

Analysis of Clean Energy electricity generation and Clean Energy Tax Credit amounts under HB 368

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prepared for presentation to
House Special Committee on Energy

March 14, 2024

Questions addressed:

Q1. How much new Clean Energy (as defined by HB 368) would be generated if the Clean Energy Standard of 35% after 10 years and 60% after 25 years is met?

(“after” means after 2026 or after transmission upgrades are completed, whichever is later)

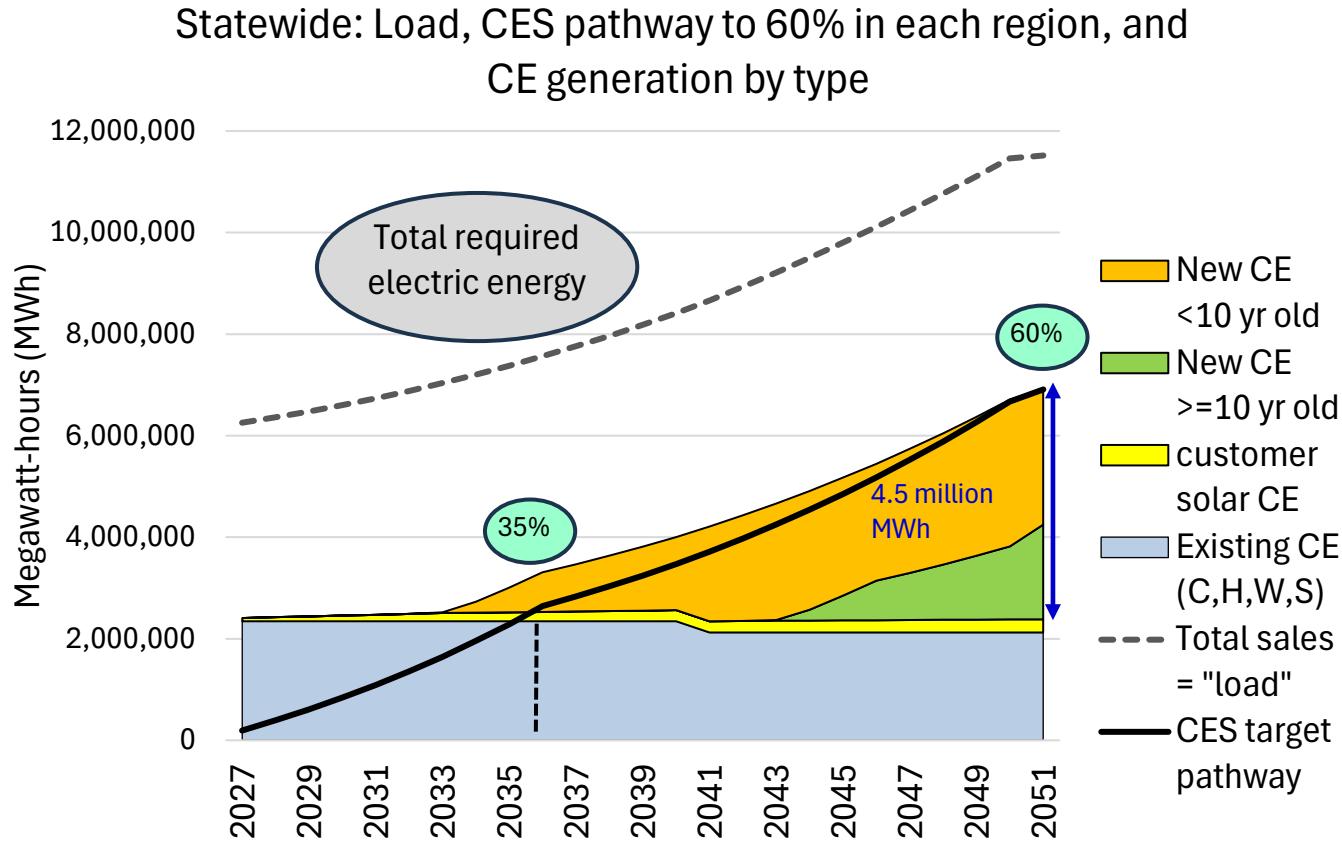
Q2. What amount of Clean Energy Tax Credits would be issued if the Clean Energy Standard is met, under various credit rates?

Q3. How much electricity is used by schools?

Quick answer to Q1: How much new Clean Energy to meet CES?

Answer:

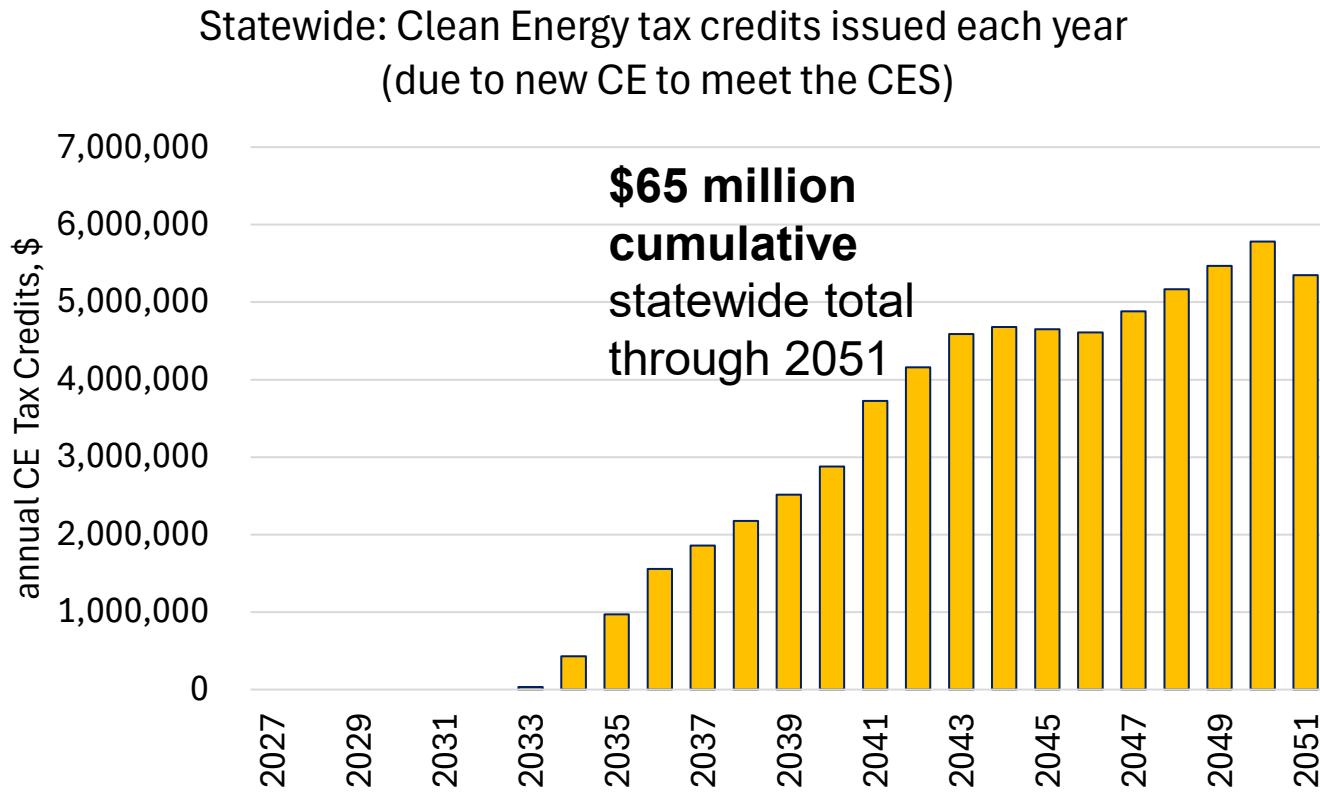
By 2050, about 4.5 million megawatt-hours (MWh) statewide would come from Clean Energy sources deployed after 2026 to meet the CES. That's about equal to current total Railbelt consumption.



Quick answer to Q2: How many CE Tax Credit \$\$ would be created?

Answer:

at 0.2 cents/kWh
(= \$2.00/MWh),
by 2050, about
\$5.5 million per
year of CE Tax
Credits would be
issued Statewide



The following slides provide:

1. More detail on the assumptions and methods used to derive these “base case” results
2. Sensitivity cases:

S1: 2 cents per kWh instead of 0.2 cents

S2: 2 cents per kWh plus 1 cent/kWh rural bonus

S3: 5 cents per kWh in yrs 1-5, then decline to zero by end of yr 10.

