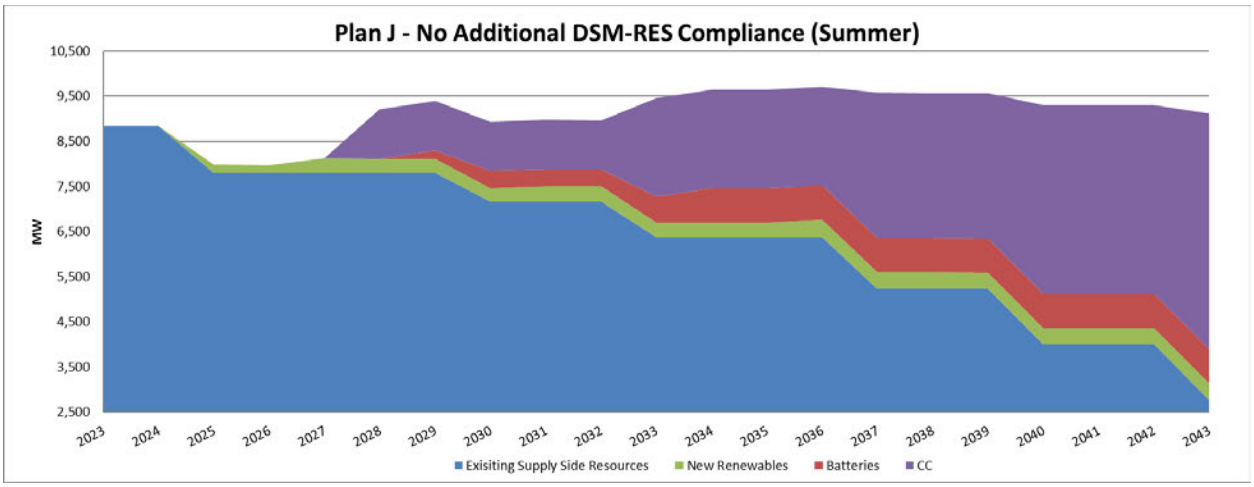

Plan E - MAP (Summer)
MW
10,500
9,500
8,500
7,500
6,500
5,500
4,500
3,500
2,500
2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043
Exisiting Supply Side Resources
New Renewables
Batteries
CC

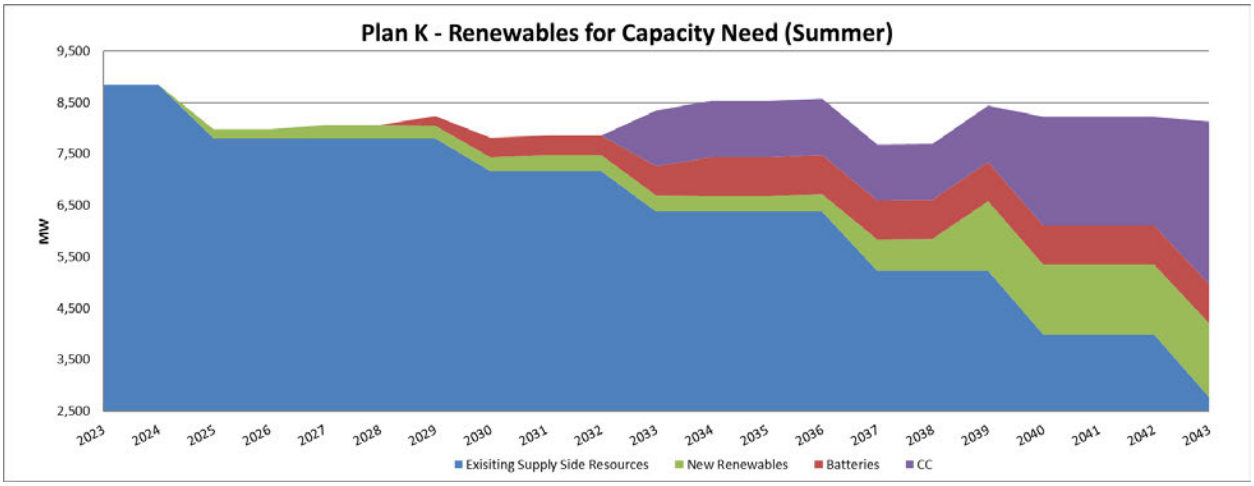

Plan F - RAP-RES Compliance (Summer)
MW
10,500
9,500
8,500
7,500
6,500
5,500
4,500
3,500
2,500
2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043
Exisiting Supply Side Resources
New Renewables
Batteries
CC

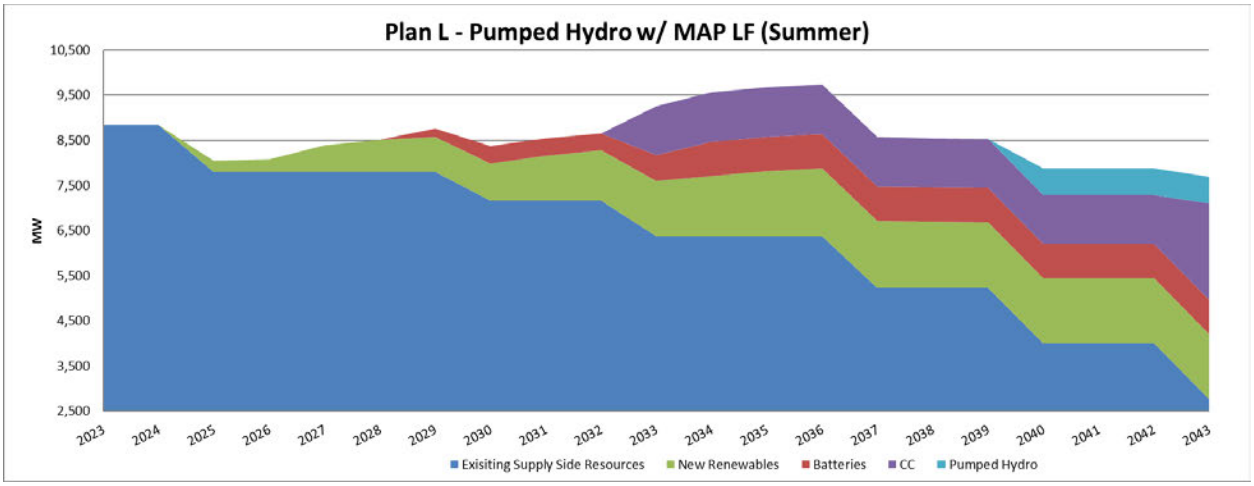

Plan G - MAP-RES Compliance (Summer)
MW
9,500
8,500
7,500
6,500
5,500
4,500
3,500
2,500
2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043
Exisiting Supply Side Resources
New Renewables
Batteries
CC

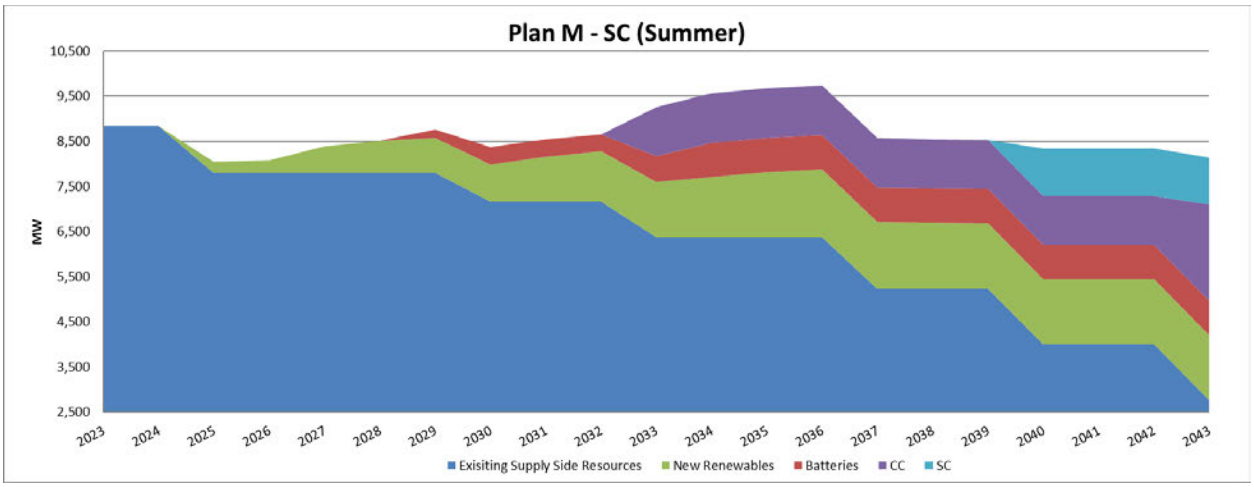

Plan H - MAP LF-RES Compliance (Summer)
MW
9,500
8,500
7,500
6,500
5,500
4,500
3,500
2,500
2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043
Exisiting Supply Side Resources
New Renewables
Batteries
CC

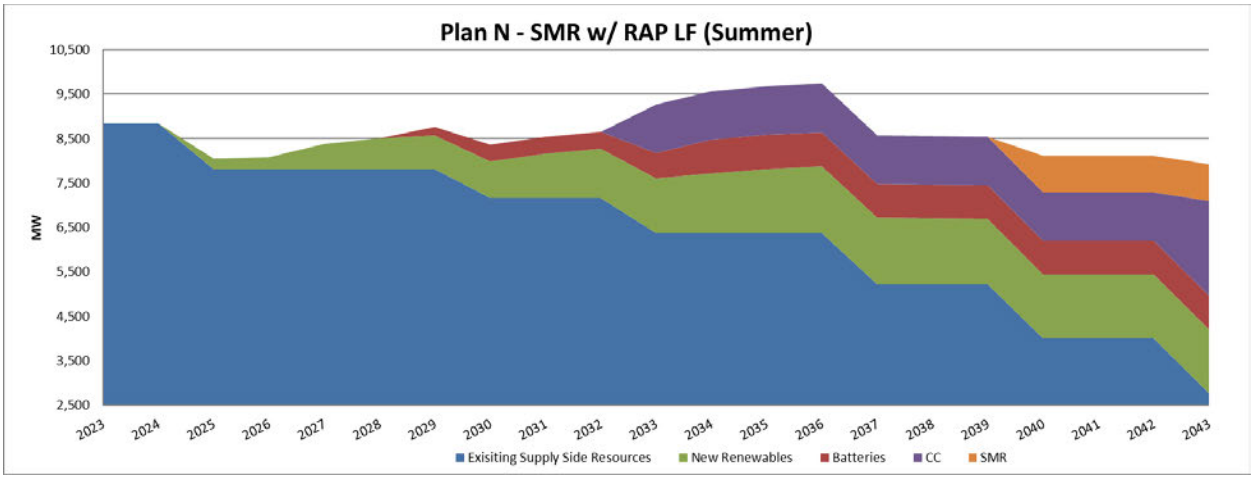

Plan I - No Additional DSM (Summer)
MW
11,500
10,500
9,500
8,500
7,500
6,500
5,500
4,500
3,500
2,500
2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043
Exisiting Supply Side Resources
New Renewables
Batteries
CC

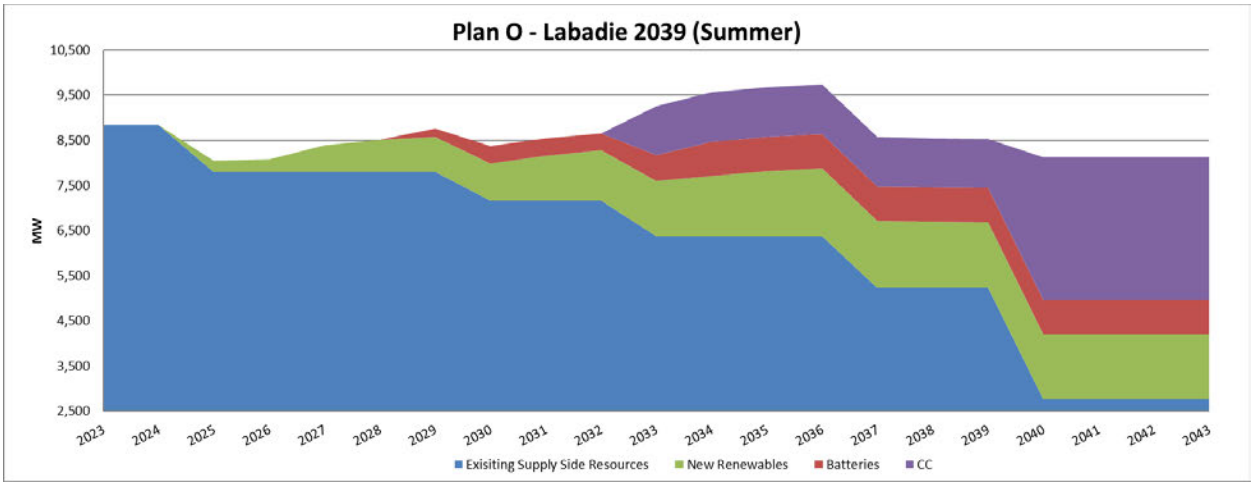

Plan J - No Additional DSM-RES Compliance (Summer)
MW
10,500
9,500
8,500
7,500
6,500
5,500
4,500
3,500
2,500
2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043
Exisiting Supply Side Resources
New Renewables
Batteries
CC

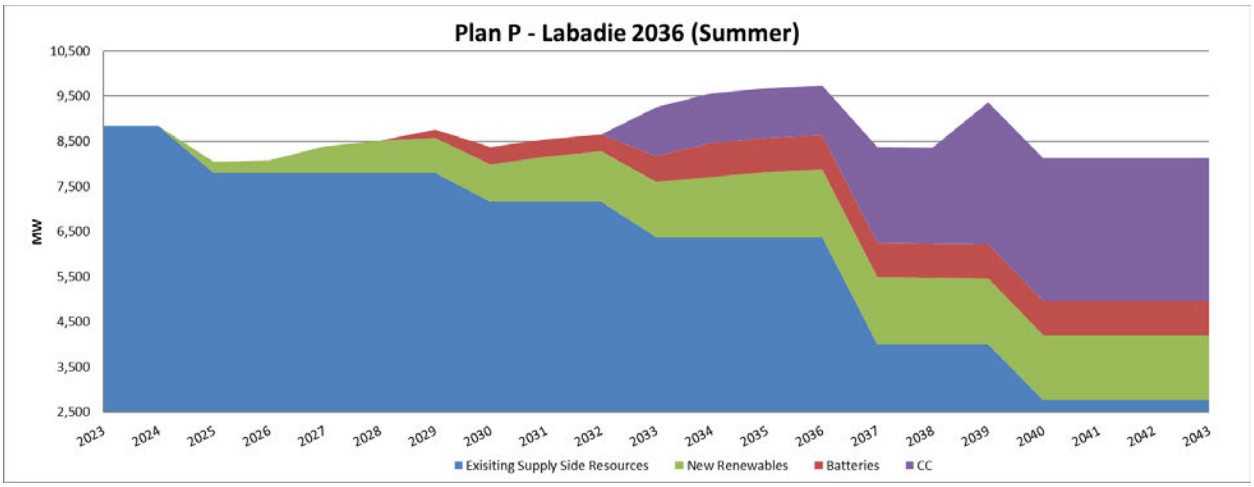

Plan K - Renewables for Capacity Need (Summer)
MW
9,500
8,500
7,500
6,500
5,500
4,500
3,500
2,500
2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043
Exisiting Supply Side Resources
New Renewables
Batteries
CC

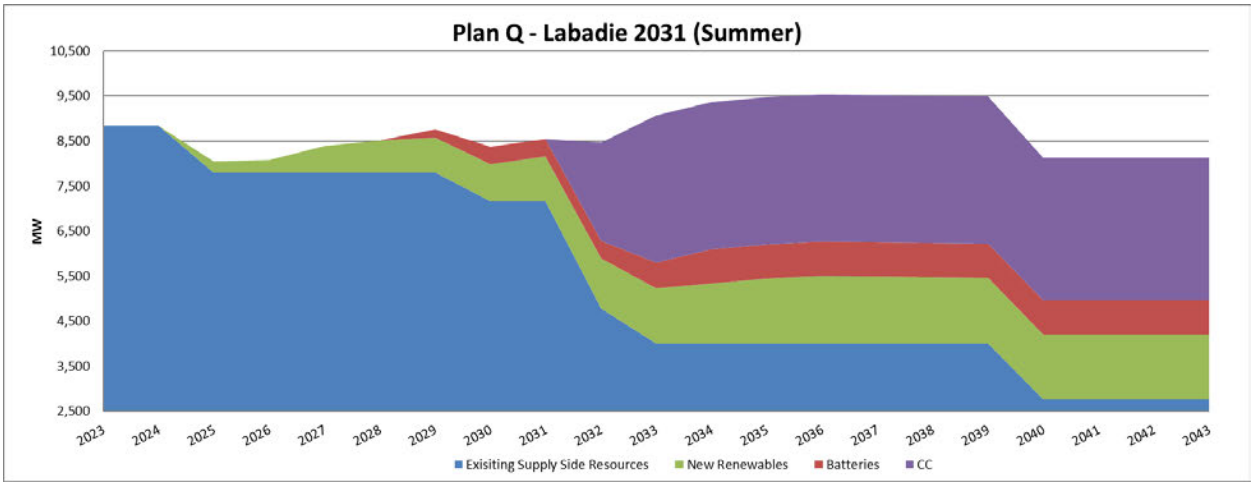

Plan L - Pumped Hydro w/ MAP LF (Summer)
MW
10,500
9,500
8,500
7,500
6,500
5,500
4,500
3,500
2,500
2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043
Exisiting Supply Side Resources
New Renewables
Batteries
CC
Pumped Hydro

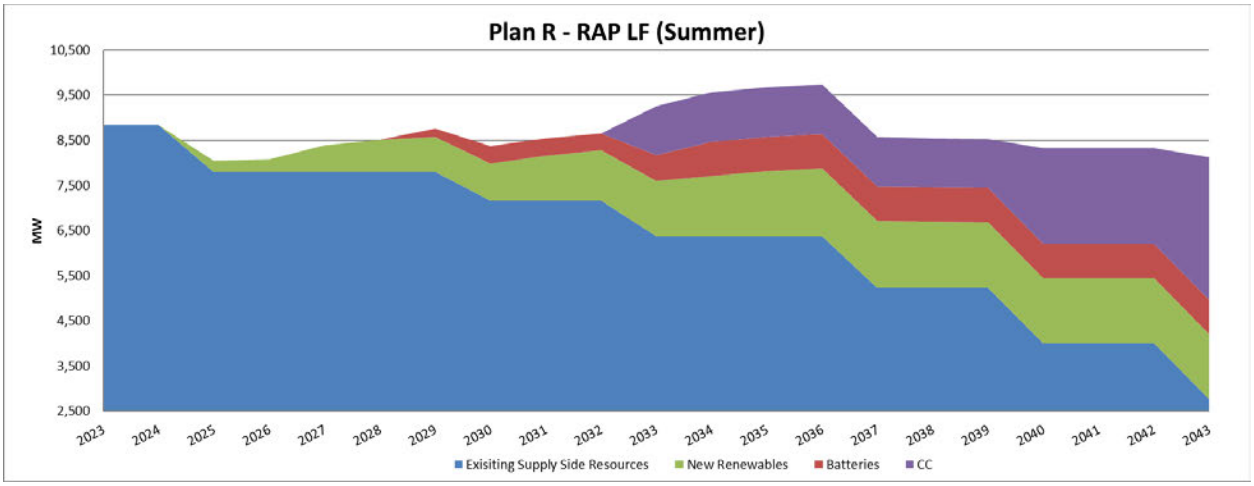

Plan M - SC (Summer)
MW
10,500
9,500
8,500
7,500
6,500
5,500
4,500
3,500
2,500
2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043
Exisiting Supply Side Resources
New Renewables
Batteries
CC
SC

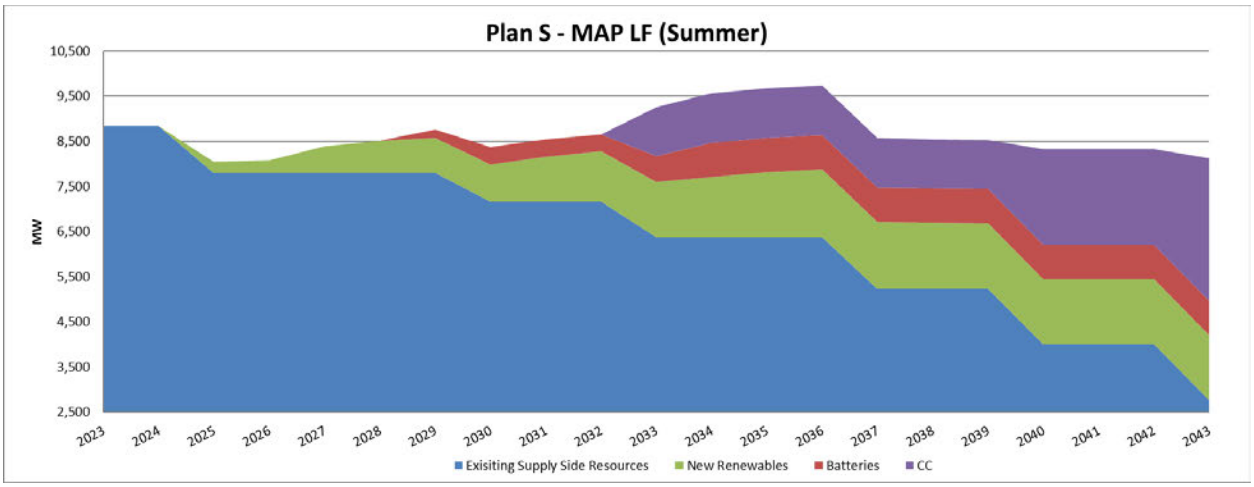

Plan N - SMR w/ RAP LF (Summer)
MW
10,500
9,500
8,500
7,500
6,500
5,500
4,500
3,500
2,500
2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043
Exisiting Supply Side Resources
New Renewables
Batteries
CC
SMR

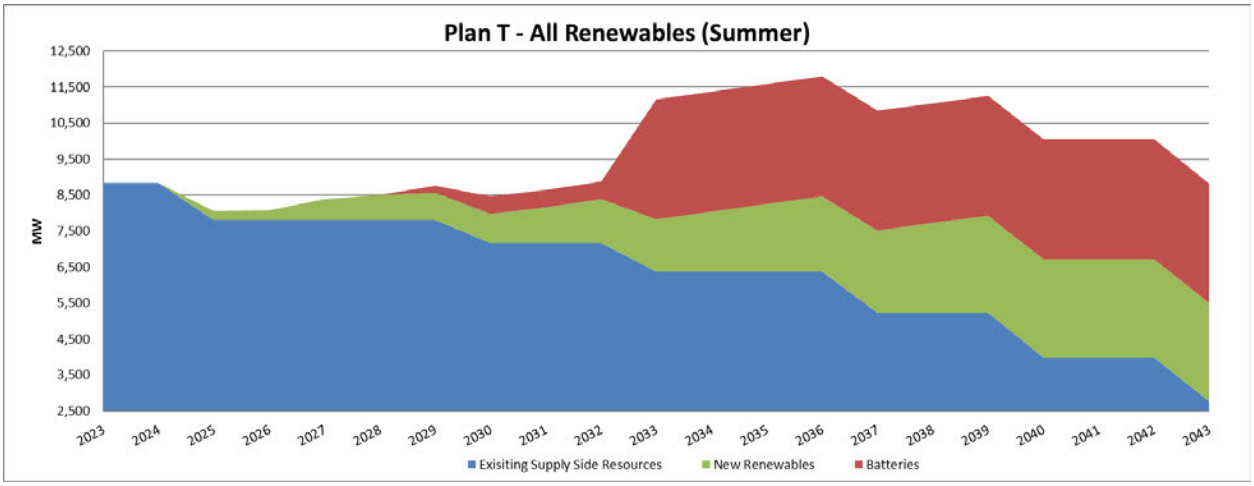

Plan O - Labadie 2039 (Summer)
MW
10,500
9,500
8,500
7,500
6,500
5,500
4,500
3,500
2,500
2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043
Exisiting Supply Side Resources
New Renewables
Batteries
CC

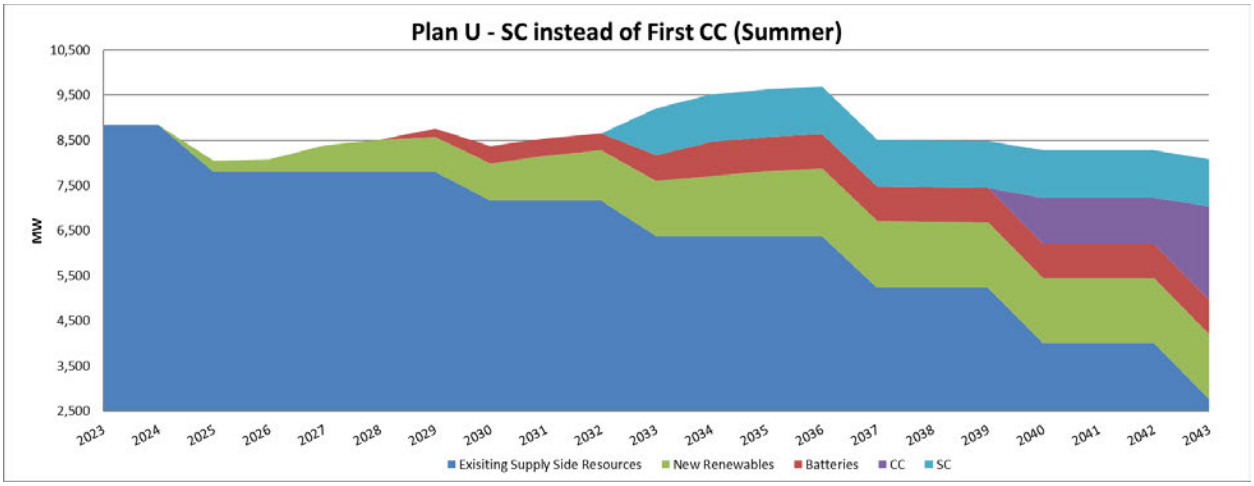

Plan P - Labadie 2036 (Summer)
MW
10,500
9,500
8,500
7,500
6,500
5,500
4,500
3,500
2,500
2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043
Exisiting Supply Side Resources
New Renewables
Batteries
CC


Plan Q - Labadie 2031 (Summer)
MW
10,500
9,500
8,500
7,500
6,500
5,500
4,500
3,500
2,500
2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043
Exisiting Supply Side Resources
New Renewables
Batteries
CC


Plan R - RAP LF (Summer)
MW
10,500
9,500
8,500
7,500
6,500
5,500
4,500
3,500
2,500
2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043
Exisiting Supply Side Resources
New Renewables
Batteries
CC


Plan S - MAP LF (Summer)
MW
10,500
9,500
8,500
7,500
6,500
5,500
4,500
3,500
2,500
2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043
Exisiting Supply Side Resources
New Renewables
Batteries
CC


Plan T - All Renewables (Summer)
MW
12,500
11,500
10,500
9,500
8,500
7,500
6,500
5,500
4,500
3,500
2,500
2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043
Exisiting Supply Side Resources
New Renewables
Batteries


Plan U - SC instead of First CC (Summer)
MW
10,500
9,500
8,500
7,500
6,500
5,500
4,500
3,500
2,500
2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043
Exisiting Supply Side Resources
New Renewables
Batteries
CC
SC

