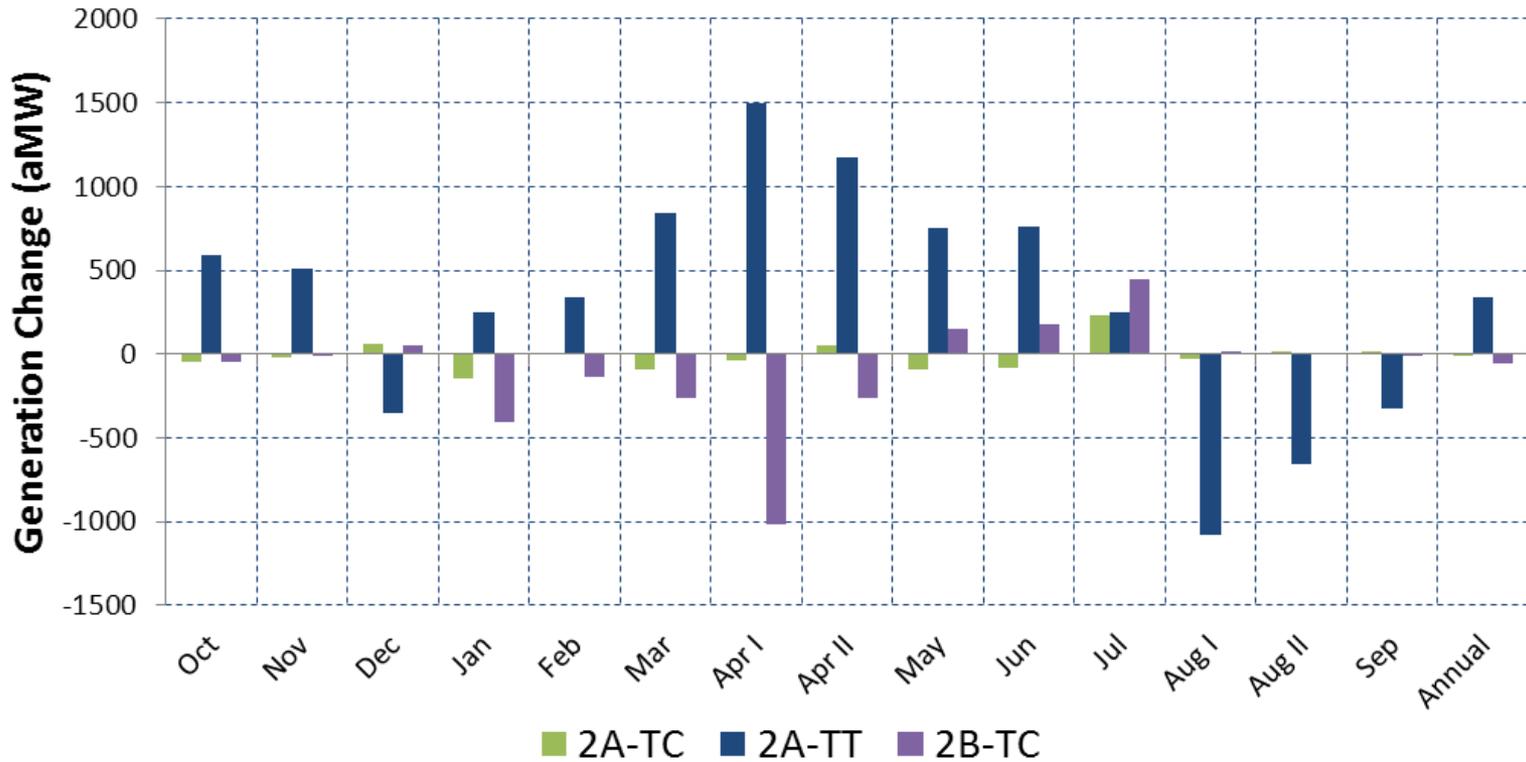


## Generation: U.S. and Canada

Alternatives (2A-TC, 2A-TT, and 2B-TC  
(Compared to Reference Case))

# Columbia River Treaty 2014/2024 Review

**US System Generation: Change in Generation from Current Conditions (Less 442 aMW Under Treaty Continues Alternatives)**

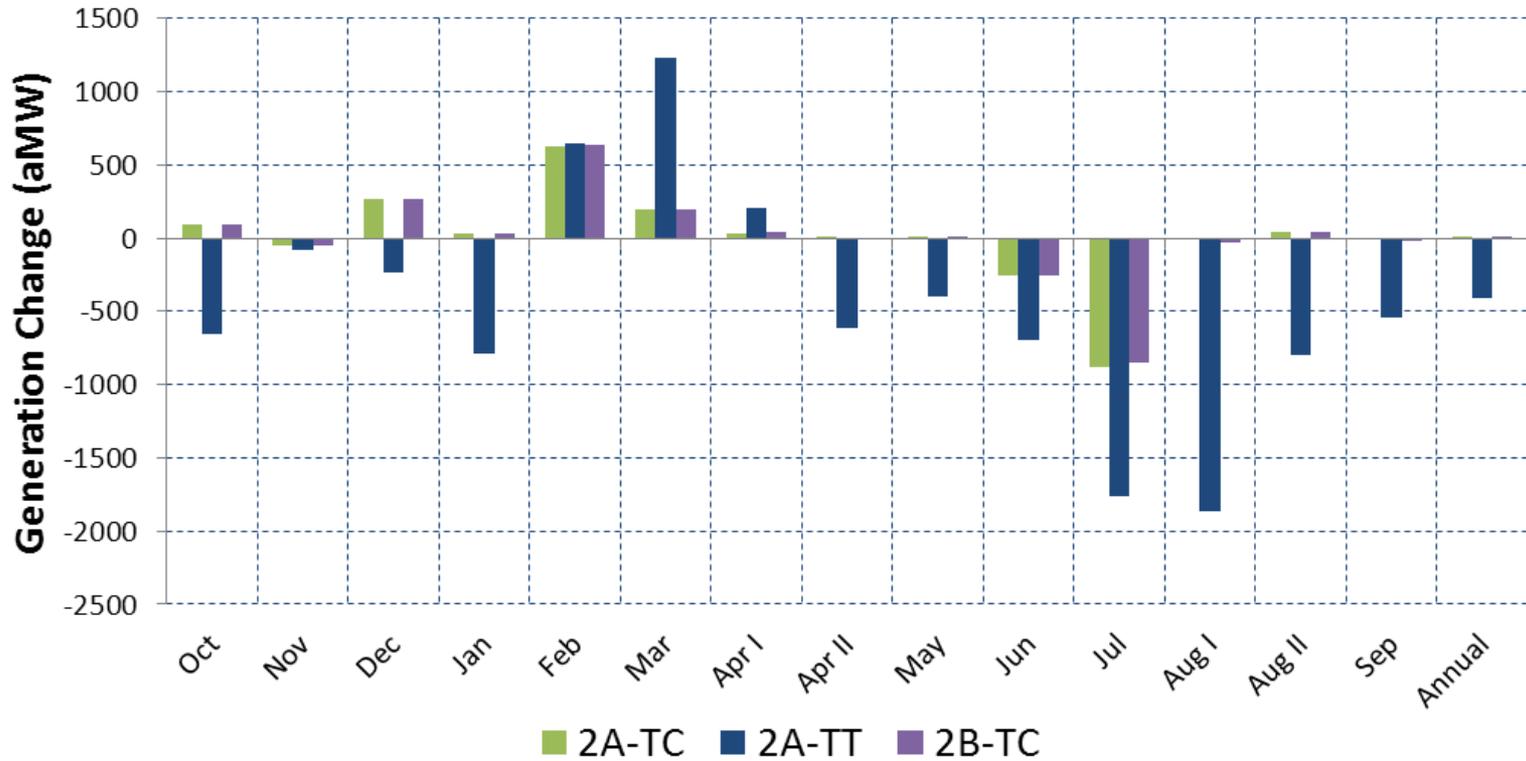


**US System - Generation (aMW) Adjusted for CEA with 442 aMW Subtracted from TC Alternatives**

	October	November	December	January	February	March	April I	April II	May	June	July	August I	August II	September	Annual
All Water Years															
2RC-CC	8628	10836	13145	14382	12909	12917	14058	14234	15872	15423	13229	11295	9981	9137	12603
2A-TC	8583	10818	13203	14240	12914	12821	14022	14288	15781	15335	13457	11264	9995	9151	12589
2A-TT	9215	11344	12797	14631	13248	13754	15555	15409	16621	16185	13476	10212	9321	8810	12940
2B-TC	8583	10824	13200	13976	12771	12654	13044	13971	16022	15596	13675	11309	9990	9133	12549

# Columbia River Treaty 2014/2024 Review

**Canadian System Generation: Change in Generation from Current Conditions (Plus 442 aMW Under Treaty Continues Alternatives)**



**Canadian System - Generation (aMW) Adjusted for CEA with 442 aMW Added to TC Alternatives**

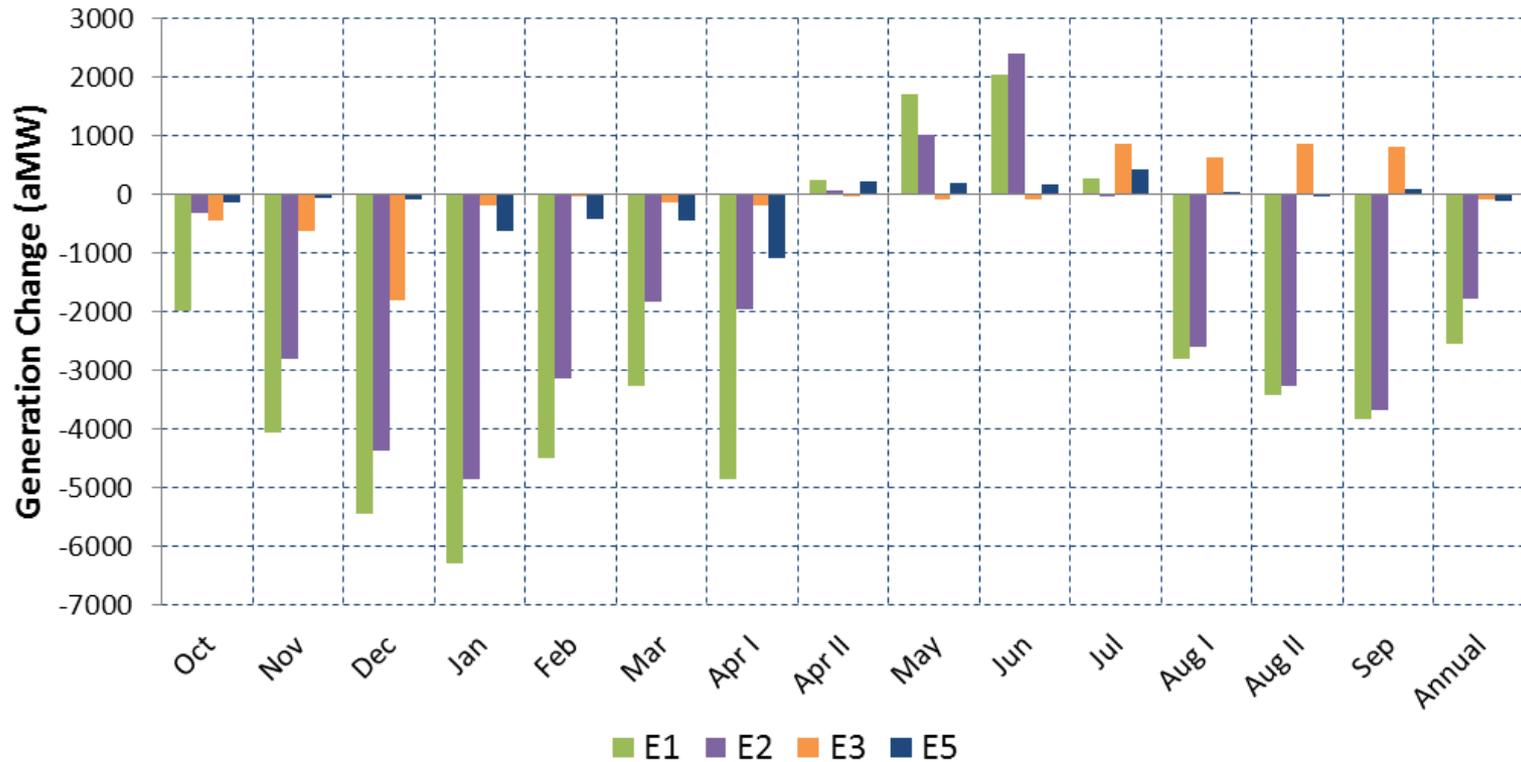
	October	November	December	January	February	March	April I	April II	May	June	July	August I	August II	September	Annual
All Water Years															
2RC-CC	3813	3778	4731	5211	2980	2032	2440	2824	3220	3839	4587	4927	4360	3651	3769
2A-TC	3911	3728	5000	5245	3612	2232	2476	2825	3222	3580	3709	4915	4406	3640	3770
2A-TT	3161	3701	4491	4418	3630	3260	2646	2213	2826	3144	2825	3065	3558	3105	3360
2B-TC	3911	3729	4999	5246	3615	2230	2480	2823	3229	3589	3737	4901	4404	3636	3773