3. Schools: how much electricity do they use?
4. Regional detail and data tables

Assumptions about future electric sales:

- Sales equal the demand or “load” at the customer meter, including the load served by a customer’s own solar.
- Statewide electric sales in 2022 were about 6 million megawatt-hours (MWh).
1 MWh = 1,000 kWh.

Railbelt: 4.4 million (75%)

PCE places: 460,000 (8%)

Rest of State: 1.0 million (17%)

- ACEP projects that Railbelt sales will double to 8.8 million MWh in 2050. This projection includes significant adoption of electric vehicles and modest adoption of heat pumps by 2050. (see the ACEP Railbelt 2050 Scenarios [study](#), Section 3.2, for more details.)

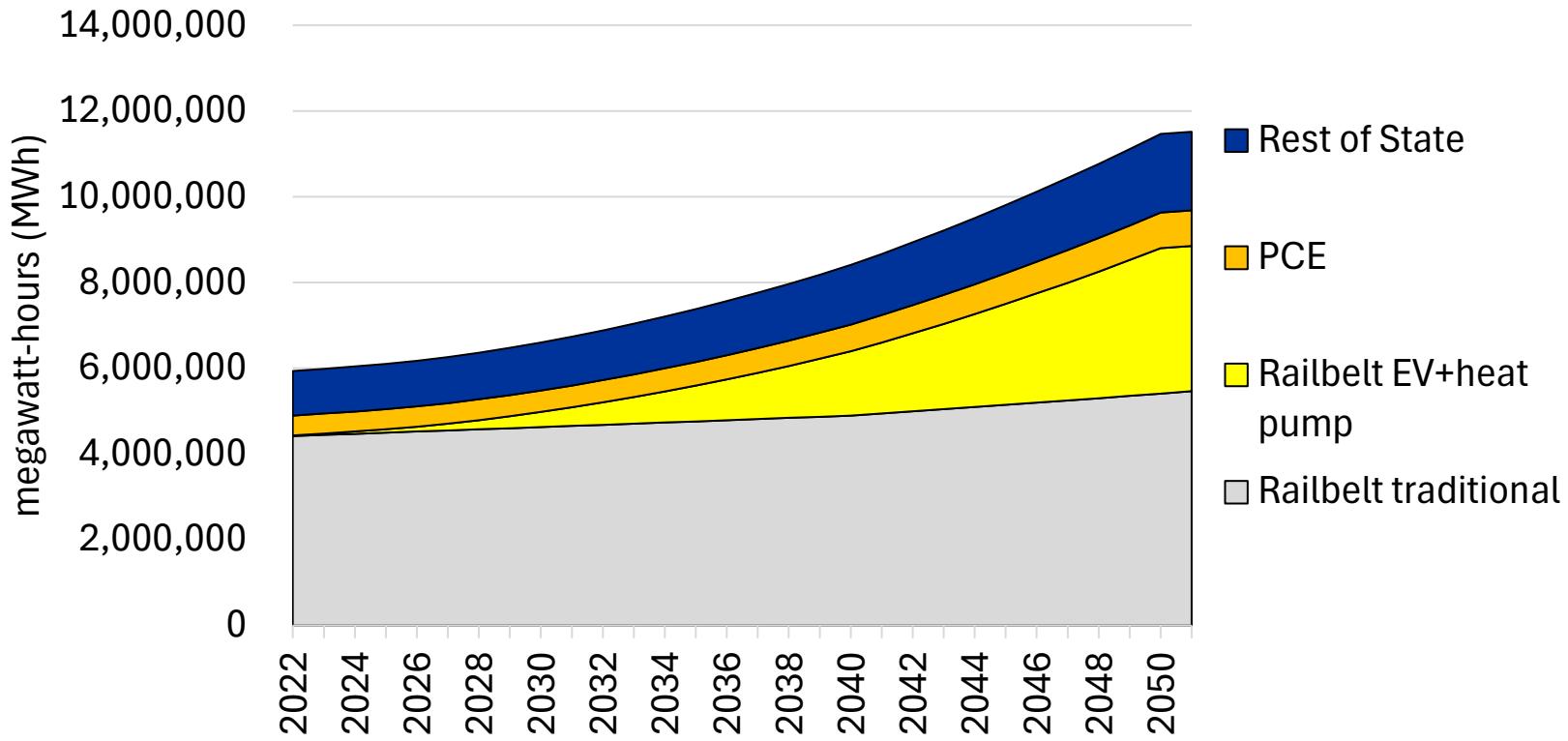
https://www.uaf.edu/acep/files/media/ACEP_Railbelt_Decarbonization_Study_Final_Report.pdf.

- For this analysis, non-Railbelt sales are projected to increase by about 77% percent between 2022 and 2050.



Railbelt Decarbonization
| ACEP
www.uaf.edu

Projected Electricity Load at customer meter



Assumptions about Railbelt current and projected electricity generation:

- Current Railbelt Clean Energy, as defined by HB368, based on year 2022 data:
 - 543,557 MWh from coal (Healy 1, Healy 2, Aurora)
 - 567,393 MWh from hydro (Bradley, Eklutna, Cooper Lake)
 - 102,061 MWh from wind (Fire Island, Eva Creek, Delta Wind)
 - 1,577 MWh from utility solar (Willow, GVEA Solar farm)
 - *About* 10,850 MWh from customer-sited Solar (also known as BTM solar or rooftop solar)
- Customer solar increases to 223,000 MWh by 2050.
- Coal generation equal to current Healy 2 output (about 220,000 MWh) is retired at the end of 2040.

Assumptions about PCE places current and projected electricity generation:

- Current PCE places Clean Energy, as defined by HB368, based on year FY2022 data:
 - 32,609 MWh from hydro
 - 22,572 MWh from utility wind & utility solar
 - 55,024 MWh purchased hydro & wind
 - *Perhaps About 500 MWh from customer-sited Solar*
- Customer solar increases to 11,138 MWh by 2050.

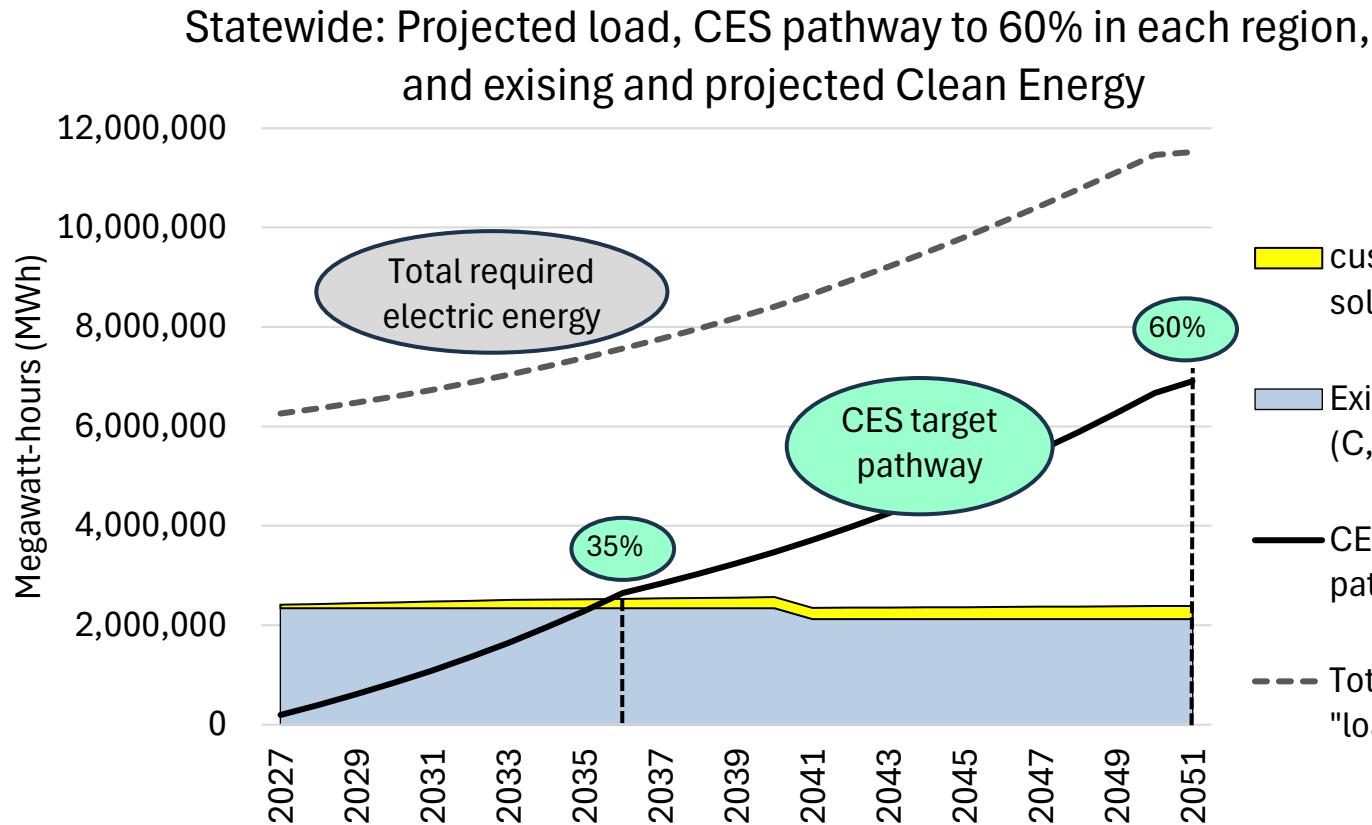
Assumptions about **Rest of State** current and projected electricity generation:

- Current Rest-of-State Clean Energy, as defined by HB368, based on year FY2022 data:
 - 1,083,000 MWh from mostly hydro
 - *Perhaps About* 1,300 MWh from customer-sited Solar
- Customer solar increases to about 26,200 MWh by 2050.
- Current Rest-of-State Clean Energy greatly exceeds 60% of sales until about 2050.

Assumptions about timing of the Clean Energy Standard:

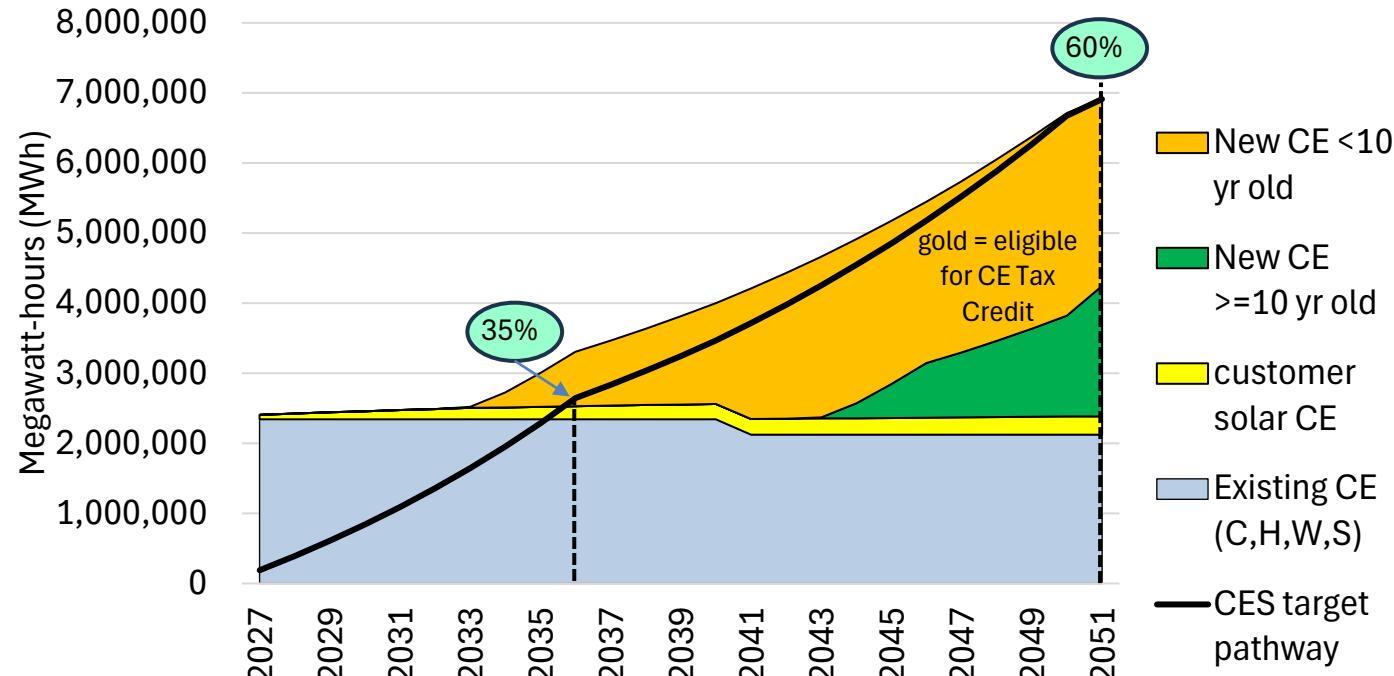
- The CES “clock” starts on 1/1/2027 and the targets are therefore 35% CE by 2036 and 60% CE by 2051. (This is optimistic, a reference case).
- New CE generation is deployed along smooth (exponential) growth pathways to hit the 35% and 60% targets. This is the “CES Target Pathway”.
- In this analysis, the pathway is calculated separately for each region.

The Statewide CES Target Pathway

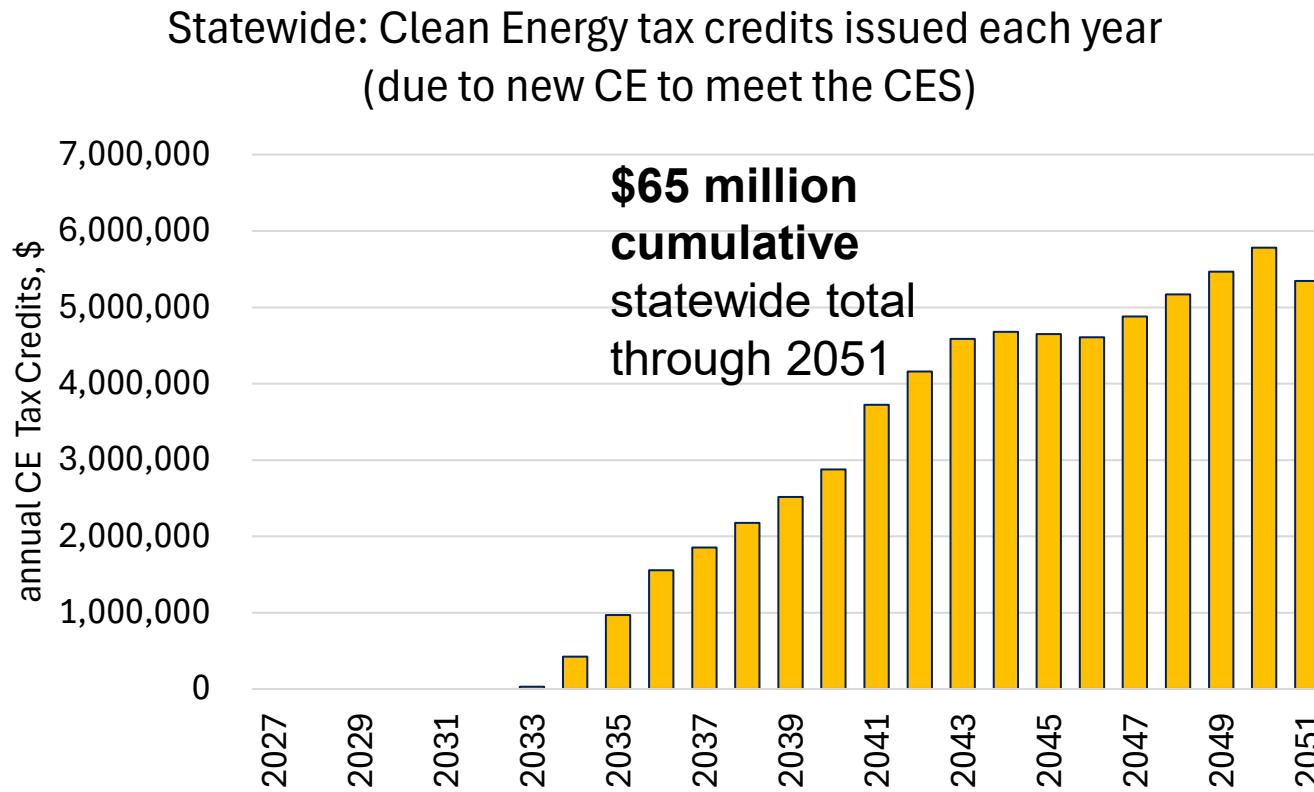


New CE generation is deployed to stay on the pathway, and it is eligible for CE Tax Credits during the first 10 years of service