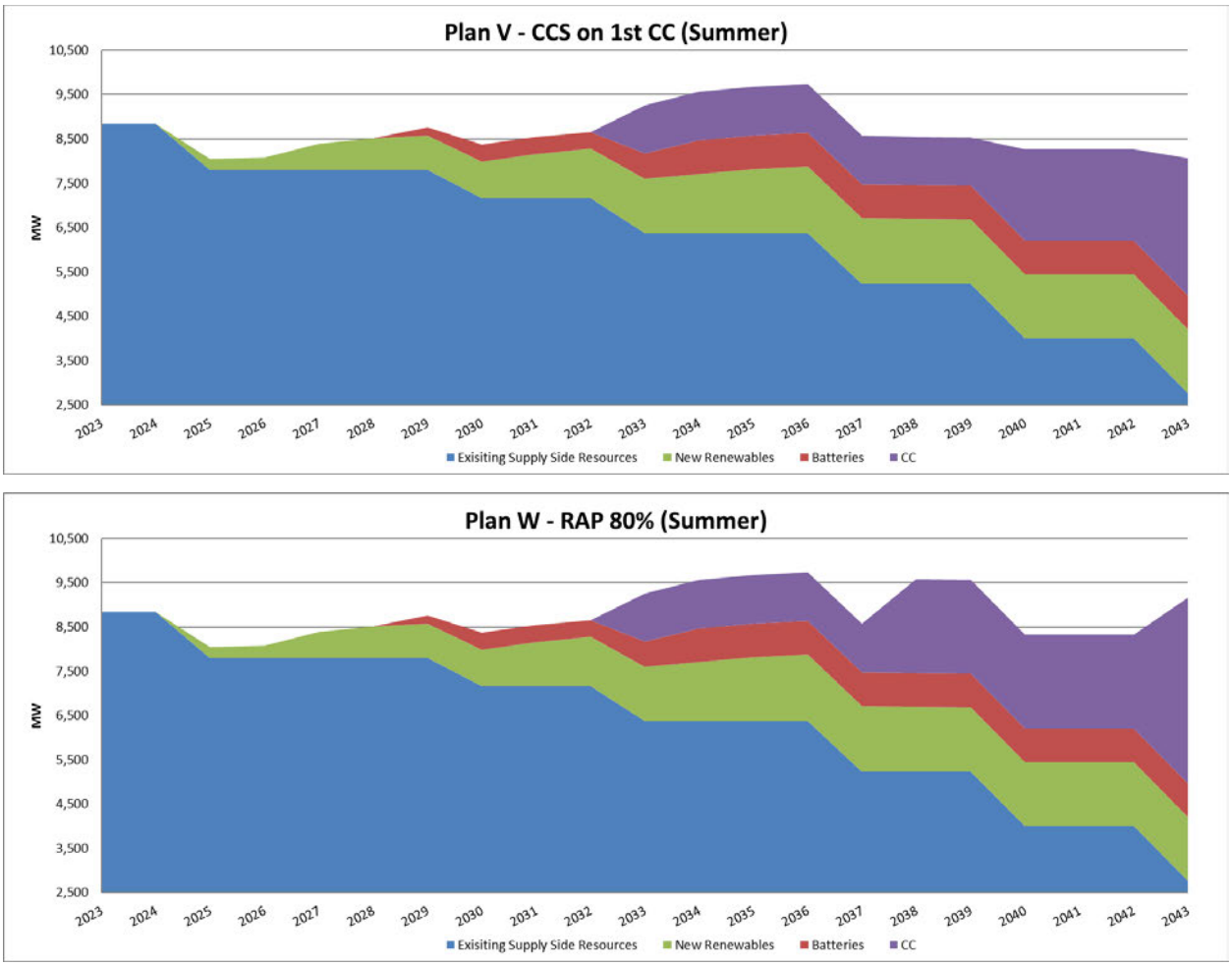
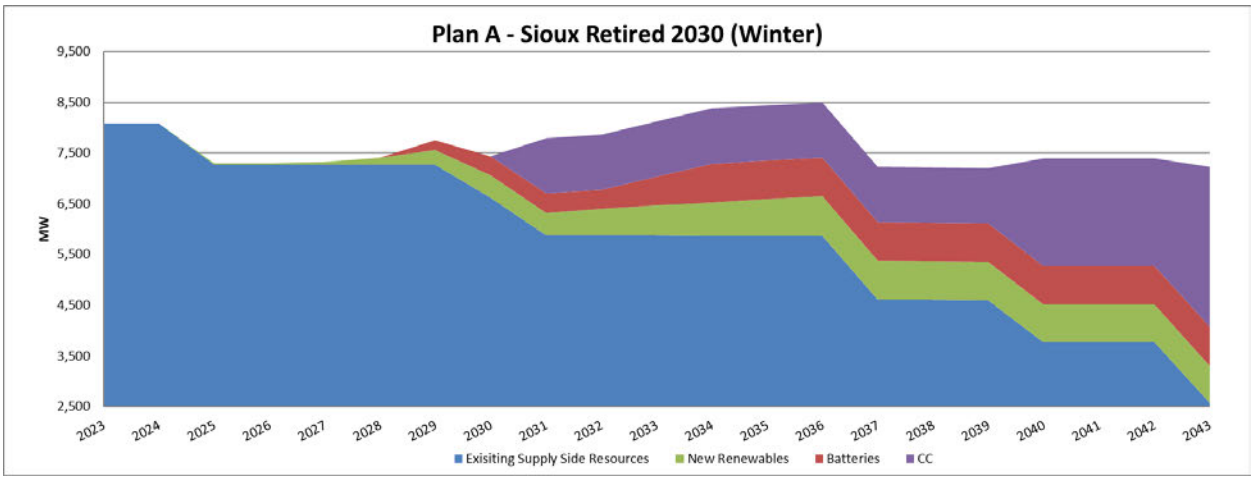
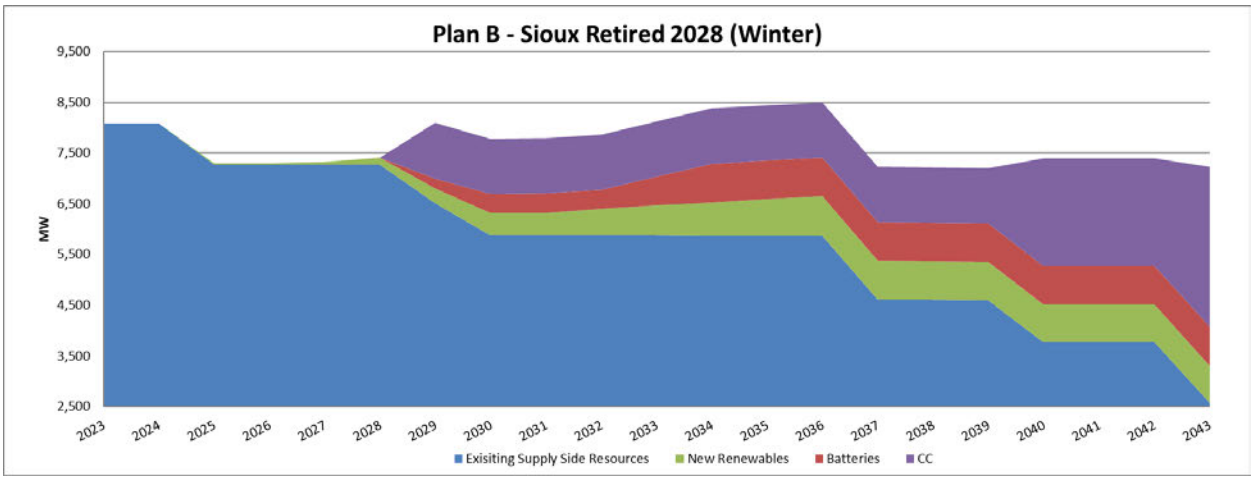
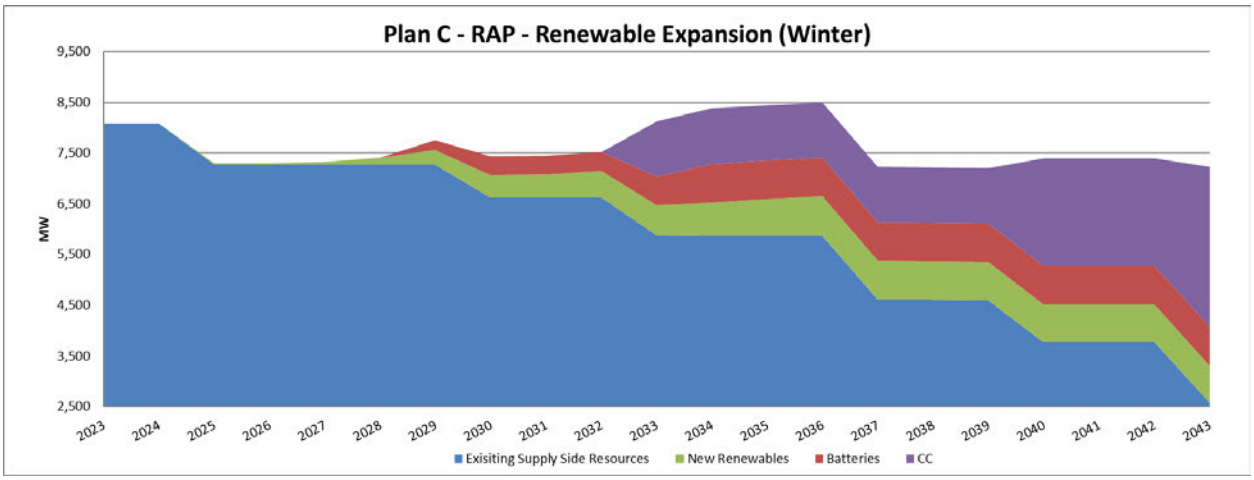
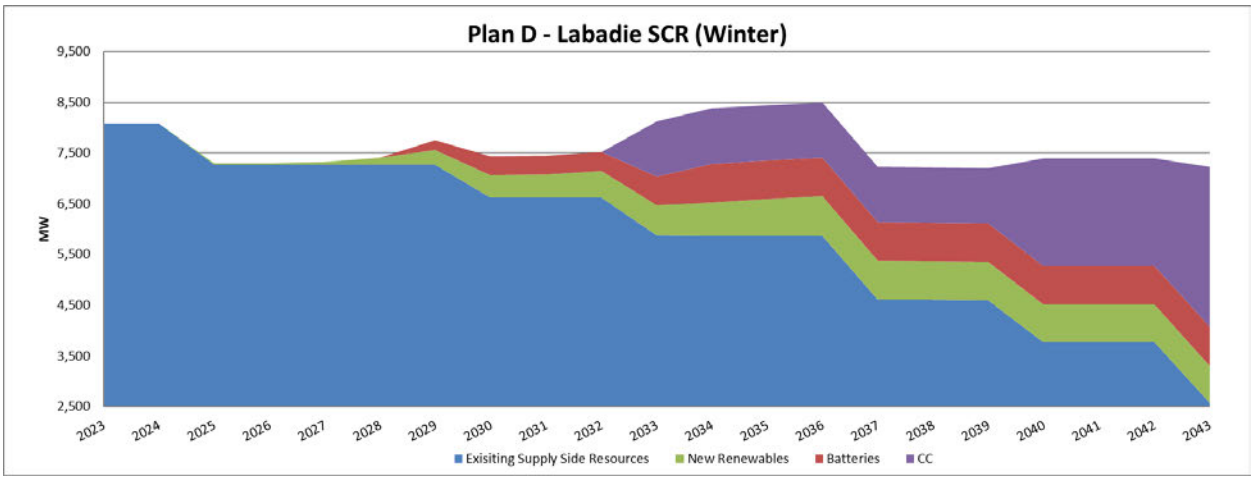


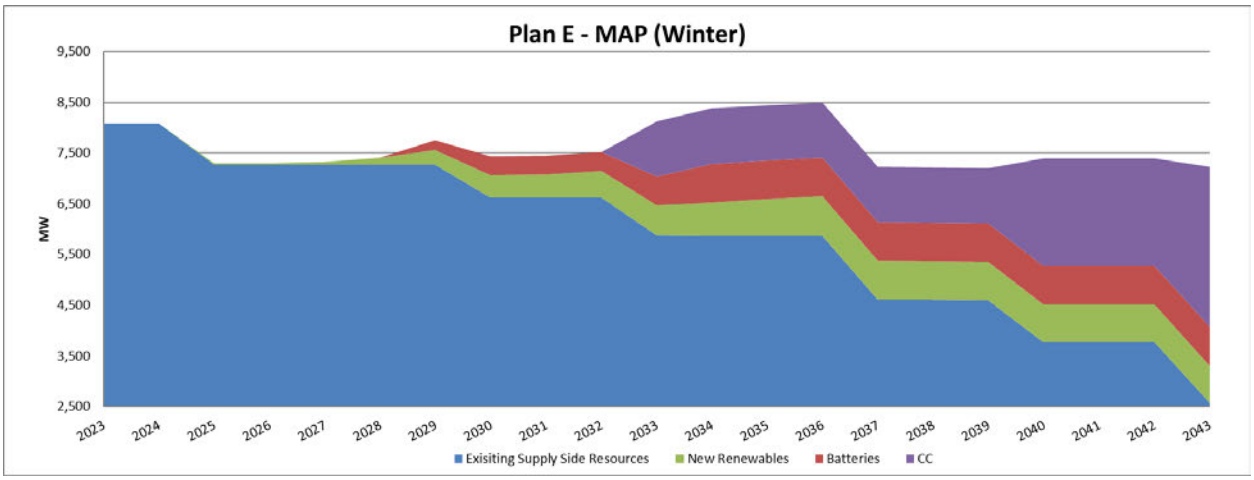
Figure 9A.8 Composition of Capacity (Winter)

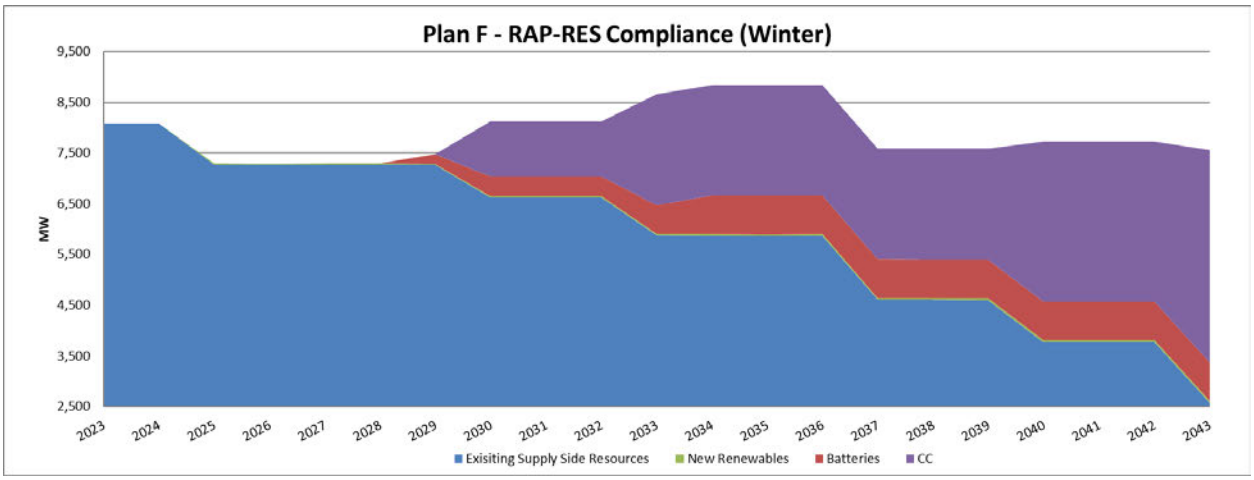


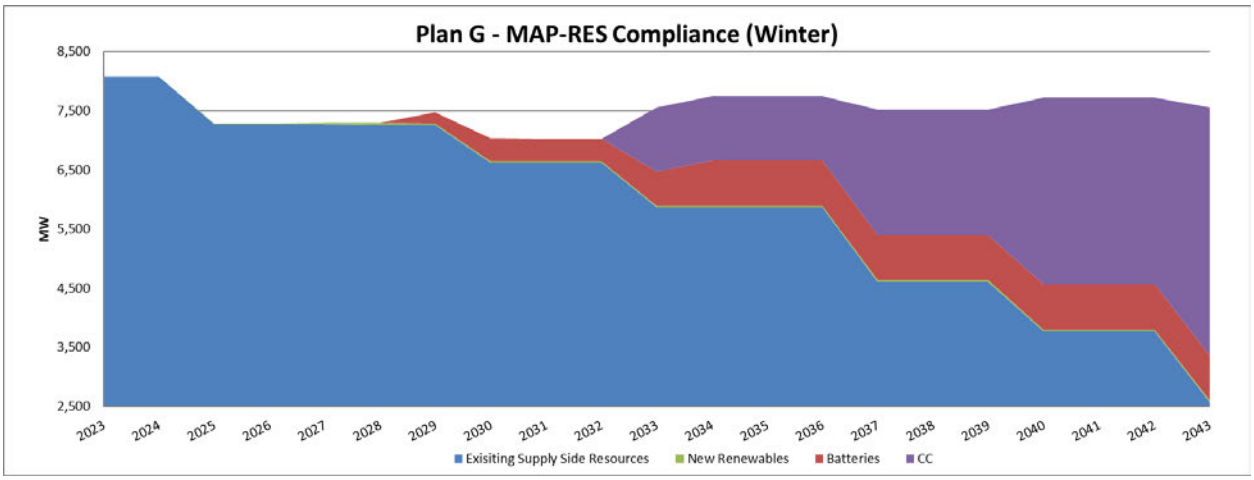

Plan B - Sioux Retired 2028 (Winter)
MW
9,500
8,500
7,500
6,500
5,500
4,500
3,500
2,500
2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043
Exisiting Supply Side Resources
New Renewables
Batteries
CC

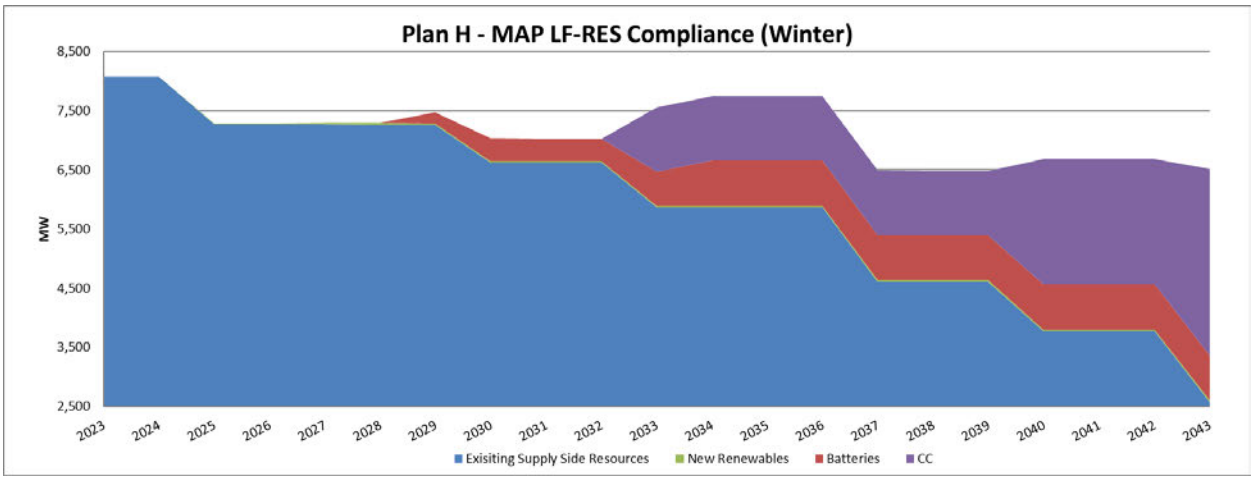

Plan C - RAP - Renewable Expansion (Winter)
MW
9,500
8,500
7,500
6,500
5,500
4,500
3,500
2,500
2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043
Exisiting Supply Side Resources
New Renewables
Batteries
CC

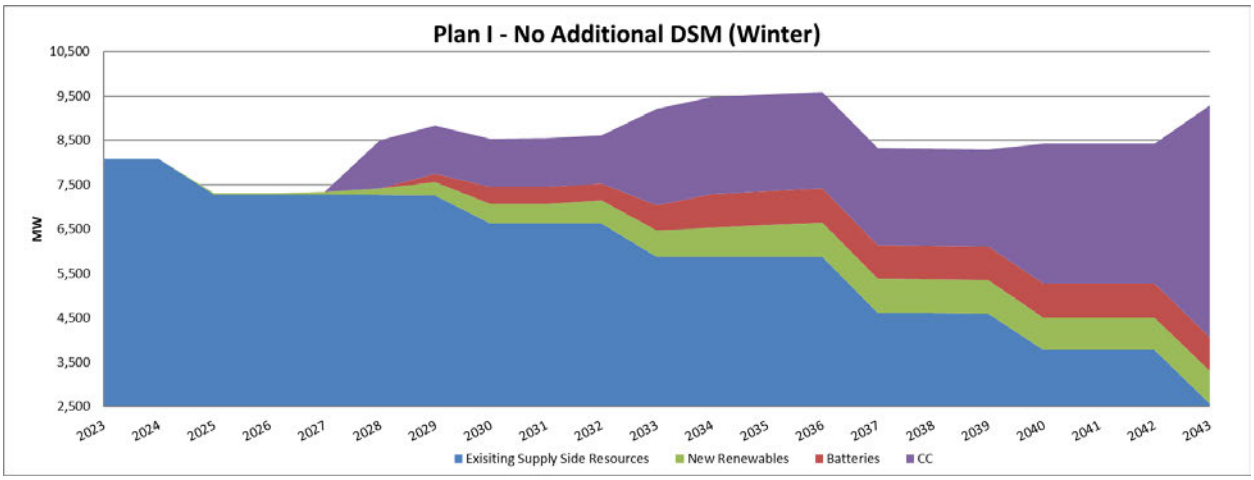

Plan D - Labadie SCR (Winter)
MW
9,500
8,500
7,500
6,500
5,500
4,500
3,500
2,500
2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043
Exisiting Supply Side Resources
New Renewables
Batteries
CC

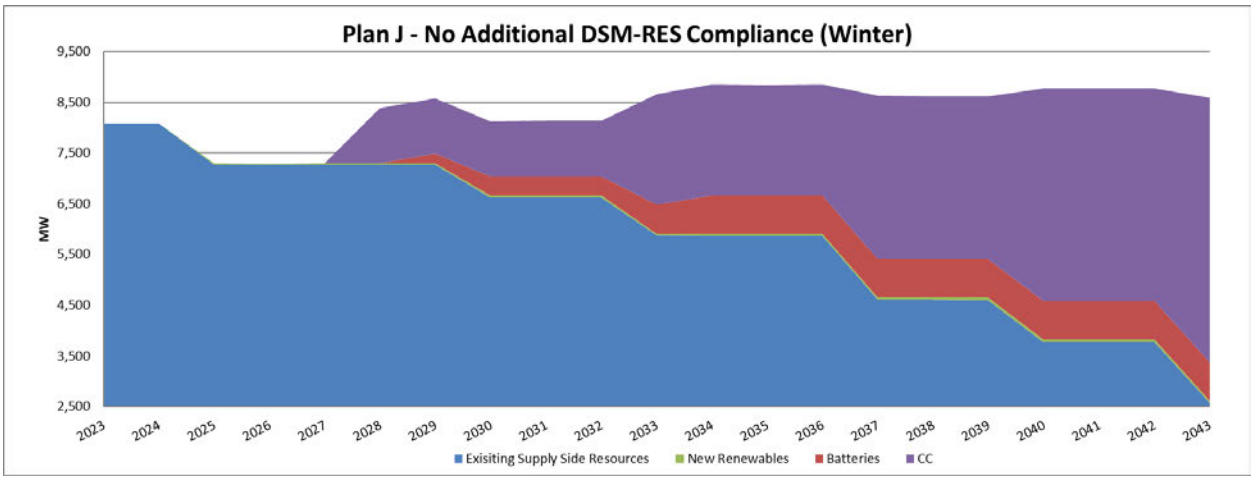

Plan E - MAP (Winter)
MW
9,500
8,500
7,500
6,500
5,500
4,500
3,500
2,500
2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043
Exisiting Supply Side Resources
New Renewables
Batteries
CC

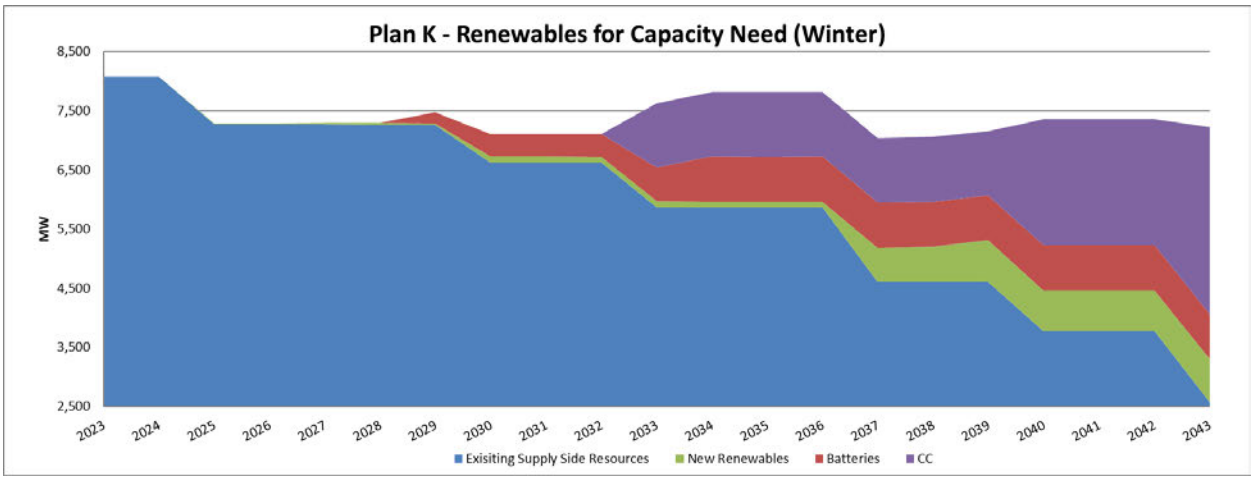

Plan F - RAP-RES Compliance (Winter)
MW
9,500
8,500
7,500
6,500
5,500
4,500
3,500
2,500
2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043
Exisiting Supply Side Resources
New Renewables
Batteries
CC

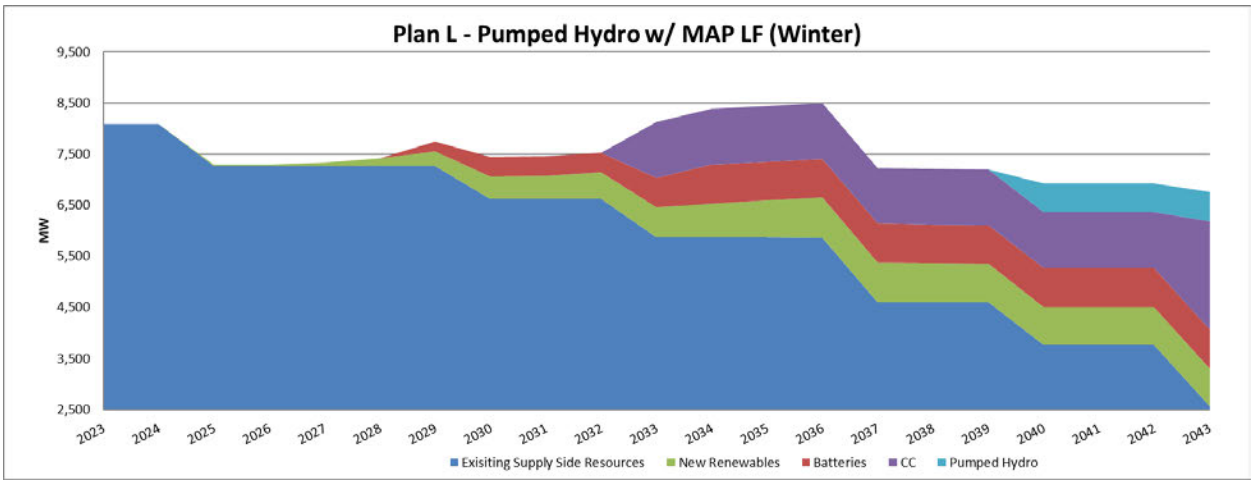

Plan G - MAP-RES Compliance (Winter)
MW
8,500
7,500
6,500
5,500
4,500
3,500
2,500
2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043
Exisiting Supply Side Resources
New Renewables
Batteries
CC

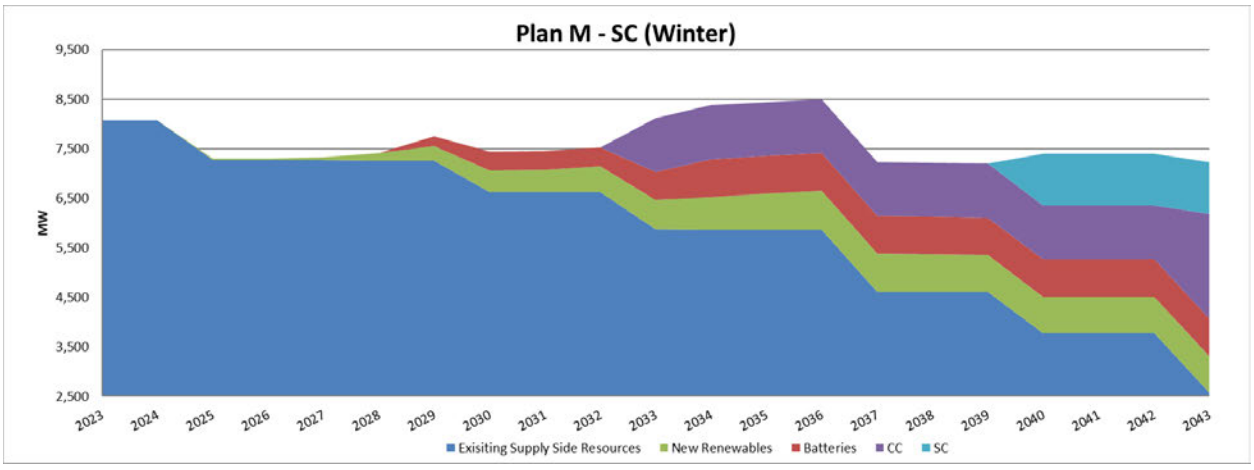

Plan H - MAP LF-RES Compliance (Winter)
MW
8,500
7,500
6,500
5,500
4,500
3,500
2,500
2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043
Exisiting Supply Side Resources
New Renewables
Batteries
CC