## Generation: U.S. and Canada

Components (E1, E2, E3, E5)  
(Compared to Reference Case)

# Columbia River Treaty 2014/2024 Review

**US System Generation: Change in Generation from Current Conditions (Less 442 aMW Under Treaty Continues Components)**

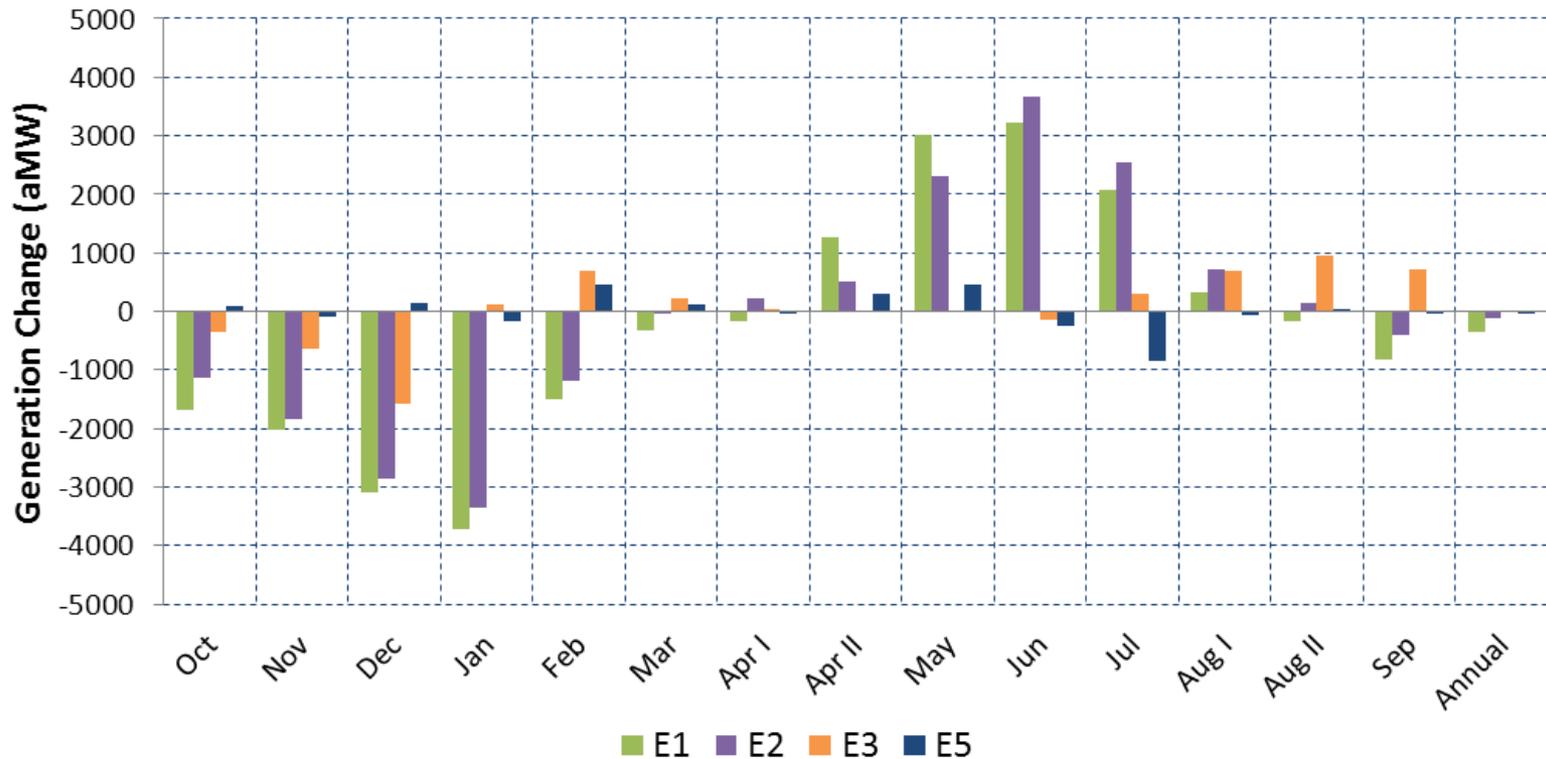


**US System - Generation (aMW) Adjusted for CEA with 442 aMW Subtracted from TC Components**

	October	November	December	January	February	March	April I	April II	May	June	July	August I	August II	September	Annual
All Water Years															
2RC-CC	8628	10836	13145	14382	12909	12917	14058	14234	15872	15423	13229	11295	9981	9137	12603
E1	6659	6788	7702	8099	8412	9668	9218	14485	17590	17459	13519	8504	6559	5324	10058
E2	8309	8048	8794	9542	9777	11104	12104	14318	16899	17840	13209	8707	6719	5460	10828
E3	8177	10225	11356	14194	12888	12784	13869	14232	15781	15335	14093	11939	10858	9943	12516
E5	8503	10794	13071	13761	12491	12486	12973	14456	16080	15603	13671	11336	9944	9235	12504

# Columbia River Treaty 2014/2024 Review

**Canadian System Generation: Change in Generation from Current Conditions (Plus 442 aMW Under Treaty Continues Components)**

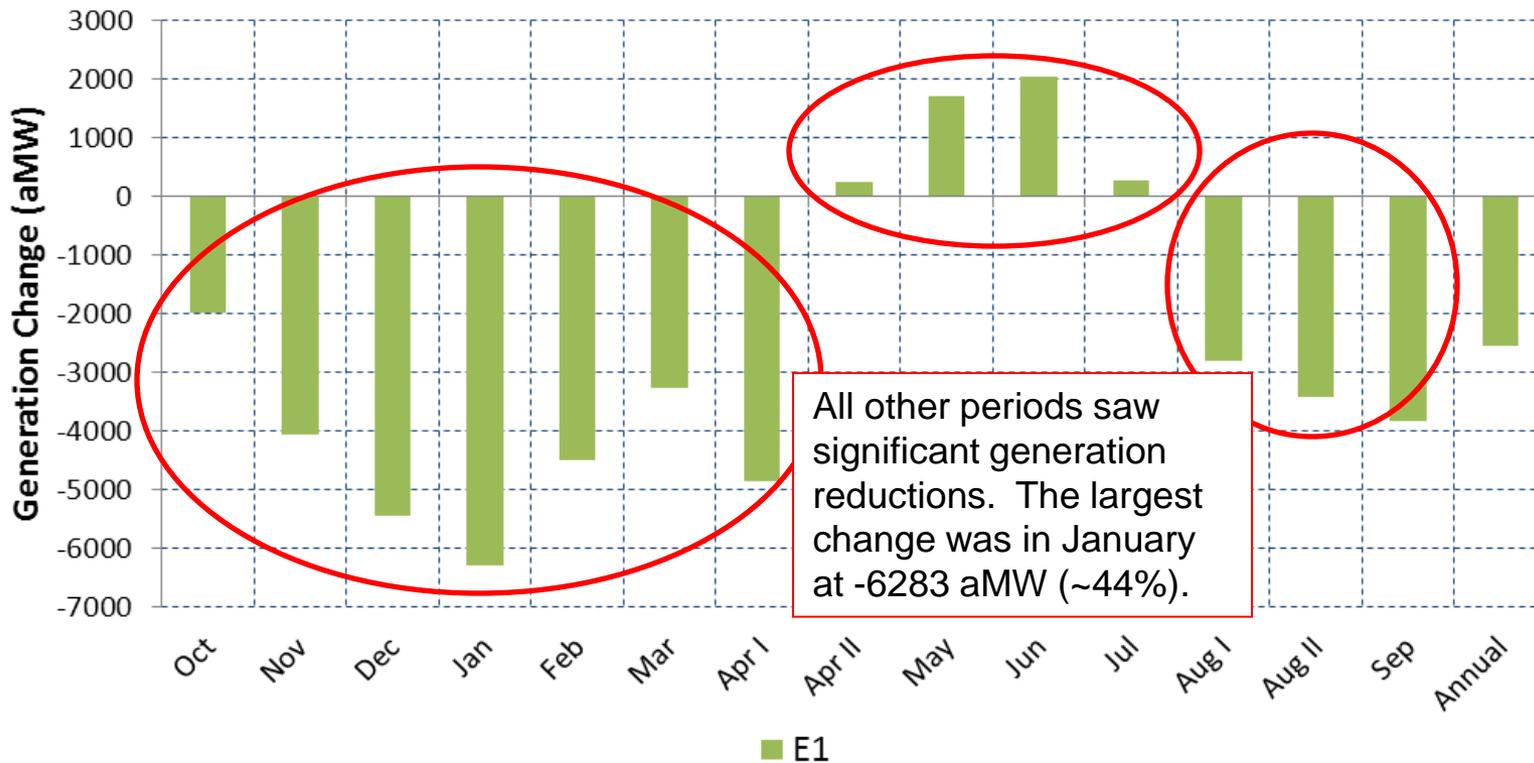


**Canadian System - Generation (aMW) Adjusted for CEA with 442 aMW Added to TC Components**

	October	November	December	January	February	March	April I	April II	May	June	July	August I	August II	September	Annual
All Water Years															
2RC-CC	3813	3778	4731	5211	2980	2032	2440	2824	3220	3839	4587	4927	4360	3651	3769
E1	2128	1745	1645	1500	1482	1705	2279	4080	6229	7072	6676	5244	4182	2838	3421
E2	2690	1942	1877	1864	1807	2005	2676	3336	5524	7507	7132	5643	4506	3255	3651
E3	3461	3146	3152	5332	3671	2251	2489	2841	3234	3685	4878	5614	5322	4383	3781
E5	3893	3694	4883	5042	3435	2146	2392	3122	3671	3601	3734	4868	4404	3635	3766