Statewide: CES pathway & Clean Energy generation by type

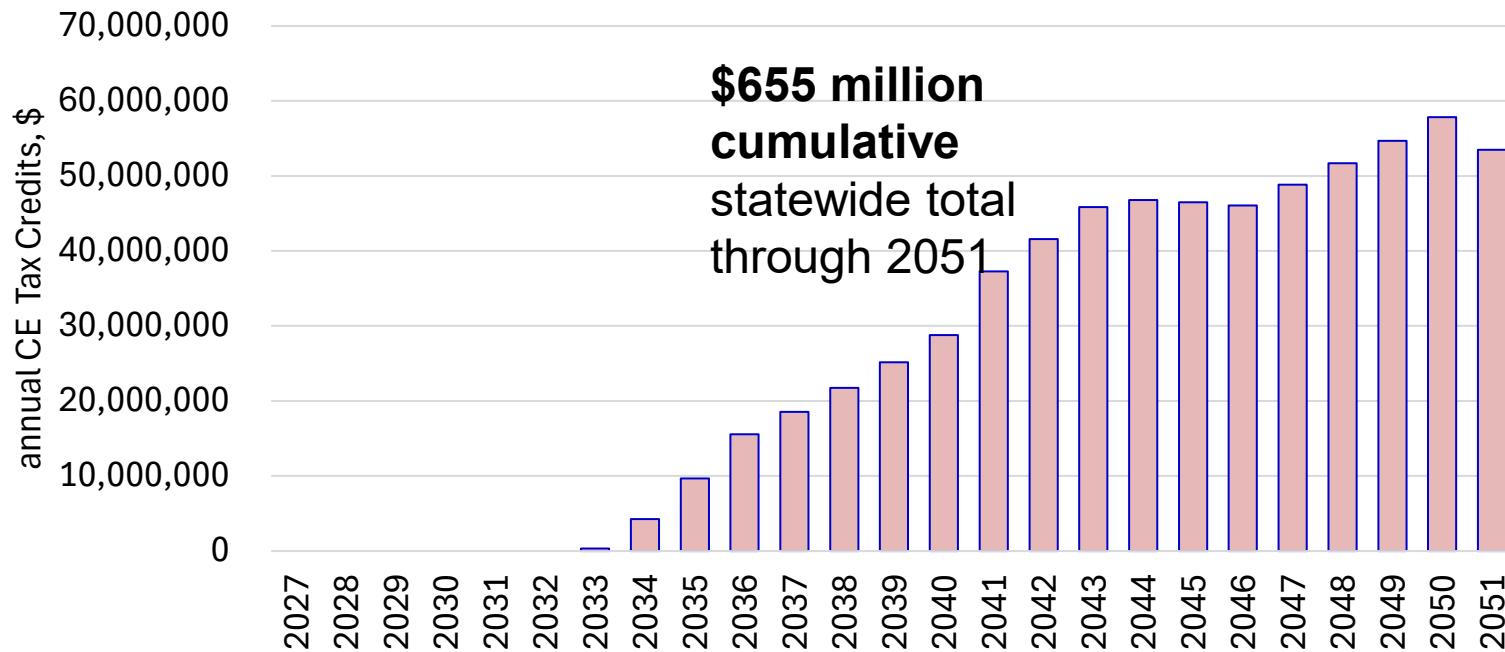


Base case: CE tax credit equals 0.2 cents per kWh, or \$2.00 per MWh:



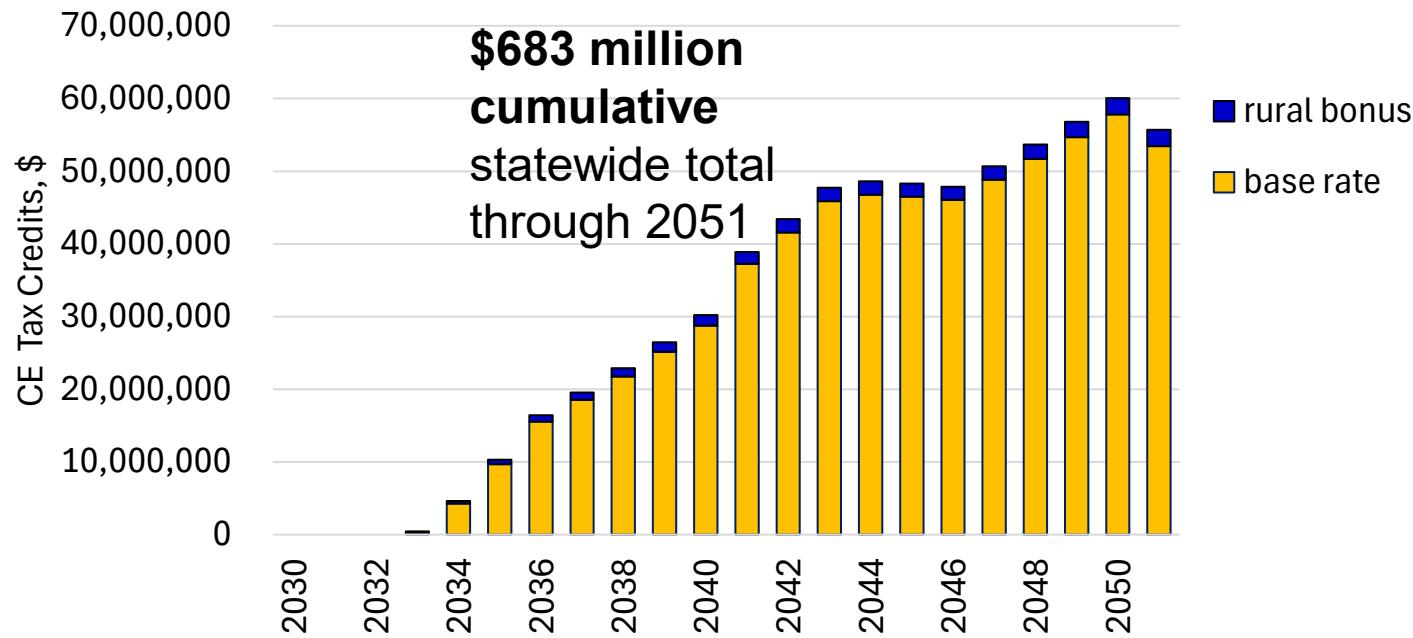
Sensitivity Case S1: CE credit equals 2.0 cents per kWh = \$20/MWh

Statewide: Clean Energy tax credits issued each year
(due to new CE to meet the CES)

