



2020 IRP Modeling Results

May 2020



1.0 v1: Model Configuration & Constraints

35% Clean Energy in 2025

40% Clean Energy in 2030

Erickson Retires December 2025 and Dispatched Optimally

1% Annual Incremental Energy Efficiency

Pegasus Online 7/1/2020

Regular Growth

No incentive for Electric Vehicles

No incentive for Customer Solar

Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy

Expansion Plan

2021: 10 MW Solar | C&I Bins 1, 2 & 3; Res Bins 1, 3 & 5

2022: 80 MW Solar

2023: 26 MW Solar

2025: Erickson Retirement

2030: Demand Response C&I | 75 MW, 4-Hr Battery

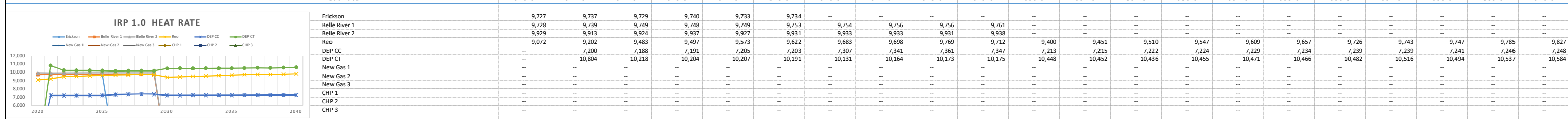
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Summary of Modeling

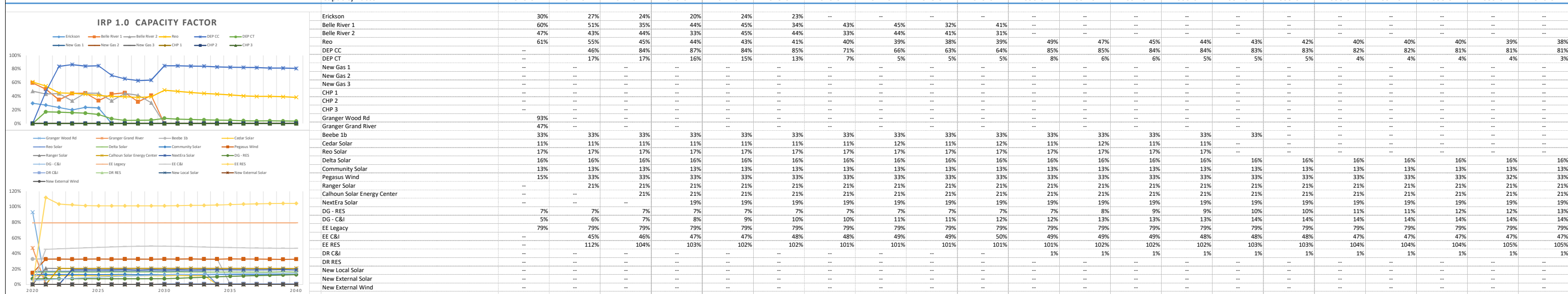
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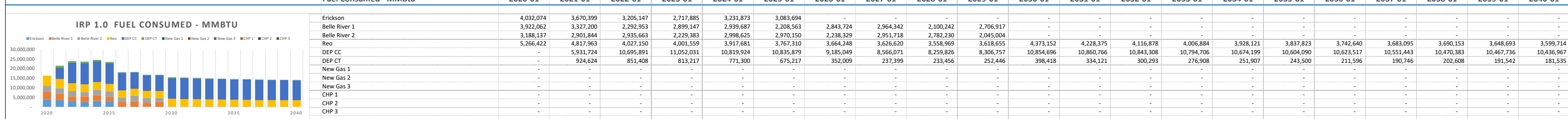
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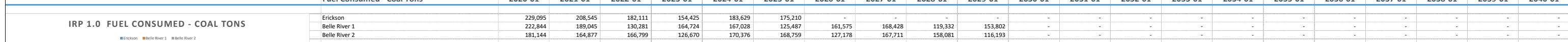
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	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
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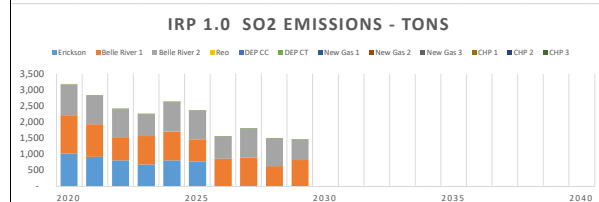
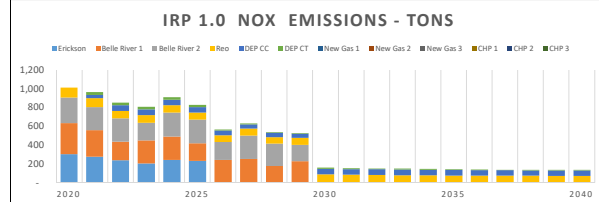
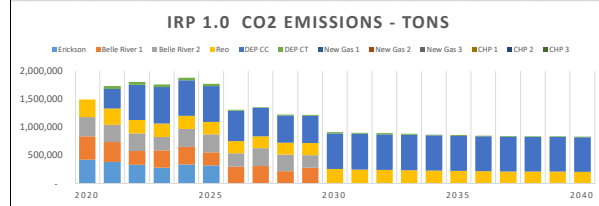
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CO2 Emissions - Tons																					
Erickson	424,577	386,493	337,502	286,193	340,316	324,713	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Belle River 1	417,111	353,848	243,856	308,324	312,636	234,881	302,430	315,258	223,361	287,881	-	-	-	-	-	-	-	-	-	-	-
Belle River 2	339,058	308,611	312,208	237,095	318,904	315,875	238,046	313,915	295,890	217,486	-	-	-	-	-	-	-	-	-	-	-
Reo	313,089	286,428	239,414	237,893	232,966	223,967	217,840	215,603	211,581	215,129	259,984	251,377	244,748	238,209	233,527	228,159	222,500	218,960	219,380	216,915	214,003
DEP CC	-	347,006	625,710	646,544	632,966	633,899	537,325	501,115	483,200	485,945	635,000	635,355	634,334	631,490	624,441	620,339	621,476	617,259	612,517	612,363	610,563
DEP CT	-	54,091	49,807	47,573	45,121	39,500	20,593	13,888	13,657	14,768	23,307	19,546	17,567	16,199	14,737	14,245	12,378	11,159	11,853	11,205	10,620
New Gas 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NOx Emissions - Tons																					
Erickson	302	275	240	204	242	231	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Belle River 1	333	283	195	246	250	188	242	252	179	230	-	-	-	-	-	-	-	-	-	-	-
Belle River 2	271	247	250	189	255	252	190	251	236	174	-	-	-	-	-	-	-	-	-	-	-
Reo	105	96	81	80	78	75	73	73	71	72	87	85	82	80	79	77	75	74	74	73	72
DEP CC	-	33	59	61	60	60	51	47	45	46	60	60	60	59	59	58	58	58	58	58	57
DEP CT	-	31	28	27	25	22	12	8	8	8	13	11	10	9	8	8	7	6	7	6	6
New Gas 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SO2 Emissions - Tons																					
Erickson	1,020	929	811	688	818	780	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Belle River 1	1,196	1,015	699	884	897	674	867	904	641	826	-	-	-	-	-	-	-	-	-	-	-
Belle River 2	972	885	895	680	915	906	683	900	849	624	-	-	-	-	-	-	-	-	-	-	-
Reo	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
DEP CC	-	4	8	8	8	8	6	6	6	6	8	8	8	8	7	7	7	7	7	7	7
DEP CT	-	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
New Gas 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



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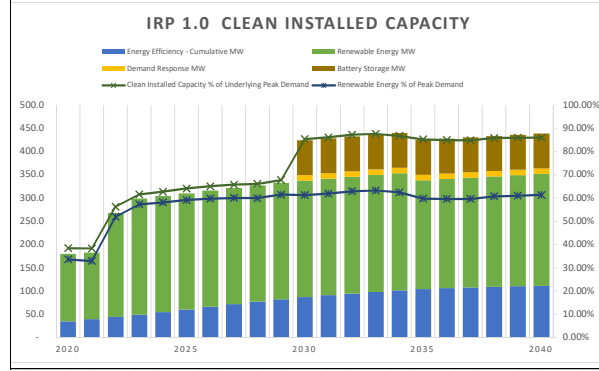
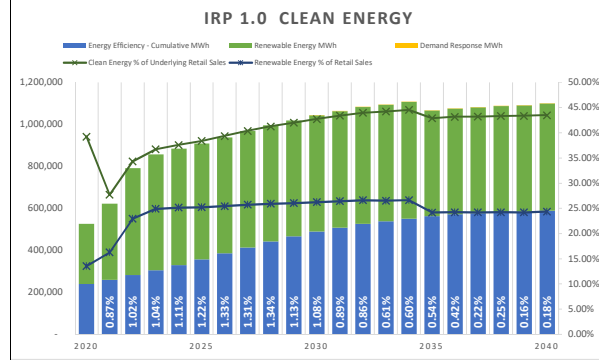
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	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Clean Energy	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Renewable Energy MWh	285,558	363,422	510,187	551,630	554,141	552,125	552,511	554,469	554,257	552,790	553,614	555,457	557,109	554,521	555,534	503,498	504,431	504,488	505,829	506,202	510,740
Renewable Energy % of Retail Sales	13.54%	16.26%	22.92%	24.90%	25.16%	25.23%	25.45%	25.74%	25.94%	26.03%	26.22%	26.42%	26.60%	26.53%	26.63%	24.18%	24.24%	24.21%	24.24%	24.20%	24.36%
Renewable Energy % of Underlying Retail Sales	12.16%	14.57%	20.35%	21.89%	21.89%	21.70%	21.62%	21.60%	21.49%	21.35%	21.29%	21.28%	21.27%	21.10%	21.07%	19.04%	19.02%	18.97%	18.96%	18.92%	19.03%
Renewable Energy RPS	682,092	431,576	578,371	620,462	622,311	620,215	621,084	623,319	622,051	621,362	621,221	624,025	625,524	623,302	622,907	571,274	572,885	572,231	573,536	575,087	578,545
Renewable Energy % of Retail Sales	32.33%	19.31%	25.99%	28.01%	28.25%	28.35%	28.61%	28.93%	29.11%	29.26%	29.42%	29.68%	29.87%	29.82%	29.86%	27.43%	27.53%	27.46%	27.48%	27.49%	27.60%
Renewable Energy % of Underlying Retail Sales	29.04%	17.31%	23.07%	24.62%	24.58%	24.30%	24.30%	24.28%	24.12%	23.99%	23.89%	23.91%	23.88%	23.71%	23.62%	21.60%	21.60%	21.52%	21.50%	21.49%	21.55%
Energy Efficiency - Cumulative MWh	239,413	258,772	281,539	304,634	329,108	355,870	384,759	412,991	441,698	465,728	488,568	507,385	525,316	538,137	550,663	561,970	570,804	575,363	580,589	583,972	587,679
Energy Efficiency - Cumulative % of Underlying Retail Sales	10.19%	10.38%	11.23%	12.09%	13.00%	13.99%	15.05%	16.09%	17.13%	17.98%	18.79%	19.44%	20.05%	20.47%	20.88%	21.25%	21.52%	21.64%	21.77%	21.83%	21.89%
Energy Efficiency - Annual Incremental MWh		19,360	22,767	23,095	24,474	26,762	28,889	28,231	28,707	24,031	22,839	18,817	17,931	12,822	12,526	11,307	8,834	4,559	5,226	3,383	3,707
Energy Efficiency - Annual Incremental % of Retail Sales		0.87%	1.02%	1.04%	1.11%	1.22%	1.33%	1.31%	1.34%	1.13%	1.08%	0.89%	0.86%	0.61%	0.54%	0.42%	0.25%	0.22%	0.25%	0.16%	0.18%
Energy Efficiency - Annual Incremental % of Underlying Retail Sales		0.78%	0.91%	0.92%	0.97%	1.05%	1.13%	1.10%	1.11%	0.93%	0.88%	0.72%	0.68%	0.49%	0.48%	0.43%	0.33%	0.17%	0.20%	0.13%	0.14%
Demand Response MWh	-	-	-	-	-	-	-	-	-	-	955	965	948	916	942	968	988	969	938	925	964
Demand Response % of Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.05%	0.05%	0.05%	0.04%	0.05%	0.05%	0.05%	0.04%	0.04%	0.04%	0.05%
Demand Response % of Underlying Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.04%	0.04%	0.04%	0.03%	0.04%	0.04%	0.04%	0.04%	0.04%	0.03%	0.04%
Clean Energy Credits	921,505	690,348	859,910	925,096	951,419	976,085	1,005,844	1,036,309	1,063,749	1,087,090	1,110,744	1,132,375	1,151,788	1,162,355	1,174,513	1,134,212	1,144,677	1,148,563	1,155,063	1,159,984	1,167,188
Clean Energy % of Underlying Retail Sales	39.23%	27.68%	34.30%	36.71%	37.58%	38.37%	39.35%	40.36%	41.25%	41.98%	42.72%	43.38%	43.97%	44.22%	44.54%	42.89%	43.16%	43.19%	43.30%	43.35%	43.48%
Clean Installed Capacity	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Renewable Energy MW	145.0	143.8	223.8	249.8	249.8	249.9	250.0	250.1	250.2	250.3	250.5	250.9	251.3	251.9	252.4	234.0	235.0	236.1	237.6	239.3	241.3
Renewable Energy % of Peak Demand	33.57%	32.90%	51.94%	57.32%	58.13%	59.13%	59.74%	60.05%	59.98%	61.46%	61.29%	61.92%	62.91%	63.20%	62.48%	59.78%	59.61%	59.63%	60.72%	61.00%	61.34%
Renewable Energy % of Underlying Peak Demand	31.05%	30.17%	47.07%	51.45%	51.53%	51.69%	51.52%	51.16%	50.55%	51.06%	50.47%	50.73%	50.73%	50.56%	49.79%	47.01%	46.73%	46.58%	47.09%	47.17%	47.31%
Energy Efficiency - Cumulative MW	34.3	38.7	43.7	48.9	54.2	59.9	65.8	71.4	76.8	81.8	86.4	90.5	94.3	97.7	100.8	103.7	105.6	107.4	108.9	109.8	110.4
Energy Efficiency - Cumulative % of Underlying Peak Demand	7.35%	8.13%	9.20%	10.07%	11.17%	12.40%	13.57%	14.60%	15.51%	16.69%	17.41%	18.21%	19.03%	19.61%	19.89%	20.84%	21.01%	21.17%	21.59%	21.64%	21.65%
Energy Efficiency - Annual Incremental MW		4.4	5.0	5.1	5.3	5.8	5.9	5.6	5.4	5.0	4.6	4.1	3.7	3.4	3.1	2.9	1.9	1.7	1.6	0.9	0.7
Energy Efficiency - Annual Incremental % of Peak Demand		1.02%	1.16%	1.18%	1.23%	1.36%	1.41%	1.33%	1.29%	1.24%	1.13%	1.01%	0.93%	0.86%	0.77%	0.75%	0.49%	0.43%	0.40%	0.22%	0.17%
Energy Efficiency - Annual Incremental % of Underlying Peak Demand		0.93%	1.05%	1.06%	1.09%	1.19%	1.22%	1.14%	1.09%	1.03%	0.93%	0.82%	0.75%	0.69%	0.62%	0.59%	0.38%	0.34%	0.31%	0.17%	0.13%
Demand Response MW	-	-	-	-	-	-	-	-	-	-	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7
Demand Response % of Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Demand Response % of Underlying Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Battery Storage MW	-	-	-	-	-	-	-	-	-	-	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0
Battery Storage % of Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	18.35%	18.51%	18.77%	18.82%	18.57%	19.16%	19.03%	18.94%	19.17%	19.12%	19.07%
Battery Storage % of Underlying Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	15.11%	15.09%	15.14%	15.06%	14.80%	15.07%	14.91%	14.79%	14.87%	14.79%	14.71%
Clean Installed Capacity MW	179	183	268	299	304	310	316	321	327	332	424	428	432	436	440	424	427	430	433	436	438
Clean Installed Capacity % of Underlying Peak Demand	38.40%	38.29%	56.27%	61.51%	62.70%	64.08%	65.09%	65.76%	66.06%	67.75%	85.35%	86.12%	87.26%	87.57%	86.77%	85.27%	84.97%	84.85%	85.87%	85.91%	85.96%



IRP 1.0

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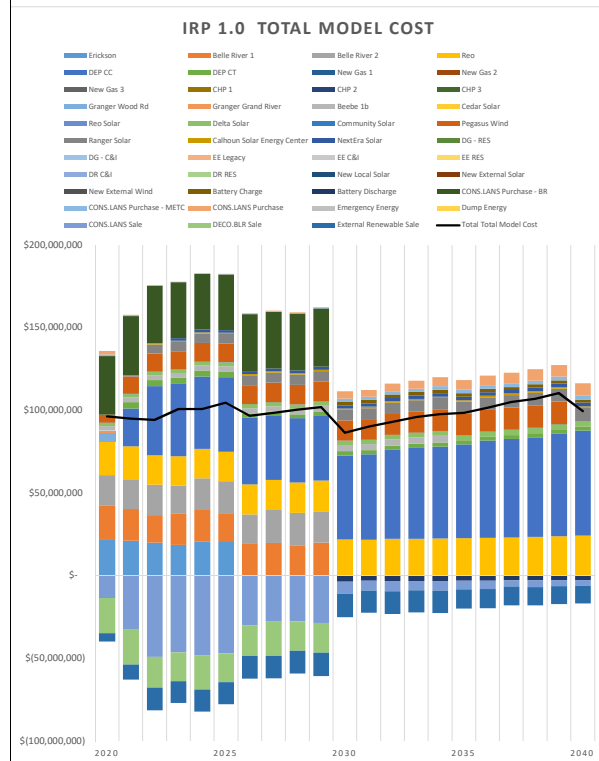
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	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
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	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01	
Erickson	\$ 22,161,894	\$ 21,258,361	\$ 19,996,698	\$ 18,772,523	\$ 20,764,048	\$ 20,483,841	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Belle River 1	\$ 20,180,514	\$ 19,057,383	\$ 16,752,650	\$ 18,645,871	\$ 19,022,577	\$ 17,479,968	\$ 19,333,371	\$ 19,955,203	\$ 18,192,082	\$ 20,148,330	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Belle River 2	\$ 18,481,964	\$ 18,036,989	\$ 18,282,282	\$ 17,026,555	\$ 19,167,287	\$ 19,329,478	\$ 17,865,964	\$ 19,931,986	\$ 19,882,590	\$ 18,471,625	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Reo	\$ 20,348,000	\$ 20,006,866	\$ 17,795,362	\$ 17,833,790	\$ 17,816,826	\$ 17,825,274	\$ 18,054,055	\$ 18,209,409	\$ 18,437,822	\$ 18,974,936	\$ 22,008,198	\$ 21,765,375	\$ 22,342,031	\$ 22,378,560	\$ 22,628,870	\$ 22,723,880	\$ 23,041,666	\$ 23,209,957	\$ 23,646,389	\$ 24,002,007	\$ 24,393,973	
DEP CC	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DEP CT	\$ -	\$ 3,816,786	\$ 3,739,714	\$ 3,615,308	\$ 3,553,201	\$ 3,407,670	\$ 2,529,109	\$ 2,164,442	\$ 2,240,103	\$ 2,349,528	\$ 2,823,498	\$ 2,580,558	\$ 2,595,484	\$ 2,500,620	\$ 2,521,389	\$ 2,506,409	\$ 2,458,179	\$ 2,387,087	\$ 2,481,888	\$ 2,459,555	\$ 2,462,402	
New Gas 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Gas 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Gas 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Granger Wood Rd	\$ 5,498,401	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Granger Grand River	\$ 1,098,338	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Beebe 1b	\$ 2,810,094	\$ 2,881,790	\$ 2,935,240	\$ 3,001,689	\$ 3,110,049	\$ 3,180,931	\$ 3,233,418	\$ 3,319,856	\$ 3,430,425	\$ 3,467,648	\$ 3,577,849	\$ 3,664,435	\$ 3,785,223	\$ 3,851,962	\$ 3,946,688	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Cedar Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Reo Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Delta Solar	\$ 2,071,241	\$ 2,125,679	\$ 2,179,775	\$ 2,255,318	\$ 2,289,179	\$ 2,344,044	\$ 2,419,906	\$ 2,490,124	\$ 2,513,496	\$ 2,605,472	\$ 2,633,397	\$ 2,737,369	\$ 2,799,726	\$ 2,885,170	\$ 2,911,877	\$ 3,002,480	\$ 3,108,229	\$ 3,152,620	\$ 3,230,459	\$ 3,368,471	\$ 3,397,986	
Community Solar	\$ 31,218	\$ 31,990	\$ 32,679	\$ 33,651	\$ 34,151	\$ 34,549	\$ 35,864	\$ 36,755	\$ 36,266	\$ 38,023	\$ 37,977	\$ 39,701	\$ 39,412	\$ 40,510	\$ 41,189	\$ 41,937	\$ 43,076	\$ 43,146	\$ 43,977	\$ 45,356	\$ 45,316	
Pegasus Wind	\$ 4,832,819	\$ 10,576,306	\$ 10,806,092	\$ 10,899,541	\$ 11,152,903	\$ 11,252,975	\$ 11,401,970	\$ 11,639,005	\$ 11,834,136	\$ 11,926,829	\$ 12,172,382	\$ 12,344,787	\$ 12,633,706	\$ 12,666,508	\$ 12,846,864	\$ 13,164,223	\$ 13,301,150	\$ 13,449,850	\$ 13,630,961	\$ 13,707,748	\$ 13,778,356	\$ 13,846,864
Ranger Solar	\$ -	\$ 796,075	\$ 5,512,963	\$ 5,735,435	\$ 5,977,841	\$ 6,095,060	\$ 6,237,296	\$ 6,328,682	\$ 6,468,640	\$ 6,606,621	\$ 6,706,705	\$ 6,836,819	\$ 7,023,125	\$ 7,129,331	\$ 7,283,378	\$ 7,445,730	\$ 7,582,423	\$ 7,783,378	\$ 7,845,850	\$ 7,883,378	\$ 7,908,356	\$ 7,876,935
Calhoun Solar Energy Center	\$ -	\$ -	\$ 718,730	\$ 731,213	\$ 745,105	\$ 761,732	\$ 777,171	\$ 792,350	\$ 812,072	\$ 824,033	\$ 839,531	\$ 858,956	\$ 875,700	\$ 888,902	\$ 913,154	\$ 928,272	\$ 945,883	\$ 967,027	\$ 984,247	\$ 999,862	\$ 1,025,864	\$ 1,025,864
NextEra Solar	\$ -	\$ -	\$ -	\$ 1,629,816	\$ 1,652,721	\$ 1,665,368	\$ 1,728,549	\$ 1,771,589	\$ 1,751,921	\$ 1,846,395	\$ 1,842,985	\$ 1,918,540	\$ 1,924,493	\$ 1,975,341	\$ 2,009,677	\$ 2,055,622	\$ 2,108,020	\$ 2,126,464	\$ 2,178,041	\$ 2,249,944	\$ 2,258,245	
DG - RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DG - C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
EE Legacy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
EE C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
EE RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DR C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DR RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Local Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New External Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New External Wind	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Battery Charge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Battery Discharge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CONS.LANS Purchase - BR	\$ 35,420,587	\$ 35,778,855	\$ 34,829,555	\$ 33,789,508	\$ 33,816,090	\$ 33,676,675	\$ 34,568,514	\$ 34,280,375	\$ 34,430,519	\$ 35,170,847	\$ 34,447,169	\$ 34,018,138	\$ 33,171,228	\$ 33,085,030	\$ 33,193,798	\$ 32,969,500	\$ 32,966,273	\$ 32,714,406	\$ 32,716,494	\$ 32,572,412	\$ 32,572,412	
CONS.LANS Purchase - METC	\$ 934,722	\$ 434,991	\$ 55,864	\$ 35,570	\$ 62,596	\$ 54,685	\$ 279,162	\$ 374,582	\$ 404,634	\$ 414,308	\$ 1,853,588	\$ 1,905,065	\$ 1,997,729	\$ 2,052,270	\$ 2,099,727	\$ 2,148,778	\$ 2,194,610	\$ 2,275,152	\$ 2,239,754	\$ 2,268,223	\$ 2,303,058	
CONS.LANS Purchase	\$ 2,086,601	\$ 280,127	\$ 59,279	\$ 39,619	\$ 74,773	\$ 58,417	\$ 256,555	\$ 389,729	\$ 377,283	\$ 443,784	\$ 4,353,647	\$ 4,232,351	\$ 4,544,580	\$ 4,765,882	\$ 5,471,866	\$ 5,809,681	\$ 5,853,797	\$ 6,388,926	\$ 6,888,460	\$ 6,997,222	\$ 7,436,967	
Emergency Energy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Dump Energy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CONS.LANS Sale	\$ (13,340,084)	\$ (32,118,908)	\$ (49,115,959)	\$ (46,259,762)	\$ (48,322,326)	\$ (46,959,822)	\$ (29,900,310)	\$ (27,660,427)	\$ (27,509,640)	\$ (28,541,521)	\$ (7,503,345)	\$ (5,938,270)	\$ (6,206,842)	\$ (5,668,192)	\$ (5,861,679)	\$ (5,125,664)	\$ (4,959,598)	\$ (3,797,282)	\$ (3,996,481)	\$ (3,620,301)	\$ (3,401,516)	
DECO.BLR Sale	\$ (21,425,110)	\$ (21,499,876)	\$ (18,463,198)	\$ (17,421,337)	\$ (20,360,705)	\$ (17,366,997)	\$ (18,510,000)	\$ (20,736,152)	\$ (17,757,753)	\$ (18,035,746)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
External Renewable Sale	\$ (4,929,810)	\$ (9,214,193)	\$ (13,260,237)	\$ (13,408,159)	\$ (13,408,159)	\$ (13,730,765)	\$ (13,730,765)	\$ (13,843,645)	\$ (13,843,645)	\$ (14,019,958)	\$ (14,149,029)	\$ (13,319,809)	\$ (13,703,541)	\$ (13,369,578)	\$ (13,502,144)	\$ (11,698,886)	\$ (11,629,038)	\$ (11,292,661)	\$ (11,114,141)	\$ (10,815,763)	\$ (10,792,257)	
Total Total Model Cost	\$ 96,261,389	\$ 95,044,199	\$ 94,269,183	\$ 100,773,588	\$ 100,800,317	\$ 104,740,755	\$ 96,719,281	\$ 98,435,854	\$ 100,358,971	\$ 101,944,377	\$ 86,473,614	\$ 90,200,394	\$ 93,137,723	\$ 95,873,196	\$ 97,593,041	\$ 98,547,638	\$ 101,599,607	\$ 105,089,580	\$ 107,072,965	\$ 110,449,693	\$ 99,629,291	



	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
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	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-0
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IRP 1.0	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	
Summary of Modeling																						
Model Configuration and Constraints		Expansion Plan:																				
35% Clean Energy in 2025, 40% Clean Energy in 2030 Erickson Retires December 2025 and Dispatched Optimally 1% Annual Incremental Energy Efficiency Pegasus Online 7/1/2020 Regular Growth No Incentive for Electric Vehicles No Incentive for Customer Solar Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy Question Answered: Baseline		2021: 10MW Solar C&I Bins 1, 2 & 3; Res Bins 1, 3 & 5 2022: 80MW Solar 2023: 26MW Solar 2025: Erickson Retirement 2030: Demand Response C&I 75MW, 4-Hr Battery																				
Post Processing Costs - Coal Penalties		2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Coal on Ground Year Start		200,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Coal Needed		229,095	208,545	182,111	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pile used first pile remaining		200,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ending Pile		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Deliveries Used		29,095	208,545	182,111	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Penalty Tons		370,905	191,455	217,889	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Erickson - Coal Penalties (PRB)		\$ 982,898	\$ 507,355	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Erickson - Rail Penalties (BNSF/CN)		\$ 4,304,779	\$ 2,289,613	\$ 2,685,893	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Post Processing Costs - Customer Programs		2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
EE C&I		\$ -	\$ 1,927,998	\$ 2,236,862	\$ 2,541,845	\$ 2,822,942	\$ 3,143,712	\$ 3,426,552	\$ 3,587,237	\$ 3,650,577	\$ 3,671,777	\$ 3,569,314	\$ 4,000,628	\$ 4,015,937	\$ 4,292,621	\$ 4,301,564	\$ 4,339,053	\$ 4,697,335	\$ 4,796,973	\$ 4,789,353	\$ 4,837,838	\$ 4,801,417
EE RES		\$ -	\$ 627,475	\$ 746,789	\$ 825,481	\$ 873,268	\$ 992,891	\$ 1,112,347	\$ 1,232,513	\$ 1,352,209	\$ 1,473,129	\$ 1,570,366	\$ 1,320,972	\$ 1,273,873	\$ 1,231,922	\$ 1,196,363	\$ 1,154,211	\$ 1,283,659	\$ 1,276,845	\$ 1,267,652	\$ 1,282,604	\$ 1,284,848
DR C&I		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 205,053	\$ 174,775	\$ 260,973	\$ 279,054	\$ 265,795	\$ 260,654	\$ 261,215	\$ 263,458	\$ 266,176	\$ 269,105	\$ 275,202
DR RES		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DG - RES		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DG - C&I		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Electric Vehicles		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Post Processing Costs - Capital & FOM		2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
New Gas 1 - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 1 - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 2 - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 2 - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 3 - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 3 - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 1 - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 1 - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 2 - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 2 - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 3 - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 3 - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Local Solar - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Local Solar - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New External Solar - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New External Solar - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New External Wind - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New External Wind - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Battery - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,903,123	\$ 6,732,504	\$ 6,561,885	\$ 6,391,265	\$ 6,220,646	\$ 6,050,027	\$ 5,879,408	\$ 5,708,788	\$ 5,538,169	\$ 5,367,550	\$ 5,196,931
Battery - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Post Processing Costs - Capacity Expense		PY 2020/21	PY 2021/22	PY 2022/23	PY 2023/24	PY 2024/25	PY 2025/26	PY 2026/27	PY 2027/28	PY 2028/29	PY 2029/30	PY 2030/31	PY 2031/32	PY 2032/33	PY 2033/34	PY 2034/35	PY 2035/36	PY 2036/37	PY 2037/38	PY 2038/39	PY 2039/40	PY 2040/41
Capacity Price - Purchase (\$/kW-Mo)		\$ 0.92	\$ 0.94	\$ 0.97	\$ 1.00	\$ 1.03	\$ 1.06	\$ 1.09	\$ 1.13	\$ 1.16	\$ 1.20	\$ 1.23	\$ 1.27	\$ 1.31	\$ 1.35	\$ 1.39	\$ 1.43	\$ 1.47	\$ 1.52	\$ 1.56	\$ 1.61	\$ 1.66
Capacity Price - Sale (\$/kW-Mo)		\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 1.00	\$ 0.98	\$ 0.96	\$ 0.96	\$ 0.96	\$ 0.88	\$ 0.88	\$ 0.88	\$ 0.88	\$ 0.88	\$ 0.73
Capacity Purchase		\$ 231,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Local Capacity Sale		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
External Capacity Sale		\$ -	\$ (1,050,932)	\$ (1,320,073)	\$ (1,320,073)	\$ (1,320,073)	\$ (1,320,073)	\$ (538,282)	\$ (551,099)	\$ (544,690)	\$ (615,180)	\$ (445,850)	\$ (470,400)	\$ (538,620)	\$ (550,080)	\$ (481,320)	\$ (557,030)	\$ (525,500)	\$ (504,480)	\$ (557,030)	\$ (546,520)	\$ (448,290)
Post Processing Costs - Transmission Expense		2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Transmission - BR - Total Annual MWs during Peak		1,799.3	1,771.8	1,753.7	1,744.9	1,711.8	1,703.3	1,710.1	1,704.1	1,692.5	1,698.1	-	-	-	-	-	-	-	-	-	-	-
Transmission - BR - Average Monthly MWs during Peak		149.9	147.7	146.1	145.4	142.7	141.9	142.5	142.0	141.0	141.5	-	-	-	-	-	-	-	-	-	-	-
Transmission - METC - Total Annual MWs during Peak		106.8	55.3	20.9	14.4	19.3	18.2	32.9	37.1	36.5	36.6	111.8	114.7	121.3	125.1	129.6	130.2	130.6	135.8	136.3	137.0	140.2
Transmission - METC - Average Monthly MWs during Peak		8.9	4.6	1.7	1.2	1.6	1.5	2.7	3.1	3.0	3.1	9.3	9.6	10.1	10.4	10.8	10.9	10.9	11.3	11.4	11.4	11.7
Transmission - Non-Entitlement - Total Annual MWs during Peak		410.8	101.6	24.8	16.6	23.9	21.7	35.9	34.6	38.2	29.3	255.6	261.9	259.7	275.0	298.6	290.2	300.0	304.4	311.1	307.7	317.5
Transmission - Non-Entitlement - Average Monthly MWs during Peak		34.2	8.5	2.1	1.4	2.0	1.8	3.0	2.9	3.2	2.4	21.3	21.8	21.6	22.9	24.9	24.2	25.0	25.4	25.9	25.6	26.5
PIP - CONS.LANS Purchase - BR - Fixed Expense		\$ 972,648	\$ 1,191,528	\$ 1,286,208	\$ 1,388,448	\$ 1,471,230	\$ 1,558,998	\$ 1,652,040	\$ 1,750,680	\$ 1,855,224	\$ 1,966,068	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
PIP - CONS.LANS Purchase - BR - Redirect Revenue		\$ (295)	\$ (13,993)	\$ (24,820)	\$ (31,852)	\$ (54,051)	\$ (62,793)	\$ (61,867)	\$ (69,927)	\$ (83,079)	\$ (83,478)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
NITS - CONS.LANS Purchase - BR - Fixed Expense		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
NITS - CONS.LANS Purchase - BR - Redirect Revenue		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
PIP - CONS.LANS Purchase - METC - Fixed Expense		\$ 119,908	\$ 138,678																			

Model Configuration and Constraints
 35% Clean Energy in 2025, 40% Clean Energy in 2030 | Erickson Retires December 2025 and Dispatched Optimally | 1% Annual Incremental Energy Efficiency | Pegasus Online 7/1/2020 | Regular Growth | No Incentive for Electric Vehicles | No Incentive for Customer Solar | Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy | Question Answered: Baseline

Expansion Plan:
 2021: 10MW Solar | C&I Bins 1, 2 & 3; Res Bins 1, 3 & 5 | 2022: 80MW Solar | 2023: 26MW Solar | 2025: Erickson Retirement | 2030: Demand Response C&I | 75MW, 4-Hr Battery |

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Total Costs w/ Post Processing	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Erickson	\$ 27,449,572	\$ 24,055,328	\$ 22,682,592	\$ 18,772,523	\$ 20,764,048	\$ 20,483,841	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Belle River 1	\$ 20,180,514	\$ 19,057,383	\$ 16,752,650	\$ 18,645,871	\$ 19,022,577	\$ 17,479,968	\$ 19,333,371	\$ 19,955,203	\$ 18,192,082	\$ 20,148,330	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Belle River 2	\$ 18,481,964	\$ 18,036,989	\$ 18,282,282	\$ 17,026,555	\$ 19,329,478	\$ 17,865,964	\$ 19,931,986	\$ 19,931,986	\$ 19,882,590	\$ 18,471,625	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Reo	\$ 20,348,000	\$ 20,006,866	\$ 17,953,362	\$ 17,833,790	\$ 17,816,826	\$ 17,825,274	\$ 18,054,055	\$ 18,209,409	\$ 18,437,822	\$ 18,974,396	\$ 22,008,198	\$ 21,765,375	\$ 22,342,031	\$ 22,738,560	\$ 22,628,870	\$ 22,723,880	\$ 23,041,666	\$ 23,209,957	\$ 23,646,389	\$ 24,002,007	\$ 24,393,973
DEP CC	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DEP CT	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Granger Wood Rd	\$ 5,498,401	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Granger Grand River	\$ 1,098,338	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Beebe 1b	\$ 2,810,094	\$ 2,881,790	\$ 2,935,240	\$ 3,001,689	\$ 3,110,049	\$ 3,180,931	\$ 3,233,418	\$ 3,319,856	\$ 3,430,425	\$ 3,467,648	\$ 3,577,849	\$ 3,664,435	\$ 3,785,223	\$ 3,851,962	\$ 3,946,688	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Cedar Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Reo Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Delta Solar	\$ 2,071,241	\$ 2,125,679	\$ 2,179,775	\$ 2,255,318	\$ 2,289,179	\$ 2,344,044	\$ 2,419,906	\$ 2,490,124	\$ 2,513,496	\$ 2,605,472	\$ 2,633,397	\$ 2,737,369	\$ 2,799,726	\$ 2,885,170	\$ 2,911,877	\$ 3,002,480	\$ 3,108,229	\$ 3,152,620	\$ 3,230,459	\$ 3,368,471	\$ 3,397,986
Community Solar	\$ 31,218	\$ 32,679	\$ 34,151	\$ 36,625	\$ 38,100	\$ 39,575	\$ 41,050	\$ 42,525	\$ 44,000	\$ 45,475	\$ 46,950	\$ 48,425	\$ 49,900	\$ 51,375	\$ 52,850	\$ 54,325	\$ 55,800	\$ 57,275	\$ 58,750	\$ 60,225	\$ 61,700
Pegasus Wind	\$ 4,832,819	\$ 10,576,306	\$ 10,806,092	\$ 10,899,541	\$ 11,152,903	\$ 11,252,975	\$ 11,401,970	\$ 11,639,005	\$ 11,834,136	\$ 11,926,829	\$ 12,172,382	\$ 12,344,787	\$ 12,633,706	\$ 12,846,868	\$ 12,846,868	\$ 13,164,223	\$ 13,301,150	\$ 13,449,850	\$ 13,630,961	\$ 13,707,748	\$ 13,707,748
Ranger Solar	\$ -	\$ 796,075	\$ 5,609,504	\$ 5,735,435	\$ 5,977,841	\$ 6,095,060	\$ 6,237,296	\$ 6,328,682	\$ 6,468,640	\$ 6,606,621	\$ 6,706,705	\$ 6,836,819	\$ 7,129,331	\$ 7,445,730	\$ 7,823,378	\$ 7,129,331	\$ 7,283,378	\$ 7,445,730	\$ 7,582,423	\$ 7,708,356	\$ 7,876,935
Calhoun Solar Energy Center	\$ -	\$ -	\$ 718,730	\$ 731,213	\$ 745,105	\$ 761,732	\$ 777,171	\$ 792,350	\$ 812,072	\$ 824,033	\$ 839,531	\$ 858,956	\$ 875,700	\$ 888,902	\$ 913,154	\$ 928,272	\$ 945,883	\$ 967,027	\$ 984,247	\$ 999,862	\$ 1,025,864
NextEra Solar	\$ -	\$ -	\$ -	\$ 1,629,816	\$ 1,652,721	\$ 1,665,368	\$ 1,728,549	\$ 1,771,589	\$ 1,751,921	\$ 1,846,395	\$ 1,842,985	\$ 1,918,540	\$ 1,924,493	\$ 1,975,341	\$ 2,009,975	\$ 2,055,677	\$ 2,108,020	\$ 2,126,464	\$ 2,178,041	\$ 2,249,944	\$ 2,258,245
DG - RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DG - C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
EE Legacy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
EE C&I	\$ -	\$ 1,927,998	\$ 2,236,862	\$ 2,541,845	\$ 2,822,942	\$ 3,143,712	\$ 3,426,552	\$ 3,587,237	\$ 3,650,577	\$ 3,671,777	\$ 3,569,314	\$ 4,000,628	\$ 4,015,937	\$ 4,292,621	\$ 4,301,564	\$ 4,339,053	\$ 4,697,335	\$ 4,796,973	\$ 4,789,353	\$ 4,837,838	\$ 4,801,417
EE RES	\$ -	\$ 627,475	\$ 746,789	\$ 825,481	\$ 873,268	\$ 992,891	\$ 1,112,347	\$ 1,232,513	\$ 1,352,209	\$ 1,473,129	\$ 1,570,366	\$ 1,320,972	\$ 1,273,873	\$ 1,231,922	\$ 1,196,363	\$ 1,154,211	\$ 1,283,659	\$ 1,276,845	\$ 1,267,652	\$ 1,262,604	\$ 1,284,848
DR C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DR RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Local Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New External Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New External Wind	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Battery Charge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Battery Discharge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CONS.LANS Purchase - BR	\$ 36,392,940	\$ 36,956,390	\$ 36,090,943	\$ 35,146,104	\$ 35,233,269	\$ 35,169,881	\$ 36,158,686	\$ 35,961,128	\$ 36,202,664	\$ 37,053,438	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CONS.LANS Purchase - METC	\$ 1,028,233	\$ 507,730	\$ 107,756	\$ 85,582	\$ 118,878	\$ 112,647	\$ 352,835	\$ 455,684	\$ 488,995	\$ 502,950	\$ 2,026,883	\$ 2,090,225	\$ 2,199,891	\$ 2,269,327	\$ 2,333,595	\$ 2,395,533	\$ 2,454,654	\$ 2,556,471	\$ 2,536,613	\$ 2,581,933	\$ 2,638,985
CONS.LANS Purchase	\$ 1,758,592	\$ 280,127	\$ 59,279	\$ 39,619	\$ 74,773	\$ 58,417	\$ 256,555	\$ 389,729	\$ 377,283	\$ 443,784	\$ 4,317,886	\$ 3,933,063	\$ 4,257,253	\$ 4,566,529	\$ 4,876,880	\$ 5,809,681	\$ 5,853,797	\$ 6,388,926	\$ 6,888,460	\$ 6,997,222	\$ 7,436,967
Emergency Energy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Dump Energy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CONS.LANS Sale	\$ (13,340,084)	\$ (32,118,908)	\$ (49,115,959)	\$ (46,259,762)	\$ (48,322,326)	\$ (46,959,822)	\$ (29,900,310)	\$ (27,660,427)	\$ (27,509,640)	\$ (28,541,521)	\$ (7,503,345)	\$ (5,938,270)	\$ (6,206,842)	\$ (5,668,192)	\$ (5,861,679)	\$ (5,125,664)	\$ (4,959,598)	\$ (3,797,282)	\$ (3,996,481)	\$ (3,620,301)	\$ (3,401,516)
DECO.BLR Sale	\$ (21,425,110)	\$ (21,499,876)	\$ (18,463,198)	\$ (17,421,337)	\$ (20,360,705)	\$ (17,368,997)	\$ (18,510,000)	\$ (20,736,152)	\$ (17,757,753)	\$ (18,035,746)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
External Renewable Sale	\$ (4,929,810)	\$ (9,214,193)	\$ (13,729,505)	\$ (13,260,237)	\$ (13,363,618)	\$ (13,408,159)	\$ (13,730,765)	\$ (13,646,551)	\$ (13,843,645)	\$ (14,019,958)	\$ (14,149,029)	\$ (13,319,809)	\$ (13,703,541)	\$ (13,369,578)	\$ (13,502,144)	\$ (11,698,886)	\$ (11,629,038)	\$ (11,292,661)	\$ (11,114,141)	\$ (10,815,763)	\$ (10,792,257)
Electric Vehicle Program	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Capacity Purchase	\$ 231,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Capacity Sale	\$ -	\$ (1,050,932)	\$ (1,320,073)	\$ (1,320,073)	\$ (1,320,073)	\$ (1,320,073)	\$ (538,282)	\$ (551,099)	\$ (544,690)	\$ (615,180)	\$ (445,850)	\$ (470,400)	\$ (538,620)	\$ (550,080)	\$ (481,320)	\$ (557,030)	\$ (525,500)	\$ (504,480)	\$ (557,030)	\$ (546,520)	\$ (448,290)
Total Total Costs w/ Post Processing	\$ 102,517,922	\$ 100,595,981	\$ 99,931,934	\$ 104,227,449	\$ 104,649,915	\$ 109,111,451	\$ 102,383,745	\$ 104,466,361	\$ 106,673,573	\$ 108,445,336	\$ 98,413,154	\$ 101,844,745	\$ 104,626,606	\$ 107,535,681	\$ 108,734,973	\$ 110,041,307	\$ 113,455,768	\$ 116,912,485	\$ 118,674,145	\$ 121,973,981	\$ 111,075,326
Total Cost per Retail Sales MWh	\$ 48.60	\$ 45.01	\$ 44.90	\$ 47.05	\$ 47.51	\$ 49.87	\$ 47.16	\$ 48.49	\$ 49.92	\$ 51.06	\$ 46.61	\$ 48.43	\$ 49.96	\$ 51.45	\$ 52.12	\$ 52.84	\$ 54.52				

IRP 1.0		2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	
Summary of Modeling																							
Model Configuration and Constraints		Expansion Plan:																					
35% Clean Energy in 2025, 40% Clean Energy in 2030 Erickson Retires December 2025 and Dispatched Optimally 1% Annual Incremental Energy Efficiency Pegasus Online 7/1/2020 Regular Growth No Incentive for Electric Vehicles No Incentive for Customer Solar Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy Question Answered: Baseline		2021: 10MW Solar C&I Bins 1, 2 & 3; Res Bins 1, 3 & 5 2022: 80MW Solar 2023: 26MW Solar 2025: Erickson Retirement 2030: Demand Response C&I 75MW, 4-Hr Battery																					
Summary Metrics		2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01	
Total Cost		\$ 102,517,922	\$ 100,595,981	\$ 99,931,934	\$ 104,227,449	\$ 104,649,915	\$ 109,111,451	\$ 102,383,745	\$ 104,466,361	\$ 106,673,573	\$ 108,445,336	\$ 98,413,154	\$ 101,844,745	\$ 104,626,606	\$ 107,535,681	\$ 108,734,973	\$ 110,041,307	\$ 113,455,768	\$ 116,912,485	\$ 118,674,145	\$ 121,973,981	\$ 111,075,326	
Nominal Rates		\$ 48.60	\$ 45.01	\$ 44.90	\$ 47.05	\$ 47.51	\$ 49.87	\$ 47.16	\$ 48.49	\$ 49.92	\$ 51.06	\$ 46.61	\$ 48.43	\$ 49.96	\$ 51.45	\$ 52.12	\$ 52.84	\$ 54.52	\$ 56.10	\$ 56.87	\$ 58.31	\$ 52.98	
Accumulated Net Present Value Total Cost		\$ 102,517,922	\$ 198,634,854	\$ 289,865,937	\$ 380,781,853	\$ 468,001,828	\$ 554,891,204	\$ 632,792,849	\$ 708,739,977	\$ 782,838,746	\$ 854,814,183	\$ 917,222,985	\$ 978,932,281	\$ 1,039,504,484	\$ 1,098,988,886	\$ 1,156,458,598	\$ 1,212,029,160	\$ 1,266,772,954	\$ 1,320,672,918	\$ 1,372,948,992	\$ 1,424,286,327	\$ 1,468,954,993	
Accumulated NPV Retail Sales		2,109,624	4,245,003	6,276,983	8,209,394	10,045,298	11,787,743	13,439,751	15,006,051	16,490,546	17,900,198	19,239,213	20,513,301	21,725,748	22,882,018	23,984,592	25,036,274	26,040,445	27,001,211	27,920,416	28,800,771	29,643,858	
Accumulated NPV Rate Impact		\$ 48.60	\$ 46.79	\$ 46.18	\$ 46.38	\$ 46.59	\$ 47.07	\$ 47.08	\$ 47.23	\$ 47.47	\$ 47.75	\$ 47.67	\$ 47.72	\$ 47.85	\$ 48.03	\$ 48.22	\$ 48.41	\$ 48.65	\$ 48.91	\$ 49.17	\$ 49.45	\$ 49.55	
Risk Premium		\$ 16,067,413	\$ 23,741,506	\$ 33,403,319	\$ 31,097,209	\$ 30,907,906	\$ 29,701,761	\$ 24,474,492	\$ 20,984,853	\$ 20,829,440	\$ 25,107,102	\$ 19,483,514	\$ 13,360,143	\$ 18,080,453	\$ 15,986,811	\$ 17,594,744	\$ 13,997,965	\$ 15,235,951	\$ 15,565,828	\$ 11,676,053	\$ 12,869,883	\$ 9,405,540	
Present Value of Risk Premium		\$ 16,067,413	\$ 22,684,413	\$ 30,494,966	\$ 27,125,592	\$ 25,760,048	\$ 23,652,582	\$ 18,622,128	\$ 15,256,005	\$ 14,468,774	\$ 16,663,645	\$ 12,355,490	\$ 8,095,116	\$ 10,467,441	\$ 8,843,259	\$ 9,299,353	\$ 7,068,934	\$ 7,351,533	\$ 7,176,287	\$ 5,143,312	\$ 5,416,774	\$ 3,782,415	
Accumulated NPV Risk Premium		\$ 16,067,413	\$ 38,751,826	\$ 69,246,792	\$ 96,372,384	\$ 122,132,431	\$ 145,785,013	\$ 164,407,141	\$ 179,663,146	\$ 194,131,920	\$ 210,795,566	\$ 223,151,056	\$ 231,246,172	\$ 241,713,613	\$ 250,556,872	\$ 259,856,225	\$ 266,925,159	\$ 274,276,692	\$ 281,452,979	\$ 286,596,292	\$ 292,013,066	\$ 295,795,481	
Total Cost with Risk Premium		\$ 118,585,335	\$ 124,337,487	\$ 133,335,252	\$ 135,324,658	\$ 135,557,821	\$ 138,813,213	\$ 126,858,237	\$ 125,451,214	\$ 127,503,012	\$ 133,552,439	\$ 117,896,668	\$ 115,204,888	\$ 122,707,059	\$ 123,522,492	\$ 126,329,717	\$ 124,039,272	\$ 128,691,719	\$ 132,478,313	\$ 130,350,198	\$ 134,843,864	\$ 120,480,866	
Present Value of Total Cost with Risk Premium		\$ 118,585,335	\$ 118,801,345	\$ 121,726,049	\$ 118,041,507	\$ 112,980,023	\$ 110,541,958	\$ 96,523,773	\$ 91,203,133	\$ 88,567,544	\$ 88,639,082	\$ 74,764,292	\$ 69,804,412	\$ 71,039,645	\$ 68,327,660	\$ 66,769,066	\$ 62,639,496	\$ 62,095,327	\$ 61,076,251	\$ 57,419,387	\$ 56,754,109	\$ 48,451,081	
Accumulated NPV Total Cost with Risk Premium		\$ 118,585,335	\$ 237,386,680	\$ 359,112,729	\$ 477,154,237	\$ 590,134,259	\$ 700,676,217	\$ 797,199,990	\$ 888,403,123	\$ 976,970,667	\$ 1,065,609,748	\$ 1,140,374,041	\$ 1,210,178,452	\$ 1,281,218,097	\$ 1,349,545,758	\$ 1,416,314,823	\$ 1,478,954,319	\$ 1,541,049,646	\$ 1,602,125,897	\$ 1,659,545,284	\$ 1,716,299,393	\$ 1,764,750,474	
Percent Dispatchable Generation		70.2%	78.9%	71.8%	69.5%	69.1%	68.7%	62.3%	61.9%	61.5%	61.1%	57.5%	57.1%	56.8%	56.6%	56.3%	57.4%	57.2%	57.0%	56.8%	56.6%	56.4%	
Resource Diversity		0.66	0.50	0.57	0.59	0.60	0.60	0.55	0.55	0.55	0.56	0.52	0.52	0.52	0.53	0.53	0.51	0.51	0.52	0.52	0.52	0.53	
Annual CO2 Emissions - Tons		1,493,836	1,736,476	1,808,496	1,763,622	1,882,848	1,772,835	1,316,234	1,359,779	1,227,689	1,221,209	918,291	906,278	896,649	885,899	872,704	862,743	856,354	847,378	843,750	840,483	835,185	
Accumulated CO2 Emissions - Tons		1,493,836	3,230,312	5,038,808	6,802,431	8,685,279	10,458,114	11,774,348	13,134,126	14,361,815	15,583,024	16,501,315	17,407,593	18,304,242	19,190,140	20,062,845	20,925,587	21,781,941	22,629,319	23,473,069	24,313,551	25,148,737	
Average CO2 Emissions per Year - Tons		1,493,836	1,615,156	1,679,603	1,700,608	1,737,056	1,743,019	1,682,050	1,641,766	1,595,757	1,558,302	1,500,120	1,450,633	1,408,019	1,370,724	1,337,523	1,307,849	1,281,291	1,257,184	1,235,425	1,215,678	1,197,559	
Annual CO2 Intensity - lbs/MWh Generated		1,331.2	1,132.5	991.4	954.6	989.6	955.1	842.6	868.1	818.3	806.2	603.5	596.2	590.2	585.5	580.1	585.8	582.3	579.0	577.2	575.8	573.0	
Total CO2 Emissions Reduced from 2005		65.8%	60.3%	58.6%	59.6%	56.9%	59.4%	69.9%	68.9%	71.9%	72.0%	79.0%	79.3%	79.5%	79.7%	80.0%	80.3%	80.4%	80.6%	80.7%	80.8%	80.9%	
CO2 Intensity Reduced from 2005		42.3%	50.9%	57.0%	58.6%	57.1%	58.6%	63.5%	62.4%	64.5%	65.1%	73.8%	74.2%	74.4%	74.6%	74.9%	74.6%	74.8%	74.9%	75.0%	75.0%	75.2%	
Annual NOx Emissions - Tons		1,012	964	852	807	910	829	567	630	539	530	160	155	152	149	146	143	140	138	138	137	135	
Accumulated NOx Emissions - Tons		1,012	1,976	2,829	3,636	4,547	5,375	5,943	6,573	7,112	7,643	7,803	7,958	8,110	8,259	8,404	8,547	8,688	8,826	8,964	9,101	9,236	
Average NOx Emissions per Year - Tons		1,012	988	943	909	909	896	849	822	790	764	709	663	624	590	560	534	511	490	472	455	440	
Annual NOx Intensity - lbs/MWh Generated		0.9	0.6	0.5	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
Total NOx Emissions Reduced from 2005		76.9%	78.0%	80.5%	81.5%	79.2%	81.1%	87.0%	85.6%	87.7%	87.9%	96.3%	96.4%	96.5%	96.6%	96.7%	96.7%	96.8%	96.8%	96.8%	96.9%	96.9%	
NOx Intensity Reduced from 2005		61.0%	72.8%	79.8%	81.1%	79.3%	80.7%	84.3%	82.6%	84.4%	84.8%	95.4%	95.6%	95.7%	95.7%	95.8%	95.8%	95.9%	95.9%	95.9%	95.9%	96.0%	
Annual SO2 Emissions - Tons		3,190	2,835	2,415	2,261	2,638	2,369	1,558	1,812	1,496	1,456	9	9	9	9	9	9	9	9	9	9	9	
Accumulated SO2 Emissions - Tons		3,190	6,025	8,440	10,701	13,339	15,708	17,266	19,078	20,574	22,030	22,040	22,049	22,058	22,067	22,076	22,084	22,093	22,102	22,110	22,119	22,127	
Average SO2 Emissions per Year - Tons		3,190	3,012	2,813	2,675	2,668	2,618	2,467	2,385	2,286	2,203	2,004	2,047	1,937	1,697	1,576	1,472	1,380	1,300	1,228	1,164	1,054	
Annual SO2 Intensity - lbs/MWh Generated		2.8	1.8	1.3	1.2	1.4	1.3	1.0	1.2	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total SO2 Emissions Reduced from 2005		71.2%	74.4%	78.2%	79.6%	76.2%	78.6%	85.9%	83.6%	86.5%	86.8%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	
SO2 Intensity Reduced from 2005		51.4%	68.4%	77.4%	79.1%	76.3%	78.2%	82.9%	80.2%	82.9%	83.6%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	
Renewable Energy MWh %		14%	19%	23%	25%	25%	25%	25%	26%	26%	26%	26%	27%	27%	27%	27%	24%	24%	24%	24%	24%	24%	
Renewable Energy RPS %		32%	19%	26%	28%	28%	28%	29%	29%	29%	29%	29%	30%	30%	30%	30%	27%	28%	27%	27%	27%	28%	
Energy Efficiency %		10%	10%	11%	12%	13%	14%	15%	16%	17%	18%	19%	19%	20%	20%	21%	21%	22%	22%	22%	22%	22%	
Clean Energy %		39%	28%	34%	37%	38%	38%	39%	40%	41%	42%	43%	43%	44%	44%	45%	43%	43%	43%	43%	43%	43%	

1.1 v2.1: Model Configuration & Constraints

35% Clean Energy in 2025

40% Clean Energy in 2030

Erickson Retires December 2021 and Dispatched Optimally

1% Annual Incremental Energy Efficiency

Pegasus Online 7/1/2020

Regular Growth

No Incentive for Electric Vehicles

No Incentive for Customer Solar

Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy

Expansion Plan

2021: 10MW Solar | C&I Bins 1, 2 & 3; Res Bins 1, 3 & 5 | Erickson Retirement

2022: 80MW Solar

2023: 26MW Solar

2030: Demand Response C&I | 75MW, 4-Hr Battery

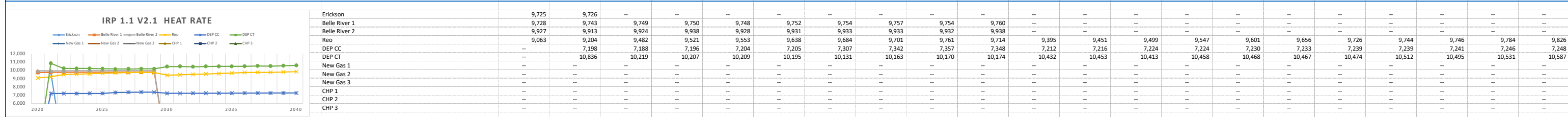
IRP 1.1 v2.1

Summary of Modeling

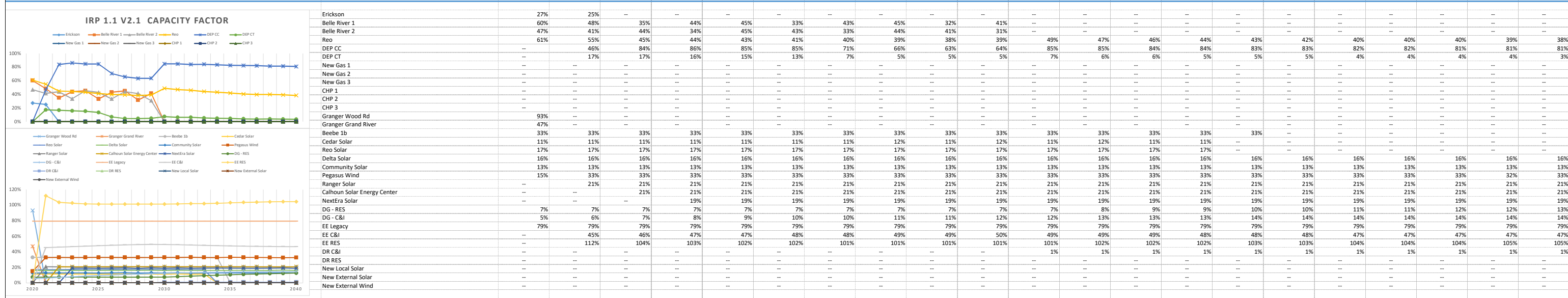
Model Configuration and Constraints
 35% Clean Energy in 2025, 40% Clean Energy in 2030 | Erickson Retires December 2021 and Dispatched Optimally | 1% Annual Incremental Energy Efficiency | Pegasus Online 7/1/2020 | Regular Growth | No Incentive for Electric Vehicles | No Incentive for Customer Solar | Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy | Question Answered: What is the impact of early retirement of Erickson with our current goals?