# Columbia River Treaty 2014/2024 Review

**US System Generation: Change in Generation from Current Conditions (Less 442 aMW Under Treaty Continues Components)**

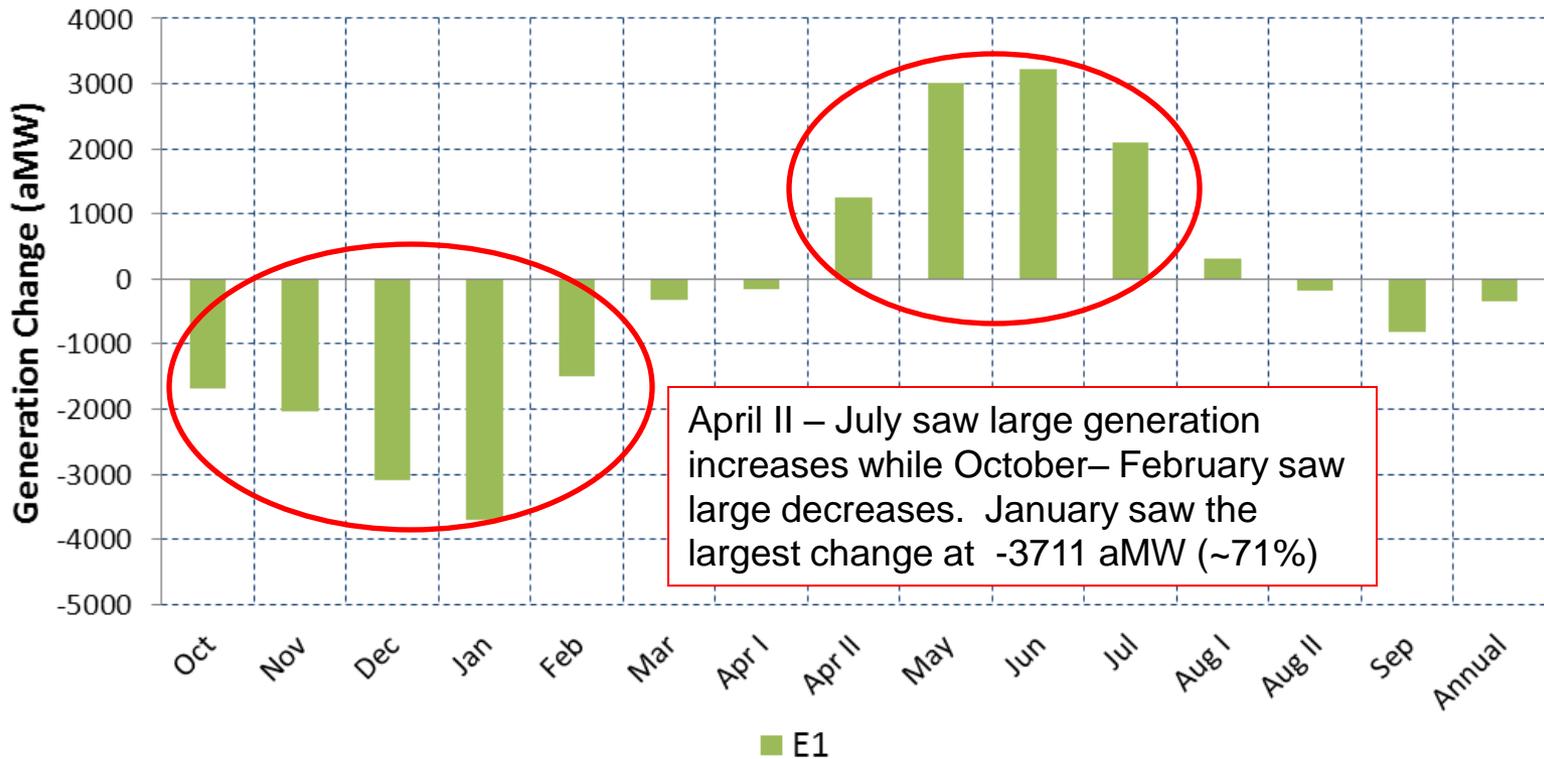


**US System - Generation (aMW) Adjusted for CEA with 442 aMW Subtracted from TC Components**

	October	November	December	January	February	March	April I	April II	May	June	July	August I	August II	September	Annual
All Water Years															
2RC-CC	8628	10836	13145	14382	12909	12917	14058	14234	15872	15423	13229	11295	9981	9137	12603
E1	6659	6788	7702	8099	8412	9668	9218	14485	17590	17459	13519	8504	6559	5324	10058

# Columbia River Treaty 2014/2024 Review

**Canadian System Generation: Change in Generation from Current Conditions (Plus 442 aMW Under Treaty Continues Components)**

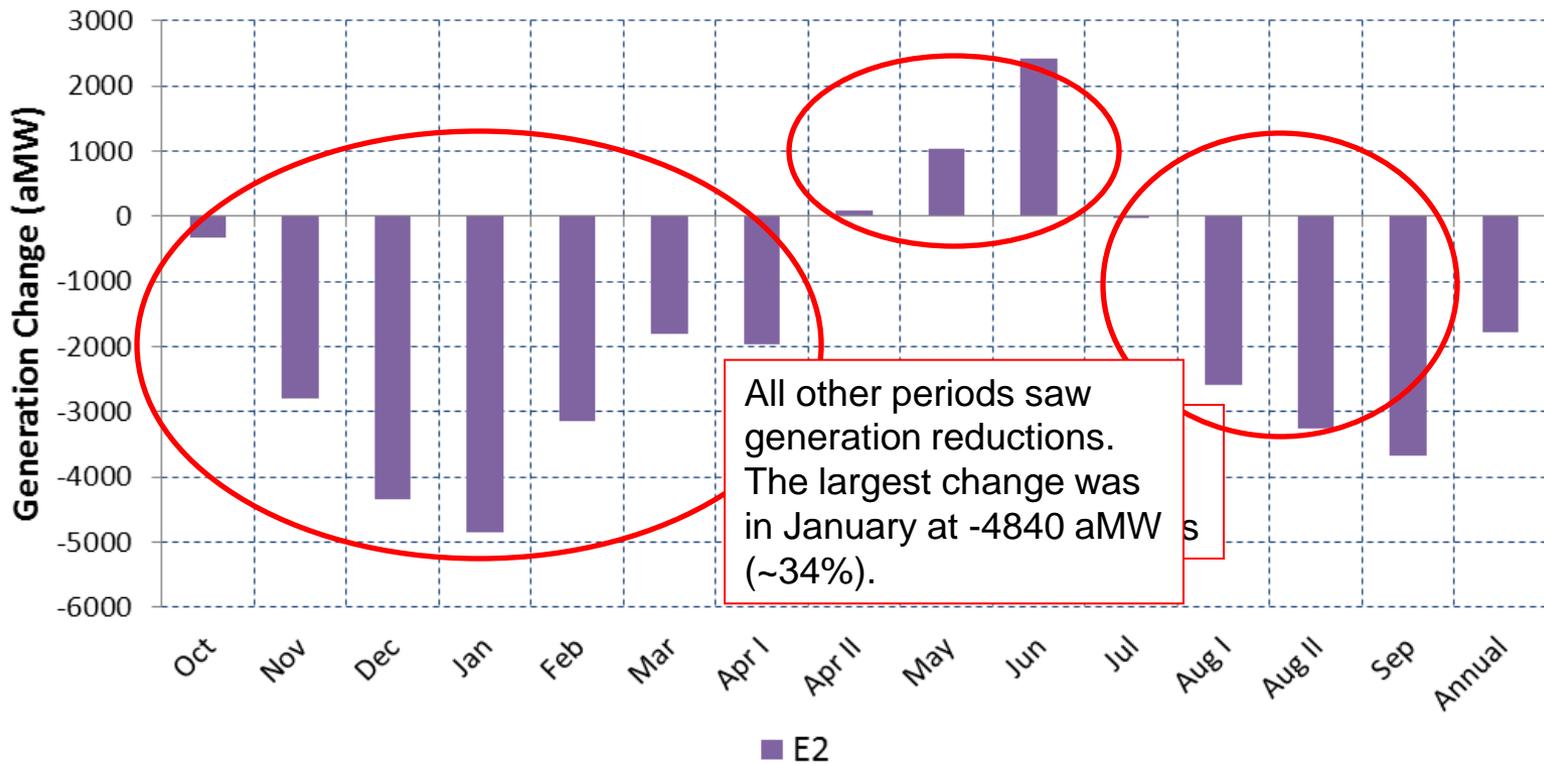


**Canadian System - Generation (aMW) Adjusted for CEA with 442 aMW Added to TC Components**

	October	November	December	January	February	March	April I	April II	May	June	July	August I	August II	September	Annual
All Water Years															
2RC-CC	3813	3778	4731	5211	2980	2032	2440	2824	3220	3839	4587	4927	4360	3651	3769
E1	2128	1745	1645	1500	1482	1705	2279	4080	6229	7072	6676	5244	4182	2838	3421