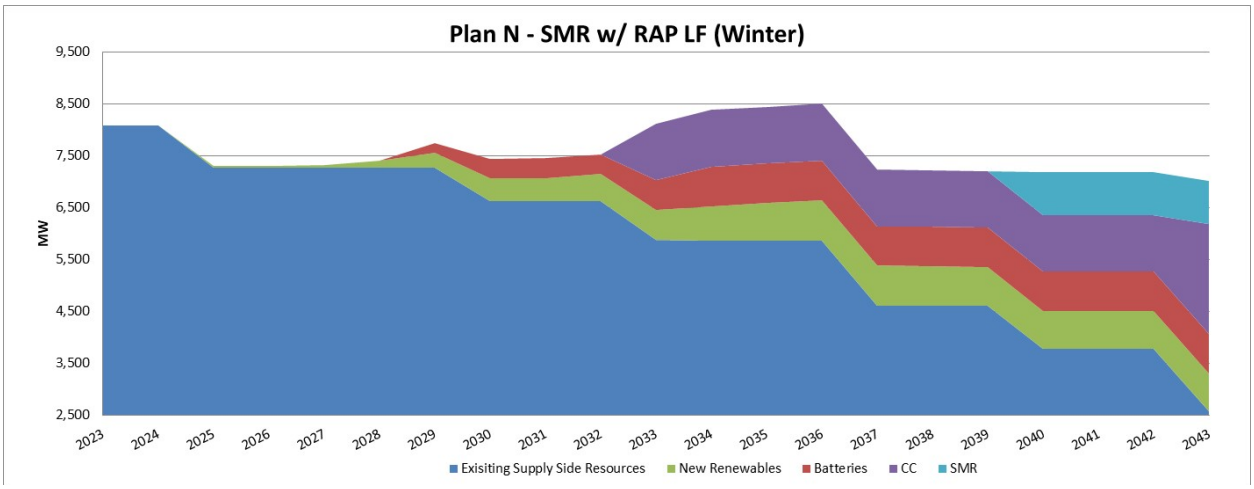

Plan I - No Additional DSM (Winter)
MW
10,500
9,500
8,500
7,500
6,500
5,500
4,500
3,500
2,500
2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043
Exisiting Supply Side Resources
New Renewables
Batteries
CC

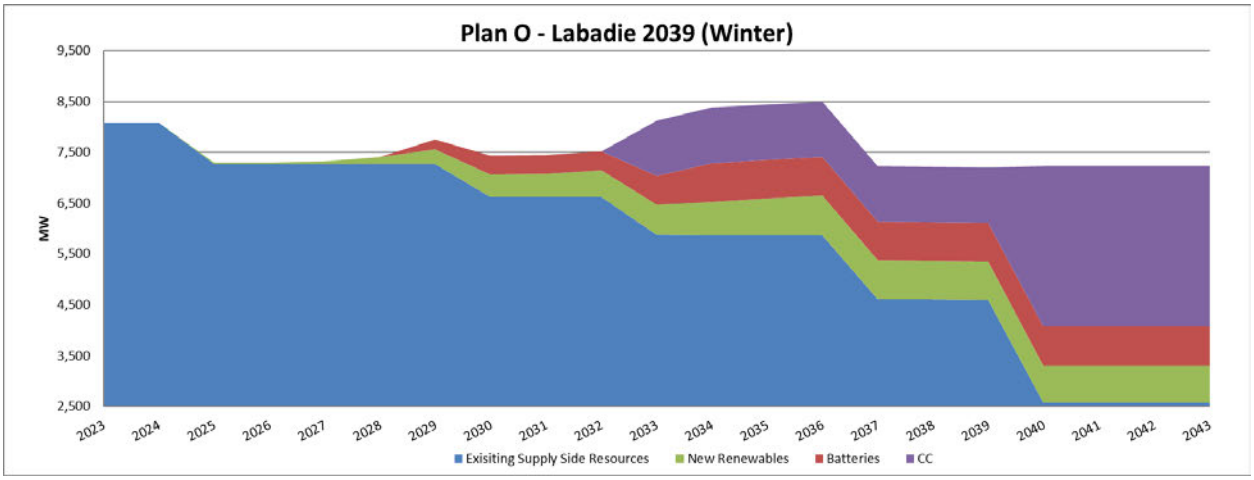

Plan J - No Additional DSM-RES Compliance (Winter)
MW
9,500
8,500
7,500
6,500
5,500
4,500
3,500
2,500
2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043
Exisiting Supply Side Resources
New Renewables
Batteries
CC

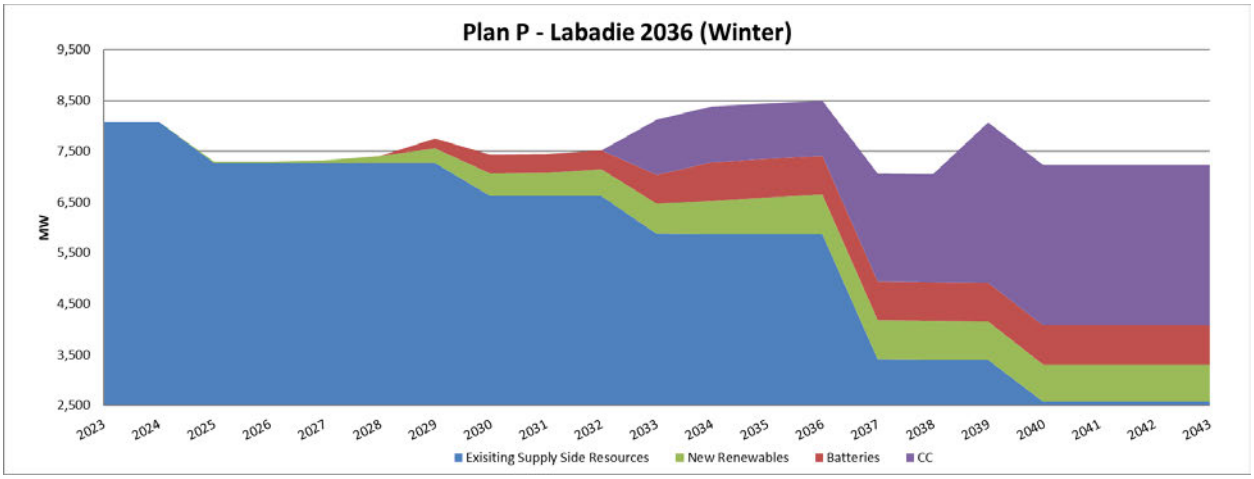

Plan K - Renewables for Capacity Need (Winter)
MW
8,500
7,500
6,500
5,500
4,500
3,500
2,500
2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043
Exisiting Supply Side Resources
New Renewables
Batteries
CC

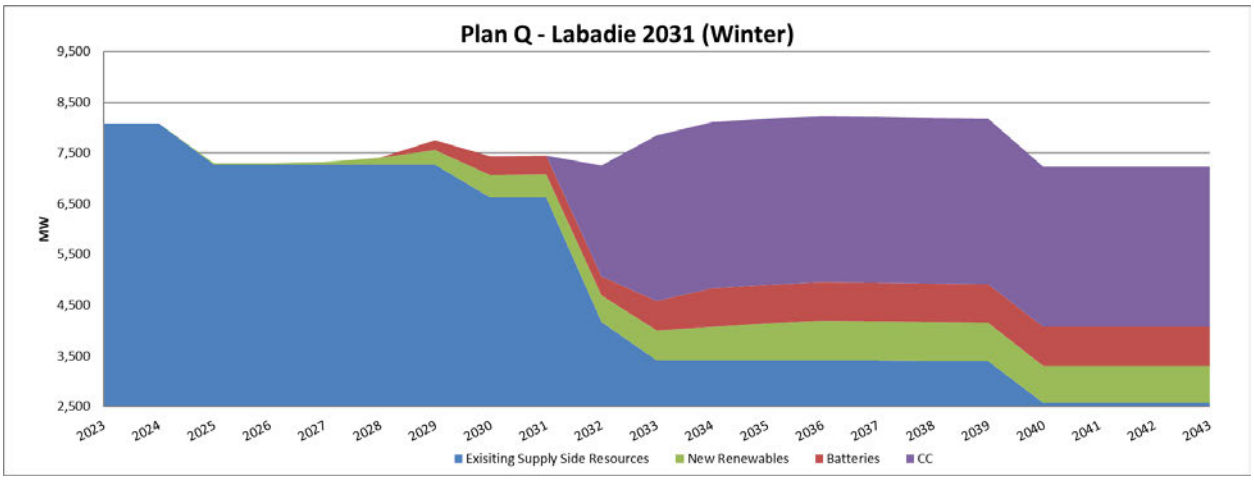

Plan L - Pumped Hydro w/ MAP LF (Winter)
MW
9,500
8,500
7,500
6,500
5,500
4,500
3,500
2,500
2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043
Exisiting Supply Side Resources
New Renewables
Batteries
CC
Pumped Hydro

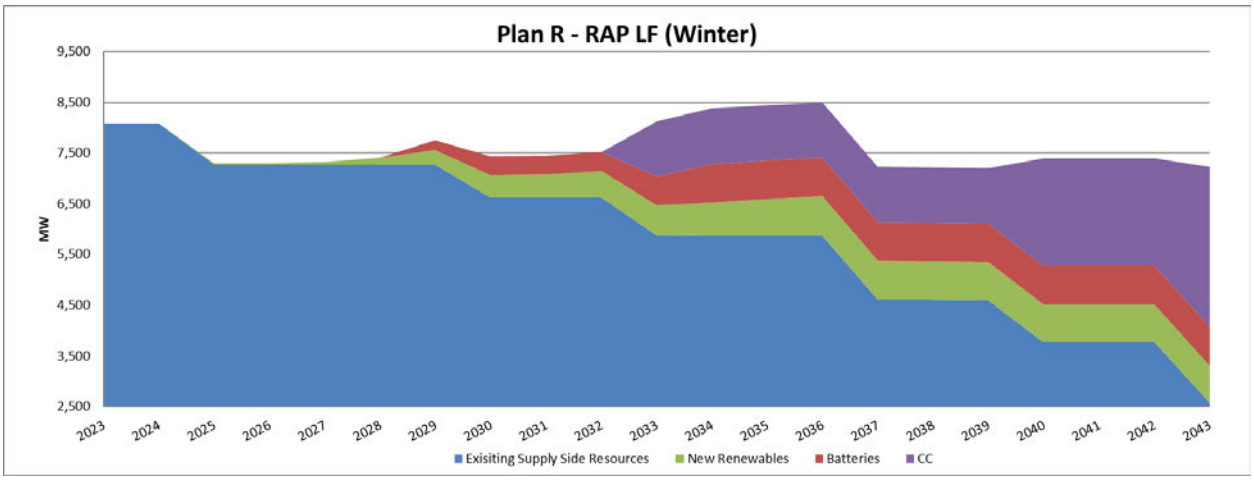

Plan M - SC (Winter)
MW
9,500
8,500
7,500
6,500
5,500
4,500
3,500
2,500
2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043
Exisiting Supply Side Resources
New Renewables
Batteries
CC
SC

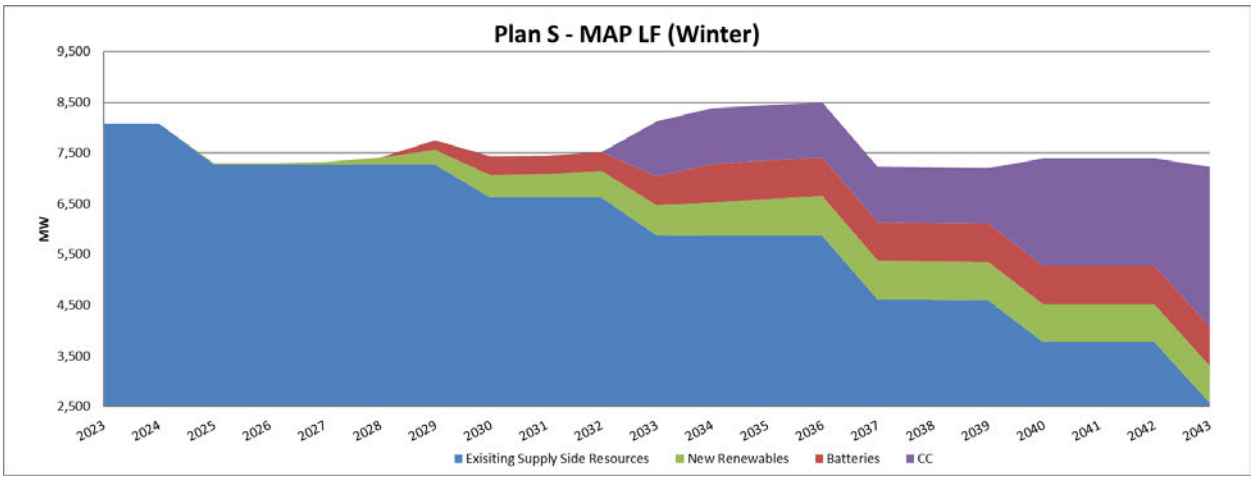

Plan N - SMR w/ RAP LF (Winter)
MW
9,500
8,500
7,500
6,500
5,500
4,500
3,500
2,500
2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043
Exisiting Supply Side Resources
New Renewables
Batteries
CC
SMR

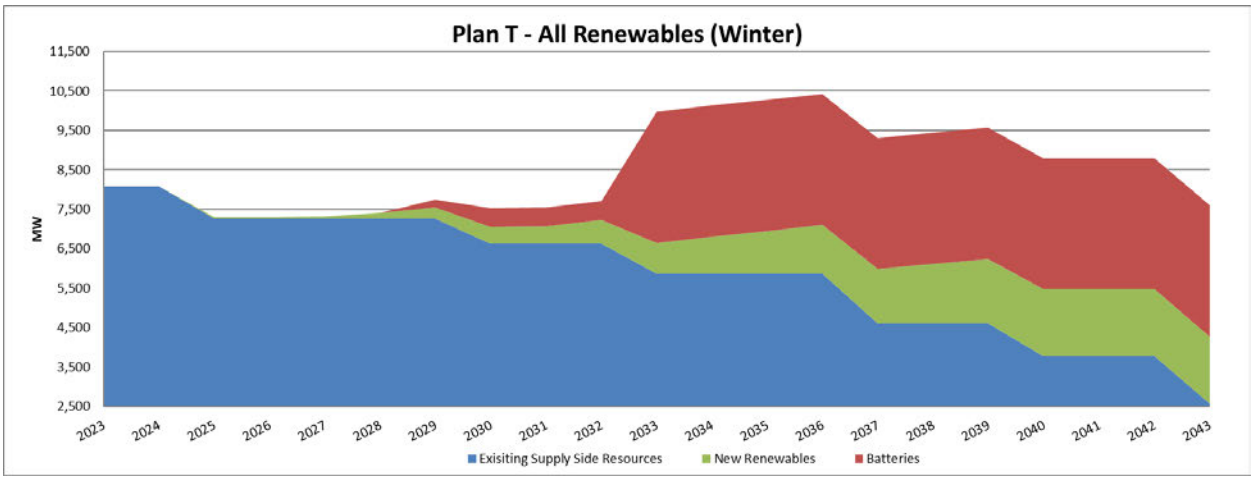

Plan O - Labadie 2039 (Winter)
MW
9,500
8,500
7,500
6,500
5,500
4,500
3,500
2,500
2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043
Exisiting Supply Side Resources
New Renewables
Batteries
CC

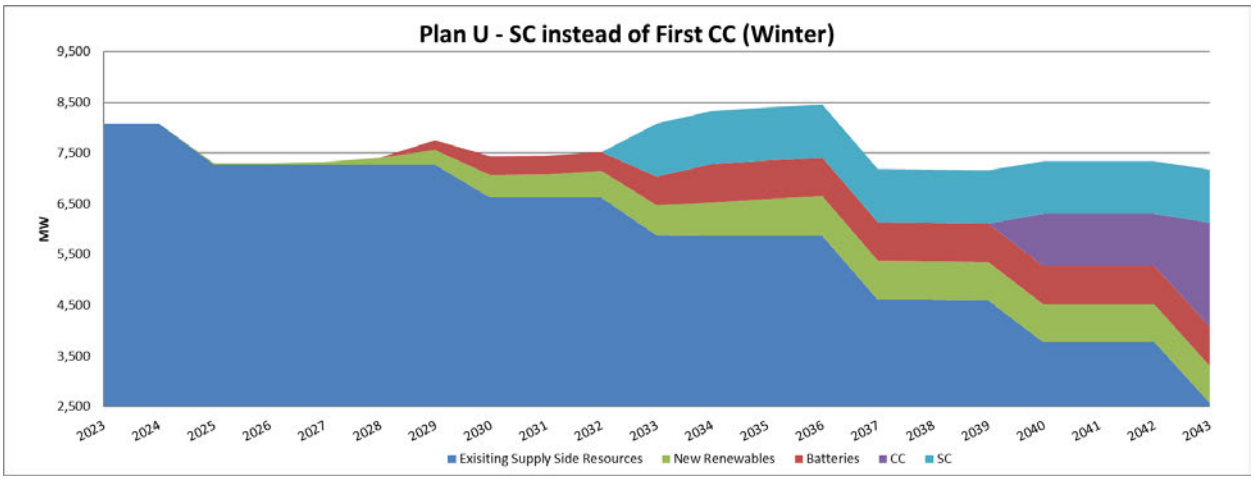

Plan P - Labadie 2036 (Winter)
MW
9,500
8,500
7,500
6,500
5,500
4,500
3,500
2,500
2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043
Exisiting Supply Side Resources
New Renewables
Batteries
CC

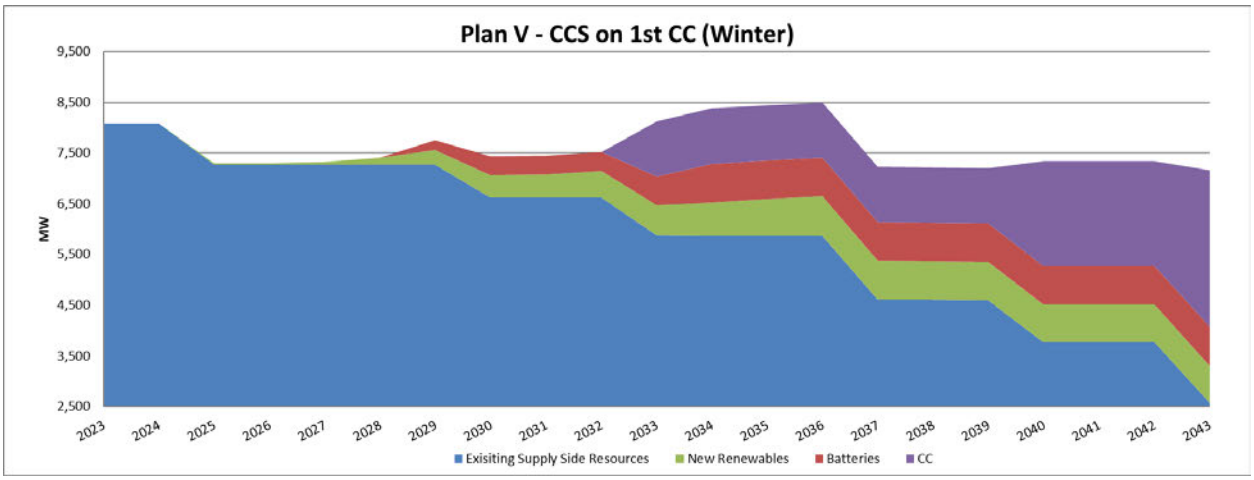

Plan Q - Labadie 2031 (Winter)
MW
9,500
8,500
7,500
6,500
5,500
4,500
3,500
2,500
2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043
Exisiting Supply Side Resources
New Renewables
Batteries
CC


Plan R - RAP LF (Winter)
MW
9,500
8,500
7,500
6,500
5,500
4,500
3,500
2,500
2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043
Exisiting Supply Side Resources
New Renewables
Batteries
CC


Plan S - MAP LF (Winter)
MW
9,500
8,500
7,500
6,500
5,500
4,500
3,500
2,500
2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043
Exisiting Supply Side Resources
New Renewables
Batteries
CC


Plan T - All Renewables (Winter)
MW
11,500
10,500
9,500
8,500
7,500
6,500
5,500
4,500
3,500
2,500
2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043
Exisiting Supply Side Resources
New Renewables
Batteries


Plan U - SC instead of First CC (Winter)
MW
9,500
8,500
7,500
6,500
5,500
4,500
3,500
2,500
2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043
Exisiting Supply Side Resources
New Renewables
Batteries
CC
SC


Plan V - CCS on 1st CC (Winter)
MW
9,500
8,500
7,500
6,500
5,500
4,500
3,500
2,500
2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043
Exisiting Supply Side Resources
New Renewables
Batteries
CC

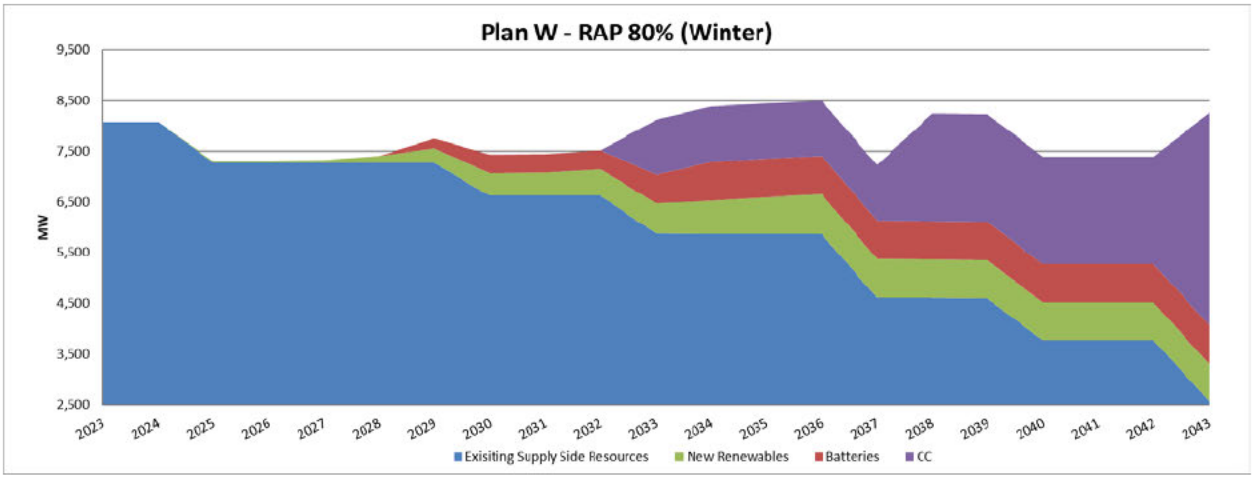
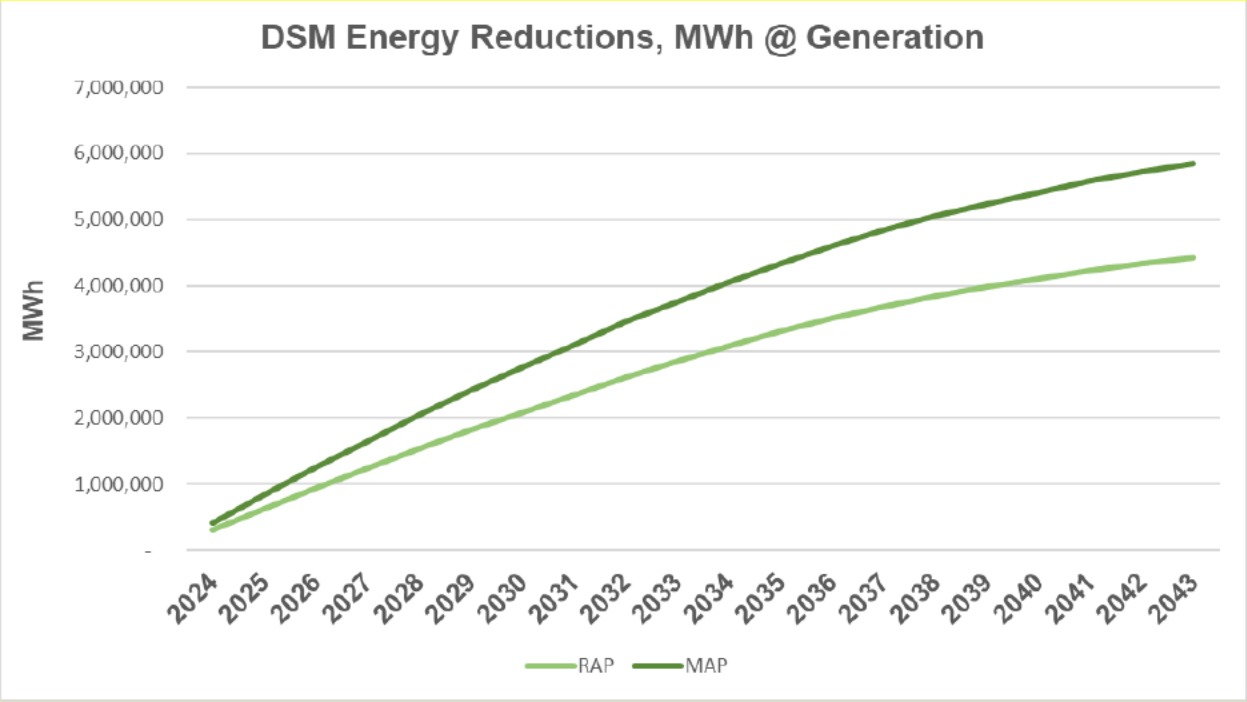


Figure 9A.9 Combined Impact of DSM Resources on Energy[14]



[14] 20 CSR 4240-22.060(4)(B)4

Figure 9A.10 Programs for RAP DSM Energy[15]