Expansion Plan:
 2021: 10MW Solar | C&I Bins 1, 2 & 3; Res Bins 1, 3 & 5 | Erickson Retirement | 2022: 80MW Solar | 2023: 26MW Solar | 2030: Demand Response C&I | 75MW, 4-Hr Battery |

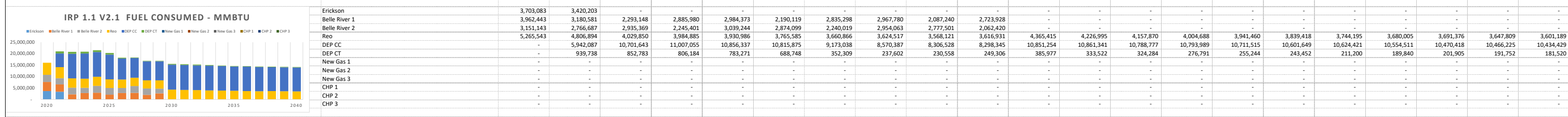
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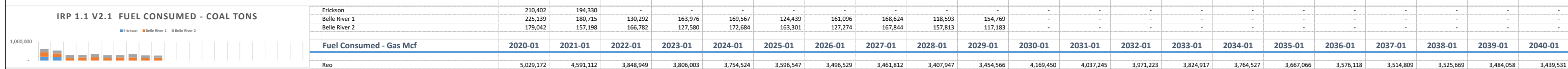
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	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
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	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
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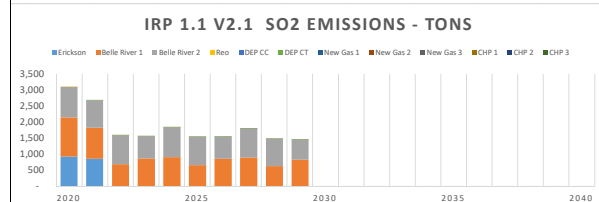
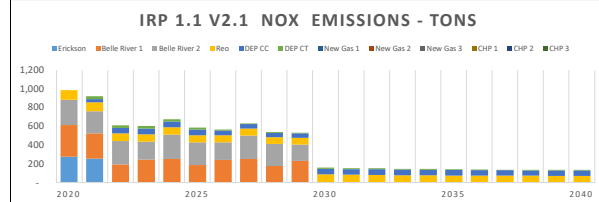
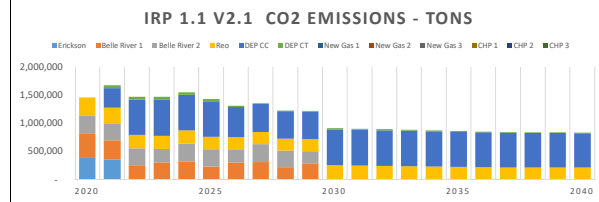
Summary of Modeling

Model Configuration and Constraints
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	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
CO2 Emissions - Tons																					
Erickson	389,935	360,147	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Belle River 1	421,406	338,255	243,876	306,924	317,388	232,919	301,534	315,623	221,978	289,690	-	-	-	-	-	-	-	-	-	-	-
Belle River 2	335,124	294,237	312,177	238,798	323,224	305,660	238,226	314,165	295,387	219,338	-	-	-	-	-	-	-	-	-	-	-
Reo	313,037	285,770	239,575	236,901	233,697	223,864	217,638	215,478	212,125	215,027	259,524	251,295	247,185	238,079	234,320	228,253	222,592	218,776	219,452	216,862	214,091
DEP CC	-	347,612	626,046	643,913	635,096	632,729	536,623	501,368	485,932	485,453	634,798	635,388	631,143	631,448	626,624	620,196	621,529	617,439	612,519	612,274	610,413
DEP CT	-	54,975	49,888	47,162	45,821	40,292	20,610	13,900	13,488	14,584	22,580	19,511	18,971	16,192	14,932	14,242	12,355	11,106	11,811	11,217	10,619
New Gas 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NOx Emissions - Tons																					
Erickson	278	257	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Belle River 1	337	270	195	245	254	186	241	252	177	232	-	-	-	-	-	-	-	-	-	-	-
Belle River 2	268	235	250	191	258	244	190	251	236	175	-	-	-	-	-	-	-	-	-	-	-
Reo	105	96	81	80	79	75	73	72	71	72	87	85	83	80	79	77	75	74	74	73	72
DEP CC	-	33	59	61	60	59	50	47	46	46	60	60	59	59	59	58	58	58	58	58	57
DEP CT	-	31	28	27	26	23	12	8	8	8	13	11	11	9	8	8	7	6	7	6	6
New Gas 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SO2 Emissions - Tons																					
Erickson	937	865	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Belle River 1	1,209	970	699	880	910	668	865	905	637	831	-	-	-	-	-	-	-	-	-	-	-
Belle River 2	961	844	895	685	927	877	683	901	847	629	-	-	-	-	-	-	-	-	-	-	-
Reo	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
DEP CC	-	4	8	8	8	8	6	6	6	6	8	8	8	8	8	7	7	7	7	7	7
DEP CT	-	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
New Gas 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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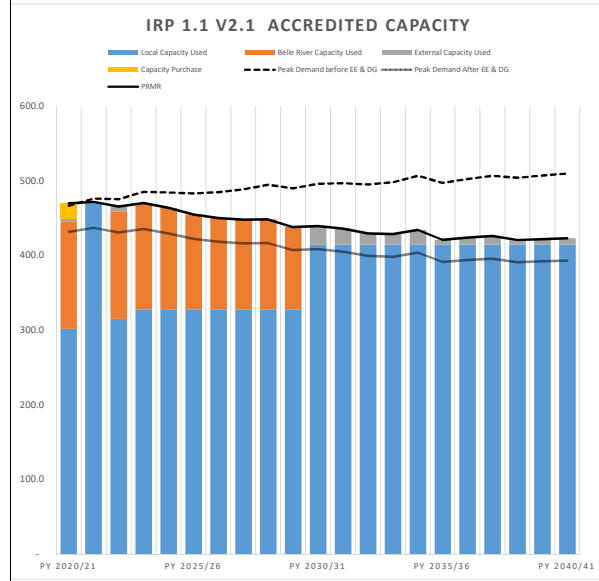
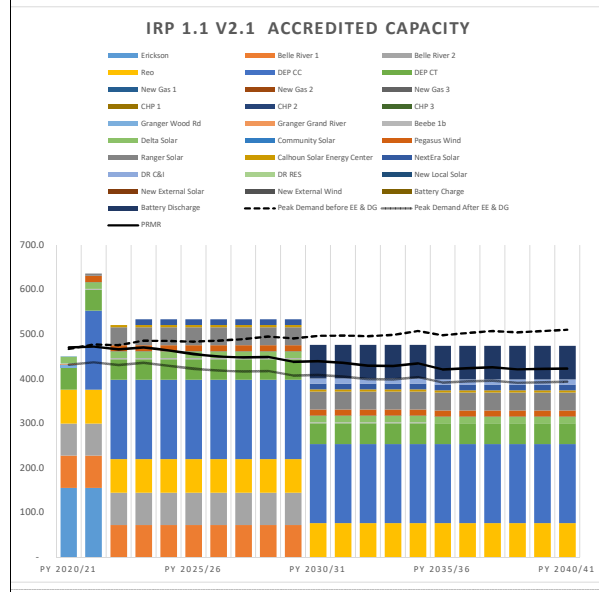
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2021: 10MW Solar | C&I Bins 1, 2 & 3; Res Bins 1, 3 & 5 | Erickson Retirement | 2022: 80MW Solar | 2023: 26MW Solar | 2030: Demand Response C&I | 75MW, 4-Hr Battery |

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
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	PY 2020/21	PY 2021/22	PY 2022/23	PY 2023/24	PY 2024/25	PY 2025/26	PY 2026/27	PY 2027/28	PY 2028/29	PY 2029/30	PY 2030/31	PY 2031/32	PY 2032/33	PY 2033/34	PY 2034/35	PY 2035/36	PY 2036/37	PY 2037/38	PY 2038/39	PY 2039/40	PY 2040/41
Accredited Capacity																					
Peak Demand before EE & DG	466.9	476.7	475.5	485.5	484.8	483.4	485.2	488.8	494.9	490.2	496.4	497.1	495.4	498.1	506.9	497.7	502.9	507.0	504.5	507.2	510.0
Net Load Offsets																					
EE Legacy	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3
EE C&I	-	4.1	8.5	13.3	18.4	23.6	28.9	33.8	38.5	42.9	46.9	50.4	53.8	56.8	59.7	62.5	64.3	66.0	67.5	68.4	69.0
EE RES	-	0.4	0.9	1.3	1.5	2.0	2.6	3.3	3.9	4.6	5.3	5.8	6.2	6.5	6.8	6.9	7.1	7.1	7.1	7.1	7.1
DG - RES	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.6	0.7	0.8	0.9	1.0	1.2
DG - C&I	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.5	0.6	0.7	0.9	1.1	1.4	1.7	2.1	2.6	3.1	3.8	4.6
Cedar Solar	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-	-	-	-	-	-	-
Reo Solar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Community Solar	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Peak Demand After EE & DG	431.8	437.1	431.0	435.8	429.8	422.6	418.4	416.4	417.1	407.3	408.7	405.2	399.5	398.6	404.0	391.4	394.2	396.0	391.2	392.2	393.4
Reserve Margin Percent	1.089	1.080	1.081	1.080	1.080	1.077	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076
PRMR	470.2	472.1	465.9	470.6	464.1	455.1	450.2	448.1	448.8	438.2	439.8	436.0	429.9	428.9	434.7	421.2	424.1	426.1	420.9	422.1	423.3
Local Capacity																					
Erickson	155.4	155.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Reo	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0
DEP CC	-	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7
DEP CT	49.2	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3
New Gas 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Granger Wood Rd	6.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Delta Solar	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1
NextEra Solar	-	-	-	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9
DR C&I	-	-	-	-	-	-	-	-	-	-	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7
DR RES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Local Solar	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Battery Charge	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Battery Discharge	-	-	-	-	-	-	-	-	-	-	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0
Total Local Capacity	301.9	470.5	315.1	328.0	328.0	328.0	328.0	328.0	328.0	328.0	414.7	414.7	414.7	414.7	414.7	414.7	414.7	414.7	414.7	414.7	414.7
Transmission Entitlements																					
Belle River Transmission Entitlement	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	-	-	-	-	-	-	-	-	-	-	-
Belle River 1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	-	-	-	-	-	-	-	-	-	-	-
Belle River 2	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	-	-	-	-	-	-	-	-	-	-	-
Remaining Entitlement	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	-	-	-	-	-	-	-	-	-	-	-
METC Settlement Entitlement	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6
Total Transmission Entitlements Remaining	18.4	18.4	18.4	18.4	18.4	18.4	18.4	18.4	18.4	18.4	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6
External Capacity																					
Granger Grand River	1.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Beebe 1b	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
Pegasus Wind	-	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
Ranger Solar	-	5.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
Calhoun Solar Energy Center	-	-	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
New External Solar	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New External Wind	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Available External Capacity	3.5	21.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	59.0	59.0	59.0	59.0	59.0	59.0
Summary																					
PRMR	470.2	472.1	465.9	470.6	464.1	455.1	450.2	448.1	448.8	438.2	439.8	436.0	429.9	428.9	434.7	421.2	424.1	426.1	420.9	422.1	423.3
Local Capacity Used	301.9	470.5	315.1	328.0	328.0	328.0	328.0	328.0	328.0	328.0	414.7	414.7	414.7	414.7	414.7	414.7	414.7	414.7	414.7	414.7	414.7
Local Capacity Remaining	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Capacity Used	301.9	470.5	315.1	328.0	328.0	328.0	328.0	328.0	328.0	328.0	414.7	414.7	414.7	414.7	414.7	414.7	414.7	414.7	414.7	414.7	414.7
Capacity Short	168.3	1.6	150.8	142.6	136.1	127.1	122.2	120.1	120.8	110.2	25.1	21.3	15.2	14.2	20.0	6.5	9.4	11.4	6.3	7.4	8.6
Belle River Capacity Used	144.2	1.6	144.2	142.6	136.1	127.1	122.2	120.1	120.8	110.2	-	-	-	-	-	-	-	-	-	-	-
Belle River Capacity Remaining	-	142.6	-	1.6	8.1	17.1	22.0	24.1	23.4	34.0	-	-	-	-	-	-	-	-	-	-	-
Total Capacity Used	446.1	472.1	459.3	470.6																	

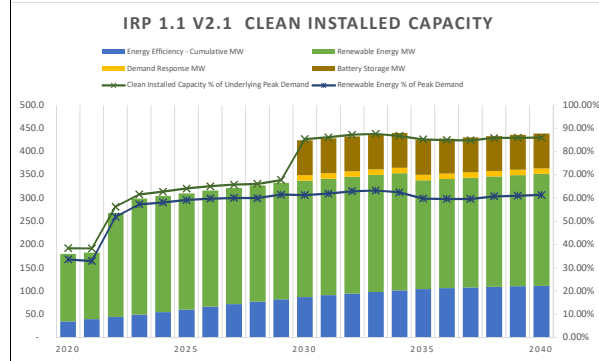
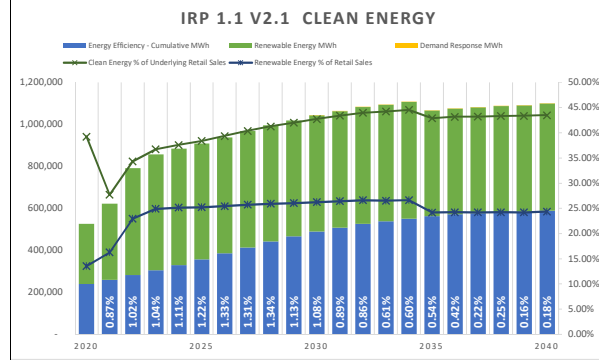
Model Configuration and Constraints

35% Clean Energy in 2025, 40% Clean Energy in 2030 | Erickson Retires December 2021 and Dispatched Optimally | 1% Annual Incremental Energy Efficiency | Pegasus Online 7/1/2020 | Regular Growth | No Incentive for Electric Vehicles | No Incentive for Customer Solar | Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy | Question Answered: What is the impact of early retirement of Erickson with our current goals?

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	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Clean Energy	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Renewable Energy MWh	285,558	363,422	510,187	551,630	554,141	552,125	552,511	554,469	554,257	552,790	553,614	555,457	557,109	554,521	555,534	503,498	504,431	504,488	505,829	506,202	510,740
Renewable Energy % of Retail Sales	13.54%	16.26%	22.92%	24.90%	25.16%	25.23%	25.45%	25.74%	25.94%	26.03%	26.22%	26.42%	26.60%	26.53%	26.63%	24.18%	24.24%	24.21%	24.24%	24.20%	24.36%
Renewable Energy % of Underlying Retail Sales	12.16%	14.57%	20.35%	21.89%	21.89%	21.70%	21.62%	21.60%	21.49%	21.35%	21.29%	21.28%	21.27%	21.10%	21.07%	19.04%	19.02%	18.97%	18.96%	18.92%	19.03%
Renewable Energy RPS	682,092	431,576	578,371	620,462	622,311	620,215	621,084	623,319	622,051	621,362	621,221	624,025	625,524	623,302	622,907	571,274	572,885	572,231	573,536	575,087	578,545
Renewable Energy % of Retail Sales	32.33%	19.31%	25.99%	28.01%	28.25%	28.35%	28.61%	28.93%	29.11%	29.26%	29.42%	29.68%	29.87%	29.82%	29.86%	27.43%	27.53%	27.46%	27.48%	27.49%	27.60%
Renewable Energy % of Underlying Retail Sales	29.04%	17.31%	23.07%	24.62%	24.58%	24.30%	24.30%	24.28%	24.12%	23.99%	23.89%	23.91%	23.88%	23.71%	23.62%	21.60%	21.60%	21.52%	21.50%	21.49%	21.55%
Energy Efficiency - Cumulative MWh	239,413	258,772	281,539	304,634	329,108	355,870	384,759	412,991	441,698	465,728	488,568	507,385	525,316	538,137	550,663	561,970	570,804	575,363	580,589	583,972	587,679
Energy Efficiency - Cumulative % of Underlying Retail Sales	10.19%	10.38%	11.23%	12.09%	13.00%	13.99%	15.05%	16.09%	17.13%	17.98%	18.79%	19.44%	20.05%	20.47%	20.88%	21.25%	21.52%	21.64%	21.77%	21.83%	21.89%
Energy Efficiency - Annual Incremental MWh		19,360	22,767	23,095	24,474	26,762	28,889	28,231	28,707	24,031	22,839	18,817	17,931	12,822	12,526	11,307	8,834	4,559	5,226	3,383	3,707
Energy Efficiency - Annual Incremental % of Retail Sales		0.87%	1.02%	1.04%	1.11%	1.22%	1.33%	1.31%	1.34%	1.13%	1.08%	0.89%	0.86%	0.61%	0.60%	0.54%	0.42%	0.22%	0.25%	0.16%	0.18%
Energy Efficiency - Annual Incremental % of Underlying Retail Sales		0.78%	0.91%	0.92%	0.97%	1.05%	1.13%	1.10%	1.11%	0.93%	0.88%	0.72%	0.68%	0.49%	0.48%	0.43%	0.33%	0.17%	0.20%	0.13%	0.14%
Demand Response MWh	-	-	-	-	-	-	-	-	-	-	957	964	951	916	944	969	990	972	939	925	964
Demand Response % of Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.05%	0.05%	0.05%	0.04%	0.05%	0.05%	0.05%	0.05%	0.04%	0.04%	0.05%
Demand Response % of Underlying Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.04%	0.04%	0.04%	0.03%	0.04%	0.04%	0.04%	0.04%	0.04%	0.03%	0.04%
Clean Energy Credits	921,505	690,348	859,910	925,096	951,419	976,085	1,005,844	1,036,309	1,063,749	1,087,090	1,110,746	1,132,374	1,151,791	1,162,355	1,174,514	1,134,213	1,144,679	1,148,566	1,155,064	1,159,985	1,167,189
Clean Energy % of Underlying Retail Sales	39.23%	27.68%	34.30%	36.71%	37.58%	38.37%	39.35%	40.36%	41.25%	41.98%	42.72%	43.38%	43.97%	44.22%	44.54%	42.89%	43.16%	43.19%	43.30%	43.35%	43.48%
Clean Installed Capacity	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Renewable Energy MW	145.0	143.8	223.8	249.8	249.8	249.9	250.0	250.1	250.2	250.3	250.5	250.9	251.3	251.9	252.4	234.0	235.0	236.1	237.6	239.3	241.3
Renewable Energy % of Peak Demand	33.57%	32.90%	51.94%	57.32%	58.13%	59.13%	59.74%	60.05%	59.98%	61.46%	61.29%	61.92%	62.91%	63.20%	62.48%	59.78%	59.61%	59.63%	60.72%	61.00%	61.34%
Renewable Energy % of Underlying Peak Demand	31.05%	30.17%	47.07%	51.45%	51.53%	51.69%	51.52%	51.16%	50.55%	51.06%	50.47%	50.73%	50.73%	50.56%	49.79%	47.01%	46.73%	46.58%	47.09%	47.17%	47.31%
Energy Efficiency - Cumulative MW	34.3	38.7	43.7	48.9	54.2	59.9	65.8	71.4	76.8	81.8	86.4	90.5	94.3	97.7	100.8	103.7	105.6	107.4	108.9	109.8	110.4
Energy Efficiency - Cumulative % of Underlying Peak Demand	7.35%	8.13%	9.20%	10.07%	11.17%	12.40%	13.57%	14.60%	15.51%	16.69%	17.41%	18.21%	19.03%	19.61%	19.89%	20.84%	21.01%	21.17%	21.59%	21.64%	21.65%
Energy Efficiency - Annual Incremental MW		4.4	5.0	5.1	5.3	5.8	5.9	5.6	5.4	5.0	4.6	4.1	3.7	3.4	3.1	2.9	1.9	1.7	1.6	0.9	0.7
Energy Efficiency - Annual Incremental % of Peak Demand		1.02%	1.16%	1.18%	1.23%	1.36%	1.41%	1.33%	1.29%	1.24%	1.13%	1.01%	0.93%	0.86%	0.77%	0.75%	0.49%	0.43%	0.40%	0.22%	0.17%
Energy Efficiency - Annual Incremental % of Underlying Peak Demand		0.93%	1.05%	1.06%	1.09%	1.19%	1.22%	1.14%	1.09%	1.03%	0.93%	0.82%	0.75%	0.69%	0.62%	0.59%	0.38%	0.34%	0.31%	0.17%	0.13%
Demand Response MW	-	-	-	-	-	-	-	-	-	-	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7
Demand Response % of Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.86%	2.89%	2.93%	2.93%	2.99%	2.99%	2.95%	2.99%	2.98%	2.97%
Demand Response % of Underlying Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.36%	2.35%	2.36%	2.35%	2.31%	2.35%	2.32%	2.31%	2.32%	2.29%
Battery Storage MW	-	-	-	-	-	-	-	-	-	-	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0
Battery Storage % of Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	18.35%	18.51%	18.77%	18.82%	18.57%	19.16%	19.03%	18.94%	19.17%	19.12%	19.07%
Battery Storage % of Underlying Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	15.11%	15.09%	15.14%	15.06%	14.80%	15.07%	14.91%	14.79%	14.87%	14.79%	14.71%
Clean Installed Capacity MW	179	183	268	299	304	310	316	321	327	332	424	428	432	436	440	424	427	430	433	436	438
Clean Installed Capacity % of Underlying Peak Demand	38.40%	38.29%	56.27%	61.51%	62.70%	64.08%	65.09%	65.76%	66.06%	67.75%	85.35%	86.12%	87.26%	87.57%	86.77%	85.27%	84.97%	84.85%	85.87%	85.91%	85.96%



Model Configuration and Constraints
 35% Clean Energy in 2025, 40% Clean Energy in 2030 | Erickson Retires December 2021 and Dispatched Optimally | 1% Annual Incremental Energy Efficiency | Pegasus Online 7/1/2020 | Regular Growth | No Incentive for Electric Vehicles | No Incentive for Customer Solar | Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy | Question Answered: What is the impact of early retirement of Erickson with our current goals?

Expansion Plan:

2021: 10MW Solar | C&I Bins 1, 2 & 3; Res Bins 1, 3 & 5 | Erickson Retirement | 2022: 80MW Solar | 2023: 26MW Solar | 2030: Demand Response C&I | 75MW, 4-Hr Battery |

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Post Processing Costs - Coal Penalties	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Coal on Ground Year Start	200,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Coal Needed	210,402	194,330	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pile used first pile remaining	200,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ending Pile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Deliveries Used	10,402	194,330	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Penalty Tons	389,598	205,670	400,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Erickson - Coal Penalties (PRB)	\$ 1,032,434	\$ 545,026	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Erickson - Rail Penalties (BNSF/CN)	\$ 4,521,730	\$ 2,459,618	\$ 4,930,747	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Post Processing Costs - Customer Programs	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
EE C&I	\$ -	\$ 1,927,998	\$ 2,236,862	\$ 2,541,845	\$ 2,822,942	\$ 3,143,712	\$ 3,426,552	\$ 3,587,237	\$ 3,650,577	\$ 3,671,777	\$ 3,569,314	\$ 4,000,628	\$ 4,015,937	\$ 4,292,621	\$ 4,301,564	\$ 4,339,053	\$ 4,697,335	\$ 4,796,973	\$ 4,789,353	\$ 4,837,838	\$ 4,801,417
EE RES	\$ -	\$ 627,475	\$ 746,789	\$ 825,481	\$ 873,268	\$ 992,891	\$ 1,112,347	\$ 1,232,513	\$ 1,352,209	\$ 1,473,129	\$ 1,570,366	\$ 1,320,972	\$ 1,273,873	\$ 1,231,922	\$ 1,196,363	\$ 1,154,211	\$ 1,283,659	\$ 1,276,845	\$ 1,267,652	\$ 1,282,604	\$ 1,284,848
DR C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 205,053	\$ 174,775	\$ 260,973	\$ 279,054	\$ 265,795	\$ 260,654	\$ 261,215	\$ 263,458	\$ 266,176	\$ 269,105	\$ 275,202
DR RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DG - RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DG - C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Electric Vehicles	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Post Processing Costs - Capital & FOM	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
New Gas 1 - Capital	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 1 - FOM	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 2 - Capital	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 2 - FOM	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 3 - Capital	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 3 - FOM	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 1 - Capital	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 1 - FOM	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 2 - Capital	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 2 - FOM	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 3 - Capital	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 3 - FOM	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Local Solar - Capital	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Local Solar - FOM	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New External Solar - Capital	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New External Solar - FOM	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New External Wind - Capital	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New External Wind - FOM	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Battery - Capital	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,903,123	\$ 6,732,504	\$ 6,561,885	\$ 6,391,265	\$ 6,220,646	\$ 6,050,027	\$ 5,879,408	\$ 5,708,788	\$ 5,538,169	\$ 5,367,550	\$ 5,196,931
Battery - FOM	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Post Processing Costs - Capacity Expense	PY 2020/21	PY 2021/22	PY 2022/23	PY 2023/24	PY 2024/25	PY 2025/26	PY 2026/27	PY 2027/28	PY 2028/29	PY 2029/30	PY 2030/31	PY 2031/32	PY 2032/33	PY 2033/34	PY 2034/35	PY 2035/36	PY 2036/37	PY 2037/38	PY 2038/39	PY 2039/40	PY 2040/41
Capacity Price - Purchase (\$/kW-Mo)	\$ 0.92	\$ 0.94	\$ 0.97	\$ 1.00	\$ 1.03	\$ 1.06	\$ 1.09	\$ 1.13	\$ 1.16	\$ 1.20	\$ 1.23	\$ 1.27	\$ 1.31	\$ 1.35	\$ 1.39	\$ 1.43	\$ 1.47	\$ 1.52	\$ 1.56	\$ 1.61	\$ 1.66
Capacity Price - Sale (\$/kW-Mo)	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 1.00	\$ 0.98	\$ 0.96	\$ 0.96	\$ 0.96	\$ 0.88	\$ 0.88	\$ 0.88	\$ 0.88	\$ 0.88	\$ 0.73
Capacity Purchase	\$ 231,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Local Capacity Sale	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
External Capacity Sale	\$ -	\$ (1,050,932)	\$ (352,447)	\$ (403,712)	\$ (448,569)	\$ (506,242)	\$ (538,282)	\$ (551,099)	\$ (544,690)	\$ (615,180)	\$ (445,850)	\$ (470,400)	\$ (538,620)	\$ (550,080)	\$ (481,320)	\$ (557,030)	\$ (525,500)	\$ (504,480)	\$ (557,030)	\$ (546,520)	\$ (448,290)
Post Processing Costs - Transmission Expense	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Transmission - BR - Total Annual MWs during Peak	1,797.8	1,773.0	1,753.7	1,739.3	1,726.0	1,714.1	1,710.5	1,703.6	1,689.2	1,699.1	-	-	-	-	-	-	-	-	-	-	-
Transmission - BR - Average Monthly MWs during Peak	149.8	147.7	146.1	144.9	143.8	142.8	142.5	142.0	140.8	141.6	-	-	-	-	-	-	-	-	-	-	-
Transmission - METC - Total Annual MWs during Peak	111.0	55.3	26.0	18.4	21.3	23.1	32.9	37.3	35.8	37.3	110.9	114.6	121.2	125.8	127.7	130.2	130.8	134.9	136.5	136.9	139.8
Transmission - METC - Average Monthly MWs during Peak	9.2	4.6	2.2	1.5	1.8	1.9	2.7	3.1	3.0	3.1	9.2	9.5	10.1	10.5	10.6	10.8	10.9	11.2	11.4	11.4	11.6
Transmission - Non-Entitlement - Total Annual MWs during Peak	418.4	96.0	34.8	24.9	28.2	28.7	37.2	40.4	29.3	29.3	250.2	262.6	268.3	274.9	306.5	286.8	298.2	301.9	311.3	306.8	318.9
Transmission - Non-Entitlement - Average Monthly MWs during Peak	34.9	8.0	2.9	2.1	2.3	2.4	3.1	3.0	2.4	2.4	20.9	21.9	22.4	22.9	25.5	23.9	24.9	25.2	25.9	25.6	26.6
PIP - CONS.LANS Purchase - BR - Fixed Expense	\$ 972,648	\$ 1,191,528	\$ 1,286,208	\$ 1,388,448	\$ 1,471,230	\$ 1,558,998	\$ 1,652,040	\$ 1,750,680	\$ 1,855,224	\$ 1,966,068	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
PIP - CONS.LANS Purchase - BR - Redirect Revenue	\$ (911)	\$ (13,410)	\$ (24,820)	\$ (35,144)	\$ (45,344)	\$ (55,818)	\$ (61,600)	\$ (70,335)	\$ (85,659)	\$ (82,674)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
NITS - CONS.LANS Purchase - BR - Fixed Expense	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
NITS - CONS.LANS Purchase - BR - Redirect Revenue	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
PIP - CONS.LANS Purchase - METC - Fixed Expense	\$ 119,908	\$ 138,678	\$ 146,823	\$ 155,606	\$ 162,755	\$ 170,322	\$ 178,334	\$ 186,818													

Model Configuration and Constraints
 35% Clean Energy in 2025, 40% Clean Energy in 2030 | Erickson Retires December 2021 and Dispatched Optimally | 1% Annual Incremental Energy Efficiency | Pegasus Online 7/1/2020 | Regular Growth | No Incentive for Electric Vehicles | No Incentive for Customer Solar | Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy | Question Answered: What is the impact of early retirement of Erickson with our current goals?

Expansion Plan:

2021: 10MW Solar | C&I Bins 1, 2 & 3; Res Bins 1, 3 & 5 | Erickson Retirement | 2022: 80MW Solar | 2023: 26MW Solar | 2030: Demand Response C&I | 75MW, 4-Hr Battery |

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	
Total Costs w/ Post Processing	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01	
Erickson	\$ 26,633,383	\$ 23,424,362	\$ 4,930,747	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Belle River 1	\$ 20,249,177	\$ 18,688,720	\$ 16,753,060	\$ 18,638,430	\$ 19,104,665	\$ 17,464,863	\$ 19,314,921	\$ 19,963,288	\$ 18,162,111	\$ 20,195,023	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Belle River 2	\$ 18,377,526	\$ 17,699,743	\$ 18,281,500	\$ 17,077,954	\$ 19,239,225	\$ 19,134,138	\$ 17,869,584	\$ 19,938,625	\$ 19,867,786	\$ 18,517,773	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Reo	\$ 20,352,504	\$ 20,014,434	\$ 17,806,172	\$ 17,728,757	\$ 17,820,032	\$ 17,807,721	\$ 18,040,461	\$ 18,202,284	\$ 18,452,493	\$ 18,971,732	\$ 21,933,266	\$ 21,763,025	\$ 22,337,147	\$ 22,372,871	\$ 22,637,322	\$ 22,730,220	\$ 23,045,275	\$ 23,201,761	\$ 23,648,329	\$ 23,999,412	\$ 24,399,921	
DEP CC	\$ -	\$ -	\$ 22,841,423	\$ 41,013,685	\$ 43,611,343	\$ 44,014,032	\$ 45,007,564	\$ 40,352,838	\$ 39,034,963	\$ 39,080,258	\$ 39,516,672	\$ 50,649,438	\$ 51,689,533	\$ 55,006,532	\$ 56,090,405	\$ 56,767,706	\$ 58,788,291	\$ 59,581,203	\$ 60,076,231	\$ 61,811,941	\$ 63,322,280	\$ 63,322,280
DEP CT	\$ -	\$ 3,865,679	\$ 3,744,077	\$ 3,592,983	\$ 3,561,177	\$ 3,485,907	\$ 2,530,981	\$ 2,165,021	\$ 2,223,520	\$ 2,337,713	\$ 2,716,978	\$ 2,579,938	\$ 2,638,966	\$ 2,500,670	\$ 2,482,196	\$ 2,506,183	\$ 2,457,395	\$ 2,383,159	\$ 2,479,048	\$ 2,460,041	\$ 2,462,136	
New Gas 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Gas 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Gas 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Granger Wood Rd	\$ 5,498,401	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Granger Grand River	\$ 1,098,338	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Beebe 1b	\$ 2,810,094	\$ 2,881,790	\$ 2,935,240	\$ 3,001,689	\$ 3,110,049	\$ 3,180,931	\$ 3,233,418	\$ 3,319,856	\$ 3,430,425	\$ 3,467,648	\$ 3,577,849	\$ 3,664,435	\$ 3,785,223	\$ 3,851,962	\$ 3,946,688	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Cedar Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Reo Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Delta Solar	\$ 2,071,241	\$ 2,125,679	\$ 2,179,775	\$ 2,255,318	\$ 2,289,179	\$ 2,344,044	\$ 2,419,906	\$ 2,490,124	\$ 2,513,496	\$ 2,605,472	\$ 2,633,397	\$ 2,737,369	\$ 2,799,726	\$ 2,885,170	\$ 2,911,877	\$ 3,002,480	\$ 3,108,229	\$ 3,152,620	\$ 3,230,459	\$ 3,368,471	\$ 3,397,986	
Community Solar	\$ 31,218	\$ 31,990	\$ 32,679	\$ 33,651	\$ 34,151	\$ 34,549	\$ 35,864	\$ 36,755	\$ 36,266	\$ 38,023	\$ 37,977	\$ 39,701	\$ 39,412	\$ 40,510	\$ 41,189	\$ 41,937	\$ 43,076	\$ 43,146	\$ 43,977	\$ 45,356	\$ 45,316	
Pegasus Wind	\$ 4,832,819	\$ 10,576,306	\$ 10,806,092	\$ 10,899,541	\$ 11,152,903	\$ 11,252,975	\$ 11,401,970	\$ 11,639,005	\$ 11,834,136	\$ 11,926,829	\$ 12,172,382	\$ 12,344,787	\$ 12,633,706	\$ 12,846,848	\$ 12,846,848	\$ 13,164,223	\$ 13,301,150	\$ 13,449,850	\$ 13,630,961	\$ 13,707,748	\$ 13,707,748	\$ 13,707,748
Ranger Solar	\$ -	\$ 796,075	\$ 5,512,963	\$ 5,609,504	\$ 5,735,435	\$ 5,852,329	\$ 5,977,841	\$ 6,095,060	\$ 6,237,296	\$ 6,328,682	\$ 6,468,640	\$ 6,606,621	\$ 6,706,705	\$ 6,836,819	\$ 7,023,125	\$ 7,129,331	\$ 7,283,378	\$ 7,445,730	\$ 7,582,423	\$ 7,708,356	\$ 7,876,935	\$ 7,876,935
Calhoun Solar Energy Center	\$ -	\$ -	\$ 718,730	\$ 731,213	\$ 745,105	\$ 761,732	\$ 777,171	\$ 792,350	\$ 812,072	\$ 824,033	\$ 839,531	\$ 858,956	\$ 875,700	\$ 888,902	\$ 913,154	\$ 928,272	\$ 945,883	\$ 967,027	\$ 984,247	\$ 999,862	\$ 1,025,864	\$ 1,025,864
NextEra Solar	\$ -	\$ -	\$ -	\$ 1,629,816	\$ 1,652,721	\$ 1,665,368	\$ 1,728,549	\$ 1,771,589	\$ 1,751,921	\$ 1,846,395	\$ 1,842,985	\$ 1,918,540	\$ 1,924,493	\$ 1,975,341	\$ 2,009,975	\$ 2,055,677	\$ 2,108,020	\$ 2,126,464	\$ 2,178,041	\$ 2,249,944	\$ 2,258,245	\$ 2,258,245
DG - RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DG - C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
EE Legacy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
EE C&I	\$ -	\$ 1,927,998	\$ 2,236,862	\$ 2,541,845	\$ 2,822,942	\$ 3,143,712	\$ 3,426,552	\$ 3,587,237	\$ 3,650,577	\$ 3,671,777	\$ 3,569,314	\$ 4,000,628	\$ 4,015,937	\$ 4,292,621	\$ 4,301,564	\$ 4,339,053	\$ 4,697,335	\$ 4,796,973	\$ 4,789,353	\$ 4,837,838	\$ 4,801,417	
EE RES	\$ -	\$ 627,475	\$ 746,789	\$ 825,481	\$ 873,268	\$ 992,891	\$ 1,112,347	\$ 1,232,513	\$ 1,352,209	\$ 1,473,129	\$ 1,570,366	\$ 1,320,972	\$ 1,273,873	\$ 1,231,922	\$ 1,196,363	\$ 1,154,211	\$ 1,283,659	\$ 1,276,845	\$ 1,267,652	\$ 1,282,604	\$ 1,284,848	
DR C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DR RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Local Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New External Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New External Wind	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Battery Charge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Battery Discharge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CONS.LANS Purchase - BR	\$ 36,383,513	\$ 37,110,370	\$ 36,094,038	\$ 35,132,375	\$ 35,328,692	\$ 35,306,697	\$ 36,155,029	\$ 35,961,792	\$ 36,060,145	\$ 37,009,385	\$ (3,283,554)	\$ (3,013,151)	\$ (3,187,028)	\$ (3,085,042)	\$ (3,002,009)	\$ (2,969,733)	\$ (2,973,512)	\$ (2,714,785)	\$ (2,756,074)	\$ (2,661,750)	\$ (2,574,476)	
CONS.LANS Purchase - METC	\$ 1,058,381	\$ 527,786	\$ 123,695	\$ 102,268	\$ 123,712	\$ 129,996	\$ 355,197	\$ 455,375	\$ 484,138	\$ 504,642	\$ 2,015,270	\$ 2,090,134	\$ 2,175,075	\$ 2,270,596	\$ 2,339,502	\$ 2,395,433	\$ 2,454,172	\$ 2,556,843	\$ 2,536,724	\$ 2,581,869	\$ 2,637,952	
CONS.LANS Purchase	\$ 1,751,745	\$ 290,167	\$ 67,555	\$ 55,837	\$ 76,994	\$ 69,522	\$ 261,112	\$ 393,782	\$ 366,949	\$ 442,841	\$ 4,294,608	\$ 3,932,874	\$ 4,482,641	\$ 4,579,887	\$ 4,631,170	\$ 5,809,897	\$ 5,843,542	\$ 6,367,765	\$ 6,888,904	\$ 7,009,637	\$ 7,447,404	
Emergency Energy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Dump Energy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CONS.LANS Sale	\$ (12,106,569)	\$ (31,852,648)	\$ (33,768,552)	\$ (34,447,535)	\$ (34,337,203)	\$ (33,946,602)	\$ (29,860,831)	\$ (27,664,762)	\$ (27,315,232)	\$ (28,417,740)	\$ (6,942,039)	\$ (5,934,926)	\$ (6,431,195)	\$ (5,664,634)	\$ (5,270,680)	\$ (5,121,872)	\$ (4,967,952)	\$ (3,780,489)	\$ (3,994,651)	\$ (3,619,383)	\$ (3,404,628)	
DECO.BLR Sale	\$ (21,411,447)	\$ (21,016,968)	\$ (18,461,333)	\$ (17,523,721)	\$ (20,352,220)	\$ (17,429,619)	\$ (18,484,790)	\$ (20,754,166)	\$ (17,576,652)	\$ (18,101,167)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
External Renewable Sale	\$ (4,939,443)	\$ (9,302,165)	\$ (13,729,194)	\$ (13,312,279)	\$ (13,396,503)	\$ (13,450,034)	\$ (13,726,678)	\$ (13,649,208)	\$ (13,785,173)	\$ (14,006,912)	\$ (13,884,463)	\$ (13,319,284)	\$ (13,656,155)	\$ (13,369,382)	\$ (13,232,062)	\$ (11,698,600)	\$ (11,629,084)	\$ (11,295,931)	\$ (11,114,107)	\$ (10,815,778)	\$ (10,792,277)	
Electric Vehicle Program	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Capacity Purchase	\$ 231,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Capacity Sale	\$ -	\$ (1,050,932)	\$ (352,447)	\$ (403,712)	\$ (448,569)	\$ (506,242)	\$ (538,282)	\$ (551,099)	\$ (544,690)	\$ (615,180)	\$ (445,850)	\$ (470,400)	\$ (538,620)	\$ (550,080)	\$ (481,320)	\$ (557,030)	\$ (525,500)	\$ (504,480)	\$ (557,030)	\$ (546,520)	\$ (448,290)	
Total Total Costs w/ Post Processing	\$ 102,921,882	\$ 100,207,284	\$ 98,560,132	\$ 97,780,758	\$ 99,149,788	\$ 102,382,440	\$ 102,383,160	\$ 104,466,383	\$ 107,094,050	\$ 												

1.2 v1: Model Configuration & Constraints

35% Clean Energy in 2025

40% Clean Energy in 2030

Erickson Retires December 2025 and Dispatched Optimally

Min Annual Incremental Energy Efficiency

Pegasus Online 7/1/2020

Regular Growth

No Incentive for Electric Vehicles

No Incentive for Customer Solar

Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy

Expansion Plan

2021: 10MW Solar | C&I Bin 1

2022: 80MW Solar

2023: 26MW Solar

2025: Erickson Retirement

2030: Demand Response C&I | 50MW, 4-Hr Battery | 75MW Solar

2035: 5MW Solar

IRP 1.2

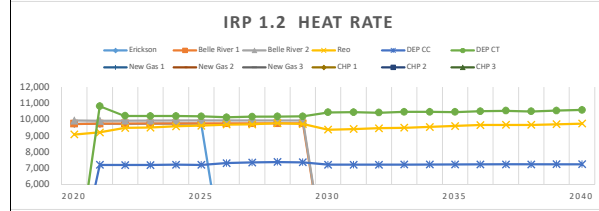
Summary of Modeling

Model Configuration and Constraints
 35% Clean Energy in 2025, 40% Clean Energy in 2030 | Erickson Retires December 2025 and Dispatched Optimally | Min Annual Incremental Energy Efficiency | Pegasus Online 7/1/2020 | Regular Growth | No Incentive for Electric Vehicles | No Incentive for Customer Solar | Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy | Question Answered: What is the impact of reducing our energy efficiency investment with our current goals?

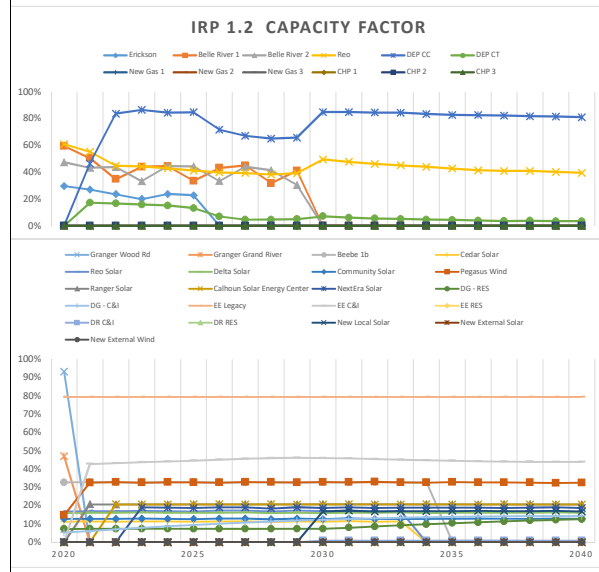
Expansion Plan:

2021: 10MW Solar | C&I Bin 1 | 2022: 80MW Solar | 2023: 26MW Solar | 2025: Erickson Retirement | 2030: Demand Response C&I | 50MW, 4-Hr Battery | 75MW Solar | 2035: 5MW Solar |

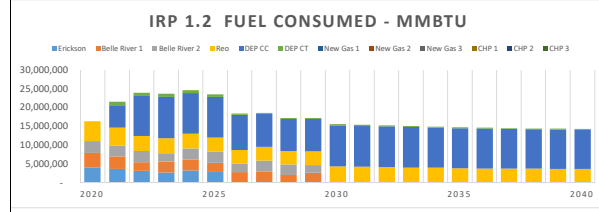
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
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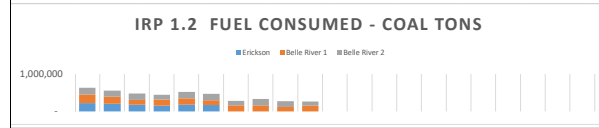
Heat Rate	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Erickson	9,727	9,737	9,729	9,740	9,733	9,734	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Belle River 1	9,728	9,739	9,749	9,748	9,749	9,753	9,754	9,757	9,756	9,761	--	--	--	--	--	--	--	--	--	--	--
Belle River 2	9,929	9,913	9,924	9,937	9,927	9,931	9,933	9,933	9,931	9,938	--	--	--	--	--	--	--	--	--	--	--
Reo	9,072	9,200	9,483	9,496	9,573	9,621	9,683	9,701	9,770	9,715	9,367	9,409	9,460	9,489	9,544	9,593	9,655	9,664	9,670	9,708	9,743
DEP CC	--	7,200	7,188	7,192	7,206	7,204	7,315	7,353	7,376	7,363	7,210	7,212	7,217	7,218	7,222	7,228	7,233	7,233	7,235	7,240	7,241
DEP CT	--	10,818	10,221	10,206	10,209	10,195	10,135	10,169	10,180	10,185	10,439	10,444	10,419	10,460	10,463	10,454	10,502	10,531	10,494	10,541	10,587
New Gas 1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Gas 2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Gas 3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--



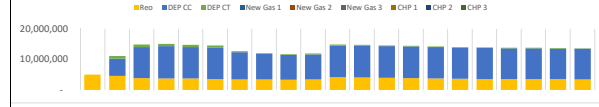
Capacity Factor	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Erickson	30%	27%	24%	20%	24%	23%	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Belle River 1	60%	51%	35%	44%	45%	34%	43%	45%	32%	41%	--	--	--	--	--	--	--	--	--	--	--
Belle River 2	47%	43%	44%	33%	44%	44%	33%	44%	41%	31%	--	--	--	--	--	--	--	--	--	--	--
Reo	61%	55%	45%	44%	43%	41%	40%	39%	38%	39%	50%	48%	46%	45%	44%	43%	41%	41%	41%	40%	40%
DEP CC	--	46%	84%	87%	84%	85%	72%	67%	65%	66%	85%	85%	85%	84%	84%	83%	83%	82%	82%	82%	81%
DEP CT	--	17%	17%	16%	15%	13%	7%	5%	5%	5%	7%	6%	5%	5%	5%	4%	4%	4%	4%	3%	3%
New Gas 1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Gas 2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Gas 3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Granger Wood Rd	93%	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Granger Grand River	47%	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beebe 1b	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	--	--	--	--	--	--
Cedar Solar	11%	11%	11%	11%	11%	11%	11%	12%	11%	12%	11%	12%	11%	11%	--	--	--	--	--	--	--
Reo Solar	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	--	--	--	--	--	--	--
Delta Solar	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%
Community Solar	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%
Pegasus Wind	15%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	32%	33%
Ranger Solar	--	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%
Calhoun Solar Energy Center	--	--	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%
NextEra Solar	--	--	--	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%
DG - RES	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	8%	9%	9%	10%	10%	11%	11%	12%	12%	13%
DG - C&I	5%	6%	7%	8%	9%	10%	10%	11%	11%	12%	12%	13%	13%	14%	14%	14%	14%	14%	14%	14%	14%
EE Legacy	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%
EE C&I	--	43%	43%	44%	44%	45%	45%	46%	46%	46%	46%	46%	46%	46%	45%	45%	44%	44%	44%	44%	44%
EE RES	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
DR C&I	--	--	--	--	--	--	--	--	--	--	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
DR RES	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Local Solar	--	--	--	--	--	--	--	--	--	--	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%
New External Solar	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New External Wind	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--



Fuel Consumed - MMBtu	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Erickson	4,035,096	3,678,607	3,203,202	2,717,255	3,236,336	3,082,356	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Belle River 1	3,922,042	3,327,200	2,292,953	2,899,147	2,939,687	2,208,601	2,843,724	2,964,351	2,100,325	2,706,917	-	-	-	-	-	-	-	-	-	-	-
Belle River 2	3,188,106	2,901,844	2,935,689	2,229,383	2,998,658	2,970,189	2,238,329	2,950,994	2,782,324	2,045,004	-	-	-	-	-	-	-	-	-	-	-
Reo	5,266,198	4,826,865	4,028,358	4,002,559	3,919,398	3,769,686	3,667,142	3,629,775	3,563,509	3,622,579	4,408,339	4,268,577	4,171,771	4,071,855	3,998,363	3,897,975	3,803,633	3,757,087	3,763,898	3,715,104	3,669,904
DEP CC	--	5,931,565	10,702,557	11,057,544	10,839,830	10,856,267	9,335,446	8,796,317	8,557,577	8,616,682	10,874,265	10,883,113	10,878,190	10,830,653	10,715,235	10,637,367	10,655,276	10,588,228	10,511,478	10,503,061	10,473,614
DEP CT	--	931,176	852,496	814,262	772,358	676,338	353,075	238,578	234,912	254,235	373,926	311,992	284,257	264,500	242,259	233,229	208,005	185,437	198,578	184,460	178,958
New Gas 1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Gas 2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Gas 3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--



Fuel Consumed - Coal Tons	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Erickson	229,267	209,012	182,000	154,389	183,883	175,134	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Belle River 1	222,843	189,045	130,281	164,724	167,028	125,489	161,575	168,429	119,337	153,802	-	-	-	-	-	-	-	-	-	-	-
Belle River 2	181,142	164,877	166,801	126,670	170,378	168,761	127,178	167,670	158,087	116,193	-	-	-	-	-	-	-	-	-	-	-



Fuel Consumed - Gas Mcf	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Reo	5,029,798	4,610,186	3,847,524	3,822,883	3,743,456	3,600,464	3,502,523	3,466,834	3,403,542	3,459,961	4,210,448	4,076,960	3,984,500	3,889,068	3,818,876	3,722,994	3,632,887				

IRP 1.2

Summary of Modeling

Model Configuration and Constraints
 35% Clean Energy in 2025, 40% Clean Energy in 2030 | Erickson Retires December 2025 and Dispatched Optimally | Min Annual Incremental Energy Efficiency | Pegasus Online 7/1/2020 | Regular Growth | No Incentive for Electric Vehicles | No Incentive for Customer Solar | Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy | Question Answered: What is the impact of reducing our energy efficiency investment with our current goals?

Expansion Plan:

2021: 10MW Solar | C&I Bin 1 | 2022: 80MW Solar | 2023: 26MW Solar | 2025: Erickson Retirement | 2030: Demand Response C&I | 50MW, 4-Hr Battery | 75MW Solar | 2035: 5MW Solar |

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	
Accredited Capacity																						
Peak Demand before EE & DG	466.9	476.7	475.5	485.5	484.8	483.4	485.2	488.8	494.9	490.2	496.4	497.1	495.4	498.1	506.9	497.7	502.9	507.0	504.5	507.2	510.0	
Net Load Offsets																						
EE Legacy		34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3
EE C&I		-	2.9	6.1	9.5	13.2	17.0	20.9	24.4	27.9	31.0	34.0	36.7	39.2	41.5	43.6	45.7	46.9	47.9	48.9	49.4	49.8
EE RES		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DG - RES		0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.6	0.7	0.8	0.9	1.0	1.2	1.4
DG - C&I		0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.5	0.6	0.7	0.9	1.1	1.4	1.7	2.1	2.6	3.1	3.8	4.6
Cedar Solar		0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-	-	-	-	-	-	-	-
Reo Solar		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Community Solar		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Peak Demand After EE & DG	431.8	438.7	434.3	440.8	436.5	431.3	429.1	429.1	431.7	423.7	426.9	424.7	420.3	420.5	426.8	415.1	418.6	421.1	416.9	418.3	419.6	
Reserve Margin Percent	1.089	1.080	1.081	1.080	1.080	1.077	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	
PRMR	470.2	473.8	469.5	476.1	471.4	464.5	461.7	461.7	464.5	455.9	459.3	457.0	452.2	452.4	459.3	446.7	450.4	453.1	448.6	450.1	451.5	
Local Capacity																						
Erickson	155.4	155.4	155.4	155.4	155.4	155.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Reo	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0
DEP CC	-	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7
DEP CT	49.2	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3
New Gas 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Granger Wood Rd	6.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Delta Solar	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1
NextEra Solar	-	-	-	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9
DR C&I	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DR RES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Local Solar	-	-	-	-	-	-	-	-	-	-	37.5	37.5	37.5	37.5	37.5	40.0	40.0	40.0	40.0	40.0	40.0	
Battery Charge	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Battery Discharge	-	-	-	-	-	-	-	-	-	-	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	
Total Local Capacity	301.9	470.5	470.5	483.4	483.4	483.4	328.0	328.0	328.0	328.0	427.2	427.2	427.2	427.2	427.2	429.7	429.7	429.7	429.7	429.7	429.7	
Transmission Entitlements																						
Belle River Transmission Entitlement	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	-	-	-	-	-	-	-	-	-	-	-	
Belle River 1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	-	-	-	-	-	-	-	-	-	-	-	
Belle River 2	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	-	-	-	-	-	-	-	-	-	-	-	
Remaining Entitlement	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	-	-	-	-	-	-	-	-	-	-	-	
METC Settlement Entitlement	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	
Total Transmission Entitlements Remaining	18.4	18.4	18.4	18.4	18.4	18.4	18.4	18.4	18.4	18.4	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	
External Capacity																						
Granger Grand River	1.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Beebe 1b	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	
Pegasus Wind	-	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	
Ranger Solar	-	5.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	
Calhoun Solar Energy Center	-	-	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
New External Solar	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
New External Wind	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total Available External Capacity	3.5	21.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	59.0	59.0	59.0	59.0	59.0	59.0	
Summary																						
PRMR	470.2	473.8	469.5	476.1	471.4	464.5	461.7	461.7	464.5	455.9	459.3	457.0	452.2	452.4	459.3	446.7	450.4	453.1	448.6	450.1	451.5	
Local Capacity Used	301.9	470.5	469.5	476.1	471.4	464.5	328.0	328.0	328.0	328.0	427.2	427.2	427.2	427.2	427.2	429.7	429.7	429.7	429.7	429.7	429.7	
Local Capacity Remaining	-	-	0.9	7.3	12.0	18.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total Capacity Used	301.9	470.5	469.5	476.1	471.4	464.5	328.0	328.0	328.0	328.0	427.2	427.2	427.2	427.2	427.2	429.7	429.7	429.7	429.7	429.7	429.7	
Capacity Short	168.3	3.3	-	-	-	-	133.7	133.7	136.5	127.9	32.1	29.8	25.0	25.2	32.1	17.0	20.7	23.5	18.9	20.4	21.8	
Belle River Capacity Used	144.2	3.3	-	-	-	-	133.7	133.7	136.5	127.9	-	-	-	-	-	-	-	-	-	-	-	
Belle River Capacity Remaining	-	140.9	144.2	144.2	144.2	144.2	10.5	10.5	7.7	16.3	-	-	-	-	-	-	-	-	-	-	-	
Total Capacity Used	446.1	473.8	469.5	476.1	471.4	464.5	461.7	461.7	464.5	455.9	427.2	427.2	427.2	427.2	427.2	429.7	429.7	429.7	429.7	429.7	429.7	
Capacity Short	24.1	-	-	-	-	-	-	-	-	-	32.1	29.8	25.0	25.2	32.1	17.0	20.7	23.5	18.9	20.4	21.8	
External Capacity Used	3.5	-	-	-	-	-	-	-	-	-	32.1	29.8	25.0	25.2	32.1	17.0	20.7	23.5	18.9	20.4	21.8	
External Capacity Remaining	-	21.3	61.3	61.3	61.3</																	

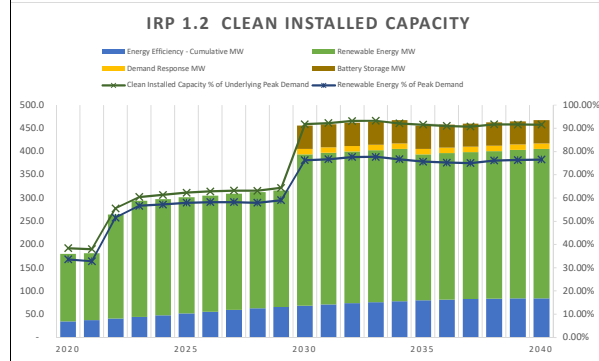
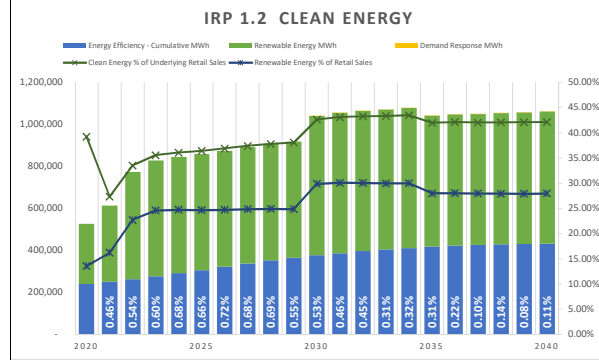
IRP 1.2

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	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Clean Energy	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Renewable Energy MWh	285,558	363,422	510,187	551,630	554,141	552,125	552,511	554,469	554,257	552,790	663,925	668,952	668,110	666,395	667,808	623,324	624,925	624,341	625,511	626,735	629,397
Renewable Energy % of Retail Sales	13.54%	16.20%	22.72%	24.57%	24.72%	24.66%	24.72%	24.85%	24.89%	24.84%	29.85%	30.08%	30.05%	29.95%	29.99%	27.99%	28.03%	27.94%	27.93%	27.90%	27.94%
Renewable Energy % of Underlying Retail Sales	12.16%	14.57%	20.35%	21.89%	21.89%	21.70%	21.62%	21.60%	21.49%	21.35%	25.53%	25.63%	25.50%	25.35%	25.33%	23.57%	23.56%	23.48%	23.45%	23.42%	23.45%
Renewable Energy RPS	682,092	431,576	578,371	620,462	622,311	620,215	621,084	623,319	622,051	621,362	731,532	737,520	736,524	735,175	735,181	691,101	693,380	692,084	693,218	695,619	697,202
Renewable Energy % of Retail Sales	32.33%	19.23%	25.76%	27.64%	27.76%	27.70%	27.79%	27.94%	27.93%	27.92%	32.89%	33.16%	33.13%	33.04%	33.02%	31.03%	31.10%	30.97%	30.95%	30.97%	30.96%
Renewable Energy % of Underlying Retail Sales	29.04%	17.31%	23.07%	24.62%	24.58%	24.30%	24.30%	24.28%	24.12%	23.99%	28.14%	28.26%	28.12%	27.97%	27.88%	26.13%	26.15%	26.02%	25.99%	26.00%	25.97%
Energy Efficiency - Cumulative MWh	239,413	249,656	261,830	275,238	290,499	305,172	321,291	336,531	351,999	364,208	375,917	386,170	396,243	403,121	410,349	417,200	422,136	424,405	427,509	429,310	431,850
Energy Efficiency - Cumulative % of Underlying Retail Sales	10.19%	10.01%	10.44%	10.92%	11.47%	12.00%	12.57%	13.11%	13.65%	14.06%	14.46%	14.80%	15.13%	15.34%	15.56%	15.78%	15.92%	15.96%	16.03%	16.05%	16.09%
Energy Efficiency - Annual Incremental MWh		10,243	12,174	13,408	15,261	14,672	16,119	15,240	15,467	12,209	11,709	10,253	10,072	6,878	7,228	6,852	4,935	2,270	3,104	1,801	2,540
Energy Efficiency - Annual Incremental % of Retail Sales		0.46%	0.54%	0.60%	0.68%	0.66%	0.72%	0.68%	0.69%	0.55%	0.53%	0.46%	0.45%	0.31%	0.32%	0.31%	0.22%	0.10%	0.14%	0.08%	0.11%
Energy Efficiency - Annual Incremental % of Underlying Retail Sales		0.41%	0.49%	0.53%	0.60%	0.58%	0.63%	0.59%	0.60%	0.47%	0.45%	0.39%	0.38%	0.26%	0.27%	0.26%	0.19%	0.09%	0.12%	0.07%	0.09%
Demand Response MWh	-	-	-	-	-	-	-	-	-	-	961	965	943	919	939	973	989	969	937	929	959
Demand Response % of Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.04%	0.04%	0.04%	0.04%	0.04%	0.04%	0.04%	0.04%	0.04%	0.04%	0.04%
Demand Response % of Underlying Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.04%	0.04%	0.04%	0.03%	0.04%	0.04%	0.04%	0.04%	0.04%	0.03%	0.04%
Clean Energy Credits	921,505	681,231	840,201	895,701	912,810	925,387	942,376	959,850	974,050	985,570	1,108,411	1,124,656	1,133,710	1,139,215	1,146,469	1,109,274	1,116,504	1,117,459	1,121,664	1,125,858	1,130,010
Clean Energy % of Underlying Retail Sales	39.23%	27.32%	33.51%	35.54%	36.05%	36.38%	36.87%	37.39%	37.77%	38.06%	42.63%	43.09%	43.28%	43.34%	43.48%	41.95%	42.10%	42.02%	42.05%	42.08%	42.10%
Clean Installed Capacity	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Renewable Energy MW	145.0	143.8	223.8	249.8	249.8	249.9	250.0	250.1	250.2	250.3	325.5	325.9	326.3	326.9	327.4	314.0	315.0	316.1	317.6	319.3	321.3
Renewable Energy % of Peak Demand	33.57%	32.78%	51.53%	56.66%	57.23%	57.94%	58.26%	58.28%	57.95%	59.07%	76.25%	76.73%	77.64%	77.74%	76.70%	75.63%	75.24%	75.07%	76.17%	76.33%	76.56%
Renewable Energy % of Underlying Peak Demand	31.05%	30.17%	47.07%	51.45%	51.53%	51.69%	51.52%	51.16%	50.55%	51.06%	65.58%	65.56%	65.87%	65.62%	64.58%	63.09%	62.64%	62.35%	62.95%	62.94%	63.00%
Energy Efficiency - Cumulative MW	34.3	37.2	40.4	43.8	47.5	51.3	55.2	58.7	62.2	65.3	68.3	71.0	73.5	75.8	77.9	80.0	81.2	82.2	83.2	83.7	84.1
Energy Efficiency - Cumulative % of Underlying Peak Demand	7.35%	7.80%	8.49%	9.03%	9.79%	10.60%	11.37%	12.02%	12.56%	13.33%	13.76%	14.28%	14.83%	15.21%	15.38%	16.08%	16.15%	16.22%	16.50%	16.51%	16.50%
Energy Efficiency - Annual Incremental MW		2.9	3.2	3.4	3.6	3.8	3.9	3.6	3.4	3.2	2.9	2.7	2.5	2.3	2.2	2.1	1.2	1.1	1.0	0.5	0.4
Energy Efficiency - Annual Incremental % of Peak Demand		0.66%	0.73%	0.78%	0.83%	0.88%	0.91%	0.83%	0.79%	0.75%	0.69%	0.63%	0.59%	0.55%	0.51%	0.50%	0.28%	0.25%	0.23%	0.12%	0.10%
Energy Efficiency - Annual Incremental % of Underlying Peak Demand		0.61%	0.67%	0.71%	0.75%	0.79%	0.80%	0.73%	0.69%	0.65%	0.59%	0.54%	0.50%	0.46%	0.43%	0.42%	0.23%	0.21%	0.19%	0.10%	0.08%
Demand Response MW	-	-	-	-	-	-	-	-	-	-	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7
Demand Response % of Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.74%	2.75%	2.78%	2.78%	2.74%	2.82%	2.79%	2.78%	2.80%	2.79%	2.79%
Demand Response % of Underlying Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.36%	2.35%	2.36%	2.35%	2.31%	2.35%	2.32%	2.31%	2.32%	2.30%	2.29%
Battery Storage MW	-	-	-	-	-	-	-	-	-	-	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
Battery Storage % of Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	11.71%	11.77%	11.90%	11.89%	11.71%	12.04%	11.94%	11.87%	11.99%	11.95%	11.92%
Battery Storage % of Underlying Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	10.07%	10.06%	10.09%	10.04%	9.86%	10.05%	9.94%	9.86%	9.91%	9.86%	9.80%
Clean Installed Capacity MW	179	181	264	294	297	301	305	309	312	316	455	459	461	464	467	456	458	460	462	465	467
Clean Installed Capacity % of Underlying Peak Demand	38.40%	37.97%	55.56%	60.47%	61.32%	62.29%	62.89%	63.17%	63.11%	64.39%	91.76%	92.25%	93.16%	93.22%	92.13%	91.56%	91.05%	90.74%	91.68%	91.62%	91.59%



IRP 1.2

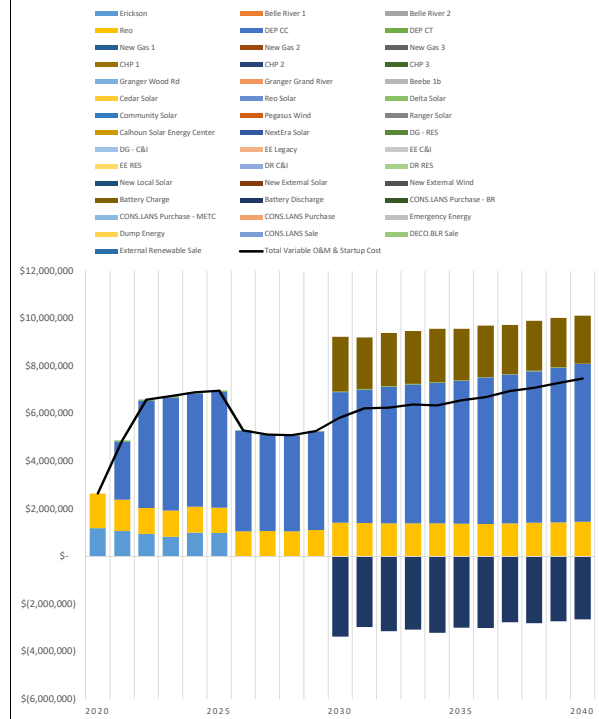
Summary of Modeling

Model Configuration and Constraints
 35% Clean Energy in 2025, 40% Clean Energy in 2030 | Erickson Retires December 2025 and Dispatched Optimally | Min Annual Incremental Energy Efficiency | Pegasus Online 7/1/2020 | Regular Growth | No Incentive for Electric Vehicles | No Incentive for Customer Solar | Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy | Question Answered: What is the impact of reducing our energy efficiency investment with our current goals?