# Columbia River Treaty 2014/2024 Review

**US System Generation: Change in Generation from Current Conditions (Less 442 aMW Under Treaty Continues Components)**

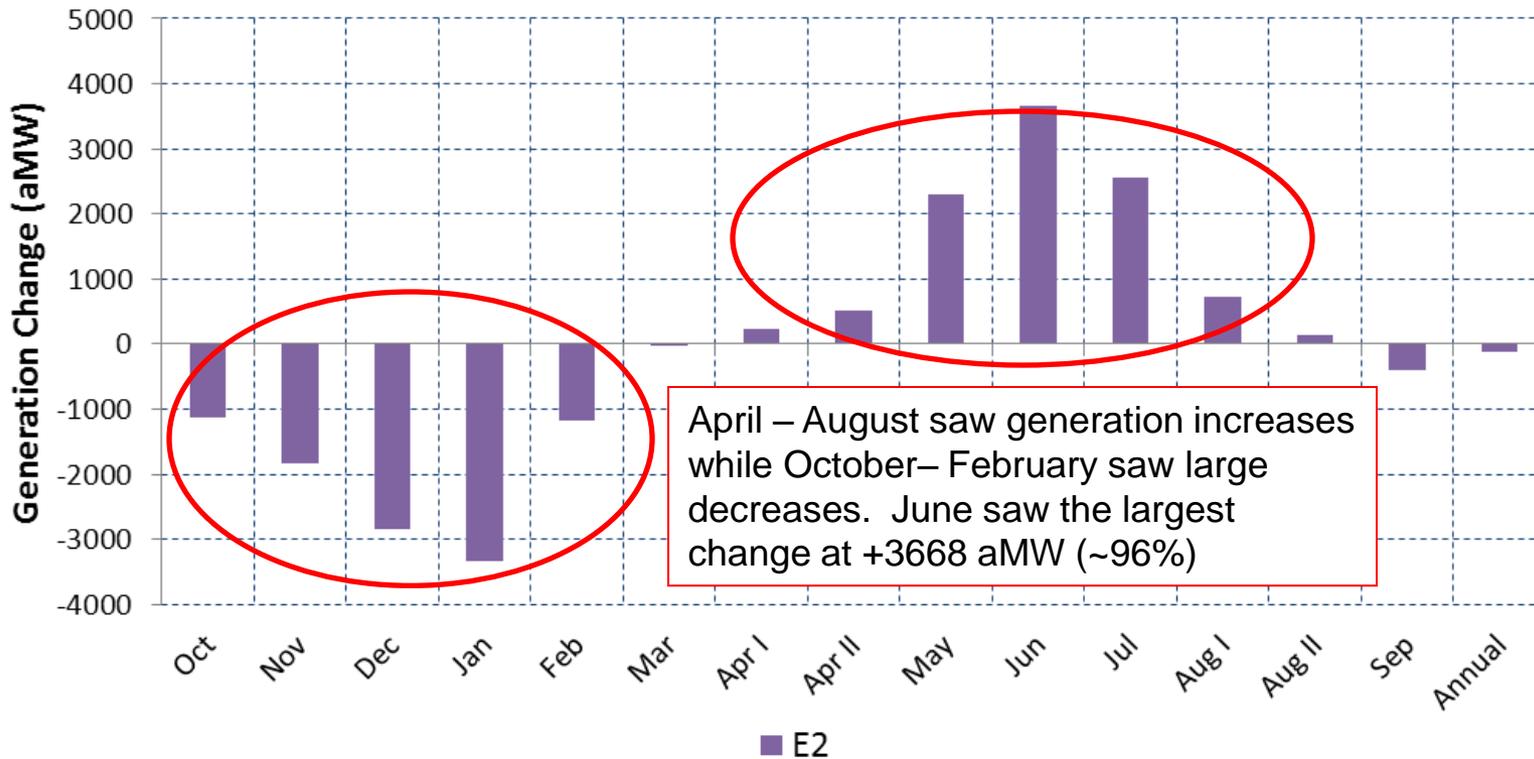


**US System - Generation (aMW) Adjusted for CEA with 442 aMW Subtracted from TC Components**

	October	November	December	January	February	March	April I	April II	May	June	July	August I	August II	September	Annual
All Water Years															
2RC-CC	8628	10836	13145	14382	12909	12917	14058	14234	15872	15423	13229	11295	9981	9137	12603
E2	8309	8048	8794	9542	9777	11104	12104	14318	16899	17840	13209	8707	6719	5460	10828

# Columbia River Treaty 2014/2024 Review

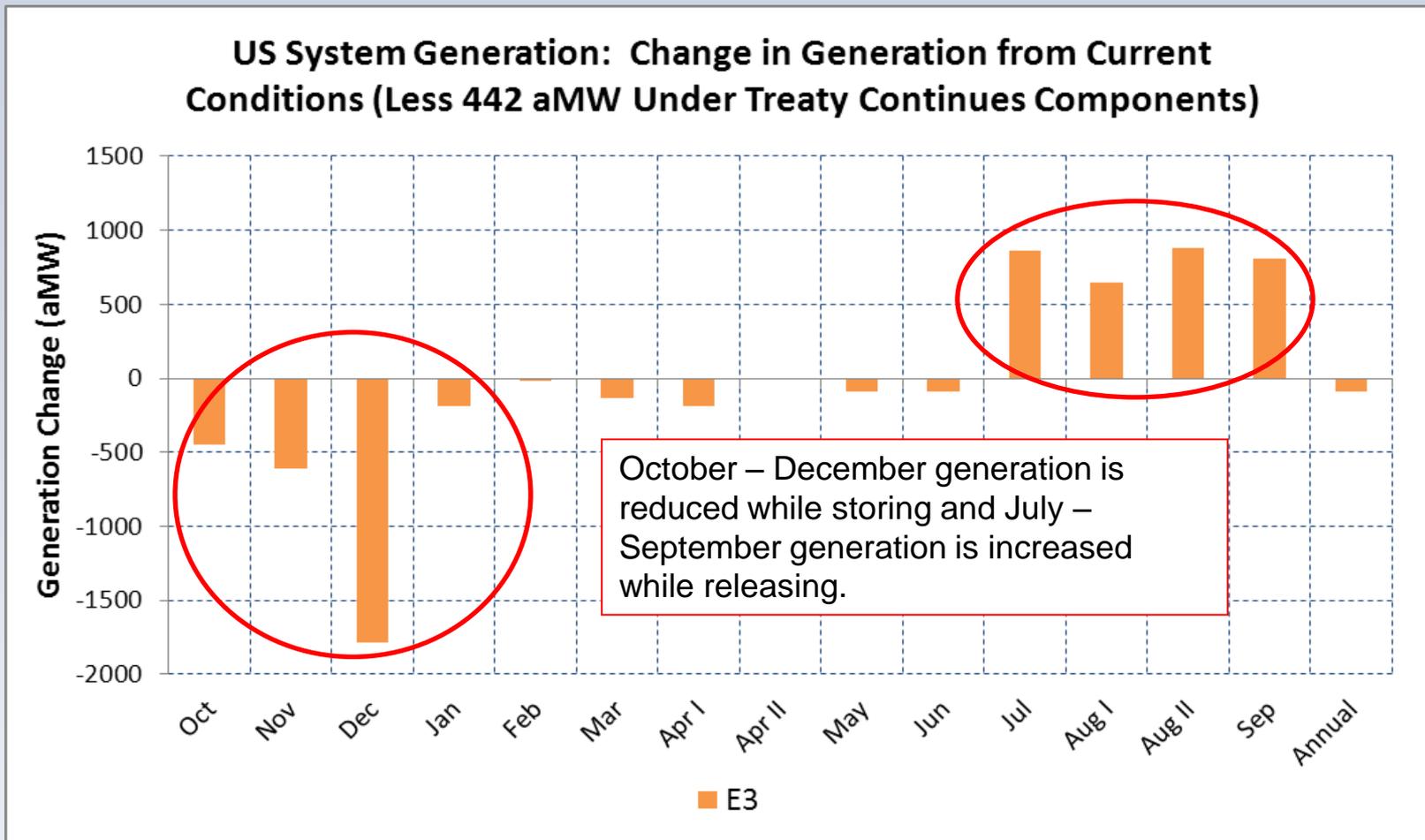
**Canadian System Generation: Change in Generation from Current Conditions (Plus 442 aMW Under Treaty Continues Components)**



**Canadian System - Generation (aMW) Adjusted for CEA with 442 aMW Added to TC Components**

	October	November	December	January	February	March	April I	April II	May	June	July	August I	August II	September	Annual
All Water Years															
2RC-CC	3813	3778	4731	5211	2980	2032	2440	2824	3220	3839	4587	4927	4360	3651	3769
E2	2690	1942	1877	1864	1807	2005	2676	3336	5524	7507	7132	5643	4506	3255	3651

# Columbia River Treaty 2014/2024 Review



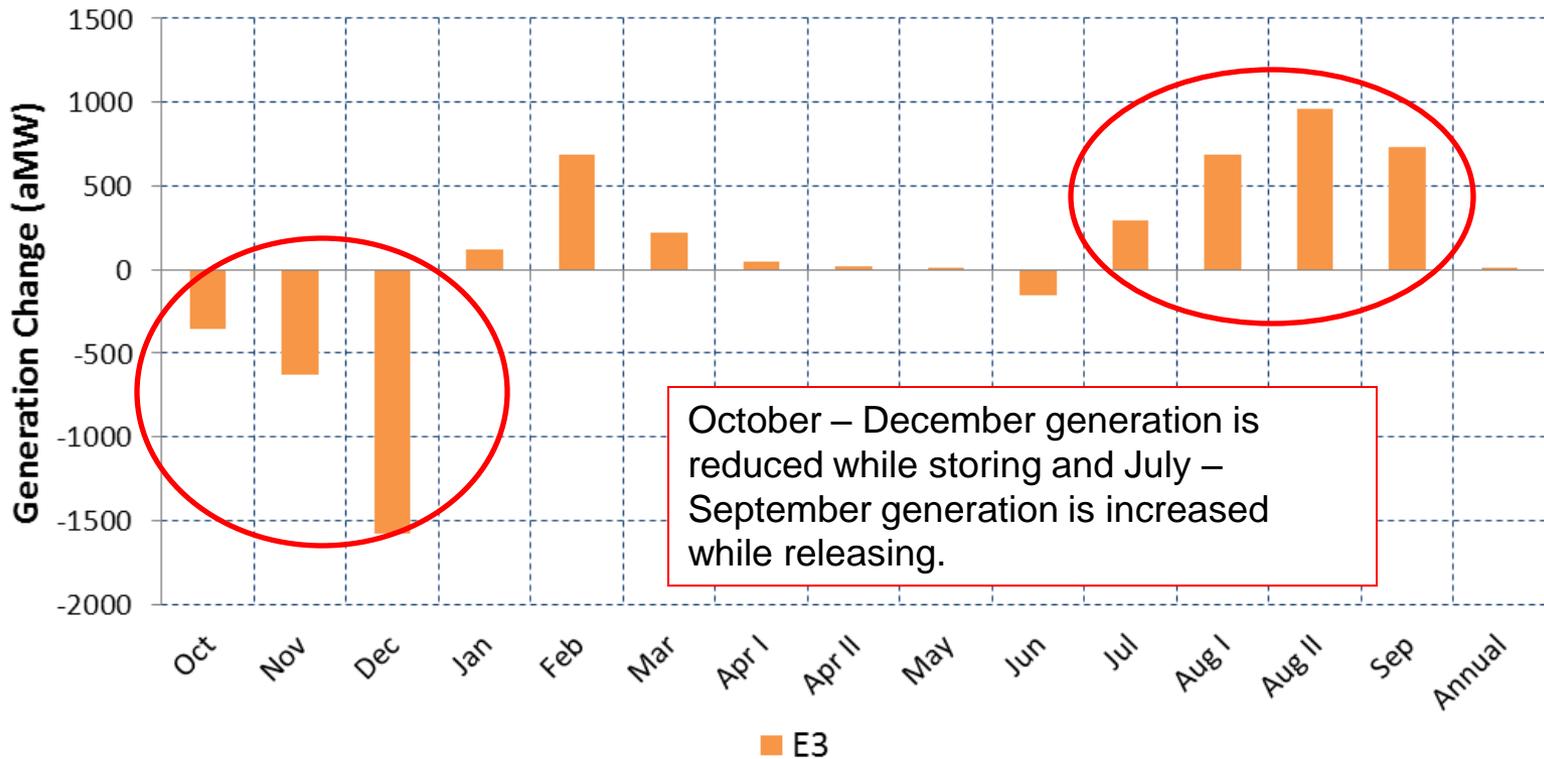
October – December generation is reduced while storing and July – September generation is increased while releasing.