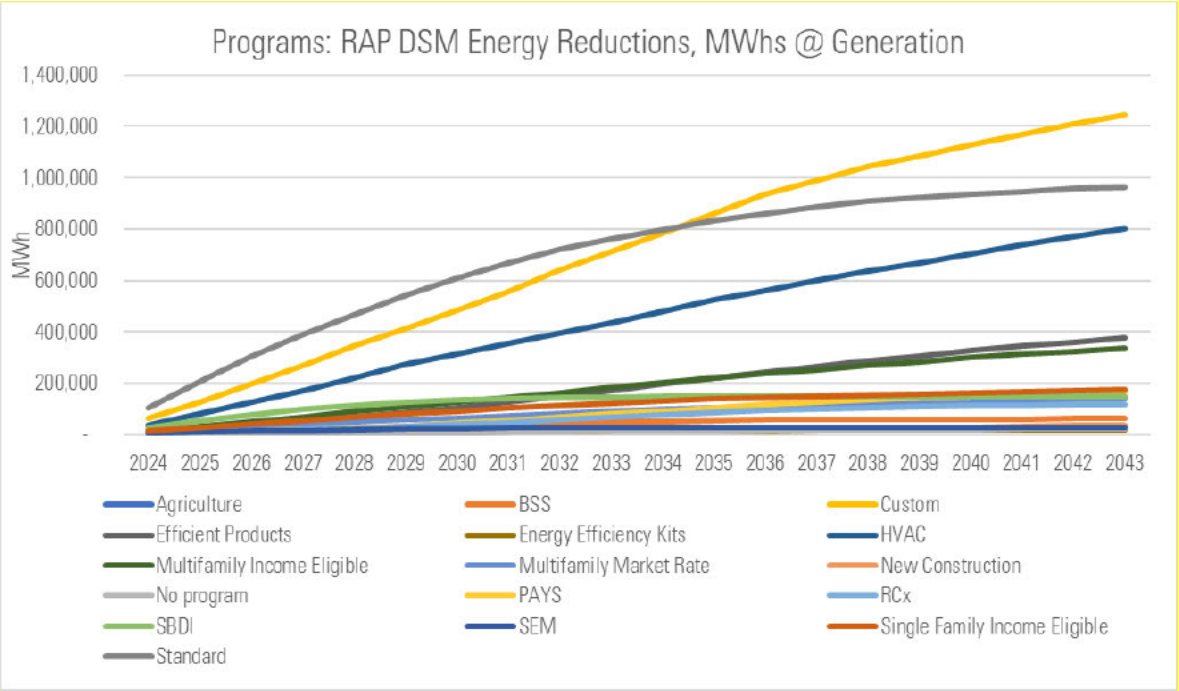
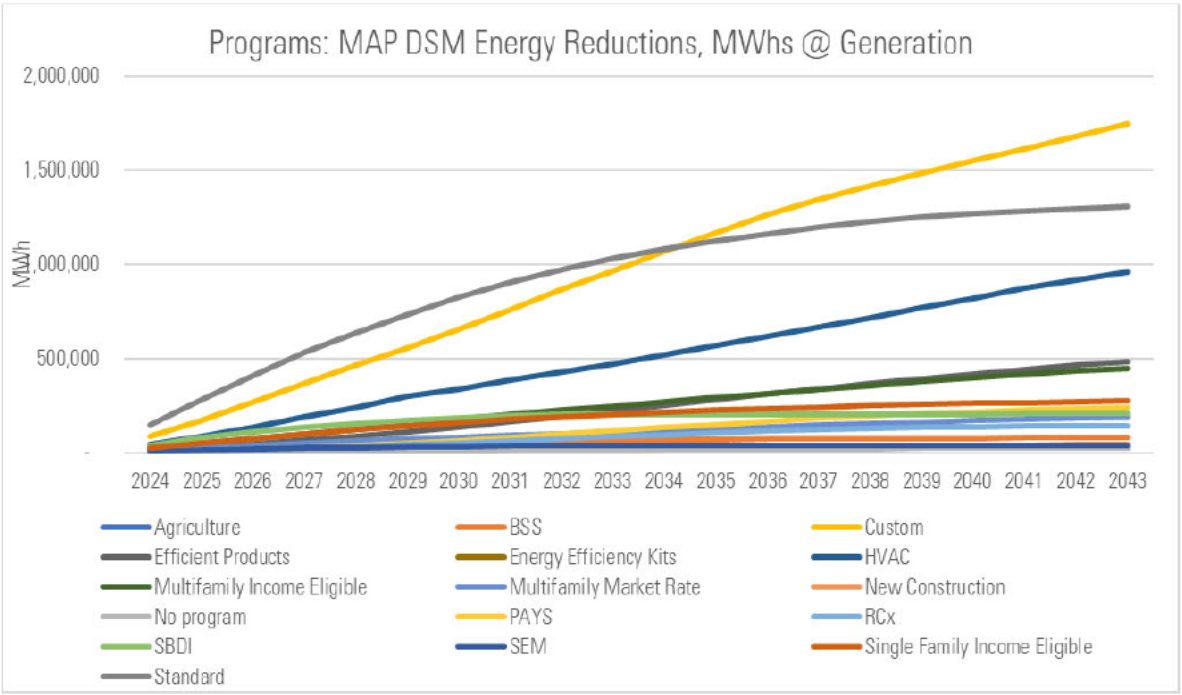
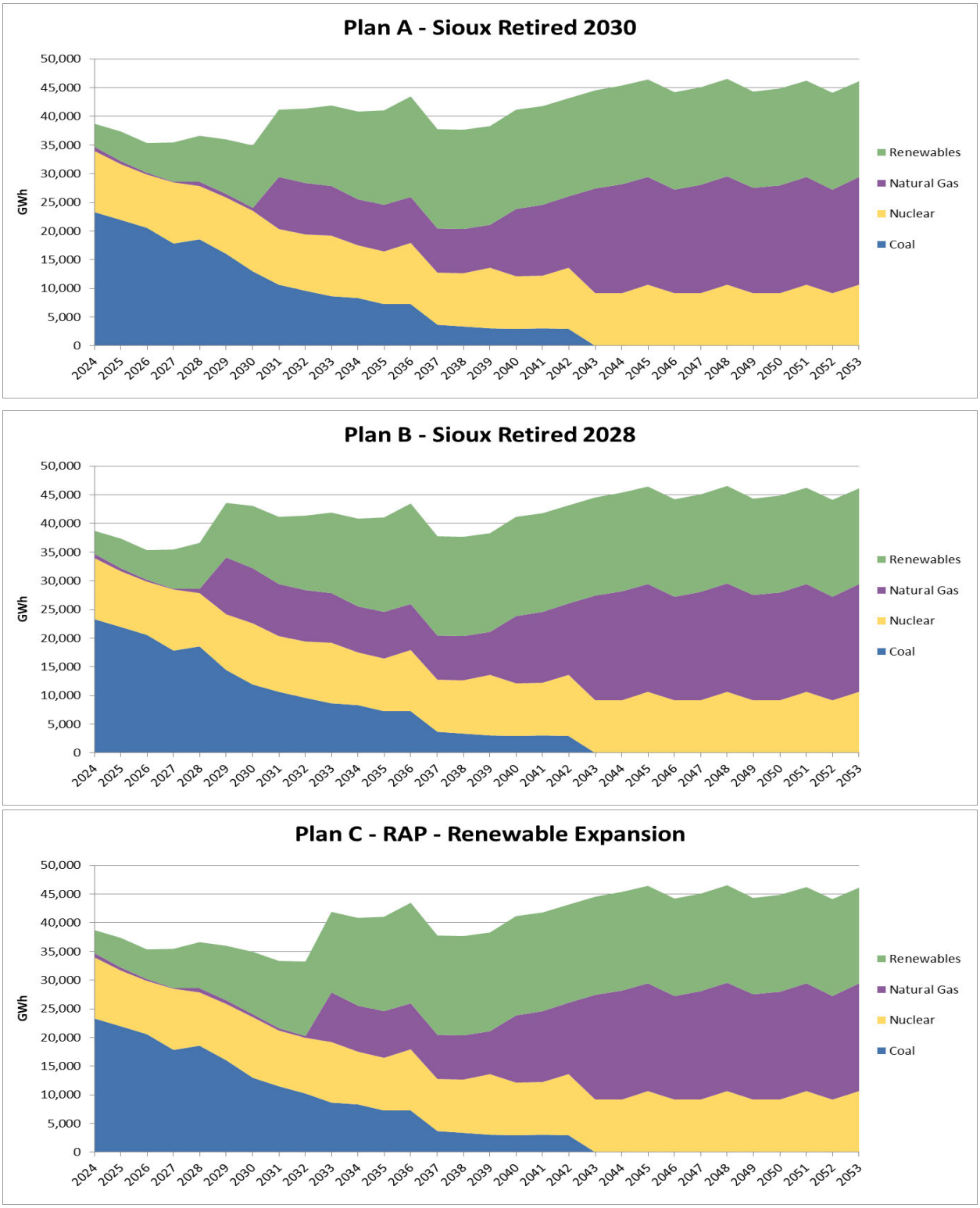


Figure 9A.11 Programs for MAP DSM Energy[16]

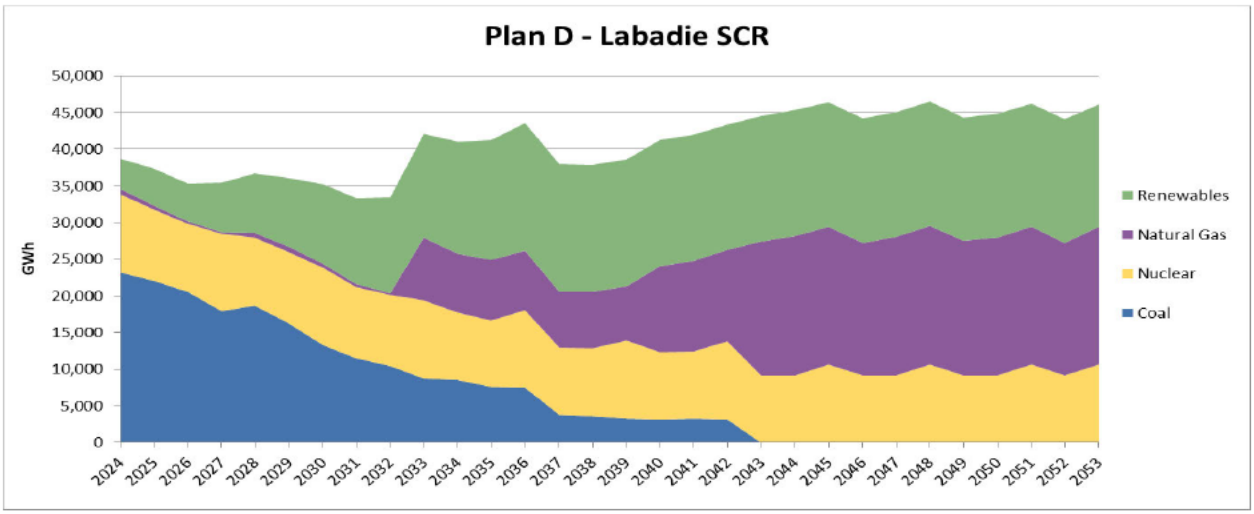


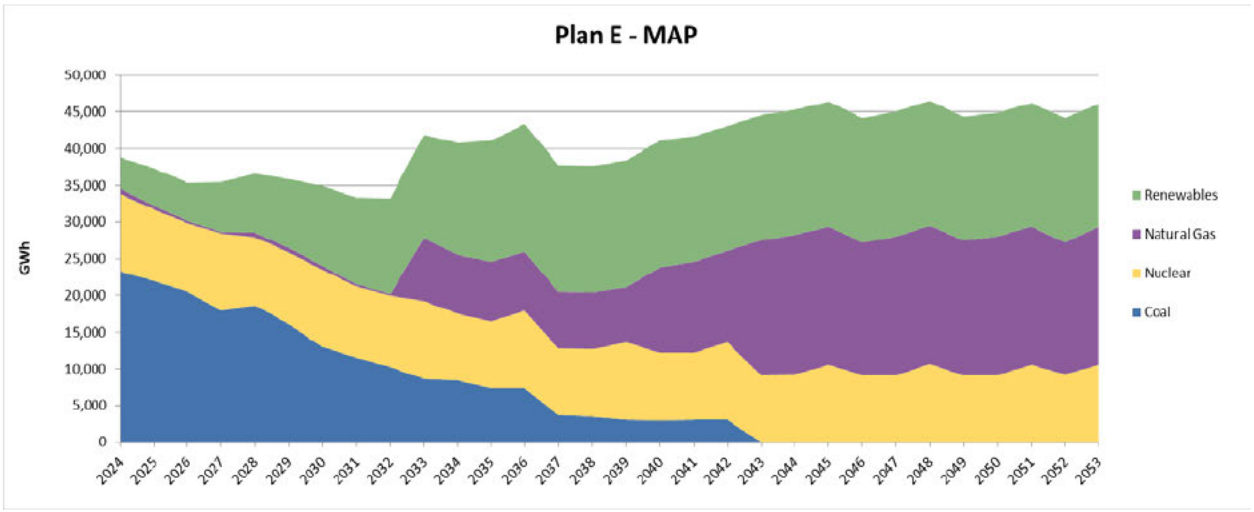
[15] 20 CSR 4240-22.060(4)(B)5
[16] 20 CSR 4240-22.060(4)(B)5

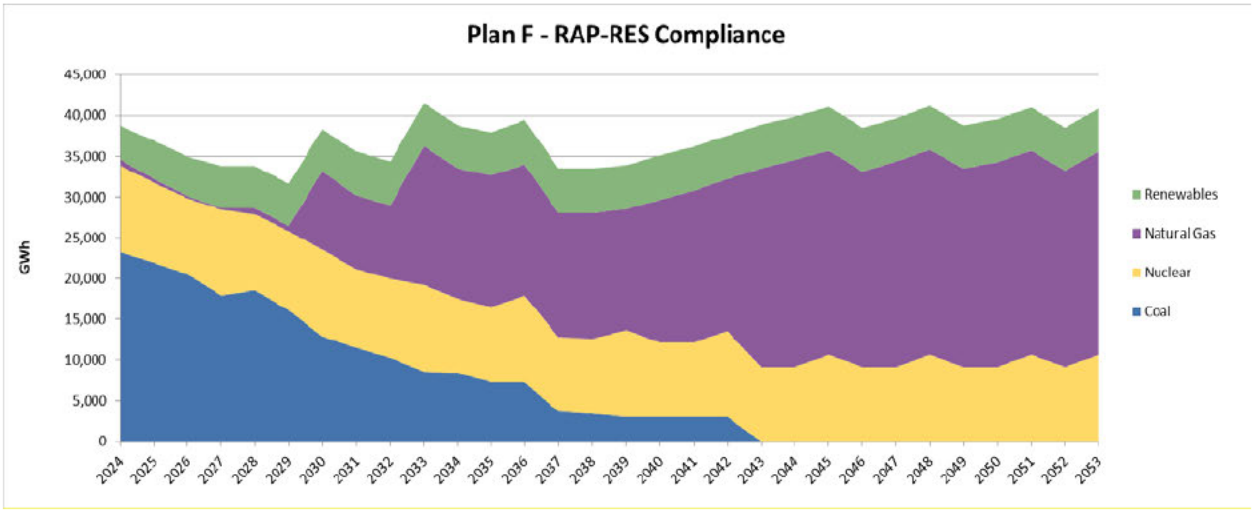
Figure 9A.12 Composition of Energy by Supply-Side Resource[17]

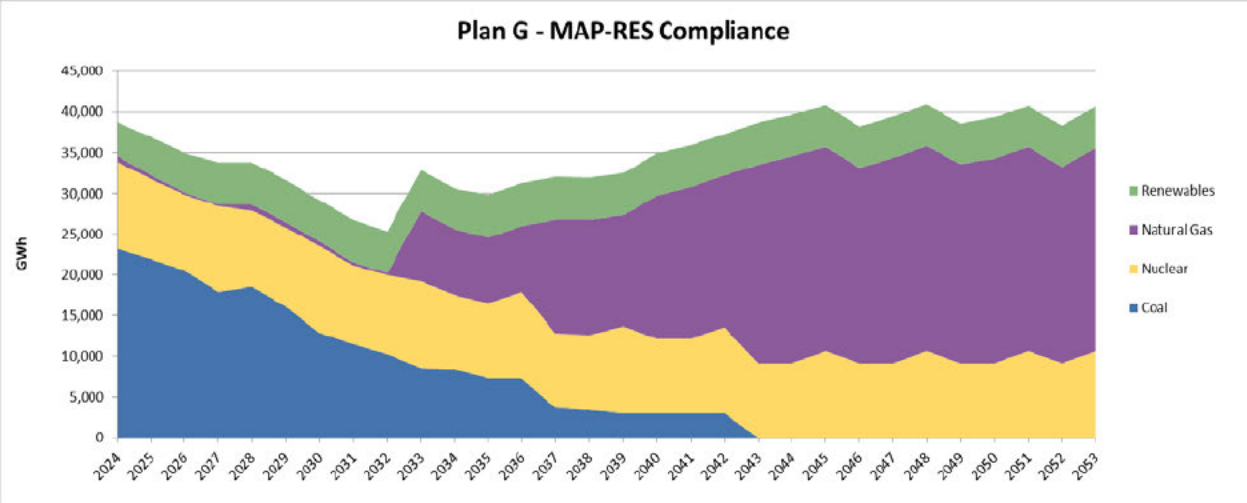


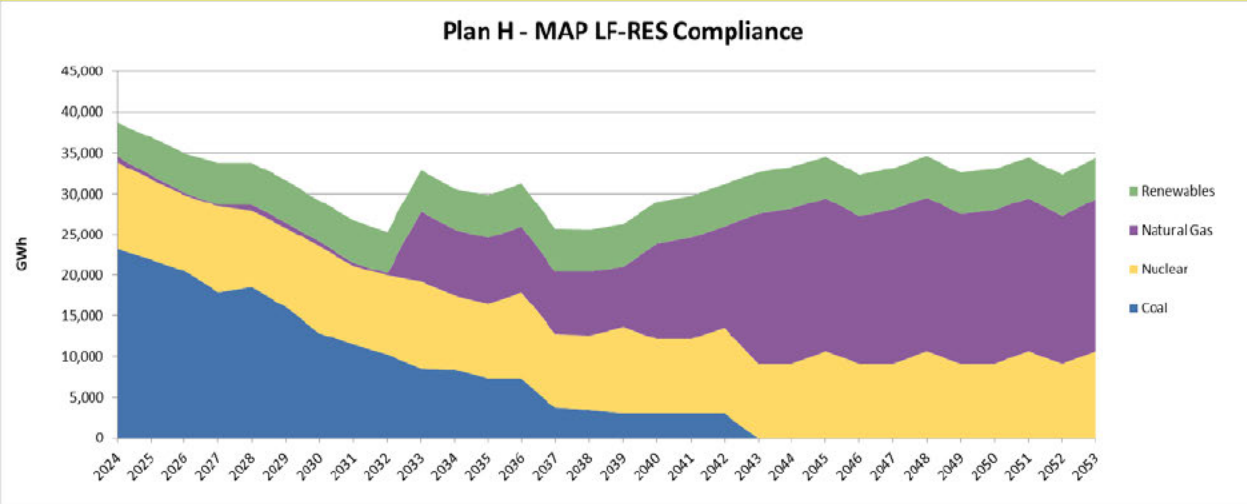
[17] 20 CSR 4240-22.060(4)(B)6; Energy from storage resources taken out of renewables generation since pump/charge energy is higher than produced energy.

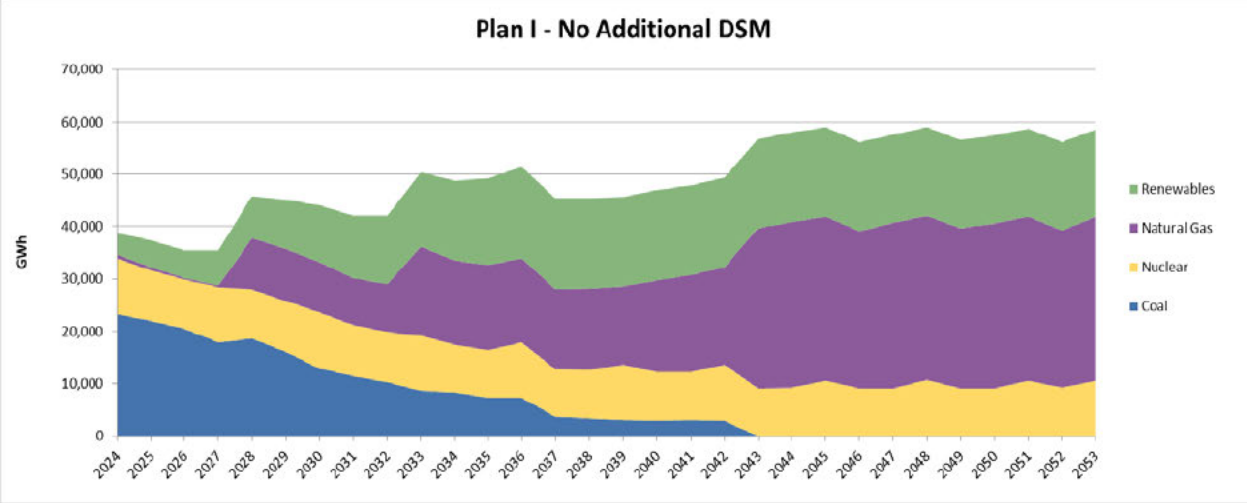

Plan D - Labadie SCR
GWh
50,000
45,000
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053
Renewables
Natural Gas
Nuclear
Coal

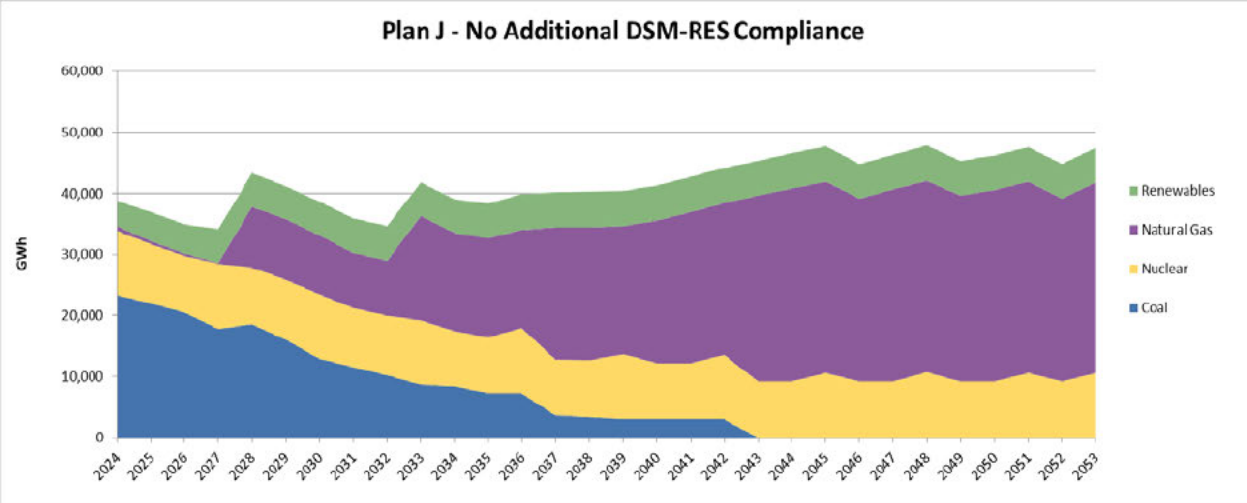

Plan E - MAP
GWh
50,000
45,000
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053
Renewables
Natural Gas
Nuclear
Coal

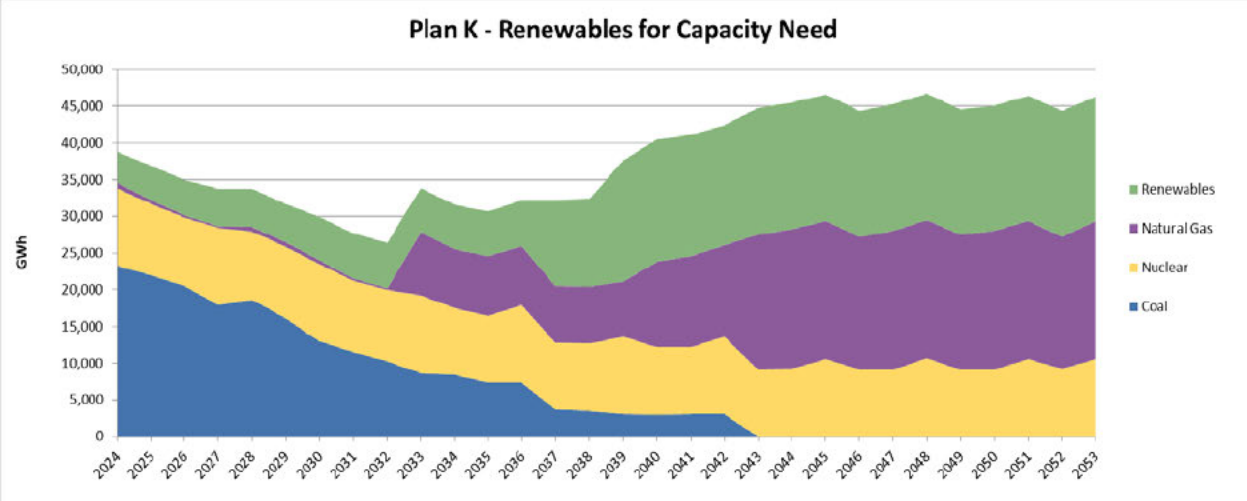

Plan F - RAP-RES Compliance
GWh
45,000
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053
Renewables
Natural Gas
Nuclear
Coal

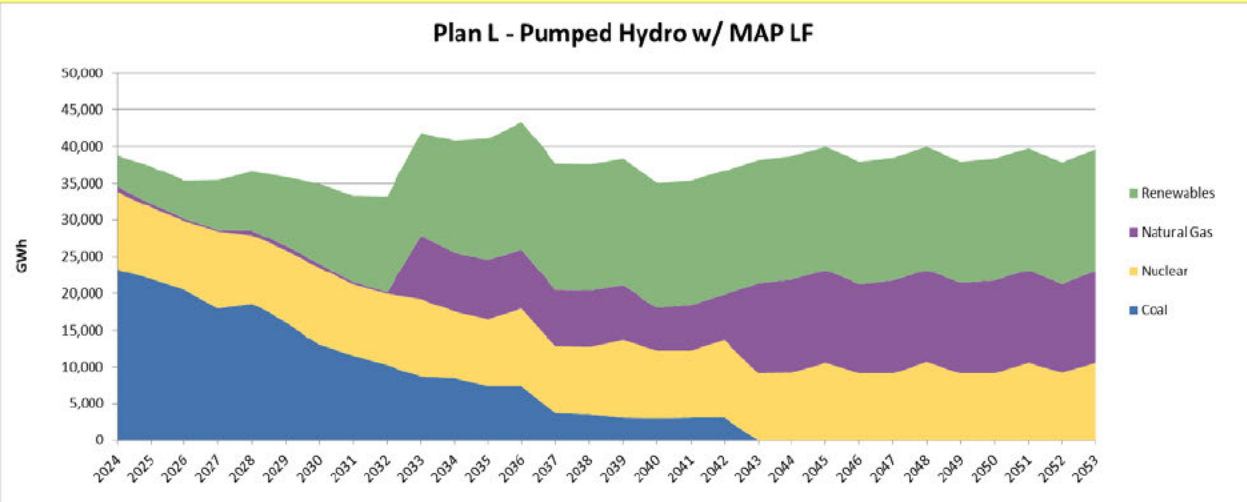

Plan G - MAP-RES Compliance
GWh
45,000
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053
Renewables
Natural Gas
Nuclear
Coal

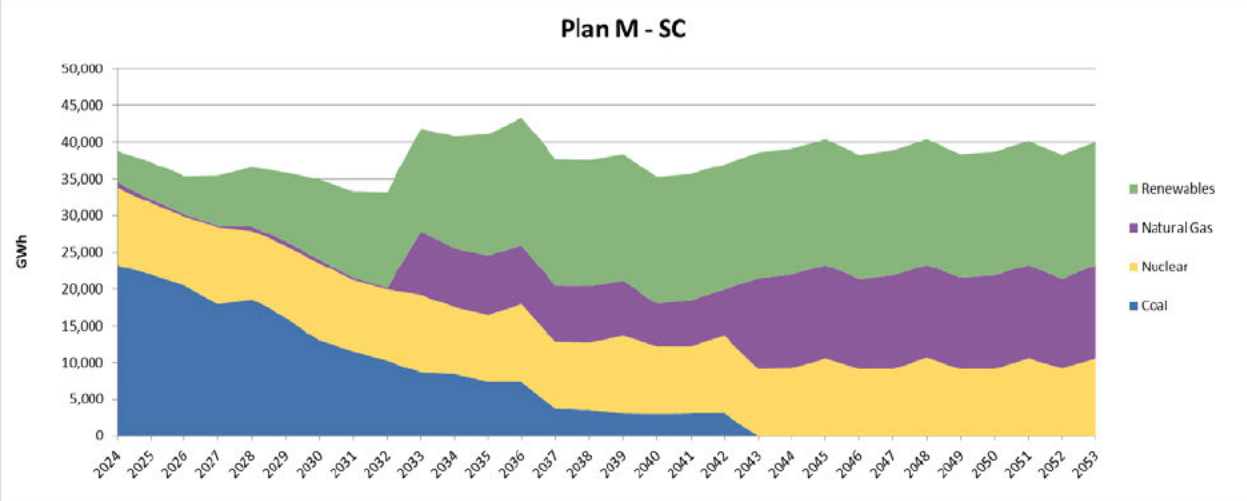

Plan H - MAP LF-RES Compliance
GWh
45,000
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053
Renewables
Natural Gas
Nuclear
Coal

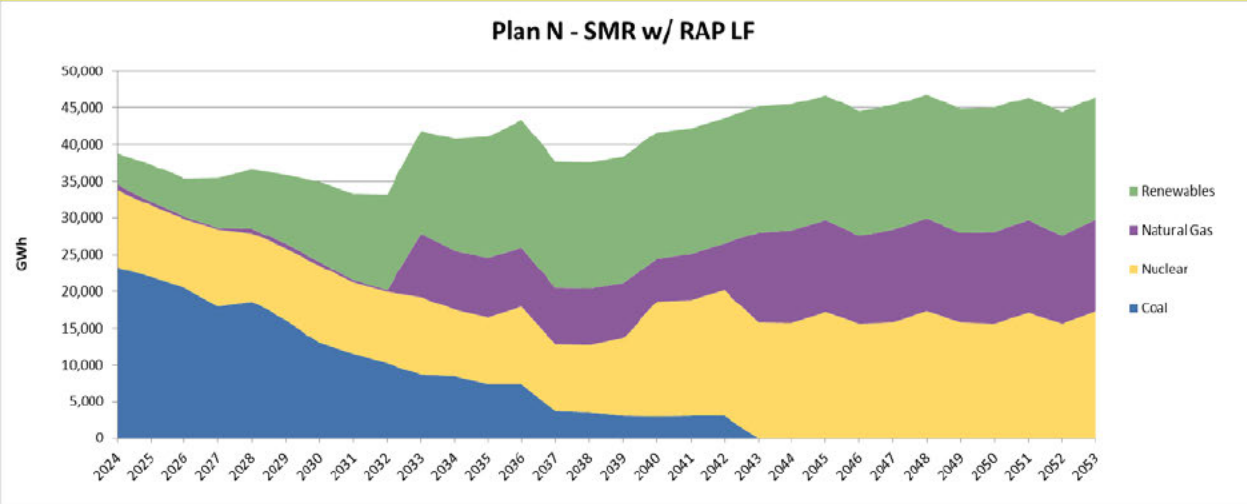

Plan I - No Additional DSM
GWh
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053
Renewables
Natural Gas
Nuclear
Coal