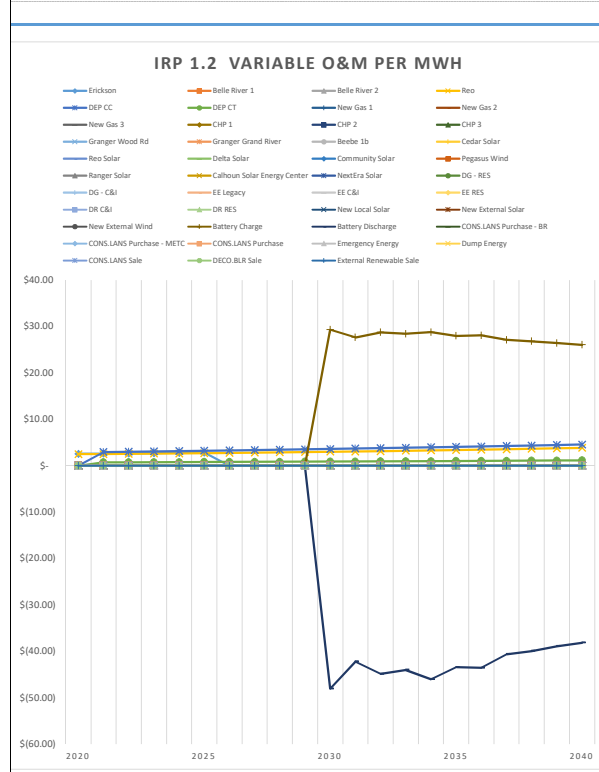
Expansion Plan:
 2021: 10MW Solar | C&I Bin 1 | 2022: 80MW Solar | 2023: 26MW Solar | 2025: Erickson Retirement | 2030: Demand Response C&I | 50MW, 4-Hr Battery | 75MW Solar | 2035: 5MW Solar |

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
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Variable O&M & Startup Cost	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
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Erickson	\$ 1,180,190	\$ 1,055,977	\$ 944,933	\$ 820,505	\$ 992,275	\$ 979,018	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Belle River 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Belle River 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Reo	\$ 1,462,851	\$ 1,324,063	\$ 1,091,435	\$ 1,102,686	\$ 1,091,318	\$ 1,064,379	\$ 1,049,064	\$ 1,057,320	\$ 1,051,750	\$ 1,097,867	\$ 1,417,718	\$ 1,396,955	\$ 1,388,883	\$ 1,382,854	\$ 1,382,278	\$ 1,373,251	\$ 1,364,843	\$ 1,381,074	\$ 1,418,967	\$ 1,432,531	\$ 1,448,989
DEP CC	\$ -	\$ 2,431,911	\$ 4,496,586	\$ 4,753,510	\$ 4,759,325	\$ 4,877,747	\$ 4,225,400	\$ 4,052,966	\$ 4,022,139	\$ 4,152,376	\$ 5,478,713	\$ 5,610,970	\$ 5,736,464	\$ 5,844,553	\$ 5,914,968	\$ 6,005,281	\$ 6,152,625	\$ 6,258,139	\$ 6,357,467	\$ 6,497,244	\$ 6,630,048
DEP CT	\$ -	\$ 63,936	\$ 63,488	\$ 62,170	\$ 60,322	\$ 54,149	\$ 29,051	\$ 20,038	\$ 20,173	\$ 22,314	\$ 32,757	\$ 27,966	\$ 26,150	\$ 24,792	\$ 23,231	\$ 22,910	\$ 20,821	\$ 18,940	\$ 20,843	\$ 19,723	\$ 19,496
New Gas 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Granger Wood Rd	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Granger Grand River	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Beebe 1b	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Cedar Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Reo Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Delta Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Community Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Pegasus Wind	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ranger Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Calhoun Solar Energy Center	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
NextEra Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DG - RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DG - C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
EE Legacy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
EE C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
EE RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DR C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DR RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Local Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New External Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New External Wind	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Battery Charge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Battery Discharge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CONSLANS Purchase - BR	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CONSLANS Purchase - METC	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CONSLANS Purchase	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Emergency Energy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Dump Energy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CONSLANS Sale	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DECO.BLR Sale	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
External Renewable Sale	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Variable O&M & Startup Cost	\$ 2,643,041	\$ 4,875,887	\$ 6,596,442	\$ 6,738,871	\$ 6,903,240	\$ 6,975,294	\$ 5,303,515	\$ 5,130,323	\$ 5,094,062	\$ 5,272,557	\$ 5,843,847	\$ 6,235,483	\$ 6,253,916	\$ 6,391,560	\$ 6,350,580	\$ 6,562,158	\$ 6,694,994	\$ 6,949,461	\$ 7,090,658	\$ 7,290,575	\$ 7,470,729



Variable O&M per MWh	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
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IRP 1.2

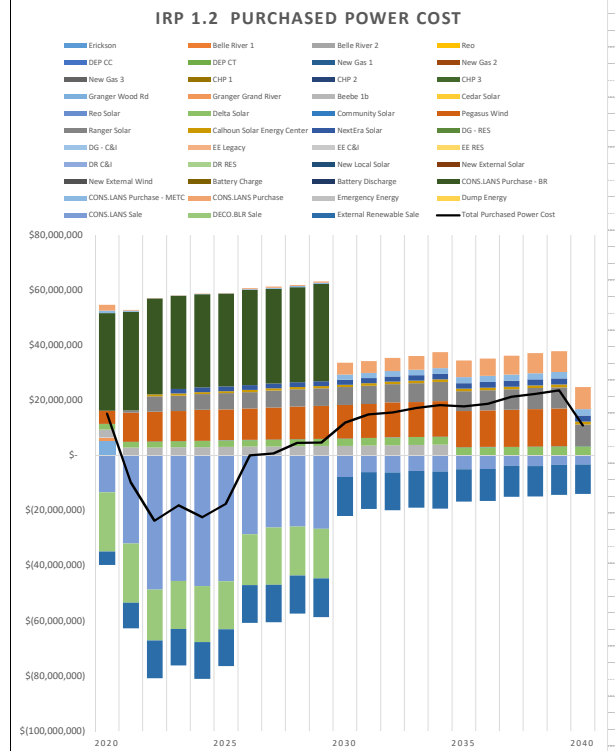
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Expansion Plan:
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	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
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Purchased Power Cost	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Erickson	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Belle River 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Belle River 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Reo	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DEP CC	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DEP CT	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Granger Wood Rd	\$ 5,498,401	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Granger Grand River	\$ 1,098,338	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Beebe 1b	\$ 2,810,094	\$ 2,881,790	\$ 2,935,240	\$ 3,001,689	\$ 3,110,049	\$ 3,180,931	\$ 3,233,418	\$ 3,319,856	\$ 3,430,425	\$ 3,467,648	\$ 3,577,849	\$ 3,664,435	\$ 3,785,223	\$ 3,851,962	\$ 3,946,688	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Cedar Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Reo Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Delta Solar	\$ 2,071,241	\$ 2,125,679	\$ 2,179,775	\$ 2,255,318	\$ 2,289,179	\$ 2,344,044	\$ 2,419,906	\$ 2,490,124	\$ 2,513,496	\$ 2,605,472	\$ 2,633,397	\$ 2,737,369	\$ 2,799,726	\$ 2,885,170	\$ 2,911,877	\$ 3,002,480	\$ 3,108,229	\$ 3,152,620	\$ 3,230,459	\$ 3,368,471	\$ 3,397,986
Community Solar	\$ 31,218	\$ 31,990	\$ 32,679	\$ 33,651	\$ 34,151	\$ 34,549	\$ 35,864	\$ 36,755	\$ 37,977	\$ 38,023	\$ 39,701	\$ 39,412	\$ 40,510	\$ 41,889	\$ 41,937	\$ 43,076	\$ 43,146	\$ 43,977	\$ 45,356	\$ 45,316	\$ 45,316
Pegasus Wind	\$ 4,832,819	\$ 10,576,306	\$ 10,806,092	\$ 10,899,541	\$ 11,152,903	\$ 11,252,975	\$ 11,401,970	\$ 11,639,005	\$ 11,834,136	\$ 11,926,829	\$ 12,172,382	\$ 12,344,787	\$ 12,633,706	\$ 12,666,508	\$ 12,846,864	\$ 13,164,223	\$ 13,301,150	\$ 13,449,850	\$ 13,630,961	\$ 13,707,748	\$ 13,707,748
Ranger Solar	\$ -	\$ 796,075	\$ 5,512,963	\$ 5,609,504	\$ 5,735,435	\$ 5,852,329	\$ 5,977,841	\$ 6,095,060	\$ 6,237,296	\$ 6,328,682	\$ 6,468,640	\$ 6,606,621	\$ 6,706,705	\$ 6,836,819	\$ 7,023,125	\$ 7,129,331	\$ 7,283,378	\$ 7,445,730	\$ 7,582,423	\$ 7,708,356	\$ 7,876,935
Calhoun Solar Energy Center	\$ -	\$ -	\$ 718,730	\$ 731,213	\$ 745,105	\$ 761,732	\$ 777,171	\$ 792,350	\$ 812,072	\$ 824,033	\$ 839,531	\$ 858,956	\$ 875,700	\$ 888,902	\$ 913,154	\$ 928,272	\$ 945,883	\$ 967,027	\$ 984,247	\$ 999,862	\$ 1,025,864
NextEra Solar	\$ -	\$ -	\$ -	\$ 1,629,816	\$ 1,652,721	\$ 1,665,368	\$ 1,728,549	\$ 1,771,589	\$ 1,751,921	\$ 1,846,395	\$ 1,842,985	\$ 1,918,540	\$ 1,924,493	\$ 1,975,341	\$ 2,009,975	\$ 2,055,677	\$ 2,108,020	\$ 2,126,464	\$ 2,178,041	\$ 2,249,944	\$ 2,258,245
DG - RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DG - C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
EE Legacy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
EE C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
EE RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DR C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DR RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Local Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New External Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New External Wind	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Battery Charge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Battery Discharge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CONS.LANS Purchase - BR	\$ 35,420,426	\$ 35,784,027	\$ 34,839,920	\$ 33,807,275	\$ 33,843,890	\$ 33,713,379	\$ 34,626,080	\$ 34,354,176	\$ 34,524,559	\$ 35,273,035	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CONS.LANS Purchase - METC	\$ 934,328	\$ 440,639	\$ 57,877	\$ 37,947	\$ 64,815	\$ 58,272	\$ 279,040	\$ 373,230	\$ 402,312	\$ 417,418	\$ 1,821,529	\$ 1,875,605	\$ 1,980,295	\$ 2,040,941	\$ 2,094,421	\$ 2,141,554	\$ 2,186,904	\$ 2,269,658	\$ 2,238,442	\$ 2,265,544	\$ 2,306,523
CONS.LANS Purchase	\$ 2,088,247	\$ 285,686	\$ 59,587	\$ 41,302	\$ 78,636	\$ 63,317	\$ 275,404	\$ 433,449	\$ 425,313	\$ 523,203	\$ 4,340,161	\$ 4,277,406	\$ 4,695,948	\$ 4,991,766	\$ 5,705,452	\$ 6,043,258	\$ 6,223,397	\$ 6,761,026	\$ 7,254,647	\$ 7,493,688	\$ 8,015,576
Emergency Energy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Dump Energy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CONS.LANS Sale	\$ (13,349,518)	\$ (31,930,893)	\$ (48,587,987)	\$ (45,494,686)	\$ (47,344,833)	\$ (45,645,941)	\$ (28,504,628)	\$ (26,143,616)	\$ (25,788,399)	\$ (26,510,009)	\$ (7,732,389)	\$ (6,049,715)	\$ (6,171,128)	\$ (5,580,994)	\$ (5,775,514)	\$ (4,985,508)	\$ (4,803,000)	\$ (3,624,197)	\$ (3,752,089)	\$ (3,377,550)	\$ (3,162,383)
DECO.BLR Sale	\$ (21,424,997)	\$ (21,499,876)	\$ (18,463,253)	\$ (17,421,337)	\$ (20,360,762)	\$ (17,369,163)	\$ (18,510,000)	\$ (20,734,314)	\$ (17,758,186)	\$ (18,035,746)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
External Renewable Sale	\$ (4,929,810)	\$ (9,214,193)	\$ (13,729,250)	\$ (13,363,618)	\$ (13,408,159)	\$ (13,730,765)	\$ (13,646,551)	\$ (13,843,645)	\$ (13,843,645)	\$ (14,019,958)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Purchased Power Cost	\$ 15,080,786	\$ (9,722,770)	\$ (23,637,627)	\$ (18,129,003)	\$ (22,362,329)	\$ (17,496,368)	\$ 9,852	\$ 781,112	\$ 4,577,565	\$ 4,685,025	\$ 11,853,033	\$ 14,953,897	\$ 15,566,540	\$ 17,227,346	\$ 18,215,087	\$ 17,822,338	\$ 18,767,998	\$ 21,298,662	\$ 22,276,968	\$ 23,645,656	\$ 10,971,805



Purchased Power Cost per MWh	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
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Erickson	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Belle River 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Belle River 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Reo	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DEP CC	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DEP CT	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 1	\$ -	\$ -	\$ -																		

IRP 1.2

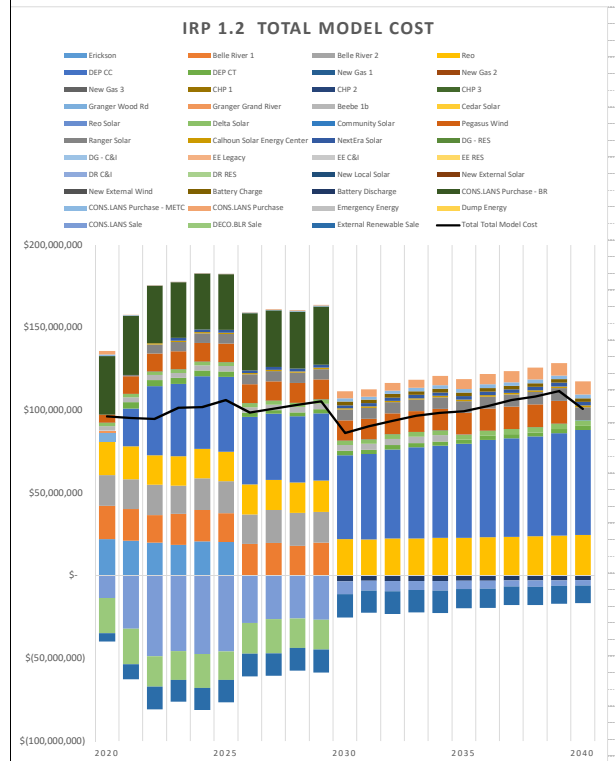
Summary of Modeling

Model Configuration and Constraints
 35% Clean Energy in 2025, 40% Clean Energy in 2030 | Erickson Retires December 2025 and Dispatched Optimally | Min Annual Incremental Energy Efficiency | Pegasus Online 7/1/2020 | Regular Growth | No Incentive for Electric Vehicles | No Incentive for Customer Solar | Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy | Question Answered: What is the impact of reducing our energy efficiency investment with our current goals?

Expansion Plan:
 2021: 10MW Solar | C&I Bin 1 | 2022: 80MW Solar | 2023: 26MW Solar | 2025: Erickson Retirement | 2030: Demand Response C&I | 50MW, 4-Hr Battery | 75MW Solar | 2035: 5MW Solar |

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
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Total Model Cost	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01	
Erickson	\$ 22,171,344	\$ 21,284,756	\$ 19,990,243	\$ 18,770,335	\$ 20,777,783	\$ 20,479,362	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Belle River 1	\$ 20,180,467	\$ 19,057,383	\$ 16,752,647	\$ 18,645,871	\$ 19,022,577	\$ 17,480,063	\$ 19,333,371	\$ 19,955,223	\$ 18,192,282	\$ 20,148,330	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Belle River 2	\$ 18,481,891	\$ 18,036,989	\$ 18,282,341	\$ 17,026,555	\$ 19,167,369	\$ 17,865,964	\$ 19,930,307	\$ 19,882,814	\$ 18,471,625	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Reo	\$ 20,347,295	\$ 20,034,056	\$ 17,988,924	\$ 17,836,425	\$ 17,822,105	\$ 17,832,946	\$ 18,063,433	\$ 18,217,755	\$ 18,452,742	\$ 18,985,036	\$ 22,137,067	\$ 21,926,670	\$ 22,566,861	\$ 22,642,656	\$ 22,931,484	\$ 22,980,739	\$ 23,309,084	\$ 23,539,686	\$ 23,980,246	\$ 24,315,316	\$ 24,724,548	
DEP CC	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DEP CT	\$ -	\$ 3,835,455	\$ 3,742,622	\$ 3,618,324	\$ 3,556,162	\$ 3,410,889	\$ 2,532,304	\$ 2,168,021	\$ 2,244,911	\$ 2,354,799	\$ 2,752,429	\$ 2,513,403	\$ 2,543,553	\$ 2,461,986	\$ 2,489,198	\$ 2,472,734	\$ 2,444,228	\$ 2,368,068	\$ 2,469,179	\$ 2,434,766	\$ 2,455,180	
New Gas 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Gas 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Gas 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Granger Wood Rd	\$ 5,498,401	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Granger Grand River	\$ 1,098,338	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Beebe 1b	\$ 2,810,094	\$ 2,881,790	\$ 2,935,240	\$ 3,001,689	\$ 3,110,049	\$ 3,180,931	\$ 3,233,418	\$ 3,319,856	\$ 3,430,425	\$ 3,467,648	\$ 3,577,849	\$ 3,664,435	\$ 3,785,223	\$ 3,851,962	\$ 3,946,688	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Cedar Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Reo Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Delta Solar	\$ 2,071,241	\$ 2,125,679	\$ 2,179,775	\$ 2,255,318	\$ 2,289,179	\$ 2,344,044	\$ 2,419,906	\$ 2,490,124	\$ 2,513,496	\$ 2,605,472	\$ 2,633,397	\$ 2,737,369	\$ 2,799,726	\$ 2,885,170	\$ 2,911,877	\$ 3,002,480	\$ 3,108,229	\$ 3,152,620	\$ 3,230,459	\$ 3,368,471	\$ 3,397,986	
Community Solar	\$ 31,218	\$ 31,990	\$ 32,679	\$ 33,651	\$ 34,151	\$ 34,549	\$ 35,864	\$ 36,755	\$ 36,266	\$ 38,023	\$ 37,977	\$ 39,701	\$ 39,412	\$ 40,510	\$ 41,189	\$ 41,937	\$ 43,076	\$ 43,146	\$ 43,977	\$ 45,356	\$ 45,316	
Pegasus Wind	\$ 4,832,819	\$ 10,576,306	\$ 10,806,092	\$ 10,899,541	\$ 11,152,903	\$ 11,252,975	\$ 11,401,970	\$ 11,639,005	\$ 11,834,136	\$ 11,926,829	\$ 12,172,382	\$ 12,344,787	\$ 12,633,706	\$ 12,666,508	\$ 12,846,864	\$ 13,164,223	\$ 13,301,150	\$ 13,449,850	\$ 13,630,961	\$ 13,707,748	\$ 13,777,458	
Ranger Solar	\$ -	\$ 796,075	\$ 5,512,963	\$ 5,609,504	\$ 5,735,435	\$ 5,852,329	\$ 5,977,841	\$ 6,095,060	\$ 6,237,296	\$ 6,328,682	\$ 6,468,640	\$ 6,606,621	\$ 6,706,705	\$ 6,836,819	\$ 7,023,125	\$ 7,129,331	\$ 7,283,378	\$ 7,445,730	\$ 7,582,423	\$ 7,708,356	\$ 7,876,935	
Calhoun Solar Energy Center	\$ -	\$ -	\$ 718,730	\$ 731,213	\$ 745,105	\$ 761,732	\$ 777,171	\$ 792,350	\$ 812,072	\$ 824,033	\$ 839,531	\$ 858,956	\$ 875,700	\$ 888,902	\$ 913,154	\$ 928,272	\$ 945,883	\$ 967,027	\$ 984,247	\$ 999,862	\$ 1,025,864	
NextEra Solar	\$ -	\$ -	\$ -	\$ 1,629,816	\$ 1,652,721	\$ 1,665,368	\$ 1,728,549	\$ 1,771,589	\$ 1,751,921	\$ 1,846,395	\$ 1,842,985	\$ 1,918,540	\$ 1,924,493	\$ 1,975,341	\$ 2,009,975	\$ 2,055,677	\$ 2,108,020	\$ 2,126,464	\$ 2,178,041	\$ 2,249,944	\$ 2,258,245	
DG - RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DG - C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
EE Legacy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
EE C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
EE RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DR C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DR RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Local Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New External Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New External Wind	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Battery Charge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Battery Discharge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CONS.LANS Purchase - BR	\$ 35,420,426	\$ 35,784,027	\$ 34,839,920	\$ 33,807,275	\$ 33,843,890	\$ 33,713,379	\$ 34,626,080	\$ 34,354,176	\$ 34,524,559	\$ 35,273,035	\$ 35,273,035	\$ 35,273,035	\$ 35,273,035	\$ 35,273,035	\$ 35,273,035	\$ 35,273,035	\$ 35,273,035	\$ 35,273,035	\$ 35,273,035	\$ 35,273,035	\$ 35,273,035	
CONS.LANS Purchase - METC	\$ 934,328	\$ 440,639	\$ 57,877	\$ 37,947	\$ 64,815	\$ 58,272	\$ 279,040	\$ 373,230	\$ 402,312	\$ 417,418	\$ 1,821,529	\$ 1,875,605	\$ 1,980,295	\$ 2,040,941	\$ 2,094,421	\$ 2,141,554	\$ 2,186,904	\$ 2,269,658	\$ 2,238,442	\$ 2,265,544	\$ 2,306,523	
CONS.LANS Purchase - METC	\$ 2,088,247	\$ 285,686	\$ 59,587	\$ 41,302	\$ 78,636	\$ 63,317	\$ 275,404	\$ 493,449	\$ 425,313	\$ 523,203	\$ 4,340,161	\$ 4,277,406	\$ 4,695,948	\$ 4,991,766	\$ 5,705,452	\$ 6,043,258	\$ 6,223,397	\$ 6,761,026	\$ 7,254,647	\$ 7,493,688	\$ 8,015,576	
Emergency Energy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Dump Energy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CONS.LANS Sale	\$ (13,349,518)	\$ (31,930,893)	\$ (48,587,987)	\$ (45,494,686)	\$ (47,344,833)	\$ (45,645,941)	\$ (28,504,628)	\$ (26,143,616)	\$ (25,788,399)	\$ (26,510,009)	\$ (7,732,389)	\$ (6,049,715)	\$ (6,171,128)	\$ (5,580,994)	\$ (5,775,514)	\$ (4,985,508)	\$ (4,803,000)	\$ (3,624,197)	\$ (3,752,089)	\$ (3,377,550)	\$ (3,162,383)	
DECO.BLR Sale	\$ (21,424,997)	\$ (21,499,876)	\$ (18,463,253)	\$ (17,421,337)	\$ (20,360,762)	\$ (17,369,163)	\$ (18,510,000)	\$ (20,734,314)	\$ (17,758,186)	\$ (18,035,746)	\$ (14,019,958)	\$ (14,149,029)	\$ (13,319,809)	\$ (13,703,541)	\$ (13,369,578)	\$ (13,502,144)	\$ (11,698,886)	\$ (11,629,038)	\$ (11,292,661)	\$ (11,114,141)	\$ (10,815,763)	\$ (10,792,257)
External Renewable Sale	\$ (4,929,810)	\$ (9,214,193)	\$ (13,260,237)	\$ (13,363,618)	\$ (13,408,159)	\$ (13,730,765)	\$ (13,645,551)	\$ (13,843,645)	\$ (13,843,645)	\$ (14,019,958)	\$ (14,149,029)	\$ (13,319,809)	\$ (13,703,541)	\$ (13,369,578)	\$ (13,502,144)	\$ (11,698,886)	\$ (11,629,038)	\$ (11,292,661)	\$ (11,114,141)	\$ (10,815,763)	\$ (10,792,257)	
Total Total Model Cost	\$ 96,261,783	\$ 95,320,410	\$ 94,834,363	\$ 101,587,623	\$ 101,910,397	\$ 106,185,314	\$ 98,736,122	\$ 100,935,521	\$ 103,347,004	\$ 105,380,864	\$ 86,394,131	\$ 90,362,157	\$ 93,698,375	\$ 96,630,593	\$ 98,434,851	\$ 99,364,456	\$ 102,598,646	\$ 106,196,901	\$ 108,288,506	\$ 111,723,048	\$ 101,030,964	



Total Model Cost per MWh	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
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Erickson	\$ 53.45	\$ 56.34	\$ 60.72	\$ 67.28	\$ 62.49	\$ 64.67	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Belle River 1	\$ 50.05	\$ 55.78	\$ 71.23	\$ 62.70	\$ 63.09	\$ 77.19	\$ 66.32	\$ 65.68	\$ 84.50	\$ 72.65	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Belle River 2	\$ 57.56	\$ 61.68	\$ 61																		

IRP 1.2	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040		
Summary of Modeling																							
Model Configuration and Constraints		Expansion Plan:																					
35% Clean Energy in 2025, 40% Clean Energy in 2030 Erickson Retires December 2025 and Dispatched Optimally Min Annual Incremental Energy Efficiency Pegasus Online 7/1/2020 Regular Growth No Incentive for Electric Vehicles No Incentive for Customer Solar Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy Question Answered: What is the impact of reducing our energy efficiency investment with our current goals?		2021: 10MW Solar C&I Bin 1 2022: 80MW Solar 2023: 26MW Solar 2025: Erickson Retirement 2030: Demand Response C&I 50MW, 4-Hr Battery 75MW Solar 2035: 5MW Solar																					
Post Processing Costs - Coal Penalties		2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01	
Coal on Ground Year Start		200,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Coal Needed		229,267	209,012	182,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Pile used first pile remaining		200,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Ending Pile		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Deliveries Used		29,267	209,012	182,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Penalty Tons		370,733	190,988	218,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Erickson - Coal Penalties (PRB)		\$ 982,443	\$ 506,119	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Erickson - Rail Penalties (BNSF/CN)		\$ 4,302,787	\$ 2,284,035	\$ 2,687,256	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Post Processing Costs - Customer Programs		2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01	
EE C&I		\$ -	\$ 918,836	\$ 1,062,052	\$ 1,210,086	\$ 1,347,138	\$ 1,543,165	\$ 1,740,058	\$ 1,854,993	\$ 1,930,442	\$ 1,987,539	\$ 1,976,434	\$ 2,034,395	\$ 2,013,454	\$ 2,066,441	\$ 2,056,109	\$ 2,093,256	\$ 2,425,396	\$ 2,530,706	\$ 2,583,831	\$ 2,661,814	\$ 2,673,893	
EE RES		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DR C&I		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 205,053	\$ 174,775	\$ 260,973	\$ 279,054	\$ 265,795	\$ 260,654	\$ 261,215	\$ 263,458	\$ 266,176	\$ 269,105	\$ 275,202
DR RES		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DG - RES		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DG - C&I		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Electric Vehicles		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Post Processing Costs - Capital & FOM		2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01	
New Gas 1 - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Gas 1 - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Gas 2 - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Gas 2 - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Gas 3 - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Gas 3 - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 1 - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 1 - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 2 - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 2 - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 3 - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 3 - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Local Solar - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 5,104,721	\$ 4,978,551	\$ 4,852,382	\$ 4,726,212	\$ 4,600,043	\$ 4,852,367	\$ 4,716,843	\$ 4,581,318	\$ 4,445,794	\$ 4,310,269	\$ 4,174,745	
New Local Solar - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 737,250	\$ 737,250	\$ 737,250	\$ 737,250	\$ 737,250	\$ 791,850	\$ 791,850	\$ 791,850	\$ 791,850	\$ 791,850	\$ 791,850	
New External Solar - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New External Solar - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New External Wind - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New External Wind - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Battery - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 4,602,082	\$ 4,488,336	\$ 4,374,590	\$ 4,260,844	\$ 4,147,097	\$ 4,033,351	\$ 3,919,605	\$ 3,805,859	\$ 3,692,113	\$ 3,578,367	\$ 3,464,620	
Battery - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Post Processing Costs - Capacity Expense		PY 2020/21	PY 2021/22	PY 2022/23	PY 2023/24	PY 2024/25	PY 2025/26	PY 2026/27	PY 2027/28	PY 2028/29	PY 2029/30	PY 2030/31	PY 2031/32	PY 2032/33	PY 2033/34	PY 2034/35	PY 2035/36	PY 2036/37	PY 2037/38	PY 2038/39	PY 2039/40	PY 2040/41	
Capacity Price - Purchase (\$/kW-Mo)		\$ 0.92	\$ 0.94	\$ 0.97	\$ 1.00	\$ 1.03	\$ 1.06	\$ 1.09	\$ 1.13	\$ 1.16	\$ 1.20	\$ 1.23	\$ 1.27	\$ 1.31	\$ 1.35	\$ 1.39	\$ 1.43	\$ 1.47	\$ 1.52	\$ 1.56	\$ 1.61	\$ 1.66	
Capacity Price - Sale (\$/kW-Mo)		\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 1.00	\$ 0.98	\$ 0.96	\$ 0.96	\$ 0.96	\$ 0.88	\$ 0.88	\$ 0.88	\$ 0.88	\$ 0.88	\$ 0.73	
Capacity Purchase		\$ 231,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Local Capacity Sale		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
External Capacity Sale		\$ -	\$ (1,044,524)	\$ (1,320,073)	\$ (1,320,073)	\$ (1,320,073)	\$ (1,320,073)	\$ (461,385)	\$ (461,385)	\$ (442,160)	\$ (499,834)	\$ (361,500)	\$ (376,320)	\$ (424,020)	\$ (424,020)	\$ (343,800)	\$ (441,420)	\$ (409,890)	\$ (378,360)	\$ (430,910)	\$ (409,890)	\$ (334,020)	
Post Processing Costs - Transmission Expense		2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01	
Transmission - BR - Total Annual MWs during Peak		1,799.3	1,772.0	1,754.7	1,748.2	1,719.3	1,709.8	1,718.2	1,717.5	1,711.8	1,707.7	-	-	-	-	-	-	-	-	-	-	-	
Transmission - BR - Average Monthly MWs during Peak		149.9	147.7	146.2	145.7	143.3	142.5	143.2	143.1	142.6	142.3	-	-	-	-	-	-	-	-	-	-	-	
Transmission - METC - Total Annual MWs during Peak		106.9	55.6	22.2	15.7	20.8	19.7	37.4	41.7	42.4	44.0	112.2	115.5	121.1	125.4	128.5	130.6	132.1	135.8	136.8	138.6	141.3	
Transmission - METC - Average Monthly MWs during Peak		8.9	4.6	1.9	1.3	1.7	1.6	3.1	3.5	3.5	3.7	9.3	9.6	10.1	10.5	10.7	10.9	11.0	11.3	11.4	11.5	11.8	
Transmission - Non-Entitlement - Total Annual MWs during Peak		412.7	101.5	29.5	18.1	27.3	25.4	45.3	44.3	49.7	39.1	168.7	183.2	179.2	199.5	210.6	215.0	221.7	214.3	232.1	226.3	231.2	
Transmission - Non-Entitlement - Average Monthly MWs during Peak		34.4	8.5	2.5	1.5	2.3	2.1	3.8	3.7	4.1	3.3	14.1	15.3	14.9	16.6	17.6	17.9	18.5	17.9	19.3	18.9	19.3	
P&P - CONS.LANS Purchase - BR - Fixed Expense		\$ 972,648	\$ 1,191,528	\$ 1,286,208	\$ 1,388,448	\$ 1,471,230	\$ 1,558,998	\$ 1,652,040	\$ 1,750,680	\$ 1,855,224	\$ 1,966,068	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
P&P - CONS.LANS Purchase - BR - Redirect Revenue		\$ (295)	\$ (13,877)	\$ (24,267)	\$ (29,989)	\$ (49,498)	\$ (58,577)	\$ (56,322)	\$ (60,181)	\$ (68,196)	\$ (75,651)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
NITS - CONS.LANS Purchase - BR - Fixed Expense		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
NITS - CONS.LANS Purchase - BR - Redirect Revenue		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
P&P - CONS.LANS Purchase - METC - Fixed Expense		\$ 11																					

Model Configuration and Constraints
 35% Clean Energy in 2025, 40% Clean Energy in 2030 | Erickson Retires December 2025 and Dispatched Optimally | Min Annual Incremental Energy Efficiency | Pegasus Online 7/1/2020 | Regular Growth | No Incentive for Electric Vehicles | No Incentive for Customer Solar | Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy | Question Answered: What is the impact of reducing our energy efficiency investment with our current goals?

Expansion Plan:
 2021: 10MW Solar | C&I Bin 1 | 2022: 80MW Solar | 2023: 26MW Solar | 2025: Erickson Retirement | 2030: Demand Response C&I | 50MW, 4-Hr Battery | 75MW Solar | 2035: 5MW Solar |

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	
Total Costs w/ Post Processing	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01	
Erickson	\$ 27,456,574	\$ 24,074,910	\$ 22,677,498	\$ 18,770,335	\$ 20,777,783	\$ 20,479,362	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Belle River 1	\$ 20,180,467	\$ 19,057,383	\$ 16,752,647	\$ 18,645,871	\$ 19,022,577	\$ 17,480,063	\$ 19,333,371	\$ 19,955,223	\$ 18,192,282	\$ 20,148,330	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Belle River 2	\$ 18,481,891	\$ 18,036,989	\$ 18,282,341	\$ 17,026,555	\$ 17,862,369	\$ 17,862,369	\$ 17,862,369	\$ 19,930,307	\$ 19,882,814	\$ 18,471,625	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Reo	\$ 20,347,295	\$ 20,034,056	\$ 17,928,524	\$ 17,836,425	\$ 17,822,105	\$ 17,822,105	\$ 18,063,433	\$ 18,217,755	\$ 18,452,742	\$ 18,985,036	\$ 22,137,067	\$ 21,926,670	\$ 22,566,861	\$ 22,642,656	\$ 22,931,484	\$ 22,980,739	\$ 23,309,084	\$ 23,539,686	\$ 23,980,246	\$ 24,315,316	\$ 24,724,548	
DEP CC	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DEP CT	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Gas 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Gas 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Gas 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Granger Wood Rd	\$ 5,498,401	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Granger Grand River	\$ 1,098,338	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Beebe 1b	\$ 2,810,094	\$ 2,881,790	\$ 2,935,240	\$ 3,001,689	\$ 3,110,049	\$ 3,180,931	\$ 3,233,418	\$ 3,319,856	\$ 3,430,425	\$ 3,467,648	\$ 3,577,849	\$ 3,664,435	\$ 3,785,223	\$ 3,851,962	\$ 3,946,688	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Cedar Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Reo Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Delta Solar	\$ 2,071,241	\$ 2,125,679	\$ 2,179,775	\$ 2,255,318	\$ 2,289,179	\$ 2,344,044	\$ 2,419,906	\$ 2,490,124	\$ 2,513,496	\$ 2,605,472	\$ 2,633,397	\$ 2,737,369	\$ 2,799,726	\$ 2,885,170	\$ 2,911,877	\$ 3,002,480	\$ 3,108,229	\$ 3,152,620	\$ 3,230,459	\$ 3,368,471	\$ 3,397,986	
Community Solar	\$ 31,218	\$ 31,990	\$ 32,679	\$ 33,651	\$ 34,151	\$ 34,549	\$ 35,864	\$ 36,755	\$ 36,266	\$ 38,023	\$ 37,977	\$ 39,701	\$ 39,412	\$ 40,510	\$ 41,189	\$ 41,937	\$ 43,076	\$ 43,977	\$ 45,356	\$ 45,316	\$ 45,316	
Pegasus Wind	\$ 4,832,819	\$ 10,576,306	\$ 10,806,092	\$ 10,899,541	\$ 11,152,903	\$ 11,252,975	\$ 11,401,970	\$ 11,639,005	\$ 11,834,136	\$ 11,926,829	\$ 12,172,382	\$ 12,344,787	\$ 12,633,706	\$ 12,666,508	\$ 12,846,864	\$ 13,164,223	\$ 13,301,150	\$ 13,449,850	\$ 13,630,961	\$ 13,707,748	\$ 13,707,748	\$ 13,707,748
Ranger Solar	\$ -	\$ 796,075	\$ 5,129,963	\$ 5,609,504	\$ 5,735,435	\$ 5,852,329	\$ 5,977,841	\$ 6,095,060	\$ 6,237,296	\$ 6,328,682	\$ 6,468,640	\$ 6,606,621	\$ 6,706,705	\$ 6,836,819	\$ 7,129,331	\$ 7,283,378	\$ 7,445,730	\$ 7,582,423	\$ 7,783,378	\$ 7,883,378	\$ 7,883,378	\$ 7,883,378
Calhoun Solar Energy Center	\$ -	\$ -	\$ 718,730	\$ 731,213	\$ 745,105	\$ 761,732	\$ 777,171	\$ 792,350	\$ 812,072	\$ 824,033	\$ 839,531	\$ 858,956	\$ 875,700	\$ 888,902	\$ 913,154	\$ 928,272	\$ 945,883	\$ 967,027	\$ 984,247	\$ 999,862	\$ 999,862	\$ 1,025,864
NextEra Solar	\$ -	\$ -	\$ -	\$ 1,629,816	\$ 1,652,721	\$ 1,665,368	\$ 1,728,549	\$ 1,771,589	\$ 1,751,921	\$ 1,846,395	\$ 1,842,985	\$ 1,918,540	\$ 1,924,493	\$ 1,975,341	\$ 2,009,975	\$ 2,055,677	\$ 2,108,020	\$ 2,126,464	\$ 2,178,041	\$ 2,249,944	\$ 2,249,944	\$ 2,249,944
DG - RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DG - C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
EE Legacy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
EE C&I	\$ -	\$ 918,836	\$ 1,062,052	\$ 1,210,086	\$ 1,347,138	\$ 1,543,165	\$ 1,740,058	\$ 1,854,993	\$ 1,930,442	\$ 1,987,539	\$ 1,976,434	\$ 2,034,395	\$ 2,013,454	\$ 2,066,441	\$ 2,056,109	\$ 2,093,256	\$ 2,425,396	\$ 2,530,706	\$ 2,583,831	\$ 2,661,814	\$ 2,673,893	
EE RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DR C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DR RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Local Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New External Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New External Wind	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Battery Charge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Battery Discharge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CONS.LANS Purchase - BR	\$ 36,392,779	\$ 36,961,678	\$ 36,101,861	\$ 35,165,734	\$ 35,265,623	\$ 35,213,800	\$ 36,221,798	\$ 36,044,674	\$ 36,311,587	\$ 37,163,452	\$ 37,163,452	\$ 37,163,452	\$ 37,163,452	\$ 37,163,452	\$ 37,163,452	\$ 37,163,452	\$ 37,163,452	\$ 37,163,452	\$ 37,163,452	\$ 37,163,452	\$ 37,163,452	\$ 37,163,452
CONS.LANS Purchase - METC	\$ 1,027,914	\$ 513,335	\$ 110,767	\$ 88,933	\$ 122,309	\$ 117,530	\$ 356,727	\$ 450,590	\$ 492,442	\$ 513,539	\$ 1,995,236	\$ 2,061,580	\$ 2,182,145	\$ 2,258,335	\$ 2,326,874	\$ 2,388,786	\$ 2,449,059	\$ 2,551,062	\$ 2,536,204	\$ 2,581,903	\$ 2,644,544	
CONS.LANS Sale	\$ 1,760,352	\$ 285,686	\$ 59,587	\$ 41,302	\$ 78,636	\$ 63,317	\$ 275,404	\$ 433,449	\$ 425,313	\$ 523,203	\$ 4,868,338	\$ 4,688,784	\$ 4,725,415	\$ 5,022,999	\$ 6,147,963	\$ 5,501,496	\$ 5,897,961	\$ 6,516,557	\$ 6,523,513	\$ 6,893,383	\$ 7,574,874	
Emergency Energy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Dump Energy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CONS.LANS Sale	\$ (13,349,518)	\$ (31,390,893)	\$ (48,587,987)	\$ (45,494,686)	\$ (47,344,833)	\$ (45,645,941)	\$ (28,504,628)	\$ (26,143,616)	\$ (25,788,399)	\$ (26,510,009)	\$ (7,732,389)	\$ (6,049,715)	\$ (6,171,128)	\$ (5,580,994)	\$ (5,775,514)	\$ (4,985,508)	\$ (4,803,000)	\$ (3,624,197)	\$ (3,752,089)	\$ (3,377,550)	\$ (3,162,383)	
DECO.BLR Sale	\$ (21,424,997)	\$ (21,499,876)	\$ (18,463,253)	\$ (17,421,337)	\$ (20,360,762)	\$ (17,369,163)	\$ (18,510,000)	\$ (20,734,314)	\$ (17,758,186)	\$ (18,035,746)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
External Renewable Sale	\$ (4,929,810)	\$ (9,214,193)	\$ (13,729,250)	\$ (13,363,618)	\$ (13,730,765)	\$ (13,408,159)	\$ (13,730,765)	\$ (13,646,551)	\$ (13,843,645)	\$ (14,019,958)	\$ (14,149,029)	\$ (13,319,809)	\$ (13,703,541)	\$ (13,369,578)	\$ (13,502,144)	\$ (11,698,886)	\$ (11,629,038)	\$ (11,292,661)	\$ (11,114,141)	\$ (10,815,763)	\$ (10,792,257)	
Electric Vehicle Program	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Capacity Purchase	\$ 231,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Capacity Sale	\$ -	\$ (1,044,524)	\$ (1,320,073)	\$ (1,320,073)	\$ (1,320,073)	\$ (1,320,073)	\$ (1,320,073)	\$ (461,385)	\$ (461,385)	\$ (442,160)	\$ (499,834)	\$ (361,500)	\$ (376,320)	\$ (424,020)	\$ (424,020)	\$ (343,800)	\$ (441,420)	\$ (409,890)	\$ (378,360)	\$ (430,910)	\$ (334,020)	
Total Total Costs w/ Post Processing	\$ 102,516,058	\$ 99,235,423	\$ 98,578,429	\$ 102,887,081	\$ 103,416,687	\$ 107,968,085	\$ 101,688,199	\$ 77,372,419	\$ 104,104,988	\$ 106,712,443	\$ 108,855,107	\$ 99,360,055	\$ 102,996,497	\$ 105,744,322	\$ 108,525,001	\$ 110,572,309	\$ 110,659,983	\$ 114,240,383	\$ 117,828,667	\$ 119,203,988	\$ 122,640,617	\$ 111,974,573
Total Cost per Retail Sales MWh	\$ 48.59	\$ 44.22	\$ 43.90	\$ 45.83	\$ 46.14	\$ 48.23	\$ 45.51	\$ 46.66	\$ 47.92	\$ 48.91	\$ 44.67	\$ 46.31	\$ 47.56	\$ 48.77								

1.3 v1: Model Configuration & Constraints

35% Clean Energy in 2025

40% Clean Energy in 2030

Erickson Retires December 2025 and Dispatched Optimally

Max Annual Incremental Energy Efficiency

Pegasus Online 7/1/2020

Regular Growth

No Incentive for Electric Vehicles

No Incentive for Customer Solar

Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy

Expansion Plan

2021: 10MW Solar | C&I Bins 1, 2, 3, 4 & 5; Res Bins 1, 2, 3, 4 & 5

2022: 80MW Solar

2023: 26MW Solar

2025: Erickson Retirement

2030: Demand Response C&I | 50MW, 4-Hr Battery | 10MW Solar

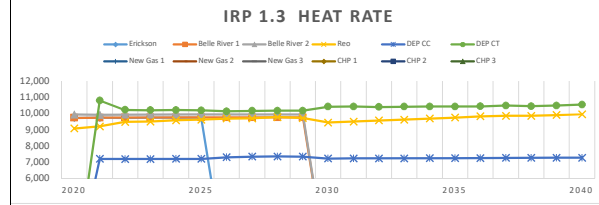
IRP 1.3

Summary of Modeling

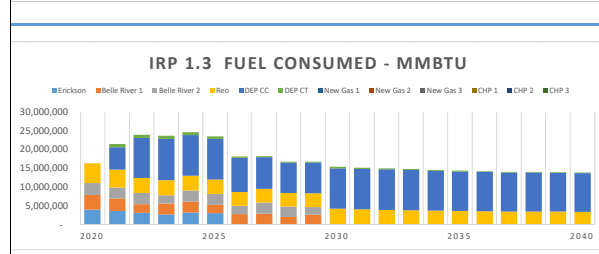
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Expansion Plan:
 2021: 10MW Solar | C&I Bins 1, 2, 3, 4 & 5 | Res Bins 1, 2, 3, 4 & 5 |
 2022: 80MW Solar | 2023: 26MW Solar | 2025: Erickson Retirement |
 2030: Demand Response C&I | 50MW, 4-Hr Battery | 10MW Solar |

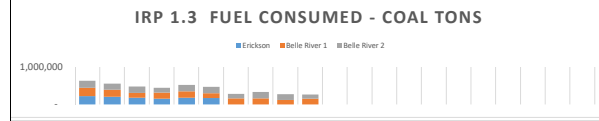
Heat Rate	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Erickson	9,727	9,737	9,729	9,739	9,733	9,734	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Belle River 1	9,728	9,739	9,749	9,748	9,749	9,753	9,754	9,756	9,756	9,761	--	--	--	--	--	--	--	--	--	--	--
Belle River 2	9,929	9,913	9,924	9,937	9,927	9,931	9,933	9,933	9,931	9,938	--	--	--	--	--	--	--	--	--	--	--
Reo	9,072	9,203	9,483	9,497	9,574	9,623	9,684	9,701	9,772	9,713	9,442	9,500	9,570	9,616	9,688	9,745	9,823	9,852	9,859	9,903	9,951
DEP CC	--	7,199	7,188	7,192	7,205	7,203	7,303	7,337	7,356	7,340	7,221	7,225	7,234	7,236	7,243	7,250	7,257	7,257	7,260	7,266	7,269
DEP CT	--	10,798	10,216	10,202	10,207	10,189	10,128	10,160	10,171	10,174	10,417	10,422	10,395	10,415	10,430	10,424	10,434	10,486	10,448	10,486	10,540
New Gas 1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Gas 2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Gas 3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--



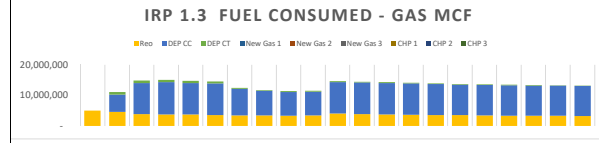
Capacity Factor	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Erickson	30%	27%	24%	20%	24%	23%	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Belle River 1	60%	51%	35%	44%	45%	34%	43%	45%	32%	41%	--	--	--	--	--	--	--	--	--	--	--
Belle River 2	47%	43%	44%	33%	44%	44%	33%	44%	41%	31%	--	--	--	--	--	--	--	--	--	--	--
Reo	61%	55%	45%	44%	43%	41%	40%	39%	38%	39%	48%	46%	44%	42%	41%	40%	39%	38%	38%	37%	36%
DEP CC	--	46%	84%	87%	84%	85%	70%	65%	62%	63%	84%	84%	84%	83%	82%	82%	81%	81%	80%	80%	80%
DEP CT	--	17%	17%	16%	15%	13%	7%	5%	5%	5%	7%	6%	5%	5%	4%	4%	4%	3%	3%	3%	3%
New Gas 1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Gas 2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Gas 3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Granger Wood Rd	93%	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Granger Grand River	47%	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beebe 1b	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	--	--	--	--	--	--
Cedar Solar	11%	11%	11%	11%	11%	11%	11%	12%	11%	12%	11%	12%	11%	11%	--	--	--	--	--	--	--
Reo Solar	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	--	--	--	--	--	--	--
Delta Solar	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%
Community Solar	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%
Pegasus Wind	15%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	32%	33%
Ranger Solar	--	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%
Calhoun Solar Energy Center	--	--	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%
NextEra Solar	--	--	--	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%
DG - RES	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	8%	9%	9%	10%	10%	11%	11%	12%	12%	13%
DG - C&I	5%	6%	7%	8%	9%	10%	10%	11%	11%	12%	12%	13%	13%	14%	14%	14%	14%	14%	14%	14%	14%
EE Legacy	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%
EE C&I	--	43%	43%	43%	43%	44%	44%	44%	45%	45%	45%	45%	45%	45%	44%	44%	44%	44%	44%	44%	44%
EE RES	--	87%	78%	73%	68%	68%	67%	67%	67%	66%	66%	65%	65%	64%	64%	64%	63%	63%	63%	63%	63%
DR C&I	--	--	--	--	--	--	--	--	--	--	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
DR RES	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Local Solar	--	--	--	--	--	--	--	--	--	--	27%	28%	27%	28%	28%	28%	28%	28%	28%	28%	27%
New External Solar	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New External Wind	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--



Fuel Consumed - MMBtu	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Erickson	4,032,046	3,666,986	3,204,112	2,719,946	3,234,035	3,077,465	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Belle River 1	3,922,062	3,327,200	2,292,931	2,899,147	2,939,687	2,208,563	2,843,686	2,964,342	2,100,283	2,706,917	-	-	-	-	-	-	-	-	-	-	-
Belle River 2	3,188,141	2,901,844	2,935,689	2,229,383	2,998,658	2,970,150	2,238,284	2,951,718	2,782,277	2,045,004	-	-	-	-	-	-	-	-	-	-	-
Reo	5,266,128	4,814,196	4,025,834	4,001,208	3,916,841	3,766,325	3,661,786	3,622,142	3,555,243	3,616,693	4,268,226	4,111,875	3,994,099	3,870,296	3,790,184	3,696,014	3,602,234	3,530,657	3,534,847	3,489,406	3,440,103
DEP CC	-	5,930,904	10,694,677	11,051,362	10,814,709	10,828,070	9,112,863	8,481,743	8,150,658	8,178,775	10,800,444	10,798,512	10,770,500	10,714,077	10,586,944	10,503,956	10,511,449	10,435,388	10,358,281	10,347,989	10,308,161
DEP CT	-	920,905	850,416	812,635	771,038	674,920	351,374	236,855	233,038	251,939	363,972	300,912	269,829	244,924	224,358	216,275	187,034	165,648	176,786	164,767	155,478
New Gas 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Fuel Consumed - Coal Tons	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Erickson	229,094	208,351	182,052	154,542	183,752	174,856	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Belle River 1	222,844	189,045	130,280	164,724	167,028	125,487	161,573	168,428	119,334	153,802	-	-	-	-	-	-	-	-	-	-	-
Belle River 2	181,144	164,877	166,801	126,670	170,378	168,759	127,175	167,711	158,084	116,193	-	-	-	-	-	-	-	-	-	-	-



IRP 1.3

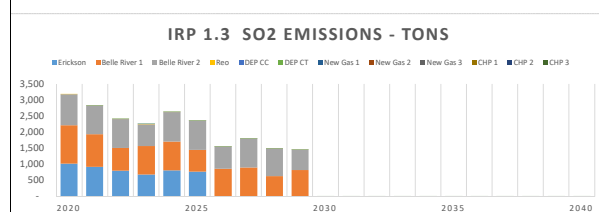
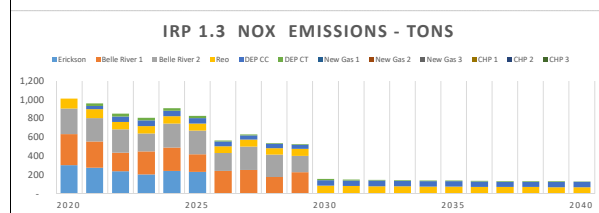
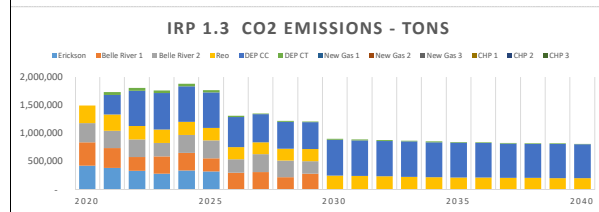
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	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
CO2 Emissions - Tons																					
Erickson	424,574	386,134	337,393	286,410	340,544	324,057	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Belle River 1	417,111	353,848	243,853	308,324	312,636	234,881	302,426	315,258	223,365	287,881	-	-	-	-	-	-	-	-	-	-	-
Belle River 2	339,059	308,611	312,211	237,095	318,907	315,875	238,042	313,915	295,895	217,486	-	-	-	-	-	-	-	-	-	-	-
Reo	313,071	286,204	239,336	237,872	232,856	223,908	217,693	215,336	211,359	215,012	253,746	244,451	237,449	230,089	225,326	219,728	214,153	209,898	210,147	207,445	204,514
DEP CC	-	346,958	625,639	646,505	632,660	633,442	533,102	496,182	478,458	631,826	631,713	630,074	626,774	619,336	614,481	614,920	610,470	605,959	605,357	603,027	
DEP CT	-	53,873	49,749	47,539	45,106	39,483	20,555	13,856	13,633	14,738	21,292	17,603	15,785	14,328	13,125	12,652	10,941	9,690	10,342	9,639	9,095
New Gas 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NOx Emissions - Tons																					
Erickson	302	275	240	204	243	231	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Belle River 1	333	283	195	246	250	188	242	252	179	230	-	-	-	-	-	-	-	-	-	-	-
Belle River 2	271	247	250	189	255	252	190	251	236	174	-	-	-	-	-	-	-	-	-	-	-
Reo	105	96	81	80	78	75	73	72	71	72	85	82	80	77	76	74	72	71	71	70	69
DEP CC	-	33	59	61	59	60	50	47	45	45	59	59	59	59	58	58	58	57	57	57	57
DEP CT	-	30	28	27	25	22	12	8	8	8	12	10	9	8	7	7	6	5	5	5	5
New Gas 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SO2 Emissions - Tons																					
Erickson	1,020	928	811	688	818	779	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Belle River 1	1,196	1,015	699	884	897	674	867	904	641	826	-	-	-	-	-	-	-	-	-	-	-
Belle River 2	972	885	895	680	915	906	683	900	849	624	-	-	-	-	-	-	-	-	-	-	-
Reo	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
DEP CC	-	4	8	8	8	8	6	6	6	8	8	8	8	8	7	7	7	7	7	7	7
DEP CT	-	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
New Gas 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



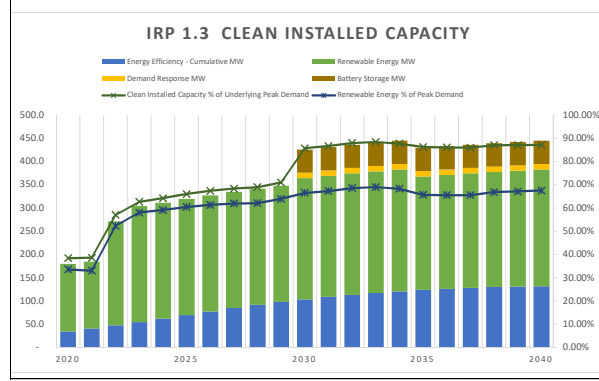
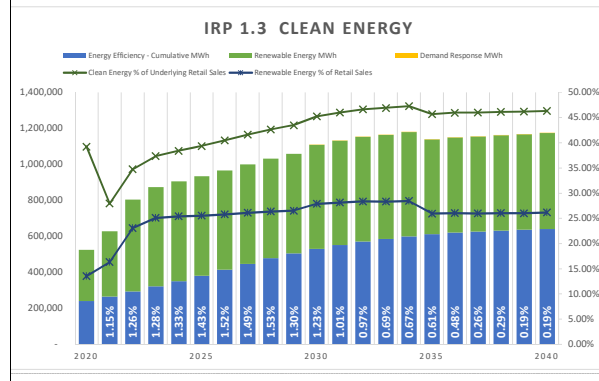
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Summary of Modeling

Model Configuration and Constraints
 35% Clean Energy in 2025, 40% Clean Energy in 2030 | Erickson Retires December 2025 and Dispatched Optimally | Max Annual Incremental Energy Efficiency | Pegasus Online 7/1/2020 | Regular Growth | No Incentive for Electric Vehicles | No Incentive for Customer Solar | Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy | Question Answered: What is the impact of maximum energy efficiency investment with our current goals?

Expansion Plan:
 2021: 10MW Solar | C&I Bins 1, 2, 3, 4 & 5; Res Bins 1, 2, 3, 4 & 5 |
 2022: 80MW Solar | 2023: 26MW Solar | 2025: Erickson Retirement |
 2030: Demand Response C&I | 50MW, 4-Hr Battery | 10MW Solar |

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Clean Energy	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Renewable Energy MWh	285,558	363,422	510,187	551,630	554,141	552,125	552,511	554,469	554,257	552,790	577,625	579,870	581,199	578,716	579,782	527,747	528,692	528,641	530,173	530,595	534,794
Renewable Energy % of Retail Sales	13.54%	16.31%	23.04%	25.09%	25.40%	25.53%	25.79%	26.13%	26.38%	26.51%	27.90%	28.16%	28.36%	28.32%	28.44%	25.95%	26.03%	26.00%	26.04%	26.01%	26.16%
Renewable Energy % of Underlying Retail Sales	12.16%	14.57%	20.35%	21.89%	21.89%	21.70%	21.62%	21.60%	21.49%	21.35%	22.22%	22.22%	22.19%	22.02%	21.99%	19.96%	19.94%	19.88%	19.88%	19.83%	19.92%
Renewable Energy RPS	682,092	431,576	578,371	620,462	622,311	620,215	621,084	623,319	622,051	621,362	645,232	648,438	649,613	647,496	647,156	595,523	597,146	596,384	597,880	599,479	602,599
Renewable Energy % of Retail Sales	32.33%	19.36%	26.12%	28.22%	28.52%	28.67%	28.99%	29.37%	29.60%	29.80%	31.17%	31.49%	31.70%	31.68%	31.75%	29.28%	29.40%	29.33%	29.37%	29.39%	29.47%
Renewable Energy % of Underlying Retail Sales	29.04%	17.31%	23.07%	24.62%	24.58%	24.38%	24.30%	24.28%	24.12%	23.99%	24.82%	24.84%	24.80%	24.63%	24.54%	22.52%	22.52%	22.43%	22.42%	22.41%	22.45%
Energy Efficiency - Cumulative MWh	239,413	264,975	292,946	321,013	350,127	380,991	413,655	445,340	477,408	504,530	529,947	550,694	570,510	584,683	598,430	610,806	620,652	625,845	631,703	635,631	639,604
Energy Efficiency - Cumulative % of Underlying Retail Sales	10.19%	10.63%	11.68%	12.74%	13.83%	14.98%	16.18%	17.35%	18.51%	19.48%	20.38%	21.10%	21.78%	22.24%	22.70%	23.10%	23.40%	23.53%	23.68%	23.76%	23.83%
Energy Efficiency - Annual Incremental MWh		25,562	27,971	28,067	29,114	30,864	32,664	31,685	32,068	27,122	25,417	20,747	19,816	14,173	13,748	12,376	9,846	5,193	5,858	3,928	3,973
Energy Efficiency - Annual Incremental % of Retail Sales		1.15%	1.26%	1.28%	1.33%	1.43%	1.52%	1.49%	1.53%	1.30%	1.23%	1.01%	0.97%	0.69%	0.67%	0.61%	0.26%	0.29%	0.29%	0.19%	0.19%
Energy Efficiency - Annual Incremental % of Underlying Retail Sales		1.03%	1.12%	1.11%	1.15%	1.21%	1.28%	1.23%	1.24%	1.05%	0.98%	0.79%	0.76%	0.54%	0.52%	0.47%	0.37%	0.20%	0.22%	0.15%	0.15%
Demand Response MWh	-	-	-	-	-	-	-	-	-	-	957	966	945	916	941	968	989	970	937	927	962
Demand Response % of Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.05%	0.05%	0.05%	0.04%	0.05%	0.05%	0.05%	0.05%	0.05%	0.05%	
Demand Response % of Underlying Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.04%	0.04%	0.04%	0.03%	0.04%	0.04%	0.04%	0.04%	0.04%	0.03%	0.04%
Clean Energy Credits	921,505	696,550	871,317	941,475	972,437	1,001,206	1,034,739	1,068,658	1,099,459	1,125,892	1,176,136	1,200,098	1,221,068	1,233,094	1,246,528	1,207,298	1,218,787	1,223,199	1,230,520	1,236,037	1,243,165
Clean Energy % of Underlying Retail Sales	39.23%	27.93%	34.75%	37.36%	38.41%	39.36%	40.48%	41.62%	42.63%	43.48%	45.23%	45.98%	46.61%	46.91%	47.27%	45.65%	45.96%	46.00%	46.13%	46.20%	46.32%
Clean Installed Capacity	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Renewable Energy MW	145.0	143.8	223.8	249.8	249.8	249.9	250.0	250.1	250.2	250.3	260.5	260.9	261.3	261.9	262.4	244.0	245.0	246.1	247.6	249.3	251.3
Renewable Energy % of Peak Demand	33.57%	33.02%	52.36%	58.03%	59.14%	60.45%	61.37%	61.96%	62.12%	63.93%	66.48%	67.34%	68.60%	69.03%	68.27%	65.69%	65.53%	65.57%	66.85%	67.16%	67.53%
Renewable Energy % of Underlying Peak Demand	31.05%	30.17%	47.07%	51.45%	51.53%	51.69%	51.52%	51.16%	50.55%	51.06%	52.48%	52.48%	52.75%	51.76%	49.02%	48.71%	48.55%	48.55%	49.07%	49.14%	49.27%
Energy Efficiency - Cumulative MW	34.3	40.4	47.2	54.3	61.5	69.2	76.9	84.2	91.1	97.5	103.3	108.3	112.8	116.9	120.4	123.8	126.0	128.0	129.8	130.9	131.7
Energy Efficiency - Cumulative % of Underlying Peak Demand	7.35%	8.48%	9.93%	11.17%	12.68%	14.31%	15.86%	17.23%	18.41%	19.89%	20.82%	21.78%	22.77%	23.46%	23.76%	24.87%	25.06%	25.25%	25.73%	25.80%	25.82%
Energy Efficiency - Annual Incremental MW		6.1	6.8	7.0	7.2	7.7	7.8	7.2	6.9	6.4	5.8	5.0	4.5	4.1	3.6	3.3	2.3	2.0	1.8	1.1	0.8
Energy Efficiency - Annual Incremental % of Peak Demand		1.41%	1.59%	1.63%	1.71%	1.86%	1.90%	1.80%	1.72%	1.64%	1.48%	1.28%	1.19%	1.07%	0.93%	0.89%	0.60%	0.53%	0.48%	0.29%	0.22%
Energy Efficiency - Annual Incremental % of Underlying Peak Demand		1.29%	1.43%	1.45%	1.49%	1.59%	1.60%	1.48%	1.40%	1.31%	1.17%	1.00%	0.91%	0.81%	0.71%	0.67%	0.45%	0.39%	0.35%	0.21%	0.16%
Demand Response MW	-	-	-	-	-	-	-	-	-	-	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7
Demand Response % of Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.98%	3.02%	3.07%	3.08%	3.04%	3.15%	3.13%	3.11%	3.16%	3.15%	3.14%
Demand Response % of Underlying Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.36%	2.35%	2.36%	2.35%	2.31%	2.35%	2.32%	2.31%	2.32%	2.30%	2.29%
Battery Storage MW	-	-	-	-	-	-	-	-	-	-	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
Battery Storage % of Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	12.76%	12.91%	13.12%	13.18%	13.01%	13.46%	13.38%	13.32%	13.50%	13.47%	13.44%
Battery Storage % of Underlying Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	10.07%	10.06%	10.09%	10.04%	9.86%	10.05%	9.94%	9.86%	9.91%	9.86%	9.80%
Clean Installed Capacity MW	179	184	271	304	311	319	327	334	341	348	426	431	436	440	445	429	433	436	439	442	445
Clean Installed Capacity % of Underlying Peak Demand	38.40%	38.65%	57.00%	62.62%	64.21%	66.00%	67.38%	68.38%	68.96%	70.96%	85.73%	86.67%	87.98%	88.42%	87.69%	86.28%	86.04%	85.96%	87.03%	87.10%	87.18%