**US System - Generation (aMW) Adjusted for CEA with 442 aMW Subtracted from TC Components**

	October	November	December	January	February	March	April I	April II	May	June	July	August I	August II	September	Annual
All Water Years															
2RC-CC	8628	10836	13145	14382	12909	12917	14058	14234	15872	15423	13229	11295	9981	9137	12603
E3	8177	10225	11356	14194	12888	12784	13869	14232	15781	15335	14093	11939	10858	9943	12516

# Columbia River Treaty 2014/2024 Review

**Canadian System Generation: Change in Generation from Current Conditions (Plus 442 aMW Under Treaty Continues Components)**

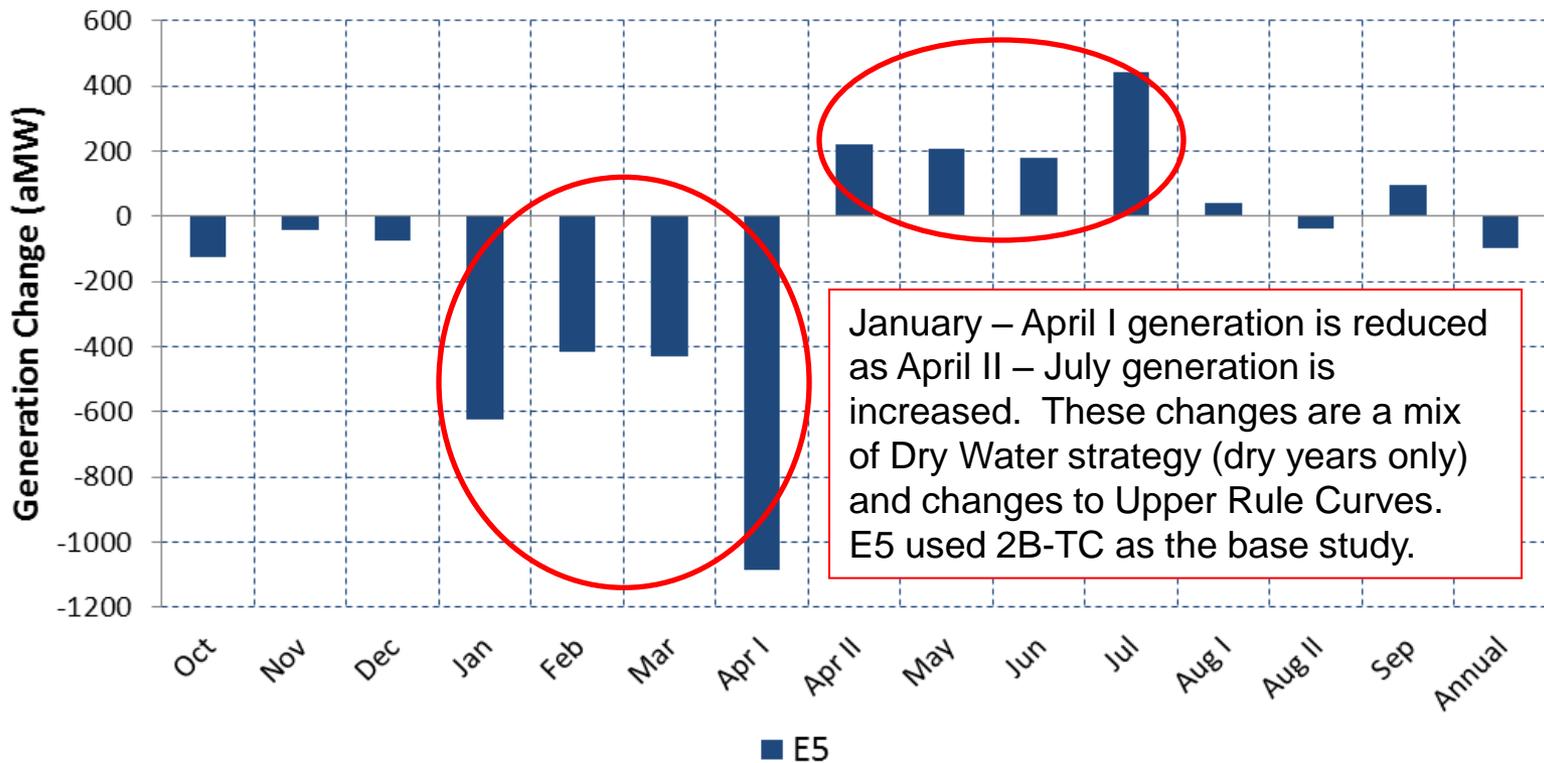


**Canadian System - Generation (aMW) Adjusted for CEA with 442 aMW Added to TC Components**

	October	November	December	January	February	March	April I	April II	May	June	July	August I	August II	September	Annual
All Water Years															
2RC-CC	3813	3778	4731	5211	2980	2032	2440	2824	3220	3839	4587	4927	4360	3651	3769
E3	3461	3146	3152	5332	3671	2251	2489	2841	3234	3685	4878	5614	5322	4383	3781

# Columbia River Treaty 2014/2024 Review

**US System Generation: Change in Generation from Current Conditions (Less 442 aMW Under Treaty Continues Components)**

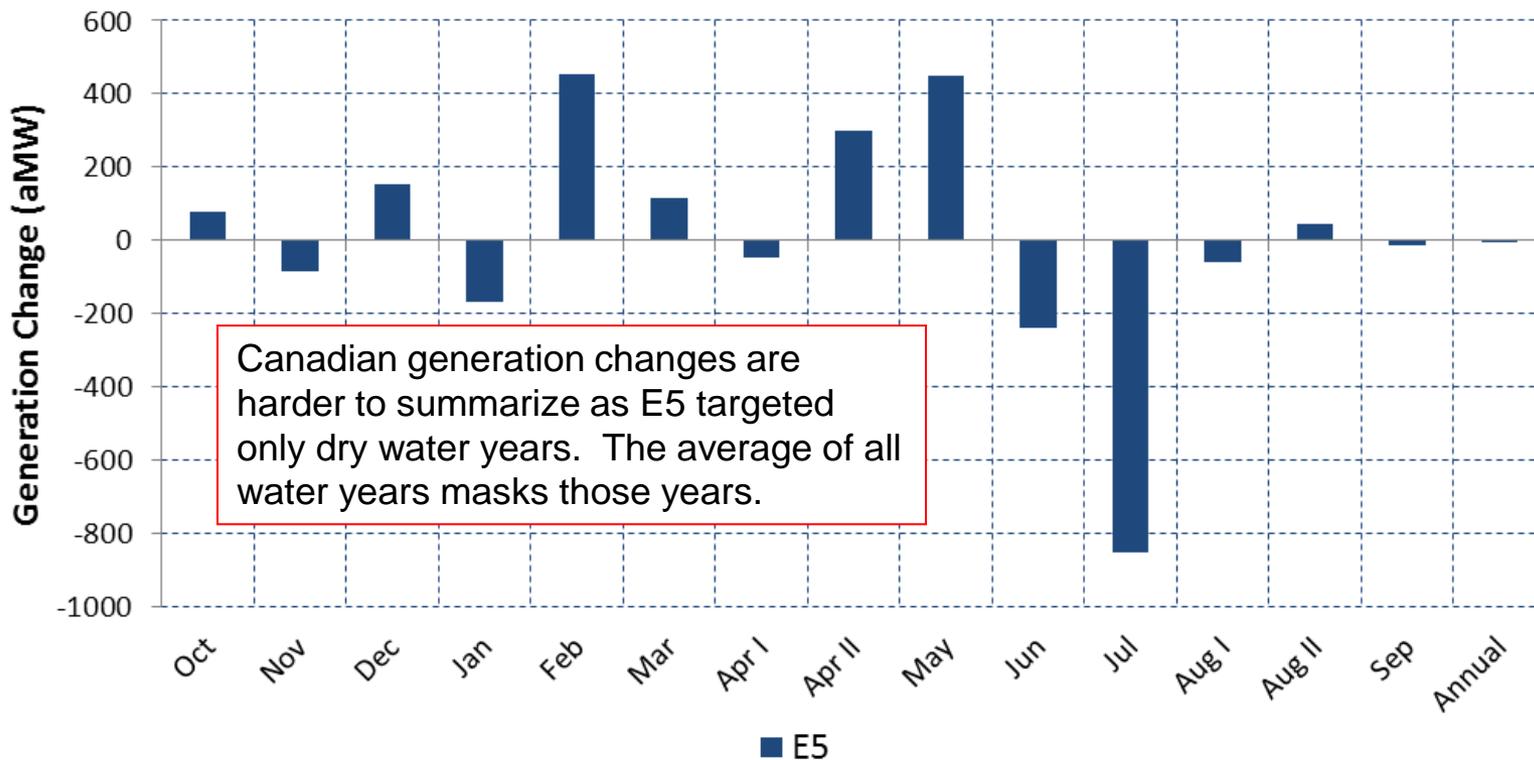


**US System - Generation (aMW) Adjusted for CEA with 442 aMW Subtracted from TC Components**

	October	November	December	January	February	March	April I	April II	May	June	July	August I	August II	September	Annual
All Water Years															
2RC-CC	8628	10836	13145	14382	12909	12917	14058	14234	15872	15423	13229	11295	9981	9137	12603
E5	8503	10794	13071	13761	12491	12486	12973	14456	16080	15603	13671	11336	9944	9235	12504

# Columbia River Treaty 2014/2024 Review

**Canadian System Generation: Change in Generation from Current Conditions (Plus 442 aMW Under Treaty Continues Components)**



**Canadian System - Generation (aMW) Adjusted for CEA with 442 aMW Added to TC Components**

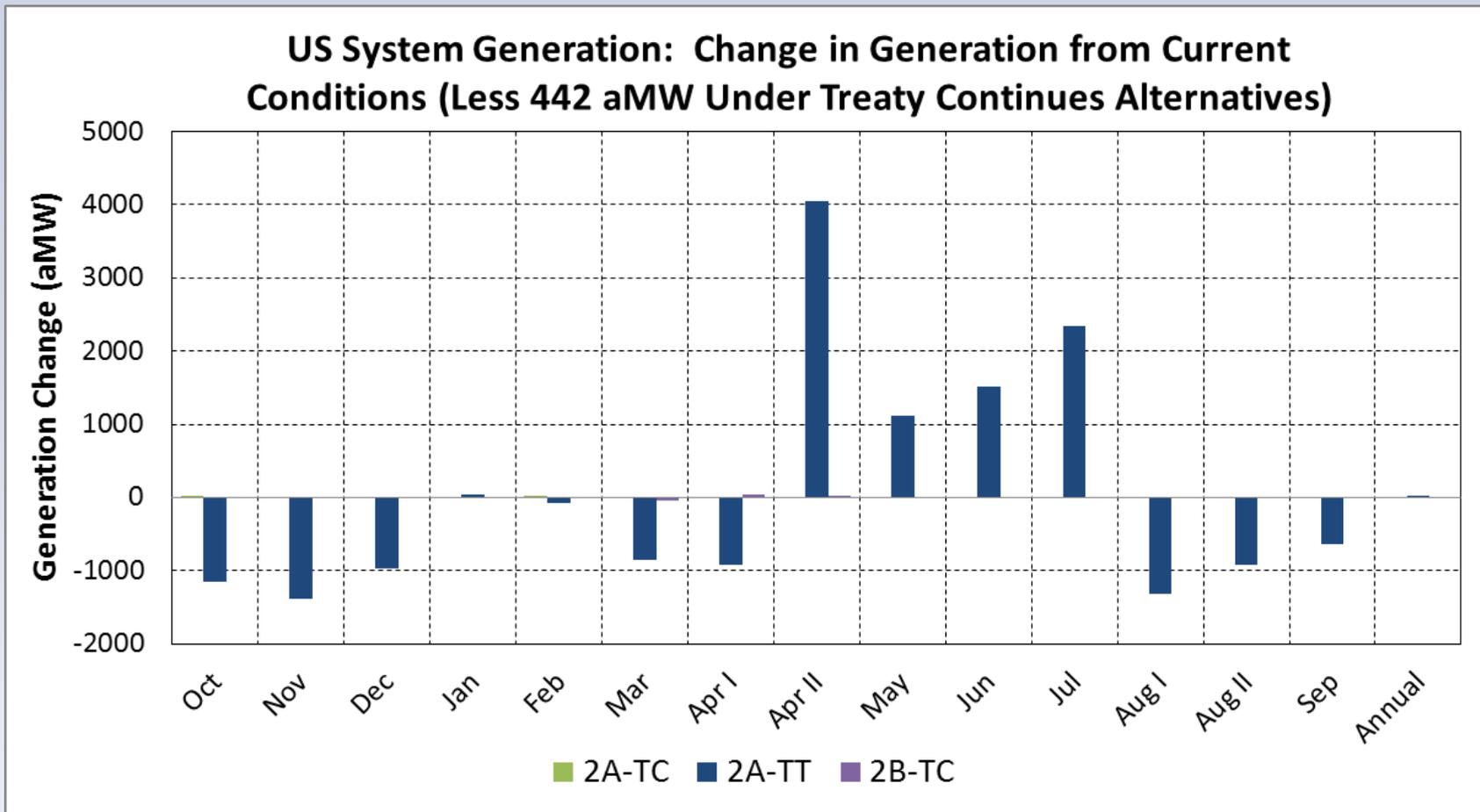
	October	November	December	January	February	March	April I	April II	May	June	July	August I	August II	September	Annual
All Water Years															
2RC-CC	3813	3778	4731	5211	2980	2032	2440	2824	3220	3839	4587	4927	4360	3651	3769
E5	3893	3694	4883	5042	3435	2146	2392	3122	3671	3601	3734	4868	4404	3635	3766