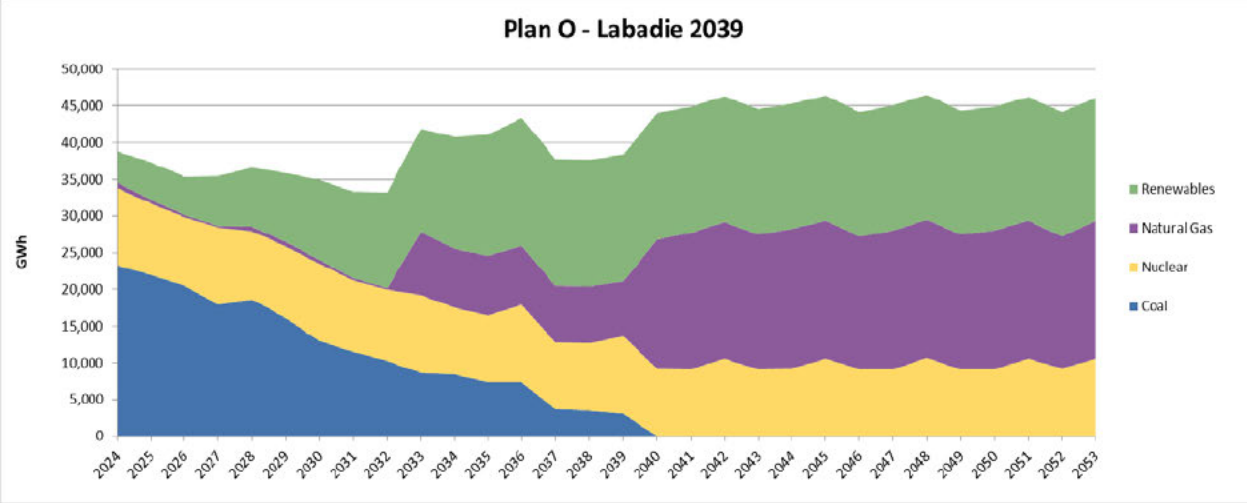

Plan J - No Additional DSM-RES Compliance
GWh
60,000
50,000
40,000
30,000
20,000
10,000
0
2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053
Renewables
Natural Gas
Nuclear
Coal

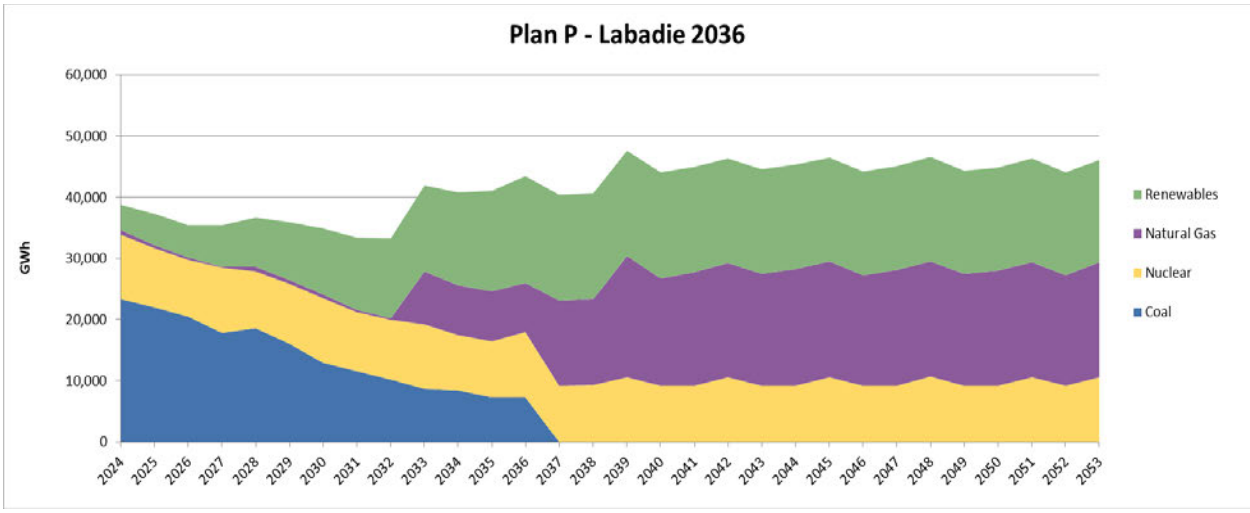

Plan K - Renewables for Capacity Need
GWh
50,000
45,000
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053
Renewables
Natural Gas
Nuclear
Coal

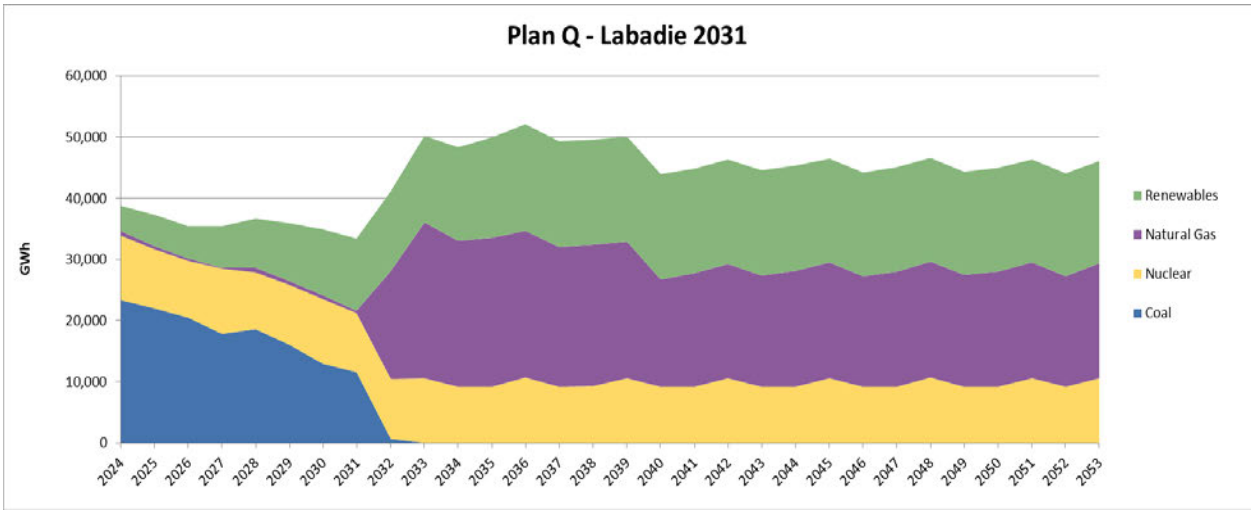

Plan L - Pumped Hydro w/ MAP LF
GWh
50,000
45,000
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053
Renewables
Natural Gas
Nuclear
Coal

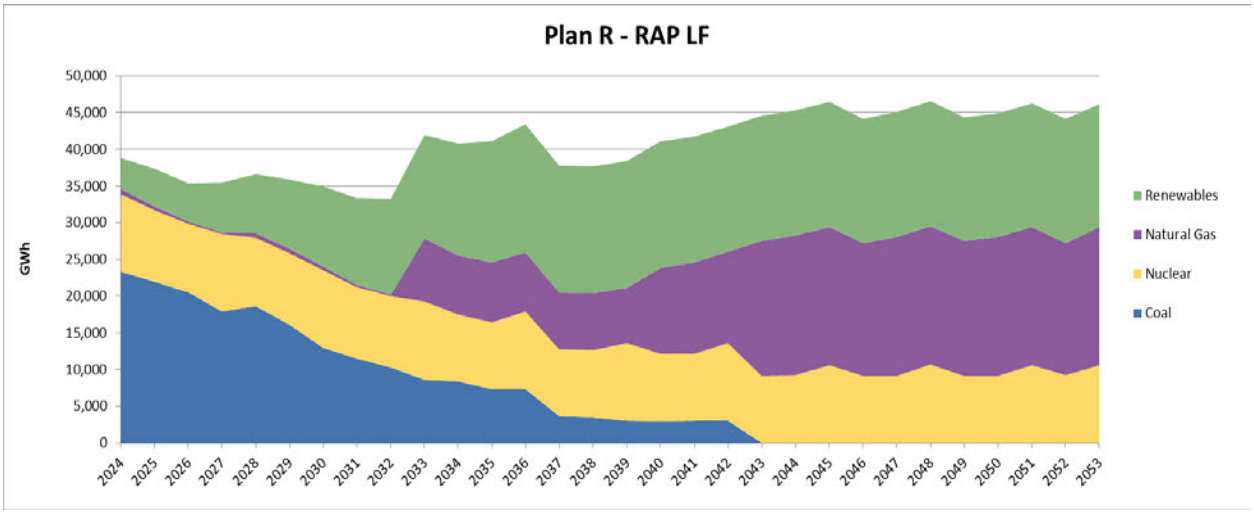

Plan M - SC
GWh
50,000
45,000
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053
Renewables
Natural Gas
Nuclear
Coal

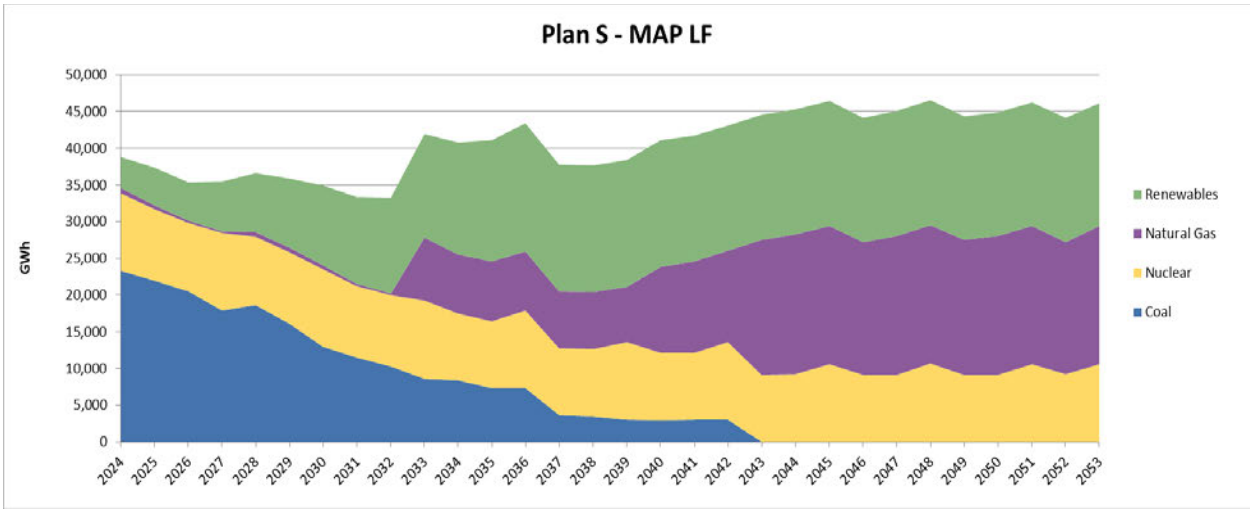

Plan N - SMR w/ RAP LF
GWh
50,000
45,000
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053
Renewables
Natural Gas
Nuclear
Coal

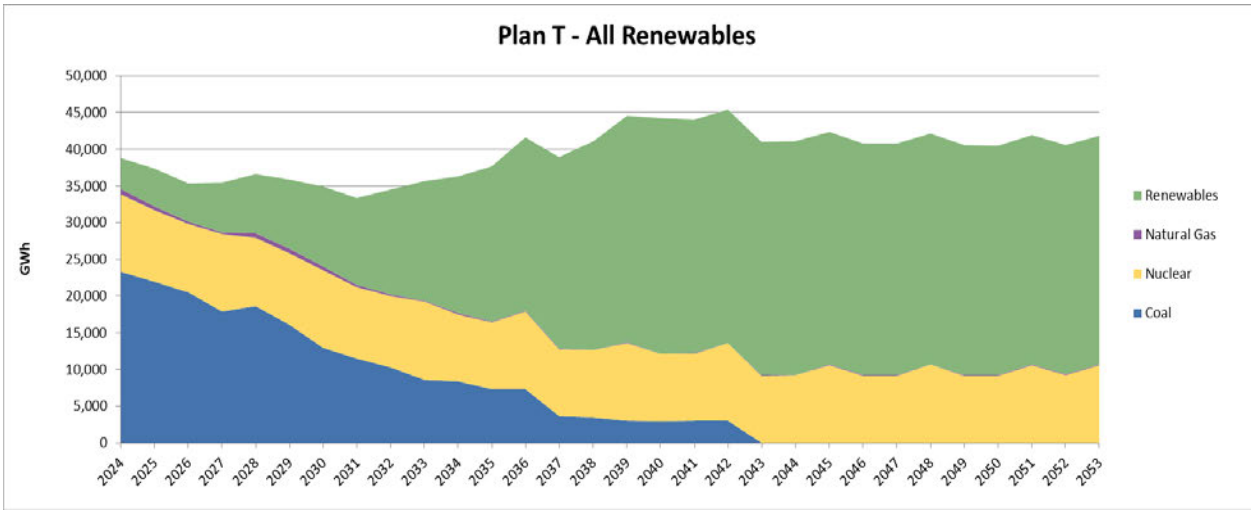

Plan O - Labadie 2039
GWh
50,000
45,000
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053
Renewables
Natural Gas
Nuclear
Coal

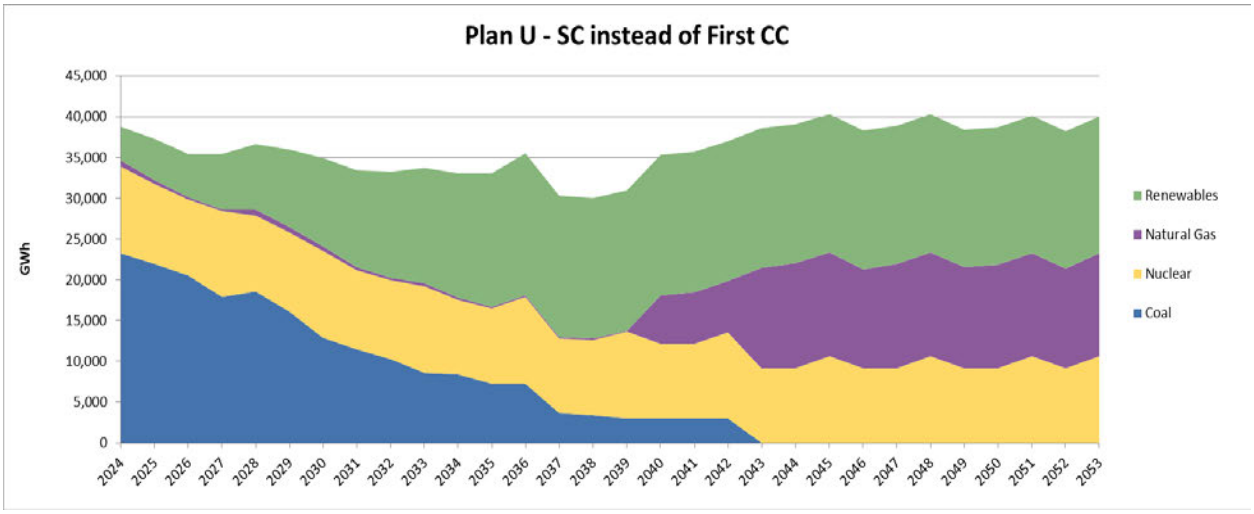

Plan P - Labadie 2036
GWh
60,000
50,000
40,000
30,000
20,000
10,000
0
2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053
Renewables
Natural Gas
Nuclear
Coal

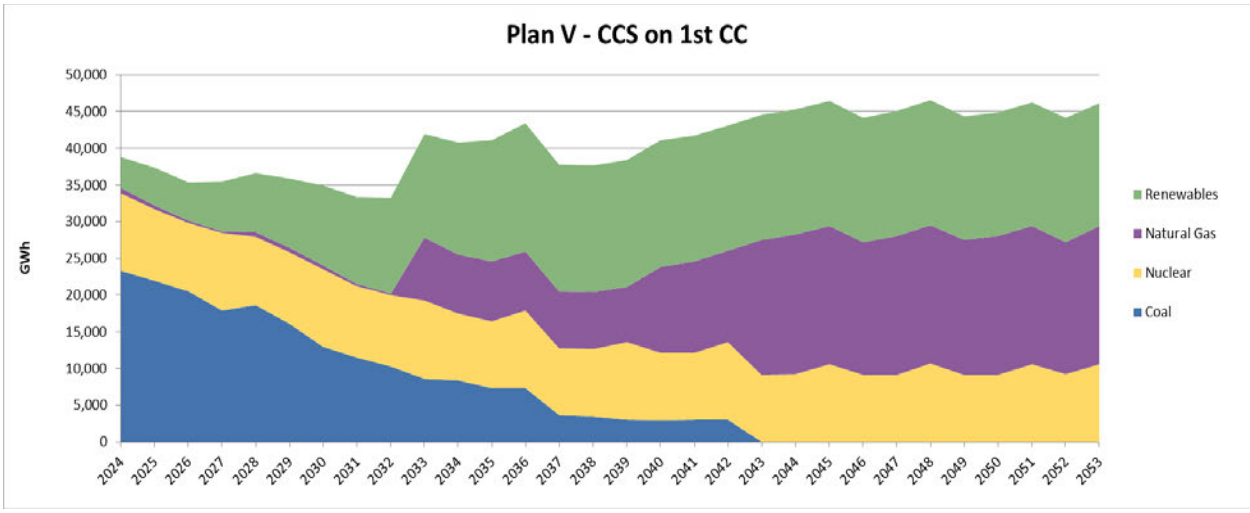

Plan Q - Labadie 2031
GWh
60,000
50,000
40,000
30,000
20,000
10,000
0
2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053
Renewables
Natural Gas
Nuclear
Coal


Plan R - RAP LF
GWh
50,000
45,000
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053
Renewables
Natural Gas
Nuclear
Coal


Plan S - MAP LF
GWh
50,000
45,000
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053
Renewables
Natural Gas
Nuclear
Coal


Plan T - All Renewables
GWh
50,000
45,000
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053
Renewables
Natural Gas
Nuclear
Coal


Plan U - SC instead of First CC
GWh
45,000
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053
Renewables
Natural Gas
Nuclear
Coal


Plan V - CCS on 1st CC
GWh
50,000
45,000
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053
Renewables
Natural Gas
Nuclear
Coal

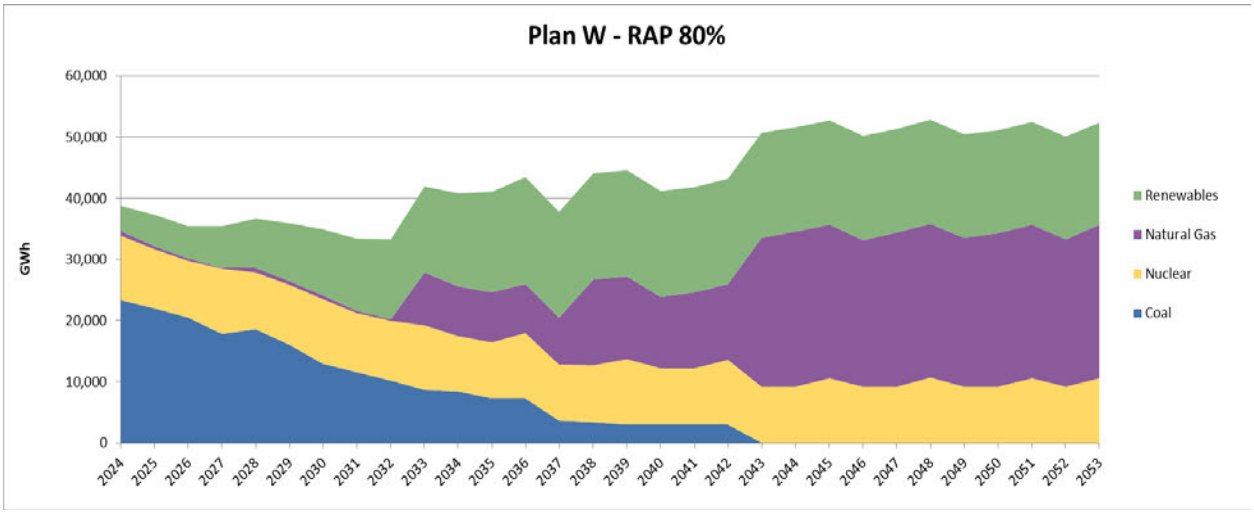

Plan W - RAP 80%
GWh
60,000
50,000
40,000
30,000
20,000
10,000
0
2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053
Renewables
Natural Gas
Nuclear
Coal

Figure 9A.13 Financial Measures[18]

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[18] 20 CSR 4240-22.060(2)(A)6

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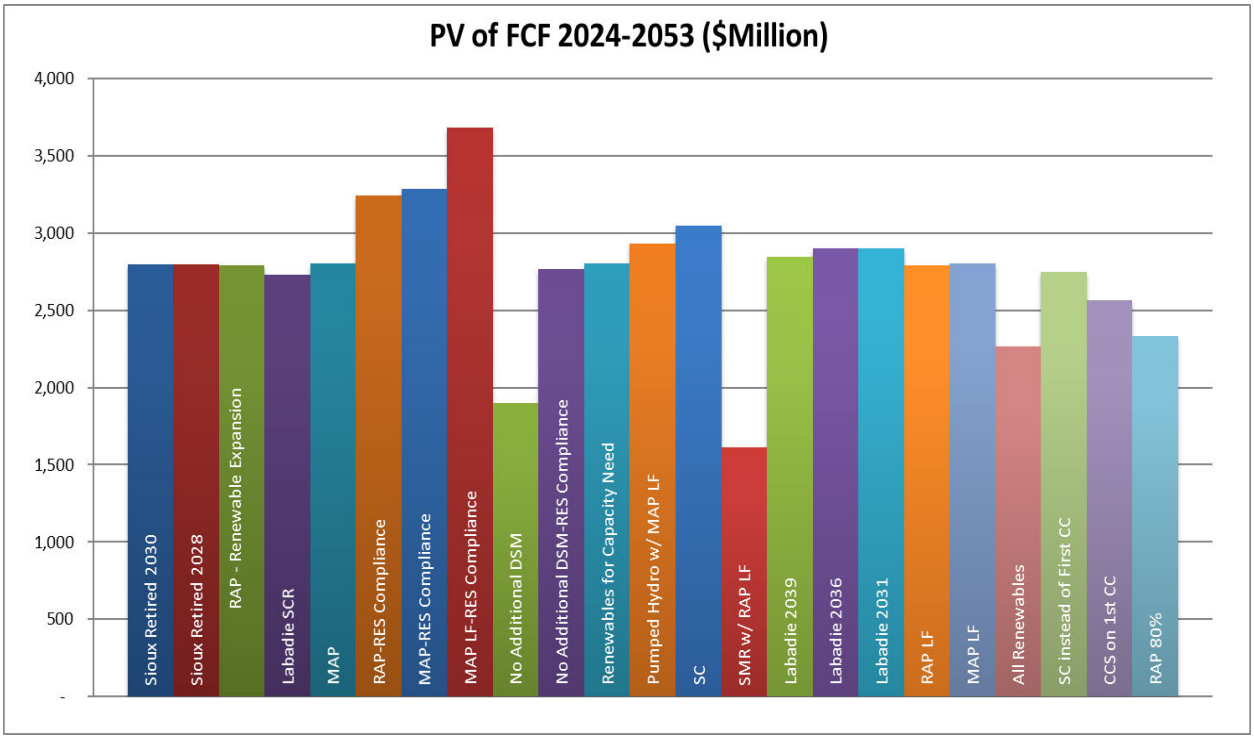
PV of FCF 2024-2053 ($Million)
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
-
Sioux Retired 2030
Sioux Retired 2028
RAP - Renewable Expansion
Labadie SCR
MAP
RAP-RES Compliance
MAP-RES Compliance
MAP LF-RES Compliance
No Additional DSM
No Additional DSM-RES Compliance
Renewables for Capacity Need
Pumped Hydro w/ MAP LF
SC
SMR w/ RAP LF
Labadie 2039
Labadie 2036
Labadie 2031
RAP LF
MAP LF
All Renewables
SC instead of First CC
CCS on 1st CC
RAP 80%

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Figure 9A.14 Revenue Requirements and Rates[19]

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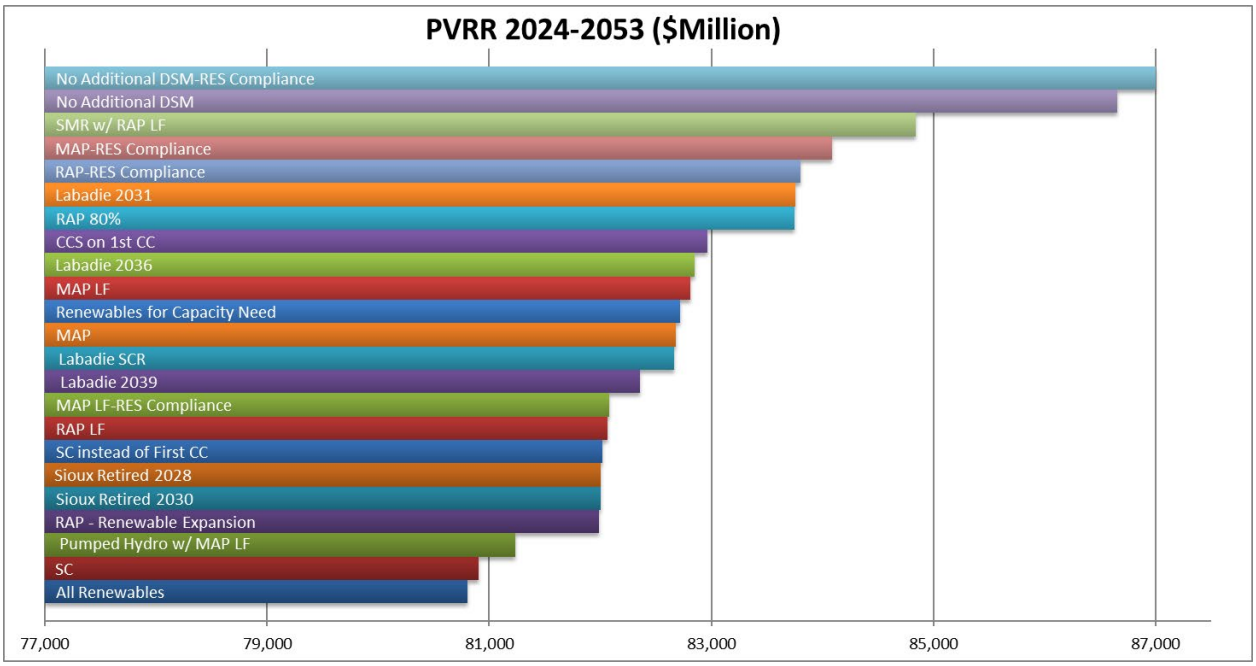

[19] 20 CSR 4240-22.060(2)(A)4; 20 CSR 4240-22.060(2)(A)5

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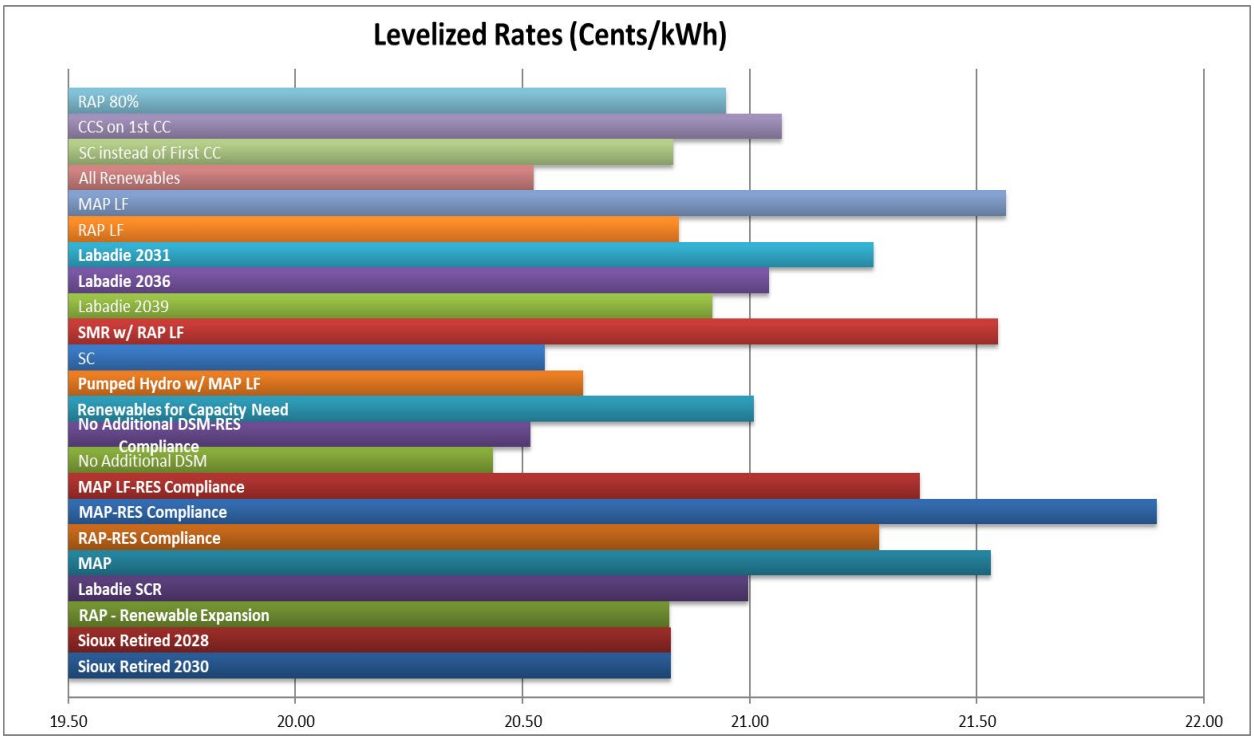
Levelized Rates (Cents/kWh)
RAP 80%
CCS on 1st CC
SC instead of First CC
All Renewables
MAP LF
RAP LF
Labadie 2031
Labadie 2036
Labadie 2039
SMR w/ RAP LF
SC
Pumped Hydro w/ MAP LF
Renewables for Capacity Need
No Additional DSM-RES Compliance
No Additional DSM
MAP LF-RES Compliance
MAP-RES Compliance
RAP-RES Compliance
MAP
Labadie SCR
RAP - Renewable Expansion
Sioux Retired 2028
Sioux Retired 2030
19.50
20.00
20.50
21.00
21.50
22.00