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	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	
Total Costs w/ Post Processing	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01	
Erickson	\$ 27,449,556	\$ 24,047,964	\$ 22,679,706	\$ 18,779,338	\$ 20,770,578	\$ 20,462,597	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Belle River 1	\$ 20,180,514	\$ 19,057,383	\$ 16,752,597	\$ 18,645,871	\$ 19,022,577	\$ 17,479,968	\$ 19,333,282	\$ 19,955,203	\$ 18,192,186	\$ 20,148,330	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Belle River 2	\$ 18,481,974	\$ 18,036,989	\$ 18,282,341	\$ 17,026,555	\$ 19,329,478	\$ 17,865,860	\$ 19,931,986	\$ 19,882,706	\$ 19,882,706	\$ 18,471,625	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Reo	\$ 20,347,070	\$ 19,996,626	\$ 17,791,177	\$ 17,812,816	\$ 17,814,228	\$ 18,045,110	\$ 18,194,818	\$ 18,194,818	\$ 18,424,576	\$ 18,968,300	\$ 21,620,346	\$ 21,316,153	\$ 21,858,349	\$ 21,823,695	\$ 22,058,091	\$ 22,117,653	\$ 22,418,071	\$ 22,525,316	\$ 22,924,689	\$ 23,248,296	\$ 23,613,261	
DEP CC	\$ -	\$ 22,793,292	\$ 41,876,576	\$ 43,793,390	\$ 43,830,012	\$ 45,043,454	\$ 40,154,463	\$ 38,712,622	\$ 38,479,981	\$ 39,038,531	\$ 50,441,472	\$ 51,421,174	\$ 53,465,224	\$ 54,646,697	\$ 55,203,047	\$ 56,315,701	\$ 58,235,263	\$ 59,509,265	\$ 61,197,108	\$ 62,642,689	\$ 64,642,689	
DEP CT	\$ -	\$ 3,806,710	\$ 3,736,975	\$ 3,613,926	\$ 3,552,399	\$ 3,406,838	\$ 2,527,075	\$ 2,162,758	\$ 2,238,730	\$ 2,347,995	\$ 2,725,394	\$ 2,477,636	\$ 2,498,233	\$ 2,400,955	\$ 2,435,892	\$ 2,417,634	\$ 2,378,544	\$ 2,301,025	\$ 2,389,185	\$ 2,366,135	\$ 2,370,734	
New Gas 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Gas 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Gas 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Granger Wood Rd	\$ 5,498,401	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Granger Grand River	\$ 1,098,338	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Beebe 1b	\$ 2,810,094	\$ 2,881,790	\$ 2,935,240	\$ 3,001,689	\$ 3,110,049	\$ 3,180,931	\$ 3,233,418	\$ 3,319,856	\$ 3,430,425	\$ 3,467,648	\$ 3,577,849	\$ 3,664,435	\$ 3,785,223	\$ 3,851,962	\$ 3,946,688	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Cedar Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Reo Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Delta Solar	\$ 2,071,241	\$ 2,125,679	\$ 2,179,775	\$ 2,255,318	\$ 2,289,179	\$ 2,344,044	\$ 2,419,906	\$ 2,490,124	\$ 2,519,496	\$ 2,605,472	\$ 2,633,397	\$ 2,737,369	\$ 2,799,726	\$ 2,885,170	\$ 2,911,877	\$ 3,002,480	\$ 3,108,229	\$ 3,152,620	\$ 3,230,459	\$ 3,368,471	\$ 3,397,986	
Community Solar	\$ 31,218	\$ 32,679	\$ 32,679	\$ 36,615	\$ 34,151	\$ 35,459	\$ 36,864	\$ 36,755	\$ 36,266	\$ 38,023	\$ 37,977	\$ 39,701	\$ 39,412	\$ 40,510	\$ 41,189	\$ 41,937	\$ 43,076	\$ 43,977	\$ 45,356	\$ 45,316	\$ 45,316	
Pegasus Wind	\$ 4,832,819	\$ 10,576,306	\$ 10,806,092	\$ 10,899,541	\$ 11,152,903	\$ 11,252,975	\$ 11,401,970	\$ 11,639,005	\$ 11,834,136	\$ 11,926,829	\$ 12,172,382	\$ 12,344,787	\$ 12,633,706	\$ 12,666,508	\$ 12,846,864	\$ 13,164,223	\$ 13,301,150	\$ 13,449,850	\$ 13,630,961	\$ 13,707,748	\$ 13,707,748	\$ 13,707,748
Ranger Solar	\$ -	\$ 796,075	\$ 5,112,963	\$ 5,609,504	\$ 5,735,435	\$ 5,977,841	\$ 6,095,060	\$ 6,237,296	\$ 6,328,682	\$ 6,468,640	\$ 6,606,621	\$ 6,706,705	\$ 6,836,818	\$ 7,129,331	\$ 7,445,730	\$ 7,823,378	\$ 7,445,730	\$ 7,823,378	\$ 7,445,730	\$ 7,823,378	\$ 7,445,730	\$ 7,823,378
Calhoun Solar Energy Center	\$ -	\$ -	\$ 718,730	\$ 731,213	\$ 745,105	\$ 761,732	\$ 777,171	\$ 792,350	\$ 812,072	\$ 824,033	\$ 839,531	\$ 858,956	\$ 875,700	\$ 888,902	\$ 913,154	\$ 928,272	\$ 945,883	\$ 967,027	\$ 984,247	\$ 999,862	\$ 1,025,864	\$ 1,025,864
NextEra Solar	\$ -	\$ -	\$ -	\$ 1,629,816	\$ 1,652,721	\$ 1,665,368	\$ 1,728,549	\$ 1,771,589	\$ 1,751,921	\$ 1,846,395	\$ 1,842,985	\$ 1,918,540	\$ 1,924,493	\$ 1,975,341	\$ 2,009,975	\$ 2,055,677	\$ 2,108,020	\$ 2,126,464	\$ 2,178,041	\$ 2,249,944	\$ 2,258,245	\$ 2,258,245
DG - RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DG - C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
EE Legacy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
EE C&I	\$ -	\$ 2,516,311	\$ 2,852,688	\$ 3,163,776	\$ 3,434,120	\$ 3,731,863	\$ 3,979,914	\$ 4,106,733	\$ 4,111,678	\$ 4,071,332	\$ 3,866,807	\$ 4,340,643	\$ 4,338,491	\$ 4,965,556	\$ 4,945,488	\$ 4,939,785	\$ 5,259,557	\$ 5,289,295	\$ 5,225,256	\$ 5,302,132	\$ 5,246,658	
EE RES	\$ -	\$ 868,854	\$ 1,053,166	\$ 1,198,268	\$ 1,314,506	\$ 1,503,652	\$ 1,693,971	\$ 1,887,439	\$ 2,080,833	\$ 2,277,161	\$ 2,451,619	\$ 2,190,574	\$ 2,148,800	\$ 2,116,280	\$ 2,090,309	\$ 2,055,197	\$ 2,193,219	\$ 2,196,603	\$ 2,198,303	\$ 2,226,454	\$ 2,240,093	
DR C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DR RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Local Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New External Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New External Wind	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Battery Charge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Battery Discharge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CONS.LANS Purchase - BR	\$ 36,392,963	\$ 36,954,407	\$ 36,082,561	\$ 35,135,855	\$ 35,213,411	\$ 35,149,814	\$ 36,134,034	\$ 35,932,842	\$ 36,162,894	\$ 37,022,229	\$ 37,022,229	\$ 37,022,229	\$ 37,022,229	\$ 37,022,229	\$ 37,022,229	\$ 37,022,229	\$ 37,022,229	\$ 37,022,229	\$ 37,022,229	\$ 37,022,229	\$ 37,022,229	
CONS.LANS Purchase - METC	\$ 1,028,113	\$ 503,325	\$ 106,503	\$ 84,191	\$ 115,228	\$ 109,002	\$ 350,062	\$ 449,625	\$ 482,622	\$ 497,654	\$ 1,917,615	\$ 1,981,885	\$ 2,091,914	\$ 2,167,099	\$ 2,235,699	\$ 2,312,693	\$ 2,373,128	\$ 2,483,951	\$ 2,466,733	\$ 2,518,641	\$ 2,577,882	
CONS.LANS Purchase	\$ 1,760,420	\$ 271,339	\$ 60,447	\$ 38,989	\$ 68,944	\$ 53,904	\$ 248,785	\$ 370,214	\$ 361,248	\$ 425,668	\$ 3,936,181	\$ 3,478,554	\$ 3,484,827	\$ 3,893,227	\$ 4,175,984	\$ 4,916,991	\$ 4,946,638	\$ 5,399,697	\$ 5,834,767	\$ 5,917,692	\$ 6,362,528	
Emergency Energy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Dump Energy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CONS.LANS Sale	\$ (13,340,364)	\$ (32,261,598)	\$ (49,418,326)	\$ (46,705,367)	\$ (48,871,855)	\$ (47,594,805)	\$ (30,528,893)	\$ (28,316,180)	\$ (28,209,714)	\$ (29,308,737)	\$ (8,392,228)	\$ (6,696,653)	\$ (6,970,006)	\$ (6,372,864)	\$ (6,572,419)	\$ (5,740,989)	\$ (5,559,790)	\$ (4,266,640)	\$ (4,466,335)	\$ (4,047,471)	\$ (3,791,845)	
DECO.BLR Sale	\$ (21,425,117)	\$ (21,499,876)	\$ (18,463,203)	\$ (17,421,337)	\$ (20,360,762)	\$ (17,368,997)	\$ (18,509,817)	\$ (20,736,152)	\$ (17,757,979)	\$ (18,035,746)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
External Renewable Sale	\$ (4,929,810)	\$ (9,214,193)	\$ (13,260,237)	\$ (13,363,618)	\$ (13,408,159)	\$ (13,730,765)	\$ (13,730,765)	\$ (13,843,645)	\$ (13,843,645)	\$ (14,019,958)	\$ (14,149,029)	\$ (13,319,809)	\$ (13,703,541)	\$ (13,369,578)	\$ (13,502,144)	\$ (11,698,886)	\$ (11,629,038)	\$ (11,292,661)	\$ (11,114,141)	\$ (10,815,763)	\$ (10,792,257)	
Electric Vehicle Program	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Capacity Purchase	\$ 231,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Capacity Sale	\$ -	\$ (1,063,748)	\$ (1,320,073)	\$ (1,320,073)	\$ (1,320,073)	\$ (1,320,073)	\$ (615,180)	\$ (640,812)	\$ (647,220)	\$ (724,118)	\$ (421,750)	\$ (470,400)	\$ (538,620)	\$ (550,080)	\$ (492,780)	\$ (578,050)	\$ (546,520)	\$ (525,500)	\$ (588,560)	\$ (578,050)	\$ (474,660)	
Total Total Costs w/ Post Processing	\$ 102,518,429	\$ 101,225,624	\$ 100,529,362	\$ 104,766,696	\$ 105,106,606	\$ 109,492,829	\$ 102,522,622															

IRP 1.3		2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	
Summary of Modeling																							
Model Configuration and Constraints		Expansion Plan:																					
35% Clean Energy in 2025, 40% Clean Energy in 2030 Erickson Retires December 2025 and Dispatched Optimally Max Annual Incremental Energy Efficiency Pegasus Online 7/1/2020 Regular Growth No Incentive for Electric Vehicles No Incentive for Customer Solar Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy Question Answered: What is the impact of maximum energy efficiency investment with our current goals?		2021: 10MW Solar C&I Bins 1, 2, 3, 4 & 5; Res Bins 1, 2, 3, 4 & 5 2022: 80MW Solar 2023: 26MW Solar 2025: Erickson Retirement 2030: Demand Response C&I 50MW, 4-Hr Battery 10MW Solar																					
Summary Metrics		2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01	
Total Cost		\$ 102,518,429	\$ 101,225,624	\$ 100,529,362	\$ 104,766,696	\$ 105,106,606	\$ 109,492,829	\$ 102,522,622	\$ 104,509,282	\$ 106,574,507	\$ 108,217,350	\$ 96,142,913	\$ 99,574,148	\$ 101,974,913	\$ 105,324,383	\$ 106,475,867	\$ 107,572,724	\$ 110,913,145	\$ 114,309,498	\$ 115,951,768	\$ 119,259,892	\$ 108,349,036	
Nominal Rates		\$ 48.60	\$ 45.42	\$ 45.40	\$ 47.64	\$ 48.17	\$ 50.62	\$ 47.86	\$ 49.25	\$ 50.72	\$ 51.90	\$ 46.44	\$ 48.35	\$ 49.77	\$ 51.53	\$ 52.24	\$ 52.89	\$ 54.60	\$ 56.21	\$ 56.96	\$ 58.46	\$ 52.99	
Accumulated Net Present Value Total Cost		\$ 102,518,429	\$ 199,236,969	\$ 291,013,464	\$ 382,399,756	\$ 470,000,358	\$ 557,193,440	\$ 635,200,754	\$ 711,179,085	\$ 785,209,041	\$ 857,033,162	\$ 918,002,289	\$ 978,335,795	\$ 1,037,372,835	\$ 1,095,634,036	\$ 1,151,909,743	\$ 1,206,233,677	\$ 1,259,750,624	\$ 1,312,450,538	\$ 1,363,527,402	\$ 1,413,722,411	\$ 1,457,294,707	
Accumulated NPV Retail Sales		2,109,624	4,239,077	6,260,643	8,178,767	9,997,153	11,719,593	13,349,615	14,892,398	16,352,087	17,735,987	19,048,762	20,296,607	21,482,889	22,613,412	23,690,740	24,717,760	25,697,879	26,635,371	27,532,061	28,390,673	29,212,878	
Accumulated NPV Rate Impact		\$ 48.60	\$ 47.00	\$ 46.48	\$ 46.76	\$ 47.01	\$ 47.54	\$ 47.58	\$ 47.75	\$ 48.02	\$ 48.32	\$ 48.19	\$ 48.20	\$ 48.29	\$ 48.45	\$ 48.62	\$ 48.80	\$ 49.02	\$ 49.27	\$ 49.53	\$ 49.80	\$ 49.89	
Risk Premium		\$ 16,065,176	\$ 23,559,202	\$ 33,391,947	\$ 31,228,631	\$ 30,985,825	\$ 29,689,996	\$ 24,493,253	\$ 21,013,899	\$ 20,662,187	\$ 24,916,665	\$ 19,318,634	\$ 13,607,994	\$ 18,380,703	\$ 15,923,614	\$ 17,783,369	\$ 14,147,320	\$ 15,670,672	\$ 15,610,027	\$ 11,703,054	\$ 12,803,810	\$ 9,259,989	
Present Value of Risk Premium		\$ 16,065,176	\$ 22,510,226	\$ 30,484,584	\$ 27,240,229	\$ 25,824,989	\$ 23,643,213	\$ 18,636,403	\$ 15,277,122	\$ 14,352,596	\$ 16,537,252	\$ 12,250,932	\$ 8,245,293	\$ 10,641,267	\$ 8,808,301	\$ 9,399,047	\$ 7,144,358	\$ 7,561,291	\$ 7,196,664	\$ 5,155,207	\$ 5,388,965	\$ 3,723,881	
Accumulated NPV Risk Premium		\$ 16,065,176	\$ 38,575,402	\$ 69,059,986	\$ 96,300,215	\$ 122,125,203	\$ 145,768,416	\$ 164,404,819	\$ 179,681,940	\$ 194,034,536	\$ 210,571,788	\$ 222,822,720	\$ 231,068,013	\$ 241,709,280	\$ 250,517,580	\$ 259,916,627	\$ 267,060,985	\$ 274,622,276	\$ 281,818,940	\$ 286,974,147	\$ 292,363,111	\$ 296,086,993	
Total Cost with Risk Premium		\$ 118,583,605	\$ 124,784,826	\$ 133,921,309	\$ 135,995,327	\$ 136,092,431	\$ 139,182,826	\$ 127,015,875	\$ 125,523,182	\$ 127,236,694	\$ 133,134,016	\$ 115,461,547	\$ 113,182,142	\$ 120,355,616	\$ 121,247,997	\$ 124,259,236	\$ 121,720,044	\$ 126,583,818	\$ 129,919,524	\$ 127,654,823	\$ 132,063,703	\$ 117,609,025	
Present Value of Total Cost with Risk Premium		\$ 118,583,605	\$ 119,228,766	\$ 122,261,079	\$ 118,626,521	\$ 113,425,591	\$ 110,836,294	\$ 96,643,717	\$ 91,255,453	\$ 88,382,551	\$ 88,361,374	\$ 73,220,058	\$ 68,578,799	\$ 69,678,308	\$ 67,069,501	\$ 65,674,754	\$ 61,468,292	\$ 61,078,238	\$ 59,896,577	\$ 56,232,071	\$ 55,583,974	\$ 47,296,177	
Accumulated NPV Total Cost with Risk Premium		\$ 118,583,605	\$ 237,812,371	\$ 360,073,449	\$ 478,699,970	\$ 592,125,561	\$ 702,961,856	\$ 799,605,572	\$ 890,861,026	\$ 979,243,577	\$ 1,067,604,950	\$ 1,140,825,008	\$ 1,209,403,807	\$ 1,279,082,115	\$ 1,346,151,616	\$ 1,411,826,370	\$ 1,473,294,662	\$ 1,534,372,900	\$ 1,594,269,477	\$ 1,650,501,548	\$ 1,706,085,522	\$ 1,753,381,700	
Percent Dispatchable Generation		70.2%	78.7%	71.5%	69.1%	68.6%	68.1%	61.5%	61.0%	60.5%	60.0%	54.2%	53.8%	53.5%	53.2%	52.9%	53.9%	53.7%	53.5%	53.3%	53.1%	52.9%	
Resource Diversity		0.66	0.50	0.58	0.60	0.60	0.61	0.56	0.56	0.57	0.57	0.51	0.52	0.52	0.53	0.53	0.51	0.51	0.52	0.52	0.52	0.53	
Annual CO2 Emissions - Tons		1,493,816	1,735,627	1,808,181	1,763,745	1,882,709	1,771,646	1,311,819	1,354,547	1,221,066	1,213,576	906,864	893,767	883,308	871,191	857,788	846,862	840,014	830,058	826,448	822,441	816,637	
Accumulated CO2 Emissions - Tons		1,493,816	3,229,443	5,037,624	6,801,369	8,684,078	10,455,724	11,767,543	13,122,090	14,343,155	15,556,731	16,463,596	17,357,363	18,240,671	19,111,862	19,969,650	20,816,511	21,656,525	22,486,584	23,313,032	24,135,473	24,952,110	
Average CO2 Emissions per Year - Tons		1,493,816	1,614,722	1,679,208	1,700,342	1,736,816	1,742,621	1,681,078	1,640,261	1,593,684	1,555,673	1,496,691	1,446,447	1,403,129	1,365,133	1,331,310	1,301,032	1,273,913	1,249,255	1,227,002	1,206,774	1,188,196	
Annual CO2 Intensity - lbs/MWh Generated		1,331.2	1,130.1	988.3	950.5	984.2	948.5	834.6	859.1	808.1	795.3	588.2	580.4	574.1	568.8	563.2	568.2	564.5	560.8	558.9	557.2	554.3	
Total CO2 Emissions Reduced from 2005		65.8%	60.3%	58.6%	59.6%	56.9%	59.4%	70.0%	69.0%	72.0%	72.2%	79.2%	79.5%	79.8%	80.1%	80.4%	80.8%	81.0%	81.0%	81.1%	81.2%	81.3%	
CO2 Intensity Reduced from 2005		42.3%	51.0%	57.2%	58.8%	57.3%	58.9%	63.8%	62.8%	65.0%	65.5%	74.5%	74.8%	75.1%	75.3%	75.6%	75.4%	75.5%	75.7%	75.8%	75.9%	76.0%	
Annual NOx Emissions - Tons		1,012	964	852	808	911	828	567	630	539	530	157	152	148	144	141	139	136	133	134	132	131	
Accumulated NOx Emissions - Tons		1,012	1,976	2,828	3,636	4,546	5,374	5,941	6,571	7,110	7,639	7,796	7,948	8,096	8,240	8,381	8,520	8,656	8,790	8,923	9,055	9,186	
Average NOx Emissions per Year - Tons		1,012	988	943	909	909	896	849	821	790	764	709	662	623	589	559	533	509	488	470	453	437	
Annual NOx Intensity - lbs/MWh Generated		0.9	0.6	0.5	0.4	0.5	0.4	0.4	0.4	0.4	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
Total NOx Emissions Reduced from 2005		76.9%	78.0%	80.5%	81.5%	79.2%	81.1%	87.0%	85.6%	87.7%	87.9%	96.4%	96.5%	96.6%	96.7%	96.8%	96.8%	96.9%	96.9%	96.9%	97.0%	97.0%	
NOx Intensity Reduced from 2005		61.0%	72.8%	79.8%	81.2%	79.4%	80.8%	84.4%	82.7%	84.6%	85.0%	95.6%	95.7%	95.8%	95.8%	95.9%	96.0%	96.0%	96.1%	96.1%	96.1%	96.2%	
Annual SO2 Emissions - Tons		3,190	2,834	2,415	2,262	2,639	2,367	1,558	1,812	1,496	1,456	9	9	9	9	9	9	8	8	8	8	8	
Accumulated SO2 Emissions - Tons		3,190	6,024	8,439	10,701	13,339	15,707	17,264	19,076	20,572	22,028	22,038	22,047	22,055	22,064	22,073	22,082	22,090	22,099	22,107	22,116	22,124	
Average SO2 Emissions per Year - Tons		3,190	3,012	2,813	2,675	2,668	2,618	2,466	2,384	2,286	2,203	2,003	1,837	1,697	1,576	1,472	1,380	1,299	1,228	1,164	1,106	1,054	
Annual SO2 Intensity - lbs/MWh Generated		2.8	1.8	1.3	1.2	1.4	1.3	1.0	1.1	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total SO2 Emissions Reduced from 2005		71.2%	74.4%	78.2%	79.6%	76.2%	78.6%	85.9%	83.6%	86.5%	86.8%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	
SO2 Intensity Reduced from 2005		51.4%	68.4%	77.4%	79.2%	76.4%	78.3%	83.1%	80.4%	83.1%	83.7%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	
Renewable Energy MWh %		14%	16%	23%	25%	25%	26%	26%	26%	27%	28%	28%	28%	28%	28%	28%	26%	26%	26%	26%	26%	26%	
Renewable Energy RPS %		32%	19%	26%	28%	29%	29%	29%	29%	30%	30%	31%	31%	32%	32%	32%	29%	29%	29%	29%	29%	29%	
Energy Efficiency %		10%	11%	12%	13%	14%	15%	16%	17%	19%	19%	20%	21%	22%	22%	23%	23%	24%	24%	24%	24%	24%	
Clean Energy %		39%	28%	35%	37%	38%	39%	40%	42%	43%	43%	45%	46%	47%	47%	47%	46%	46%	46%	46%	46%	46%	

1.4 v1: Model Configuration & Constraints

35% Clean Energy in 2025

40% Clean Energy in 2030

Erickson Retires December 2025 and Dispatched Optimally

1% Annual Incremental Energy Efficiency

Pegasus Online 7/1/2020

High Growth

No Incentive for Electric Vehicles

No Incentive for Customer Solar

Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy

Expansion Plan

2021: 10 MW Solar | C&I Bins 1, 2 & 3; Res Bins 1, 3 & 5

2022: 80 MW Solar

2023: 26 MW Solar

2025: Erickson Retirement

2030: Demand Response C&I | 125 MW, 4-Hr Battery | 1.5MW Solar

IRP 1.4

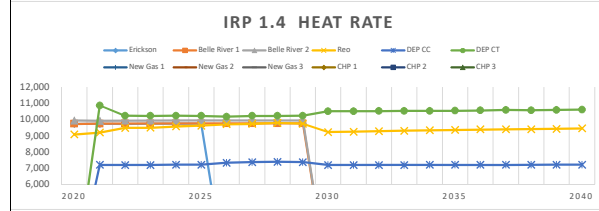
Summary of Modeling

Model Configuration and Constraints
 35% Clean Energy in 2025, 40% Clean Energy in 2030 | Erickson Retires December 2025 and Dispatched Optimally | 1% Annual Incremental Energy Efficiency | Pegasus Online 7/1/2020 | High Growth | No Incentive for Electric Vehicles | No Incentive for Customer Solar | Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy | Question Answered: What is the impact of significantly increasing customer load with our current goals?

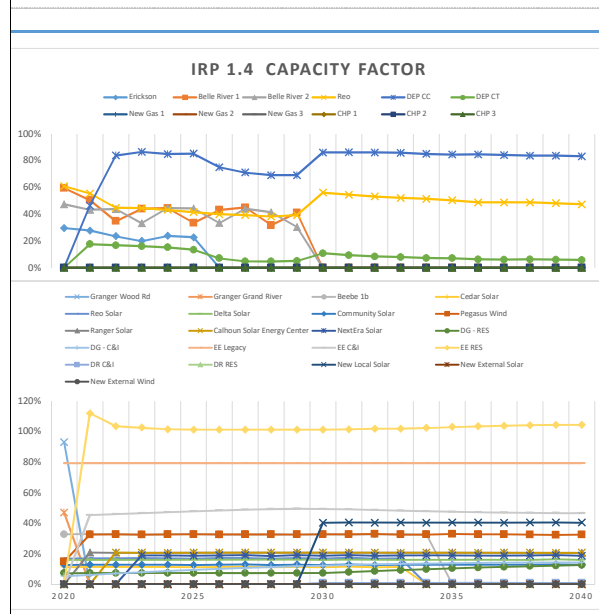
Expansion Plan:
 2021: 10MW Solar | C&I Bins 1, 2 & 3; Res Bins 1, 3 & 5 | 2022: 80MW Solar | 2023: 26MW Solar | 2025: Erickson Retirement | 2030: Demand Response C&I | 125MW, 4-Hr Battery | 1.5MW Solar |

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
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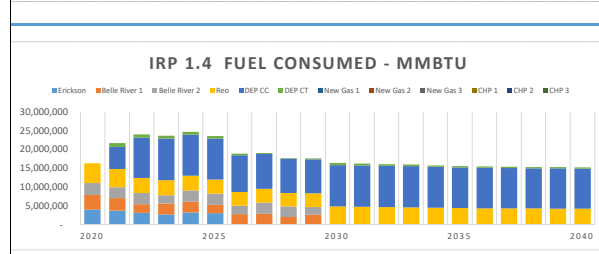
	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
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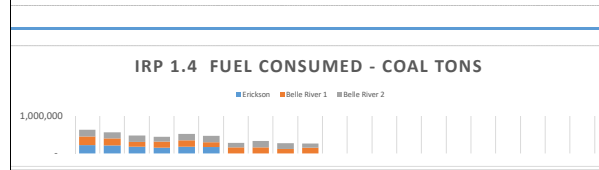
Resource	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Erickson	9,727	9,737	9,729	9,740	9,733	9,734	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Belle River 1	9,728	9,739	9,749	9,748	9,749	9,753	9,754	9,757	9,756	9,761	--	--	--	--	--	--	--	--	--	--	--
Belle River 2	9,929	9,913	9,924	9,937	9,927	9,931	9,933	9,933	9,931	9,938	--	--	--	--	--	--	--	--	--	--	--
Reo	9,072	9,196	9,479	9,492	9,566	9,612	9,703	9,724	9,794	9,732	9,221	9,246	9,281	9,297	9,329	9,354	9,393	9,392	9,400	9,422	9,447
DEP CC	--	7,200	7,189	7,192	7,209	7,207	7,330	7,368	7,391	7,375	7,192	7,192	7,194	7,196	7,198	7,200	7,202	7,202	7,204	7,207	7,207
DEP CT	--	10,865	10,231	10,215	10,224	10,221	10,174	10,222	10,217	10,228	10,500	10,508	10,513	10,528	10,523	10,538	10,554	10,584	10,561	10,587	10,602
New Gas 1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Gas 2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Gas 3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--



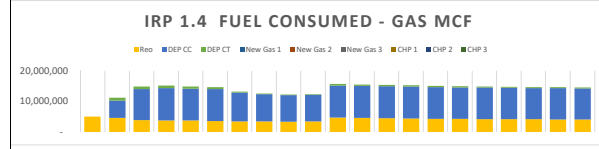
Resource	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Erickson	30%	28%	24%	20%	24%	23%	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Belle River 1	60%	51%	35%	44%	45%	34%	43%	45%	32%	41%	--	--	--	--	--	--	--	--	--	--	--
Belle River 2	47%	43%	44%	33%	45%	44%	33%	44%	41%	31%	--	--	--	--	--	--	--	--	--	--	--
Reo	61%	56%	45%	45%	43%	42%	40%	39%	38%	39%	56%	55%	53%	52%	52%	50%	49%	49%	49%	48%	47%
DEP CC	--	46%	84%	87%	85%	85%	75%	71%	69%	69%	86%	86%	86%	86%	85%	85%	85%	84%	84%	84%	83%
DEP CT	--	18%	17%	16%	15%	13%	7%	5%	5%	5%	11%	9%	8%	8%	7%	7%	6%	6%	6%	6%	6%
New Gas 1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Gas 2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Gas 3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Granger Wood Rd	93%	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Granger Grand River	47%	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beebe 1b	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	--	--	--	--	--	--
Cedar Solar	11%	11%	11%	11%	11%	11%	11%	12%	11%	12%	11%	12%	11%	11%	--	--	--	--	--	--	--
Reo Solar	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	--	--	--	--	--	--	--
Delta Solar	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%
Community Solar	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%
Pegasus Wind	15%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	32%	33%
Ranger Solar	--	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%
Calhoun Solar Energy Center	--	--	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%
NextEra Solar	--	--	--	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%
DG-RES	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	8%	9%	9%	10%	10%	11%	11%	12%	12%	13%
DG-C&I	5%	6%	7%	8%	9%	10%	10%	11%	11%	12%	12%	13%	13%	14%	14%	14%	14%	14%	14%	14%	14%
EE Legacy	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%
EE C&I	--	45%	46%	47%	47%	48%	48%	49%	49%	50%	49%	49%	49%	48%	48%	48%	47%	47%	47%	47%	47%
EE RES	--	112%	104%	103%	102%	102%	101%	101%	101%	101%	101%	102%	102%	102%	103%	103%	104%	104%	104%	105%	105%
DR C&I	--	--	--	--	--	--	--	--	--	--	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
DR RES	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Local Solar	--	--	--	--	--	--	--	--	--	--	40%	41%	40%	41%	40%	41%	41%	40%	40%	41%	40%
New External Solar	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New External Wind	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--



Resource	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Erickson	4,035,251	3,774,758	3,204,548	2,719,216	3,242,610	3,084,802	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Belle River 1	3,922,042	3,327,200	2,292,975	2,899,147	2,939,687	2,208,601	2,845,108	2,964,137	2,100,283	2,706,917	-	-	-	-	-	-	-	-	-	-	-
Belle River 2	3,188,106	2,901,844	2,935,689	2,229,383	2,998,625	2,970,189	2,238,329	2,951,056	2,782,277	2,045,004	-	-	-	-	-	-	-	-	-	-	-
Reo	5,265,685	4,849,201	4,037,251	4,013,413	3,935,744	3,792,432	3,680,520	3,639,233	3,569,555	3,632,365	4,916,582	4,800,576	4,708,014	4,615,583	4,564,215	4,481,579	4,376,579	4,364,620	4,360,337	4,319,477	4,262,385
DEP CC	-	5,935,441	10,713,932	11,068,761	10,900,450	9,796,927	9,325,137	9,105,746	9,070,700	10,997,744	11,021,680	11,031,483	10,985,424	10,875,233	10,875,233	10,821,409	10,864,197	10,787,854	10,711,494	10,716,385	10,697,838
DEP CT	-	960,046	859,600	820,921	782,873	690,237	363,992	249,175	243,089	263,848	566,721	493,940	446,922	424,164	386,219	374,403	337,383	322,357	334,753	323,746	308,578
New Gas 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Resource	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Erickson	229,276	214,475	182,077	154,501	184,239	175,273	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Belle River 1	222,843	189,045	130,283	164,724	167,028	125,489	161,654	168,417	119,334	153,802	-	-	-	-	-	-	-	-	-	-	-
Belle River 2	181,142	164,877	166,801	126,670	170,376	168,761	127,178	167,674	158,084	116,193	-	-	-	-	-	-	-	-	-	-	-



Resource	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	202
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IRP 1.4

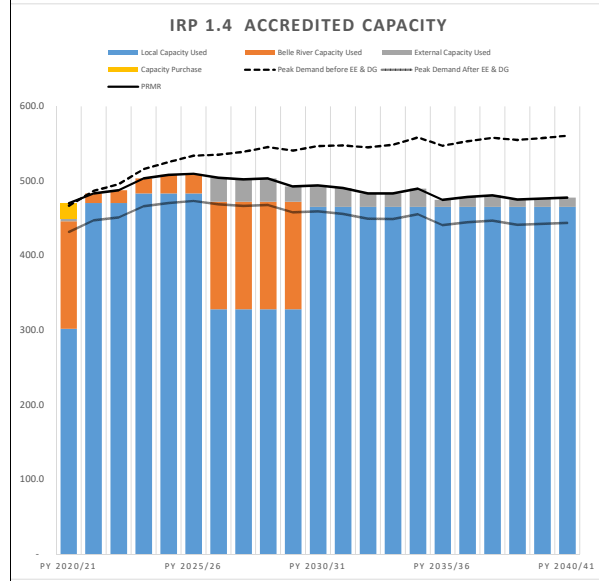
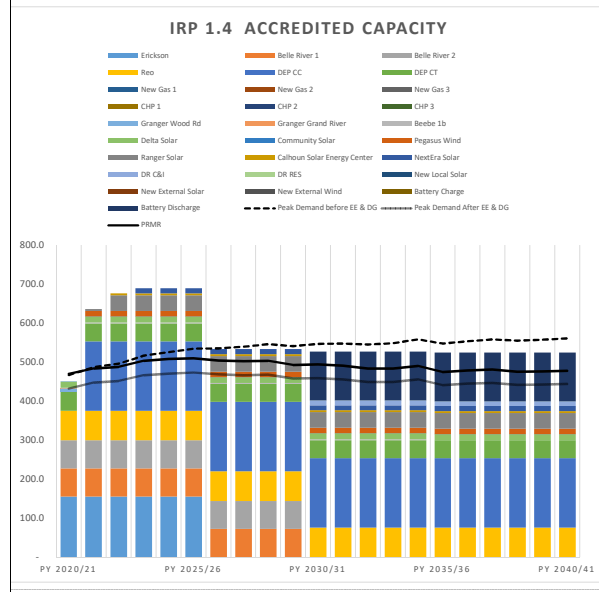
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2021: 10MW Solar | C&I Bins 1, 2 & 3; Res Bins 1, 3 & 5 | 2022: 80MW Solar | 2023: 26MW Solar | 2025: Erickson Retirement | 2030: Demand Response C&I | 125MW, 4-Hr Battery | 1.5MW Solar |

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
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	PY 2020/21	PY 2021/22	PY 2022/23	PY 2023/24	PY 2024/25	PY 2025/26	PY 2026/27	PY 2027/28	PY 2028/29	PY 2029/30	PY 2030/31	PY 2031/32	PY 2032/33	PY 2033/34	PY 2034/35	PY 2035/36	PY 2036/37	PY 2037/38	PY 2038/39	PY 2039/40	PY 2040/41
Accredited Capacity																					
Peak Demand before EE & DG	466.9	486.9	495.7	516.0	525.4	534.1	535.4	539.0	545.7	540.8	546.9	547.8	545.2	548.7	558.3	547.3	553.4	557.9	554.8	557.7	560.7
Net Load Offsets																					
EE Legacy	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3
EE C&I	-	4.1	8.5	13.3	18.4	23.6	28.9	33.8	38.5	42.9	46.9	50.4	53.8	56.8	59.7	62.5	64.3	66.0	67.5	68.4	69.0
EE RES	-	0.4	0.9	1.3	1.5	2.0	2.6	3.3	3.9	4.6	5.3	5.8	6.2	6.5	6.8	6.9	7.1	7.1	7.1	7.1	7.1
DG - RES	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.6	0.7	0.8	0.9	1.0	1.2
DG - C&I	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.5	0.6	0.7	0.9	1.1	1.4	1.7	2.1	2.6	3.1	3.8	4.6
Cedar Solar	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-	-	-	-	-	-	-
Reo Solar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Community Solar	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Peak Demand After EE & DG	431.8	447.4	451.1	466.3	470.4	473.2	468.7	466.6	467.9	457.9	459.2	455.9	449.4	449.1	455.3	441.0	444.7	446.9	441.5	442.7	444.1
Reserve Margin Percent	1.089	1.080	1.081	1.080	1.080	1.077	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076
PRMR	470.2	483.1	487.7	503.6	508.0	509.7	504.3	502.1	503.4	492.7	494.1	490.5	483.5	483.2	489.9	474.6	478.5	480.9	475.1	476.4	477.8
Local Capacity																					
Erickson	155.4	155.4	155.4	155.4	155.4	155.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Reo	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0
DEP CC	-	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7
DEP CT	49.2	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3
New Gas 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Granger Wood Rd	6.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Delta Solar	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1
NextEra Solar	-	-	-	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9
DR C&I	-	-	-	-	-	-	-	-	-	-	-	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7
DR RES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Local Solar	-	-	-	-	-	-	-	-	-	-	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Battery Charge	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Battery Discharge	-	-	-	-	-	-	-	-	-	-	125.0	125.0	125.0	125.0	125.0	125.0	125.0	125.0	125.0	125.0	125.0
Total Local Capacity	301.9	470.5	470.5	483.4	483.4	483.4	328.0	328.0	328.0	328.0	465.4	465.4	465.4	465.4	465.4	465.4	465.4	465.4	465.4	465.4	465.4
Transmission Entitlements																					
Belle River Transmission Entitlement	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	-	-	-	-	-	-	-	-	-	-	-
Belle River 1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	-	-	-	-	-	-	-	-	-	-	-
Belle River 2	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	-	-	-	-	-	-	-	-	-	-	-
Remaining Entitlement	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	-	-	-	-	-	-	-	-	-	-	-
METC Settlement Entitlement	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6
Total Transmission Entitlements Remaining	18.4	18.4	18.4	18.4	18.4	18.4	18.4	18.4	18.4	18.4	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6
External Capacity																					
Granger Grand River	1.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Beebe 1b	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
Pegasus Wind	-	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
Ranger Solar	-	5.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
Calhoun Solar Energy Center	-	-	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
New External Solar	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New External Wind	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Available External Capacity	3.5	21.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	59.0	59.0	59.0	59.0	59.0	59.0
Summary																					
PRMR	470.2	483.1	487.7	503.6	508.0	509.7	504.3	502.1	503.4	492.7	494.1	490.5	483.5	483.2	489.9	474.6	478.5	480.9	475.1	476.4	477.8
Local Capacity Used	301.9	470.5	470.5	483.4	483.4	483.4	328.0	328.0	328.0	328.0	465.4	465.4	465.4	465.4	465.4	465.4	465.4	465.4	465.4	465.4	465.4
Local Capacity Remaining	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Capacity Used	301.9	470.5	470.5	483.4	483.4	483.4	328.0	328.0	328.0	328.0	465.4	465.4	465.4	465.4	465.4	465.4	465.4	465.4	465.4	465.4	465.4
Capacity Short	168.3	12.7	17.2	20.2	24.6	26.3	176.3	174.1	175.4	164.7	28.7	25.1	18.1	17.8	24.5	9.1	13.1	15.5	9.6	10.9	12.4
Belle River Capacity Used	144.2	12.7	17.2	20.2	24.6	26.3	144.2	144.2	144.2	144.2	-	-	-	-	-	-	-	-	-	-	-
Belle River Capacity Remaining	-	131.5	127.0	124.0	119.6	117.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Capacity Used	446.1	483																			

IRP 1.4

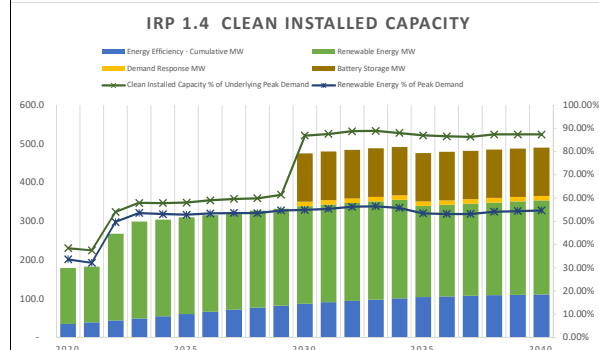
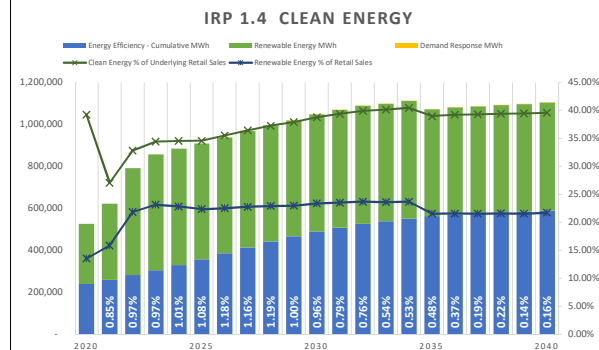
Summary of Modeling

Model Configuration and Constraints
 35% Clean Energy in 2025, 40% Clean Energy in 2030 | Erickson Retires December 2025 and Dispatched Optimally | 1% Annual Incremental Energy Efficiency | Pegasus Online 7/1/2020 | High Growth | No Incentive for Electric Vehicles | No Incentive for Customer Solar | Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy | Question Answered: What is the impact of significantly increasing customer load with our current goals?

Expansion Plan:

2021: 10MW Solar | C&I Bins 1, 2 & 3; Res Bins 1, 3 & 5 | 2022: 80MW Solar | 2023: 26MW Solar | 2025: Erickson Retirement | 2030: Demand Response C&I | 125MW, 4-Hr Battery | 1.5MW Solar |

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Clean Energy	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Renewable Energy MWh	285,558	363,422	510,187	551,630	554,141	552,125	552,511	554,469	554,257	552,790	558,917	560,780	562,430	559,848	560,847	508,821	509,769	509,791	511,148	511,525	516,075
Renewable Energy % of Retail Sales	13.54%	15.86%	21.82%	23.15%	22.83%	22.37%	22.54%	22.78%	22.93%	23.00%	23.37%	23.53%	23.69%	23.62%	23.70%	21.54%	21.59%	21.57%	21.60%	21.57%	21.72%
Renewable Energy % of Underlying Retail Sales	12.16%	14.25%	19.48%	20.52%	20.11%	19.55%	19.48%	19.47%	19.39%	19.26%	19.41%	19.40%	19.40%	19.25%	19.23%	17.40%	17.39%	17.34%	17.34%	17.31%	17.41%
Renewable Energy RPS	682,092	431,576	578,371	620,462	622,311	620,215	621,084	623,319	622,051	621,362	626,524	629,347	630,845	628,629	628,221	576,597	578,223	577,533	578,855	580,409	583,880
Renewable Energy % of Retail Sales	32.33%	18.84%	24.74%	26.03%	25.64%	25.13%	25.34%	25.60%	25.74%	25.85%	26.20%	26.41%	26.57%	26.52%	26.55%	24.41%	24.49%	24.43%	24.46%	24.47%	24.57%
Renewable Energy % of Underlying Retail Sales	29.04%	16.93%	22.08%	23.08%	22.88%	21.96%	21.90%	21.90%	21.76%	21.65%	21.75%	21.78%	21.76%	21.61%	21.54%	19.72%	19.72%	19.65%	19.64%	19.64%	19.70%
Energy Efficiency - Cumulative MWh	239,413	258,772	281,539	304,634	329,108	355,870	384,759	412,991	441,698	465,728	488,568	507,385	525,316	538,137	550,663	561,970	570,804	575,363	580,589	583,972	587,679
Energy Efficiency - Cumulative % of Underlying Retail Sales	10.19%	10.15%	10.75%	11.33%	11.94%	12.60%	13.57%	14.50%	15.45%	16.23%	16.96%	17.56%	18.12%	18.50%	18.88%	19.22%	19.47%	19.57%	19.70%	19.76%	19.83%
Energy Efficiency - Annual Incremental MWh		19,360	22,767	23,095	24,474	26,762	28,889	28,231	28,707	24,031	22,839	18,817	17,931	12,822	12,526	11,307	8,834	4,559	5,226	3,383	3,707
Energy Efficiency - Annual Incremental % of Retail Sales		0.85%	0.97%	0.97%	1.01%	1.08%	1.18%	1.16%	1.19%	1.00%	0.96%	0.79%	0.76%	0.54%	0.53%	0.48%	0.37%	0.19%	0.22%	0.14%	0.16%
Energy Efficiency - Annual Incremental % of Underlying Retail Sales		0.76%	0.87%	0.86%	0.89%	0.95%	1.02%	0.99%	1.00%	0.84%	0.79%	0.65%	0.62%	0.44%	0.43%	0.39%	0.30%	0.16%	0.18%	0.11%	0.13%
Demand Response MWh	-	-	-	-	-	-	941	923	925	965	956	973	947	920	947	973	989	977	943	934	968
Demand Response % of Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.04%	0.04%	0.04%	0.04%	0.04%	0.04%	0.04%	0.04%	0.04%	0.04%	0.04%	0.04%	0.04%	0.04%	
Demand Response % of Underlying Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	
Clean Energy Credits	921,505	690,348	859,910	925,096	951,419	976,085	1,006,785	1,037,232	1,064,673	1,088,056	1,116,048	1,137,705	1,157,108	1,167,686	1,179,831	1,139,540	1,150,017	1,153,873	1,160,387	1,165,315	1,172,527
Clean Energy % of Underlying Retail Sales	39.23%	27.08%	32.83%	34.42%	34.52%	34.56%	35.50%	36.43%	37.24%	37.92%	38.75%	39.37%	39.91%	40.15%	40.45%	38.97%	39.22%	39.26%	39.37%	39.43%	39.56%
Clean Installed Capacity	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Renewable Energy MW	145.0	143.8	223.8	249.8	249.8	249.9	250.0	250.1	250.2	250.3	252.0	252.4	252.8	253.4	253.9	235.5	236.5	237.6	239.1	240.8	242.8
Renewable Energy % of Peak Demand	33.57%	32.14%	49.62%	53.57%	53.11%	52.80%	53.33%	53.59%	53.47%	54.67%	54.87%	55.36%	56.27%	56.42%	55.76%	53.39%	53.17%	53.17%	54.14%	54.38%	54.67%
Renewable Energy % of Underlying Peak Demand	31.05%	29.53%	45.16%	48.40%	47.55%	46.79%	46.68%	46.39%	45.84%	46.28%	46.08%	46.07%	46.37%	46.18%	45.48%	43.03%	42.73%	42.59%	43.09%	43.17%	43.30%
Energy Efficiency - Cumulative MW	34.3	38.7	43.7	48.9	54.2	59.9	65.8	71.4	76.8	81.8	86.4	90.5	94.3	97.7	100.8	103.7	105.6	107.4	108.9	109.8	110.4
Energy Efficiency - Cumulative % of Underlying Peak Demand	7.35%	7.96%	8.82%	9.47%	10.31%	11.22%	12.29%	13.24%	14.07%	15.13%	15.81%	16.52%	17.29%	17.80%	18.06%	18.95%	19.09%	19.24%	19.63%	19.68%	19.69%
Energy Efficiency - Annual Incremental MW		4.4	5.0	5.1	5.3	5.8	5.9	5.6	5.4	5.0	4.6	4.1	3.7	3.4	3.1	2.9	1.9	1.7	1.6	0.9	0.7
Energy Efficiency - Annual Incremental % of Peak Demand		0.99%	1.11%	1.10%	1.12%	1.22%	1.26%	1.19%	1.15%	1.10%	1.01%	0.89%	0.83%	0.76%	0.69%	0.66%	0.43%	0.38%	0.35%	0.19%	0.15%
Energy Efficiency - Annual Incremental % of Underlying Peak Demand		0.91%	1.01%	1.00%	1.01%	1.08%	1.10%	1.03%	0.99%	0.93%	0.85%	0.74%	0.68%	0.62%	0.56%	0.53%	0.35%	0.31%	0.28%	0.15%	0.12%
Demand Response MW	-	-	-	-	-	-	-	-	-	-	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	
Demand Response % of Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.55%	2.56%	2.60%	2.60%	2.57%	2.65%	2.63%	2.62%	2.65%	2.63%	
Demand Response % of Underlying Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.14%	2.13%	2.14%	2.13%	2.09%	2.14%	2.11%	2.10%	2.11%	2.10%	
Battery Storage MW	-	-	-	-	-	-	-	-	-	-	125.0	125.0	125.0	125.0	125.0	125.0	125.0	125.0	125.0	125.0	
Battery Storage % of Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	27.22%	27.42%	27.82%	27.83%	27.45%	28.34%	28.11%	27.97%	28.31%	28.24%	
Battery Storage % of Underlying Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	22.86%	22.82%	22.93%	22.78%	22.39%	22.84%	22.59%	22.40%	22.53%	22.41%	
Clean Installed Capacity MW	179	183	268	299	304	310	316	321	327	332	475	480	484	488	491	476	479	482	485	487	490
Clean Installed Capacity % of Underlying Peak Demand	38.40%	37.49%	53.98%	57.88%	57.85%	58.01%	58.98%	59.64%	59.91%	61.41%	86.88%	87.55%	88.73%	88.90%	88.02%	86.95%	86.52%	86.34%	87.36%	87.37%	



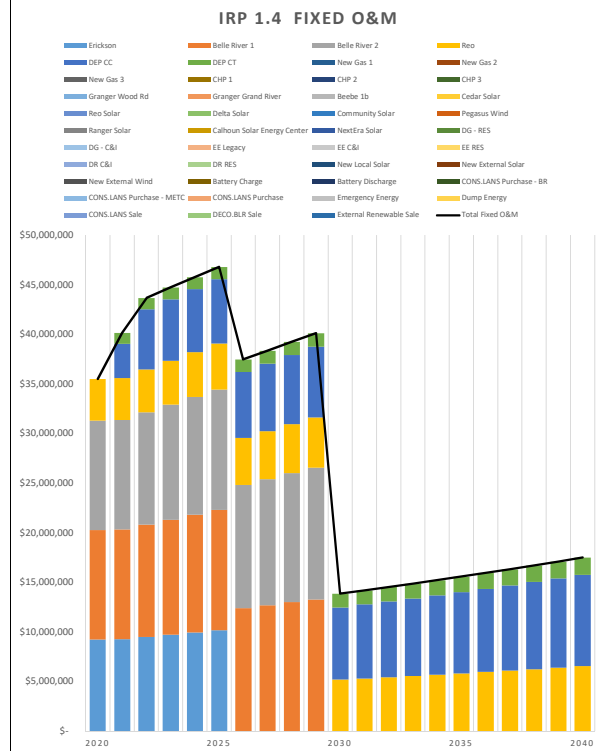
IRP 1.4

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 Solar | 2023: 26MW Solar | 2025: Erickson Retirement | 2030: Demand
 Response C&I | 125MW, 4-Hr Battery | 1.5MW Solar |

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Fixed O&M																					
Erickson	\$ 9,253,780	\$ 9,272,961	\$ 9,502,518	\$ 9,728,812	\$ 9,956,452	\$ 10,166,484	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Belle River 1	\$ 11,026,481	\$ 11,049,336	\$ 11,322,868	\$ 11,592,513	\$ 11,863,760	\$ 12,137,409	\$ 12,418,189	\$ 12,706,066	\$ 13,002,483	\$ 13,282,352	\$ 13,562,221	\$ 13,842,090	\$ 14,121,959	\$ 14,401,828	\$ 14,681,697	\$ 14,961,566	\$ 15,241,435	\$ 15,521,304	\$ 15,801,173	\$ 16,081,042	\$ 16,360,911
Belle River 2	\$ 11,026,481	\$ 11,049,336	\$ 11,322,868	\$ 11,592,513	\$ 11,863,760	\$ 12,137,409	\$ 12,418,189	\$ 12,706,066	\$ 13,002,483	\$ 13,282,352	\$ 13,562,221	\$ 13,842,090	\$ 14,121,959	\$ 14,401,828	\$ 14,681,697	\$ 14,961,566	\$ 15,241,435	\$ 15,521,304	\$ 15,801,173	\$ 16,081,042	\$ 16,360,911
Reo	\$ 4,202,450	\$ 4,212,588	\$ 4,316,815	\$ 4,419,591	\$ 4,522,980	\$ 4,627,311	\$ 4,734,359	\$ 4,844,120	\$ 4,957,142	\$ 5,073,783	\$ 5,193,170	\$ 5,315,365	\$ 5,440,435	\$ 5,568,449	\$ 5,699,474	\$ 5,833,583	\$ 5,970,747	\$ 6,111,011	\$ 6,255,411	\$ 6,404,025	\$ 6,552,971
DEP CC	\$ -	\$ 3,453,722	\$ 6,058,589	\$ 6,202,869	\$ 6,348,007	\$ 6,494,430	\$ 6,644,668	\$ 6,798,704	\$ 6,957,310	\$ 7,121,015	\$ 7,288,573	\$ 7,460,073	\$ 7,635,608	\$ 7,815,274	\$ 7,999,167	\$ 8,187,388	\$ 8,380,037	\$ 8,577,219	\$ 8,779,041	\$ 8,985,612	\$ 9,197,044
DEP CT	\$ -	\$ 1,121,260	\$ 1,149,077	\$ 1,176,442	\$ 1,203,969	\$ 1,231,739	\$ 1,260,234	\$ 1,289,448	\$ 1,319,529	\$ 1,350,578	\$ 1,382,357	\$ 1,414,884	\$ 1,448,176	\$ 1,482,252	\$ 1,517,129	\$ 1,552,827	\$ 1,589,365	\$ 1,626,763	\$ 1,665,041	\$ 1,704,219	\$ 1,744,319
New Gas 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Granger Wood Rd	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Granger Grand River	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Beebe 1b	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Cedar Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Reo Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Delta Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Community Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Pegasus Wind	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ranger Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Calhoun Solar Energy Center	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
NextEra Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DG - RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DG - C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
EE Legacy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
EE C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
EE RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DR C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DR RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Local Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New External Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New External Wind	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Battery Charge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Battery Discharge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CONS.LANS Purchase - BR	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CONS.LANS Purchase - METC	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CONS.LANS Purchase	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Emergency Energy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Dump Energy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CONS.LANS Sale	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DECO.BLR Sale	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
External Renewable Sale	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Fixed O&M	\$ 35,509,191	\$ 40,159,203	\$ 43,672,735	\$ 44,712,740	\$ 45,758,927	\$ 46,794,783	\$ 47,475,638	\$ 48,344,405	\$ 49,238,947	\$ 50,110,081	\$ 51,064,099	\$ 52,064,322	\$ 53,104,220	\$ 54,186,975	\$ 55,315,771	\$ 56,495,798	\$ 57,721,250	\$ 59,000,324	\$ 60,328,223	\$ 61,712,156	\$ 63,158,944



	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Fixed O&M per MWh																					
Erickson	\$ 22.31	\$ 23.92	\$ 28.85	\$ 34.85	\$ 29.88	\$ 32.08	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Belle River 1	\$ 27.35	\$ 32.34	\$ 48.14	\$ 38.98	\$ 39.35	\$ 53.60	\$ 42.58	\$ 41.82	\$ 60.40	\$ 47.89	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Belle River 2	\$ 34.34	\$ 37.74	\$ 38.28	\$ 51.67	\$ 39.28	\$ 40.58	\$ 55.11	\$ 42.77	\$ 46.41	\$ 64.55	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Reo	\$ 7.24	\$ 7.99	\$ 10.14	\$ 10.45	\$ 10.99	\$ 11.73	\$ 12.48	\$ 12.94	\$ 13.60	\$ 13.59	\$ 9.74	\$ 10.24	\$ 10.72	\$ 11.22	\$ 11.65	\$ 12.18	\$ 12.81	\$ 13.15	\$ 13.48	\$ 13.97	\$ 14.52
DEP CC	\$ -	\$ 4.19	\$ 4.07	\$ 4.03	\$ 4.20	\$ 4.29	\$ 4.97	\$ 5.37	\$ 5.65	\$ 5.79	\$ 4.77	\$ 4.87	\$ 4.98	\$ 5.12	\$ 5.29	\$ 5.45	\$ 5.73	\$ 5.90	\$ 6.04	\$ 6.20	\$ 6.20
DEP CT	\$ -	\$ 12.69	\$ 13.68	\$ 14.64	\$ 15.72	\$ 18.24	\$ 35.23	\$ 52.90	\$ 55.46	\$ 52.35	\$ 25.61	\$ 30.10	\$ 34.07	\$ 36.79	\$ 41.34	\$ 43.70	\$ 49.72	\$ 53.41	\$ 52.53	\$ 55.73	\$ 59.93
New Gas 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Granger Wood Rd	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Granger Grand River	\$ -																				

IRP 1.4	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	
Summary of Modeling																						
Model Configuration and Constraints	Expansion Plan:																					
35% Clean Energy in 2025, 40% Clean Energy in 2030 Erickson Retires December 2025 and Dispatched Optimally 1% Annual Incremental Energy Efficiency Pegasus Online 7/1/2020 High Growth No Incentive for Electric Vehicles No Incentive for Customer Solar Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy Question Answered: What is the impact of significantly increasing customer load with our current goals?	2021: 10MW Solar C&I Bins 1, 2 & 3; Res Bins 1, 3 & 5 2022: 80MW Solar 2023: 26MW Solar 2025: Erickson Retirement 2030: Demand Response C&I 125MW, 4-Hr Battery 1.5MW Solar																					
Post Processing Costs - Coal Penalties	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01	
Coal on Ground Year Start	200,000	-	-																			
Coal Needed	229,276	214,475	182,077																			
Pile used first pile remaining	200,000	-	-																			
Ending Pile	-	-	-																			
Deliveries Used	29,276	214,475	182,077																			
Penalty Tons	370,724	185,525	217,923																			
Erickson - Coal Penalties (PRB)	\$ 982,420	\$ 491,642	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Erickson - Rail Penalties (BNSF/CN)	\$ 4,302,684	\$ 2,218,701	\$ 2,686,313	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Post Processing Costs - Customer Programs	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01	
EE C&I	\$ -	\$ 1,927,998	\$ 2,236,862	\$ 2,541,845	\$ 2,822,942	\$ 3,143,712	\$ 3,426,552	\$ 3,587,237	\$ 3,650,577	\$ 3,671,777	\$ 3,569,314	\$ 4,000,628	\$ 4,015,937	\$ 4,292,621	\$ 4,301,564	\$ 4,339,053	\$ 4,697,335	\$ 4,796,973	\$ 4,789,353	\$ 4,837,838	\$ 4,801,417	
EE RES	\$ -	\$ 627,475	\$ 746,789	\$ 825,481	\$ 873,268	\$ 992,891	\$ 1,112,347	\$ 1,232,513	\$ 1,352,209	\$ 1,473,129	\$ 1,570,366	\$ 1,320,972	\$ 1,273,873	\$ 1,231,922	\$ 1,196,363	\$ 1,154,211	\$ 1,283,659	\$ 1,276,845	\$ 1,267,652	\$ 1,282,604	\$ 1,284,848	
DR C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 205,053	\$ 174,775	\$ 260,973	\$ 279,054	\$ 265,795	\$ 260,654	\$ 261,215	\$ 263,458	\$ 266,176	\$ 269,105	\$ 275,202	
DR RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DG - RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DG - C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Electric Vehicles	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Post Processing Costs - Capital & FOM	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01	
New Gas 1 - Capital	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Gas 1 - FOM	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Gas 2 - Capital	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Gas 2 - FOM	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Gas 3 - Capital	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Gas 3 - FOM	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 1 - Capital	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 1 - FOM	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 2 - Capital	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 2 - FOM	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 3 - Capital	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 3 - FOM	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Local Solar - Capital	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 120,194	\$ 117,224	\$ 114,253	\$ 111,282	\$ 108,311	\$ 105,341	\$ 102,370	\$ 99,399	\$ 96,428	\$ 93,458	\$ 90,487	
New Local Solar - FOM	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 17,340	\$ 17,340	\$ 17,340	\$ 17,340	\$ 17,340	\$ 17,340	\$ 17,340	\$ 17,340	\$ 17,340	\$ 17,340	\$ 17,340	
New External Solar - Capital	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New External Solar - FOM	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New External Wind - Capital	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New External Wind - FOM	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Battery - Capital	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 11,505,205	\$ 11,220,840	\$ 10,936,474	\$ 10,652,109	\$ 10,367,744	\$ 10,083,378	\$ 9,799,013	\$ 9,514,647	\$ 9,230,282	\$ 8,945,917	\$ 8,661,551	
Battery - FOM	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Post Processing Costs - Capacity Expense	PY 2020/21	PY 2021/22	PY 2022/23	PY 2023/24	PY 2024/25	PY 2025/26	PY 2026/27	PY 2027/28	PY 2028/29	PY 2029/30	PY 2030/31	PY 2031/32	PY 2032/33	PY 2033/34	PY 2034/35	PY 2035/36	PY 2036/37	PY 2037/38	PY 2038/39	PY 2039/40	PY 2040/41	
Capacity Price - Purchase (\$/kW-Mo)	\$ 0.92	\$ 0.94	\$ 0.97	\$ 1.00	\$ 1.03	\$ 1.06	\$ 1.09	\$ 1.13	\$ 1.16	\$ 1.20	\$ 1.23	\$ 1.27	\$ 1.31	\$ 1.35	\$ 1.39	\$ 1.43	\$ 1.47	\$ 1.52	\$ 1.56	\$ 1.61	\$ 1.66	
Capacity Price - Sale (\$/kW-Mo)	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 1.00	\$ 0.98	\$ 0.96	\$ 0.96	\$ 0.96	\$ 0.88	\$ 0.88	\$ 0.88	\$ 0.88	\$ 0.88	\$ 0.73	
Capacity Purchase	\$ 231,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Local Capacity Sale	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
External Capacity Sale	\$ -	\$ (980,443)	\$ (1,211,135)	\$ (1,191,911)	\$ (1,159,870)	\$ (1,153,462)	\$ (192,244)	\$ (205,060)	\$ (198,652)	\$ (262,733)	\$ (397,650)	\$ (435,120)	\$ (504,240)	\$ (504,240)	\$ (424,020)	\$ (525,500)	\$ (483,460)	\$ (462,440)	\$ (525,500)	\$ (514,990)	\$ (413,130)	
Post Processing Costs - Transmission Expense	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01	
Transmission - BR - Total Annual MWs during Peak	1,799.3	1,773.8	1,761.0	1,756.3	1,729.2	1,728.6	1,739.8	1,737.9	1,735.3	1,731.9	-	-	-	-	-	-	-	-	-	-	-	
Transmission - BR - Average Monthly MWs during Peak	149.9	147.8	146.8	144.4	144.1	144.0	145.0	144.8	144.6	144.3	-	-	-	-	-	-	-	-	-	-	-	
Transmission - METC - Total Annual MWs during Peak	106.9	57.6	27.6	24.3	32.2	33.6	53.2	56.7	61.8	61.2	128.3	130.1	132.5	136.3	136.7	138.6	139.0	143.1	142.5	144.3	145.9	
Transmission - METC - Average Monthly MWs during Peak	8.9	4.8	2.3	2.0	2.7	2.8	4.4	4.7	5.1	5.1	10.7	10.8	11.0	11.4	11.4	11.5	11.6	11.9	11.9	12.0	12.2	
Transmission - Non-Entitlement - Total Annual MWs during Peak	412.1	117.1	44.6	39.3	56.0	62.7	91.3	87.8	92.3	80.1	491.9	503.5	502.0	531.8	551.6	531.8	551.2	559.5	579.1	558.7	572.0	
Transmission - Non-Entitlement - Average Monthly MWs during Peak	34.3	9.8	3.7	3.3	4.7	5.2	7.6	7.3	7.7	6.7	41.0	42.0	41.8	44.3	46.0	44.3	45.9	46.6	48.3	46.6	47.7	
PIP - CONS.LANS Purchase - BR - Fixed Expense	\$ 972,648	\$ 1,191,528	\$ 1,286,208	\$ 1,388,448	\$ 1,471,230	\$ 1,558,998	\$ 1,652,040	\$ 1,750,680	\$ 1,855,224	\$ 1,966,068	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
PIP - CONS.LANS Purchase - BR - Redirect Revenue	\$ (295)	\$ (13,027)	\$ (20,886)	\$ (25,262)	\$ (43,429)	\$ (46,394)	\$ (41,439)	\$ (45,269)	\$ (50,040)	\$ (55,770)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
NITS - CONS.LANS Purchase - BR - Fixed Expense	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
NITS - CONS.LANS Purchase - BR - Redirect Revenue	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
PIP - CONS.LANS Purchase - METC - Fixed Expense	\$ 119,908	\$ 138,678	\$ 146,823	\$ 155,606	\$ 162,755	\$ 170,322	\$ 178,334	\$ 186,818	\$ 195,799	\$ 205,308	\$ 215,378	\$ 226,042	\$ 237,337	\$ 249,299	\$ 261,966	\$ 27						

Model Configuration and Constraints
 35% Clean Energy in 2025, 40% Clean Energy in 2030 | Erickson Retires December 2025 and Dispatched Optimally | 1% Annual Incremental Energy Efficiency | Pegasus Online 7/1/2020 | High Growth | No Incentive for Electric Vehicles | No Incentive for Customer Solar | Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy | Question Answered: What is the impact of significantly increasing customer load with our current goals?