***Generation Summary***  
***Critical Water (1937)***

## ***Generation Summary Critical Water (1937)***

- ***Generation is from Water Year 1937***
- ***This would represent the amount of firm energy the system could produce***
- ***In other words, historically the least amount of energy produced in a low water year (1937).***

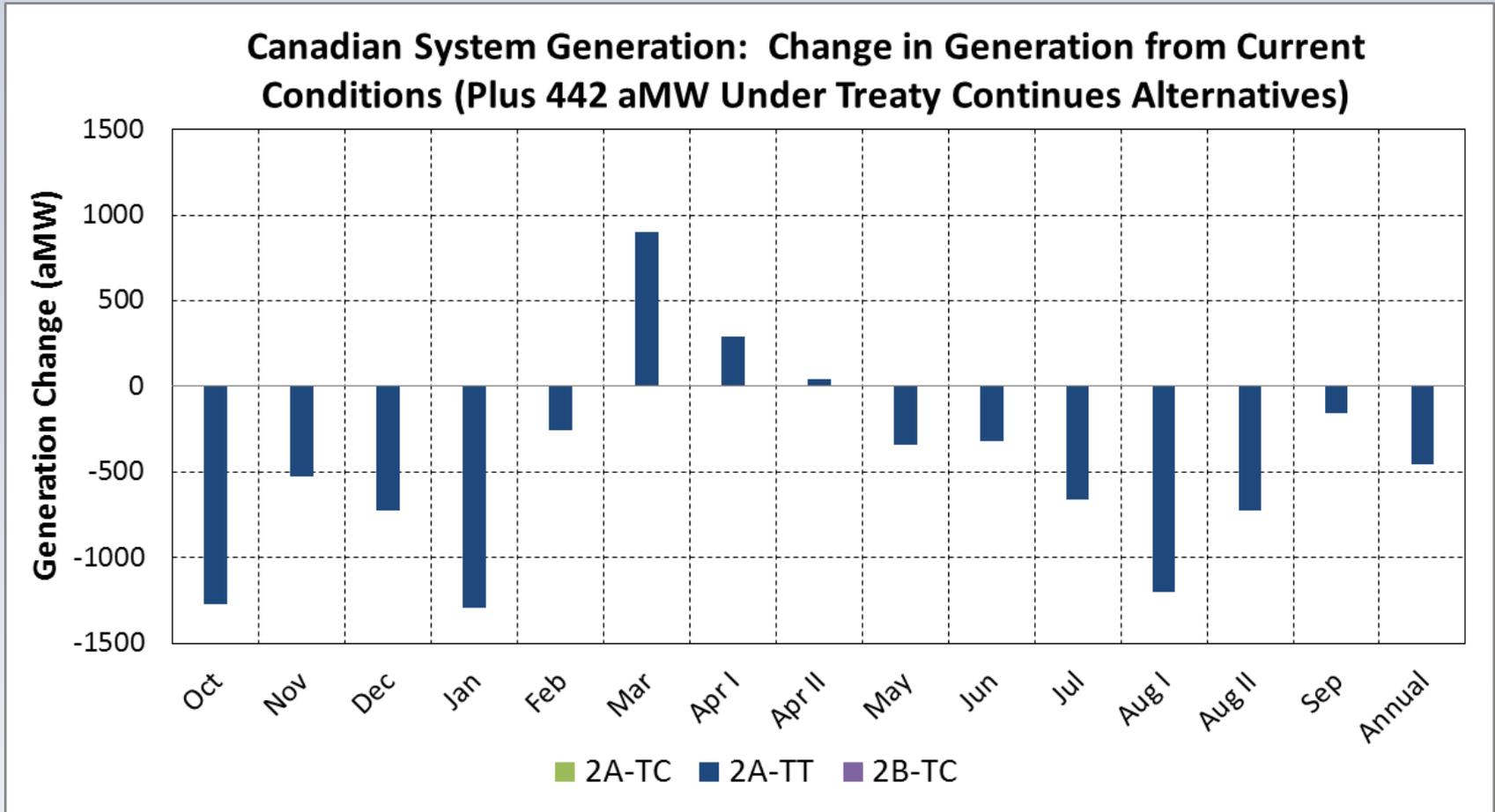
# Columbia River Treaty 2014/2024 Review



**US System Generation (aMW) Adjusted for CEA with 442 aMW Subtracted from TC Alternatives**

	October	November	December	January	February	March	April I	April II	May	June	July	August I	August II	September	Annual
Water Year 1937 (Critical Water)															
2RC-CC	8029	10375	10682	8331	7828	8354	9391	7875	13051	11222	8537	10301	8841	8538	9437
2A-TC	8029	10375	10682	8331	7837	8346	9391	7875	13043	11222	8537	10301	8841	8538	9437
2A-TT	6874	8984	9716	8376	7754	7503	8471	11925	14174	12741	10873	8987	7919	7902	9469
2B-TC	8029	10375	10682	8331	7828	8317	9426	7904	13051	11222	8537	10301	8841	8538	9437

# Columbia River Treaty 2014/2024 Review

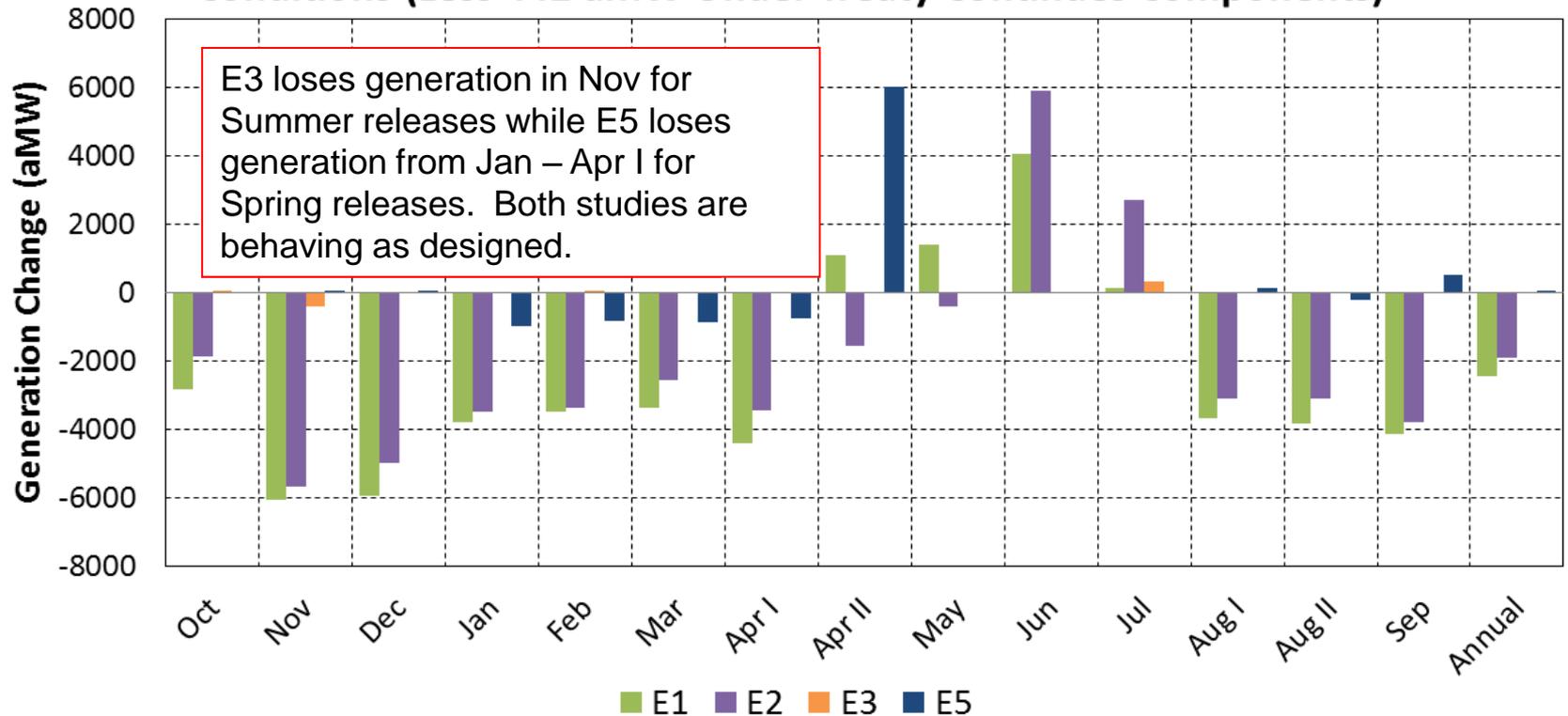


**Canadian System Generation (aMW) Adjusted for CEA with 442 aMW Added to TC Alternatives**

	October	November	December	January	February	March	April I	April II	May	June	July	August I	August II	September	Annual
Water Year 1937 (Critical Water)															
2RC-CC	3696	3332	4484	4530	3152	1930	1565	1423	2772	3283	3066	3748	3492	3701	3259
2A-TC	3696	3332	4484	4530	3152	1930	1565	1423	2772	3283	3066	3748	3492	3701	3259
2A-TT	2427	2803	3762	3235	2892	2830	1858	1464	2433	2963	2401	2544	2768	3546	2801
2B-TC	3696	3332	4484	4530	3152	1930	1565	1423	2772	3283	3066	3748	3492	3701	3259