P

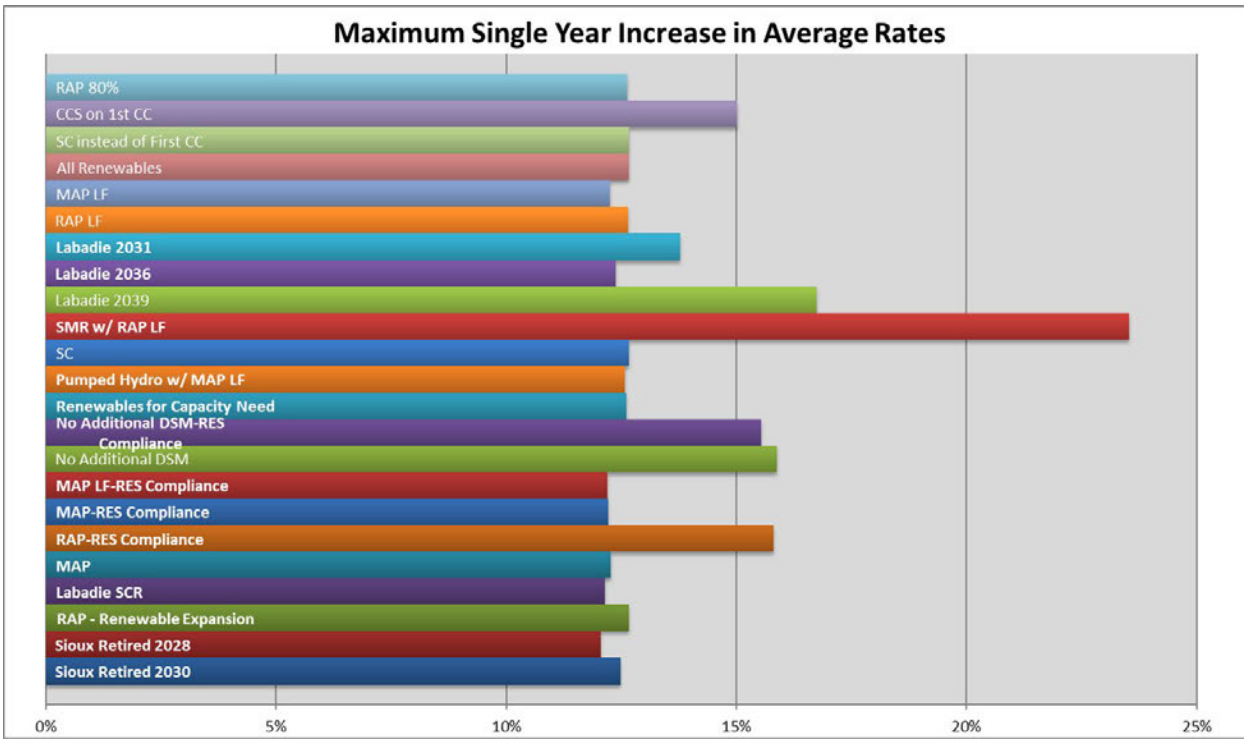

Figure 9A.15 Results with Financial Incentives for DSM[20]
Annual Revenue Requirements[21]

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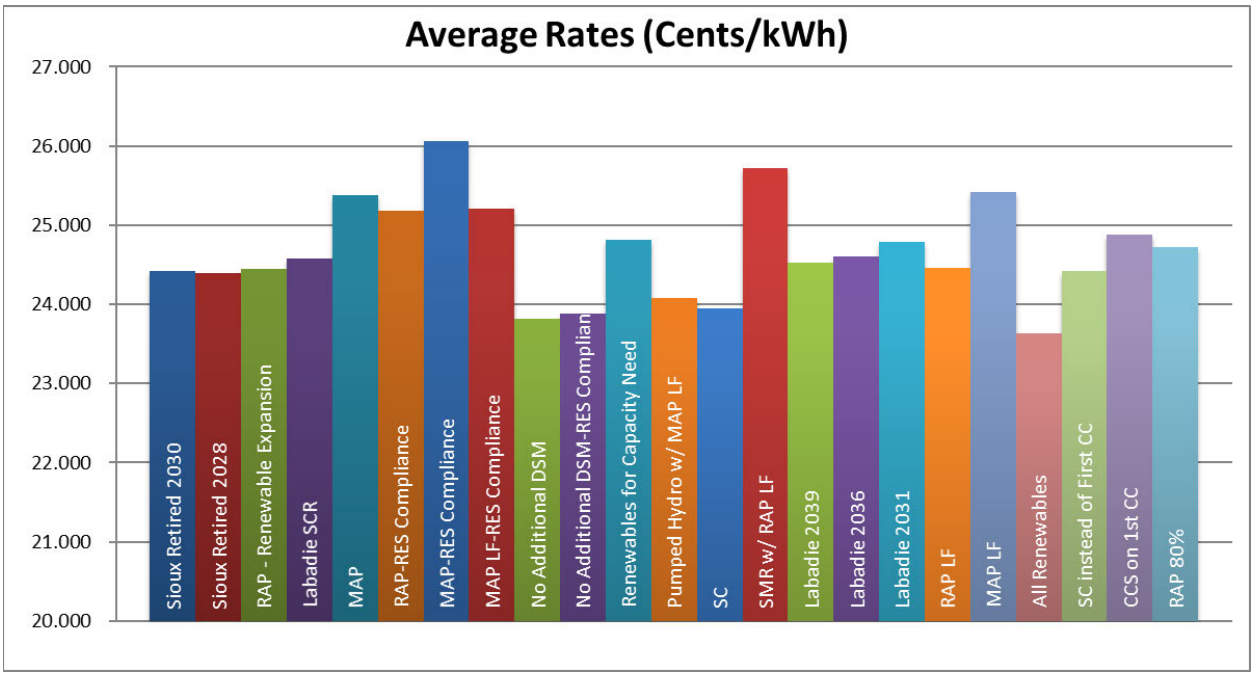
[20] 20 CSR 4240-22.060(4)(C)
[21] 20 CSR 4240-22.060(4)(C)1A

Annual Average Rates[22]



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[22] 20 CSR 4240-22.060(4)(C)1B; 20 CSR 4240-22.060(4)(C)1C

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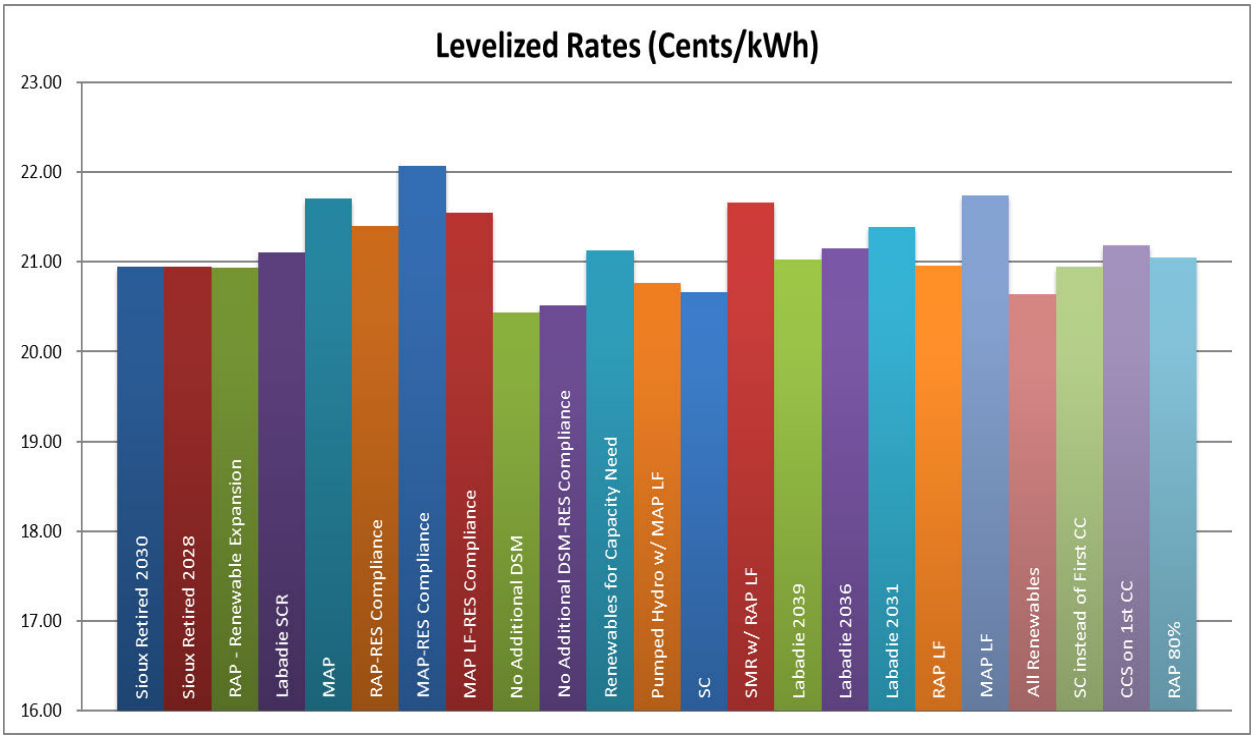

Tabulation for annual % increases in rates with and without financial incentives is provided in the workpapers.

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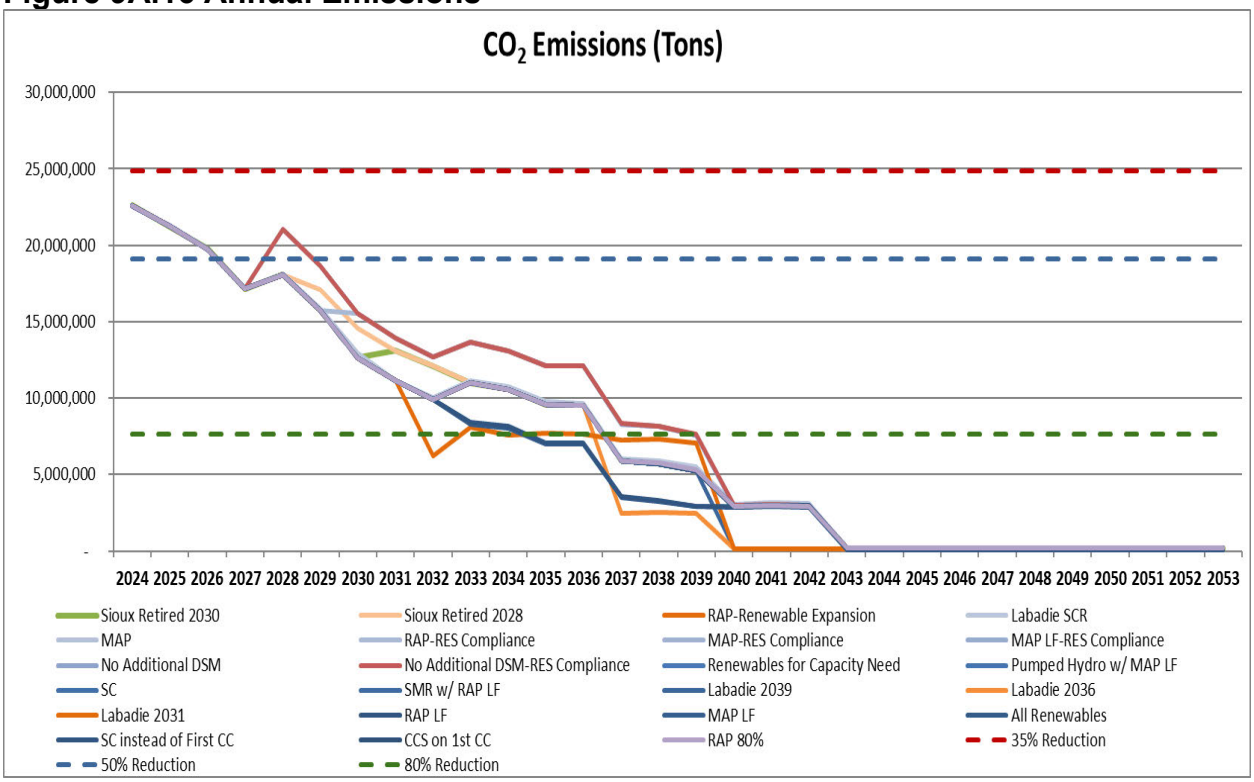
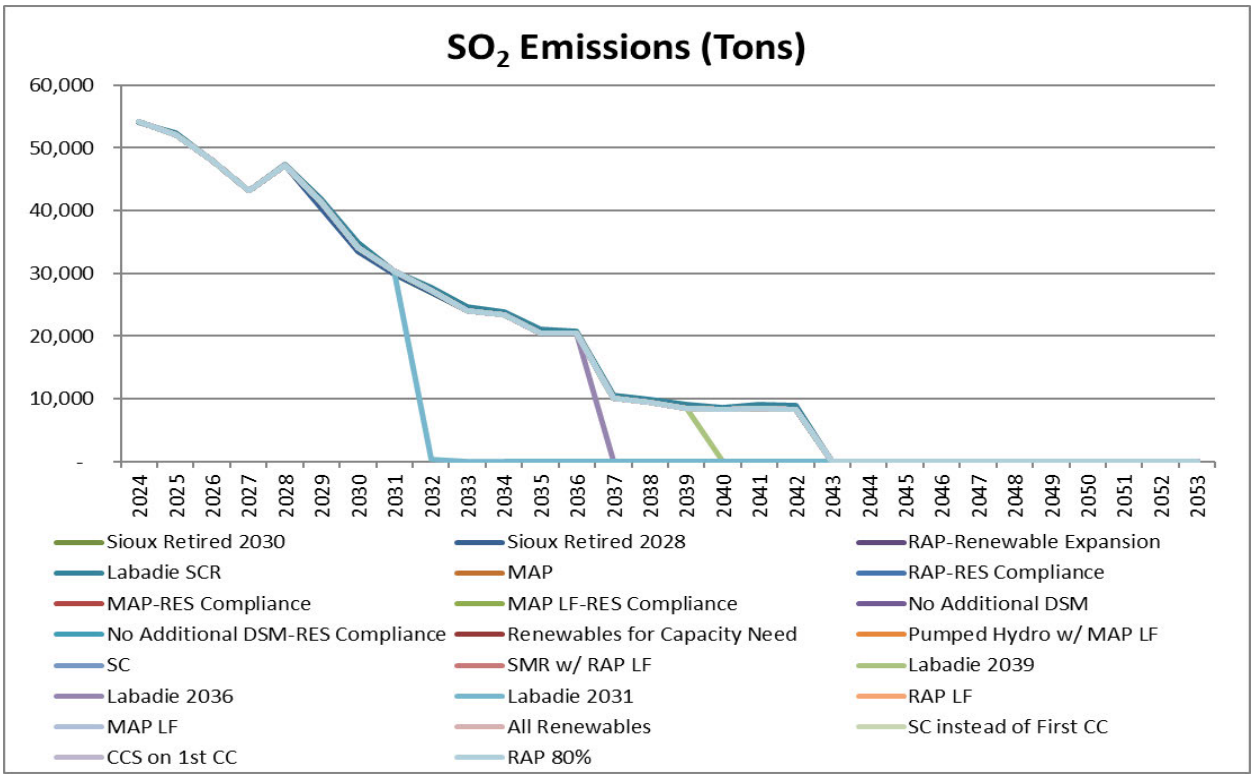
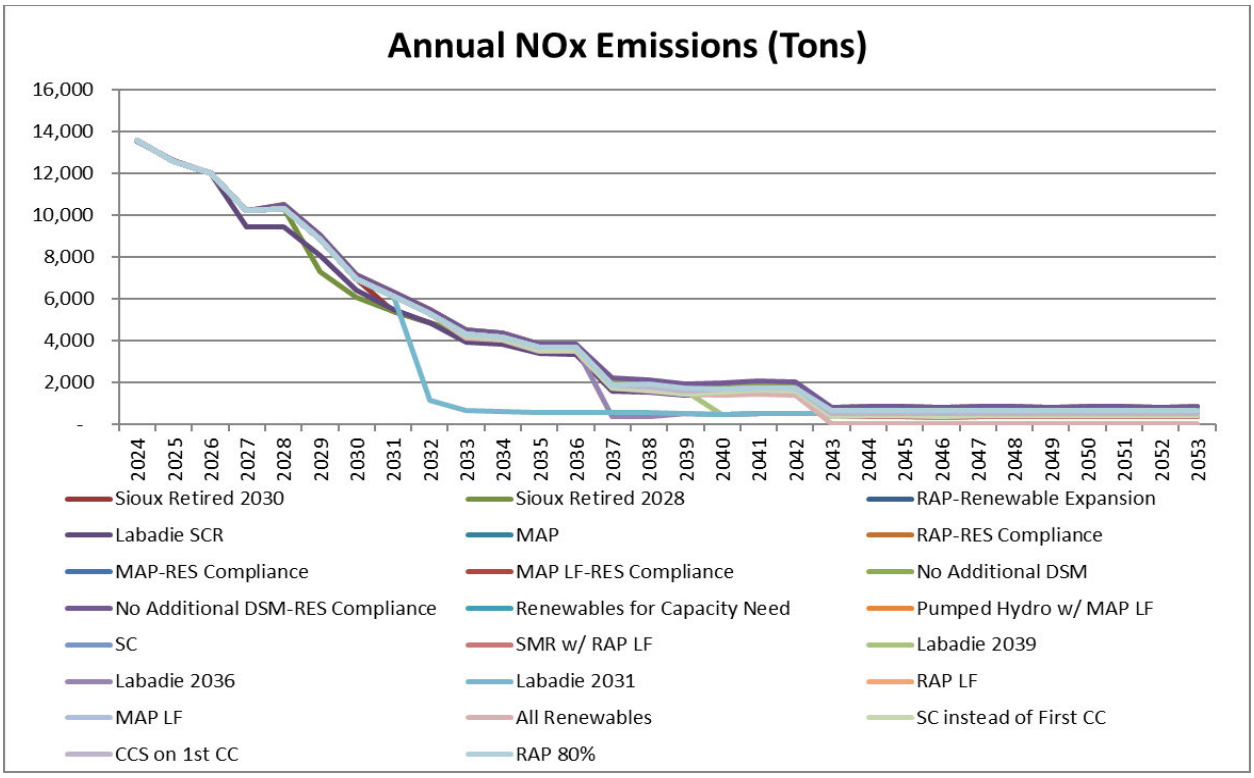
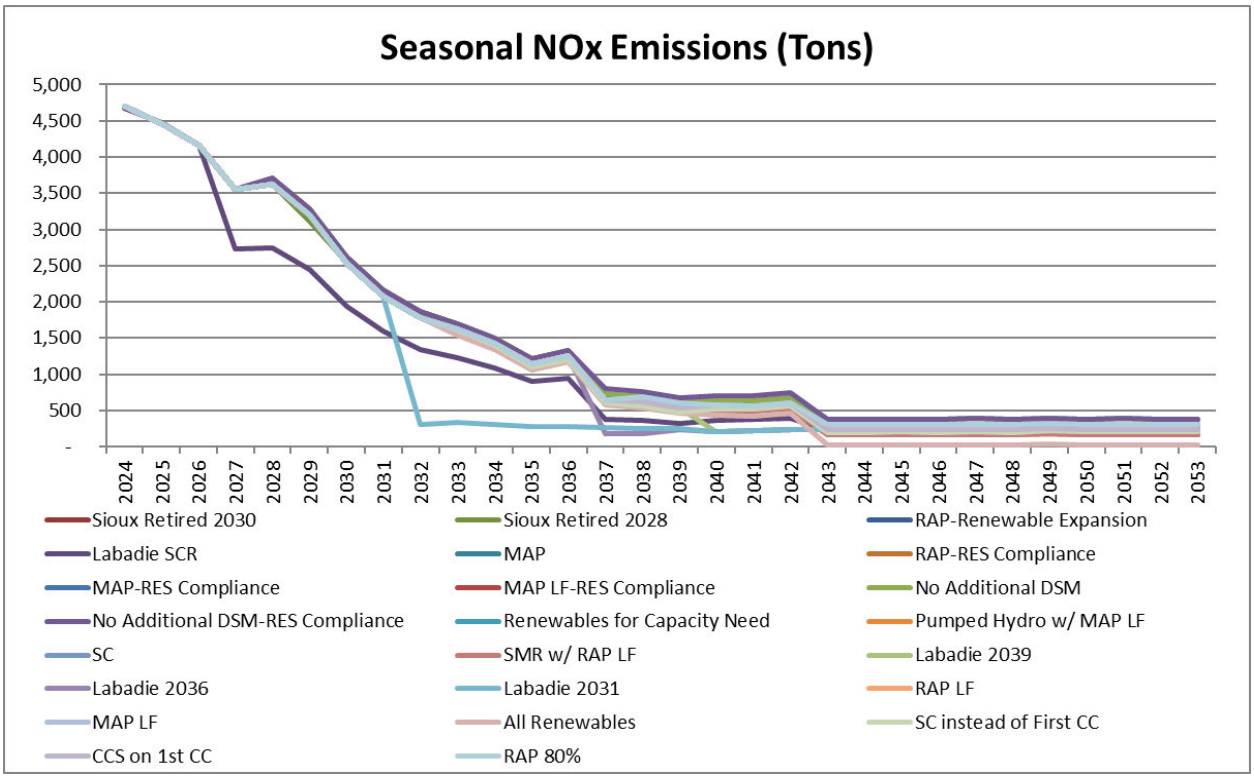
Figure 9A.16 Annual Emissions[23]





[23] 20 CSR 4240-22.060(4)(B)7


Annual NOx Emissions (Tons)
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
-
2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053
Sioux Retired 2030
Sioux Retired 2028
RAP-Renewable Expansion
Labadie SCR
MAP
RAP-RES Compliance
MAP-RES Compliance
MAP LF-RES Compliance
No Additional DSM
No Additional DSM-RES Compliance
Renewables for Capacity Need
Pumped Hydro w/ MAP LF
SC
SMR w/ RAP LF
Labadie 2039
Labadie 2036
Labadie 2031
RAP LF
MAP LF
All Renewables
SC instead of First CC
CCS on 1st CC
RAP 80%


Seasonal NOx Emissions (Tons)
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
-
2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053
Sioux Retired 2030
Sioux Retired 2028
RAP-Renewable Expansion
Labadie SCR
MAP
RAP-RES Compliance
MAP-RES Compliance
MAP LF-RES Compliance
No Additional DSM
No Additional DSM-RES Compliance
Renewables for Capacity Need
Pumped Hydro w/ MAP LF
SC
SMR w/ RAP LF
Labadie 2039
Labadie 2036
Labadie 2031
RAP LF
MAP LF
All Renewables
SC instead of First CC
CCS on 1st CC
RAP 80%

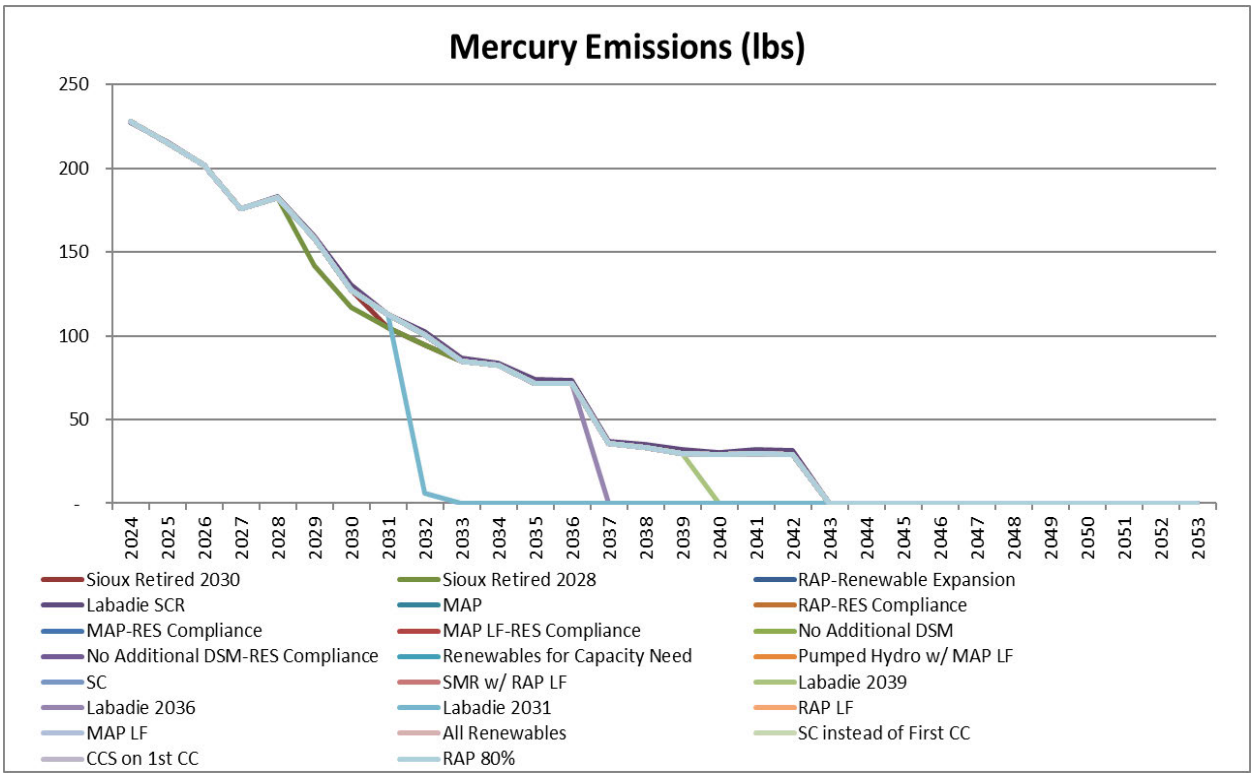
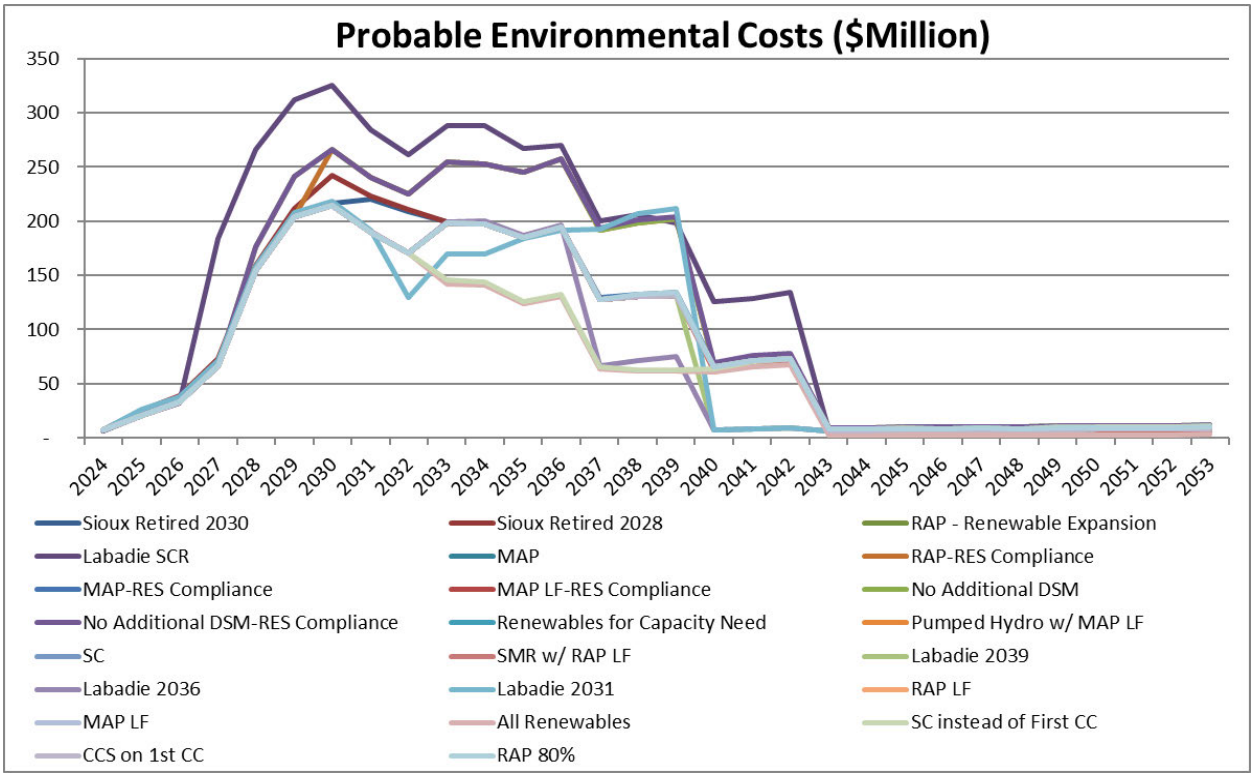
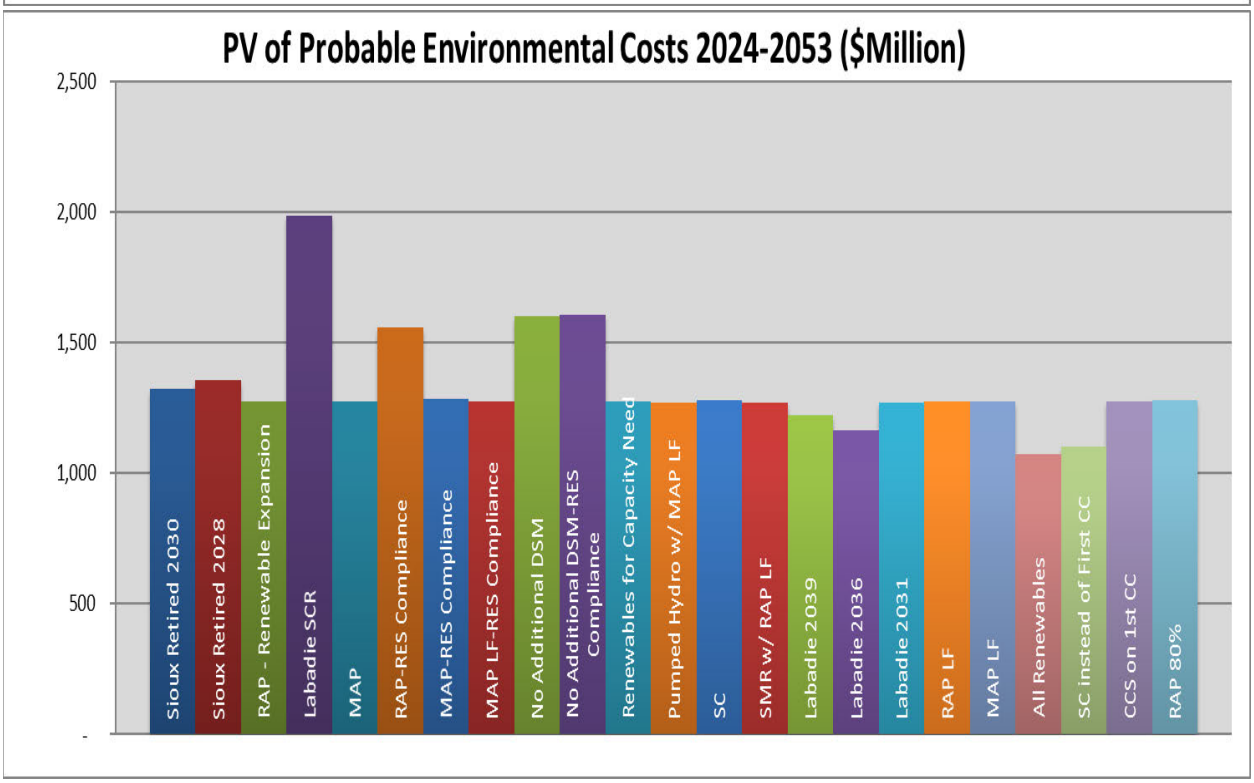
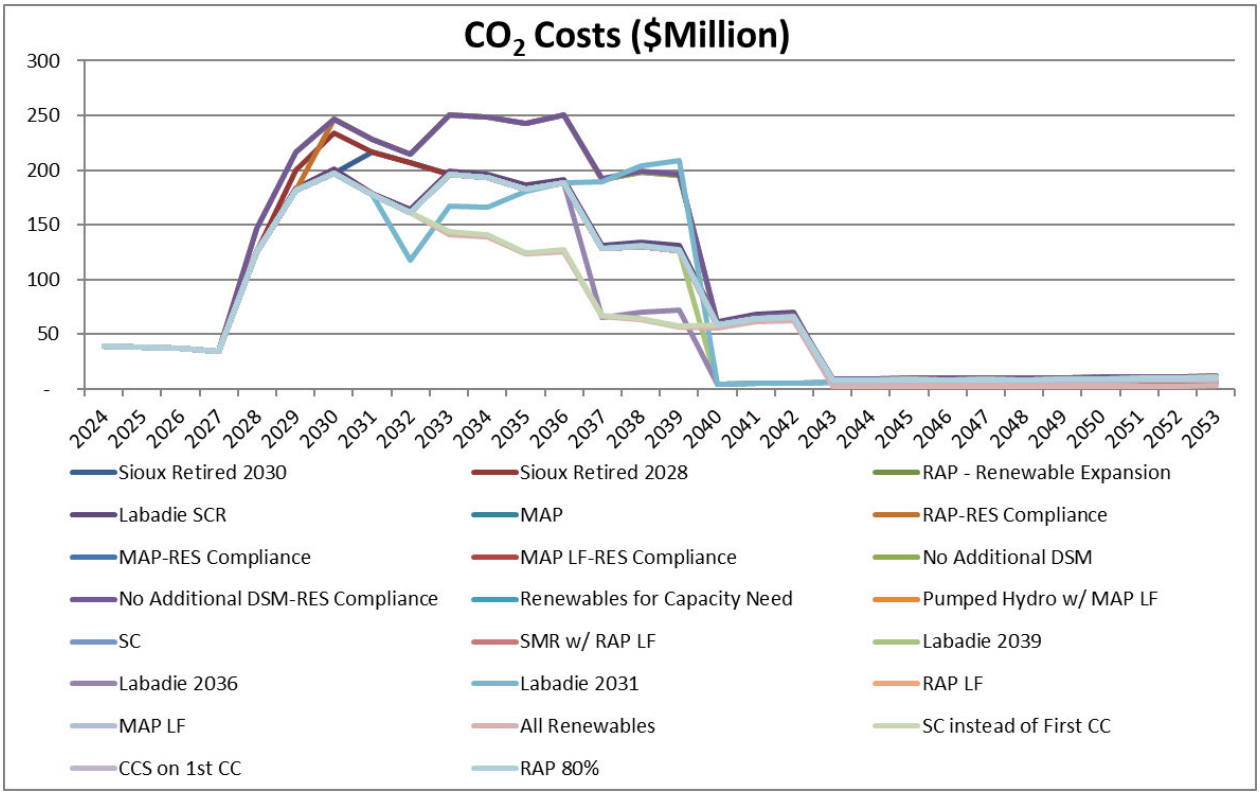