Expansion Plan:

2021: 10MW Solar | C&I Bins 1, 2 & 3; Res Bins 1, 3 & 5 | 2022: 80MW Solar | 2023: 26MW Solar | 2025: Erickson Retirement | 2030: Demand Response C&I | 125MW, 4-Hr Battery | 1.5MW Solar |

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	
Total Costs w/ Post Processing	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01	
Erickson	\$ 27,456,944	\$ 24,301,741	\$ 22,681,138	\$ 18,776,852	\$ 20,798,366	\$ 20,487,312	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Belle River 1	\$ 20,180,467	\$ 19,057,383	\$ 16,752,700	\$ 18,645,871	\$ 19,022,577	\$ 17,480,063	\$ 19,336,428	\$ 19,954,709	\$ 18,192,178	\$ 20,148,330	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Belle River 2	\$ 18,481,891	\$ 18,036,989	\$ 18,282,341	\$ 17,026,555	\$ 19,329,578	\$ 17,865,964	\$ 19,930,455	\$ 19,882,697	\$ 18,471,625	\$ 18,471,625	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Reo	\$ 20,345,185	\$ 20,095,450	\$ 17,244,691	\$ 17,871,932	\$ 17,903,449	\$ 18,096,716	\$ 18,240,500	\$ 18,461,475	\$ 19,007,439	\$ 24,051,420	\$ 24,009,704	\$ 24,701,115	\$ 24,893,527	\$ 25,305,789	\$ 25,502,105	\$ 25,873,138	\$ 26,297,136	\$ 26,750,061	\$ 27,202,435	\$ 27,673,949	\$ 27,673,949	
DEP CC	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DEP CT	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Gas 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Gas 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Gas 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Granger Wood Rd	\$ 5,498,401	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Granger Grand River	\$ 1,098,338	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Beebe 1b	\$ 2,810,094	\$ 2,881,790	\$ 2,935,240	\$ 3,001,689	\$ 3,110,049	\$ 3,180,931	\$ 3,233,418	\$ 3,319,856	\$ 3,430,425	\$ 3,467,648	\$ 3,577,849	\$ 3,664,435	\$ 3,785,223	\$ 3,851,962	\$ 3,946,688	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Cedar Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Reo Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Delta Solar	\$ 2,071,241	\$ 2,125,679	\$ 2,179,775	\$ 2,255,318	\$ 2,289,179	\$ 2,344,044	\$ 2,419,906	\$ 2,490,124	\$ 2,513,496	\$ 2,605,472	\$ 2,633,397	\$ 2,737,369	\$ 2,799,726	\$ 2,885,170	\$ 2,911,877	\$ 3,002,480	\$ 3,108,229	\$ 3,152,620	\$ 3,230,459	\$ 3,368,471	\$ 3,397,986	
Community Solar	\$ 31,218	\$ 32,679	\$ 32,679	\$ 34,151	\$ 34,151	\$ 34,151	\$ 35,864	\$ 36,755	\$ 36,266	\$ 38,023	\$ 37,977	\$ 39,701	\$ 39,412	\$ 40,510	\$ 41,189	\$ 41,937	\$ 43,076	\$ 43,977	\$ 45,356	\$ 45,356	\$ 45,316	
Pegasus Wind	\$ 4,832,819	\$ 10,576,306	\$ 10,806,092	\$ 10,899,541	\$ 11,152,903	\$ 11,252,975	\$ 11,401,970	\$ 11,639,005	\$ 11,834,136	\$ 11,926,829	\$ 12,172,382	\$ 12,344,787	\$ 12,633,706	\$ 12,846,864	\$ 13,164,223	\$ 13,301,150	\$ 13,449,850	\$ 13,630,961	\$ 13,770,748	\$ 13,909,853	\$ 14,028,264	\$ 14,128,848
Ranger Solar	\$ -	\$ 796,075	\$ 5,609,504	\$ 5,735,435	\$ 5,735,435	\$ 5,852,329	\$ 5,977,841	\$ 6,095,060	\$ 6,237,296	\$ 6,328,682	\$ 6,468,640	\$ 6,606,621	\$ 6,706,705	\$ 6,836,818	\$ 7,129,313	\$ 7,283,378	\$ 7,445,730	\$ 7,582,423	\$ 7,708,356	\$ 7,838,356	\$ 7,978,935	\$ 8,125,864
Calhoun Solar Energy Center	\$ -	\$ -	\$ 718,730	\$ 731,213	\$ 745,105	\$ 761,732	\$ 777,171	\$ 792,350	\$ 812,072	\$ 824,033	\$ 839,531	\$ 858,956	\$ 875,700	\$ 888,902	\$ 913,154	\$ 928,272	\$ 945,883	\$ 967,027	\$ 984,247	\$ 999,862	\$ 1,025,864	\$ 1,025,864
NextEra Solar	\$ -	\$ -	\$ -	\$ 1,629,816	\$ 1,652,721	\$ 1,665,368	\$ 1,728,549	\$ 1,771,589	\$ 1,751,921	\$ 1,846,395	\$ 1,842,985	\$ 1,918,540	\$ 1,924,493	\$ 1,975,341	\$ 2,009,975	\$ 2,055,677	\$ 2,108,020	\$ 2,126,464	\$ 2,178,041	\$ 2,249,944	\$ 2,258,245	\$ 2,258,245
DG - RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DG - C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
EE Legacy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
EE C&I	\$ -	\$ 1,927,998	\$ 2,236,862	\$ 2,541,845	\$ 2,822,942	\$ 3,143,712	\$ 3,426,552	\$ 3,587,237	\$ 3,650,577	\$ 3,671,777	\$ 3,569,314	\$ 4,000,628	\$ 4,015,937	\$ 4,292,621	\$ 4,301,564	\$ 4,339,053	\$ 4,697,335	\$ 4,796,973	\$ 4,789,353	\$ 4,837,838	\$ 4,801,417	
EE RES	\$ -	\$ 627,475	\$ 746,789	\$ 825,481	\$ 873,268	\$ 992,891	\$ 1,112,347	\$ 1,232,513	\$ 1,352,209	\$ 1,473,129	\$ 1,570,366	\$ 1,320,972	\$ 1,273,873	\$ 1,231,922	\$ 1,196,363	\$ 1,154,211	\$ 1,283,659	\$ 1,276,845	\$ 1,267,652	\$ 1,282,604	\$ 1,284,848	
DR C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DR RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Local Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New External Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New External Wind	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Battery Charge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Battery Discharge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CONS.LANS Purchase - BR	\$ 36,392,839	\$ 36,982,179	\$ 36,169,736	\$ 35,266,311	\$ 35,460,294	\$ 35,456,836	\$ 36,475,471	\$ 36,310,964	\$ 36,595,706	\$ 37,420,510	\$ (3,578,601)	\$ (3,165,724)	\$ (3,344,846)	\$ (3,274,753)	\$ (3,395,867)	\$ (3,202,545)	\$ (2,982,870)	\$ (3,008,465)	\$ (2,933,905)	\$ (2,875,230)	\$ (2,875,230)	
CONS.LANS Purchase - METC	\$ 1,028,066	\$ 532,619	\$ 134,471	\$ 120,181	\$ 169,188	\$ 179,739	\$ 411,800	\$ 522,451	\$ 556,735	\$ 582,948	\$ 2,450,386	\$ 2,472,487	\$ 2,561,191	\$ 2,606,138	\$ 2,639,988	\$ 2,675,858	\$ 2,717,703	\$ 2,783,681	\$ 2,753,506	\$ 2,775,664	\$ 2,818,267	
CONS.LANS Purchase	\$ 1,762,469	\$ 310,222	\$ 84,232	\$ 78,716	\$ 126,264	\$ 136,799	\$ 1,362,267	\$ 1,341,324	\$ 1,468,930	\$ 726,577	\$ 7,549,785	\$ 7,105,830	\$ 8,033,556	\$ 8,432,782	\$ 8,660,224	\$ 10,343,374	\$ 10,388,709	\$ 10,919,269	\$ 11,821,127	\$ 12,139,938	\$ 12,788,627	
Emergency Energy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Dump Energy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CONS.LANS Sale	\$ (13,349,565)	\$ (30,798,057)	\$ (46,062,305)	\$ (41,794,349)	\$ (42,564,888)	\$ (39,688,989)	\$ (23,676,255)	\$ (21,942,650)	\$ (21,934,966)	\$ (22,717,888)	\$ (4,482,320)	\$ (3,474,719)	\$ (3,733,051)	\$ (3,439,683)	\$ (3,657,799)	\$ (3,197,103)	\$ (3,115,370)	\$ (2,347,184)	\$ (2,510,763)	\$ (2,291,410)	\$ (2,161,179)	
DECO.BLR Sale	\$ (21,424,997)	\$ (21,499,876)	\$ (18,463,305)	\$ (17,421,337)	\$ (20,360,705)	\$ (17,369,163)	\$ (18,513,050)	\$ (20,733,749)	\$ (17,757,960)	\$ (18,035,746)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
External Renewable Sale	\$ (4,929,810)	\$ (9,214,193)	\$ (13,260,237)	\$ (13,363,618)	\$ (13,408,159)	\$ (13,730,765)	\$ (13,646,551)	\$ (13,843,645)	\$ (14,019,958)	\$ (14,149,029)	\$ (13,319,809)	\$ (13,703,541)	\$ (13,369,578)	\$ (13,502,144)	\$ (11,698,886)	\$ (11,629,038)	\$ (11,292,661)	\$ (11,114,141)	\$ (10,815,763)	\$ (10,792,257)	\$ (10,792,257)	
Electric Vehicle Program	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Capacity Purchase	\$ 231,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Capacity Sale	\$ -	\$ (980,443)	\$ (1,211,135)	\$ (1,191,911)	\$ (1,159,870)	\$ (1,153,462)	\$ (192,244)	\$ (205,060)	\$ (198,652)	\$ (262,733)	\$ (397,650)	\$ (435,120)	\$ (504,240)	\$ (504,240)	\$ (424,020)	\$ (525,500)	\$ (483,460)	\$ (462,440)	\$ (525,500)	\$ (514,990)	\$ (413,130)	
Total Total Costs w/ Post Processing	\$ 102,516,598	\$ 102,332,517	\$ 103,336,137	\$ 109,139,604	\$ 111,326,159	\$ 117,411,854	\$ 112,672,515	\$ 114,793,615	\$ 117,364,759	\$ 118,413,644	\$ 112,993,474	\$ 115,951,665	\$ 119,421,819	\$ 122,252,667	\$ 123,382,879	\$ 125,200,071	\$ 128,604,976	\$ 131,774,026	\$ 133,953,896	\$ 137,308,058	\$ 126,588,835	
Total Cost per Retail Sales MWh	\$ 48.59	\$ 44.67	\$ 44.20																			

1.5 v1: Model Configuration & Constraints

35% Clean Energy in 2025

40% Clean Energy in 2030

Erickson Retires December 2025 and Dispatched Optimally

1% Annual Incremental Energy Efficiency

Pegasus Online 7/1/2020

Regular Growth

High Incentives for Electric Vehicles

No Incentive for Customer Solar

Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy

Expansion Plan

2021: 10 MW Solar | C&I Bins 1, 2 & 3; Res Bins 1, 3 & 5 | Electric Vehicle High Incentive Program

2022: 80 MW Solar

2023: 26 MW Solar

2025: Erickson Retirement

2030: Demand Response C&I

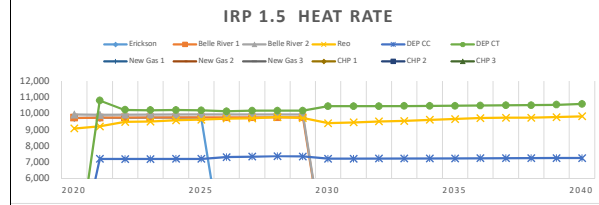
IRP 1.5

Summary of Modeling

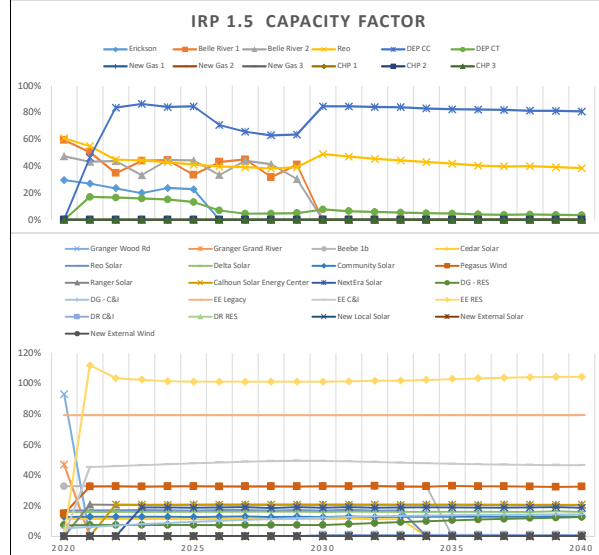
Model Configuration and Constraints
 35% Clean Energy in 2025, 40% Clean Energy in 2030 | Erickson Retires December 2025 and Dispatched Optimally | 1% Annual Incremental Energy Efficiency | Pegasus Online 7/1/2020 | Regular Growth | High Incentives for Electric Vehicles | No Incentive for Customer Solar | Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy Question Answered: What is the impact of incentivizing electric vehicles with our current goals?

Expansion Plan:
 2021: 10MW Solar | C&I Bins 1, 2 & 3; Res Bins 1, 3 & 5 | Electric Vehicle High Incentive Program | 2022: 80MW Solar | 2023: 26MW Solar | 2025: Erickson Retirement | 2030: Demand Response C&I |

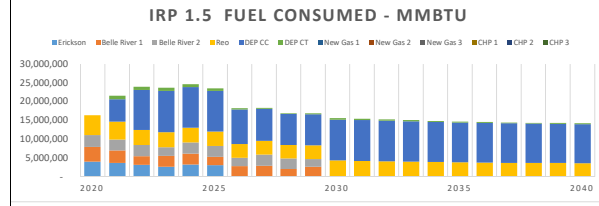
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	
Heat Rate																						
Erickson	9,727	9,737	9,729	9,740	9,733	9,734	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Belle River 1	9,728	9,739	9,749	9,748	9,749	9,753	9,754	9,756	9,756	9,761	--	--	--	--	--	--	--	--	--	--	--	--
Belle River 2	9,929	9,913	9,924	9,937	9,927	9,931	9,933	9,933	9,931	9,938	--	--	--	--	--	--	--	--	--	--	--	--
Reo	9,072	9,203	9,483	9,496	9,573	9,622	9,683	9,700	9,770	9,712	9,398	9,449	9,507	9,544	9,605	9,653	9,722	9,738	9,741	9,780	9,821	
DEP CC	--	7,200	7,188	7,192	7,205	7,203	7,308	7,342	7,362	7,347	7,213	7,215	7,222	7,224	7,228	7,233	7,238	7,238	7,240	7,245	7,247	
DEP CT	--	10,800	10,217	10,203	10,208	10,190	10,130	10,164	10,173	10,175	10,451	10,448	10,443	10,459	10,471	10,469	10,480	10,509	10,502	10,537	10,578	
New Gas 1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Gas 2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Gas 3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--



	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01	
Capacity Factor																						
Erickson	30%	27%	24%	20%	24%	23%	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Belle River 1	60%	51%	35%	44%	45%	34%	43%	45%	32%	41%	--	--	--	--	--	--	--	--	--	--	--	--
Belle River 2	47%	43%	44%	33%	44%	33%	33%	44%	41%	31%	--	--	--	--	--	--	--	--	--	--	--	--
Reo	61%	55%	45%	44%	43%	41%	40%	39%	38%	39%	49%	47%	46%	44%	43%	42%	40%	40%	40%	39%	39%	
DEP CC	--	46%	84%	87%	84%	85%	71%	66%	63%	64%	85%	85%	84%	84%	83%	83%	82%	81%	81%	81%	81%	
DEP CT	--	17%	17%	16%	15%	13%	7%	5%	5%	5%	8%	6%	6%	5%	5%	5%	4%	4%	4%	4%	3%	
New Gas 1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Gas 2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Gas 3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Granger Wood Rd	93%	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Granger Grand River	47%	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beebe 1b	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	--	--	--	--	--	--	--
Cedar Solar	11%	11%	11%	11%	11%	11%	11%	12%	11%	12%	11%	12%	11%	11%	--	--	--	--	--	--	--	--
Reo Solar	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	--	--	--	--	--	--	--	--
Delta Solar	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%
Community Solar	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%
Pegasus Wind	15%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%
Ranger Solar	--	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%
Calhoun Solar Energy Center	--	--	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%
NextEra Solar	--	--	--	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%
DG - RES	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	8%	9%	9%	10%	10%	11%	11%	12%	12%	13%	
DG - C&I	5%	6%	7%	8%	9%	10%	10%	11%	11%	12%	12%	13%	13%	14%	14%	14%	14%	14%	14%	14%	14%	
EE Legacy	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	
EE C&I	--	45%	46%	47%	47%	48%	48%	49%	49%	50%	49%	49%	49%	48%	48%	48%	47%	47%	47%	47%	47%	
EE RES	--	112%	104%	103%	102%	102%	101%	101%	101%	101%	101%	102%	102%	103%	103%	103%	104%	104%	104%	105%	105%	
DR C&I	--	--	--	--	--	--	--	--	--	--	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	
DR RES	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
New Local Solar	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
New External Solar	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
New External Wind	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	



	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01	
Fuel Consumed - MMBtu																						
Erickson	4,036,112	3,667,482	3,203,827	2,714,235	3,235,888	3,079,545	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Belle River 1	3,922,042	3,327,193	2,292,953	2,899,147	2,939,687	2,208,563	2,843,724	2,964,342	2,100,242	2,706,917	-	-	-	-	-	-	-	-	-	-	-	
Belle River 2	3,188,102	2,901,844	2,935,663	2,229,383	2,998,625	2,970,150	2,238,329	2,951,718	2,782,230	2,045,004	-	-	-	-	-	-	-	-	-	-	-	
Reo	5,265,393	4,816,679	4,026,552	4,001,673	3,918,081	3,767,238	3,664,513	3,625,542	3,558,257	3,619,470	4,379,860	4,233,215	4,124,796	4,010,520	3,930,527	3,843,816	3,747,539	3,689,318	3,699,403	3,654,890	3,606,906	
DEP CC	--	5,931,620	10,697,257	11,053,139	10,818,972	10,835,953	9,195,360	8,580,976	8,276,099	8,309,914	10,857,483	10,863,616	10,846,535	10,798,108	10,677,292	10,607,972	10,625,253	10,554,363	10,476,484	10,470,678	10,439,564	
DEP CT	--	923,460	851,204	812,978	771,503	675,220	351,827	237,485	233,484	252,488	400,043	334,425	301,367	278,476	252,796	244,557	212,580	192,421	204,198	193,344	182,888	
New Gas 1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
New Gas 2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
New Gas 3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
CHP 1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
CHP 2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
CHP 3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	



IRP 1.5

Summary of Modeling

Model Configuration and Constraints
 35% Clean Energy in 2025, 40% Clean Energy in 2030 | Erickson Retires December 2025 and Dispatched Optimally | 1% Annual Incremental Energy Efficiency | Pegasus Online 7/1/2020 | Regular Growth | High Incentives for Electric Vehicles | No Incentive for Customer Solar | Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy Question Answered: What is the impact of incentivizing electric vehicles with our current goals?

Expansion Plan:

2021: 10MW Solar | C&I Bins 1, 2 & 3; Res Bins 1, 3 & 5 | Electric Vehicle High Incentive Program | 2022: 80MW Solar | 2023: 26MW Solar | 2025: Erickson Retirement | 2030: Demand Response C&I |

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Accredited Capacity	PY 2020/21	PY 2021/22	PY 2022/23	PY 2023/24	PY 2024/25	PY 2025/26	PY 2026/27	PY 2027/28	PY 2028/29	PY 2029/30	PY 2030/31	PY 2031/32	PY 2032/33	PY 2033/34	PY 2034/35	PY 2035/36	PY 2036/37	PY 2037/38	PY 2038/39	PY 2039/40	PY 2040/41
Peak Demand before EE & DG	466.9	476.7	475.6	485.6	484.9	483.6	485.4	489.1	495.2	490.5	496.6	497.3	495.7	498.4	507.2	498.0	503.1	507.3	504.8	507.5	510.3
Net Load Offsets																					
EE Legacy	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3
EE C&I	-	4.1	8.5	13.3	18.4	23.6	28.9	33.8	38.5	42.9	46.9	50.4	53.8	56.8	59.7	62.5	64.3	66.0	67.5	68.4	69.0
EE RES	-	0.4	0.9	1.3	1.5	2.0	2.6	3.3	3.9	4.6	5.3	5.8	6.2	6.5	6.8	6.9	7.1	7.1	7.1	7.1	7.1
DG - RES	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.6	0.7	0.8	0.9	1.0	1.2
DG - C&I	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.5	0.6	0.7	0.9	1.1	1.4	1.7	2.1	2.6	3.1	3.8	4.6
Cedar Solar	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-	-	-	-	-	-	-
Reo Solar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-
Community Solar	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Peak Demand After EE & DG	431.8	437.2	431.0	435.8	429.9	422.8	418.6	416.7	417.4	407.5	409.0	405.4	399.8	398.9	404.3	391.7	394.4	396.3	391.5	392.6	393.7
Reserve Margin Percent	1.089	1.080	1.081	1.080	1.080	1.077	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076
PRMR	470.2	472.2	466.0	470.7	464.3	455.3	450.4	448.4	449.1	438.5	440.1	436.2	430.2	429.2	435.0	421.5	424.4	426.4	421.3	422.4	423.6
Local Capacity																					
Erickson	155.4	155.4	155.4	155.4	155.4	155.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Reo	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0
DEP CC	-	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7
DEP CT	49.2	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3
New Gas 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Granger Wood Rd	6.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Delta Solar	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1
NextEra Solar	-	-	-	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9
DR C&I	-	-	-	-	-	-	-	-	-	-	-	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7
DR RES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Local Solar	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Battery Charge	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Battery Discharge	-	-	-	-	-	-	-	-	-	-	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0
Total Local Capacity	301.9	470.5	470.5	483.4	483.4	483.4	328.0	328.0	328.0	328.0	414.7	414.7	414.7	414.7	414.7	414.7	414.7	414.7	414.7	414.7	414.7
Transmission Entitlements																					
Belle River Transmission Entitlement	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	-	-	-	-	-	-	-	-	-	-	-
Belle River 1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	-	-	-	-	-	-	-	-	-	-	-
Belle River 2	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	-	-	-	-	-	-	-	-	-	-	-
Remaining Entitlement	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	-	-	-	-	-	-	-	-	-	-	-
METC Settlement Entitlement	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6
Total Transmission Entitlements Remaining	18.4	18.4	18.4	18.4	18.4	18.4	18.4	18.4	18.4	18.4	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6
External Capacity																					
Granger Grand River	1.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Beebe 1b	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
Pegasus Wind	-	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
Ranger Solar	-	5.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
Calhoun Solar Energy Center	-	-	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
New External Solar	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New External Wind	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Available External Capacity	3.5	21.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	59.0	59.0	59.0	59.0	59.0	59.0
Summary																					
PRMR	470.2	472.2	466.0	470.7	464.3	455.3	450.4	448.4	449.1	438.5	440.1	436.2	430.2	429.2	435.0	421.5	424.4	426.4	421.3	422.4	423.6
Local Capacity Used	301.9	470.5	466.0	470.7	464.3	455.3	328.0	328.0	328.0	328.0	414.7	414.7	414.7	414.7	414.7	414.7	414.7	414.7	414.7	414.7	
Local Capacity Remaining	-	-	4.5	12.7	19.1	28.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Capacity Used	301.9	470.5	466.0	470.7	464.3	455.3	328.0	328.0	328.0	328.0	414.7	414.7	414.7	414.7	414.7	414.7	414.7	414.7	414.7	414.7	
Capacity Short	168.3	1.7	-	-	-	-	122.4	120.4	121.1	110.5	25.4	21.5	15.5	14.5	20.3	6.8	9.7	11.8	6.6	7.7	8.9
Belle River Capacity Used	144.2	1.7	-	-	-	-	122.4	120.4	121.1	110.5	-	-	-	-	-	-	-	-	-	-	-
Belle River Capacity Remaining	-	142.5	144.2	144.2	144.2	144.2	21.8	23.8	23.1	33.7	-	-	-	-	-	-	-	-	-	-	-
Total Capacity Used	446.1	472.2	466.0	470.7	464.3	455.3	450.4	448.4	449.1	438.5	414.7	414.7	414.7	414.7	414.7	414.7	414.7	414.7	414.7	414.7	414.7
Capacity Short	24.1	-	-	-	-	-	-	-	-	-	25.4	21.5	15.5	14.5	20.3	6.8	9.7	11.8	6.6	7.7	8.9
External Capacity Used	3.5	-	-	-	-	-	-	-	-	-	25.4	21.5	15.5	14.5	20.3	6.8	9.7	11.8	6.6	7.7	8.9
External Capacity Remaining	-	21.3																			

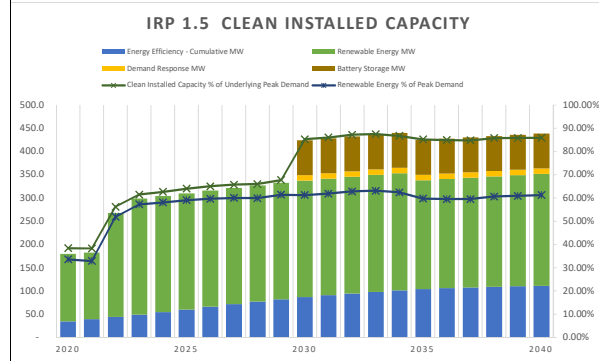
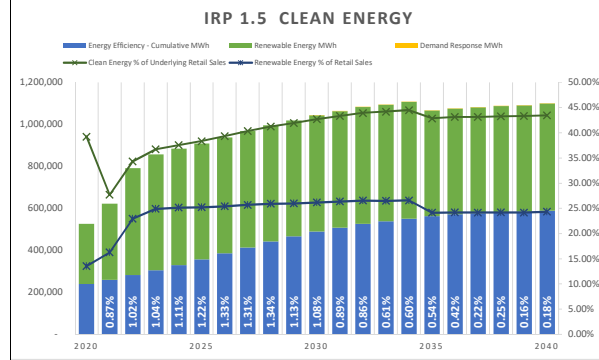
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	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	
Clean Energy																						
Renewable Energy MWh	285,558	363,422	510,187	551,630	554,141	552,125	552,511	554,469	554,257	552,790	553,614	555,457	557,109	554,521	555,534	503,498	504,431	504,488	505,829	506,202	510,740	
Renewable Energy % of Retail Sales	13.53%	16.26%	22.92%	24.89%	25.14%	25.21%	25.42%	25.70%	25.90%	25.99%	26.18%	26.38%	26.56%	26.49%	26.59%	24.14%	24.20%	24.17%	24.21%	24.17%	24.33%	
Renewable Energy % of Underlying Retail Sales	12.16%	14.57%	20.34%	21.88%	21.88%	21.69%	21.60%	21.57%	21.47%	21.32%	21.27%	21.26%	21.24%	21.07%	21.05%	19.02%	19.00%	18.95%	18.94%	18.90%	19.01%	
Renewable Energy RPS	682,092	431,576	578,371	620,462	622,311	620,215	621,084	623,319	622,051	621,362	621,221	624,025	625,524	623,302	622,907	571,274	572,885	572,231	573,536	575,087	578,545	
Renewable Energy % of Retail Sales	32.33%	19.31%	25.98%	28.00%	28.23%	28.32%	28.57%	28.89%	29.07%	29.22%	29.38%	29.64%	29.83%	29.78%	29.82%	27.39%	27.49%	27.42%	27.45%	27.46%	27.56%	
Renewable Energy % of Underlying Retail Sales	29.03%	17.30%	23.06%	24.61%	24.57%	24.30%	24.28%	24.25%	24.10%	23.97%	23.87%	23.88%	23.85%	23.69%	23.60%	21.58%	21.58%	21.49%	21.48%	21.47%	21.53%	
Energy Efficiency - Cumulative MWh	239,413	258,772	281,539	304,634	329,108	355,870	384,759	412,991	441,698	465,728	488,568	507,385	525,316	538,137	550,663	561,970	570,804	575,363	580,589	583,972	587,679	
Energy Efficiency - Cumulative % of Underlying Retail Sales	10.19%	10.38%	11.23%	12.08%	12.99%	13.98%	15.04%	16.07%	17.11%	17.96%	18.77%	19.42%	20.03%	20.45%	20.86%	21.23%	21.50%	21.61%	21.74%	21.80%	21.87%	
Energy Efficiency - Annual Incremental MWh		19,360	22,767	23,095	24,474	26,762	28,889	28,231	28,707	24,031	22,839	18,817	17,931	12,822	12,526	11,307	8,834	4,559	5,226	3,383	3,707	
Energy Efficiency - Annual Incremental % of Retail Sales		0.87%	1.02%	1.04%	1.11%	1.22%	1.33%	1.31%	1.34%	1.13%	1.08%	0.89%	0.86%	0.61%	0.60%	0.54%	0.42%	0.22%	0.25%	0.16%	0.18%	
Energy Efficiency - Annual Incremental % of Underlying Retail Sales		0.78%	0.91%	0.92%	0.97%	1.05%	1.13%	1.10%	1.11%	0.93%	0.88%	0.72%	0.68%	0.49%	0.47%	0.43%	0.33%	0.17%	0.20%	0.13%	0.14%	
Demand Response MWh	-	-	-	-	-	-	-	-	-	-	957	965	951	915	942	968	989	970	937	925	965	
Demand Response % of Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.05%	0.05%	0.05%	0.04%	0.05%	0.05%	0.05%	0.04%	0.04%	0.04%		
Demand Response % of Underlying Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.04%	0.04%	0.04%	0.03%	0.04%	0.04%	0.04%	0.04%	0.04%	0.03%		
Clean Energy Credits	921,505	690,348	859,910	925,096	951,419	976,085	1,005,844	1,036,309	1,063,749	1,087,090	1,110,745	1,132,375	1,151,791	1,162,354	1,174,512	1,134,212	1,144,679	1,148,564	1,155,062	1,159,984	1,167,189	
Clean Energy % of Underlying Retail Sales	39.23%	27.68%	34.29%	36.70%	37.56%	38.34%	39.32%	40.32%	41.20%	41.93%	42.67%	43.34%	43.92%	44.17%	44.49%	42.84%	43.12%	43.14%	43.26%	43.31%	43.44%	
Clean Installed Capacity																						
Renewable Energy MW	145.0	143.8	223.8	249.8	249.8	249.9	250.0	250.1	250.2	250.3	250.5	250.9	251.3	251.9	252.4	234.0	235.0	236.1	237.6	239.3	241.3	
Renewable Energy % of Peak Demand	33.57%	32.89%	51.93%	57.31%	58.11%	59.11%	59.71%	60.01%	59.94%	61.42%	61.25%	61.88%	62.87%	63.15%	62.43%	59.73%	59.57%	59.58%	60.68%	60.95%	61.29%	
Renewable Energy % of Underlying Peak Demand	31.05%	30.16%	47.06%	51.44%	51.52%	51.67%	51.50%	51.13%	50.52%	51.04%	50.44%	50.44%	50.71%	50.53%	49.76%	46.99%	46.70%	46.55%	47.06%	47.14%	47.28%	
Energy Efficiency - Cumulative MW	34.3	38.7	43.7	48.9	54.2	59.9	65.8	71.4	76.8	81.8	86.4	90.5	94.3	97.7	100.8	103.7	105.6	107.4	108.9	109.8	110.4	
Energy Efficiency - Cumulative % of Underlying Peak Demand	7.35%	8.13%	9.20%	10.07%	11.17%	12.39%	13.56%	14.60%	15.50%	16.68%	17.41%	18.20%	19.01%	19.59%	19.87%	20.83%	21.00%	21.16%	21.58%	21.63%	21.64%	
Energy Efficiency - Annual Incremental MW		4.4	5.0	5.1	5.3	5.8	5.9	5.6	5.4	5.0	4.6	4.1	3.7	3.4	3.1	2.9	1.9	1.7	1.6	0.9	0.7	
Energy Efficiency - Annual Incremental % of Peak Demand		1.02%	1.16%	1.18%	1.23%	1.36%	1.41%	1.33%	1.29%	1.23%	1.13%	1.01%	0.93%	0.86%	0.77%	0.75%	0.49%	0.43%	0.40%	0.22%	0.17%	
Energy Efficiency - Annual Incremental % of Underlying Peak Demand		0.93%	1.05%	1.06%	1.09%	1.19%	1.22%	1.14%	1.09%	1.03%	0.93%	0.82%	0.75%	0.69%	0.62%	0.59%	0.38%	0.34%	0.31%	0.17%	0.13%	
Demand Response MW	-	-	-	-	-	-	-	-	-	-	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7		
Demand Response % of Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.86%	2.88%	2.92%	2.93%	2.89%	2.98%	2.96%	2.95%	2.99%	2.98%		
Demand Response % of Underlying Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.35%	2.35%	2.36%	2.35%	2.30%	2.35%	2.32%	2.30%	2.32%	2.30%		
Battery Storage MW	-	-	-	-	-	-	-	-	-	-	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0		
Battery Storage % of Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	18.34%	18.50%	18.76%	18.80%	18.55%	19.15%	19.01%	18.92%	19.16%	19.11%		
Battery Storage % of Underlying Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	15.10%	15.08%	15.13%	15.05%	14.79%	15.06%	14.91%	14.78%	14.86%	14.78%		
Clean Installed Capacity MW	179	183	268	299	304	310	316	321	327	332	424	428	432	436	440	424	427	430	433	436	438	
Clean Installed Capacity % of Underlying Peak Demand	38.40%	38.29%	56.26%	61.50%	62.69%	64.06%	65.06%	65.72%	66.03%	67.72%	85.30%	86.08%	87.21%	87.52%	86.72%	85.22%	84.93%	84.80%	85.81%	85.85%		



IRP 1.5

Summary of Modeling

Model Configuration and Constraints
 35% Clean Energy in 2025, 40% Clean Energy in 2030 | Erickson Retires December 2025 and Dispatched Optimally | 1% Annual Incremental Energy Efficiency | Pegasus Online 7/1/2020 | Regular Growth | High Incentives for Electric Vehicles | No Incentive for Customer Solar | Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy Question Answered: What is the impact of incentivizing electric vehicles with our current goals?

Expansion Plan:
 2021: 10MW Solar | C&I Bins 1, 2 & 3; Res Bins 1, 3 & 5 | Electric Vehicle High Incentive Program | 2022: 80MW Solar | 2023: 26MW Solar | 2025: Erickson Retirement | 2030: Demand Response C&I |

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Post Processing Costs - Coal Penalties	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Coal on Ground Year Start	200,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Coal Needed	229,325	208,380	182,036	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pile used first pile remaining	200,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ending Pile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Deliveries Used	29,325	208,380	182,036	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Penalty Tons	370,675	191,620	217,964	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Erickson - Coal Penalties (PRB)	\$ 982,290	\$ 507,794	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Erickson - Rail Penalties (BNSF/CN)	\$ 4,302,117	\$ 2,291,594	\$ 2,686,818	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Post Processing Costs - Customer Programs	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
EE C&I	\$ -	\$ 1,927,998	\$ 2,236,862	\$ 2,541,845	\$ 2,822,942	\$ 3,143,712	\$ 3,426,552	\$ 3,587,237	\$ 3,650,577	\$ 3,671,777	\$ 3,569,314	\$ 4,000,628	\$ 4,015,937	\$ 4,292,621	\$ 4,301,564	\$ 4,339,053	\$ 4,697,335	\$ 4,796,973	\$ 4,789,353	\$ 4,837,838	\$ 4,801,417
EE RES	\$ -	\$ 627,475	\$ 746,789	\$ 825,481	\$ 873,268	\$ 992,891	\$ 1,112,347	\$ 1,232,513	\$ 1,352,209	\$ 1,473,129	\$ 1,570,366	\$ 1,320,972	\$ 1,273,873	\$ 1,231,922	\$ 1,196,363	\$ 1,154,211	\$ 1,283,659	\$ 1,276,845	\$ 1,267,652	\$ 1,282,604	\$ 1,284,848
DR C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 205,053	\$ 174,775	\$ 260,973	\$ 279,054	\$ 265,795	\$ 260,654	\$ 261,215	\$ 263,458	\$ 266,176	\$ 269,105	\$ 275,202
DR RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DG - RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DG - C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Electric Vehicles	\$ 114,000	\$ 87,000	\$ 94,000	\$ 122,000	\$ 170,000	\$ 244,000	\$ 279,000	\$ 162,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Post Processing Costs - Capital & FOM	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
New Gas 1 - Capital	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 1 - FOM	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 2 - Capital	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 2 - FOM	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 3 - Capital	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 3 - FOM	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 1 - Capital	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 1 - FOM	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 2 - Capital	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 2 - FOM	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 3 - Capital	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 3 - FOM	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Local Solar - Capital	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Local Solar - FOM	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New External Solar - Capital	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New External Solar - FOM	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New External Wind - Capital	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New External Wind - FOM	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Battery - Capital	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,903,123	\$ 6,732,504	\$ 6,561,885	\$ 6,391,265	\$ 6,220,646	\$ 6,050,027	\$ 5,879,408	\$ 5,708,788	\$ 5,538,169	\$ 5,367,550	\$ 5,196,931
Battery - FOM	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Post Processing Costs - Capacity Expense	PY 2020/21	PY 2021/22	PY 2022/23	PY 2023/24	PY 2024/25	PY 2025/26	PY 2026/27	PY 2027/28	PY 2028/29	PY 2029/30	PY 2030/31	PY 2031/32	PY 2032/33	PY 2033/34	PY 2034/35	PY 2035/36	PY 2036/37	PY 2037/38	PY 2038/39	PY 2039/40	PY 2040/41
Capacity Price - Purchase (\$/kW-Mo)	\$ 0.92	\$ 0.94	\$ 0.97	\$ 1.00	\$ 1.03	\$ 1.06	\$ 1.09	\$ 1.13	\$ 1.16	\$ 1.20	\$ 1.23	\$ 1.27	\$ 1.31	\$ 1.35	\$ 1.39	\$ 1.43	\$ 1.47	\$ 1.52	\$ 1.56	\$ 1.61	\$ 1.66
Capacity Price - Sale (\$/kW-Mo)	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 1.00	\$ 0.98	\$ 0.96	\$ 0.96	\$ 0.96	\$ 0.88	\$ 0.88	\$ 0.88	\$ 0.88	\$ 0.88	\$ 0.73
Capacity Purchase	\$ 231,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Local Capacity Sale	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
External Capacity Sale	\$ -	\$ (1,050,932)	\$ (1,320,073)	\$ (1,320,073)	\$ (1,320,073)	\$ (1,320,073)	\$ (538,282)	\$ (551,099)	\$ (544,690)	\$ (608,772)	\$ (433,800)	\$ (470,400)	\$ (527,160)	\$ (538,620)	\$ (469,860)	\$ (557,030)	\$ (525,500)	\$ (504,480)	\$ (557,030)	\$ (546,520)	\$ (448,290)
Post Processing Costs - Transmission Expense	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Transmission - BR - Total Annual MWs during Peak	1,799.3	1,771.8	1,753.4	1,742.2	1,713.3	1,704.7	1,710.1	1,704.2	1,693.5	1,698.6	-	-	-	-	-	-	-	-	-	-	-
Transmission - BR - Average Monthly MWs during Peak	149.9	147.7	146.1	145.2	142.8	142.1	142.5	142.0	141.1	141.5	-	-	-	-	-	-	-	-	-	-	-
Transmission - METC - Total Annual MWs during Peak	106.9	55.6	20.9	14.8	19.2	18.5	33.0	37.4	36.6	36.8	112.1	115.3	121.0	124.7	129.2	130.2	131.1	135.7	135.7	137.2	139.9
Transmission - METC - Average Monthly MWs during Peak	8.9	4.6	1.7	1.2	1.6	1.5	2.7	3.1	3.1	3.1	9.3	9.6	10.1	10.4	10.8	10.8	10.9	11.3	11.3	11.4	11.7
Transmission - Non-Entitlement - Total Annual MWs during Peak	410.4	101.3	26.1	17.4	22.3	21.8	36.4	34.2	38.9	29.4	259.2	262.8	259.3	275.9	300.6	293.0	303.8	304.8	308.8	312.6	314.7
Transmission - Non-Entitlement - Average Monthly MWs during Peak	34.2	8.4	2.2	1.4	1.9	1.8	3.0	2.9	3.2	2.4	21.6	21.9	21.6	23.0	25.1	24.4	25.3	25.4	25.7	26.1	26.2
PIP - CONS.LANS Purchase - BR - Fixed Expense	\$ 972,648	\$ 1,191,528	\$ 1,286,208	\$ 1,388,448	\$ 1,471,230	\$ 1,558,998	\$ 1,652,040	\$ 1,750,680	\$ 1,855,224	\$ 1,966,068	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
PIP - CONS.LANS Purchase - BR - Redirect Revenue	\$ (294)	\$ (13,983)	\$ (24,977)	\$ (33,455)	\$ (53,129)	\$ (61,885)	\$ (61,852)	\$ (69,847)	\$ (82,313)	\$ (83,106)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
NITS - CONS.LANS Purchase - BR - Fixed Expense	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
NITS - CONS.LANS Purchase - BR - Redirect Revenue	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
PIP - CONS.LANS Purchase - METC - Fixed Expense	\$ 119,908	\$ 138,678	\$ 146,823	\$ 155,606	\$ 162,755	\$ 1															

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	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	
Total Costs w/ Post Processing	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01	
Erickson	\$ 27,456,884	\$ 24,048,018	\$ 22,679,299	\$ 18,759,941	\$ 20,776,770	\$ 20,470,297	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Belle River 1	\$ 20,180,467	\$ 19,057,367	\$ 16,752,650	\$ 18,645,871	\$ 19,022,577	\$ 17,479,968	\$ 19,333,371	\$ 19,955,203	\$ 18,192,082	\$ 20,148,330	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Belle River 2	\$ 18,481,882	\$ 18,036,989	\$ 17,026,555	\$ 17,026,555	\$ 19,167,287	\$ 19,329,478	\$ 17,865,964	\$ 19,931,986	\$ 19,882,590	\$ 18,471,625	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Reo	\$ 20,344,795	\$ 20,001,785	\$ 17,793,112	\$ 17,834,156	\$ 17,118,109	\$ 17,825,092	\$ 18,054,325	\$ 18,205,076	\$ 18,435,459	\$ 18,977,331	\$ 22,032,824	\$ 21,782,469	\$ 22,372,186	\$ 22,394,218	\$ 22,643,371	\$ 22,747,466	\$ 23,061,616	\$ 23,240,373	\$ 23,685,994	\$ 24,031,965	\$ 24,428,723	
DEP CC	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DEP CT	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Gas 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Gas 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Gas 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Granger Wood Rd	\$ 5,498,401	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Granger Grand River	\$ 1,098,338	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Beebe 1b	\$ 2,810,094	\$ 2,881,790	\$ 2,935,240	\$ 3,001,689	\$ 3,110,049	\$ 3,180,931	\$ 3,233,418	\$ 3,319,856	\$ 3,430,425	\$ 3,467,648	\$ 3,577,849	\$ 3,664,435	\$ 3,785,223	\$ 3,851,962	\$ 3,946,688	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Cedar Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Reo Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Delta Solar	\$ 2,071,241	\$ 2,125,679	\$ 2,179,775	\$ 2,255,318	\$ 2,289,179	\$ 2,344,044	\$ 2,419,906	\$ 2,490,124	\$ 2,513,496	\$ 2,605,472	\$ 2,633,397	\$ 2,737,369	\$ 2,799,726	\$ 2,885,170	\$ 2,911,877	\$ 3,002,480	\$ 3,108,229	\$ 3,152,620	\$ 3,230,459	\$ 3,368,471	\$ 3,397,986	
Community Solar	\$ 31,218	\$ 32,679	\$ 32,679	\$ 34,151	\$ 34,151	\$ 34,151	\$ 35,864	\$ 36,755	\$ 36,266	\$ 38,023	\$ 37,977	\$ 39,701	\$ 39,412	\$ 40,510	\$ 41,189	\$ 41,937	\$ 43,076	\$ 43,146	\$ 43,977	\$ 45,356	\$ 45,316	
Pegasus Wind	\$ 4,832,819	\$ 10,576,306	\$ 10,806,092	\$ 10,899,541	\$ 11,152,903	\$ 11,252,975	\$ 11,401,970	\$ 11,639,005	\$ 11,834,136	\$ 11,926,829	\$ 12,172,382	\$ 12,344,787	\$ 12,633,706	\$ 12,846,864	\$ 13,164,223	\$ 13,301,150	\$ 13,449,850	\$ 13,630,961	\$ 13,749,850	\$ 13,630,961	\$ 13,707,748	\$ 13,707,748
Ranger Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Calhoun Solar Energy Center	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
NextEra Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DG - RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DG - C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
EE Legacy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
EE C&I	\$ -	\$ 1,927,998	\$ 2,236,862	\$ 2,541,845	\$ 2,822,942	\$ 3,143,712	\$ 3,426,552	\$ 3,587,237	\$ 3,650,577	\$ 3,671,777	\$ 3,569,314	\$ 4,000,628	\$ 4,015,937	\$ 4,292,621	\$ 4,301,564	\$ 4,339,053	\$ 4,697,335	\$ 4,796,973	\$ 4,789,353	\$ 4,837,838	\$ 4,801,417	
EE RES	\$ -	\$ 627,475	\$ 746,789	\$ 825,481	\$ 873,268	\$ 992,891	\$ 1,112,347	\$ 1,232,513	\$ 1,352,209	\$ 1,473,129	\$ 1,570,366	\$ 1,320,972	\$ 1,273,873	\$ 1,231,922	\$ 1,196,363	\$ 1,154,211	\$ 1,283,659	\$ 1,276,845	\$ 1,267,652	\$ 1,262,604	\$ 1,284,848	
DR C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DR RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Local Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New External Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New External Wind	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Battery Charge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Battery Discharge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CONS.LANS Purchase - BR	\$ 36,392,046	\$ 36,957,507	\$ 36,090,557	\$ 35,145,623	\$ 35,234,970	\$ 35,172,774	\$ 36,162,610	\$ 35,963,819	\$ 36,203,410	\$ 37,056,832	\$ (3,451,182)	\$ (3,019,053)	\$ (3,175,633)	\$ (3,085,076)	\$ (3,198,390)	\$ (2,972,112)	\$ (2,971,490)	\$ (2,726,774)	\$ (2,766,226)	\$ (2,662,483)	\$ (2,580,218)	
CONS.LANS Purchase - METC	\$ 1,028,078	\$ 508,190	\$ 107,767	\$ 86,478	\$ 119,091	\$ 113,346	\$ 352,025	\$ 454,441	\$ 487,860	\$ 504,493	\$ 2,031,273	\$ 2,095,649	\$ 2,203,658	\$ 2,273,331	\$ 2,336,658	\$ 2,398,696	\$ 2,458,051	\$ 2,559,105	\$ 2,537,949	\$ 2,584,508	\$ 2,640,550	
CONS.LANS Purchase	\$ 1,758,739	\$ 282,989	\$ 60,327	\$ 41,128	\$ 76,359	\$ 59,606	\$ 248,695	\$ 388,159	\$ 376,789	\$ 451,336	\$ 4,334,998	\$ 3,958,122	\$ 4,278,774	\$ 4,614,182	\$ 4,916,939	\$ 5,849,602	\$ 5,911,285	\$ 6,436,464	\$ 6,898,834	\$ 7,055,114	\$ 7,483,572	
Emergency Energy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Dump Energy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CONS.LANS Sale	\$ (13,335,496)	\$ (32,091,039)	\$ (49,096,302)	\$ (46,232,371)	\$ (48,302,750)	\$ (46,897,810)	\$ (29,855,728)	\$ (27,612,946)	\$ (27,463,175)	\$ (28,478,487)	\$ (7,472,368)	\$ (5,903,717)	\$ (6,174,876)	\$ (5,642,619)	\$ (5,843,775)	\$ (5,103,348)	\$ (4,939,433)	\$ (3,783,372)	\$ (3,982,222)	\$ (3,605,377)	\$ (3,384,873)	
DECO.BLR Sale	\$ (21,424,991)	\$ (21,499,857)	\$ (18,463,198)	\$ (17,421,337)	\$ (20,360,705)	\$ (17,368,997)	\$ (18,510,000)	\$ (20,736,152)	\$ (17,757,753)	\$ (18,035,746)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
External Renewable Sale	\$ (4,929,810)	\$ (9,214,193)	\$ (13,260,237)	\$ (13,363,618)	\$ (13,730,765)	\$ (13,408,159)	\$ (13,730,765)	\$ (13,646,551)	\$ (13,843,645)	\$ (14,019,958)	\$ (14,149,029)	\$ (13,319,809)	\$ (13,703,541)	\$ (13,369,578)	\$ (13,502,144)	\$ (11,698,886)	\$ (11,629,038)	\$ (11,292,661)	\$ (11,114,141)	\$ (10,815,763)	\$ (10,792,257)	
Electric Vehicle Program	\$ 114,000	\$ 87,000	\$ 94,000	\$ 122,000	\$ 170,000	\$ 244,000	\$ 279,000	\$ 162,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Capacity Purchase	\$ 231,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Capacity Sale	\$ -	\$ (1,050,932)	\$ (1,320,073)	\$ (1,320,073)	\$ (1,320,073)	\$ (1,320,073)	\$ (538,282)	\$ (551,099)	\$ (544,690)	\$ (608,772)	\$ (433,800)	\$ (470,400)	\$ (527,160)	\$ (538,620)	\$ (469,860)	\$ (557,030)	\$ (525,500)	\$ (504,480)	\$ (557,030)	\$ (546,520)	\$ (448,290)	
Total Total Costs w/ Post Processing	\$ 102,639,705	\$ 100,699,610	\$ 100,045,993	\$ 104,372,810	\$ 104,854,135	\$ 109,408,660	\$ 102,744,546	\$ 104,727,243	\$ 106,773,193	\$ 108,542,800	\$ 98,518,700	\$ 101,940,652	\$ 104,737,887	\$ 107,664,120	\$ 108,841,918	\$ 110,151,709	\$ 113,570,548	\$ 117,021,993	\$ 118,782,690	\$ 122,096,101	\$ 111,188,665	
Total Cost per Retail Sales MWh	\$ 48.65	\$ 45.05	\$ 44.94	\$ 47.09	\$ 47.57	\$ 49.96	\$ 47.27	\$ 48.55	\$ 49.90	\$ 51.04	\$ 46.59	\$ 48.41	\$ 49.94	\$ 51.43	\$ 52.10	\$ 52.82	\$ 54.49	\$ 56.07	\$ 56.84	\$ 58.29	\$ 52.96	
Change in Cost per Retail Sales MWh		-7.40%	-0.25%	4.80%	1.02%	5.02%	-5.39%	2.70%	2.78%	2.29%	-8.70%	3.90%	3.16%	2.99%	1.30%	1.38%	3.17%	2.90%	1.37%	2.55%	-9.14%	
Present Value of Total Total Costs w/ Post Processing	\$ 102,639,705	\$ 96,215,947	\$ 91,335,212	\$ 91,042,712	\$ 87,390,182	\$ 87,126,054	\$ 78,176,171	\$ 76,136,789	\$ 74,167,969	\$ 72,040,123	\$ 62,475,734	\$ 61,767,4										

1.6 v1: Model Configuration & Constraints

35% Clean Energy in 2025

40% Clean Energy in 2030

Erickson Retires December 2025 and Dispatched Optimally

1% Annual Incremental Energy Efficiency

Pegasus Online 7/1/2020

Regular Growth

No Incentive for Electric Vehicles

High Incentives for Customer Solar

Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy

Expansion Plan

2021: 10 MW Solar | C&I Bins 1, 2 & 3; Res Bins 1, 3 & 5 | Distributed Solar High Incentive Program

2022: 80 MW Solar

2023: 26 MW Solar

2025: Erickson Retirement

2030: Demand Response C&I | 75 MW, 4-Hr Battery

IRP 1.6

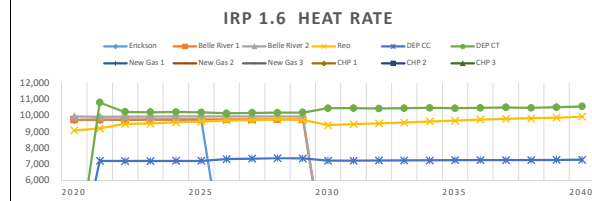
Summary of Modeling

Model Configuration and Constraints
 35% Clean Energy in 2025, 40% Clean Energy in 2030 | Erickson Retires December 2025 and Dispatched Optimally | 1% Annual Incremental Energy Efficiency | Pegasus Online 7/1/2020 | Regular Growth | No Incentive for Electric Vehicles | High Incentives for Customer Solar | Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy | Question Answered: What is the impact of incentivizing distributed solar with our current goals?

Expansion Plan:

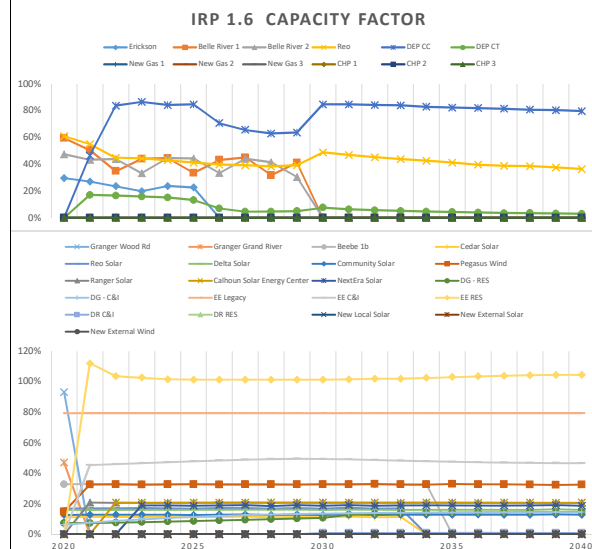
2021: 10MW Solar | C&I Bins 1, 2 & 3; Res Bins 1, 3 & 5 | Distributed Solar High Incentive Program | 2022: 80MW Solar | 2023: 26MW Solar | 2025: Erickson Retirement | 2030: Demand Response C&I | 75MW, 4-

Heat Rate



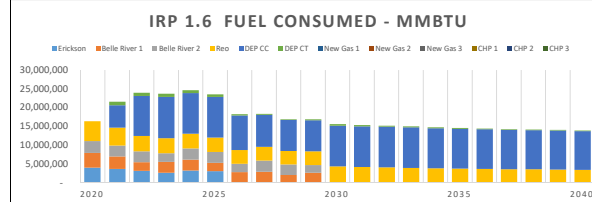
	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Erickson	9,727	9,737	9,730	9,740	9,733	9,734	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Belle River 1	9,728	9,739	9,749	9,748	9,749	9,753	9,754	9,757	9,756	9,761	--	--	--	--	--	--	--	--	--	--	--
Belle River 2	9,929	9,913	9,924	9,937	9,927	9,931	9,933	9,933	9,931	9,938	--	--	--	--	--	--	--	--	--	--	--
Reo	9,072	9,202	9,483	9,496	9,573	9,622	9,683	9,699	9,770	9,713	9,402	9,454	9,516	9,558	9,625	9,681	9,760	9,793	9,809	9,866	9,932
DEP CC	--	7,200	7,188	7,192	7,205	7,203	7,307	7,341	7,362	7,347	7,213	7,216	7,223	7,226	7,232	7,238	7,245	7,247	7,252	7,261	7,268
DEP CT	--	10,805	10,217	10,202	10,208	10,191	10,132	10,162	10,171	10,176	10,451	10,448	10,430	10,448	10,461	10,444	10,461	10,495	10,469	10,505	10,553
New Gas 1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Gas 2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Gas 3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Capacity Factor



	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Erickson	30%	27%	24%	20%	24%	23%	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Belle River 1	60%	51%	35%	44%	45%	34%	43%	45%	32%	41%	--	--	--	--	--	--	--	--	--	--	--
Belle River 2	47%	43%	44%	33%	44%	44%	33%	44%	41%	31%	--	--	--	--	--	--	--	--	--	--	--
Reo	61%	55%	45%	44%	43%	41%	40%	39%	38%	39%	49%	47%	45%	44%	43%	41%	40%	39%	39%	38%	36%
DEP CC	--	46%	84%	87%	84%	85%	71%	66%	63%	64%	85%	85%	84%	84%	83%	82%	82%	81%	81%	80%	80%
DEP CT	--	17%	17%	16%	15%	13%	7%	5%	5%	5%	8%	6%	6%	5%	5%	4%	4%	3%	4%	3%	3%
New Gas 1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Gas 2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Gas 3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Granger Wood Rd	93%	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Granger Grand River	47%	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beebe 1b	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	--	--	--	--	--	--
Cedar Solar	11%	11%	11%	11%	11%	11%	11%	12%	11%	12%	11%	12%	11%	11%	--	--	--	--	--	--	--
Reo Solar	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	--	--	--	--	--	--	--
Delta Solar	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%
Community Solar	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%
Pegasus Wind	15%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	32%	33%
Ranger Solar	--	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%
Calhoun Solar Energy Center	--	--	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%
NextEra Solar	--	--	--	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%
DG-RES	7%	7%	8%	8%	8%	9%	9%	10%	10%	10%	11%	13%	13%	14%	14%	14%	14%	14%	14%	15%	15%
DG-C&I	6%	8%	10%	10%	11%	12%	12%	13%	13%	13%	14%	14%	14%	14%	14%	14%	14%	14%	15%	15%	15%
EE Legacy	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%
EE C&I	--	45%	46%	47%	47%	48%	48%	49%	49%	50%	49%	49%	49%	48%	48%	48%	47%	47%	47%	47%	47%
EE RES	--	112%	104%	103%	102%	102%	101%	101%	101%	101%	101%	102%	102%	103%	103%	103%	104%	104%	104%	105%	105%
DR C&I	--	--	--	--	--	--	--	--	--	--	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
DR RES	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Local Solar	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New External Solar	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New External Wind	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Fuel Consumed - MMBtu



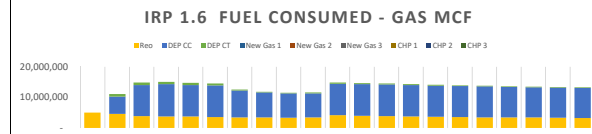
	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Erickson	4,033,782	3,665,566	3,200,030	2,713,078	3,235,435	3,077,207	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Belle River 1	3,922,042	3,327,200	2,292,953	2,899,147	2,939,687	2,208,563	2,843,724	2,964,351	2,100,283	2,706,917	-	-	-	-	-	-	-	-	-	-	-
Belle River 2	3,188,102	2,901,844	2,935,663	2,229,383	2,998,625	2,970,150	2,238,329	2,950,994	2,782,277	2,045,004	-	-	-	-	-	-	-	-	-	-	-
Reo	5,266,779	4,818,692	4,026,948	4,001,865	3,917,531	3,767,188	3,663,169	3,625,640	3,558,763	3,618,073	4,368,486	4,218,863	4,102,510	3,980,612	3,896,196	3,794,825	3,688,225	3,605,570	3,591,682	3,526,281	3,448,564
DEP CC	-	5,932,648	10,697,822	11,052,781	10,821,712	10,834,439	9,181,234	8,568,910	8,262,302	8,301,129	10,852,333	10,857,828	10,836,337	10,782,346	10,656,047	10,575,287	10,583,076	10,495,385	10,404,775	10,373,006	10,310,833
DEP CT	-	925,433	851,091	812,675	771,330	675,405	352,015	237,284	233,362	252,446	396,713	330,035	295,014	269,417	244,099	233,184	200,523	175,384	183,791	168,215	154,671
New Gas 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Fuel Consumed - Coal Tons



	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Erickson	229,192	208,271	181,820	154,152	183,832	174,841	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Belle River 1	222,843	189,045	130,281	164,724	167,028	125,487	161,575	168,429	119,334	153,802	-	-	-	-	-	-	-	-	-	-	-
Belle River 2	181,142	164,877	166,799	126,670	170,376	168,759	127,178	167,670	158,084	116,193	-	-	-	-	-	-	-	-	-	-	-

Fuel Consumed - Gas Mcf



	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Reo	5,030,353	4,602,380	3,846,178	3,822,220	3,741,672	3,598,079	3,498,729	3,462,884	3,399,010	3,455,657											

IRP 1.6

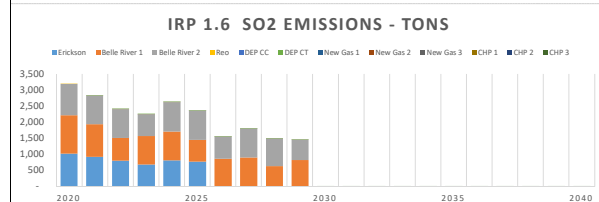
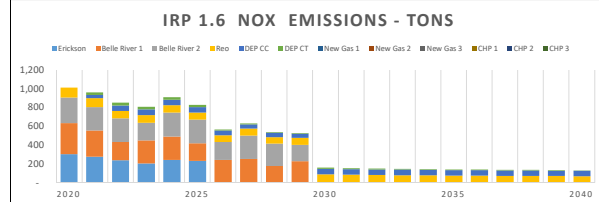
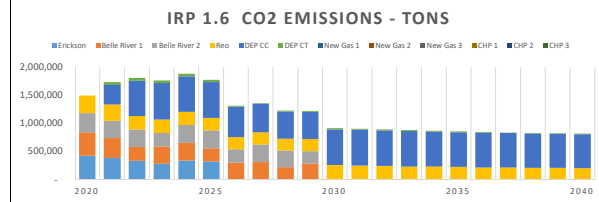
Summary of Modeling

Model Configuration and Constraints
 35% Clean Energy in 2025, 40% Clean Energy in 2030 | Erickson Retires December 2025 and Dispatched Optimally | 1% Annual Incremental Energy Efficiency | Pegasus Online 7/1/2020 | Regular Growth | No Incentive for Electric Vehicles | High Incentives for Customer Solar | Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy | Question Answered: What is the impact of incentivizing distributed solar with our current goals?