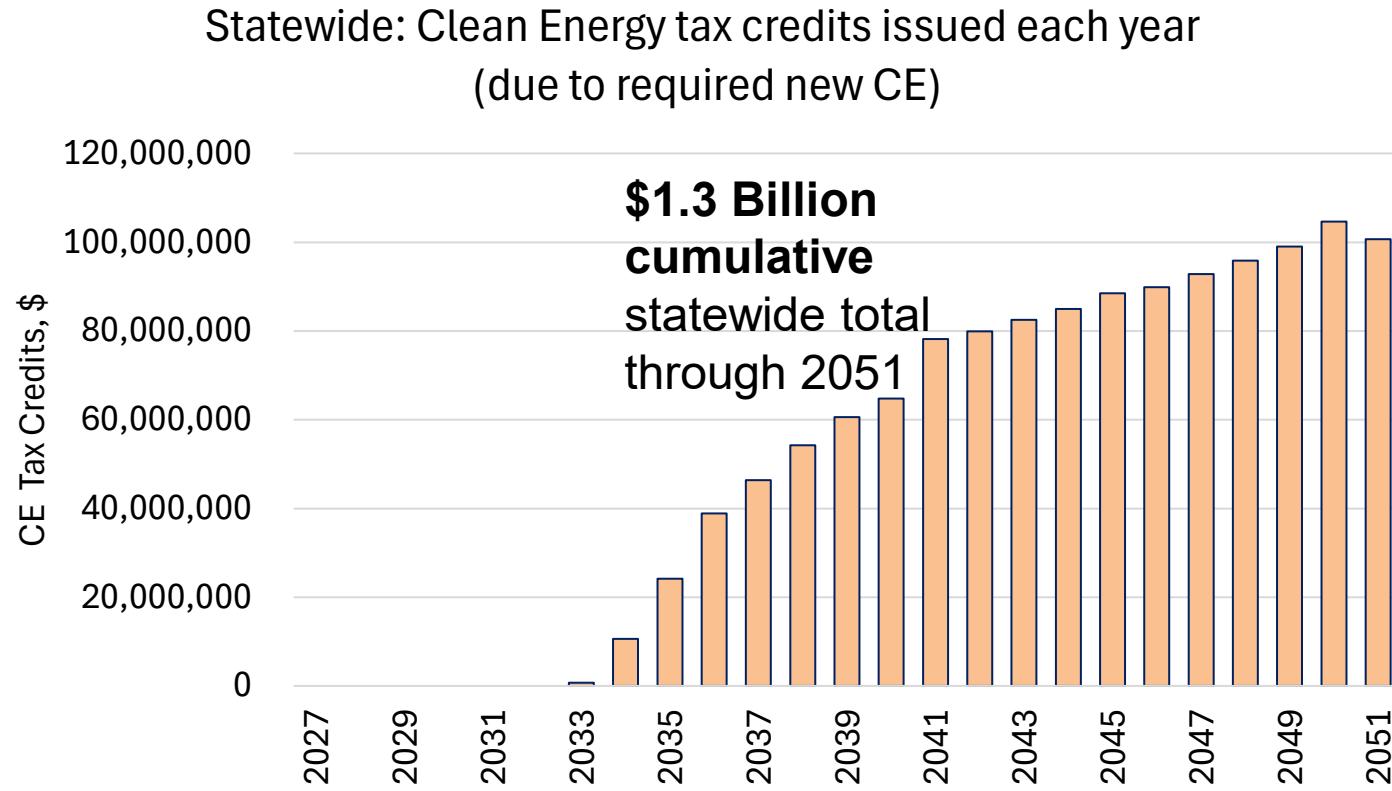


Sensitivity Case S2: CE credit equals 2 cents/kWh + 1 cent/kWh rural bonus (Here, “rural” is PCE places – a proxy for other definitions)

Statewide: Clean Energy tax credits issued each year
(due to required new CE)



Sensitivity Case S3: credit equals 5 cents/kWh for 5 yrs, then decline to zero by end of year 10.



Possible Role of Schools

- According to DEED School Facilities database, there are currently about 26 million square feet of school facility buildings.
- According to CCHRC's compilation in 2014 of good-quality data from 313 schools, the average electricity consumption of Alaska school buildings equals 8 kWh per square foot per year.
- Multiplying, schools use **208,000 MWh per year**, about **3.5%** of statewide total load.
- Thought experiment: If all schools procured their own Clean Energy, they might “collect” \$562,000 per year at 0.2 cents/kWh, or \$5.6 million at 2 cents/kWh.

https://education.alaska.gov/doe_roledex/schoolcalendar/facility

<https://cchrc.org/energy-use-alaska-public-facilities/>

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Some Recap Numbers

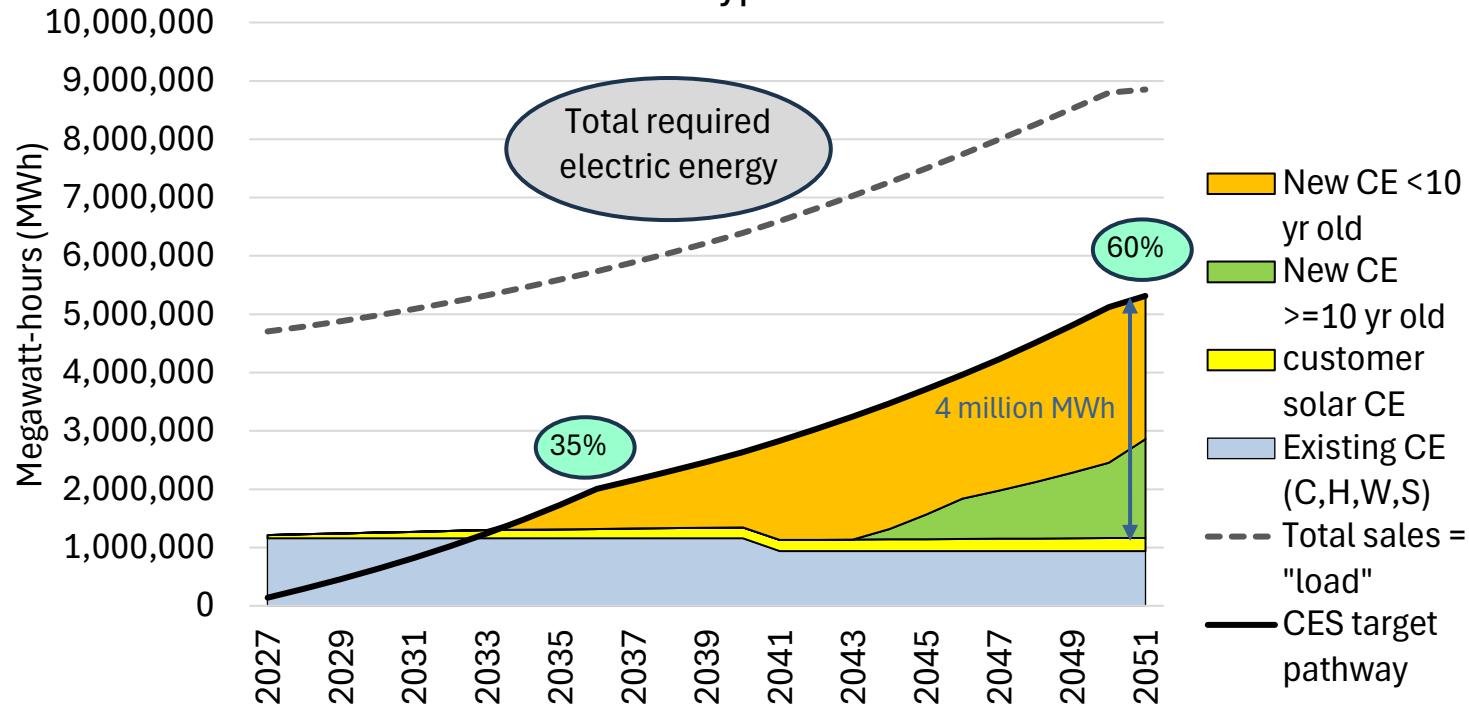
- Total new Clean Energy needed on “target pathway” to meet CES in 2051: **4.5 million MWh/yr**
- CE annual tax credits in 2051 created by following target pathway:
 - at 0.2 cents/kWh & 10-yr eligibility: **\$5.5 million/yr**
 - at 2.0 cents/kWh & 10-yr eligibility: **\$55 million/yr**
 - rural bonus of 1 cent/kWh adds about **\$2.2 million/yr**
 - at 5 cents/kWh for 5 years, declining to zero at end of 10 years: **\$100 million/yr**
- Cumulative credits through 2051:
 - at 0.2 cents/kWh & 10-yr eligibility: **\$65 million**
 - at 2.0 cents/kWh & 10-yr eligibility: **\$655 million**
 - With rural bonus of 1 cent/kWh: **\$683 million**
 - at 5 cents/kWh for 5 years, declining to zero at end of 10 years: **\$1.3 billion**

What happens after 2051?

- It depends a lot on load growth. If load keeps growing, annual additions of Credit-eligible CE would roughly balance the annual “aging out” of the Credit-eligible generation assets as they reach 10 yrs of service.
- If load flattened out, CE Tax Credit amounts would fall for a while because there would be few required additions but continued aging out. Eventually, replacements would be needed, causing a new cycle of Credit-eligible additions, unless the program had phased out.