# Columbia River Treaty 2014/2024 Review

## US System Generation: Change in Generation from Current Conditions (Less 442 aMW Under Treaty Continues Components)

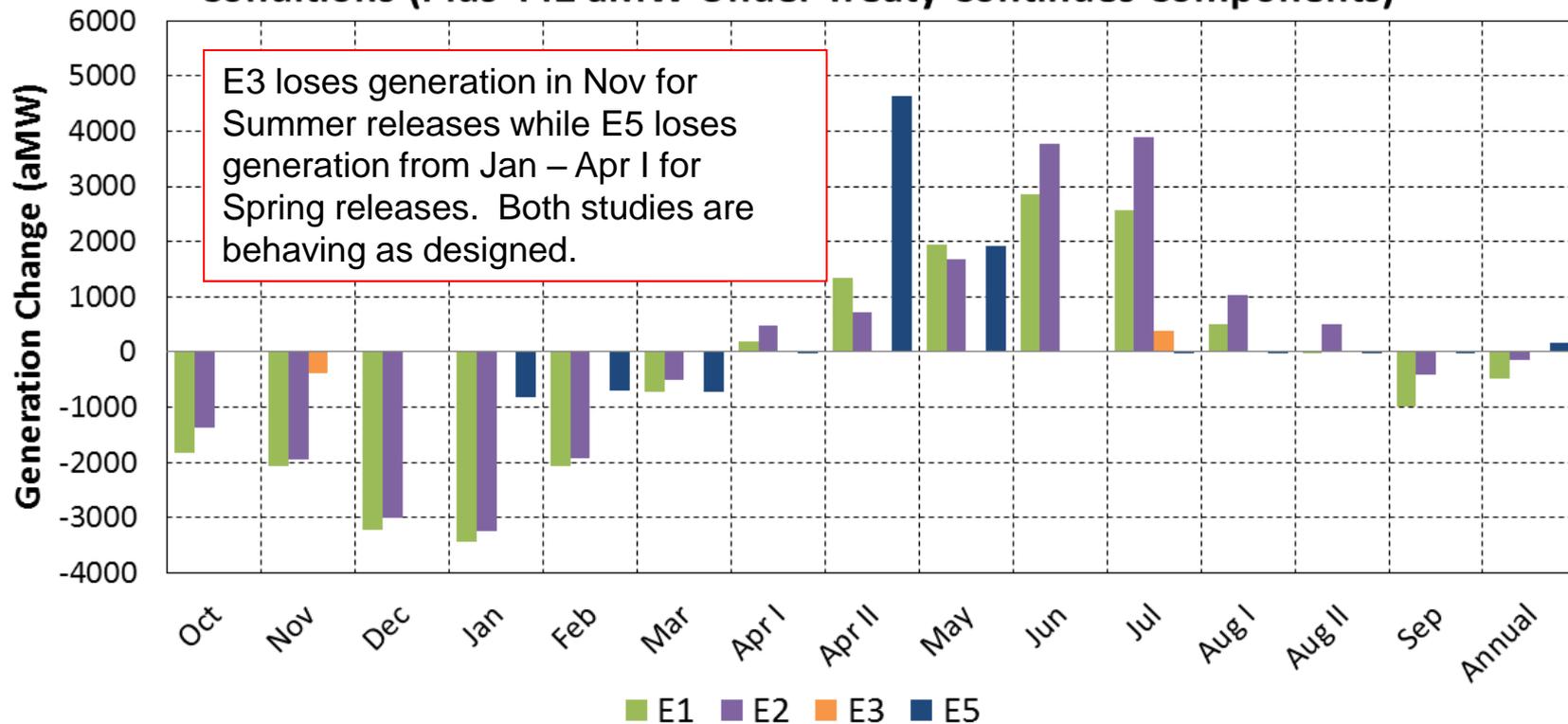


### US System Generation (aMW) Adjusted for CEA with 442 aMW Subtracted from TC Alternatives

	October	November	December	January	February	March	April I	April II	May	June	July	August I	August II	September	Annual
Water Year 1937 (Critical Water)															
2RC-CC	8029	10375	10682	8331	7828	8354	9391	7875	13051	11222	8537	10301	8841	8538	9437
E1	5214	4328	4751	4555	4332	4990	4988	8949	14434	15268	8672	6628	4998	4407	6989
E2	6155	4707	5701	4861	4474	5776	5962	6308	12644	17133	11255	7219	5737	4758	7522
E3	8029	9964	10682	8331	7837	8346	9391	7875	13043	11222	8874	10301	8841	8538	9432
E5	8029	10375	10682	7362	6983	7484	8631	13881	13051	11222	8522	10429	8613	9067	9469

# Columbia River Treaty 2014/2024 Review

## Canadian System Generation: Change in Generation from Current Conditions (Plus 442 aMW Under Treaty Continues Components)



### Canadian System Generation (aMW) Adjusted for CEA with 442 aMW Added to TC Alternatives

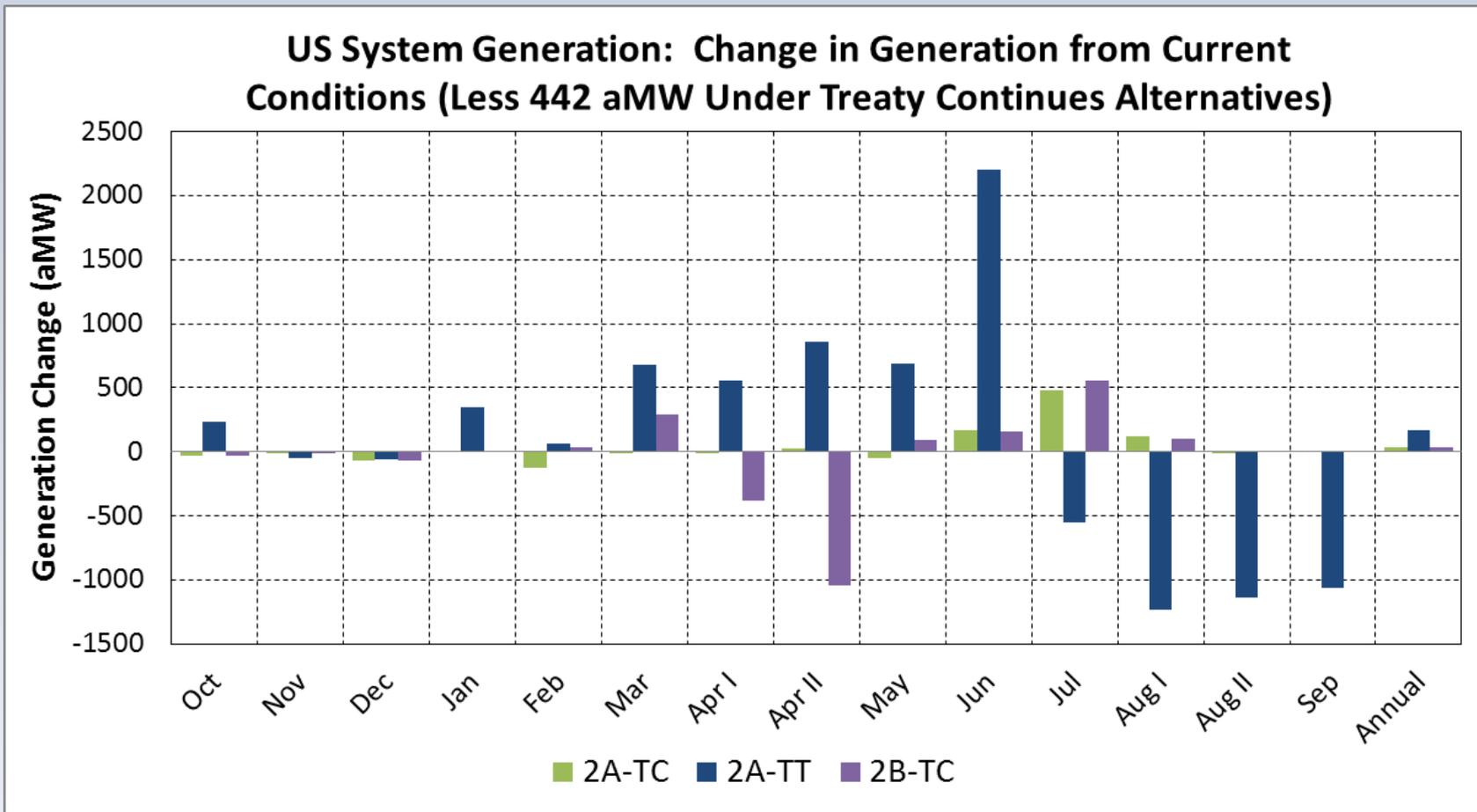
	October	November	December	January	February	March	April I	April II	May	June	July	August I	August II	September	Annual
Water Year 1937 (Critical Water)															
2RC-CC	3696	3332	4484	4530	3152	1930	1565	1423	2772	3283	3066	3748	3492	3701	3259
E1	1867	1273	1270	1098	1094	1206	1768	2773	4714	6134	5627	4251	3463	2712	2769
E2	2323	1376	1487	1282	1235	1418	2056	2150	4457	7052	6948	4790	4004	3303	3126
E3	3696	2952	4494	4542	3162	1935	1565	1423	2772	3283	3450	3748	3492	3701	3263
E5	3696	3332	4484	3715	2467	1209	1553	6058	4687	3283	3047	3731	3477	3682	3424

***Generation Summary***  
***(10<sup>th</sup> Percentile or P10)***

## ***Generation Summary – 10<sup>th</sup> Percentile Assumptions***

- ***Generation from the lowest 10<sup>th</sup> Percentile is determined for each of the 14 periods***
- ***It is NOT based on the lowest 10<sup>th</sup> Percentile from the annual generation***
- ***Seasonal/Annual generation is hard to quantify as the generation data is not from a continuous water year***

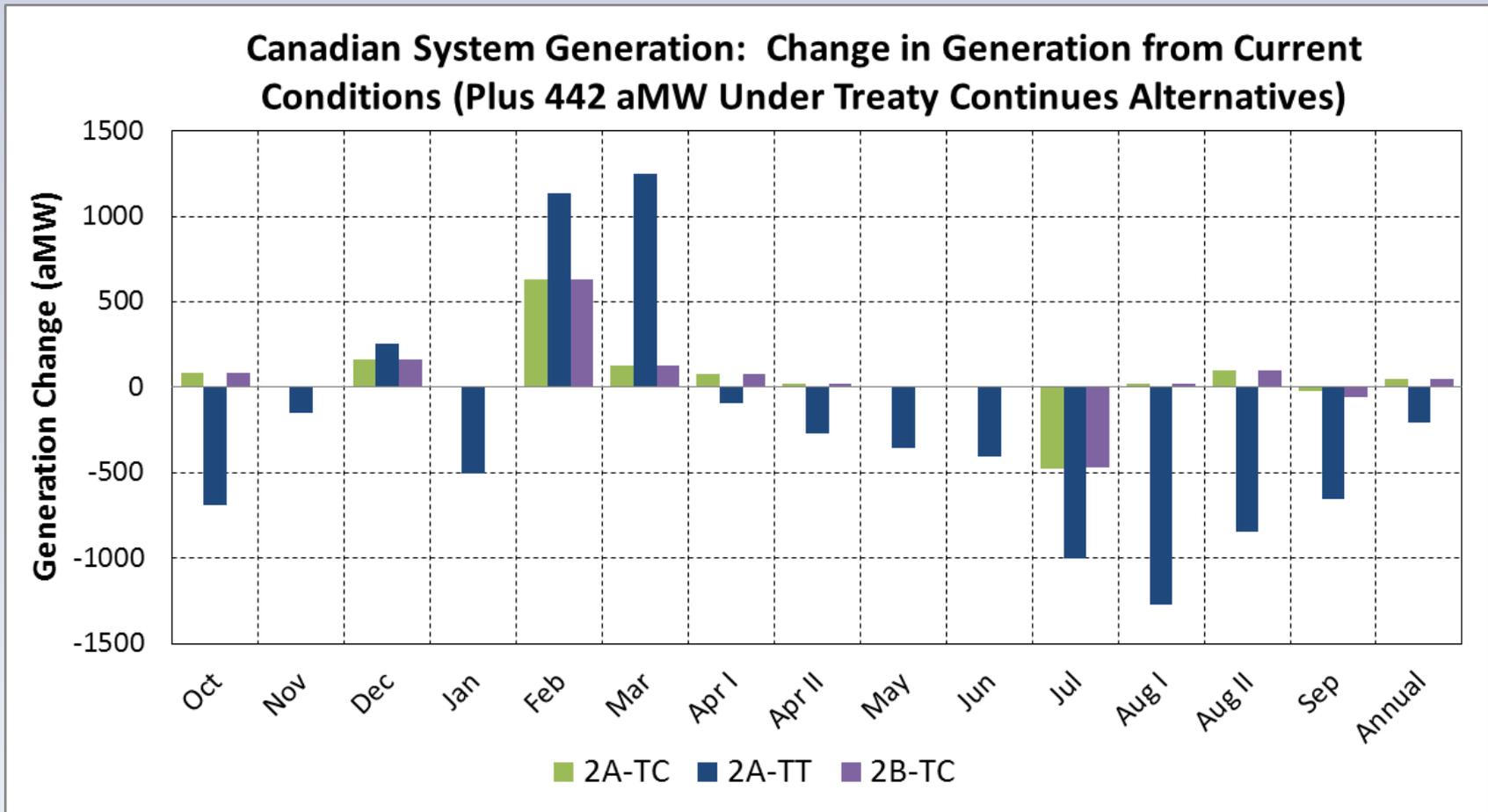
# Columbia River Treaty 2014/2024 Review