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2021: 10MW Solar | C&I Bins 1, 2 & 3; Res Bins 1, 3 & 5 | Distributed Solar High Incentive Program | 2022: 80MW Solar | 2023: 26MW Solar | 2025: Erickson Retirement | 2030: Demand Response C&I | 75MW, 4-

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
CO2 Emissions - Tons																					
Erickson	424,757	385,984	336,963	285,687	340,691	324,030	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Belle River 1	417,109	353,848	243,856	308,324	312,636	234,881	302,430	315,259	223,365	287,881	-	-	-	-	-	-	-	-	-	-	-
Belle River 2	339,055	308,611	312,208	237,095	318,904	315,875	238,046	313,838	295,895	217,486	-	-	-	-	-	-	-	-	-	-	-
Reo	313,110	286,471	239,402	237,911	232,897	223,959	217,775	215,544	211,568	215,094	259,706	250,811	243,894	236,647	231,629	225,602	219,265	214,351	213,526	209,637	205,017
DEP CC	-	347,060	625,823	646,588	633,070	633,815	537,102	501,281	483,345	485,616	634,861	635,183	633,926	630,767	623,379	618,654	619,110	613,980	608,679	606,821	603,183
DEP CT	-	54,138	49,789	47,541	45,123	39,511	20,593	13,881	13,652	14,768	23,208	19,307	17,258	15,761	14,280	13,641	11,731	10,260	10,752	9,841	9,048
New Gas 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NOx Emissions - Tons																					
Erickson	303	275	240	203	243	231	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Belle River 1	333	283	195	246	250	188	242	252	179	230	-	-	-	-	-	-	-	-	-	-	-
Belle River 2	271	247	250	189	255	252	190	251	236	174	-	-	-	-	-	-	-	-	-	-	-
Reo	105	96	81	80	78	75	73	73	71	72	87	84	82	80	78	76	74	72	72	71	69
DEP CC	-	33	59	61	60	60	50	47	45	46	60	60	60	59	59	58	58	58	57	57	57
DEP CT	-	31	28	27	25	22	12	8	8	8	13	11	10	9	8	8	7	6	6	6	5
New Gas 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SO2 Emissions - Tons																					
Erickson	1,021	927	810	686	819	779	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Belle River 1	1,196	1,015	699	884	897	674	867	904	641	826	-	-	-	-	-	-	-	-	-	-	-
Belle River 2	972	885	895	680	915	906	683	900	849	624	-	-	-	-	-	-	-	-	-	-	-
Reo	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
DEP CC	-	4	8	8	8	8	6	6	6	6	8	8	8	8	7	7	7	7	7	7	7
DEP CT	-	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
New Gas 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



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	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	
MWh Balances																						
Erickson	414,693	376,452	328,900	278,560	332,433	316,142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Belle River 1	403,180	341,637	235,190	297,397	301,524	226,440	291,535	303,833	215,285	277,333	-	-	-	-	-	-	-	-	-	-	-	-
Belle River 2	321,102	292,743	295,807	224,356	302,061	225,339	299,074	297,092	280,160	205,769	-	-	-	-	-	-	-	-	-	-	-	-
Reo	580,550	523,649	424,637	421,412	409,220	391,525	378,313	373,802	364,271	372,513	464,619	446,253	431,100	416,479	404,801	391,999	377,907	368,196	366,169	357,431	347,211	
DEP CC	-	824,030	1,488,316	1,536,911	1,501,927	1,504,147	1,256,498	1,167,206	1,122,338	1,129,866	1,504,483	1,504,687	1,500,167	1,492,204	1,473,517	1,461,081	1,460,695	1,448,148	1,434,721	1,428,530	1,418,628	
DEP CT	-	85,649	83,300	79,662	75,564	66,276	34,743	23,349	22,944	24,808	-	-	-	-	-	-	-	-	-	-	-	
New Gas 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
New Gas 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
New Gas 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
CHP 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
CHP 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
CHP 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Granger Wood Rd	65,587	85	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Granger Grand River	13,215	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Beebee 1b	55,371	55,398	55,050	54,926	55,517	55,398	54,934	55,028	55,473	54,703	55,069	55,030	55,461	55,059	55,037	-	-	-	-	-	-	
Cedar Solar	157	157	157	159	158	156	158	160	154	159	156	160	156	157	-	-	-	-	-	-	-	
Reo Solar	19	19	19	20	19	19	20	20	19	20	19	20	19	20	-	-	-	-	-	-	-	
Delta Solar	33,858	33,895	33,916	34,238	33,907	33,870	34,109	34,246	33,724	34,107	33,628	34,104	34,032	34,213	33,687	33,888	34,227	33,871	33,853	34,442	33,902	
Community Solar	381	382	382	385	383	379	386	388	376	386	379	389	379	383	383	383	387	381	383	388	382	
Pegasus Wind	116,341	254,605	256,311	254,662	256,743	255,227	254,793	256,253	256,706	254,901	256,261	256,063	258,200	255,013	254,848	257,264	256,136	255,167	254,784	252,398	255,174	
Ranger Solar	-	18,196	145,418	145,057	145,427	145,641	145,667	145,611	146,119	145,335	145,641	145,131	145,056	146,082	145,370	145,370	145,621	145,935	145,709	145,210	145,488	
Calhoun Solar Energy Center	-	-	18,219	18,171	18,156	18,197	18,201	18,190	18,278	18,183	18,164	18,218	18,210	18,122	18,252	18,191	18,173	18,173	18,173	18,100	18,208	
NextEra Solar	-	-	-	43,238	42,988	43,215	43,417	42,999	43,417	42,999	42,563	43,436	42,725	42,993	43,005	43,231	42,749	42,986	43,480	43,480	42,786	
DG - RES	500	508	543	593	651	721	808	915	1,042	1,201	1,392	1,336	1,570	1,621	1,621	1,621	1,621	1,621	1,621	1,621	1,621	
DG - C&I	174	261	369	506	672	877	1,131	1,444	1,824	2,293	2,859	3,797	4,942	6,325	8,015	10,065	12,552	15,533	19,127	23,433	28,573	
EE Legacy	239,413	238,786	238,786	238,786	239,439	238,786	238,786	238,786	239,440	238,786	238,786	238,786	238,786	239,439	238,786	238,786	239,439	238,786	238,786	238,786	239,412	
EE C&I	-	16,146	34,321	54,383	76,242	99,037	122,755	145,328	167,109	202,798	217,202	230,440	240,971	250,983	260,374	267,129	271,955	277,101	280,039	283,102		
EE RES	-	3,840	8,432	11,465	13,426	18,047	23,218	28,877	35,148	40,893	46,984	51,397	55,337	58,380	60,894	62,810	64,236	64,622	64,703	65,147	65,165	
DR C&I	-	-	-	-	-	-	-	-	-	-	954	965	950	915	941	968	991	970	939	929	959	
DR RES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
New Local Solar	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
New External Solar	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
New External Wind	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Battery Charge	-	-	-	-	-	-	-	-	-	-	(79,330)	(78,791)	(77,517)	(76,353)	(75,251)	(73,968)	(73,314)	(71,631)	(74,217)	(73,329)	(72,062)	
Battery Discharge	-	-	-	-	-	-	-	-	-	-	71,354	70,687	69,533	68,519	67,513	66,283	65,754	64,208	66,553	65,750	64,559	
CONS.LANS Purchase - BR	1,315,546	1,286,717	1,266,609	1,264,270	1,252,247	1,248,338	1,254,211	1,255,776	1,251,934	1,252,625	-	-	-	-	-	-	-	-	-	-	-	
CONS.LANS Purchase - METC	37,202	19,748	2,688	1,703	3,254	2,885	14,787	19,356	21,257	20,769	74,912	77,671	80,761	82,781	85,357	87,377	89,434	91,857	92,398	93,900	95,352	
CONS.LANS Purchase	50,212	7,066	1,720	1,192	2,302	1,784	7,856	11,989	11,400	12,855	104,550	100,937	102,711	105,579	118,289	125,085	124,294	126,957	135,849	135,353	139,903	
Emergency Energy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Dump Energy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
CONS.LANS Sale	(389,257)	(923,732)	(1,405,782)	(1,447,501)	(1,452,938)	(1,421,509)	(855,051)	(777,598)	(736,285)	(771,176)	(148,990)	(136,489)	(129,684)	(118,271)	(109,404)	(102,195)	(95,539)	(81,427)	(84,312)	(78,220)	(72,208)	
DECO.BLR Sale	(724,282)	(634,380)	(530,997)	(521,753)	(603,586)	(525,514)	(516,874)	(600,926)	(495,446)	(483,102)	-	-	-	-	-	-	-	-	-	-	-	
External Renewable Sale	(184,928)	(328,216)	(474,997)	(472,817)	(475,842)	(473,594)	(473,594)	(473,594)	(473,594)	(473,122)	(475,138)	(475,135)	(477,001)	(473,251)	(474,218)	(420,825)	(419,930)	(419,317)	(418,667)	(415,709)	(418,871)	
Underlying Retail EV Sales	1,780	2,348	2,963	3,613	4,339	5,298	6,497	7,946	9,691	11,643	13,890	16,408	19,262	22,200	25,220	28,243	31,396	34,403	37,482	40,466	43,466	
Underlying Retail Sales without EVs	2,347,256	2,491,312	2,504,350	2,516,367	2,527,558	2,538,649	2,549,446	2,559,514	2,569,105	2,578,008	2,586,187	2,593,724	2,600,318	2,606,238	2,611,557	2,616,277	2,620,538	2,624,924	2,629,835	2,635,169	2,640,675	
MWh Balance	(1,79)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	230.93	
Underlying Retail Sales	2,349,037	2,493,660	2,507,312	2,519,981	2,531,897	2,543,947	2,555,942	2,567,959	2,578,796	2,589,651	2,600,076	2,610,132	2,619,581	2,628,438	2,636,778	2,644,520	2,651,935	2,659,326	2,667,316	2,675,635	2,684,140	
Retail Sales	2,108,950	2,234,119	2,224,862	2,214,247	2,201,466	2,186,480	2,169,244	2,152,110	2,134,232	2,120,428	2,107,258	2,095,615	2,083,619	2,075,407	2,066,054	2,056,233	2,047,236	2,040,990	2,032,821	2,024,667	2,013,838	

	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Installed Capacity																					
Erickson	159.0	159.0	159.0	159.0	159.0	159.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Belle River 1	77.0	77.0	77.0	77.0	77.0	77.0	77.0	77.0	77.0	77.0	-	-	-	-	-	-	-	-	-	-	-
Belle River 2	77.0	77.0	77.0	77.0	77.0	77.0	77.0	77.0	77.0	77.0	-	-	-	-	-	-	-	-	-	-	-
Reo	108.4	108.4	108.4	108.4																	

IRP 1.6

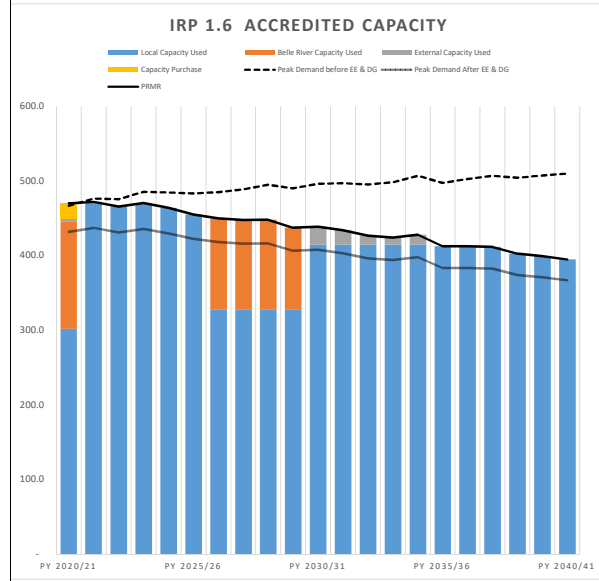
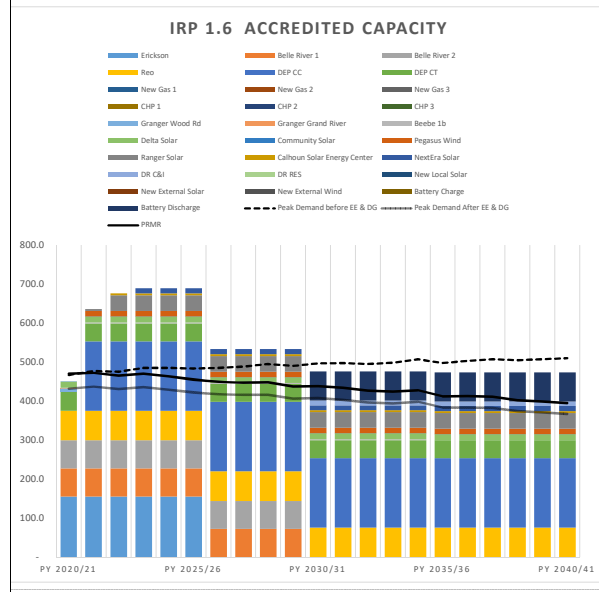
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Model Configuration and Constraints
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Expansion Plan:

2021: 10MW Solar | C&I Bins 1, 2 & 3; Res Bins 1, 3 & 5 | Distributed Solar High Incentive Program | 2022: 80MW Solar | 2023: 26MW Solar | 2025: Erickson Retirement | 2030: Demand Response C&I | 75MW, 4-

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
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Accredited Capacity	PY 2020/21	PY 2021/22	PY 2022/23	PY 2023/24	PY 2024/25	PY 2025/26	PY 2026/27	PY 2027/28	PY 2028/29	PY 2029/30	PY 2030/31	PY 2031/32	PY 2032/33	PY 2033/34	PY 2034/35	PY 2035/36	PY 2036/37	PY 2037/38	PY 2038/39	PY 2039/40	PY 2040/41
Peak Demand before EE & DG	466.9	476.7	475.5	485.5	484.8	483.4	485.2	488.8	494.9	490.2	496.4	497.1	495.4	498.1	506.9	497.7	502.9	507.0	504.5	507.2	510.0
Net Load Offsets																					
EE Legacy	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3
EE C&I	-	4.1	8.5	13.3	18.4	23.6	28.9	33.8	38.5	42.9	46.9	50.4	53.8	56.8	59.7	62.5	64.3	66.0	67.5	68.4	69.0
EE RES	-	0.4	0.9	1.3	1.5	2.0	2.6	3.3	3.9	4.6	5.3	5.8	6.2	6.5	6.8	6.9	7.1	7.1	7.1	7.1	7.1
DG - RES	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.6	0.7	0.7	1.5	2.4	3.5	4.9	6.5	8.5	10.9	13.7	17.1	21.2
DG - C&I	0.2	0.2	0.2	0.3	0.4	0.4	0.5	0.7	0.8	1.0	1.2	1.6	2.0	2.6	3.2	4.0	5.0	6.1	7.5	9.2	11.2
Cedar Solar	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-	-	-	-	-	-	-
Reo Solar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-
Community Solar	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Peak Demand After EE & DG	431.7	437.1	430.9	435.6	429.6	422.3	418.1	415.9	416.5	406.5	407.7	403.3	396.5	394.2	397.9	383.3	383.6	382.5	374.1	370.9	367.0
Reserve Margin Percent	1.089	1.080	1.081	1.080	1.080	1.077	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076
PRMR	470.2	472.1	465.8	470.5	463.9	454.9	449.8	447.6	448.1	437.4	438.7	433.9	426.6	424.1	428.1	412.4	412.7	411.6	402.6	399.1	394.9
Local Capacity																					
Erickson	155.4	155.4	155.4	155.4	155.4	155.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Reo	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0
DEP CC	-	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7
DEP CT	49.2	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3
New Gas 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Granger Wood Rd	6.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Delta Solar	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1
NextEra Solar	-	-	-	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9
DR C&I	-	-	-	-	-	-	-	-	-	-	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7
DR RES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Local Solar	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Battery Charge	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Battery Discharge	-	-	-	-	-	-	-	-	-	-	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0
Total Local Capacity	301.9	470.5	470.5	483.4	483.4	483.4	328.0	328.0	328.0	328.0	414.7	414.7	414.7	414.7	414.7	414.7	414.7	414.7	414.7	414.7	
Transmission Entitlements																					
Belle River Transmission Entitlement	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	-	-	-	-	-	-	-	-	-	-	-
Belle River 1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	-	-	-	-	-	-	-	-	-	-	-
Belle River 2	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	-	-	-	-	-	-	-	-	-	-	-
Remaining Entitlement	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	-	-	-	-	-	-	-	-	-	-	-
METC Settlement Entitlement	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6
Total Transmission Entitlements Remaining	18.4	18.4	18.4	18.4	18.4	18.4	18.4	18.4	18.4	18.4	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6
External Capacity																					
Granger Grand River	1.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Beebe 1b	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
Pegasus Wind	-	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
Ranger Solar	-	5.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
Calhoun Solar Energy Center	-	-	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
New External Solar	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New External Wind	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Available External Capacity	3.5	21.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	59.0	59.0	59.0	59.0	59.0	59.0
Summary																					
PRMR	470.2	472.1	465.8	470.5	463.9	454.9	449.8	447.6	448.1	437.4	438.7	433.9	426.6	424.1	428.1	412.4	412.7	411.6	402.6	399.1	394.9
Local Capacity Used	301.9	470.5	465.8	470.5	463.9	454.9	328.0	328.0	328.0	328.0	414.7	414.7	414.7	414.7	414.7	412.4	412.7	411.6	402.6	399.1	394.9
Local Capacity Remaining	-	-	4.7	12.9	19.5	28.5	-	-	-	-	-	-	-	-	-	2.3	1.9	3.1	12.1	15.6	19.8
Total Capacity Used	301.9	470.5	465.8	470.5	463.9	454.9	328.0	328.0	328.0	328.0	414.7	414.7	414.7	414.7	414.7	412.4	412.7	411.6	402.6	399.1	394.9
Capacity Short	168.3	1.6	-	-	-	-	121.8	119.6	120.1	109.4	24.0	19.2	11.9	9.4	13.4	-	-	-	-	-	-
Belle River Capacity Used	144.2	1.6	-	-	-	-	121.8	119.6	120.1	109.4	-	-	-	-	-	-	-	-	-	-	-
Belle River Capacity Remaining	-	142.6	144.2	144.2	144.2	144.2	22.4	24.6	24.1	34.8	-	-	-	-	-	-	-	-	-	-	-
Total Capacity Used	446.1	472.1	465.8	470.5	463.9	454.9	449.8	447.6	448.1	437.4	414.7	414.7	414.7	414.7	414.7	412.4	412.7	411.6	402.6	399.1	394.9
Capacity Short																					

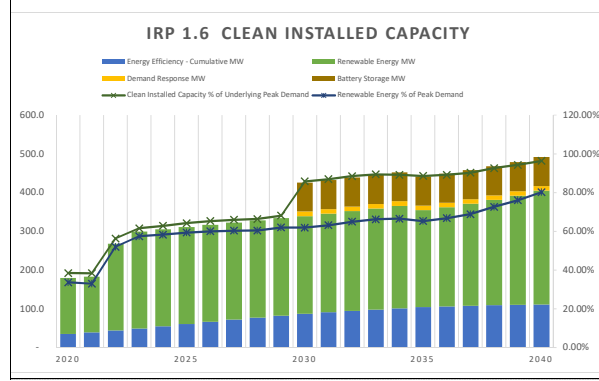
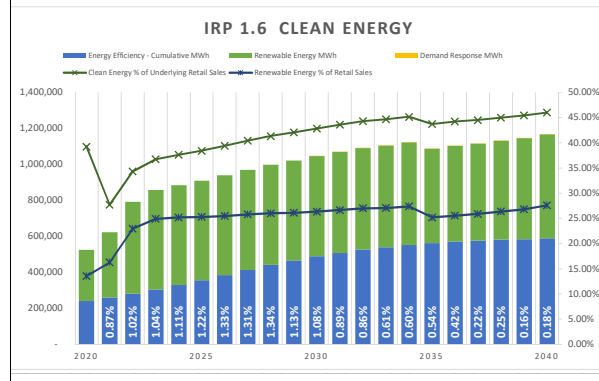
IRP 1.6

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	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Clean Energy																					
Renewable Energy MWh	285,604	363,525	510,383	551,955	554,621	552,793	553,420	555,671	555,813	554,786	556,134	560,376	564,959	565,911	571,235	524,418	531,669	539,292	549,737	561,015	578,564
Renewable Energy % of Retail Sales	13.54%	16.27%	22.93%	24.92%	25.18%	25.26%	25.49%	25.79%	26.01%	26.12%	26.34%	26.65%	26.98%	27.07%	27.38%	25.18%	25.55%	25.88%	26.34%	26.82%	27.60%
Renewable Energy % of Underlying Retail Sales	12.16%	14.58%	20.36%	21.90%	21.91%	21.73%	21.65%	21.64%	21.55%	21.42%	21.39%	21.47%	21.57%	21.53%	21.66%	19.83%	20.05%	20.28%	20.61%	20.97%	21.55%
Renewable Energy RPS	682,139	431,678	578,567	620,787	622,791	620,883	621,994	624,521	623,608	623,358	623,741	628,944	633,374	634,691	638,609	592,194	600,123	607,034	617,443	629,899	646,369
Renewable Energy % of Retail Sales	32.33%	19.32%	25.99%	28.02%	28.27%	28.38%	28.65%	28.99%	29.18%	29.35%	29.54%	29.91%	30.24%	30.36%	30.61%	28.44%	28.84%	29.13%	29.59%	30.11%	30.83%
Renewable Energy % of Underlying Retail Sales	29.04%	17.31%	23.08%	24.63%	24.60%	24.41%	24.34%	24.32%	24.18%	24.07%	23.99%	24.10%	24.18%	24.15%	24.22%	22.39%	22.63%	22.83%	23.15%	23.54%	24.08%
Energy Efficiency - Cumulative MWh	239,413	258,772	281,539	304,634	329,108	355,870	384,759	412,991	441,698	465,728	488,568	507,385	525,316	538,137	550,663	561,970	570,804	575,363	580,589	583,972	587,679
Energy Efficiency - Cumulative % of Underlying Retail Sales	10.19%	10.38%	11.23%	12.09%	13.00%	13.99%	15.05%	16.09%	17.13%	17.98%	18.79%	19.44%	20.05%	20.47%	20.88%	21.25%	21.52%	21.64%	21.77%	21.83%	21.89%
Energy Efficiency - Annual Incremental MWh		19,360	22,767	23,095	24,474	26,762	28,889	28,231	28,707	24,031	22,839	18,817	17,931	12,822	12,526	11,307	8,834	4,559	5,226	3,383	3,707
Energy Efficiency - Annual Incremental % of Retail Sales		0.87%	1.02%	1.04%	1.11%	1.22%	1.33%	1.31%	1.34%	1.13%	1.08%	0.89%	0.86%	0.61%	0.60%	0.54%	0.42%	0.22%	0.25%	0.16%	0.18%
Energy Efficiency - Annual Incremental % of Underlying Retail Sales		0.78%	0.91%	0.92%	0.97%	1.05%	1.13%	1.10%	1.11%	0.93%	0.88%	0.72%	0.68%	0.49%	0.48%	0.43%	0.33%	0.17%	0.20%	0.13%	0.14%
Demand Response MWh	-	-	-	-	-	-	-	-	-	-	954	965	950	915	941	968	991	970	939	929	959
Demand Response % of Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.05%	0.05%	0.05%	0.04%	0.05%	0.05%	0.05%	0.05%	0.05%	0.04%	0.05%
Demand Response % of Underlying Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.04%	0.04%	0.04%	0.03%	0.04%	0.04%	0.04%	0.04%	0.04%	0.03%	0.04%
Clean Energy Credits	921,551	690,450	860,106	925,421	951,899	976,753	1,006,753	1,037,512	1,065,305	1,089,086	1,113,263	1,137,294	1,159,640	1,173,744	1,190,213	1,155,133	1,171,919	1,183,367	1,198,972	1,214,801	1,235,007
Clean Energy % of Underlying Retail Sales	39.23%	27.69%	34.30%	36.72%	37.60%	38.40%	39.39%	40.41%	41.31%	42.06%	42.82%	43.57%	44.27%	44.66%	45.14%	43.68%	44.19%	44.50%	44.95%	45.40%	46.01%
Clean Installed Capacity																					
Renewable Energy MW	145.0	143.9	224.0	250.0	250.2	250.4	250.7	251.0	251.4	251.9	252.5	254.7	257.4	260.7	264.6	250.2	256.1	263.2	271.7	281.9	294.0
Renewable Energy % of Peak Demand	33.59%	32.92%	51.98%	57.39%	58.24%	59.29%	59.96%	60.34%	60.36%	61.96%	61.92%	63.16%	64.93%	66.15%	66.50%	65.29%	66.77%	68.81%	72.62%	75.98%	80.10%
Renewable Energy % of Underlying Peak Demand	31.06%	30.18%	47.10%	51.50%	51.61%	51.80%	51.67%	51.35%	50.80%	51.38%	50.86%	51.24%	51.97%	52.34%	52.20%	50.28%	50.93%	51.91%	53.86%	55.57%	57.65%
Energy Efficiency - Cumulative MW	34.3	38.7	43.7	48.9	54.2	59.9	65.8	71.4	76.8	81.8	86.4	90.5	94.3	97.7	100.8	103.7	105.6	107.4	108.9	109.8	110.4
Energy Efficiency - Cumulative % of Underlying Peak Demand	7.35%	8.13%	9.20%	10.07%	11.17%	12.40%	13.57%	14.60%	15.51%	16.69%	17.41%	18.21%	19.03%	19.61%	19.89%	20.84%	21.01%	21.17%	21.59%	21.64%	21.65%
Energy Efficiency - Annual Incremental MW		4.4	5.0	5.1	5.3	5.8	5.9	5.6	5.4	5.0	4.6	4.1	3.7	3.4	3.1	2.9	1.9	1.7	1.6	0.9	0.7
Energy Efficiency - Annual Incremental % of Peak Demand		1.02%	1.16%	1.18%	1.23%	1.37%	1.41%	1.34%	1.30%	1.24%	1.14%	1.01%	0.94%	0.87%	0.79%	0.76%	0.50%	0.45%	0.42%	0.23%	0.18%
Energy Efficiency - Annual Incremental % of Underlying Peak Demand		0.93%	1.05%	1.06%	1.09%	1.19%	1.22%	1.14%	1.09%	1.03%	0.93%	0.82%	0.75%	0.69%	0.62%	0.59%	0.38%	0.34%	0.31%	0.17%	0.13%
Demand Response MW	-	-	-	-	-	-	-	-	-	-	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7
Demand Response % of Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.87%	2.90%	2.95%	2.97%	2.94%	3.05%	3.05%	3.06%	3.12%	3.15%	3.19%
Demand Response % of Underlying Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.36%	2.35%	2.36%	2.35%	2.31%	2.35%	2.32%	2.31%	2.32%	2.30%	2.29%
Battery Storage MW	-	-	-	-	-	-	-	-	-	-	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0
Battery Storage % of Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	18.39%	18.60%	18.92%	19.03%	18.85%	19.57%	19.55%	19.61%	20.05%	20.43%	20.43%
Battery Storage % of Underlying Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	15.11%	15.09%	15.14%	15.06%	14.80%	15.07%	14.91%	14.79%	14.87%	14.79%	14.71%
Clean Installed Capacity MW	179	183	268	299	304	310	317	322	328	334	426	432	438	445	452	441	448	457	467	478	491
Clean Installed Capacity % of Underlying Peak Demand	38.41%	38.31%	56.30%	61.57%	62.78%	64.19%	65.24%	65.95%	66.31%	68.07%	85.74%	86.89%	88.49%	89.35%	89.18%	88.54%	89.18%	90.18%	92.63%	94.30%	96.30%



Model Configuration and Constraints
 35% Clean Energy in 2025, 40% Clean Energy in 2030 | Erickson Retires December 2025 and Dispatched Optimally | 1% Annual Incremental Efficiency | Pegasus Online 7/1/2020 | Regular Growth | No Incentive for Electric Vehicles | High Incentives for Customer Solar | Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy | Question Answered: What is the impact of incentivizing distributed solar with our current goals?

Expansion Plan:

2021: 10MW Solar | C&I Bins 1, 2 & 3; Res Bins 1, 3 & 5 | Distributed Solar High Incentive Program | 2022: 80MW Solar | 2023: 26MW Solar | 2025: Erickson Retirement | 2030: Demand Response C&I | 75MW, 4-

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	
Total Costs w/ Post Processing	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01	
Erickson	\$ 27,453,719	\$ 24,044,444	\$ 22,669,712	\$ 18,756,665	\$ 20,775,393	\$ 20,462,195	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Belle River 1	\$ 20,180,467	\$ 19,057,383	\$ 16,752,650	\$ 18,645,871	\$ 19,022,577	\$ 17,479,968	\$ 19,333,371	\$ 19,955,223	\$ 18,192,186	\$ 20,148,330	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Belle River 2	\$ 18,481,882	\$ 18,036,989	\$ 18,282,282	\$ 17,026,555	\$ 19,167,287	\$ 17,865,964	\$ 19,930,307	\$ 19,882,706	\$ 18,471,625	\$ 18,471,625	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Reo	\$ 20,349,100	\$ 20,008,570	\$ 17,794,775	\$ 17,834,879	\$ 17,816,071	\$ 17,825,128	\$ 18,051,403	\$ 18,205,378	\$ 18,436,945	\$ 18,972,874	\$ 21,991,588	\$ 21,726,821	\$ 22,285,500	\$ 22,272,497	\$ 22,497,197	\$ 22,539,426	\$ 22,795,604	\$ 22,860,683	\$ 23,189,834	\$ 23,419,548	\$ 23,649,173	
DEP CC	\$ -	\$ 22,798,268	\$ 41,888,218	\$ 43,799,755	\$ 43,857,396	\$ 45,066,580	\$ 40,387,671	\$ 39,039,476	\$ 38,899,342	\$ 39,507,367	\$ 50,654,826	\$ 51,672,664	\$ 53,748,574	\$ 54,948,098	\$ 55,505,416	\$ 56,647,426	\$ 58,583,725	\$ 59,254,595	\$ 59,745,523	\$ 59,745,523	\$ 61,321,313	\$ 62,652,059
DEP CT	\$ -	\$ 3,819,416	\$ 3,738,841	\$ 3,613,992	\$ 3,553,183	\$ 3,408,243	\$ 2,529,161	\$ 2,164,091	\$ 2,239,802	\$ 2,349,499	\$ 2,818,354	\$ 2,567,671	\$ 2,578,825	\$ 2,477,205	\$ 2,498,483	\$ 2,472,189	\$ 2,423,408	\$ 2,335,424	\$ 2,415,444	\$ 2,378,445	\$ 2,369,155	
New Gas 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Gas 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Gas 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Granger Wood Rd	\$ 5,498,401	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Granger Grand River	\$ 1,098,338	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Beebe 1b	\$ 2,810,094	\$ 2,881,790	\$ 2,935,240	\$ 3,001,689	\$ 3,110,049	\$ 3,180,931	\$ 3,233,418	\$ 3,319,856	\$ 3,430,425	\$ 3,467,648	\$ 3,577,849	\$ 3,664,435	\$ 3,785,223	\$ 3,851,962	\$ 3,946,688	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Cedar Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Reo Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Delta Solar	\$ 2,071,241	\$ 2,125,679	\$ 2,179,775	\$ 2,255,318	\$ 2,289,179	\$ 2,344,044	\$ 2,419,906	\$ 2,490,124	\$ 2,513,496	\$ 2,605,472	\$ 2,633,397	\$ 2,737,369	\$ 2,799,726	\$ 2,885,170	\$ 2,911,877	\$ 3,002,480	\$ 3,108,229	\$ 3,152,620	\$ 3,230,459	\$ 3,368,471	\$ 3,397,986	
Community Solar	\$ 31,218	\$ 32,679	\$ 34,651	\$ 36,151	\$ 37,451	\$ 38,864	\$ 40,386	\$ 42,024	\$ 43,786	\$ 45,666	\$ 47,666	\$ 49,786	\$ 52,024	\$ 54,486	\$ 57,166	\$ 60,066	\$ 63,286	\$ 66,846	\$ 70,746	\$ 75,006	\$ 79,646	
Pegasus Wind	\$ 4,832,819	\$ 10,576,306	\$ 10,806,092	\$ 10,899,541	\$ 11,152,903	\$ 11,252,975	\$ 11,401,970	\$ 11,639,005	\$ 11,834,136	\$ 11,926,829	\$ 12,172,382	\$ 12,344,787	\$ 12,633,706	\$ 12,846,864	\$ 13,164,223	\$ 13,301,150	\$ 13,449,850	\$ 13,609,313	\$ 13,784,570	\$ 13,975,627	\$ 14,183,494	\$ 14,408,171
Ranger Solar	\$ -	\$ 796,075	\$ 5,121,963	\$ 5,609,504	\$ 5,735,435	\$ 5,852,329	\$ 5,977,841	\$ 6,095,060	\$ 6,237,296	\$ 6,328,682	\$ 6,468,640	\$ 6,606,621	\$ 6,706,705	\$ 6,836,819	\$ 7,129,333	\$ 7,283,378	\$ 7,445,730	\$ 7,582,423	\$ 7,783,356	\$ 7,908,356	\$ 8,078,356	\$ 8,268,356
Calhoun Solar Energy Center	\$ -	\$ -	\$ 718,730	\$ 731,213	\$ 745,105	\$ 761,732	\$ 777,171	\$ 792,350	\$ 812,072	\$ 824,033	\$ 839,531	\$ 858,956	\$ 875,700	\$ 888,902	\$ 913,154	\$ 928,272	\$ 945,883	\$ 967,027	\$ 984,247	\$ 999,862	\$ 1,025,864	\$ 1,025,864
NextEra Solar	\$ -	\$ -	\$ -	\$ 1,629,816	\$ 1,652,721	\$ 1,665,368	\$ 1,728,549	\$ 1,771,589	\$ 1,846,395	\$ 1,846,395	\$ 1,918,540	\$ 1,924,493	\$ 1,975,341	\$ 2,009,975	\$ 2,055,677	\$ 2,108,020	\$ 2,162,464	\$ 2,218,041	\$ 2,249,944	\$ 2,258,245	\$ 2,258,245	\$ 2,258,245
DG - RES	\$ 4,000	\$ 4,000	\$ 20,000	\$ 28,000	\$ 32,000	\$ 40,000	\$ 48,000	\$ 60,000	\$ 72,000	\$ 88,000	\$ 108,000	\$ 134,000	\$ 168,000	\$ 200,000	\$ 234,000	\$ 266,000	\$ 296,000	\$ 324,000	\$ 342,000	\$ 350,000	\$ 350,000	\$ 350,000
DG - C&I	\$ 28,000	\$ 36,000	\$ 44,000	\$ 56,000	\$ 68,000	\$ 84,000	\$ 104,000	\$ 128,000	\$ 156,000	\$ 192,000	\$ 232,000	\$ 280,000	\$ 336,000	\$ 400,000	\$ 468,000	\$ 540,000	\$ 624,000	\$ 716,000	\$ 824,000	\$ 948,000	\$ 1,088,000	
EE Legacy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
EE C&I	\$ -	\$ 1,927,998	\$ 2,236,862	\$ 2,541,845	\$ 2,822,942	\$ 3,143,712	\$ 3,426,552	\$ 3,587,237	\$ 3,650,577	\$ 3,671,777	\$ 3,569,314	\$ 4,000,628	\$ 4,015,937	\$ 4,292,621	\$ 4,301,564	\$ 4,339,053	\$ 4,697,335	\$ 4,796,973	\$ 4,789,353	\$ 4,837,838	\$ 4,801,417	
EE RES	\$ -	\$ 627,475	\$ 746,789	\$ 825,481	\$ 873,268	\$ 992,891	\$ 1,112,347	\$ 1,232,513	\$ 1,352,209	\$ 1,473,129	\$ 1,570,366	\$ 1,320,972	\$ 1,273,873	\$ 1,231,922	\$ 1,196,363	\$ 1,154,211	\$ 1,283,659	\$ 1,276,845	\$ 1,267,652	\$ 1,262,604	\$ 1,284,848	\$ 1,284,848
DR C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DR RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Local Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New External Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New External Wind	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Battery Charge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Battery Discharge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CONS.LANS Purchase - BR	\$ 36,392,285	\$ 36,957,226	\$ 36,089,437	\$ 35,146,706	\$ 35,231,448	\$ 35,170,873	\$ 36,159,193	\$ 35,959,360	\$ 36,197,980	\$ 37,053,399	\$ 37,053,399	\$ 37,053,399	\$ 37,053,399	\$ 37,053,399	\$ 37,053,399	\$ 37,053,399	\$ 37,053,399	\$ 37,053,399	\$ 37,053,399	\$ 37,053,399	\$ 37,053,399	\$ 37,053,399
CONS.LANS Purchase - METC	\$ 1,027,918	\$ 506,234	\$ 107,688	\$ 86,316	\$ 118,127	\$ 113,201	\$ 353,286	\$ 454,143	\$ 487,398	\$ 503,254	\$ 2,022,530	\$ 2,081,585	\$ 2,186,696	\$ 2,251,429	\$ 2,309,589	\$ 2,368,761	\$ 2,421,924	\$ 2,523,114	\$ 2,494,306	\$ 2,532,195	\$ 2,581,562	
CONS.LANS Purchase	\$ 1,752,919	\$ 274,249	\$ 58,242	\$ 42,054	\$ 73,244	\$ 58,695	\$ 255,532	\$ 388,376	\$ 374,953	\$ 445,070	\$ 4,240,903	\$ 3,769,881	\$ 4,440,079	\$ 4,649,297	\$ 5,152,824	\$ 5,266,156	\$ 5,480,915	\$ 5,901,260	\$ 6,233,818	\$ 6,244,031	\$ 6,515,998	
Emergency Energy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Dump Energy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CONS.LANS Sale	\$ (13,341,654)	\$ (32,110,870)	\$ (49,107,290)	\$ (46,262,262)	\$ (48,347,610)	\$ (46,957,987)	\$ (29,918,187)	\$ (27,696,298)	\$ (27,554,433)	\$ (28,590,034)	\$ (7,535,354)	\$ (5,987,638)	\$ (6,281,919)	\$ (5,764,207)	\$ (6,004,555)	\$ (5,273,286)	\$ (5,153,217)	\$ (3,961,640)	\$ (4,196,453)	\$ (3,848,537)	\$ (3,666,778)	
DECO.BLR Sale	\$ (21,424,991)	\$ (21,499,876)	\$ (18,463,198)	\$ (17,421,337)	\$ (20,360,705)	\$ (17,368,997)	\$ (18,510,000)	\$ (20,734,314)	\$ (17,757,979)	\$ (18,035,746)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
External Renewable Sale	\$ (4,929,810)	\$ (9,214,193)	\$ (13,729,250)	\$ (13,260,237)	\$ (13,363,618)	\$ (13,730,765)	\$ (13,643,551)	\$ (13,730,765)	\$ (13,843,645)	\$ (14,019,958)	\$ (14,149,029)	\$ (13,319,809)	\$ (13,703,541)	\$ (13,369,578)	\$ (13,502,144)	\$ (11,698,886)	\$ (11,629,038)	\$ (11,292,661)	\$ (11,114,141)	\$ (10,815,763)	\$ (10,792,257)	
Electric Vehicle Program	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Capacity Purchase	\$ 231,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Capacity Sale	\$ -	\$ (1,050,932)	\$ (1,320,073)	\$ (1,320,073)	\$ (1,320,073)	\$ (1,320,073)	\$ (538,282)	\$ (551,099)	\$ (551,099)	\$ (

IRP 1.6		2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	
Summary of Modeling																							
Model Configuration and Constraints		Expansion Plan:																					
35% Clean Energy in 2025, 40% Clean Energy in 2030 Erickson Retires December 2025 and Dispatched Optimally 1% Annual Incremental Energy Efficiency Pegasus Online 7/1/2020 Regular Growth No Incentive for Electric Vehicles High Incentives for Customer Solar Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy Question Answered: What is the impact of incentivizing distributed solar with our current goals?		2021: 10MW Solar C&I Bins 1, 2 & 3; Res Bins 1, 3 & 5 Distributed Solar High Incentive Program 2022: 80MW Solar 2023: 26MW Solar 2025: Erickson Retirement 2030: Demand Response C&I 75MW, 4-																					
Summary Metrics		2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01	
Total Cost		\$ 102,546,944	\$ 100,634,221	\$ 99,995,166	\$ 104,300,944	\$ 104,738,473	\$ 109,211,674	\$ 102,503,967	\$ 104,620,582	\$ 106,850,553	\$ 108,646,082	\$ 98,593,338	\$ 102,997,828	\$ 106,374,559	\$ 109,446,807	\$ 111,177,244	\$ 112,364,999	\$ 116,150,733	\$ 120,092,459	\$ 122,458,258	\$ 126,401,661	\$ 116,218,784	
Nominal Rates		\$ 48.61	\$ 45.03	\$ 44.93	\$ 47.08	\$ 47.55	\$ 49.91	\$ 47.21	\$ 48.56	\$ 50.00	\$ 51.15	\$ 46.69	\$ 48.98	\$ 50.79	\$ 52.36	\$ 53.29	\$ 53.96	\$ 55.81	\$ 57.63	\$ 58.68	\$ 60.43	\$ 55.44	
Accumulated Net Present Value Total Cost		\$ 102,546,944	\$ 198,700,414	\$ 289,989,224	\$ 380,969,248	\$ 468,263,031	\$ 555,232,218	\$ 633,225,337	\$ 709,284,583	\$ 783,506,289	\$ 855,614,961	\$ 918,138,027	\$ 980,545,993	\$ 1,042,130,152	\$ 1,102,671,711	\$ 1,161,432,237	\$ 1,218,176,257	\$ 1,274,220,404	\$ 1,329,586,426	\$ 1,383,529,406	\$ 1,436,730,296	\$ 1,483,467,392	
Accumulated NPV Retail Sales		2,109,624	4,245,003	6,276,983	8,209,394	10,045,298	11,787,743	13,439,751	15,006,051	16,490,546	17,900,198	19,239,213	20,513,301	21,725,748	22,882,018	23,984,592	25,036,274	26,040,445	27,001,211	27,920,416	28,800,771	29,643,858	
Accumulated NPV Rate Impact		\$ 48.61	\$ 46.81	\$ 46.20	\$ 46.41	\$ 46.62	\$ 47.10	\$ 47.12	\$ 47.27	\$ 47.51	\$ 47.80	\$ 47.72	\$ 47.80	\$ 47.97	\$ 48.19	\$ 48.42	\$ 48.66	\$ 48.93	\$ 49.24	\$ 49.55	\$ 49.89	\$ 50.04	
Risk Premium		\$ 16,082,426	\$ 23,747,341	\$ 33,394,104	\$ 31,124,649	\$ 30,841,986	\$ 29,674,231	\$ 24,273,585	\$ 20,935,793	\$ 20,886,970	\$ 24,847,408	\$ 19,490,748	\$ 13,329,953	\$ 18,100,789	\$ 16,000,504	\$ 17,711,112	\$ 13,920,693	\$ 15,354,651	\$ 15,642,986	\$ 11,558,516	\$ 12,703,961	\$ 9,168,227	
Present Value of Risk Premium		\$ 16,082,426	\$ 22,689,988	\$ 30,486,554	\$ 27,149,527	\$ 25,705,107	\$ 23,630,658	\$ 18,469,262	\$ 15,220,338	\$ 14,508,736	\$ 16,491,286	\$ 12,360,078	\$ 8,076,824	\$ 10,479,215	\$ 8,850,834	\$ 9,360,857	\$ 7,029,912	\$ 7,408,807	\$ 7,211,859	\$ 5,091,537	\$ 5,346,940	\$ 3,686,980	
Accumulated NPV Risk Premium		\$ 16,082,426	\$ 38,772,413	\$ 69,258,968	\$ 96,408,495	\$ 122,113,602	\$ 145,744,260	\$ 164,213,522	\$ 179,433,860	\$ 193,942,596	\$ 210,433,882	\$ 222,793,960	\$ 230,870,784	\$ 241,349,998	\$ 250,200,832	\$ 259,561,689	\$ 266,591,601	\$ 274,000,408	\$ 281,212,267	\$ 286,303,804	\$ 291,650,744	\$ 295,337,724	
Total Cost with Risk Premium		\$ 118,629,370	\$ 124,381,563	\$ 133,389,270	\$ 135,425,593	\$ 135,580,459	\$ 138,885,905	\$ 126,777,552	\$ 125,556,374	\$ 127,737,523	\$ 133,493,489	\$ 118,084,087	\$ 116,327,782	\$ 124,475,348	\$ 125,447,311	\$ 128,888,356	\$ 126,285,692	\$ 131,505,384	\$ 135,735,444	\$ 134,016,774	\$ 139,105,622	\$ 125,387,011	
Present Value of Total Cost with Risk Premium		\$ 118,629,370	\$ 118,843,457	\$ 121,775,364	\$ 118,129,551	\$ 112,998,890	\$ 110,599,845	\$ 96,462,381	\$ 91,279,584	\$ 88,730,442	\$ 88,599,957	\$ 74,883,144	\$ 70,484,790	\$ 72,063,373	\$ 69,392,393	\$ 68,121,384	\$ 63,773,932	\$ 63,452,954	\$ 62,577,881	\$ 59,034,517	\$ 58,547,830	\$ 50,424,075	
Accumulated NPV Total Cost with Risk Premium		\$ 118,629,370	\$ 237,472,827	\$ 359,248,191	\$ 477,377,742	\$ 590,376,632	\$ 700,976,478	\$ 797,438,859	\$ 888,718,443	\$ 977,448,886	\$ 1,066,048,843	\$ 1,140,931,987	\$ 1,211,416,777	\$ 1,283,480,150	\$ 1,352,872,542	\$ 1,420,993,926	\$ 1,484,767,858	\$ 1,548,220,812	\$ 1,610,798,693	\$ 1,669,833,210	\$ 1,728,381,040	\$ 1,778,805,115	
Percent Dispatchable Generation		70.2%	78.9%	71.8%	69.5%	69.1%	68.7%	62.3%	61.8%	61.4%	61.0%	57.3%	56.9%	56.4%	55.9%	55.5%	56.2%	55.1%	55.1%	54.5%	53.7%	52.9%	
Resource Diversity		0.66	0.50	0.57	0.59	0.60	0.60	0.55	0.55	0.56	0.56	0.52	0.52	0.53	0.54	0.54	0.53	0.54	0.55	0.56	0.57	0.58	
Annual CO2 Emissions - Tons		1,494,031	1,736,112	1,808,040	1,763,146	1,883,321	1,772,071	1,315,947	1,359,804	1,227,825	1,220,845	917,776	905,301	895,078	883,175	869,287	857,898	850,106	838,591	832,957	826,299	817,249	
Accumulated CO2 Emissions - Tons		1,494,031	3,230,143	5,038,183	6,801,329	8,684,650	10,456,721	11,772,668	13,132,472	14,360,297	15,581,142	16,498,918	17,404,219	18,299,297	19,182,473	20,051,760	20,909,658	21,759,764	22,598,355	23,431,312	24,257,610	25,074,859	
Average CO2 Emissions per Year - Tons		1,494,031	1,615,071	1,679,394	1,700,332	1,736,930	1,742,787	1,681,810	1,641,559	1,595,589	1,558,114	1,499,902	1,450,352	1,407,638	1,370,177	1,336,784	1,306,854	1,279,986	1,255,464	1,233,227	1,212,881	1,194,041	
Annual CO2 Intensity - lbs/MWh Generated		1,331.3	1,132.3	991.2	954.4	989.5	954.7	842.3	867.8	817.9	805.6	602.9	595.0	588.3	582.6	576.3	580.6	575.6	570.2	566.2	562.0	555.9	
Total CO2 Emissions Reduced from 2005		65.8%	60.3%	58.6%	59.6%	56.9%	59.4%	69.9%	68.9%	71.9%	72.1%	79.0%	79.3%	79.5%	79.8%	80.1%	80.4%	80.5%	80.8%	80.9%	81.1%	81.3%	
CO2 Intensity Reduced from 2005		42.3%	50.9%	57.0%	58.6%	57.1%	58.6%	63.5%	62.4%	64.6%	65.1%	73.9%	74.2%	74.5%	74.7%	75.0%	74.8%	75.1%	75.3%	75.5%	75.6%	75.9%	
Annual NOx Emissions - Tons		1,012	964	852	807	911	828	567	630	539	530	160	155	151	148	145	142	139	136	135	133	131	
Accumulated NOx Emissions - Tons		1,012	1,976	2,828	3,635	4,546	5,374	5,941	6,572	7,111	7,641	7,801	7,956	8,108	8,256	8,400	8,542	8,681	8,816	8,951	9,084	9,215	
Average NOx Emissions per Year - Tons		1,012	988	943	909	909	896	849	821	790	764	709	663	624	590	560	534	511	490	471	454	439	
Annual NOx Intensity - lbs/MWh Generated		0.9	0.6	0.5	0.4	0.5	0.4	0.4	0.4	0.4	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
Total NOx Emissions Reduced from 2005		76.9%	78.0%	80.5%	81.5%	79.2%	81.1%	87.0%	85.6%	87.7%	87.9%	96.3%	96.5%	96.5%	96.6%	96.7%	96.8%	96.8%	96.9%	96.9%	97.0%	97.0%	
NOx Intensity Reduced from 2005		61.0%	72.8%	79.8%	81.1%	79.3%	80.7%	84.3%	82.6%	84.4%	84.9%	95.4%	95.6%	95.7%	95.8%	95.9%	95.8%	95.9%	96.0%	96.0%	96.1%	96.1%	
Annual SO2 Emissions - Tons		3,191	2,833	2,414	2,260	2,639	2,367	1,558	1,811	1,496	1,456	9	9	9	9	9	9	9	9	9	8	8	
Accumulated SO2 Emissions - Tons		3,191	6,024	8,438	10,698	13,337	15,704	17,262	19,073	20,570	22,026	22,035	22,044	22,053	22,062	22,071	22,080	22,089	22,097	22,106	22,114	22,123	
Average SO2 Emissions per Year - Tons		3,191	3,012	2,813	2,674	2,667	2,813	2,466	2,384	2,286	2,203	2,003	2,003	1,996	1,996	1,996	1,996	1,996	1,996	1,996	1,996	1,996	
Annual SO2 Intensity - lbs/MWh Generated		2.8	1.8	1.3	1.2	1.4	1.3	1.0	1.2	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total SO2 Emissions Reduced from 2005		71.2%	74.4%	78.2%	79.6%	76.2%	78.6%	85.9%	83.6%	86.5%	86.8%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	
SO2 Intensity Reduced from 2005		51.4%	68.4%	77.4%	79.1%	76.3%	78.2%	82.9%	80.2%	83.0%	83.6%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	
Renewable Energy MWh %		14%	16%	23%	25%	25%	25%	25%	26%	26%	26%	26%	27%	27%	27%	27%	25%	26%	26%	26%	27%	28%	
Renewable Energy RPS %		32%	19%	26%	28%	28%	28%	29%	29%	29%	29%	30%	30%	30%	30%	31%	28%	29%	29%	30%	30%	31%	
Energy Efficiency %		10%	10%	11%	12%	13%	14%	15%	16%	17%	18%	19%	19%	20%	20%	21%	21%	22%	22%	22%	22%	22%	
Clean Energy %		39%	28%	34%	37%	38%	38%	39%	40%	41%	42%	43%	44%	44%	45%	45%	44%	44%	44%	45%	45%	46%	

1.7 v6: Model Configuration & Constraints

35% Clean Energy in 2025

40% Clean Energy in 2030

Erickson Retires December 2025 and Dispatched Optimally

Max Annual Incremental Energy Efficiency

Pegasus Online 7/1/2020

Regular Growth

High Incentives for Electric Vehicles

High Incentives for Customer Solar

Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy

Expansion Plan

2021: 10MW Solar | C&I Bins 1, 2, 3, 4 & 5; Res Bins 1, 2, 3, 4 & 5

Electric Vehicle High Incentive Program

Distributed Solar High Incentive Program

2022: 80MW Solar

2023: 26MW Solar

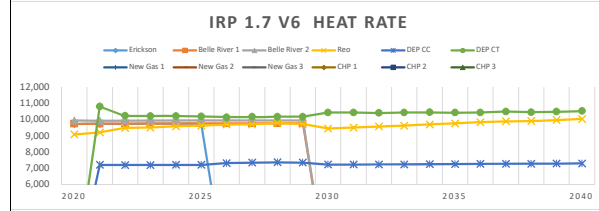
IRP 1.7 V6

Summary of Modeling

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 35% Clean Energy in 2025, 40% Clean Energy in 2030 | Erickson Retires December 2025 and Dispatched Optimally | Max Annual Incremental Energy Efficiency | Pegasus Online 7/1/2020 | Regular Growth | High Incentives for Electric Vehicles | High Incentives for Customer Solar | Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy | Question Answered: What is the impact of increasing our energy efficiency, demand response, customer solar, and

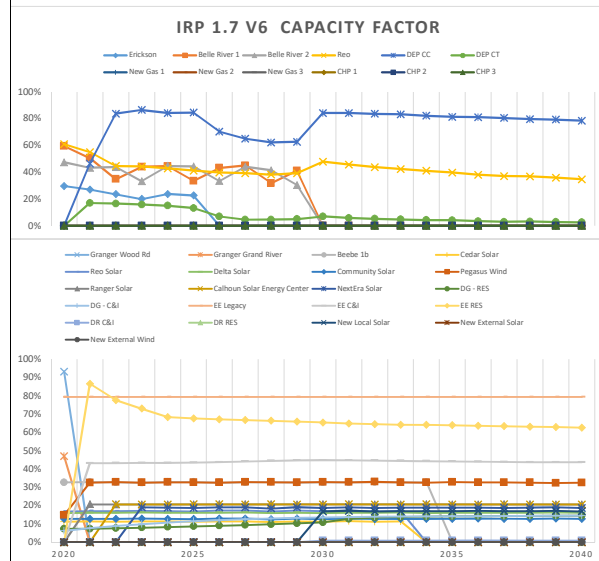
Expansion Plan:
 2021: 10MW Solar | C&I Bins 1, 2, 3, 4 & 5; Res Bins 1, 2, 3, 4 & 5 | Electric Vehicle High Incentive Program | Distributed Solar High Incentive Program | 2022: 80MW Solar | 2023: 26MW Solar | 2025:

Heat Rate	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
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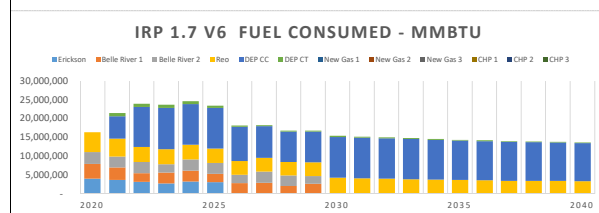
Erickson	9,727	9,737	9,729	9,740	9,733	9,734	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Belle River 1	9,728	9,739	9,749	9,748	9,749	9,753	9,754	9,756	9,756	9,761	--	--	--	--	--	--	--	--	--	--	
Belle River 2	9,929	9,913	9,924	9,937	9,927	9,931	9,933	9,933	9,931	9,938	--	--	--	--	--	--	--	--	--	--	
Reo	9,072	9,203	9,483	9,497	9,574	9,623	9,684	9,701	9,772	9,713	9,435	9,495	9,566	9,614	9,692	9,753	9,839	9,883	9,903	9,965	10,036
DEP CC	--	7,199	7,188	7,192	7,205	7,203	7,304	7,337	7,356	7,340	7,220	7,224	7,233	7,236	7,244	7,252	7,261	7,265	7,269	7,280	7,288
DEP CT	--	10,799	10,217	10,203	10,206	10,189	10,129	10,161	10,171	10,173	10,420	10,423	10,396	10,423	10,435	10,414	10,431	10,486	10,448	10,472	10,516
New Gas 1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Gas 2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Gas 3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Capacity Factor	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
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Erickson	30%	27%	24%	20%	24%	23%	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Belle River 1	60%	51%	35%	44%	45%	34%	43%	45%	32%	41%	--	--	--	--	--	--	--	--	--	--	--
Belle River 2	47%	43%	44%	33%	44%	44%	33%	44%	41%	31%	--	--	--	--	--	--	--	--	--	--	--
Reo	61%	55%	45%	44%	43%	41%	40%	39%	38%	39%	48%	46%	44%	42%	41%	40%	38%	37%	37%	36%	35%
DEP CC	--	46%	84%	87%	84%	85%	70%	65%	62%	63%	84%	84%	84%	83%	82%	81%	81%	80%	79%	79%	79%
DEP CT	--	17%	17%	16%	15%	13%	7%	5%	5%	5%	7%	6%	5%	5%	4%	4%	3%	3%	3%	3%	3%
New Gas 1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Gas 2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Gas 3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Granger Wood Rd	93%	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Granger Grand River	47%	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beebe 1b	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	--	--	--	--	--	--
Cedar Solar	11%	11%	11%	11%	11%	11%	11%	12%	11%	12%	11%	12%	11%	11%	--	--	--	--	--	--	--
Reo Solar	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	--	--	--	--	--	--	--
Delta Solar	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%
Community Solar	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%
Pegasus Wind	15%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	32%	33%
Ranger Solar	--	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%
Calhoun Solar Energy Center	--	--	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%
NextEra Solar	--	--	--	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%
DG-RES	7%	7%	8%	8%	8%	9%	9%	10%	10%	10%	11%	13%	13%	14%	14%	14%	14%	14%	14%	14%	15%
DG-C&I	6%	8%	10%	10%	11%	12%	12%	13%	13%	13%	14%	14%	14%	14%	14%	14%	14%	14%	14%	15%	15%
EE Legacy	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%
EE C&I	--	43%	43%	43%	43%	44%	44%	44%	45%	45%	45%	45%	45%	45%	44%	44%	44%	44%	44%	44%	44%
EE RES	--	87%	78%	73%	68%	68%	67%	67%	67%	66%	66%	65%	65%	64%	64%	64%	64%	63%	63%	63%	63%
DR C&I	--	--	--	--	--	--	--	--	--	--	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
DR RES	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Local Solar	--	--	--	--	--	--	--	--	--	--	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%
New External Solar	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New External Wind	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Fuel Consumed - MMBtu	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
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Erickson	4,024,690	3,665,346	3,204,142	2,716,354	3,236,803	3,076,274	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Belle River 1	3,922,021	3,327,200	2,292,953	2,899,147	2,939,687	2,208,563	2,843,686	2,964,342	2,100,283	2,706,917	-	-	-	-	-	-	-	-	-	-	-
Belle River 2	3,188,106	2,901,844	2,935,663	2,229,383	2,998,658	2,970,150	2,238,284	2,951,718	2,782,277	2,045,004	-	-	-	-	-	-	-	-	-	-	-
Reo	5,266,865	4,814,609	4,026,093	4,000,981	3,916,639	3,766,039	3,662,111	3,622,148	3,555,233	3,616,764	4,284,958	4,123,251	3,999,245	3,872,165	3,780,440	3,680,377	3,572,521	3,482,252	3,468,646	3,399,213	3,325,344
DEP CC	--	5,931,632	10,694,206	11,052,120	10,816,572	10,828,206	9,123,279	8,487,124	8,156,457	8,183,658	10,807,892	10,803,783	10,774,704	10,715,405	10,581,016	10,490,305	10,485,581	10,395,593	10,298,462	10,260,707	10,190,302
DEP CT	--	921,390	850,817	812,792	770,906	674,745	351,446	236,926	232,997	251,882	369,124	303,876	271,101	245,398	222,034	211,824	181,306	156,570	165,588	149,400	137,712
New Gas 1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Gas 2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Gas 3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Fuel Consumed - Coal Tons	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
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IRP 1.7 V6

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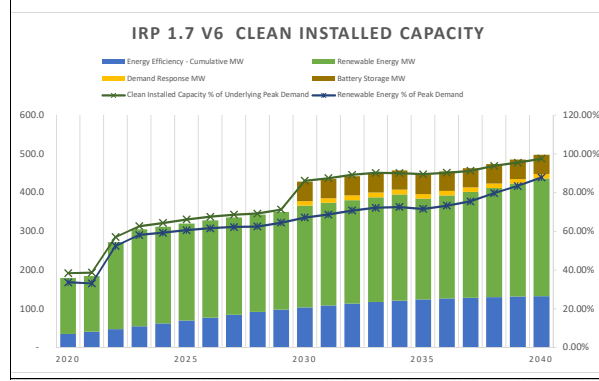
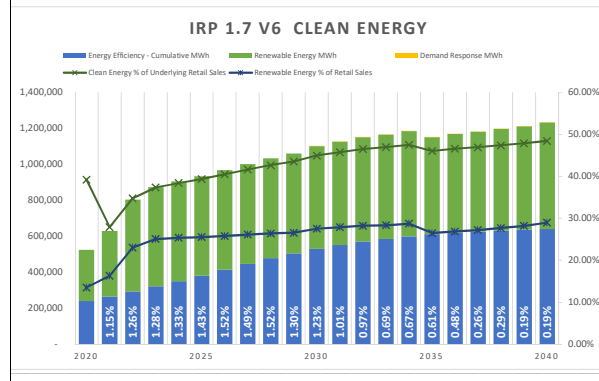
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Accredited Capacity																					
Peak Demand before EE & DG	466.9	476.7	475.6	485.6	484.9	483.6	485.4	489.1	495.2	490.5	496.6	497.3	495.7	498.4	507.2	498.0	503.1	507.3	504.8	507.5	510.3
Net Load Offsets																					
EE Legacy	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3
EE C&I	-	5.4	11.2	17.5	24.0	30.6	37.2	43.2	48.7	53.7	58.1	62.0	65.6	68.9	71.9	74.7	76.6	78.4	80.1	81.0	81.7
EE RES	-	0.8	1.7	2.5	3.2	4.3	5.4	6.7	8.1	9.5	10.9	12.0	12.9	13.6	14.2	14.7	15.1	15.3	15.4	15.6	15.7
DG - RES	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.6	0.7	0.7	1.5	2.4	3.5	4.9	6.5	8.5	10.9	13.7	17.1	21.2
DG - C&I	0.2	0.2	0.2	0.3	0.4	0.4	0.5	0.7	0.8	1.0	1.2	1.6	2.0	2.6	3.2	4.0	5.0	6.1	7.5	9.2	11.2
Cedar Solar	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-	-	-	-	-	-	-
Reo Solar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Community Solar	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Peak Demand After EE & DG	431.7	435.4	427.5	430.3	422.4	413.2	407.2	403.4	402.4	391.0	391.1	385.7	378.2	375.2	378.5	363.6	363.5	362.1	353.6	350.2	346.1
Reserve Margin Percent	1.089	1.080	1.081	1.080	1.080	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076
PRMR	470.2	470.3	462.1	464.8	456.2	445.0	438.1	434.1	433.0	420.8	420.8	415.1	406.9	403.8	407.3	391.2	391.1	389.7	380.4	376.8	372.4
Local Capacity																					
Erickson	155.4	155.4	155.4	155.4	155.4	155.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Reo	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0
DEP CC	-	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7
DEP CT	49.2	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3
New Gas 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Granger Wood Rd	6.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Delta Solar	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1
NextEra Solar	-	-	-	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9
DR C&I	-	-	-	-	-	-	-	-	-	-	-	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7
DR RES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Local Solar	-	-	-	-	-	-	-	-	-	-	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Battery Charge	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Battery Discharge	-	-	-	-	-	-	-	-	-	-	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
Total Local Capacity	301.9	470.5	470.5	483.4	483.4	483.4	328.0	328.0	328.0	328.0	394.7	394.7	394.7	394.7	394.7	394.7	394.7	394.7	394.7	394.7	
Transmission Entitlements																					
Belle River Transmission Entitlement	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	-	-	-	-	-	-	-	-	-	-	-
Belle River 1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	-	-	-	-	-	-	-	-	-	-	-
Belle River 2	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	-	-	-	-	-	-	-	-	-	-	-
Remaining Entitlement	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	-	-	-	-	-	-	-	-	-	-	-
METC Settlement Entitlement	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6
Total Transmission Entitlements Remaining	18.4	18.4	18.4	18.4	18.4	18.4	18.4	18.4	18.4	18.4	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6
External Capacity																					
Granger Grand River	1.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Beebe 1b	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
Pegasus Wind	-	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
Ranger Solar	-	5.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
Calhoun Solar Energy Center	-	-	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
New External Solar	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New External Wind	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Available External Capacity	3.5	21.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	59.0	59.0	59.0	59.0	59.0	59.0
Summary																					
PRMR	470.2	470.3	462.1	464.8	456.2	445.0	438.1	434.1	433.0	420.8	420.8	415.1	406.9	403.8	407.3	391.2	391.1	389.7	380.4	376.8	372.4
Local Capacity Used	301.9	470.3	462.1	464.8	456.2	445.0	328.0	328.0	328.0	328.0	394.7	394.7	394.7	394.7	394.7	391.2	391.1	389.7	380.4	376.8	372.4
Local Capacity Remaining	-	0.2	8.4	18.6	27.2	38.4	-	-	-	-	-	-	-	-	-	3.5	3.6	5.0	14.2	17.9	22.3
Total Capacity Used	301.9	470.3	462.1	464.8	456.2	445.0	328.0	328.0	328.0	328.0	394.7	394.7	394.7	394.7	394.7	391.2	391.1	389.7	380.4	376.8	372.4
Capacity Short	168.3	-	-	-	-	-	110.1	106.1	105.0	92.8	26.1	20.4	12.2	9.1	12.6	-	-	-	-	-	-
Belle River Capacity Used	144.2	-	-	-	-	-	110.1	106.1	105.0	92.8	-	-	-	-	-	-	-	-	-	-	-
Belle River Capacity Remaining	-	144.2	144.2	144.2	144.2	144.2	34.1	38.1	39.2	51.4	-	-	-	-	-	-	-	-	-	-	-
Total Capacity Used	446.1	470.3	462.1	464.8	456.2	445.0	438.1	434.1	433.0	420.8	394.7	394.7	394.7	394.7	394.7	391.2	391.1	389.7	380.4	376.8	372.4
Capacity Short	24.1	-	-	-	-	-	-	-	-	-	26.1	20.4	12.2	9.1	12.6	-	-	-	-	-	-
External Capacity Used	3.5	-	-	-	-	-	-	-	-	-	26.1	20.4	12.2	9.1	12.6	-	-	-	-	-	-
External Capacity Remaining	-	21.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	35.1	40.9	49.0	52.2	48.7	59.0	59.0	59.0			

Model Configuration and Constraints
 35% Clean Energy in 2025, 40% Clean Energy in 2030 | Erickson Retires December 2025 and Dispatched Optimally | Max Annual Incremental Energy Efficiency | Pegasus Online 7/1/2020 | Regular Growth | High Incentives for Electric Vehicles | High Incentives for Customer Solar | Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy | Question Answered: What is the impact of increasing our energy efficiency, demand response, customer solar, and

Expansion Plan:

2021: 10MW Solar | C&I Bins 1, 2, 3, 4 & 5; Res Bins 1, 2, 3, 4 & 5 | Electric Vehicle High Incentive Program | Distributed Solar High Incentive Program | 2022: 80MW Solar | 2023: 26MW Solar | 2025:

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Clean Energy																					
Renewable Energy MWh	285,604	363,525	510,383	551,955	554,621	552,793	553,420	555,671	555,813	554,786	570,887	575,498	579,793	580,805	586,120	539,375	546,782	554,283	564,667	576,098	593,442
Renewable Energy % of Retail Sales	13.54%	16.31%	23.04%	25.09%	25.41%	25.54%	25.80%	26.15%	26.41%	26.57%	27.54%	27.91%	28.26%	28.38%	28.71%	26.48%	26.88%	27.22%	27.70%	28.20%	28.98%
Renewable Energy % of Underlying Retail Sales	12.16%	14.58%	20.35%	21.90%	21.89%	21.71%	21.63%	21.62%	21.53%	21.40%	21.93%	22.02%	22.11%	22.07%	22.20%	20.37%	20.60%	20.82%	21.15%	21.51%	22.08%
Renewable Energy RPS	682,139	431,678	578,567	620,787	622,791	620,883	621,994	624,521	623,608	623,358	638,494	644,066	648,208	649,585	653,494	607,151	615,236	622,025	632,373	644,982	661,247
Renewable Energy % of Retail Sales	32.33%	19.37%	26.12%	28.22%	28.53%	28.68%	29.00%	29.39%	29.64%	29.85%	30.80%	31.23%	31.59%	31.74%	32.01%	29.81%	30.24%	30.54%	31.02%	31.57%	32.30%
Renewable Energy % of Underlying Retail Sales	29.04%	17.31%	23.07%	24.63%	24.63%	24.39%	24.31%	24.30%	24.16%	24.04%	24.53%	24.65%	24.72%	24.69%	24.76%	22.93%	23.17%	23.36%	23.68%	24.08%	24.61%
Energy Efficiency - Cumulative MWh	239,413	264,975	292,946	321,013	350,127	380,991	413,655	445,340	477,408	504,530	529,947	550,694	570,510	584,683	598,430	610,806	620,652	625,845	631,703	635,631	639,604
Energy Efficiency - Cumulative % of Underlying Retail Sales	10.19%	10.62%	11.68%	12.73%	13.82%	14.97%	16.17%	17.33%	18.49%	19.46%	20.36%	21.07%	21.75%	22.22%	22.67%	23.07%	23.38%	23.51%	23.66%	23.73%	23.80%
Energy Efficiency - Annual Incremental MWh		25,562	27,971	28,067	29,114	30,864	32,664	31,685	32,068	27,122	25,417	20,747	19,816	14,173	13,748	12,376	9,846	5,193	5,858	3,928	3,973
Energy Efficiency - Annual Incremental % of Retail Sales		1.15%	1.26%	1.28%	1.33%	1.43%	1.52%	1.49%	1.52%	1.30%	1.23%	1.01%	0.97%	0.69%	0.67%	0.61%	0.26%	0.29%	0.29%	0.19%	0.19%
Energy Efficiency - Annual Incremental % of Underlying Retail Sales		1.02%	1.12%	1.11%	1.15%	1.21%	1.28%	1.23%	1.24%	1.05%	0.98%	0.79%	0.76%	0.54%	0.52%	0.47%	0.37%	0.20%	0.22%	0.15%	0.15%
Demand Response MWh	-	-	-	-	-	-	-	-	-	-	958	963	945	914	941	969	990	970	939	927	954
Demand Response % of Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.05%	0.05%	0.05%	0.04%	0.05%	0.05%	0.05%	0.05%	0.05%	0.05%	0.05%
Demand Response % of Underlying Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.04%	0.04%	0.04%	0.03%	0.04%	0.04%	0.04%	0.04%	0.04%	0.03%	0.04%
Clean Energy Credits	921,551	696,652	871,513	941,799	972,917	1,001,874	1,035,649	1,069,861	1,101,015	1,127,888	1,169,399	1,195,723	1,219,663	1,235,182	1,252,865	1,218,927	1,236,879	1,248,841	1,265,016	1,281,541	1,301,805
Clean Energy % of Underlying Retail Sales	39.23%	27.93%	34.75%	37.36%	38.41%	39.35%	40.48%	41.62%	42.65%	43.51%	44.93%	45.76%	46.51%	46.94%	47.46%	46.04%	46.59%	46.91%	47.37%	47.84%	48.45%
Clean Installed Capacity																					
Renewable Energy MW	145.0	143.9	224.0	250.0	250.2	250.4	250.7	251.0	251.4	251.9	262.5	264.7	267.4	270.7	274.6	260.2	266.1	273.2	281.7	291.9	304.0
Renewable Energy % of Peak Demand	33.59%	33.04%	52.40%	58.10%	59.23%	60.60%	61.57%	62.22%	62.47%	64.41%	67.11%	68.62%	70.72%	72.15%	72.54%	71.58%	73.21%	75.44%	79.67%	83.35%	87.83%
Renewable Energy % of Underlying Peak Demand	31.06%	30.18%	47.10%	51.49%	51.59%	51.78%	51.64%	51.32%	50.77%	51.35%	52.85%	53.22%	53.95%	54.32%	54.14%	52.26%	52.90%	53.85%	55.81%	57.51%	59.57%
Energy Efficiency - Cumulative MW	34.3	40.4	47.2	54.3	61.5	69.2	76.9	84.2	91.1	97.5	103.3	108.3	112.8	116.9	120.4	123.8	126.0	128.0	129.8	130.9	131.7
Energy Efficiency - Cumulative % of Underlying Peak Demand	7.35%	8.48%	9.93%	11.17%	12.68%	14.31%	15.85%	17.22%	18.40%	19.88%	20.81%	21.77%	22.76%	23.45%	23.75%	24.85%	25.05%	25.23%	25.71%	25.78%	25.80%
Energy Efficiency - Annual Incremental MW		6.1	6.8	7.0	7.2	7.7	7.8	7.2	6.9	6.4	5.8	5.0	4.5	4.1	3.6	3.3	2.3	2.0	1.8	1.1	0.8
Energy Efficiency - Annual Incremental % of Peak Demand		1.41%	1.59%	1.63%	1.71%	1.87%	1.90%	1.80%	1.72%	1.64%	1.48%	1.29%	1.19%	1.08%	0.95%	0.91%	0.62%	0.55%	0.51%	0.30%	0.23%
Energy Efficiency - Annual Incremental % of Underlying Peak Demand		1.29%	1.43%	1.45%	1.49%	1.59%	1.60%	1.48%	1.40%	1.31%	1.17%	1.00%	0.91%	0.81%	0.71%	0.67%	0.45%	0.39%	0.35%	0.21%	0.16%
Demand Response MW	-	-	-	-	-	-	-	-	-	-	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7
Demand Response % of Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.99%	3.03%	3.09%	3.12%	3.09%	3.22%	3.23%	3.31%	3.34%	3.38%	3.38%
Demand Response % of Underlying Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.35%	2.35%	2.36%	2.35%	2.30%	2.35%	2.32%	2.30%	2.32%	2.30%	2.29%
Battery Storage MW	-	-	-	-	-	-	-	-	-	-	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
Battery Storage % of Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	12.78%	12.96%	13.22%	13.32%	13.21%	13.75%	13.76%	13.81%	14.14%	14.28%	14.45%
Battery Storage % of Underlying Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	10.07%	10.05%	10.09%	10.03%	9.86%	10.04%	9.94%	9.86%	9.91%	9.85%	9.80%
Clean Installed Capacity MW	179	184	271	304	312	320	328	335	343	349	427	435	442	449	457	446	454	463	473	484	497
Clean Installed Capacity % of Underlying Peak Demand	38.41%	38.66%	57.03%	62.66%	64.27%	66.09%	67.50%	68.54%	69.17%	71.24%	86.08%	87.40%	89.16%	90.14%	90.05%	89.50%	90.20%	91.24%	93.74%	95.45%	97.46%