Mercury Emissions (lbs)
250
200
150
100
50
-
2024
2025
2026
2027
2028
2029
2030
2031
2032
2033
2034
2035
2036
2037
2038
2039
2040
2041
2042
2043
2044
2045
2046
2047
2048
2049
2050
2051
2052
2053
Sioux Retired 2030
Sioux Retired 2028
RAP-Renewable Expansion
Labadie SCR
MAP
RAP-RES Compliance
MAP-RES Compliance
MAP LF-RES Compliance
No Additional DSM
No Additional DSM-RES Compliance
Renewables for Capacity Need
Pumped Hydro w/ MAP LF
SC
SMR w/ RAP LF
Labadie 2039
Labadie 2036
Labadie 2031
RAP LF
MAP LF
All Renewables
SC instead of First CC
CCS on 1st CC
RAP 80%

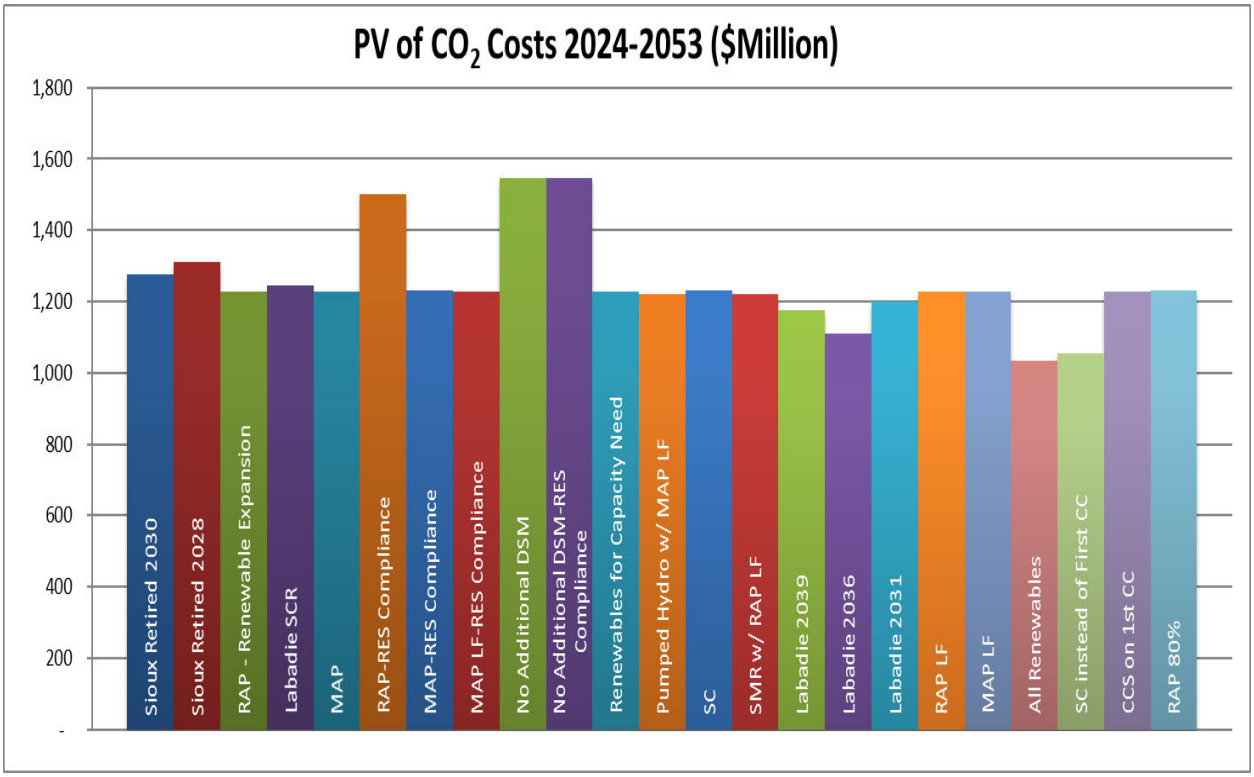
Figure 9A.17 Probable Environmental Costs[24]

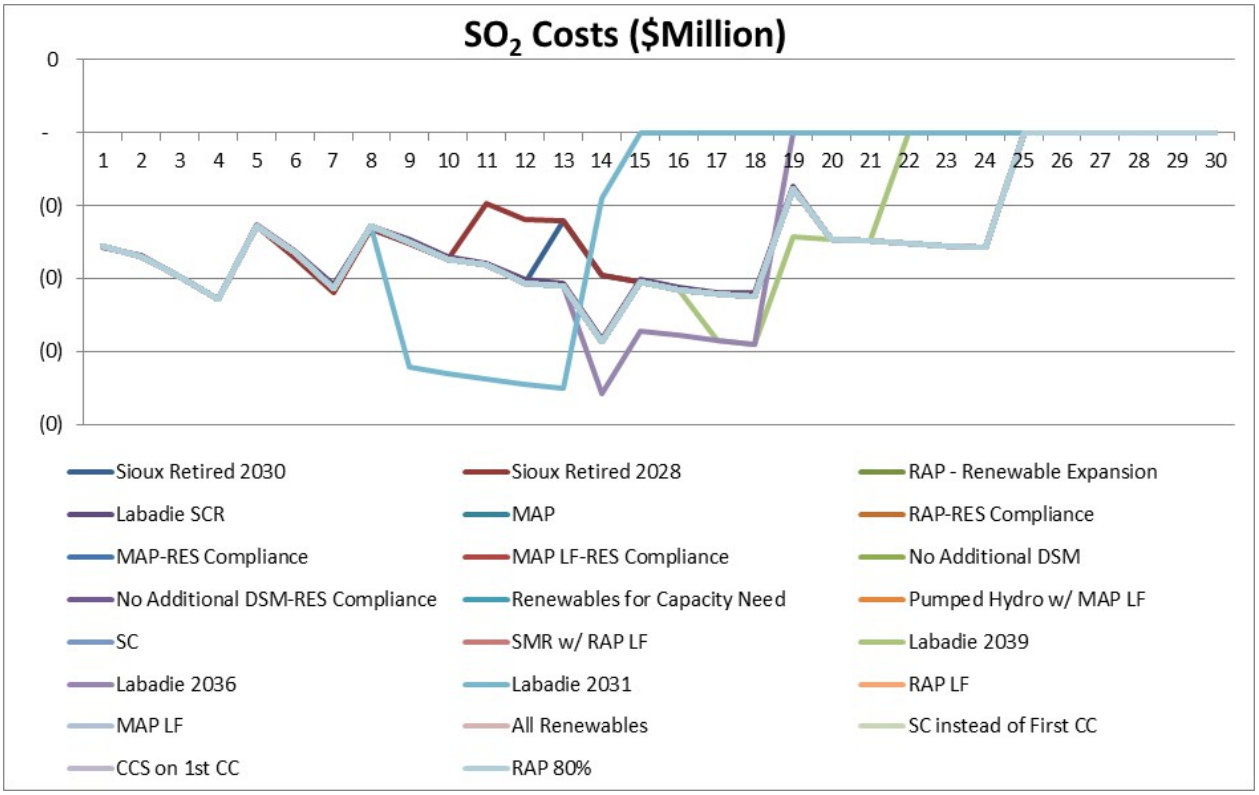


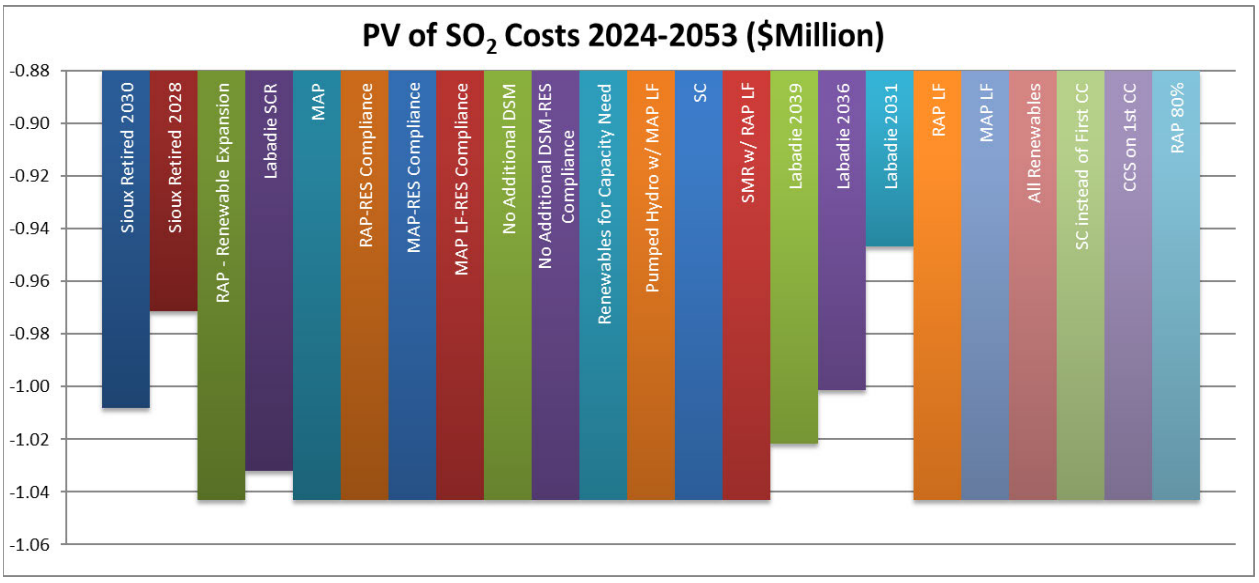


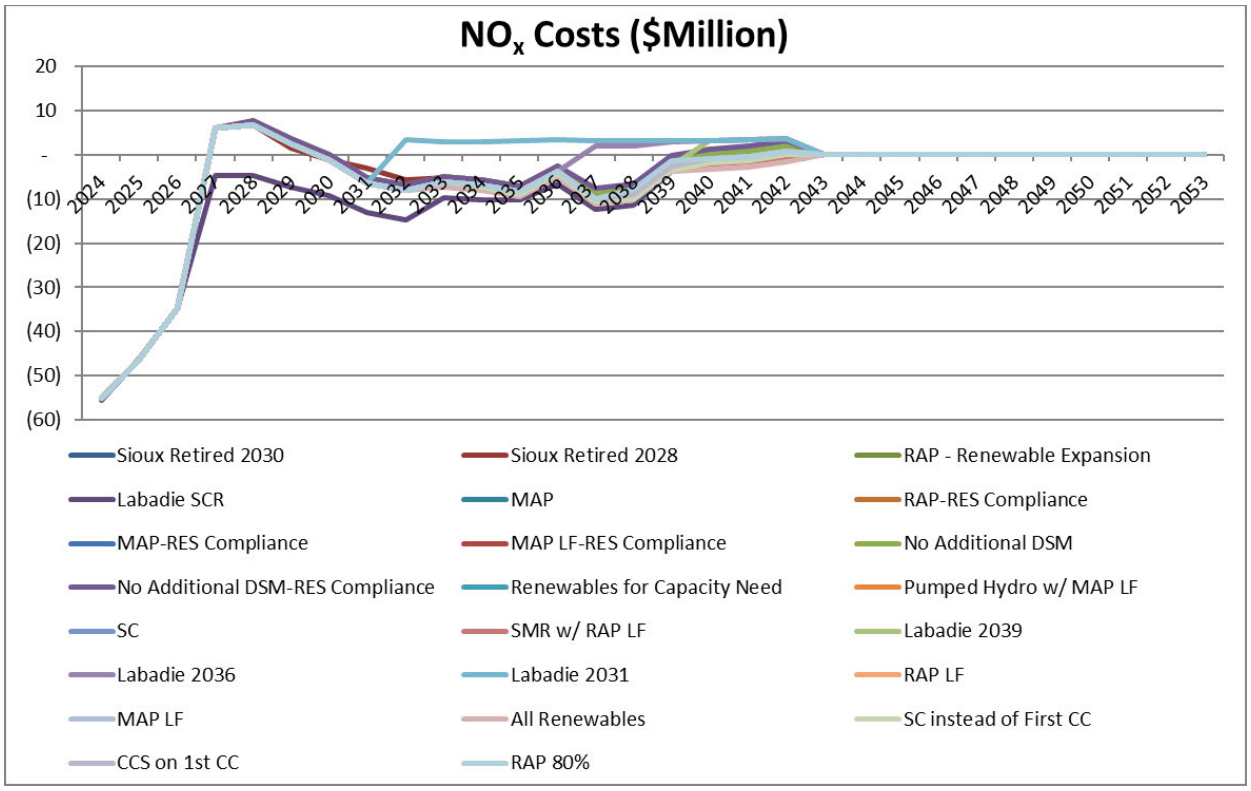
[24] 20 CSR 4240-22.060(2)(A)2; 20 CSR 4240-22.060(4)(B)8

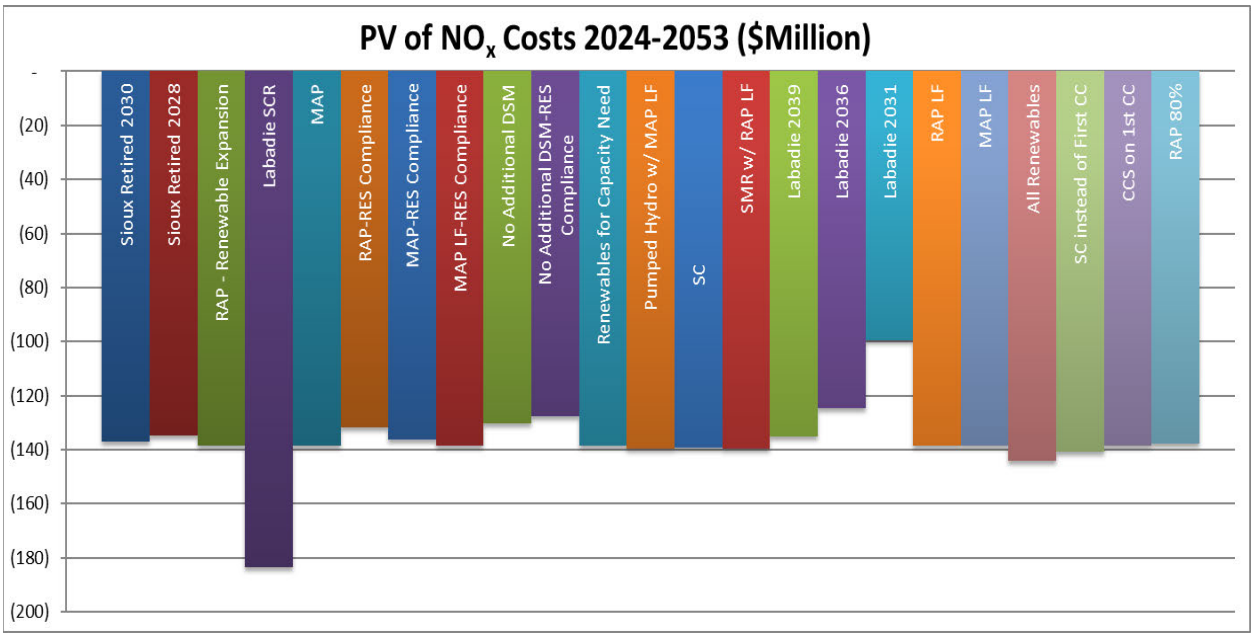

CO_2 Costs ($Million)
300
250
200
150
100
50
-
2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053
Sioux Retired 2030
Sioux Retired 2028
RAP - Renewable Expansion
Labadie SCR
MAP
RAP-RES Compliance
MAP-RES Compliance
MAP LF-RES Compliance
No Additional DSM
No Additional DSM-RES Compliance
Renewables for Capacity Need
Pumped Hydro w/ MAP LF
SC
SMR w/ RAP LF
Labadie 2039
Labadie 2036
Labadie 2031
RAP LF
MAP LF
All Renewables
SC instead of First CC
CCS on 1st CC
RAP 80%


PV of CO_2 Costs 2024-2053 ($Million)
1,800
1,600
1,400
1,200
1,000
800
600
400
200
-
Sioux Retired 2030
Sioux Retired 2028
RAP - Renewable Expansion
Labadie SCR
MAP
RAP-RES Compliance
MAP-RES Compliance
MAP LF-RES Compliance
No Additional DSM
No Additional DSM-RES Compliance
Renewables for Capacity Need
Pumped Hydro w/ MAP LF
SC
SMR w/ RAP LF
Labadie 2039
Labadie 2036
Labadie 2031
RAP LF
MAP LF
All Renewables
SC instead of First CC
CCS on 1st CC
RAP 80%


SO_2 Costs ($Million)
0
-
(0)
(0)
(0)
(0)
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
Sioux Retired 2030
Sioux Retired 2028
RAP - Renewable Expansion
Labadie SCR
MAP
RAP-RES Compliance
MAP-RES Compliance
MAP LF-RES Compliance
No Additional DSM
No Additional DSM-RES Compliance
Renewables for Capacity Need
Pumped Hydro w/ MAP LF
SC
SMR w/ RAP LF
Labadie 2039
Labadie 2036
Labadie 2031
RAP LF
MAP LF
All Renewables
SC instead of First CC
CCS on 1st CC
RAP 80%


PV of SO_2 Costs 2024-2053 ($Million)
-0.88
-0.90
-0.92
-0.94
-0.96
-0.98
-1.00
-1.02
-1.04
-1.06
Sioux Retired 2030
Sioux Retired 2028
RAP - Renewable Expansion
Labadie SCR
MAP
RAP-RES Compliance
MAP-RES Compliance
MAP LF-RES Compliance
No Additional DSM
No Additional DSM-RES Compliance
Renewables for Capacity Need
Pumped Hydro w/ MAP LF
SC
SMR w/ RAP LF
Labadie 2039
Labadie 2036
Labadie 2031
RAP LF
MAP LF
All Renewables
SC instead of First CC
CCS on 1st CC
RAP 80%


NOx Costs ($Million)
20
10
-
(10)
(20)
(30)
(40)
(50)
(60)
2024
2025
2026
2027
2028
2029
2030
2031
2032
2033
2034
2035
2036
2037
2038
2039
2040
2041
2042
2043
2044
2045
2046
2047
2048
2049
2050
2051
2052
2053
Sioux Retired 2030
Sioux Retired 2028
RAP - Renewable Expansion
Labadie SCR
MAP
RAP-RES Compliance
MAP-RES Compliance
MAP LF-RES Compliance
No Additional DSM
No Additional DSM-RES Compliance
Renewables for Capacity Need
Pumped Hydro w/ MAP LF
SC
SMR w/ RAP LF
Labadie 2039
Labadie 2036
Labadie 2031
RAP LF
MAP LF
All Renewables
SC instead of First CC
CCS on 1st CC
RAP 80%


PV of NOx Costs 2024-2053 ($Million)
-
(20)
(40)
(60)
(80)
(100)
(120)
(140)
(160)
(180)
(200)
Sioux Retired 2030
Sioux Retired 2028
RAP - Renewable Expansion
Labadie SCR
MAP
RAP-RES Compliance
MAP-RES Compliance
MAP LF-RES Compliance
No Additional DSM
No Additional DSM-RES Compliance
Renewables for Capacity Need
Pumped Hydro w/ MAP LF
SC
SMR w/ RAP LF
Labadie 2039
Labadie 2036
Labadie 2031
RAP LF
MAP LF
All Renewables
SC instead of First CC
CCS on 1st CC
RAP 80%

Expected Values, Rankings and Cumulative Probability Distributions for Selected Performance Measures[25]

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.[26]

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.[27]

[25] 20 CSR 4240-22.060(7)
[26] 20 CSR 4240-22.060(2)
[27] 20 CSR 4240-22.060(7)(C)4

Table 9A.8 Expected Values for Selected Performance Measures[28]

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_2 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	86,656	86,656	20.44	16%	0	1,601	8	3.05	5.15	23%	45%	9.4%	1,898	6 02	12,088
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

[28] 20 CSR 4240-22.060(4)(A); 20 CSR 4240-22.060(7)(A); 20 CSR 4240-22.060(7)(C)3

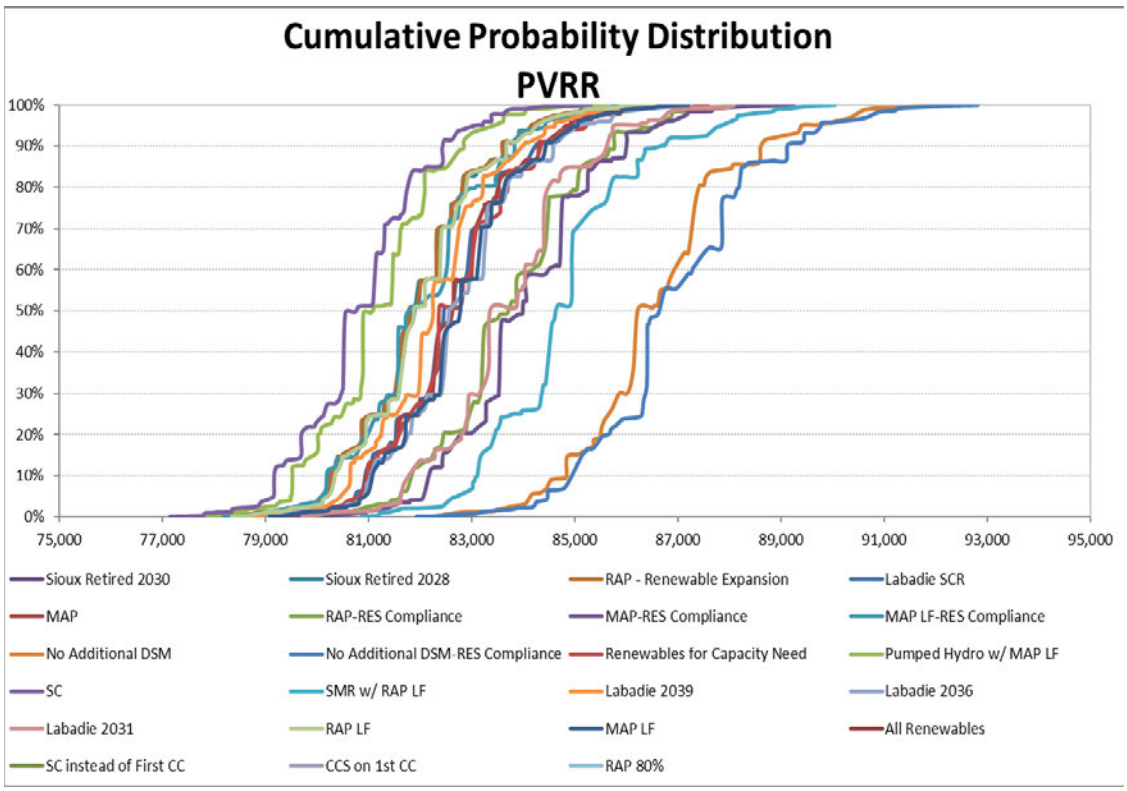
Table 9A.9 Rankings for Selected Performance Measures

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_2 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	20	9	20	21	1	19	19	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	20	18	21	20	1	23	4
I -No Additional DSM	22	22	1	21	1	21	22	7	16	16	18	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	18	20	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	14	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	17	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	15	16	19	5	8
W -RAP 80%	17	17	12	11	7	16	16	14	17	17	16	19	20	4	12