**US System Generation (aMW) Adjusted for CEA with 442 aMW Subtracted from TC Alternatives**

	October	November	December	January	February	March	April I	April II	May	June	July	August I	August II	September	Annual
10th Percentile															
2RC-CC	7556	9529	10434	9217	8519	8345	9379	10411	13038	10308	9265	9277	8369	8114	9426
2A-TC	7522	9529	10368	9217	8390	8337	9379	10435	12989	10472	9744	9402	8368	8119	9463
2A-TT	7790	9482	10378	9565	8585	9025	9935	11265	13729	12509	8718	8041	7229	7054	9593
2B-TC	7522	9529	10368	9217	8553	8633	8995	9369	13133	10469	9818	9380	8373	8119	9459

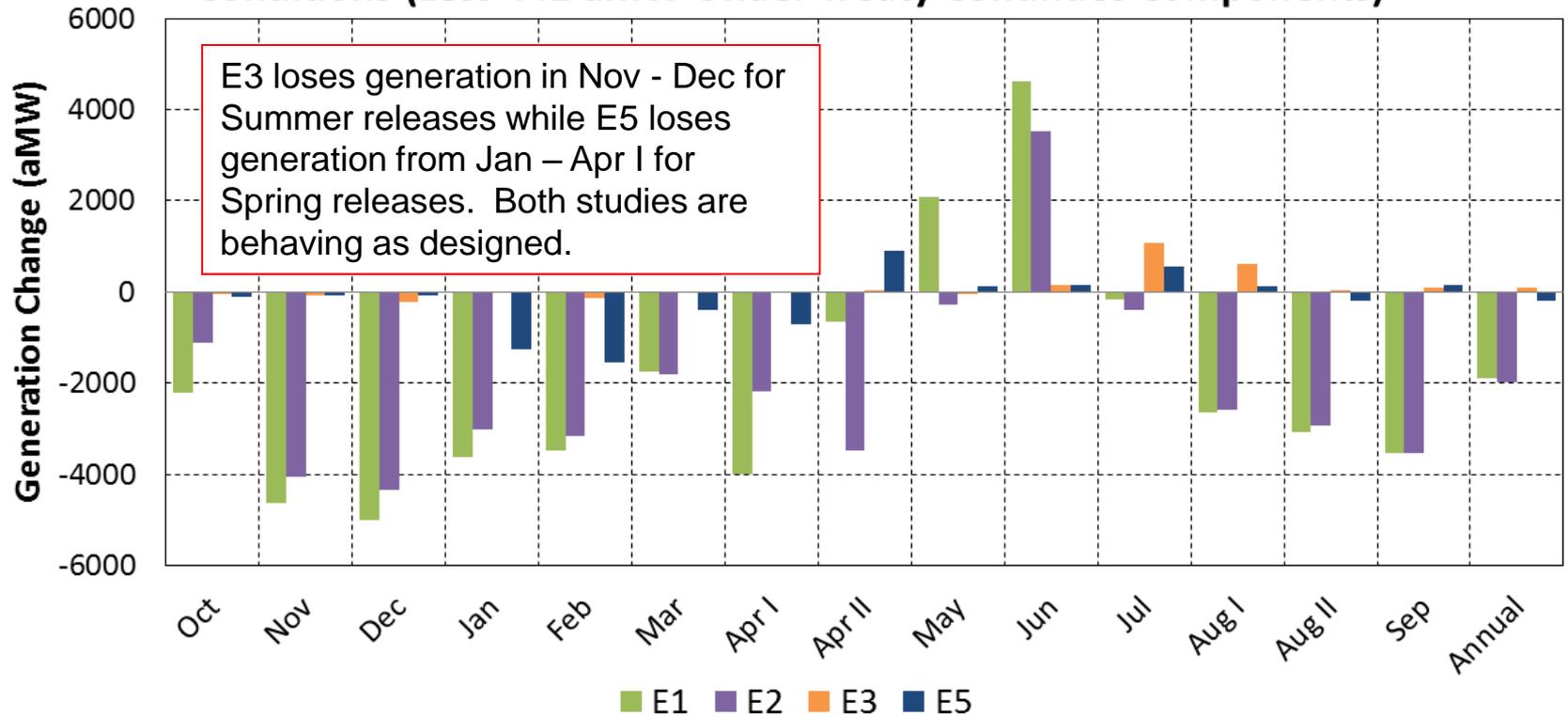
# Columbia River Treaty 2014/2024 Review



<b>Canadian System Generation (aMW) Adjusted for CEA with 442 aMW Added to TC Alternatives</b>															
	October	November	December	January	February	March	April I	April II	May	June	July	August I	August II	September	Annual
10th Percentile															
2RC-CC	3444	3262	3817	4133	2008	1580	1944	1725	2838	3276	3125	3387	3321	3198	2998
2A-TC	3531	3266	3980	4134	2641	1708	2018	1747	2843	3281	2650	3408	3416	3173	3047
2A-TT	2753	3111	4071	3628	3141	2827	1853	1453	2485	2869	2125	2119	2476	2541	2792
2B-TC	3530	3266	3980	4134	2641	1708	2018	1747	2846	3281	2653	3408	3416	3138	3044

# Columbia River Treaty 2014/2024 Review

## US System Generation: Change in Generation from Current Conditions (Less 442 aMW Under Treaty Continues Components)

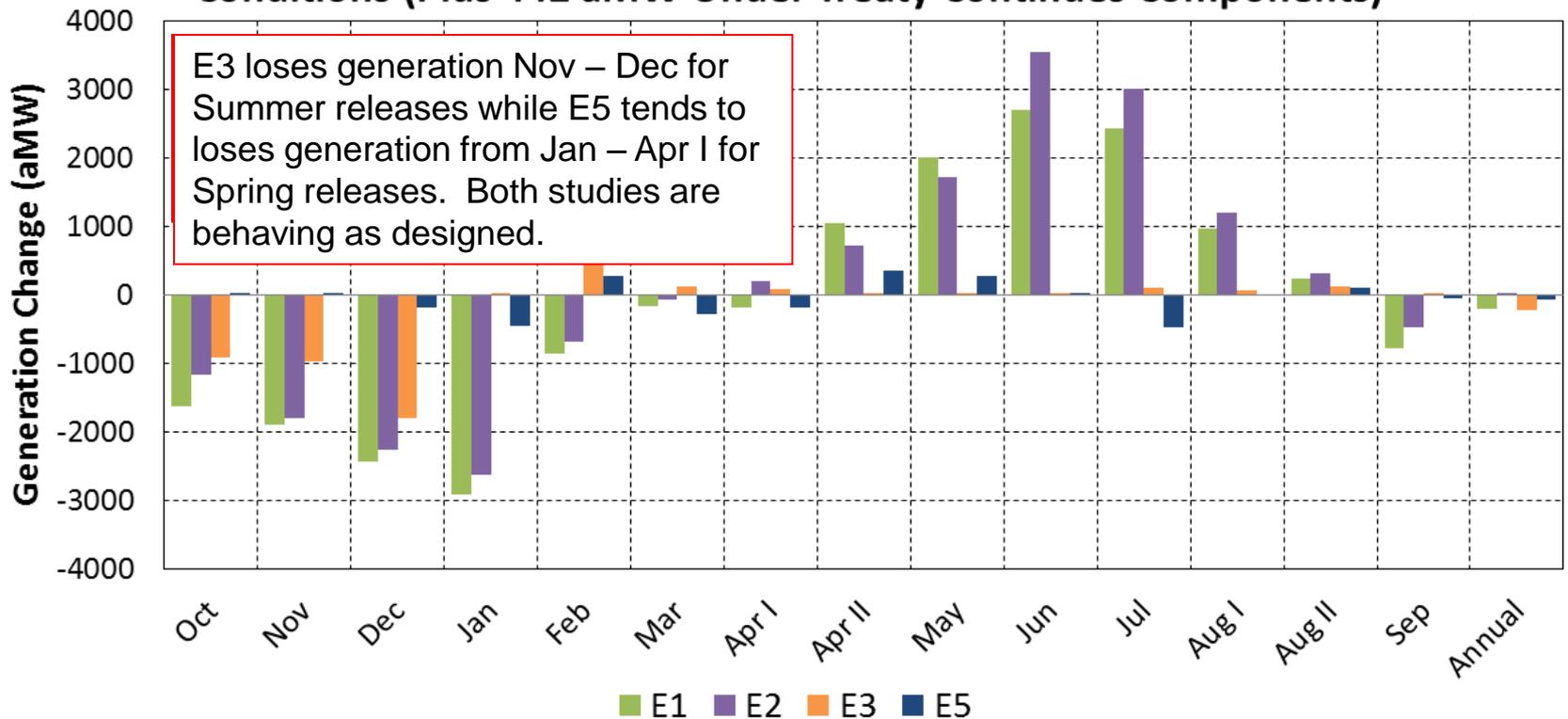


### US System Generation (aMW) Adjusted for CEA with 442 aMW Subtracted from TC Alternatives

	October	November	December	January	February	March	April I	April II	May	June	July	August I	August II	September	Annual
10th Percentile															
2RC-CC	7556	9529	10434	9217	8519	8345	9379	10411	13038	10308	9265	9277	8369	8114	9426
E1	5351	4901	5436	5583	5039	6584	5382	9769	15130	14925	9100	6633	5308	4592	7529
E2	6453	5464	6105	6215	5355	6526	7201	6928	12749	13842	8858	6688	5437	4594	7453
E3	7522	9462	10225	9217	8390	8337	9379	10435	12989	10472	10338	9906	8406	8218	9527
E5	7441	9462	10345	7946	6979	7947	8668	11315	13157	10469	9818	9398	8180	8276	9231

# Columbia River Treaty 2014/2024 Review

## Canadian System Generation: Change in Generation from Current Conditions (Plus 442 aMW Under Treaty Continues Components)



### Canadian System Generation (aMW) Adjusted for CEA with 442 aMW Added to TC Alternatives

	October	November	December	January	February	March	April I	April II	May	June	July	August I	August II	September	Annual
10th Percentile															
2RC-CC	3444	3262	3817	4133	2008	1580	1944	1725	2838	3276	3125	3387	3321	3198	2998
E1	1812	1365	1386	1216	1146	1416	1766	2772	4848	5965	5562	4364	3554	2410	2789
E2	2278	1459	1552	1515	1314	1512	2140	2441	4556	6823	6136	4586	3637	2722	3032
E3	2533	2290	2013	4156	2670	1709	2023	1757	2843	3281	3231	3457	3445	3219	2776
E5	3463	3263	3627	3683	2285	1298	1763	2075	3121	3301	2653	3369	3416	3138	2934