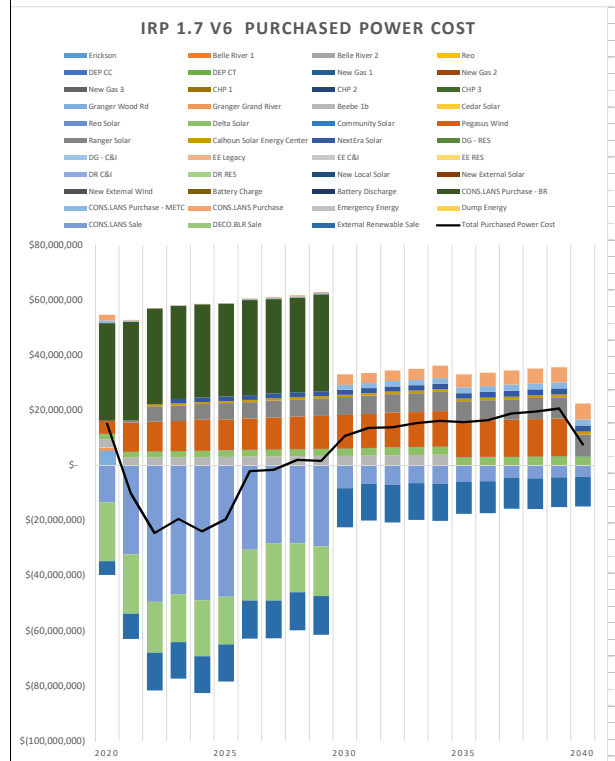


Model Configuration and Constraints
 35% Clean Energy in 2025, 40% Clean Energy in 2030 | Erickson Retires December 2025 and Dispatched Optimally | Max Annual Incremental Energy Efficiency | Pegasus Online 7/1/2020 | Regular Growth | High Incentives for Electric Vehicles | High Incentives for Customer Solar | Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy | Question Answered: What is the impact of increasing our energy efficiency, demand response, customer solar, and

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	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
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Purchased Power Cost	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01	
Erickson	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Belle River 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Belle River 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Reo	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DEP CC	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DEP CT	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Gas 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Gas 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Gas 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Granger Wood Rd	\$ 5,498,401	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Granger Grand River	\$ 1,098,338	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Beebe 1b	\$ 2,810,094	\$ 2,881,790	\$ 2,935,240	\$ 3,001,689	\$ 3,110,049	\$ 3,180,931	\$ 3,233,418	\$ 3,319,856	\$ 3,430,425	\$ 3,467,648	\$ 3,577,849	\$ 3,664,435	\$ 3,785,223	\$ 3,851,962	\$ 3,946,688	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Cedar Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Reo Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Delta Solar	\$ 2,071,241	\$ 2,125,679	\$ 2,179,775	\$ 2,255,318	\$ 2,289,179	\$ 2,344,044	\$ 2,419,906	\$ 2,490,124	\$ 2,513,496	\$ 2,605,472	\$ 2,633,397	\$ 2,737,369	\$ 2,799,726	\$ 2,885,170	\$ 2,911,877	\$ 3,002,480	\$ 3,108,229	\$ 3,152,620	\$ 3,230,459	\$ 3,368,471	\$ 3,397,986	
Community Solar	\$ 31,218	\$ 31,990	\$ 32,679	\$ 33,651	\$ 34,549	\$ 35,459	\$ 36,375	\$ 37,295	\$ 38,215	\$ 39,135	\$ 40,055	\$ 40,975	\$ 41,895	\$ 42,815	\$ 43,735	\$ 44,655	\$ 45,575	\$ 46,495	\$ 47,415	\$ 48,335	\$ 49,255	
Pegasus Wind	\$ 4,832,819	\$ 10,576,306	\$ 10,806,092	\$ 10,899,541	\$ 11,152,903	\$ 11,252,975	\$ 11,401,970	\$ 11,639,005	\$ 11,834,136	\$ 11,926,829	\$ 12,172,382	\$ 12,344,787	\$ 12,633,705	\$ 12,666,508	\$ 12,846,864	\$ 13,164,223	\$ 13,301,150	\$ 13,449,850	\$ 13,630,961	\$ 13,707,748	\$ 13,777,456	\$ 13,847,164
Ranger Solar	\$ -	\$ 796,075	\$ 5,512,963	\$ 5,609,504	\$ 5,735,435	\$ 5,852,329	\$ 5,977,841	\$ 6,095,060	\$ 6,237,296	\$ 6,328,682	\$ 6,468,640	\$ 6,606,621	\$ 6,706,705	\$ 6,836,819	\$ 7,023,125	\$ 7,129,331	\$ 7,283,378	\$ 7,445,730	\$ 7,582,423	\$ 7,708,356	\$ 7,876,935	\$ 7,984,247
Calhoun Solar Energy Center	\$ -	\$ -	\$ 718,730	\$ 731,213	\$ 745,105	\$ 761,732	\$ 777,171	\$ 792,350	\$ 812,072	\$ 824,033	\$ 839,531	\$ 858,956	\$ 875,700	\$ 888,902	\$ 913,154	\$ 928,272	\$ 945,883	\$ 967,027	\$ 984,247	\$ 999,862	\$ 1,025,864	\$ 1,025,864
NextEra Solar	\$ -	\$ -	\$ -	\$ 1,629,816	\$ 1,652,721	\$ 1,665,368	\$ 1,728,549	\$ 1,771,589	\$ 1,751,921	\$ 1,846,395	\$ 1,846,395	\$ 1,918,540	\$ 1,924,493	\$ 1,975,341	\$ 2,009,975	\$ 2,055,677	\$ 2,108,020	\$ 2,126,464	\$ 2,178,041	\$ 2,249,944	\$ 2,258,245	\$ 2,258,245
DG - RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DG - C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
EE Legacy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
EE C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
EE RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DR C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DR RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Local Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New External Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New External Wind	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Battery Charge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Battery Discharge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CONS.LANS Purchase - BR	\$ 35,420,351	\$ 35,777,019	\$ 34,822,380	\$ 33,781,201	\$ 33,797,975	\$ 33,656,516	\$ 34,549,483	\$ 34,253,646	\$ 34,395,746	\$ 35,143,035	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CONS.LANS Purchase - METC	\$ 935,600	\$ 430,113	\$ 54,439	\$ 34,387	\$ 59,840	\$ 52,626	\$ 277,649	\$ 370,895	\$ 400,912	\$ 412,743	\$ 1,762,807	\$ 1,813,387	\$ 1,901,052	\$ 1,954,939	\$ 2,004,204	\$ 2,056,411	\$ 2,096,010	\$ 2,179,796	\$ 2,137,897	\$ 2,162,256	\$ 2,191,694	
CONS.LANS Purchase	\$ 2,086,785	\$ 269,691	\$ 59,781	\$ 37,945	\$ 70,347	\$ 54,608	\$ 243,681	\$ 372,843	\$ 365,136	\$ 434,052	\$ 3,764,036	\$ 3,595,336	\$ 3,815,709	\$ 3,992,227	\$ 4,550,947	\$ 4,809,101	\$ 4,776,738	\$ 5,132,951	\$ 5,484,422	\$ 5,485,469	\$ 5,771,922	
Emergency Energy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Dump Energy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CONS.LANS Sale	\$ (13,309,825)	\$ (32,248,070)	\$ (49,407,701)	\$ (46,681,906)	\$ (48,865,295)	\$ (47,559,589)	\$ (30,509,196)	\$ (28,292,120)	\$ (28,194,532)	\$ (29,305,166)	\$ (8,244,295)	\$ (6,602,625)	\$ (6,903,105)	\$ (6,356,938)	\$ (6,589,343)	\$ (5,797,912)	\$ (5,664,777)	\$ (4,376,440)	\$ (4,623,727)	\$ (4,241,459)	\$ (4,042,114)	
DECO.BLR Sale	\$ (21,424,950)	\$ (21,499,876)	\$ (18,463,195)	\$ (17,421,337)	\$ (20,360,762)	\$ (17,369,997)	\$ (18,509,817)	\$ (20,736,152)	\$ (17,757,979)	\$ (18,035,746)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
External Renewable Sale	\$ (4,929,810)	\$ (9,214,193)	\$ (13,729,250)	\$ (13,260,237)	\$ (13,408,618)	\$ (13,730,765)	\$ (13,730,765)	\$ (13,646,551)	\$ (13,843,645)	\$ (14,019,958)	\$ (14,149,029)	\$ (13,319,809)	\$ (13,703,541)	\$ (13,369,578)	\$ (13,502,144)	\$ (11,698,886)	\$ (11,629,038)	\$ (11,292,661)	\$ (11,114,141)	\$ (10,815,763)	\$ (10,792,257)	
Total Purchased Power Cost	\$ 15,120,262	\$ (10,073,476)	\$ (24,478,067)	\$ (19,349,214)	\$ (23,941,970)	\$ (19,481,068)	\$ (2,104,245)	\$ (1,532,701)	\$ 1,981,250	\$ 1,666,043	\$ 10,706,280	\$ 13,656,698	\$ 13,875,081	\$ 15,365,862	\$ 16,156,537	\$ 15,690,633	\$ 16,368,668	\$ 18,828,483	\$ 19,534,560	\$ 20,670,240	\$ 7,733,591	



Purchased Power Cost per MWh	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
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Erickson	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Belle River 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Belle River 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Reo	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DEP CC	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DEP CT	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 3	\$ -	\$ -																			

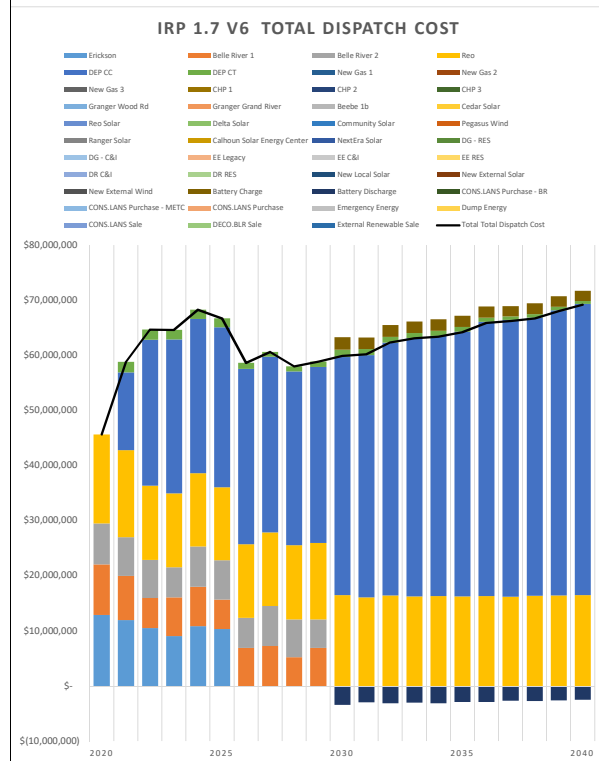
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	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
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	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
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Total Dispatch Cost	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Erickson	\$ 12,883,369	\$ 11,969,657	\$ 10,490,486	\$ 9,039,035	\$ 10,822,659	\$ 10,292,691	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Belle River 1	\$ 9,153,938	\$ 8,008,047	\$ 5,429,778	\$ 7,053,358	\$ 7,158,817	\$ 5,342,559	\$ 6,915,093	\$ 7,249,136	\$ 5,189,703	\$ 6,865,978	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Belle River 2	\$ 7,455,410	\$ 6,987,653	\$ 6,959,414	\$ 5,434,042	\$ 7,303,609	\$ 7,192,069	\$ 5,447,671	\$ 7,225,919	\$ 6,880,223	\$ 5,189,273	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Reo	\$ 16,146,883	\$ 15,785,100	\$ 13,474,996	\$ 13,412,497	\$ 13,290,395	\$ 13,194,161	\$ 13,312,272	\$ 13,351,004	\$ 13,467,510	\$ 13,895,130	\$ 16,487,295	\$ 16,043,802	\$ 16,440,849	\$ 16,261,032	\$ 16,321,610	\$ 16,217,212	\$ 16,316,002	\$ 16,194,315	\$ 16,364,514	\$ 16,415,930	\$ 16,494,903
DEP CC	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DEP CT	\$ -	\$ 14,152,060	\$ 26,461,381	\$ 27,925,819	\$ 28,029,254	\$ 29,075,689	\$ 31,878,034	\$ 31,930,985	\$ 31,542,957	\$ 31,930,897	\$ 43,183,943	\$ 43,984,023	\$ 45,847,207	\$ 46,838,152	\$ 47,175,754	\$ 48,060,149	\$ 49,723,450	\$ 50,188,823	\$ 50,424,638	\$ 51,751,883	\$ 52,792,714
New Gas 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Granger Wood Rd	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Granger Grand River	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Beebe 1b	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Cedar Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Reo Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Delta Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Community Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Pegasus Wind	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ranger Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Calhoun Solar Energy Center	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
NextEra Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DG - RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DG - C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
EE Legacy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
EE C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
EE RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DR C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DR RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Local Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New External Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New External Wind	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Battery Charge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Battery Discharge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CONS.LANS Purchase - BR	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CONS.LANS Purchase - METC	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CONS.LANS Purchase	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Emergency Energy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Dump Energy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CONS.LANS Sale	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DECO.BLR Sale	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
External Renewable Sale	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Total Dispatch Cost	\$ 45,639,601	\$ 58,778,304	\$ 64,660,759	\$ 64,591,555	\$ 68,278,290	\$ 66,681,533	\$ 58,635,307	\$ 60,630,579	\$ 57,999,467	\$ 58,878,442	\$ 59,876,884	\$ 60,223,253	\$ 62,366,210	\$ 63,080,262	\$ 63,366,490	\$ 64,212,753	\$ 65,891,332	\$ 66,244,972	\$ 66,692,372	\$ 68,049,820	\$ 69,162,976



Total Dispatch Cost per MWh	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
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Erickson	\$ 31.14	\$ 31.80	\$ 31.85	\$ 32.41	\$ 32.54	\$ 32.57	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Belle River 1	\$ 22.70	\$ 23.44	\$ 23.09	\$ 23.72	\$ 23.74	\$ 23.59	\$ 23.72	\$ 23.86	\$ 24.11	\$ 24.76	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Belle River 2	\$ 23.22	\$ 23.87	\$ 23.53	\$ 24.22	\$ 24.18	\$ 24.05	\$ 24.18	\$ 24.32	\$ 24.56	\$ 25.22	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Reo	\$ 27.81	\$ 30.17	\$ 31.74	\$ 31.84	\$ 32.49	\$ 33.71	\$ 35.20	\$ 37.76	\$ 37.02	\$ 37.31	\$ 36.30	\$ 36.95	\$ 39.33	\$ 40.37	\$ 41.84	\$ 42.98	\$ 44.94	\$ 45.96	\$ 46.72	\$ 48.12	\$ 49.78
DEP CC	\$ -	\$ 17.18	\$ 17.79	\$ 18.17	\$ 18.67	\$ 19.34	\$ 25.52	\$ 27.60	\$ 28.45	\$ 28.64	\$ 28.85	\$ 29.41	\$ 30.78	\$ 31.63	\$ 32.30	\$ 33.22	\$ 34.43	\$ 35.07	\$ 35.59	\$ 36.72	\$ 37.76
DEP CT	\$ -	\$ 22.04	\$ 22.15	\$ 21.68	\$ 22.16	\$ 23.92	\$ 31.19	\$ 37.46	\$ 40.12	\$ 40.27	\$ 38.32	\$ 36.79	\$ 40.43	\$ 39.07	\$ 42.85	\$ 41.79	\$ 44.27	\$ 43.09	\$ 43.24	\$ 42.58	\$ 43.19
New Gas 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Granger Wood Rd	\$ -	\$ -	\$																		

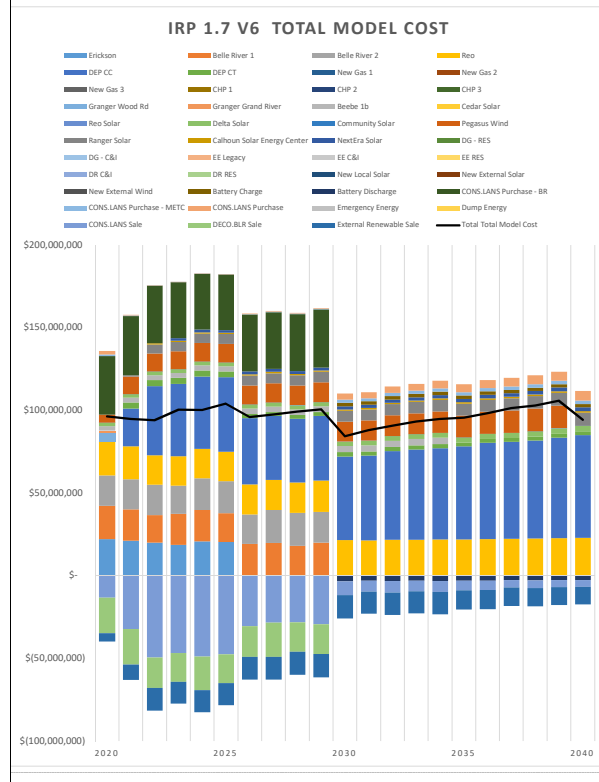
IRP 1.7 V6

Summary of Modeling

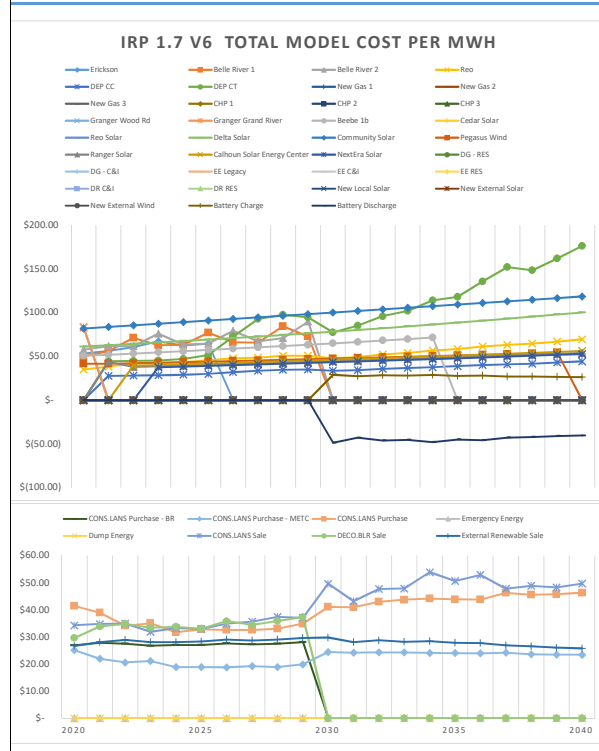
Model Configuration and Constraints
 35% Clean Energy in 2025, 40% Clean Energy in 2030 | Erickson Retires December 2025 and Dispatched Optimally | Max Annual Incremental Energy Efficiency | Pegasus Online 7/1/2020 | Regular Growth | High Incentives for Electric Vehicles | High Incentives for Customer Solar | Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy | Question Answered: What is the impact of increasing our energy efficiency, demand response, customer solar, and

Expansion Plan:
 2021: 10MW Solar | C&I Bins 1, 2, 3, 4 & 5; Res Bins 1, 2, 3, 4 & 5 | Electric Vehicle High Incentive Program | Distributed Solar High Incentive Program | 2022: 80MW Solar | 2023: 26MW Solar | 2025:

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
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Total Model Cost	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01	
Erickson	\$ 22,137,149	\$ 21,242,618	\$ 19,993,003	\$ 18,767,847	\$ 20,779,111	\$ 20,459,176	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Belle River 1	\$ 20,180,419	\$ 19,057,383	\$ 16,752,647	\$ 18,645,871	\$ 19,022,577	\$ 17,479,968	\$ 19,333,282	\$ 19,955,203	\$ 18,192,186	\$ 20,148,330	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Belle River 2	\$ 18,481,891	\$ 18,036,989	\$ 18,282,282	\$ 17,026,555	\$ 19,167,369	\$ 19,329,478	\$ 17,865,860	\$ 19,931,986	\$ 19,882,706	\$ 18,471,625	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Reo	\$ 20,349,333	\$ 19,997,688	\$ 17,791,811	\$ 17,832,087	\$ 17,813,375	\$ 17,821,472	\$ 18,046,631	\$ 18,195,124	\$ 18,424,652	\$ 18,968,913	\$ 21,680,464	\$ 21,359,167	\$ 21,881,284	\$ 21,829,481	\$ 22,021,085	\$ 22,050,795	\$ 22,286,849	\$ 22,305,657	\$ 22,619,655	\$ 22,818,255	\$ 23,047,875	
DEP CC	\$ -	\$ 22,794,791	\$ 41,875,293	\$ 43,797,116	\$ 43,839,630	\$ 45,042,665	\$ 40,187,714	\$ 38,729,690	\$ 38,500,266	\$ 39,051,912	\$ 50,472,516	\$ 51,444,095	\$ 53,482,815	\$ 54,653,426	\$ 55,174,921	\$ 56,247,537	\$ 58,103,487	\$ 58,766,043	\$ 59,203,679	\$ 60,737,495	\$ 61,989,757	
DEP CT	\$ -	\$ 3,808,081	\$ 3,738,078	\$ 3,614,279	\$ 3,551,915	\$ 3,406,373	\$ 2,527,362	\$ 2,162,981	\$ 2,238,604	\$ 2,347,742	\$ 2,739,817	\$ 2,487,393	\$ 2,502,484	\$ 2,402,052	\$ 2,428,869	\$ 2,402,921	\$ 2,358,883	\$ 2,270,133	\$ 2,350,372	\$ 2,311,749	\$ 2,309,939	
New Gas 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Gas 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Gas 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Granger Wood Rd	\$ 5,498,401	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Granger Grand River	\$ 1,098,338	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Beebe 1b	\$ 2,810,094	\$ 2,881,790	\$ 2,935,240	\$ 3,001,689	\$ 3,110,049	\$ 3,180,931	\$ 3,233,418	\$ 3,319,856	\$ 3,430,425	\$ 3,467,648	\$ 3,577,849	\$ 3,664,435	\$ 3,785,223	\$ 3,851,962	\$ 3,946,688	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Cedar Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Reo Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Delta Solar	\$ 2,071,241	\$ 2,125,679	\$ 2,179,775	\$ 2,255,318	\$ 2,289,179	\$ 2,344,044	\$ 2,419,906	\$ 2,490,124	\$ 2,513,496	\$ 2,605,472	\$ 2,633,397	\$ 2,737,369	\$ 2,799,726	\$ 2,885,170	\$ 2,911,877	\$ 3,002,480	\$ 3,108,229	\$ 3,152,620	\$ 3,230,459	\$ 3,368,471	\$ 3,397,986	
Community Solar	\$ 31,218	\$ 31,990	\$ 32,679	\$ 33,651	\$ 34,151	\$ 34,549	\$ 35,864	\$ 36,755	\$ 36,266	\$ 38,023	\$ 37,977	\$ 39,701	\$ 39,412	\$ 40,510	\$ 41,189	\$ 41,937	\$ 43,076	\$ 43,146	\$ 43,977	\$ 45,356	\$ 45,316	
Pegasus Wind	\$ 4,832,819	\$ 10,576,306	\$ 10,806,092	\$ 10,899,541	\$ 11,152,903	\$ 11,252,975	\$ 11,401,970	\$ 11,639,005	\$ 11,834,136	\$ 11,926,829	\$ 12,172,382	\$ 12,344,787	\$ 12,633,706	\$ 12,666,508	\$ 12,846,864	\$ 13,164,223	\$ 13,301,150	\$ 13,449,850	\$ 13,630,961	\$ 13,707,748	\$ 13,777,458	\$ 13,846,875
Ranger Solar	\$ -	\$ 796,075	\$ 5,512,963	\$ 5,609,504	\$ 5,735,435	\$ 5,852,329	\$ 5,977,841	\$ 6,095,060	\$ 6,237,296	\$ 6,328,682	\$ 6,468,640	\$ 6,606,621	\$ 6,706,705	\$ 6,836,819	\$ 7,023,125	\$ 7,129,331	\$ 7,283,378	\$ 7,445,730	\$ 7,582,423	\$ 7,708,356	\$ 7,876,935	
Calhoun Solar Energy Center	\$ -	\$ -	\$ 718,730	\$ 731,213	\$ 745,105	\$ 761,732	\$ 777,171	\$ 792,350	\$ 812,072	\$ 824,033	\$ 839,531	\$ 858,956	\$ 875,700	\$ 888,902	\$ 913,154	\$ 928,272	\$ 945,883	\$ 967,027	\$ 984,247	\$ 999,862	\$ 1,025,864	
NextEra Solar	\$ -	\$ -	\$ -	\$ 1,629,816	\$ 1,652,721	\$ 1,665,368	\$ 1,728,549	\$ 1,771,589	\$ 1,751,921	\$ 1,846,395	\$ 1,842,985	\$ 1,918,540	\$ 1,924,493	\$ 1,975,341	\$ 2,009,975	\$ 2,055,677	\$ 2,108,020	\$ 2,126,464	\$ 2,178,041	\$ 2,249,944	\$ 2,258,245	
DG - RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DG - C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
EE Legacy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
EE C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
EE RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DR C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DR RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Local Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New External Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New External Wind	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Battery Charge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Battery Discharge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CONS.LANS Purchase - BR	\$ 35,420,351	\$ 35,777,019	\$ 34,822,380	\$ 33,781,201	\$ 33,797,975	\$ 33,656,516	\$ 34,549,483	\$ 34,253,646	\$ 34,395,746	\$ 35,143,035	\$ 34,221,774	\$ 2,110,955	\$ 2,165,780	\$ 2,110,258	\$ 2,109,773	\$ 2,013,995	\$ 2,010,249	\$ 1,886,869	\$ 1,950,761	\$ 1,901,128	\$ 1,845,488	
CONS.LANS Purchase - METC	\$ 935,600	\$ 430,113	\$ 54,439	\$ 37,945	\$ 59,840	\$ 52,626	\$ 277,649	\$ 370,895	\$ 400,912	\$ 412,743	\$ 1,762,807	\$ 1,813,387	\$ 1,901,052	\$ 1,954,939	\$ 2,004,204	\$ 2,056,411	\$ 2,096,010	\$ 2,179,796	\$ 2,137,897	\$ 2,162,256	\$ 2,191,694	
CONS.LANS Purchase	\$ 2,086,785	\$ 269,691	\$ 59,781	\$ 37,945	\$ 70,347	\$ 54,608	\$ 243,681	\$ 372,843	\$ 365,136	\$ 434,052	\$ 3,764,036	\$ 3,595,336	\$ 3,815,709	\$ 3,992,227	\$ 4,550,947	\$ 4,809,101	\$ 4,776,738	\$ 5,132,951	\$ 5,484,422	\$ 5,485,469	\$ 5,771,922	
Emergency Energy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Dump Energy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CONS.LANS Sale	\$ (13,309,825)	\$ (32,248,070)	\$ (49,407,701)	\$ (46,681,906)	\$ (48,865,295)	\$ (47,559,589)	\$ (30,509,196)	\$ (28,292,120)	\$ (28,194,532)	\$ (29,305,166)	\$ (8,244,295)	\$ (6,602,625)	\$ (6,903,105)	\$ (6,356,938)	\$ (6,589,343)	\$ (5,797,912)	\$ (5,664,777)	\$ (4,376,440)	\$ (4,623,727)	\$ (4,241,459)	\$ (4,042,114)	
DECO.BLR Sale	\$ (21,424,950)	\$ (21,499,876)	\$ (18,463,195)	\$ (17,421,337)	\$ (20,360,762)	\$ (17,366,997)	\$ (18,509,817)	\$ (20,736,152)	\$ (17,757,979)	\$ (18,035,746)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
External Renewable Sale	\$ (4,929,810)	\$ (9,214,193)	\$ (13,260,237)	\$ (13,408,159)	\$ (13,363,618)	\$ (13,730,765)	\$ (13,646,551)	\$ (13,843,645)	\$ (14,019,958)	\$ (14,149,029)	\$ (13,319,809)	\$ (13,703,541)	\$ (13,369,578)	\$ (13,502,144)	\$ (11,698,886)	\$ (11,629,038)	\$ (11,292,661)	\$ (11,114,141)	\$ (10,815,763)	\$ (10,792,257)	\$ -	
Total Total Model Cost	\$ 96,269,054	\$ 94,864,074	\$ 93,955,047	\$ 100,334,542	\$ 100,232,007	\$ 104,058,063	\$ 95,856,605	\$ 97,442,283	\$ 99,219,664	\$ 100,654,566	\$ 84,447,263	\$ 88,070,273	\$ 90,765,511	\$ 93,312,099	\$ 94,738,799	\$ 95,477,184	\$ 98,200,250	\$ 101,388,778	\$ 102,926,156	\$ 105,812,216	\$ 94,390,901	



Total Model Cost per MWh	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Erickson	\$ 53.50	\$ 56.43	\$ 60.71	\$ 67.29	\$ 62.48	\$ 64.74	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Belle River 1	\$ 50.05	\$ 55.78	\$ 71.23	\$ 62.70	\$ 63.09	\$															

Model Configuration and Constraints
 35% Clean Energy in 2025, 40% Clean Energy in 2030 | Erickson Retires December 2025 and Dispatched Optimally | Max Annual Incremental Energy Efficiency | Pegasus Online 7/1/2020 | Regular Growth | High Incentives for Electric Vehicles | High Incentives for Customer Solar | Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy | Question Answered: What is the impact of increasing our energy efficiency, demand response, customer solar, and

Expansion Plan:
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	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Total Costs w/ Post Processing	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Erickson	\$ 27,430,807	\$ 24,043,779	\$ 22,679,600	\$ 18,767,847	\$ 20,779,111	\$ 20,459,176	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Belle River 1	\$ 20,180,419	\$ 19,057,383	\$ 16,752,647	\$ 18,645,871	\$ 19,022,577	\$ 17,479,968	\$ 19,333,282	\$ 19,955,203	\$ 18,192,186	\$ 20,148,330	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Belle River 2	\$ 18,481,891	\$ 18,036,989	\$ 18,282,282	\$ 17,026,555	\$ 19,167,369	\$ 19,329,478	\$ 17,865,660	\$ 19,931,986	\$ 19,882,706	\$ 18,471,625	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Reo	\$ 20,349,333	\$ 19,997,688	\$ 17,791,811	\$ 17,832,087	\$ 17,813,375	\$ 17,821,472	\$ 18,046,631	\$ 18,195,124	\$ 18,424,652	\$ 18,968,913	\$ 21,680,464	\$ 21,359,167	\$ 21,881,284	\$ 21,829,481	\$ 22,021,085	\$ 22,050,795	\$ 22,286,849	\$ 22,305,657	\$ 22,619,655	\$ 22,818,255	\$ 23,047,875
DEP CC	\$ -	\$ 22,794,791	\$ 41,875,293	\$ 43,797,116	\$ 43,839,630	\$ 45,042,665	\$ 40,187,714	\$ 38,729,690	\$ 38,500,266	\$ 39,051,912	\$ 50,472,516	\$ 51,444,095	\$ 53,482,815	\$ 54,653,426	\$ 55,174,921	\$ 56,247,537	\$ 58,103,487	\$ 58,766,043	\$ 59,203,679	\$ 60,737,495	\$ 61,989,757
DEP CT	\$ -	\$ 3,808,081	\$ 3,738,078	\$ 3,614,279	\$ 3,551,915	\$ 3,406,373	\$ 2,527,362	\$ 2,162,981	\$ 2,238,604	\$ 2,347,742	\$ 2,739,817	\$ 2,487,393	\$ 2,502,484	\$ 2,402,052	\$ 2,428,869	\$ 2,402,921	\$ 2,358,883	\$ 2,270,133	\$ 2,350,372	\$ 2,311,749	\$ 2,309,939
New Gas 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Granger Wood Rd	\$ 5,498,401	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Granger Grand River	\$ 1,098,338	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Beebe 1b	\$ 2,810,094	\$ 2,881,790	\$ 2,935,240	\$ 3,001,689	\$ 3,110,049	\$ 3,180,931	\$ 3,233,418	\$ 3,319,856	\$ 3,430,425	\$ 3,467,648	\$ 3,577,849	\$ 3,664,435	\$ 3,785,223	\$ 3,851,962	\$ 3,946,688	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Cedar Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Reo Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Delta Solar	\$ 2,071,241	\$ 2,125,679	\$ 2,179,775	\$ 2,255,318	\$ 2,289,179	\$ 2,344,044	\$ 2,419,906	\$ 2,490,124	\$ 2,513,496	\$ 2,605,472	\$ 2,633,397	\$ 2,737,369	\$ 2,799,726	\$ 2,885,170	\$ 2,911,877	\$ 3,002,480	\$ 3,108,229	\$ 3,152,620	\$ 3,230,459	\$ 3,368,471	\$ 3,397,986
Community Solar	\$ 31,218	\$ 32,679	\$ 33,651	\$ 34,151	\$ 35,459	\$ 36,755	\$ 38,864	\$ 36,755	\$ 36,266	\$ 38,023	\$ 37,977	\$ 39,701	\$ 39,412	\$ 40,510	\$ 41,189	\$ 41,937	\$ 43,076	\$ 43,146	\$ 43,977	\$ 45,356	\$ 45,316
Pegasus Wind	\$ 4,832,819	\$ 10,576,306	\$ 10,806,092	\$ 10,899,541	\$ 11,152,903	\$ 11,252,975	\$ 11,401,970	\$ 11,639,005	\$ 11,834,136	\$ 11,926,829	\$ 12,172,382	\$ 12,344,787	\$ 12,633,706	\$ 12,846,864	\$ 13,164,223	\$ 13,301,150	\$ 13,449,850	\$ 13,630,961	\$ 13,770,748	\$ 13,909,862	\$ 14,028,264
Ranger Solar	\$ -	\$ 796,075	\$ 5,106,922	\$ 5,099,504	\$ 5,735,435	\$ 5,852,329	\$ 5,977,841	\$ 6,095,060	\$ 6,237,296	\$ 6,328,682	\$ 6,468,640	\$ 6,606,621	\$ 6,706,705	\$ 6,836,819	\$ 7,129,333	\$ 7,129,333	\$ 7,283,378	\$ 7,445,730	\$ 7,582,423	\$ 7,708,356	\$ 7,876,935
Calhoun Solar Energy Center	\$ -	\$ -	\$ 718,730	\$ 731,213	\$ 745,105	\$ 761,732	\$ 777,171	\$ 792,350	\$ 812,072	\$ 824,033	\$ 839,531	\$ 858,956	\$ 875,700	\$ 888,902	\$ 913,154	\$ 928,272	\$ 945,883	\$ 967,027	\$ 984,247	\$ 999,862	\$ 1,025,864
NextEra Solar	\$ -	\$ -	\$ -	\$ 1,629,816	\$ 1,652,721	\$ 1,665,368	\$ 1,728,549	\$ 1,771,589	\$ 1,846,395	\$ 1,842,985	\$ 1,918,540	\$ 1,924,493	\$ 1,975,341	\$ 2,009,975	\$ 2,055,677	\$ 2,108,020	\$ 2,126,464	\$ 2,178,041	\$ 2,249,944	\$ 2,258,245	\$ 2,258,245
DG - RES	\$ 4,000	\$ 4,000	\$ 20,000	\$ 28,000	\$ 32,000	\$ 40,000	\$ 48,000	\$ 60,000	\$ 72,000	\$ 88,000	\$ 108,000	\$ 124,000	\$ 148,000	\$ 168,000	\$ 194,000	\$ 236,000	\$ 284,000	\$ 342,000	\$ 412,000	\$ 4,920,000	\$ 5,860,000
DG - C&I	\$ 28,000	\$ 36,000	\$ 44,000	\$ 56,000	\$ 68,000	\$ 84,000	\$ 104,000	\$ 128,000	\$ 156,000	\$ 192,000	\$ 232,000	\$ 284,000	\$ 348,000	\$ 424,000	\$ 508,000	\$ 600,000	\$ 700,000	\$ 812,000	\$ 932,000	\$ 1,068,000	\$ 1,212,000
EE Legacy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
EE C&I	\$ -	\$ 4,139,175	\$ 4,388,678	\$ 4,486,184	\$ 4,486,836	\$ 4,517,629	\$ 4,516,195	\$ 4,446,664	\$ 4,347,123	\$ 4,285,732	\$ 3,872,477	\$ 4,333,754	\$ 4,343,566	\$ 6,649,420	\$ 6,529,938	\$ 6,301,574	\$ 6,498,354	\$ 6,248,414	\$ 5,959,135	\$ 5,801,839	\$ 5,642,776
EE RES	\$ -	\$ 868,854	\$ 1,053,166	\$ 1,198,268	\$ 1,314,506	\$ 1,503,652	\$ 1,693,971	\$ 1,887,439	\$ 2,080,833	\$ 2,277,161	\$ 2,451,619	\$ 2,190,574	\$ 2,148,800	\$ 2,116,280	\$ 2,090,309	\$ 2,055,197	\$ 2,193,219	\$ 2,196,603	\$ 2,198,303	\$ 2,226,454	\$ 2,240,093
DR C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DR RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Local Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New External Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New External Wind	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Battery Charge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Battery Discharge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CONS.LANS Purchase - BR	\$ 36,392,705	\$ 36,953,936	\$ 36,083,339	\$ 35,134,961	\$ 35,213,051	\$ 35,150,099	\$ 36,137,937	\$ 35,935,383	\$ 36,166,613	\$ 37,024,607	\$ (3,421,774)	\$ (2,988,036)	\$ (3,141,933)	\$ (3,048,981)	\$ (3,152,387)	\$ (2,928,697)	\$ (2,928,886)	\$ (2,668,406)	\$ (2,732,871)	\$ (2,626,651)	\$ (2,535,749)
CONS.LANS Purchase - METC	\$ 1,029,114	\$ 502,570	\$ 106,125	\$ 84,705	\$ 115,031	\$ 109,465	\$ 348,675	\$ 498,935	\$ 482,891	\$ 1,932,430	\$ 1,993,430	\$ 2,098,146	\$ 2,167,769	\$ 2,231,489	\$ 2,301,118	\$ 2,352,218	\$ 2,457,416	\$ 2,431,278	\$ 2,472,667	\$ 2,523,488	
CONS.LANS Purchase	\$ 1,759,121	\$ 269,691	\$ 59,781	\$ 37,945	\$ 70,347	\$ 54,608	\$ 243,681	\$ 372,843	\$ 365,136	\$ 434,052	\$ 3,937,851	\$ 3,409,765	\$ 3,815,709	\$ 3,992,227	\$ 4,550,947	\$ 4,809,101	\$ 4,776,738	\$ 5,132,951	\$ 5,484,422	\$ 5,485,469	\$ 5,771,922
Emergency Energy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Dump Energy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CONS.LANS Sale	\$ (13,309,825)	\$ (32,248,070)	\$ (49,407,701)	\$ (46,681,906)	\$ (48,865,295)	\$ (47,559,589)	\$ (30,509,196)	\$ (28,292,120)	\$ (28,194,532)	\$ (29,305,166)	\$ (8,244,295)	\$ (6,602,625)	\$ (6,903,105)	\$ (6,356,938)	\$ (6,589,343)	\$ (5,797,912)	\$ (5,664,777)	\$ (4,376,440)	\$ (4,623,727)	\$ (4,241,459)	\$ (4,042,114)
DECO.BLR Sale	\$ (21,424,950)	\$ (21,499,676)	\$ (18,463,195)	\$ (17,421,337)	\$ (20,360,762)	\$ (17,368,997)	\$ (18,509,817)	\$ (20,736,152)	\$ (17,757,979)	\$ (18,035,746)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
External Renewable Sale	\$ (4,929,810)	\$ (9,214,193)	\$ (13,720,250)	\$ (13,260,237)	\$ (13,363,618)	\$ (13,730,765)	\$ (13,408,159)	\$ (13,730,765)	\$ (13,646,551)	\$ (13,843,645)	\$ (14,019,958)	\$ (13,319,809)	\$ (13,703,541)	\$ (13,369,578)	\$ (13,502,144)	\$ (11,698,886)	\$ (11,629,038)	\$ (11,292,661)	\$ (11,114,141)	\$ (10,815,763)	\$ (10,792,257)
Electric Vehicle Program	\$ 114,000	\$ 87,000	\$ 94,000	\$ 122,000	\$ 170,000	\$ 240,000	\$ 279,000	\$ 162,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Capacity Purchase	\$ 231,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Capacity Sale	\$ -	\$ (1,063,748)	\$ (1,320,073)	\$ (1,320,073)	\$ (1,320,073)	\$ (1,320,073)	\$ (615,180)	\$ (640,812)	\$ (647,220)	\$ (724,118)	\$ (433,800)	\$ (482,160)	\$ (573,000)	\$ (607,380)	\$ (561,540)	\$ (620,090)	\$ (620,090)	\$ (620,0			

Model Configuration and Constraints
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	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Summary Metrics	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Total Cost	\$ 102,677,916	\$ 102,985,891	\$ 102,234,061	\$ 106,310,999	\$ 106,453,542	\$ 110,677,694	\$ 103,542,071	\$ 105,246,351	\$ 107,081,246	\$ 108,740,434	\$ 96,745,027	\$ 101,139,115	\$ 104,186,819	\$ 109,256,626	\$ 110,915,358	\$ 111,766,447	\$ 115,366,826	\$ 118,986,903	\$ 121,057,628	\$ 124,800,952	\$ 114,505,621
Nominal Rates	\$ 48.67	\$ 46.20	\$ 46.16	\$ 48.33	\$ 48.76	\$ 51.13	\$ 48.28	\$ 49.53	\$ 50.89	\$ 52.08	\$ 46.67	\$ 49.04	\$ 50.77	\$ 53.38	\$ 54.34	\$ 54.88	\$ 56.71	\$ 58.43	\$ 59.38	\$ 61.09	\$ 55.92
Accumulated Net Present Value Total Cost	\$ 102,677,916	\$ 201,078,347	\$ 294,411,116	\$ 387,142,734	\$ 475,865,934	\$ 564,002,566	\$ 642,785,556	\$ 719,299,737	\$ 793,681,690	\$ 865,852,983	\$ 927,203,941	\$ 988,485,685	\$ 1,048,803,280	\$ 1,109,239,638	\$ 1,167,861,750	\$ 1,224,303,503	\$ 1,279,969,406	\$ 1,334,825,735	\$ 1,388,151,736	\$ 1,440,678,908	\$ 1,486,727,059
Accumulated NPV Retail Sales	2,109,858	4,239,708	6,261,838	8,180,734	10,000,176	11,724,063	13,355,953	14,900,792	16,362,464	17,748,264	19,062,866	20,312,467	21,500,438	22,632,576	23,711,451	24,739,953	25,721,495	26,660,345	27,558,333	28,418,187	29,241,583
Accumulated NPV Rate Impact	\$ 48.67	\$ 47.43	\$ 47.02	\$ 47.32	\$ 47.59	\$ 48.11	\$ 48.13	\$ 48.27	\$ 48.51	\$ 48.79	\$ 48.64	\$ 48.66	\$ 48.78	\$ 49.01	\$ 49.25	\$ 49.49	\$ 49.76	\$ 50.07	\$ 50.37	\$ 50.70	\$ 50.84
Risk Premium	\$ 15,981,976	\$ 23,729,254	\$ 33,372,574	\$ 31,410,285	\$ 30,770,214	\$ 29,692,946	\$ 24,498,013	\$ 21,334,143	\$ 20,799,113	\$ 24,979,767	\$ 19,317,797	\$ 13,578,761	\$ 18,194,859	\$ 15,936,397	\$ 17,837,023	\$ 14,010,765	\$ 15,637,457	\$ 15,670,457	\$ 11,615,877	\$ 12,343,849	\$ 9,157,885
Present Value of Risk Premium	\$ 15,981,976	\$ 22,672,706	\$ 30,466,898	\$ 27,398,683	\$ 25,645,288	\$ 23,645,562	\$ 18,640,024	\$ 15,509,939	\$ 14,447,708	\$ 16,579,133	\$ 12,250,401	\$ 8,227,580	\$ 10,533,675	\$ 8,815,372	\$ 9,427,405	\$ 7,075,399	\$ 7,545,264	\$ 7,224,524	\$ 5,116,805	\$ 5,195,373	\$ 3,682,821
Accumulated NPV Risk Premium	\$ 15,981,976	\$ 38,654,682	\$ 69,121,580	\$ 96,520,263	\$ 122,165,551	\$ 145,811,113	\$ 164,451,137	\$ 179,961,076	\$ 194,408,784	\$ 210,987,917	\$ 223,238,318	\$ 231,465,898	\$ 241,999,573	\$ 250,814,945	\$ 260,242,350	\$ 267,317,749	\$ 274,863,013	\$ 282,087,537	\$ 287,204,342	\$ 292,399,715	\$ 296,082,536
Total Cost with Risk Premium	\$ 118,659,892	\$ 126,715,145	\$ 135,606,635	\$ 137,719,284	\$ 137,223,756	\$ 140,370,639	\$ 128,040,084	\$ 126,580,494	\$ 127,880,359	\$ 133,720,201	\$ 116,062,824	\$ 114,717,877	\$ 122,381,678	\$ 125,193,023	\$ 128,752,381	\$ 125,777,212	\$ 131,004,283	\$ 134,657,360	\$ 132,673,506	\$ 137,144,801	\$ 123,663,506
Present Value of Total Cost with Risk Premium	\$ 118,659,892	\$ 121,073,137	\$ 123,799,667	\$ 120,130,301	\$ 114,368,488	\$ 111,782,193	\$ 97,423,015	\$ 92,024,120	\$ 88,829,661	\$ 88,750,426	\$ 73,601,359	\$ 69,509,324	\$ 70,851,270	\$ 69,251,731	\$ 68,049,517	\$ 63,517,151	\$ 63,211,167	\$ 62,080,854	\$ 58,442,806	\$ 57,722,545	\$ 49,730,972
Accumulated NPV Total Cost with Risk Premium	\$ 118,659,892	\$ 239,733,029	\$ 363,532,697	\$ 483,662,997	\$ 598,031,485	\$ 709,813,679	\$ 807,236,694	\$ 899,260,813	\$ 988,090,474	\$ 1,076,840,901	\$ 1,150,442,259	\$ 1,219,951,583	\$ 1,290,802,853	\$ 1,360,054,584	\$ 1,428,104,101	\$ 1,491,621,251	\$ 1,554,832,419	\$ 1,616,913,272	\$ 1,675,356,078	\$ 1,733,078,623	\$ 1,782,809,595
Percent Dispatchable Generation	70.2%	78.7%	71.5%	69.1%	68.6%	68.1%	61.5%	60.9%	60.4%	59.9%	54.0%	53.6%	53.1%	52.6%	52.1%	52.8%	52.3%	51.7%	51.1%	50.4%	49.7%
Resource Diversity	0.66	0.50	0.58	0.60	0.60	0.61	0.56	0.56	0.57	0.57	0.52	0.52	0.53	0.54	0.54	0.53	0.54	0.55	0.56	0.57	0.58
Annual CO2 Emissions - Tons	1,493,077	1,735,550	1,808,195	1,763,407	1,883,090	1,771,501	1,312,451	1,354,867	1,221,402	1,213,862	908,596	894,925	883,935	871,407	856,726	844,873	836,399	824,321	818,358	811,074	801,880
Accumulated CO2 Emissions - Tons	1,493,077	3,228,627	5,036,822	6,800,229	8,683,319	10,454,820	11,767,271	13,122,138	14,343,540	15,557,402	16,465,998	17,360,924	18,244,858	19,116,266	19,972,991	20,817,864	21,654,263	22,478,585	23,296,943	24,108,017	24,909,898
Average CO2 Emissions per Year - Tons	1,493,077	1,614,314	1,678,941	1,700,057	1,736,664	1,742,470	1,681,039	1,640,267	1,593,727	1,555,740	1,496,909	1,446,744	1,403,451	1,365,448	1,331,533	1,301,117	1,273,780	1,248,810	1,226,155	1,205,401	1,186,186
Annual CO2 Intensity - lbs/MWh Generated	1,331.0	1,130.0	988.3	950.3	984.2	948.3	834.4	858.7	807.7	794.8	589.9	581.5	574.5	568.5	561.8	565.5	560.3	554.7	550.6	546.2	540.1
Total CO2 Emissions Reduced from 2005	65.8%	60.3%	58.6%	59.6%	56.9%	59.4%	70.0%	69.0%	72.0%	72.2%	79.2%	79.5%	79.8%	80.1%	80.4%	80.7%	80.9%	81.1%	81.3%	81.4%	81.6%
CO2 Intensity Reduced from 2005	42.3%	51.0%	57.2%	58.8%	57.3%	58.9%	63.8%	62.8%	65.0%	65.6%	74.4%	74.8%	75.1%	75.4%	75.7%	75.5%	75.7%	76.0%	76.1%	76.3%	76.6%
Annual NOx Emissions - Tons	1,012	964	852	807	911	828	567	630	539	530	157	152	148	144	141	138	135	132	131	129	127
Accumulated NOx Emissions - Tons	1,012	1,975	2,827	3,635	4,545	5,374	5,941	6,570	7,109	7,639	7,796	7,948	8,096	8,240	8,382	8,520	8,655	8,787	8,918	9,048	9,175
Average NOx Emissions per Year - Tons	1,012	988	942	909	909	896	849	821	790	764	709	662	623	589	559	532	509	488	469	452	437
Annual NOx Intensity - lbs/MWh Generated	0.9	0.6	0.5	0.4	0.5	0.4	0.4	0.4	0.4	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Total NOx Emissions Reduced from 2005	76.9%	78.0%	80.5%	81.5%	79.2%	81.1%	87.0%	85.6%	87.7%	87.9%	96.4%	96.5%	96.6%	96.7%	96.8%	96.8%	96.9%	97.0%	97.0%	97.0%	97.1%
NOx Intensity Reduced from 2005	61.0%	72.8%	79.8%	81.2%	79.4%	80.8%	84.4%	82.7%	84.6%	85.0%	95.6%	95.7%	95.8%	95.9%	96.0%	96.0%	96.1%	96.2%	96.2%	96.2%	96.3%
Annual SO2 Emissions - Tons	3,188	2,833	2,415	2,261	2,639	2,367	1,558	1,812	1,496	1,456	9	9	9	9	9	9	9	8	8	8	8
Accumulated SO2 Emissions - Tons	3,188	6,022	8,436	10,697	13,337	15,704	17,262	19,073	20,569	22,026	22,035	22,044	22,053	22,062	22,070	22,079	22,087	22,096	22,104	22,113	22,121
Average SO2 Emissions per Year - Tons	3,188	3,011	2,812	2,674	2,667	2,617	2,466	2,384	2,285	2,203	2,003	1,837	1,696	1,576	1,471	1,380	1,299	1,228	1,163	1,106	1,053
Annual SO2 Intensity - lbs/MWh Generated	2.8	1.8	1.3	1.2	1.4	1.3	1.0	1.1	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total SO2 Emissions Reduced from 2005	71.2%	74.4%	78.2%	79.6%	76.2%	78.6%	85.9%	83.6%	86.5%	86.8%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%
SO2 Intensity Reduced from 2005	51.4%	68.5%	77.4%	79.2%	76.4%	78.3%	83.1%	80.4%	83.1%	83.7%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%
Renewable Energy MWh %	14%	16%	23%	25%	25%	26%	26%	26%	26%	27%	28%	28%	28%	28%	29%	26%	27%	27%	28%	28%	29%
Renewable Energy RPS %	32%	19%	26%	28%	29%	29%	29%	29%	29%	30%	31%	31%	32%	32%	32%	30%	30%	31%	31%	32%	32%
Energy Efficiency %	10%	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%	21%	22%	22%	23%	23%	23%	24%	24%	24%	24%
Clean Energy %	39%	28%	35%	37%	38%	39%	40%	42%	43%	44%	45%	46%	47%	47%	47%	46%	47%	47%	47%	48%	48%

1.8 v2: Model Configuration & Constraints

35% Clean Energy in 2025

40% Clean Energy in 2030

Erickson Retires December 2021 and Dispatched Optimally

Max Annual Incremental Energy Efficiency

Pegasus Online 7/1/2020

Regular Growth

No Incentive for Electric Vehicles

No Incentive for Customer Solar

Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy

Expansion Plan

2021: 10MW Solar | C&I Bins 1, 2, 3, 4 & 5; Res Bins 1, 2, 3, 4 & 5 | Erickson Retirement

2022: 80MW Solar

2023: 26MW Solar

2030: Demand Response C&I | 50MW, 4-Hr Battery | 10MW Solar

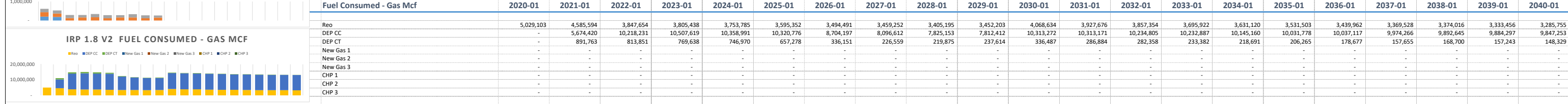
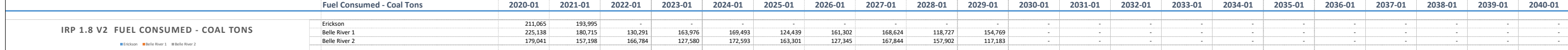
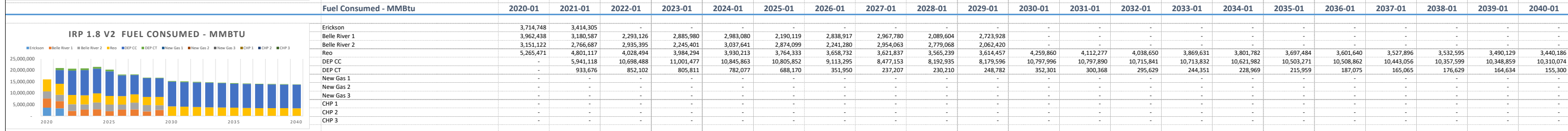
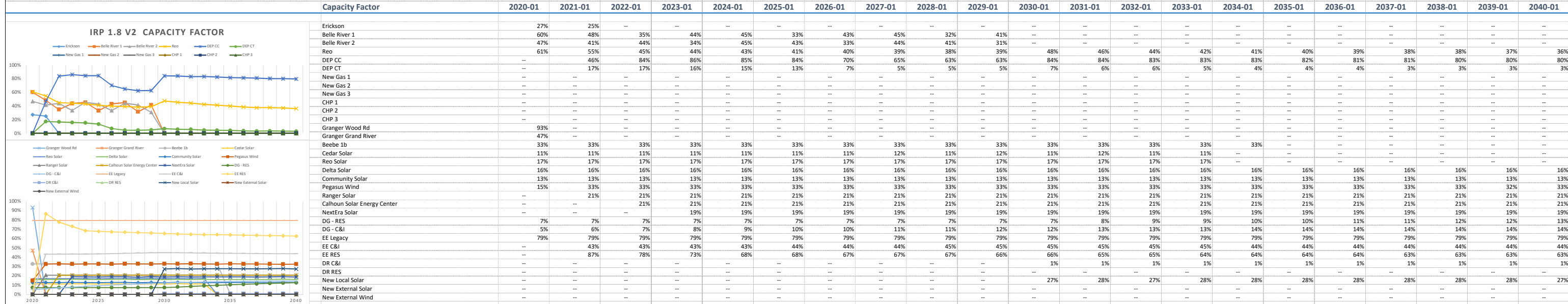
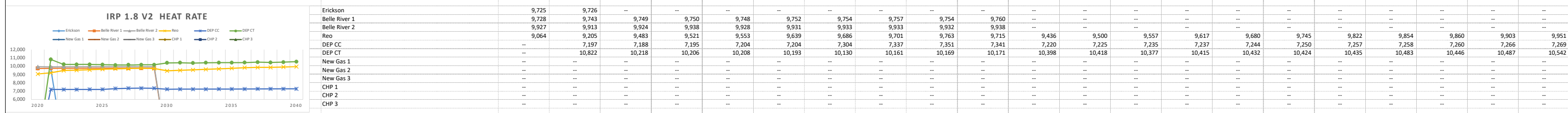
IRP 1.8 v2

Summary of Modeling

Model Configuration and Constraints
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	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
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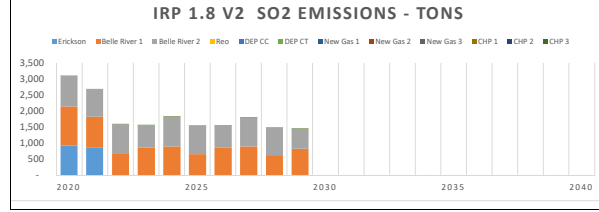
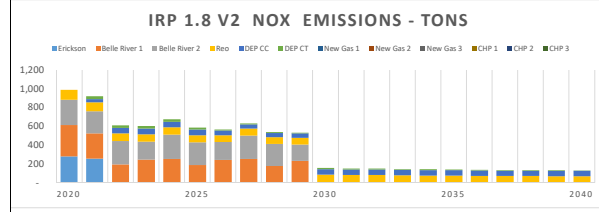
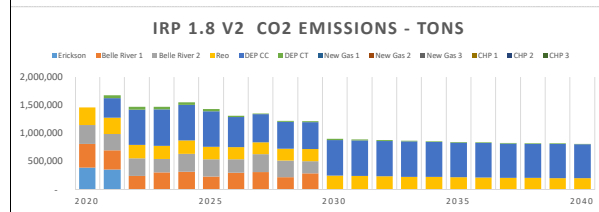
IRP 1.8 v2

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	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
CO2 Emissions - Tons																					
Erickson	391,163	359,526	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Belle River 1	421,405	338,255	243,874	306,924	317,251	232,919	301,919	315,623	222,229	289,690	-	-	-	-	-	-	-	-	-	-	-
Belle River 2	335,122	294,237	312,179	238,798	323,053	305,660	238,360	314,165	295,554	219,338	-	-	-	-	-	-	-	-	-	-	-
Reo	313,032	285,426	239,494	236,866	233,651	223,790	217,512	215,318	211,953	214,879	253,249	244,475	240,098	230,050	226,016	219,815	214,117	209,733	210,013	207,488	204,519
DEP CC	-	347,555	625,862	643,586	634,483	632,142	533,128	495,913	479,287	478,506	631,683	631,677	626,877	626,759	621,386	614,441	614,768	610,919	605,920	605,408	603,139
DEP CT	-	54,620	49,848	47,140	45,752	40,258	20,589	13,877	13,467	14,554	20,610	17,572	17,294	14,295	13,395	12,634	10,944	9,656	10,333	9,631	9,085
New Gas 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NOx Emissions - Tons																					
Erickson	279	256	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Belle River 1	337	270	195	245	254	186	241	252	178	232	-	-	-	-	-	-	-	-	-	-	-
Belle River 2	268	235	250	191	258	244	191	251	236	175	-	-	-	-	-	-	-	-	-	-	-
Reo	105	96	81	80	79	75	73	72	71	72	85	82	81	77	76	74	72	71	71	70	69
DEP CC	-	33	59	61	60	59	50	47	45	45	59	59	59	59	58	58	58	57	57	57	57
DEP CT	-	31	28	27	26	23	12	8	8	8	12	10	10	8	8	7	6	5	6	5	5
New Gas 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SO2 Emissions - Tons																					
Erickson	940	864	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Belle River 1	1,209	970	699	880	910	668	866	905	637	831	-	-	-	-	-	-	-	-	-	-	-
Belle River 2	961	844	895	685	926	877	684	901	848	629	-	-	-	-	-	-	-	-	-	-	-
Reo	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
DEP CC	-	4	8	8	8	8	6	6	6	6	8	8	8	8	7	7	7	7	7	7	7
DEP CT	-	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
New Gas 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



IRP 1.8 v2

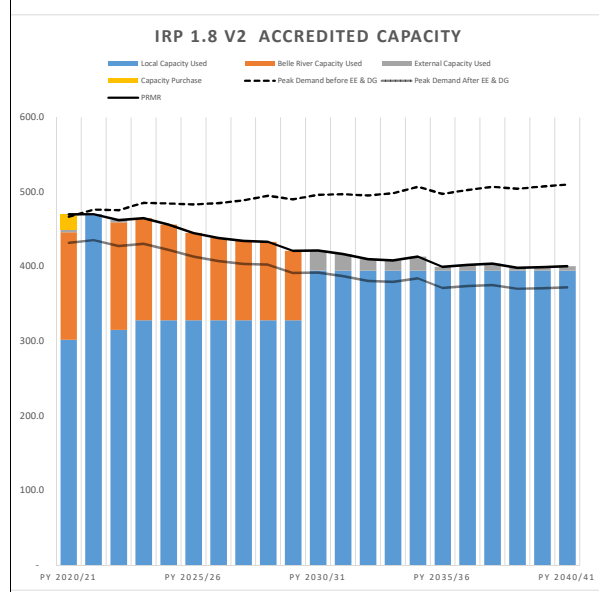
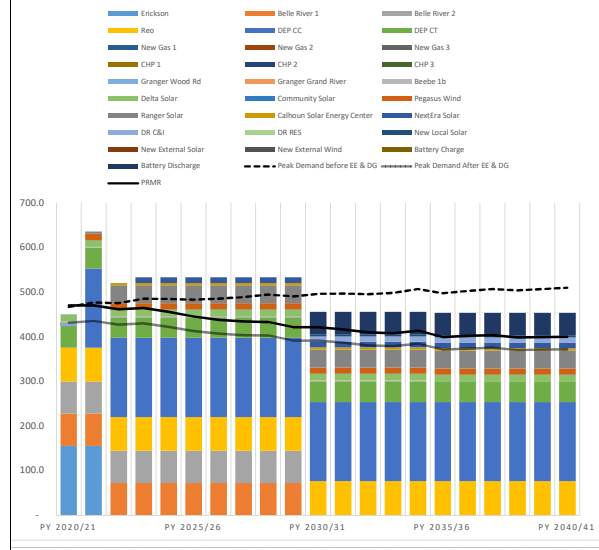
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	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
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Accredited Capacity	PY 2020/21	PY 2021/22	PY 2022/23	PY 2023/24	PY 2024/25	PY 2025/26	PY 2026/27	PY 2027/28	PY 2028/29	PY 2029/30	PY 2030/31	PY 2031/32	PY 2032/33	PY 2033/34	PY 2034/35	PY 2035/36	PY 2036/37	PY 2037/38	PY 2038/39	PY 2039/40	PY 2040/41
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Peak Demand before EE & DG	466.9	476.7	475.5	485.5	484.8	483.4	485.2	488.8	494.9	490.2	496.4	497.1	495.4	498.1	506.9	497.7	502.9	507.0	504.5	507.2	510.0
Net Load Offsets																					
EE Legacy	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3
EE C&I	-	5.4	11.2	17.5	24.0	30.6	37.2	43.2	48.7	53.7	58.1	62.0	65.6	68.9	71.9	74.7	76.6	78.4	80.1	81.0	81.7
EE RES	-	0.8	1.7	2.5	3.2	4.3	5.4	6.7	8.1	9.5	10.9	12.0	12.9	13.6	14.2	14.7	15.1	15.3	15.4	15.6	15.7
DG - RES	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.2	1.4
DG - C&I	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.5	0.6	0.7	0.9	1.1	1.4	1.7	2.1	2.6	3.1	3.8	4.6
Cedar Solar	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-	-	-	-	-	-	-
Reo Solar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Community Solar	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Peak Demand After EE & DG	431.8	435.4	427.5	430.4	422.4	413.3	407.3	403.6	402.7	391.6	391.8	387.4	381.0	379.4	384.3	371.4	373.8	375.4	370.3	371.2	372.1
Reserve Margin Percent	1.089	1.080	1.081	1.080	1.080	1.077	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076
PRMR	470.2	470.3	462.1	464.8	456.2	445.2	438.2	434.3	433.3	421.3	421.6	416.9	409.9	408.2	413.5	399.6	402.2	403.9	398.5	399.4	400.4
Local Capacity																					
Erickson	155.4	155.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Reo	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0
DEP CC	-	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7
DEP CT	49.2	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3
New Gas 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Granger Wood Rd	6.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Delta Solar	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1
NextEra Solar	-	-	-	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9
DR C&I	-	-	-	-	-	-	-	-	-	-	-	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7
DR RES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Local Solar	-	-	-	-	-	-	-	-	-	-	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Battery Charge	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Battery Discharge	-	-	-	-	-	-	-	-	-	-	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
Total Local Capacity	301.9	470.5	315.1	328.0	328.0	328.0	328.0	328.0	328.0	328.0	394.7	394.7	394.7	394.7	394.7	394.7	394.7	394.7	394.7	394.7	394.7
Transmission Entitlements																					
Belle River Transmission Entitlement	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	-	-	-	-	-	-	-	-	-	-	-
Belle River 1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	-	-	-	-	-	-	-	-	-	-	-
Belle River 2	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	-	-	-	-	-	-	-	-	-	-	-
Remaining Entitlement	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	-	-	-	-	-	-	-	-	-	-	-
METC Settlement Entitlement	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6
Total Transmission Entitlements Remaining	18.4	18.4	18.4	18.4	18.4	18.4	18.4	18.4	18.4	18.4	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6
External Capacity																					
Granger Grand River	1.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Beebe 1b	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
Pegasus Wind	-	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
Ranger Solar	-	5.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
Calhoun Solar Energy Center	-	-	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
New External Solar	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New External Wind	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Available External Capacity	3.5	21.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	59.0	59.0	59.0	59.0	59.0	59.0
Summary																					
PRMR	470.2	470.3	462.1	464.8	456.2	445.2	438.2	434.3	433.3	421.3	421.6	416.9	409.9	408.2	413.5	399.6	402.2	403.9	398.5	399.4	400.4
Local Capacity Used	301.9	470.3	315.1	328.0	328.0	328.0	328.0	328.0	328.0	328.0	394.7	394.7	394.7	394.7	394.7	394.7	394.7	394.7	394.7	394.7	394.7
Local Capacity Remaining	-	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Capacity Used	301.9	470.3	315.1	328.0	328.0	328.0	328.0	328.0	328.0	328.0	394.7	394.7	394.7	394.7	394.7	394.7	394.7	394.7	394.7	394.7	394.7
Capacity Short	168.3	-	147.1	136.8	128.2	117.2	110.2	106.3	105.3	93.3	26.9	22.2	15.2	13.5	18.8	4.9	7.5	9.2	3.8	4.7	5.7
Belle River Capacity Used	144.2	-	144.2	136.8	128.2	117.2	110.2	106.3	105.3	93.3	-	-	-	-	-	-	-	-	-	-	-
Belle River Capacity Remaining	-	144.2	-	7.4	16.0	27.0	34.0	37.9	38.9	50.9	-	-	-	-	-	-	-	-	-	-	-
Total Capacity Used	446.1	470.3	459.3	464.8	456.2	445.2	438.2	434.3	433.3	421.3	394.7	394.7									

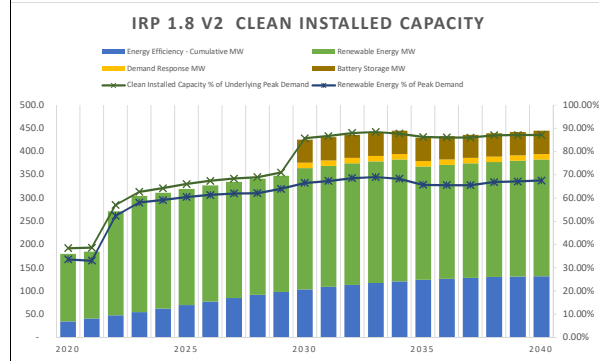
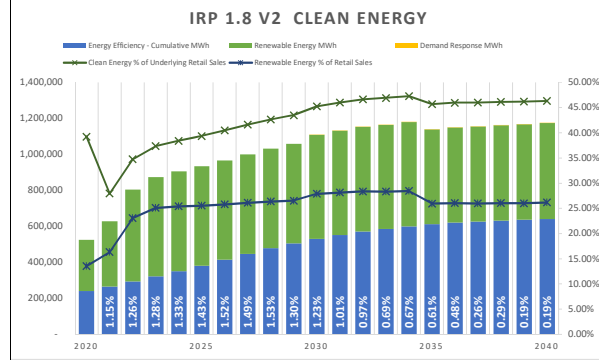
IRP 1.8 v2

Summary of Modeling

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 35% Clean Energy in 2025, 40% Clean Energy in 2030 | Erickson Retires December 2021 and Dispatched Optimally | Max Annual Incremental Energy Efficiency | Pegasus Online 7/1/2020 | Regular Growth | No Incentive for Electric Vehicles | No Incentive for Customer Solar | Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy | Question Answered: What is the impact of maximum energy efficiency investment with our current goals?