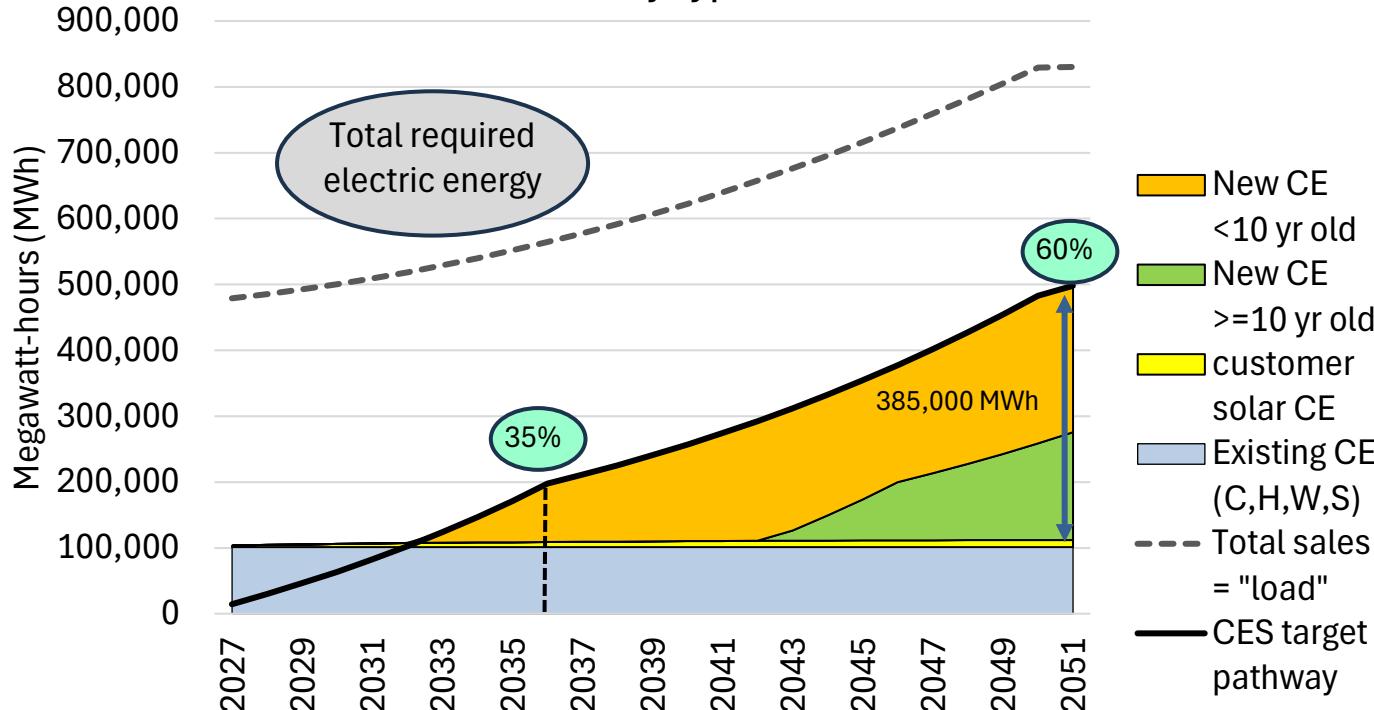
Regional Detail: Railbelt

Railbelt: Load, CES pathway to 60%, and CE generation by type



Regional Detail: PCE places

PCE places: Load, CES pathway to 60%, and CE generation by type



Regional Detail: Rest of State

Rest of State: Load, CES pathway to 60%, and CE generation by type

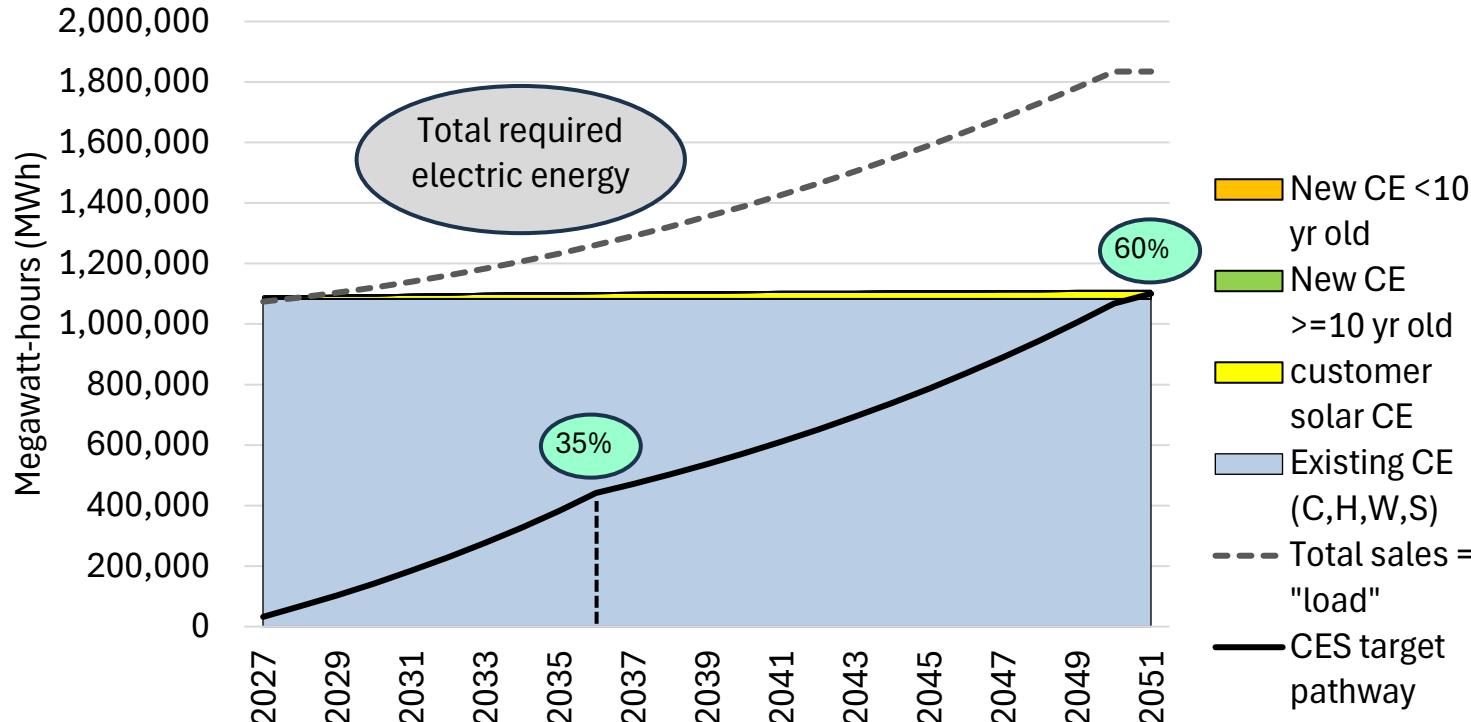


Table 1
Railbelt
base
case

Excel
 workbook is
 available
 from the
 author

	Data: Actual sales by RB utilities	Convention al load	EV load	Heat pump load	Total sales = "load"	CES target timeline	CES target pathway %	CES target pathway	Existing CE (C,H,W,S)	customer solar CE	Required new CE from utility	CE addtions by utilities	New CE <10 yr old	Annual CE tax credit \$	Cumulative CE tax credit \$
2021	4,403,993								1,158,717	9,469					
2022	4,420,766	4,420,806	10,811	0	4,431,617				1,158,717	10,851					
2023	4,445,927	27,351	3,992	4,477,270	0				1,158,717	14,793					
2024	4,471,191	42,603	8,782	4,522,576	0				1,158,717	20,692	0	0	0	0	0
2025	4,496,599	65,311	13,573	4,575,482	0				1,158,717	28,943	0	0	0	0	0
2026	4,522,151	95,475	18,363	4,635,989	0	0%	0	1,158,717	40,486	0	0	0	0	0	0
2027	4,547,848	133,095	23,154	4,704,097	1	3%	143,312	1,158,717	56,630	0	0	0	0	0	0
2028	4,573,691	178,172	36,727	4,788,590	2	6%	296,216	1,158,717	70,474	0	0	0	0	0	0
2029	4,599,681	230,705	50,299	4,880,686	3	9%	459,803	1,158,717	84,317	0	0	0	0	0	0
2030	4,625,819	290,694	63,872	4,980,386	4	13%	635,218	1,158,717	98,161	0	0	0	0	0	0
2031	4,652,105	358,140	77,445	5,087,690	5	16%	823,672	1,158,717	112,004	0	0	0	0	0	0
2032	4,678,541	433,042	91,018	5,202,601	6	20%	1,026,434	1,158,717	125,848	0	0	0	0	0	0
2033	4,705,127	515,401	104,591	5,325,118	7	23%	1,244,844	1,158,717	139,691	0	0	0	0	0	0
2034	4,731,864	605,215	118,164	5,455,243	8	27%	1,480,310	1,158,717	146,613	174,981	174,981	174,981	349,961	349,961	
2035	4,758,753	702,486	131,737	5,592,975	9	31%	1,734,313	1,158,717	153,535	422,062	427,081	422,062	844,124	1,194,085	
2036	4,785,794	807,213	145,309	5,738,317	10	35%	2,008,411	1,158,717	160,456	689,238	267,176	689,238	1,378,476	2,572,561	
2037	4,812,990	919,397	158,882	5,891,269	11	37%	2,152,539	1,158,717	167,378	826,444	137,206	826,444	1,652,889	4,225,450	
2038	4,840,340	1,039,037	172,455	6,051,832	12	38%	2,305,329	1,158,717	174,300	972,313	145,868	972,313	1,944,626	6,170,075	
2039	4,867,845	1,166,133	186,028	6,220,006	13	40%	2,467,234	1,158,717	181,222	1,127,296	154,983	1,127,296	2,254,591	8,424,666	
2040	4,895,507	1,300,686	199,601	6,395,793	14	41%	2,638,715	1,158,717	188,143	1,291,855	164,559	1,291,855	2,583,709	11,008,376	
2041	4,944,462	1,442,695	213,174	6,600,330	15	43%	2,829,304	938,591	191,604	1,699,108	407,254	1,699,108	3,398,217	14,406,593	
2042	4,993,906	1,592,160	226,747	6,812,812	16	44%	3,031,257	938,591	195,065	1,897,601	198,493	1,897,601	3,795,203	18,201,796	
2043	5,043,845	1,749,081	240,319	7,033,246	17	46%	3,245,098	938,591	198,526	2,107,981	210,379	2,107,981	4,215,962	22,417,757	
2044	5,094,284	1,913,459	253,892	7,261,635	18	48%	3,471,358	938,591	201,987	2,330,780	222,799	2,155,799	4,311,598	26,729,356	
2045	5,145,227	2,085,293	267,465	7,497,985	19	49%	3,710,581	938,591	205,448	2,566,542	235,763	2,144,481	4,288,961	31,018,317	
2046	5,196,679	2,264,583	281,038	7,742,300	20	51%	3,963,324	938,591	208,908	2,815,825	249,282	2,126,587	4,253,173	35,271,490	
2047	5,248,646	2,451,330	294,611	7,994,586	21	53%	4,230,154	938,591	212,369	3,079,194	263,369	2,252,750	4,505,500	39,776,990	
2048	5,301,132	2,645,533	308,184	8,254,849	22	55%	4,511,652	938,591	215,830	3,357,230	278,036	2,384,918	4,769,835	44,546,825	