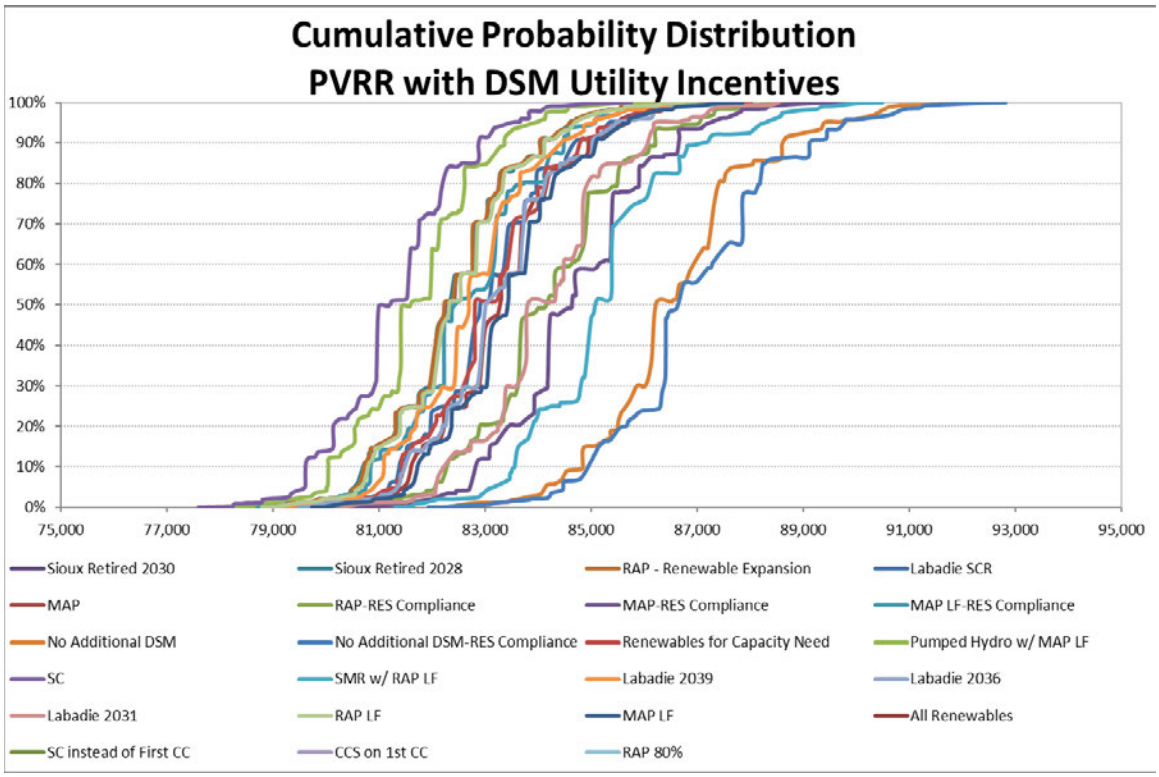
Since only project cost out of two (ROE& interest rates) that would cause variability in financial measures within the end points of each plan was found to be critical in the sensitivity analysis, and hence, CDFs for these measures are not as meaningful; therefore, the CDFs for financial measures are 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.[29]

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.[30]

Figure 9A.18 Cumulative Probability Distribution of PVRR



[29] 20 CSR 4240-22.060(7)(C)2
[30] 20 CSR 4240-22.060(7)(C)1


Cumulative Probability Distribution
PVRR with DSM Utility Incentives
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
75,000
77,000
79,000
81,000
83,000
85,000
87,000
89,000
91,000
93,000
95,000
Sioux Retired 2030
Sioux Retired 2028
RAP - Renewable Expansion
Labadie SCR
MAP
RAP-RES Compliance
MAP-RES Compliance
MAP LF-RES Compliance
No Additional DSM
No Additional DSM-RES Compliance
Renewables for Capacity Need
Pumped Hydro w/ MAP LF
SC
SMR w/ RAP LF
Labadie 2039
Labadie 2036
Labadie 2031
RAP LF
MAP LF
All Renewables
SC instead of First CC
CCS on 1st CC
RAP 80%

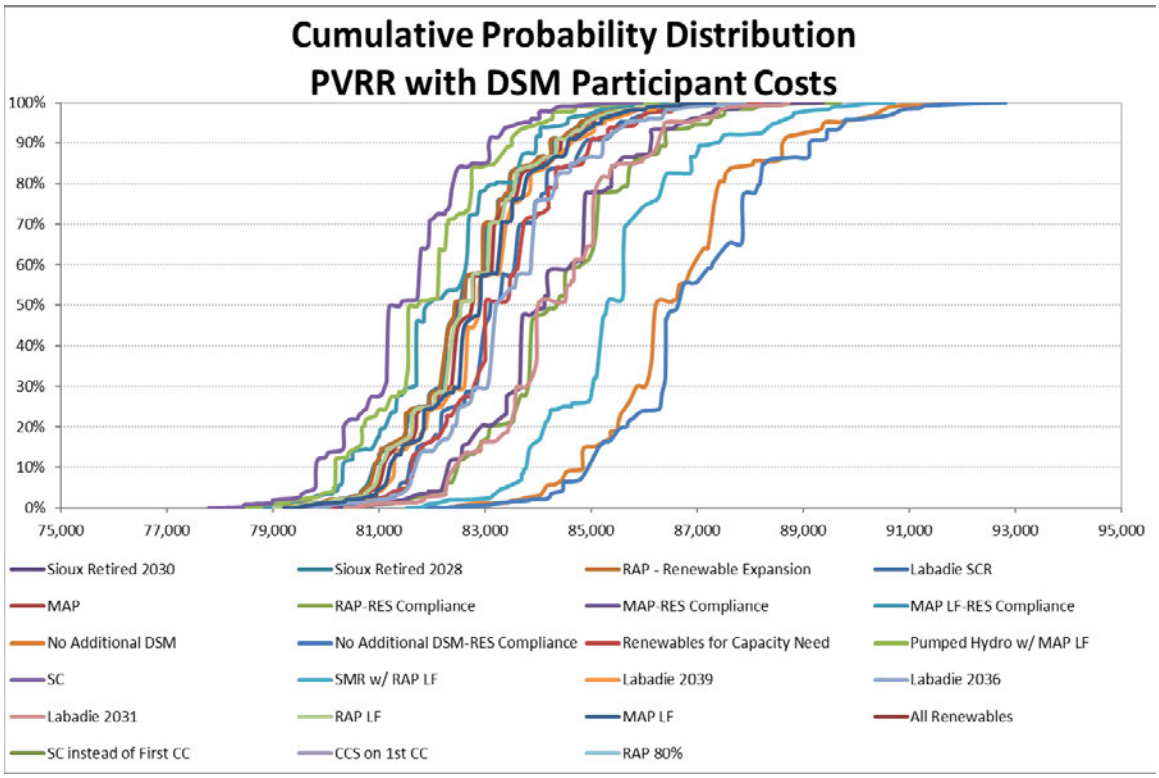

Cumulative Probability Distribution
PVRR with DSM Participant Costs
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
75,000
77,000
79,000
81,000
83,000
85,000
87,000
89,000
91,000
93,000
95,000
Sioux Retired 2030
Sioux Retired 2028
RAP - Renewable Expansion
Labadie SCR
MAP
RAP-RES Compliance
MAP-RES Compliance
MAP LF-RES Compliance
No Additional DSM
No Additional DSM-RES Compliance
Renewables for Capacity Need
Pumped Hydro w/ MAP LF
SC
SMR w/ RAP LF
Labadie 2039
Labadie 2036
Labadie 2031
RAP LF
MAP LF
All Renewables
SC instead of First CC
CCS on 1st CC
RAP 80%

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

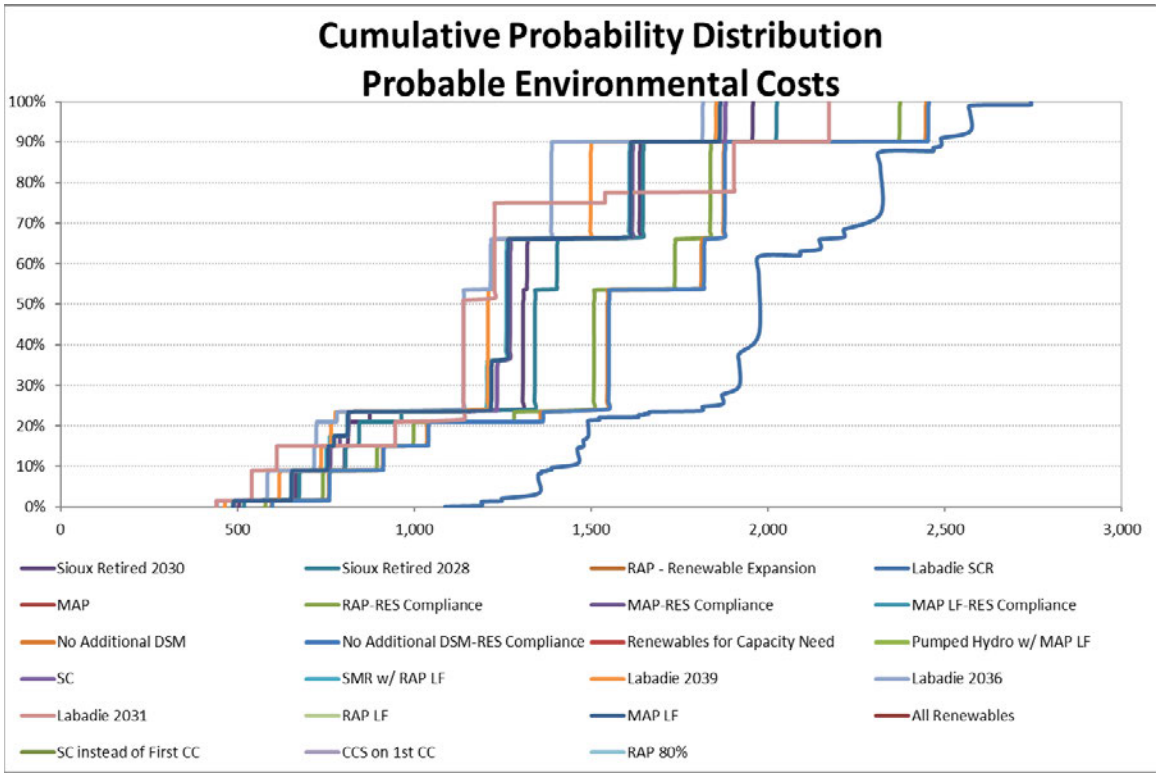


Figure 9A.20 Cumulative Probability Distribution of PV of CO_2 Costs

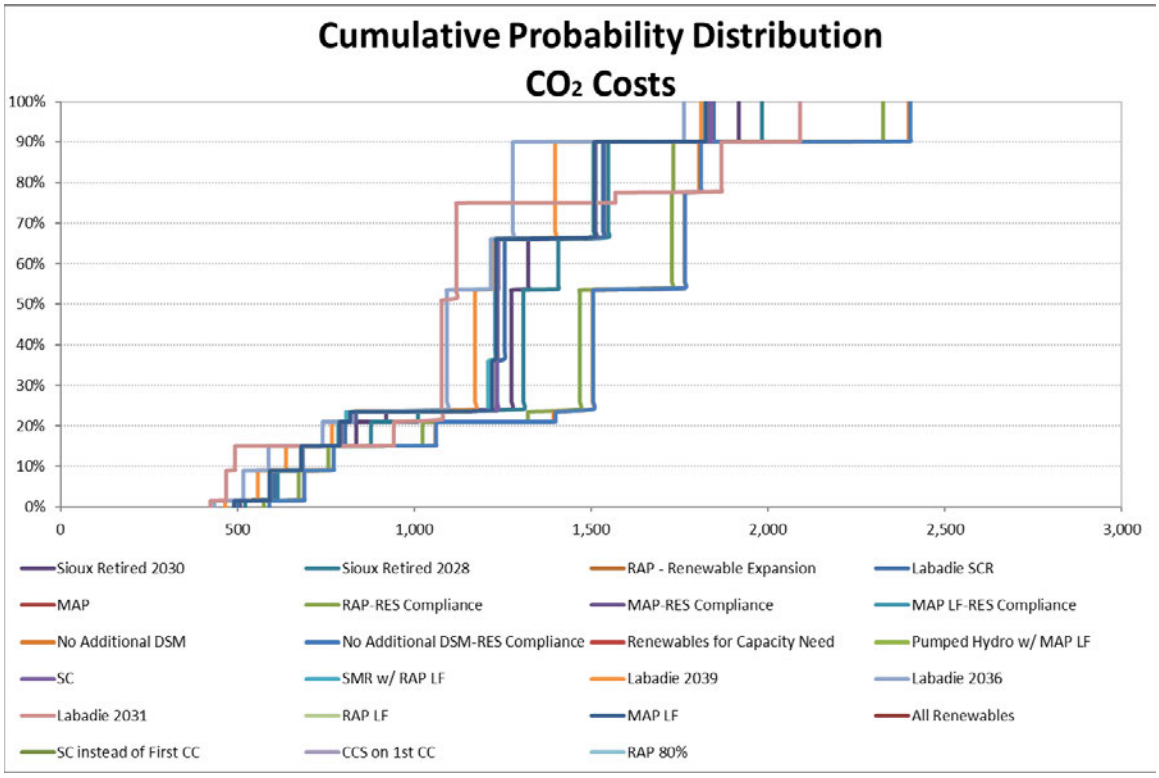


Figure 9A.21 Cumulative Probability Distribution of Levelized Rates

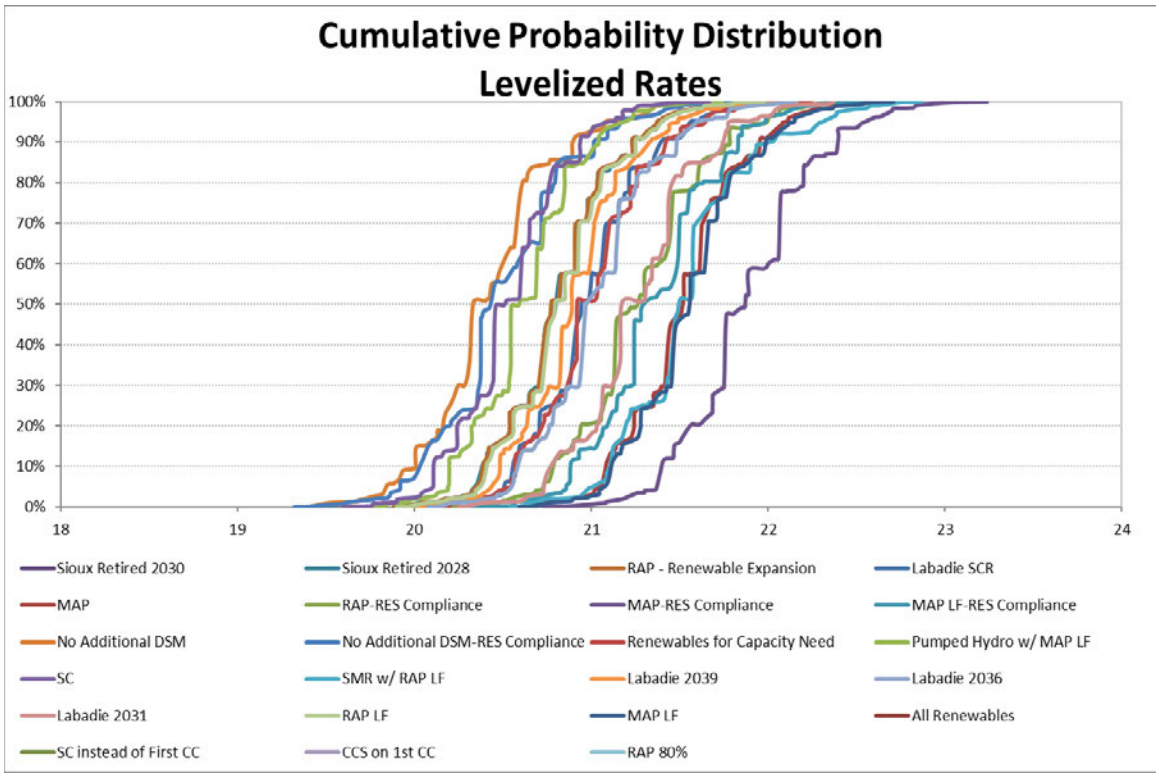
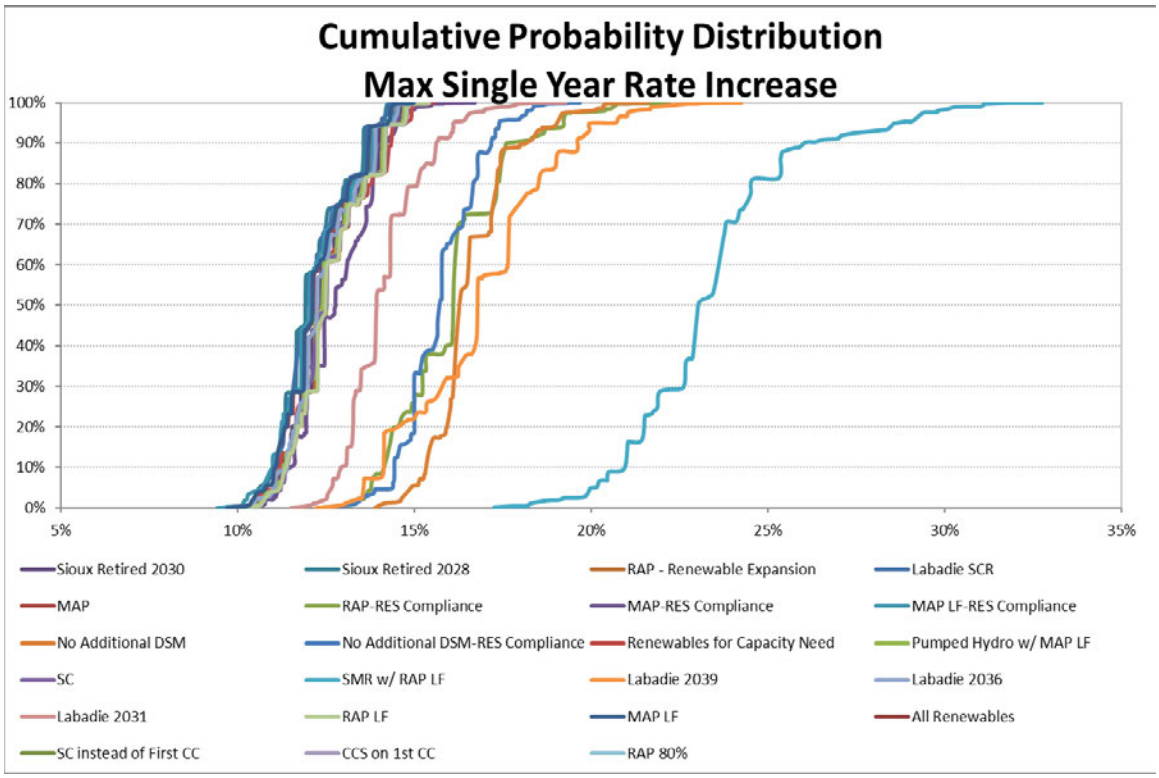


Figure 9A.22 Cumulative Probability Distribution of Max Single Year Rate Increase



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[31]

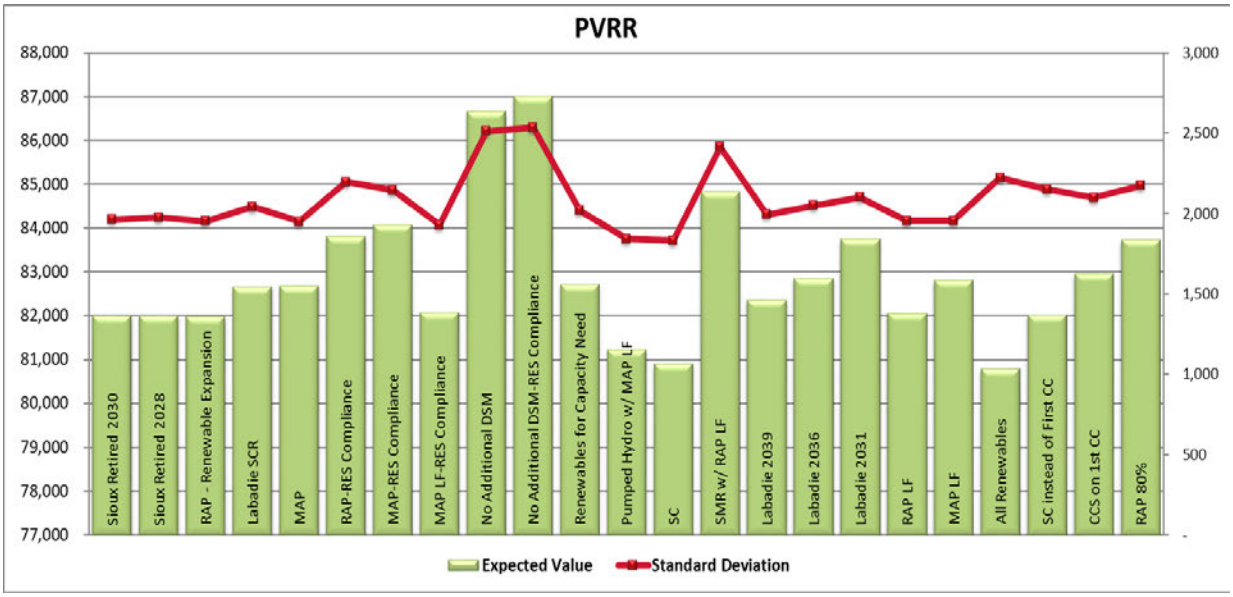
	STANDARD DEVIATION														
Plan	PVRR $MM	PVRR w/ Incentives $MM	Levelized Rates Cents/kWh	Max Single Yr Rate Increase	PV of Participant Cost $MM	PV of Probable Environmental Cost $MM	Avg CO_2 Emissions (MM Tons)	PreTax Interest Coverage	FFO-Interest Coverage	FFO/Debt	Debt/ Capitalization	ROE	FCF $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	2,513	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

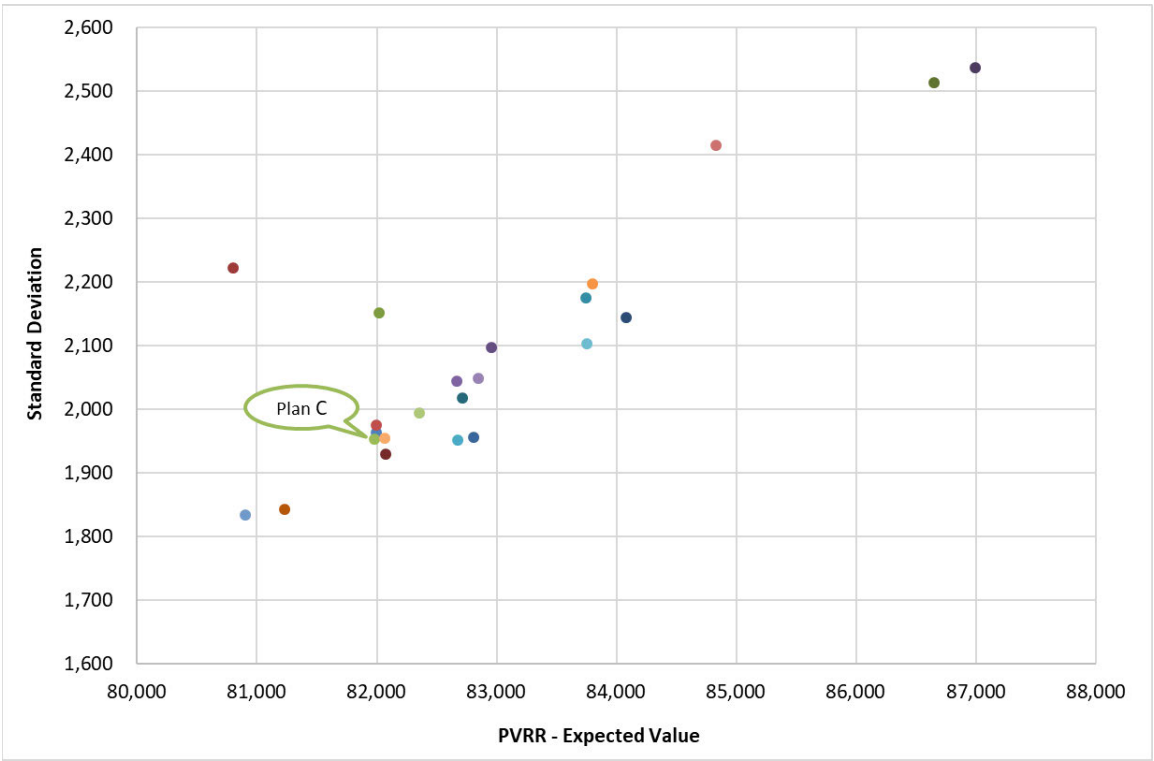
Standard deviation for “Jobs” has not been estimated since there was only one estimate per plan, it would be 0.

[31] 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.[32]

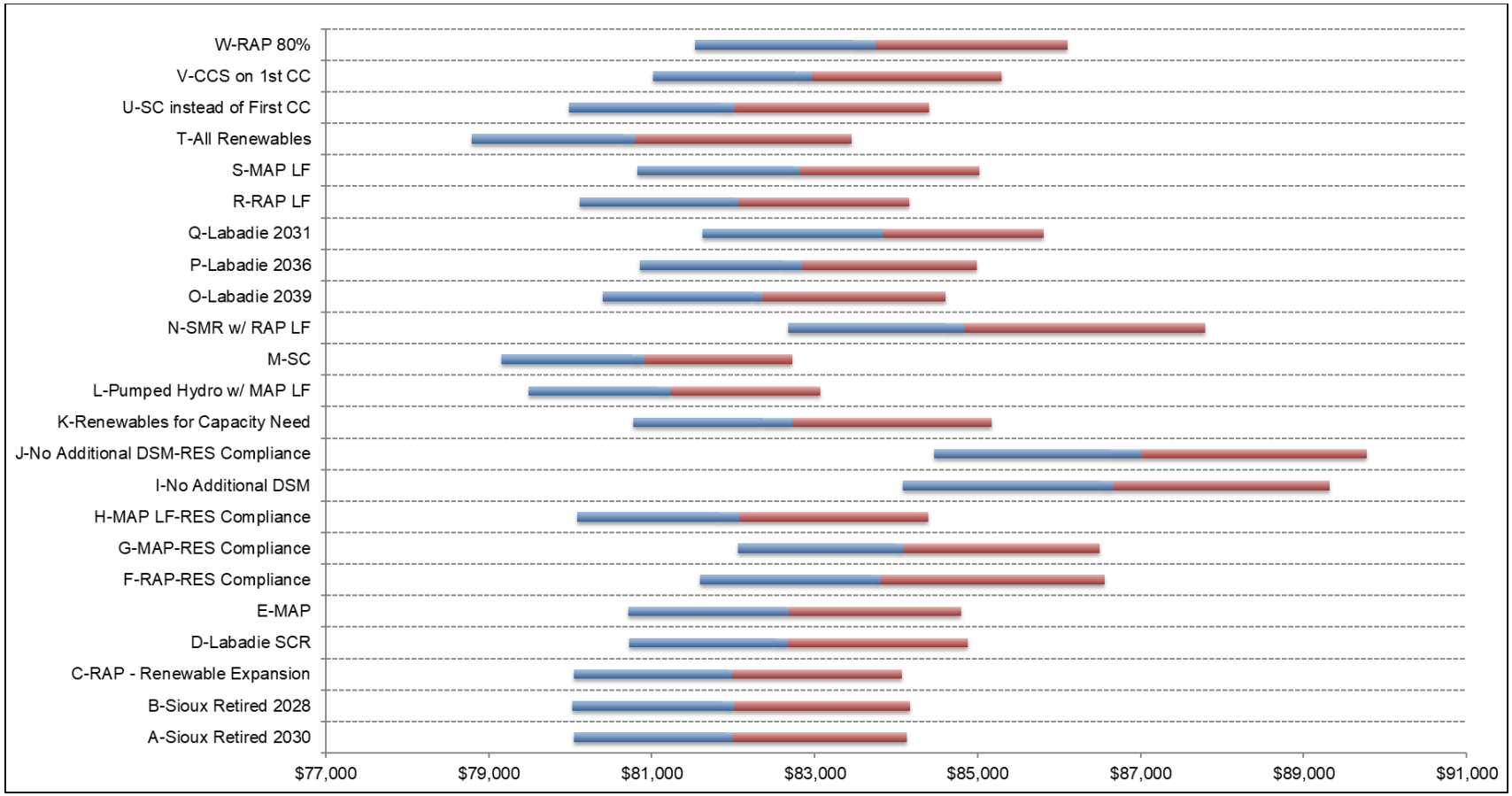
Figure 9A.23 PVRR – Expected Value and Standard Deviation





[32] 20 CSR 4240-22.060(7)(B)

Figure 9A.24 PVRR – Expected Value, 5th and 95th Percentiles



Compliance References