2049	5,354,143	2,847,192	321,756	8,523,092	23	56%	4,808,408	938,591	219,291	3,650,525	293,295	2,523,230	5,046,460	49,593,285	
2050	5,407,685	3,056,308	335,329	8,799,322	24	58%	5,121,027	938,591	222,752	3,959,684	309,158	2,667,829	5,335,658	54,928,943	
2051	5,461,762	3,056,308	335,329	8,853,399	25	60%	5,312,039	938,591	222,752	4,150,697	191,013	2,451,588	4,903,176	59,832,119	

Table 2
PCE
places
base
case

Excel
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	Data: Actual sales by PCE utilities	Conventi onal load	EV load	Heat pump load	Total sales = "load"	CES target timeline	CES target pathway %	CES target pathway	Existing CE (C,H,W,S)	customer solar CE	Required new CE from utility	CE addtions by utilities	New CE <10 yr old	Annual CE tax credit \$	Cumulativ e CE tax credit \$	New CE =>10 yr old	
2021																	
2022	461,846	461,260	1,129	0	462,389				101,036	543							
2023	461,509	2,857	417	464,783	0				101,036	740							
2024	461,759	4,451	918	467,127	0				101,036	1,035	0	0	0	0	0	0	
2025	462,008	6,823	1,418	470,249	0				101,036	1,447	0	0	0	0	0	0	
2026	462,258	9,974	1,918	474,151	0	0%	0	101,036	2,024	0	0	0	0	0	0	0	
2027	462,508	13,905	2,419	478,832	1	3%	14,588	101,036	2,832	0	0	0	0	0	0	0	
2028	462,758	18,614	3,837	485,209	2	6%	30,014	101,036	3,524	0	0	0	0	0	0	0	
2029	463,009	24,102	5,255	492,366	3	9%	46,385	101,036	4,216	0	0	0	0	0	0	0	
2030	463,259	30,369	6,673	500,301	4	13%	63,810	101,036	4,908	0	0	0	0	0	0	0	
2031	463,510	37,416	8,091	509,016	5	16%	82,407	101,036	5,600	0	0	0	0	0	0	0	
2032	463,760	45,241	9,509	518,510	6	20%	102,298	101,036	6,292	0	0	0	0	0	0	0	
2033	464,011	53,845	10,927	528,783	7	23%	123,613	101,036	6,985	15,593	15,593	15,593	31,185	31,185			
2034	464,262	63,228	12,345	539,835	8	27%	146,487	101,036	7,331	38,121	22,528	38,121	76,242	107,427	0		
2035	464,513	73,390	13,763	551,666	9	31%	171,065	101,036	7,677	62,353	24,232	62,353	124,705	232,132	0		
2036	464,764	84,331	15,181	564,276	10	35%	197,497	101,036	8,023	88,438	26,086	88,438	176,877	409,009	0		
2037	465,016	96,051	16,599	577,666	11	37%	211,066	101,036	8,369	101,662	13,223	101,662	203,324	612,332	0		
2038	465,267	108,550	18,017	591,834	12	38%	225,448	101,036	8,715	115,697	14,036	115,697	231,395	843,727	0		
2039	465,519	121,828	19,435	606,782	13	40%	240,687	101,036	9,061	130,590	14,893	130,590	261,180	1,104,907	0		
2040	465,771	135,885	20,853	622,509	14	41%	256,829	101,036	9,407	146,386	15,796	146,386	292,772	1,397,679	0		
2041	466,687	150,721	22,271	639,679	15	43%	274,206	101,036	9,580	163,590	17,204	163,590	327,179	1,724,858	0		
2042	467,606	166,336	23,689	657,631	16	44%	292,603	101,036	9,753	181,814	18,224	181,814	363,628	2,088,486	0		
2043	468,526	182,730	25,107	676,363	17	46%	312,070	101,036	9,926	201,108	19,294	185,515	371,031	2,459,517	15,593		
2044	469,448	199,903	26,525	695,876	18	48%	332,657	101,036	10,099	221,522	20,414	183,401	366,802	2,826,319	38,121		
2045	470,372	217,855	27,943	716,170	19	49%	354,416	101,036	10,272	243,108	21,586	180,755	361,511	3,187,830	62,353		
2046	471,298	236,586	29,361	737,244	20	51%	377,399	101,036	10,445	265,918	22,810	177,480	354,960	3,542,790	88,438		
2047	472,226	256,095	30,779	759,100	21	53%	401,660	101,036	10,618	290,006	24,088	188,345	376,689	3,919,479	101,662		
2048	473,155	276,384	32,197	781,736	22	55%	427,254	101,036	10,792	315,427	25,421	199,730	399,460	4,318,938	115,697		
2049	474,086	297,452	33,615	805,153	23	56%	454,237	101,036	10,965	342,237	26,810	211,647	423,293	4,742,232	130,590		
2050	475,019	319,299	35,033	829,350	24	58%	482,665	101,036	11,138	370,492	28,255	224,106	448,212	5,190,444	146,386		
2051		475,954	319,299	35,033	830,285	25	60%	498,171	101,036	11,138	385,998	15,506	222,408	444,817	5,635,260	163,590	25

Table 3

Rest of State base case

Excel
workbook is
available
from the
author

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	Data: Actual sales by ROS utilities	Conven- tional load	EV load	Heat pump load	Total sales ="load"	CES target timeline	CES target pathway %	CES target pathway	Existing CE (C,H,W,S)	customer solar CE	Required new CE from utility
2021									1,083,249		
2022	1,038,388	1,037,123	2,539	0	1,039,662				1,083,249	1,274	
2023		1,037,123	6,424	938	1,044,485	0			1,083,249	1,737	
2024		1,037,123	10,007	2,063	1,049,192	0			1,083,249	2,430	0
2025		1,037,123	15,341	3,188	1,055,651	0			1,083,249	3,399	0
2026		1,037,123	22,426	4,313	1,063,862	0	0%	0	1,083,249	4,755	0
2027		1,037,123	31,263	5,439	1,073,824	1	3%	32,714	1,083,249	6,651	0
2028		1,037,123	41,851	8,627	1,087,600	2	6%	67,278	1,083,249	8,277	0
2029		1,037,123	54,190	11,815	1,103,127	3	9%	103,924	1,083,249	9,903	0
2030		1,037,123	68,281	15,003	1,120,406	4	13%	142,901	1,083,249	11,528	0
2031		1,037,123	84,123	18,191	1,139,437	5	16%	184,469	1,083,249	13,154	0
2032		1,037,123	101,717	21,379	1,160,218	6	20%	228,902	1,083,249	14,780	0
2033		1,037,123	121,062	24,567	1,182,752	7	23%	276,490	1,083,249	16,406	0
2034		1,037,123	142,158	27,755	1,207,036	8	27%	327,536	1,083,249	17,219	0
2035		1,037,123	165,006	30,943	1,233,072	9	31%	382,361	1,083,249	18,032	0
2036		1,037,123	189,605	34,132	1,260,859	10	35%	441,301	1,083,249	18,845	0
2037		1,037,123	215,956	37,320	1,290,398	11	37%	471,483	1,083,249	19,658	0
2038		1,037,123	244,058	40,508	1,321,688	12	38%	503,472	1,083,249	20,471	0
2039		1,037,123	273,911	43,696	1,354,730	13	40%	537,369	1,083,249	21,283	0
2040		1,037,123	305,516	46,884	1,389,523	14	41%	573,276	1,083,249	22,096	0
2041		1,037,123	338,873	50,072	1,426,067	15	43%	611,299	1,083,249	22,503	0
2042		1,037,123	373,980	53,260	1,464,363	16	44%	651,546	1,083,249	22,909	0
2043		1,037,123	410,839	56,448	1,504,410	17	46%	694,126	1,083,249	23,316	0
2044		1,037,123	449,450	59,636	1,546,209	18	48%	739,151	1,083,249	23,722	0
2045		1,037,123	489,812	62,825	1,589,759	19	49%	786,735	1,083,249	24,129	0
2046		1,037,123	531,925	66,013	1,635,060	20	51%	836,996	1,083,249	24,535	0
2047		1,037,123	575,790	69,201	1,682,113	21	53%	890,052	1,083,249	24,942	0
2048		1,037,123	621,406	72,389	1,730,917	22	55%	946,025	1,083,249	25,348	0
2049		1,037,123	668,773	75,577	1,781,473	23	56%	1,005,040	1,083,249	25,754	0
2050		1,037,123	717,892	78,765	1,833,780	24	58%	1,067,222	1,083,249	26,161	0
2051		1,037,123	717,892	78,765	1,833,780	25	60%	1,100,268	1,083,249	26,161	0

Table 4
State-wide base case

Excel
workbook is
available
from the
author

	Data: Statewide Actual sales	Convention al load	EV load	Heat pump load	Total sales = "load"	CES target timeli ne	CES target pathwa y %	CES target pathway	Existing CE (C,H,W,S)	custome r solar CE	Required new CE from utility	CE additions by utilities	New CE <10 yr old	Annual CE tax credit \$	Cumulative CE tax credit \$	New CE >=10 yr old
2021								0	2,241,966	9,469	0					
2022	5,921,000	5,919,188	14,480	0	5,933,667			0	2,343,002	12,667	0					
2023		5,944,558	36,633	5,347	5,986,538	0		0	2,343,002	17,270	0					
2024		5,970,072	57,060	11,763	6,038,895	0		0	2,343,002	24,157	0	0	0	0	0	
2025		5,995,730	87,474	18,179	6,101,383	0		0	2,343,002	33,790	0	0	0	0	0	
2026		6,021,531	127,875	24,595	6,174,001	0	0%	0	2,343,002	47,265	0	0	0	0	0	
2027		6,047,479	178,262	31,011	6,256,752	1	3%	190,614	2,343,002	66,113	0	0	0	0	0	
2028		6,073,572	238,636	49,190	6,361,399	2	6%	393,508	2,343,002	82,274	0	0	0	0	0	
2029		6,099,812	308,997	67,369	6,476,179	3	9%	610,112	2,343,002	98,436	0	0	0	0	0	
2030		6,126,201	389,345	85,548	6,601,093	4	13%	841,930	2,343,002	114,597	0	0	0	0	0	
2031		6,152,737	479,679	103,727	6,736,143	5	16%	1,090,548	2,343,002	130,759	0	0	0	0	0	
2032		6,179,424	580,000	121,906	6,881,329	6	20%	1,357,635	2,343,002	146,920	0	0	0	0	0	
2033		6,206,260	690,307	140,085	7,036,653	7	23%	1,644,947	2,343,002	163,082	15,593	15,593	15,593	31,185	31,185	
2034		6,233,248	810,601	158,264	7,202,114	8	27%	1,954,333	2,343,002	171,162	213,102	197,509	213,102	426,203	457,388	0
2035		6,260,388	940,882	176,443	7,377,713	9	31%	2,287,739	2,343,002	179,243	484,414	271,313	484,414	968,829	1,426,217	0
2036		6,287,681	1,081,150	194,622	7,563,453	10	35%	2,647,209	2,343,002	187,324	777,676	293,262	777,676	1,555,353	2,981,570	0
2037		6,315,128	1,231,404	212,801	7,759,333	11	37%	2,835,088	2,343,002	195,405	928,106	150,430	928,106	1,856,212	4,837,782	0
2038		6,342,729	1,391,645	230,980	7,965,354	12	38%	3,034,249	2,343,002	203,485	1,088,010	159,904	1,088,010	2,176,020	7,013,802	0
2039		6,370,486	1,561,873	249,159	8,181,518	13	40%	3,245,289	2,343,002	211,566	1,257,886	169,876	1,257,886	2,515,771	9,529,574	0
2040		6,398,400	1,742,087	267,337	8,407,824	14	41%	3,468,819	2,343,002	219,647	1,438,241	180,355	1,438,241	2,876,481	12,406,055	0
2041		6,448,272	1,932,288	285,516	8,666,076	15	43%	3,714,808	2,122,876	223,687	1,862,698	424,458	1,862,698	3,725,396	16,131,451	0
2042		6,498,635	2,132,476	303,695	8,934,806	16	44%	3,975,406	2,122,876	227,727	2,079,415	216,717	2,079,415	4,158,831	20,290,282	0
2043		6,549,494	2,342,650	321,874	9,214,019	17	46%	4,251,293	2,122,876	231,768	2,309,089	229,673	2,293,496	4,586,992	24,877,274	15,593
2044		6,600,855	2,562,812	340,053	9,503,719	18	48%	4,543,165	2,122,876	235,808	2,552,302	243,213	2,339,200	4,678,401	29,555,675	213,102
2045		6,652,721	2,792,959	358,232	9,803,913	19	49%	4,851,732	2,122,876	239,849	2,809,650	257,349	2,325,236	4,650,472	34,206,147	484,414
2046		6,705,099	3,033,094	376,411	10,114,604	20	51%	5,177,719	2,122,876	243,889	3,081,743	272,092	2,304,067	4,608,133	38,814,280	777,676
2047		6,757,994	3,283,215	394,590	10,435,799	21	53%	5,521,867	2,122,876	247,929	3,369,200	287,458	2,441,094	4,882,189	43,696,469	928,106
2048		6,811,410	3,543,323	412,769	10,767,502	22	55%	5,884,931	2,122,876	251,970	3,672,658	303,457	2,584,647	5,169,295	48,865,764	1,088,010
2049		6,865,352	3,813,417	430,948	11,109,718	23	56%	6,267,684	2,122,876	256,010	3,992,762	320,105	2,734,876	5,469,753	54,335,516	1,257,886
2050		6,919,827	4,093,499	449,127	11,462,452	24	58%	6,670,914	2,122,876	260,050	4,330,176	337,414	2,891,935	5,783,870	60,119,387	1,438,241
2051		6,974,838	4,093,499	449,127	11,517,464	25	60%	6,910,478	2,122,876	260,050	4,536,695	206,519	2,673,996	5,347,993	65,467,379	1,862,698