Expansion Plan:
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	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Clean Energy	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Renewable Energy MWh	285,558	363,422	510,187	551,630	554,141	552,125	552,511	554,469	554,257	552,790	577,625	579,870	581,199	578,716	579,782	527,747	528,692	528,641	530,173	530,595	534,794
Renewable Energy % of Retail Sales	13.54%	16.31%	23.04%	25.09%	25.40%	25.53%	25.79%	26.13%	26.38%	26.51%	27.90%	28.16%	28.36%	28.32%	28.44%	25.95%	26.03%	26.00%	26.04%	26.01%	26.16%
Renewable Energy % of Underlying Retail Sales	12.16%	14.57%	20.35%	21.89%	21.89%	21.70%	21.62%	21.60%	21.49%	21.35%	22.22%	22.22%	22.19%	22.02%	21.99%	19.96%	19.94%	19.88%	19.88%	19.83%	19.92%
Renewable Energy RPS	682,092	431,576	578,371	620,462	622,311	620,215	621,084	623,319	622,051	621,362	645,232	648,438	649,613	647,496	647,156	595,523	597,146	596,384	597,880	599,479	602,599
Renewable Energy % of Retail Sales	32.33%	19.36%	26.12%	28.22%	28.52%	28.67%	28.99%	29.37%	29.60%	29.80%	31.17%	31.49%	31.70%	31.68%	31.75%	29.28%	29.40%	29.33%	29.37%	29.39%	29.47%
Renewable Energy % of Underlying Retail Sales	29.04%	17.31%	23.07%	24.62%	24.58%	24.38%	24.30%	24.28%	24.12%	23.99%	24.82%	24.84%	24.80%	24.63%	24.54%	22.52%	22.52%	22.43%	22.42%	22.41%	22.45%
Energy Efficiency - Cumulative MWh	239,413	264,975	292,946	321,013	350,127	380,991	413,655	445,340	477,408	504,530	529,947	550,694	570,510	584,683	598,430	610,806	620,652	625,845	631,703	635,631	639,604
Energy Efficiency - Cumulative % of Underlying Retail Sales	10.19%	10.63%	11.68%	12.74%	13.83%	14.98%	16.18%	17.35%	18.51%	19.48%	20.38%	21.10%	21.78%	22.24%	22.70%	23.10%	23.40%	23.53%	23.68%	23.76%	23.83%
Energy Efficiency - Annual Incremental MWh		25,562	27,971	28,067	29,114	30,864	32,664	31,685	32,068	27,122	25,417	20,747	19,816	14,173	13,748	12,376	9,846	5,193	5,858	3,928	3,973
Energy Efficiency - Annual Incremental % of Retail Sales		1.15%	1.26%	1.28%	1.33%	1.43%	1.52%	1.49%	1.53%	1.30%	1.23%	1.01%	0.97%	0.69%	0.67%	0.61%	0.26%	0.29%	0.29%	0.19%	0.19%
Energy Efficiency - Annual Incremental % of Underlying Retail Sales		1.03%	1.12%	1.11%	1.15%	1.21%	1.28%	1.23%	1.24%	1.05%	0.98%	0.79%	0.76%	0.54%	0.52%	0.47%	0.37%	0.20%	0.22%	0.15%	0.15%
Demand Response MWh	-	-	-	-	-	-	-	-	-	-	957	966	947	915	943	970	989	969	937	925	961
Demand Response % of Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.05%	0.05%	0.05%	0.04%	0.05%	0.05%	0.05%	0.05%	0.05%	0.05%	
Demand Response % of Underlying Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.04%	0.04%	0.04%	0.03%	0.04%	0.04%	0.04%	0.04%	0.04%	0.03%	
Clean Energy Credits	921,505	696,550	871,317	941,475	972,437	1,001,206	1,034,739	1,068,658	1,099,459	1,125,892	1,176,136	1,200,098	1,221,071	1,233,094	1,246,530	1,207,299	1,218,787	1,223,199	1,230,520	1,236,035	1,243,164
Clean Energy % of Underlying Retail Sales	39.23%	27.93%	34.75%	37.36%	38.41%	39.36%	40.48%	41.62%	42.63%	43.48%	45.23%	45.98%	46.61%	46.91%	47.27%	45.65%	45.96%	46.00%	46.13%	46.20%	46.32%
Clean Installed Capacity	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Renewable Energy MW	145.0	143.8	223.8	249.8	249.8	249.9	250.0	250.1	250.2	250.3	260.5	260.9	261.3	261.9	262.4	244.0	245.0	246.1	247.6	249.3	251.3
Renewable Energy % of Peak Demand	33.57%	33.02%	52.36%	58.03%	59.14%	60.45%	61.37%	61.96%	62.12%	63.93%	66.48%	67.34%	68.60%	69.03%	68.27%	65.69%	65.53%	65.57%	66.85%	67.16%	67.53%
Renewable Energy % of Underlying Peak Demand	31.05%	30.17%	47.07%	51.45%	51.53%	51.69%	51.52%	51.16%	50.55%	51.06%	52.48%	52.48%	52.75%	52.57%	51.76%	49.02%	48.71%	48.55%	49.07%	49.14%	49.27%
Energy Efficiency - Cumulative MW	34.3	40.4	47.2	54.3	61.5	69.2	76.9	84.2	91.1	97.5	103.3	108.3	112.8	116.9	120.4	123.8	126.0	128.0	129.8	130.9	131.7
Energy Efficiency - Cumulative % of Underlying Peak Demand	7.35%	8.48%	9.93%	11.17%	12.68%	14.31%	15.86%	17.23%	18.41%	19.89%	20.82%	21.78%	22.77%	23.46%	23.76%	24.87%	25.06%	25.25%	25.73%	25.80%	25.82%
Energy Efficiency - Annual Incremental MW		6.1	6.8	7.0	7.2	7.7	7.8	7.2	6.9	6.4	5.8	5.0	4.5	4.1	3.6	3.3	2.3	2.0	1.8	1.1	0.8
Energy Efficiency - Annual Incremental % of Peak Demand		1.41%	1.59%	1.63%	1.71%	1.86%	1.90%	1.80%	1.72%	1.64%	1.48%	1.28%	1.19%	1.07%	0.93%	0.89%	0.60%	0.53%	0.48%	0.29%	0.22%
Energy Efficiency - Annual Incremental % of Underlying Peak Demand		1.29%	1.43%	1.45%	1.49%	1.59%	1.60%	1.48%	1.40%	1.31%	1.17%	1.00%	0.91%	0.81%	0.71%	0.67%	0.45%	0.39%	0.35%	0.21%	0.16%
Demand Response MW	-	-	-	-	-	-	-	-	-	-	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7
Demand Response % of Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.98%	3.02%	3.07%	3.08%	3.04%	3.15%	3.13%	3.11%	3.16%	3.15%	3.14%
Demand Response % of Underlying Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.36%	2.35%	2.36%	2.35%	2.31%	2.35%	2.32%	2.31%	2.32%	2.30%	2.29%
Battery Storage MW	-	-	-	-	-	-	-	-	-	-	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
Battery Storage % of Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	12.76%	12.91%	13.12%	13.18%	13.01%	13.46%	13.38%	13.32%	13.50%	13.47%	13.44%
Battery Storage % of Underlying Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	10.07%	10.06%	10.09%	10.04%	9.86%	10.05%	9.94%	9.86%	9.91%	9.86%	9.80%
Clean Installed Capacity MW	179	184	271	304	311	319	327	334	341	348	426	431	436	440	445	429	433	436	439	442	445
Clean Installed Capacity % of Underlying Peak Demand	38.40%	38.65%	57.00%	62.62%	64.21%	66.00%	67.38%	68.38%	68.96%	70.96%	85.73%	86.67%	87.98%	88.42%	87.69%	86.28%	86.04%	85.96%	87.03%	87.10%	87.18%



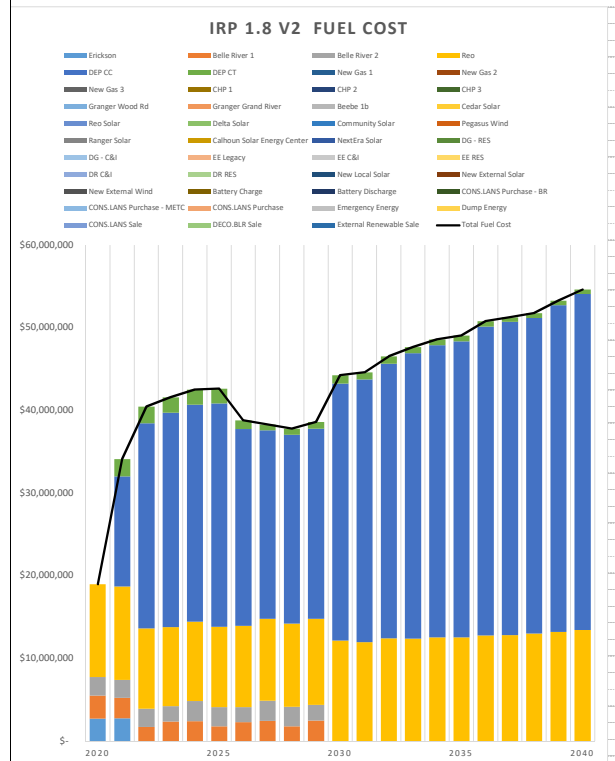
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	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
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	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
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Fuel Cost	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Erickson	\$ 2,713,397	\$ 2,760,655	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Belle River 1	\$ 2,803,535	\$ 2,486,846	\$ 1,715,278	\$ 2,370,630	\$ 2,405,355	\$ 1,779,461	\$ 2,306,221	\$ 2,449,418	\$ 1,780,315	\$ 2,499,907	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Belle River 2	\$ 2,246,181	\$ 2,168,373	\$ 2,203,350	\$ 1,847,891	\$ 2,450,815	\$ 2,340,688	\$ 1,823,500	\$ 2,446,976	\$ 2,367,087	\$ 1,894,300	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Reo	\$ 11,216,501	\$ 11,304,895	\$ 9,739,483	\$ 9,587,471	\$ 9,608,562	\$ 9,714,871	\$ 9,840,333	\$ 9,906,825	\$ 10,082,781	\$ 10,412,950	\$ 12,174,785	\$ 11,960,617	\$ 12,427,844	\$ 12,408,017	\$ 12,551,652	\$ 12,570,783	\$ 12,801,712	\$ 12,810,838	\$ 13,027,896	\$ 13,226,572	\$ 13,464,849
DEP CC	\$ -	\$ 13,312,329	\$ 24,791,951	\$ 25,927,178	\$ 26,224,633	\$ 27,007,982	\$ 23,793,486	\$ 22,795,682	\$ 22,820,971	\$ 22,979,220	\$ 31,091,575	\$ 31,794,002	\$ 33,225,662	\$ 34,509,846	\$ 35,333,702	\$ 35,781,804	\$ 37,357,209	\$ 37,923,109	\$ 38,146,603	\$ 39,504,014	\$ 40,642,938
DEP CT	\$ -	\$ 2,092,368	\$ 2,008,212	\$ 1,860,614	\$ 1,813,855	\$ 1,776,173	\$ 1,025,252	\$ 709,289	\$ 742,281	\$ 811,504	\$ 988,511	\$ 851,997	\$ 890,439	\$ 744,585	\$ 719,512	\$ 710,984	\$ 655,532	\$ 554,283	\$ 596,807	\$ 542,231	\$ 514,522
New Gas 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Granger Wood Rd	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Granger Grand River	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Beebe 1b	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Cedar Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Reo Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Delta Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Community Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Pegasus Wind	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ranger Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Calhoun Solar Energy Center	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
NextEra Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DG - RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DG - C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
EE Legacy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
EE C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
EE RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DR C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DR RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Local Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New External Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New External Wind	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Battery Charge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Battery Discharge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CONS.LANS Purchase - BR	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CONS.LANS Purchase - METC	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CONS.LANS Purchase	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Emergency Energy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Dump Energy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CONS.LANS Sale	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DECO.BLR Sale	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
External Renewable Sale	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Fuel Cost	\$ 18,979,613	\$ 34,125,466	\$ 40,458,274	\$ 41,593,783	\$ 42,503,220	\$ 42,619,176	\$ 38,788,792	\$ 38,308,190	\$ 37,793,435	\$ 38,597,880	\$ 44,254,871	\$ 44,606,615	\$ 46,543,945	\$ 47,662,448	\$ 48,604,866	\$ 49,063,571	\$ 50,814,454	\$ 51,288,230	\$ 51,771,306	\$ 53,272,817	\$ 54,622,308



Fuel Cost per MWh	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
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Erickson	\$ 7.10	\$ 7.86	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Belle River 1	\$ 6.88	\$ 7.62	\$ 7.29	\$ 8.01	\$ 7.86	\$ 7.92	\$ 7.92	\$ 8.05	\$ 8.31	\$ 8.96	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Belle River 2	\$ 7.08	\$ 7.77	\$ 7.45	\$ 8.18	\$ 8.01	\$ 8.09	\$ 8.08	\$ 8.23	\$ 8.46	\$ 9.13	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Reo	\$ 19.31	\$ 21.68	\$ 22.93	\$ 22.91	\$ 23.36	\$ 24.87	\$ 26.05	\$ 26.54	\$ 27.61	\$ 27.99	\$ 26.97	\$ 27.63	\$ 29.41	\$ 30.84	\$ 31.96	\$ 33.13	\$ 34.91	\$ 35.78	\$ 36.36	\$ 37.53	\$ 38.95
DEP CC	\$ -	\$ 16.13	\$ 16.66	\$ 16.96	\$ 17.42	\$ 18.01	\$ 19.07	\$ 19.73	\$ 20.48	\$ 20.62	\$ 20.79	\$ 21.27	\$ 22.43	\$ 23.31	\$ 24.10	\$ 24.70	\$ 25.80	\$ 26.36	\$ 26.74	\$ 27.74	\$ 28.65
DEP CT	\$ -	\$ 24.25	\$ 24.08	\$ 23.57	\$ 23.67	\$ 26.31	\$ 29.51	\$ 30.38	\$ 32.79	\$ 33.18	\$ 29.17	\$ 29.55	\$ 31.26	\$ 31.74	\$ 32.78	\$ 34.32	\$ 36.57	\$ 35.20	\$ 35.30	\$ 34.54	\$ 34.93
New Gas 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Granger Wood Rd	\$ -	\$ -	\$ -																		

IRP 1.8 v2

Summary of Modeling

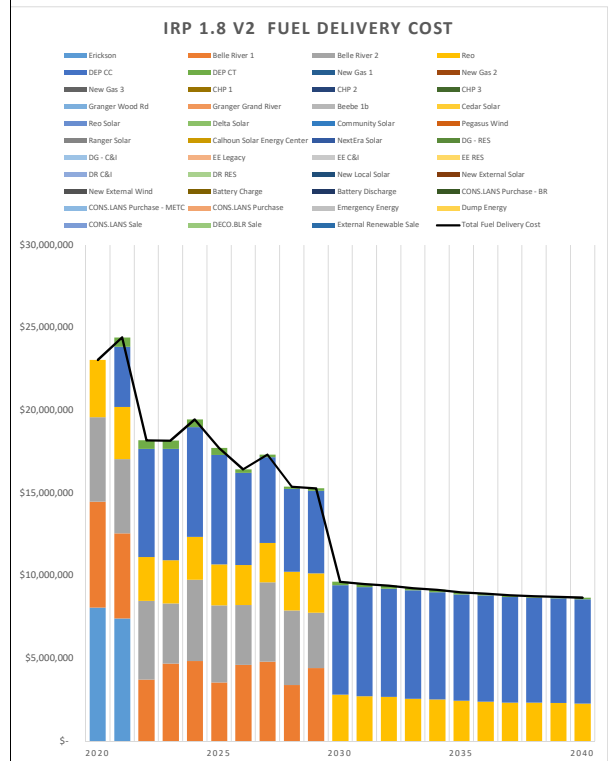
Model Configuration and Constraints
 35% Clean Energy in 2025, 40% Clean Energy in 2030 | Erickson Retires December 2021 and Dispatched Optimally | Max Annual Incremental Energy Efficiency | Pegasus Online 7/1/2020 | Regular Growth | No Incentive for Electric Vehicles | No Incentive for Customer Solar | Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy | Question Answered: What is the impact of maximum energy efficiency investment with our current goals?

Expansion Plan:
 2021: 10MW Solar | C&I Bins 1, 2, 3, 4 & 5; Res Bins 1, 2, 3, 4 & 5 | Erickson Retirement | 2022: 80MW Solar | 2023: 26MW Solar | Demand Response C&I | 50MW, 4-Hr Battery | 10MW Solar |

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
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	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
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Fuel Delivery Cost		2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Erickson	\$	8,061,002	7,409,042	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Belle River 1	\$	6,419,149	5,152,551	3,714,864	4,675,287	4,832,590	3,547,992	4,599,045	4,807,804	3,385,158	4,412,764	-	-	-	-	-	-	-	-	-	-	-
Belle River 2	\$	5,104,818	4,482,033	4,755,341	3,637,550	4,920,979	4,656,041	3,630,874	4,785,582	4,502,090	3,341,121	-	-	-	-	-	-	-	-	-	-	-
Reo	\$	3,469,519	3,163,547	2,654,451	2,625,327	2,589,692	2,480,391	2,410,808	2,386,497	2,349,204	2,381,634	2,806,902	2,709,658	2,661,143	2,549,773	2,505,067	2,436,342	2,373,189	2,324,597	2,327,694	2,299,712	2,266,804
DEP CC	\$	-	3,635,947	6,547,445	6,732,873	6,637,638	6,613,151	5,577,311	5,187,994	5,014,053	5,005,890	6,608,343	6,608,278	6,558,065	6,556,835	6,500,623	6,427,973	6,431,394	6,391,121	6,338,822	6,333,472	6,309,736
DEP CT	\$	-	571,407	521,484	493,154	478,629	421,158	215,392	145,170	140,888	152,254	215,608	183,824	180,924	149,542	140,128	132,166	114,489	101,019	108,096	100,755	95,043
New Gas 1	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 2	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 3	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 1	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 2	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 3	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Granger Wood Rd	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Granger Grand River	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Beebe 1b	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cedar Solar	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Reo Solar	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Delta Solar	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Community Solar	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pegasus Wind	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ranger Solar	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calhoun Solar Energy Center	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NextEra Solar	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DG - RES	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DG - C&I	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EE Legacy	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EE C&I	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EE RES	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DR C&I	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DR RES	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Local Solar	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New External Solar	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New External Wind	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Battery Charge	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Battery Discharge	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CONS.LANS Purchase - BR	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CONS.LANS Purchase - METC	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CONS.LANS Purchase	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Emergency Energy	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dump Energy	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CONS.LANS Sale	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DECO.BLR Sale	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
External Renewable Sale	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Fuel Delivery Cost	\$	23,054,488	24,414,528	18,193,583	18,164,191	19,459,528	17,718,733	16,433,429	17,313,047	15,391,393	15,293,663	9,630,853	9,501,760	9,400,132	9,256,151	9,145,818	8,996,481	8,919,072	8,816,738	8,774,612	8,733,940	8,671,583



Fuel Delivery Cost per MWh		2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
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Erickson	\$	21.10	21.11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Belle River 1	\$	15.76	15.78	15.79	15.79	15.79	15.80	15.80	15.81	15.80	15.81	-	-	-	-	-	-	-	-	-	-	-
Belle River 2	\$	16.08	16.06	16.08	16.10	16.08	16.09	16.09	16.09	16.09	16.09	-	-	-	-	-	-	-	-	-	-	-
Reo	\$	5.97	6.07	6.25	6.27	6.29	6.35	6.38	6.39	6.43	6.40	6.22	6.26	6.30	6.34	6.38	6.42	6.47	6.49	6.50	6.53	6.56
DEP CC	\$	-	4.40	4.40	4.40	4.41	4.41	4.47	4.49	4.50	4.49	4.42	4.42	4.43	4.43	4.43	4.44	4.44	4.44	4.44	4.45	4.45
DEP CT	\$	-	6.62	6.25	6.25	6.25	6.24	6.20	6.22	6.22	6.22	6.36	6.38	6.35	6.37	6.38	6.38	6.39	6.42	6.39	6.42	6.45
New Gas 1	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 2	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 3	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 1	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 2	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 3	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Granger Wood Rd	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Granger Grand River	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Beebe 1b	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cedar Solar	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Reo Solar	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Delta Solar	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Community Solar	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pegasus Wind	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ranger Solar	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calhoun Solar Energy Center	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NextEra Solar	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DG - RES	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DG - C&I	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EE Legacy	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EE C&I	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EE RES	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DR C&I	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DR RES	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Local Solar	\$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New External Solar	\$	-</																				

IRP 1.8 v2

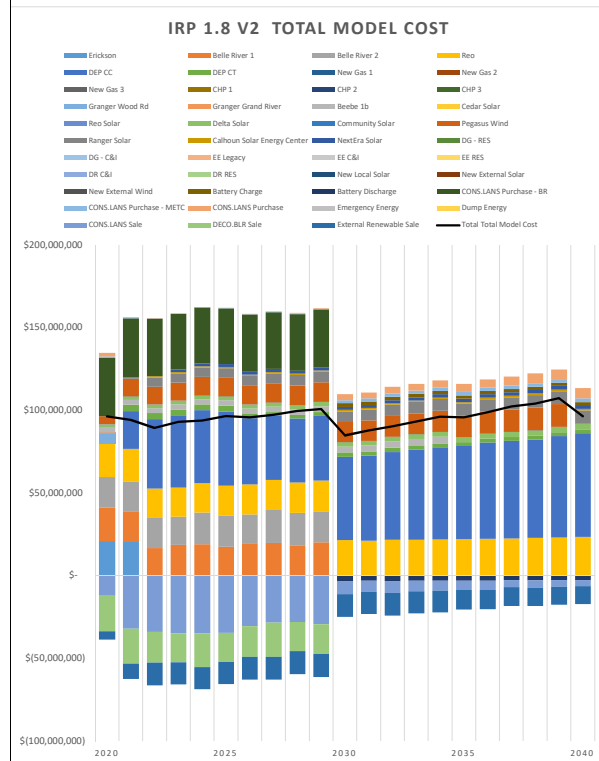
Summary of Modeling

Model Configuration and Constraints
 35% Clean Energy in 2025, 40% Clean Energy in 2030 | Erickson Retires December 2021 and Dispatched Optimally | Max Annual Incremental Energy Efficiency | Pegasus Online 7/1/2020 | Regular Growth | No Incentive for Electric Vehicles | No Incentive for Customer Solar | Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy | Question Answered: What is the impact of maximum energy efficiency investment with our current goals?

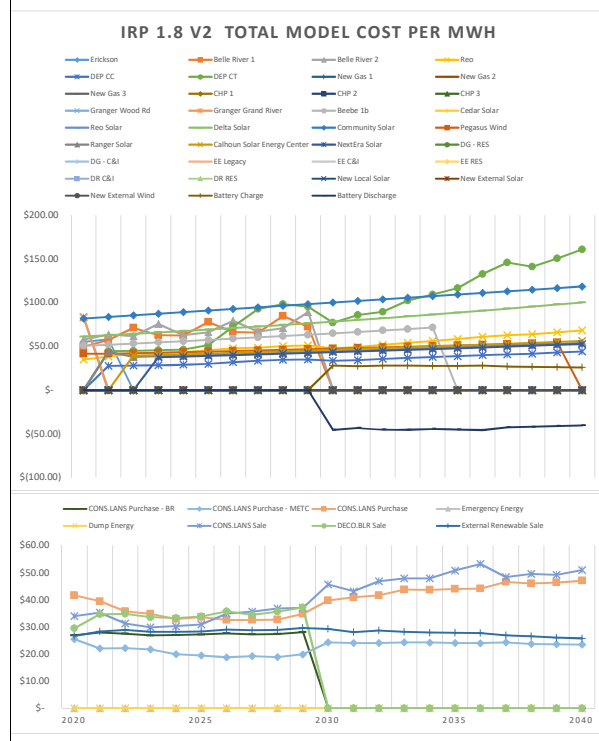
Expansion Plan:
 2021: 10MW Solar | C&I Bins 1, 2, 3, 4 & 5; Res Bins 1, 2, 3, 4 & 5 | Erickson Retirement | 2022: 80MW Solar | 2023: 26MW Solar | 2030: Demand Response C&I | 50MW, 4-Hr Battery | 10MW Solar |

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
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Total Model Cost	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01	
Erickson	\$ 21,115,528	\$ 20,400,891	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Belle River 1	\$ 20,249,164	\$ 18,688,733	\$ 16,753,010	\$ 18,638,430	\$ 19,101,705	\$ 17,464,863	\$ 19,323,455	\$ 19,963,288	\$ 18,167,957	\$ 20,195,023	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Belle River 2	\$ 18,377,480	\$ 18,281,559	\$ 18,281,559	\$ 17,077,954	\$ 19,235,554	\$ 19,134,138	\$ 17,872,562	\$ 19,938,625	\$ 19,871,660	\$ 18,517,773	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Reo	\$ 20,352,464	\$ 19,997,214	\$ 17,802,229	\$ 17,727,225	\$ 17,817,836	\$ 17,883,517	\$ 18,031,819	\$ 18,192,369	\$ 18,442,129	\$ 18,963,793	\$ 21,534,743	\$ 21,318,504	\$ 21,860,238	\$ 21,822,924	\$ 22,052,066	\$ 22,122,964	\$ 22,416,048	\$ 22,518,600	\$ 22,916,966	\$ 23,248,073	\$ 23,614,496	
DEP CC	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DEP CT	\$ -	\$ 3,849,122	\$ 3,742,251	\$ 3,591,728	\$ 3,557,548	\$ 3,484,164	\$ 2,529,852	\$ 2,163,848	\$ 2,222,486	\$ 2,336,199	\$ 2,617,464	\$ 2,477,694	\$ 2,546,841	\$ 2,399,379	\$ 2,398,793	\$ 2,417,249	\$ 2,378,231	\$ 2,298,997	\$ 2,388,565	\$ 2,364,896	\$ 2,370,871	
New Gas 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Gas 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Gas 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Granger Wood Rd	\$ 5,498,401	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Granger Grand River	\$ 1,098,338	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Beebe 1b	\$ 2,810,094	\$ 2,881,790	\$ 2,935,240	\$ 3,001,689	\$ 3,110,049	\$ 3,180,931	\$ 3,233,418	\$ 3,319,856	\$ 3,430,425	\$ 3,467,648	\$ 3,577,849	\$ 3,664,435	\$ 3,785,223	\$ 3,851,962	\$ 3,946,688	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Cedar Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Reo Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Delta Solar	\$ 2,071,241	\$ 2,125,679	\$ 2,179,775	\$ 2,255,318	\$ 2,289,179	\$ 2,344,044	\$ 2,419,906	\$ 2,490,124	\$ 2,513,496	\$ 2,605,472	\$ 2,633,397	\$ 2,737,369	\$ 2,799,726	\$ 2,885,170	\$ 2,911,877	\$ 3,002,480	\$ 3,108,229	\$ 3,152,620	\$ 3,230,459	\$ 3,368,471	\$ 3,397,986	
Community Solar	\$ 31,218	\$ 31,990	\$ 32,679	\$ 33,651	\$ 34,151	\$ 34,549	\$ 35,864	\$ 36,755	\$ 36,266	\$ 38,023	\$ 37,977	\$ 39,701	\$ 39,412	\$ 40,510	\$ 41,189	\$ 41,937	\$ 43,076	\$ 43,146	\$ 43,977	\$ 45,356	\$ 45,316	
Pegasus Wind	\$ 4,832,819	\$ 10,576,306	\$ 10,806,092	\$ 10,899,541	\$ 11,152,903	\$ 11,252,975	\$ 11,401,970	\$ 11,639,005	\$ 11,834,136	\$ 11,926,829	\$ 12,172,382	\$ 12,344,787	\$ 12,633,706	\$ 12,666,508	\$ 12,846,864	\$ 13,164,223	\$ 13,301,150	\$ 13,449,850	\$ 13,630,961	\$ 13,707,748	\$ 13,778,556	\$ 13,846,140
Ranger Solar	\$ -	\$ 796,075	\$ 5,512,963	\$ 5,099,504	\$ 5,735,435	\$ 5,852,329	\$ 5,977,841	\$ 6,095,060	\$ 6,237,296	\$ 6,328,682	\$ 6,468,640	\$ 6,606,621	\$ 6,706,705	\$ 6,836,819	\$ 7,023,125	\$ 7,129,331	\$ 7,283,378	\$ 7,445,730	\$ 7,582,423	\$ 7,708,356	\$ 7,876,935	\$ 8,065,440
Calhoun Solar Energy Center	\$ -	\$ -	\$ 718,730	\$ 731,213	\$ 745,105	\$ 761,732	\$ 777,171	\$ 792,350	\$ 812,072	\$ 824,033	\$ 839,531	\$ 858,956	\$ 875,700	\$ 888,902	\$ 913,154	\$ 928,272	\$ 945,883	\$ 967,027	\$ 984,247	\$ 999,862	\$ 1,025,864	\$ 1,025,864
NextEra Solar	\$ -	\$ -	\$ -	\$ 1,629,816	\$ 1,652,721	\$ 1,665,368	\$ 1,728,549	\$ 1,771,589	\$ 1,751,921	\$ 1,846,395	\$ 1,842,985	\$ 1,918,540	\$ 1,924,493	\$ 1,975,341	\$ 2,009,975	\$ 2,055,677	\$ 2,108,020	\$ 2,126,464	\$ 2,178,041	\$ 2,249,944	\$ 2,258,245	
DG - RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DG - C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
EE Legacy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
EE C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
EE RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DR C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DR RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Local Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New External Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New External Wind	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Battery Charge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Battery Discharge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CONS.LANS Purchase - BR	\$ 35,411,430	\$ 35,929,456	\$ 34,826,113	\$ 33,768,617	\$ 33,887,204	\$ 33,781,825	\$ 34,540,103	\$ 34,253,568	\$ 34,258,989	\$ 35,095,760	\$ (3,247,137)	\$ (2,981,049)	\$ (3,151,130)	\$ (3,042,812)	\$ (2,965,108)	\$ (2,927,042)	\$ (2,919,634)	\$ (2,661,587)	\$ (2,717,570)	\$ (2,661,587)	\$ (2,510,432)	
CONS.LANS Purchase - METC	\$ 961,810	\$ 453,401	\$ 64,459	\$ 67,909	\$ 65,115	\$ 278,563	\$ 371,641	\$ 397,690	\$ 397,690	\$ 411,124	\$ 1,737,008	\$ 1,800,521	\$ 1,871,089	\$ 1,953,485	\$ 2,017,952	\$ 2,068,102	\$ 2,116,086	\$ 2,207,079	\$ 2,172,860	\$ 2,207,220	\$ 2,246,042	
CONS.LANS Purchase	\$ 2,076,726	\$ 298,426	\$ 68,430	\$ 55,777	\$ 75,687	\$ 66,529	\$ 249,315	\$ 379,934	\$ 352,747	\$ 419,959	\$ 3,696,256	\$ 3,525,280	\$ 4,000,573	\$ 4,001,070	\$ 4,313,171	\$ 4,911,028	\$ 4,962,957	\$ 5,345,298	\$ 5,851,655	\$ 5,908,507	\$ 6,358,726	
Emergency Energy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Dump Energy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CONS.LANS Sale	\$ (12,140,970)	\$ (31,992,979)	\$ (33,982,802)	\$ (34,873,471)	\$ (34,871,504)	\$ (34,597,489)	\$ (30,509,026)	\$ (28,318,222)	\$ (28,010,075)	\$ (29,201,047)	\$ (7,795,512)	\$ (6,697,731)	\$ (7,206,665)	\$ (6,370,248)	\$ (5,923,496)	\$ (5,741,644)	\$ (5,558,797)	\$ (4,253,395)	\$ (4,465,391)	\$ (4,042,702)	\$ (3,798,126)	
DECO.BLR Sale	\$ (21,411,383)	\$ (21,016,981)	\$ (18,461,341)	\$ (17,523,721)	\$ (20,345,445)	\$ (17,429,619)	\$ (18,496,669)	\$ (20,754,166)	\$ (17,586,533)	\$ (18,101,167)	\$ (14,006,912)	\$ (13,884,463)	\$ (13,319,284)	\$ (13,656,155)	\$ (13,369,382)	\$ (13,232,062)	\$ (11,698,600)	\$ (11,629,084)	\$ (11,295,931)	\$ (11,114,107)	\$ (10,815,778)	\$ (10,792,277)
External Renewable Sale	\$ (4,939,443)	\$ (9,302,165)	\$ (13,729,194)	\$ (13,312,279)	\$ (13,450,034)	\$ (13,726,678)	\$ (13,649,208)	\$ (13,785,173)	\$ (13,785,173)	\$ (14,006,912)	\$ (13,884,463)	\$ (13,319,284)	\$ (13,656,155)	\$ (13,369,382)	\$ (13,232,062)	\$ (11,698,600)	\$ (11,629,084)	\$ (11,295,931)	\$ (11,114,107)	\$ (10,815,778)	\$ (10,792,277)	
Total Total Model Cost	\$ 96,394,917	\$ 94,255,268	\$ 89,443,110	\$ 92,948,660	\$ 93,820,097	\$ 96,465,414	\$ 95,814,504	\$ 97,382,187	\$ 99,603,406	\$ 100,726,995	\$ 84,885,366	\$ 87,817,979	\$ 90,270,688	\$ 93,291,973	\$ 96,102,827	\$ 95,791,590	\$ 98,767,233	\$ 102,258,474	\$ 104,112,755	\$ 107,411,199	\$ 96,545,442	



Total Model Cost per MWh	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
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Erickson	\$ 55.28	\$ 58.11	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Belle River 1	\$ 49.71	\$ 57.25	\$ 71.23	\$ 62.97																	

IRP 1.8 v2 Summary of Modeling		2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Model Configuration and Constraints 35% Clean Energy in 2025, 40% Clean Energy in 2030 Erickson Retires December 2021 and Dispatched Optimally Max Annual Incremental Energy Efficiency Pegasus Online 7/1/2020 Regular Growth No Incentive for Electric Vehicles No Incentive for Customer Solar Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy Question Answered: What is the impact of maximum energy efficiency investment with our current goals?		Expansion Plan: 2021: 10MW Solar C&I Bins 1, 2, 3, 4 & 5; Res Bins 1, 2, 3, 4 & 5 Erickson Retirement 2022: 80MW Solar 2023: 26MW Solar 2030: Demand Response C&I 50MW, 4-Hr Battery 10MW Solar																				
Post Processing Costs - Coal Penalties		2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Coal on Ground Year Start		200,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Coal Needed		211,065	193,995	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pile used first pile remaining		200,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ending Pile		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Deliveries Used		11,065	193,995	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Penalty Tons		388,935	206,005	400,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Erickson - Coal Penalties (PRB)		\$ 1,030,677	\$ 545,914	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Erickson - Rail Penalties (BNSF/CN)		\$ 4,514,038	\$ 2,463,626	\$ 4,930,747	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Post Processing Costs - Customer Programs		2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
EE C&I		\$ -	\$ 2,516,311	\$ 2,852,688	\$ 3,163,776	\$ 3,434,120	\$ 3,731,863	\$ 3,979,914	\$ 4,106,733	\$ 4,111,678	\$ 4,071,332	\$ 3,866,807	\$ 4,340,643	\$ 4,338,491	\$ 4,965,556	\$ 4,945,488	\$ 4,939,785	\$ 5,259,557	\$ 5,289,295	\$ 5,225,256	\$ 5,302,132	\$ 5,246,658
EE RES		\$ -	\$ 868,854	\$ 1,053,166	\$ 1,198,268	\$ 1,314,506	\$ 1,503,652	\$ 1,693,971	\$ 1,887,439	\$ 2,080,833	\$ 2,277,161	\$ 2,451,619	\$ 2,190,574	\$ 2,148,800	\$ 2,116,280	\$ 2,090,309	\$ 2,055,197	\$ 2,193,219	\$ 2,196,603	\$ 2,198,303	\$ 2,226,454	\$ 2,240,093
DR C&I		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 205,053	\$ 174,775	\$ 260,973	\$ 279,054	\$ 265,795	\$ 260,654	\$ 261,215	\$ 263,458	\$ 266,176	\$ 269,105	\$ 275,202
DR RES		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DG - RES		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DG - C&I		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Electric Vehicles		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Post Processing Costs - Capital & FOM		2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
New Gas 1 - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 1 - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 2 - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 2 - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 3 - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 3 - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 1 - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 1 - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 2 - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 2 - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 3 - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 3 - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Local Solar - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 801,295	\$ 781,490	\$ 761,685	\$ 741,880	\$ 722,075	\$ 702,270	\$ 682,465	\$ 662,660	\$ 642,855	\$ 623,050	\$ 603,245
New Local Solar - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 115,600	\$ 115,600	\$ 115,600	\$ 115,600	\$ 115,600	\$ 115,600	\$ 115,600	\$ 115,600	\$ 115,600	\$ 115,600	
New External Solar - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New External Solar - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New External Wind - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New External Wind - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Battery - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 4,602,082	\$ 4,488,336	\$ 4,374,590	\$ 4,260,844	\$ 4,147,097	\$ 4,033,351	\$ 3,919,605	\$ 3,805,859	\$ 3,692,113	\$ 3,578,367	\$ 3,464,620
Battery - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Post Processing Costs - Capacity Expense		PY 2020/21	PY 2021/22	PY 2022/23	PY 2023/24	PY 2024/25	PY 2025/26	PY 2026/27	PY 2027/28	PY 2028/29	PY 2029/30	PY 2030/31	PY 2031/32	PY 2032/33	PY 2033/34	PY 2034/35	PY 2035/36	PY 2036/37	PY 2037/38	PY 2038/39	PY 2039/40	PY 2040/41
Capacity Price - Purchase (\$/kW-Mo)		\$ 0.92	\$ 0.94	\$ 0.97	\$ 1.00	\$ 1.03	\$ 1.06	\$ 1.09	\$ 1.13	\$ 1.16	\$ 1.20	\$ 1.23	\$ 1.27	\$ 1.31	\$ 1.35	\$ 1.39	\$ 1.43	\$ 1.47	\$ 1.52	\$ 1.56	\$ 1.61	\$ 1.66
Capacity Price - Sale (\$/kW-Mo)		\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 1.00	\$ 0.98	\$ 0.96	\$ 0.96	\$ 0.96	\$ 0.88	\$ 0.88	\$ 0.88	\$ 0.88	\$ 0.88	\$ 0.73
Capacity Purchase		\$ 231,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Local Capacity Sale		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
External Capacity Sale		\$ -	\$ (1,063,748)	\$ (378,079)	\$ (442,160)	\$ (499,834)	\$ (570,323)	\$ (615,180)	\$ (640,812)	\$ (647,220)	\$ (724,118)	\$ (421,750)	\$ (470,400)	\$ (538,620)	\$ (550,080)	\$ (492,780)	\$ (578,050)	\$ (546,520)	\$ (525,500)	\$ (588,560)	\$ (578,050)	\$ (474,660)
Post Processing Costs - Transmission Expense		2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Transmission - BR - Total Annual MWs during Peak		1,797.8	1,771.4	1,752.8	1,735.4	1,723.6	1,710.5	1,705.9	1,704.9	1,685.5	1,697.4	-	-	-	-	-	-	-	-	-	-	-
Transmission - BR - Average Monthly MWs during Peak		149.8	147.6	146.1	144.6	143.6	142.5	142.2	142.1	140.5	141.5	-	-	-	-	-	-	-	-	-	-	-
Transmission - METC - Total Annual MWs during Peak		111.1	55.7	25.3	17.6	20.7	21.9	30.4	34.8	33.2	34.0	106.9	110.6	116.2	121.9	125.0	128.2	128.5	134.3	134.8	135.3	138.4
Transmission - METC - Average Monthly MWs during Peak		9.3	4.6	2.1	1.5	1.7	1.8	2.5	2.9	2.8	2.8	8.9	9.2	9.7	10.2	10.4	10.7	10.7	11.2	11.2	11.3	11.5
Transmission - Non-Entitlement - Total Annual MWs during Peak		419.1	98.4	33.0	23.9	26.9	25.6	34.1	29.6	34.5	24.4	196.2	213.0	215.4	222.7	244.0	236.3	237.8	238.7	247.7	236.4	250.9
Transmission - Non-Entitlement - Average Monthly MWs during Peak		34.9	8.2	2.7	2.0	2.2	2.1	2.8	2.5	2.9	2.0	16.3	17.8	17.9	18.6	20.3	19.7	19.8	19.9	20.6	19.7	20.9
PIP - CONS.LANS Purchase - BR - Fixed Expense		\$ 972,648	\$ 1,191,528	\$ 1,286,208	\$ 1,388,448	\$ 1,471,230	\$ 1,558,998	\$ 1,652,040	\$ 1,750,680	\$ 1,855,224	\$ 1,966,068	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
PIP - CONS.LANS Purchase - BR - Redirect Revenue		\$ (911)	\$ (14,184)	\$ (25,275)	\$ (37,393)	\$ (46,843)	\$ (58,142)	\$ (64,762)	\$ (69,377)	\$ (88,518)	\$ (84,036)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
NITS - CONS.LANS Purchase - BR - Fixed Expense		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
NITS - CONS.LANS Purchase - BR - Redirect Revenue		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
PIP - CONS.LANS Purchase - METC - Fixed Expense		\$ 119,908	\$ 138,678	\$ 146,823	\$ 155,606	\$ 162,755	\$ 170,322	\$ 178,334	\$ 186,818	\$ 195,799	\$ 205,308	\$ 215,378	\$ 226,042	\$ 237,337	\$ 249,299	\$ 261,966	\$ 275,385	\$ 289,598	\$ 304,653	\$ 320,601	\$ 337,495	\$ 355,391
PIP - CONS.LANS Purchase - METC - Redirect Revenue		\$ (23,842)</																				

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Summary of Modeling

Model Configuration and Constraints
 35% Clean Energy in 2025, 40% Clean Energy in 2030 | Erickson Retires December 2021 and Dispatched Optimally | Max Annual Incremental Energy Efficiency | Pegasus Online 7/1/2020 | Regular Growth | No Incentive for Electric Vehicles | No Incentive for Customer Solar | Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy | Question Answered: What is the impact of maximum energy efficiency investment with our current goals?

Expansion Plan:
 2021: 10MW Solar | C&I Bins 1, 2, 3, 4 & 5; Res Bins 1, 2, 3, 4 & 5 | Erickson Retirement | 2022: 80MW Solar | 2023: 26MW Solar | Demand Response C&I | 50MW, 4-Hr Battery | 10MW Solar |

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	
Total Costs w/ Post Processing	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01	
Erickson	\$ 26,660,242	\$ 23,410,431	\$ 4,930,747	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Belle River 1	\$ 20,249,164	\$ 18,688,733	\$ 16,753,010	\$ 18,638,430	\$ 19,101,705	\$ 17,464,863	\$ 19,323,455	\$ 19,963,288	\$ 18,167,957	\$ 20,195,023	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Belle River 2	\$ 18,377,480	\$ 18,281,559	\$ 17,077,954	\$ 17,077,954	\$ 19,235,554	\$ 19,134,138	\$ 17,872,562	\$ 19,938,625	\$ 19,871,660	\$ 18,517,773	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Reo	\$ 20,352,464	\$ 19,997,214	\$ 17,802,229	\$ 17,872,225	\$ 17,817,836	\$ 17,817,836	\$ 18,031,819	\$ 18,192,369	\$ 18,442,129	\$ 18,963,793	\$ 21,534,743	\$ 21,318,504	\$ 21,860,238	\$ 21,822,924	\$ 22,052,066	\$ 22,122,964	\$ 22,416,048	\$ 22,518,600	\$ 22,916,966	\$ 23,248,073	\$ 23,614,496	
DEP CC	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DEP CT	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Gas 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Gas 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Gas 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Granger Wood Rd	\$ 5,498,401	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Granger Grand River	\$ 1,098,338	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Beebe 1b	\$ 2,810,094	\$ 2,881,790	\$ 2,935,240	\$ 3,001,689	\$ 3,110,049	\$ 3,180,931	\$ 3,233,418	\$ 3,319,856	\$ 3,430,425	\$ 3,467,648	\$ 3,577,849	\$ 3,664,435	\$ 3,785,223	\$ 3,851,962	\$ 3,946,688	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Cedar Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Reo Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Delta Solar	\$ 2,071,241	\$ 2,125,679	\$ 2,179,775	\$ 2,255,318	\$ 2,289,179	\$ 2,344,044	\$ 2,419,906	\$ 2,490,124	\$ 2,513,496	\$ 2,605,472	\$ 2,633,397	\$ 2,737,369	\$ 2,799,726	\$ 2,885,170	\$ 2,911,877	\$ 3,002,480	\$ 3,108,229	\$ 3,152,620	\$ 3,230,459	\$ 3,368,471	\$ 3,397,986	
Community Solar	\$ 31,218	\$ 32,679	\$ 34,551	\$ 36,651	\$ 34,151	\$ 36,755	\$ 35,864	\$ 36,755	\$ 36,266	\$ 38,023	\$ 37,977	\$ 39,701	\$ 39,412	\$ 40,510	\$ 41,189	\$ 41,937	\$ 43,076	\$ 43,146	\$ 43,977	\$ 45,356	\$ 45,316	
Pegasus Wind	\$ 4,832,819	\$ 10,576,306	\$ 10,806,092	\$ 10,899,541	\$ 11,152,903	\$ 11,252,975	\$ 11,401,970	\$ 11,639,005	\$ 11,834,136	\$ 11,926,829	\$ 12,172,382	\$ 12,344,787	\$ 12,633,706	\$ 12,666,508	\$ 12,846,864	\$ 13,164,223	\$ 13,301,150	\$ 13,449,850	\$ 13,630,961	\$ 13,707,748	\$ 13,778,535	\$ 13,849,854
Ranger Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Calhoun Solar Energy Center	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
NextEra Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DG - RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DG - C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
EE Legacy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
EE C&I	\$ -	\$ 2,516,311	\$ 2,852,688	\$ 3,163,776	\$ 3,434,120	\$ 3,731,863	\$ 3,979,914	\$ 4,106,733	\$ 4,111,678	\$ 4,071,332	\$ 3,866,807	\$ 4,340,643	\$ 4,338,491	\$ 4,965,556	\$ 4,945,488	\$ 4,939,785	\$ 5,259,557	\$ 5,289,295	\$ 5,225,256	\$ 5,302,132	\$ 5,246,658	
EE RES	\$ -	\$ 868,854	\$ 1,053,166	\$ 1,198,268	\$ 1,314,506	\$ 1,503,652	\$ 1,693,971	\$ 1,887,439	\$ 2,080,833	\$ 2,277,161	\$ 2,451,619	\$ 2,190,574	\$ 2,148,800	\$ 2,116,280	\$ 2,090,309	\$ 2,055,197	\$ 2,193,219	\$ 2,196,603	\$ 2,198,303	\$ 2,226,454	\$ 2,240,093	
DR C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DR RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Local Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New External Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New External Wind	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Battery Charge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Battery Discharge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CONS.LANS Purchase - BR	\$ 36,383,167	\$ 37,106,801	\$ 36,087,046	\$ 35,119,672	\$ 35,311,591	\$ 35,282,681	\$ 36,127,381	\$ 35,934,871	\$ 36,025,695	\$ 36,977,792	\$ (3,247,137)	\$ (2,981,049)	\$ (3,151,130)	\$ (3,042,812)	\$ (2,965,108)	\$ (2,927,042)	\$ (2,919,634)	\$ (2,661,587)	\$ (2,717,570)	\$ (2,667,798)	\$ (2,510,432)	
CONS.LANS Purchase - METC	\$ 1,057,875	\$ 526,372	\$ 119,571	\$ 100,429	\$ 121,949	\$ 126,211	\$ 350,045	\$ 450,557	\$ 478,932	\$ 497,115	\$ 1,905,109	\$ 1,981,009	\$ 2,067,260	\$ 2,166,573	\$ 2,245,825	\$ 2,312,026	\$ 2,373,078	\$ 2,486,257	\$ 2,467,418	\$ 2,518,108	\$ 2,578,917	
CONS.LANS Sale	\$ 1,751,651	\$ 298,426	\$ 68,430	\$ 55,577	\$ 75,687	\$ 66,529	\$ 249,315	\$ 379,934	\$ 352,747	\$ 419,959	\$ 3,929,509	\$ 3,481,530	\$ 3,713,247	\$ 3,901,393	\$ 3,955,608	\$ 4,911,028	\$ 4,962,957	\$ 5,345,298	\$ 5,851,655	\$ 5,908,507	\$ 6,358,726	
Emergency Energy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Dump Energy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CONS.LANS Sale	\$ (12,140,970)	\$ (31,992,979)	\$ (33,982,802)	\$ (34,873,471)	\$ (34,871,504)	\$ (34,597,489)	\$ (30,509,026)	\$ (28,318,222)	\$ (28,010,075)	\$ (29,201,047)	\$ (7,795,512)	\$ (6,697,731)	\$ (7,206,665)	\$ (6,370,248)	\$ (5,923,496)	\$ (5,741,644)	\$ (5,558,797)	\$ (4,253,395)	\$ (4,465,391)	\$ (4,042,702)	\$ (3,798,126)	
DECO.BLR Sale	\$ (21,411,383)	\$ (21,016,981)	\$ (18,461,341)	\$ (17,523,721)	\$ (20,345,445)	\$ (17,429,619)	\$ (18,496,669)	\$ (20,754,166)	\$ (17,586,533)	\$ (18,101,167)	\$ (13,884,463)	\$ (13,319,284)	\$ (13,656,155)	\$ (13,369,382)	\$ (13,232,062)	\$ (11,698,600)	\$ (11,629,084)	\$ (11,295,931)	\$ (11,114,107)	\$ (10,815,778)	\$ (10,792,277)	
External Renewable Sale	\$ (4,939,443)	\$ (9,302,165)	\$ (13,729,194)	\$ (13,312,279)	\$ (13,450,034)	\$ (13,726,678)	\$ (13,726,678)	\$ (13,649,208)	\$ (13,785,173)	\$ (14,006,912)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Electric Vehicle Program	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Capacity Purchase	\$ 231,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Capacity Sale	\$ -	\$ (1,063,748)	\$ (378,079)	\$ (442,160)	\$ (499,834)	\$ (570,323)	\$ (615,180)	\$ (640,812)	\$ (647,220)	\$ (724,118)	\$ (421,750)	\$ (470,400)	\$ (538,620)	\$ (550,080)	\$ (492,780)	\$ (578,050)	\$ (546,520)	\$ (525,500)	\$ (588,560)	\$ (578,050)	\$ (474,660)	
Total Total Costs w/ Post Processing	\$ 102,913,360	\$ 100,836,539	\$ 99,217,676	\$ 98,272,119	\$ 99,550,671	\$ 102,692,558	\$ 102,531,969	\$ 104,495,765	\$ 106,996,644	\$ 108,319,393	\$ 96,907,425	\$ 99,575,735	\$ 101,641,052	\$ 105,334,517	\$ 107,766,721	\$ 107,564,320	\$ 110,909,365	\$ 114,345,628	\$ 115,959,056	\$ 119,258,744	\$ 108,349,075	
Total Cost per Retail Sales MWh	\$ 48.78	\$ 45.24	\$ 44.81	\$ 44.69	\$ 45.63	\$ 47.48	\$ 47.86	\$ 49.24	\$ 50.92	\$ 51.05	\$ 46.81	\$ 48.35	\$ 49.60	\$ 51.54	\$ 52.87	\$ 52.89	\$ 54.60	\$ 56.23	\$ 56.97	\$ 58.46	\$ 52.90	
Change in Cost per Retail Sales MWh	-7.25%	-0.97%	-0.26%	2.10%	4.05%	0.81%	2.88%	3.40%	2.03%	-9.89%	3.29%	2.59%	3.90%	2.58%	0.04%	3.23%	2.99%	1.30%	2.62%	-9.35%		

IRP 1.8 v2		2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Summary of Modeling																						
Model Configuration and Constraints		Expansion Plan:																				
35% Clean Energy in 2025, 40% Clean Energy in 2030 Erickson Retires December 2021 and Dispatched Optimally Max Annual Incremental Energy Efficiency Pegasus Online 7/1/2020 Regular Growth No Incentive for Electric Vehicles No Incentive for Customer Solar Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy Question Answered: What is the impact of maximum energy efficiency investment with our current goals?		2021: 10MW Solar C&I Bins 1, 2, 3, 4 & 5; Res Bins 1, 2, 3, 4 & 5 Erickson Retirement 2022: 80MW Solar 2023: 26MW Solar 2030: Demand Response C&I 50MW, 4-Hr Battery 10MW Solar																				
Summary Metrics		2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Total Cost	\$	102,913,360	100,836,539	99,217,676	98,272,119	99,550,671	102,692,558	102,531,969	104,495,765	106,996,644	108,319,393	96,907,425	99,575,735	101,641,052	105,334,517	107,766,721	107,564,320	110,909,366	114,345,628	115,959,056	119,258,744	108,349,075
Nominal Rates	\$	48.78	45.24	44.81	44.69	45.63	47.48	47.86	49.24	50.92	51.95	46.81	48.35	49.60	51.54	52.87	52.89	54.60	56.23	56.97	58.46	52.99
Accumulated Net Present Value Total Cost	\$	102,913,360	199,260,139	289,839,154	375,560,332	458,530,366	540,308,146	618,322,572	694,291,076	768,614,261	840,506,109	901,960,051	962,294,519	1,021,138,275	1,079,405,081	1,136,363,044	1,190,682,733	1,244,197,857	1,296,914,427	1,347,994,502	1,398,189,028	1,441,761,339
Accumulated NPV Retail Sales		2,109,624	4,239,077	6,260,643	8,178,767	9,997,153	11,719,593	13,349,615	14,892,398	16,352,087	17,735,987	19,048,762	20,296,607	21,482,889	22,613,412	23,690,740	24,717,760	25,697,879	26,635,371	27,532,061	28,390,673	29,212,878
Accumulated NPV Rate Impact	\$	48.78	47.01	46.30	45.92	45.87	46.10	46.32	46.62	47.00	47.39	47.35	47.41	47.53	47.73	47.97	48.17	48.42	48.69	48.96	49.25	49.35
Risk Premium	\$	14,136,640	28,914,357	17,343,495	14,415,987	18,413,942	16,180,515	23,724,748	21,298,514	24,254,977	25,146,561	14,156,209	13,566,369	16,635,239	15,991,114	14,485,467	14,006,928	15,531,390	15,702,043	11,664,941	12,781,324	9,139,285
Present Value of Risk Premium	\$	14,136,640	27,626,942	15,833,435	12,574,832	15,347,013	12,885,126	18,051,663	15,484,037	16,848,259	16,689,835	8,977,174	8,220,071	9,630,754	8,845,639	7,656,006	7,073,461	7,494,085	7,239,086	5,138,418	5,379,501	3,675,341
Accumulated NPV Risk Premium	\$	14,136,640	41,763,581	57,597,017	70,171,849	85,518,862	98,403,988	116,455,652	131,939,689	148,787,947	165,477,782	174,454,956	182,675,028	192,305,782	201,151,421	208,807,427	215,880,888	223,374,973	230,614,059	235,752,477	241,131,978	244,807,319
Total Cost with Risk Premium	\$	117,050,000	129,750,897	116,561,171	112,688,106	117,964,613	118,873,072	126,256,717	125,794,279	131,251,621	133,465,954	111,063,634	113,142,105	118,276,291	121,325,631	122,252,188	121,571,248	126,440,755	130,047,671	127,623,997	132,040,069	117,488,360
Present Value of Total Cost with Risk Premium	\$	117,050,000	123,973,721	106,412,449	98,296,010	98,317,047	94,662,907	96,066,089	91,452,541	91,171,444	88,581,682	70,431,117	68,554,540	68,474,510	67,112,445	64,613,968	61,393,150	61,009,209	59,955,656	56,218,492	55,574,027	47,247,652
Accumulated NPV Total Cost with Risk Premium	\$	117,050,000	241,023,721	347,436,170	445,732,180	544,049,228	638,712,134	734,778,224	826,230,765	917,402,209	1,005,983,891	1,076,415,008	1,144,969,547	1,213,444,057	1,280,556,502	1,345,170,471	1,406,563,621	1,467,572,830	1,527,528,487	1,583,746,979	1,639,321,005	1,686,568,658
Percent Dispatchable Generation		70.2%	78.7%	65.8%	63.2%	62.7%	62.1%	61.5%	61.0%	60.5%	60.0%	54.2%	53.8%	53.5%	53.2%	52.9%	53.9%	53.7%	53.5%	53.3%	53.1%	52.9%
Resource Diversity		0.66	0.50	0.51	0.54	0.54	0.55	0.56	0.56	0.57	0.57	0.51	0.52	0.52	0.53	0.53	0.51	0.51	0.52	0.52	0.52	0.53
Annual CO2 Emissions - Tons		1,460,722	1,679,621	1,471,257	1,473,315	1,554,189	1,434,769	1,311,507	1,354,896	1,222,491	1,216,968	905,541	893,723	884,269	871,103	860,797	846,890	839,830	830,308	826,265	822,527	816,743
Accumulated CO2 Emissions - Tons		1,460,722	3,140,343	4,611,600	6,084,915	7,639,104	9,073,874	10,385,381	11,740,277	12,962,768	14,179,736	15,085,277	15,979,000	16,863,268	17,734,372	18,595,168	19,442,059	20,281,888	21,112,197	21,938,462	22,760,989	23,577,733
Average CO2 Emissions per Year - Tons		1,460,722	1,570,172	1,537,200	1,521,229	1,527,821	1,512,312	1,483,626	1,467,535	1,440,308	1,417,974	1,371,389	1,331,583	1,297,174	1,266,741	1,239,678	1,215,129	1,193,052	1,172,900	1,154,656	1,138,049	1,122,749
Annual CO2 Intensity - lbs/MWh Generated		1,320.3	1,113.0	883.4	861.3	885.6	842.7	834.5	859.3	807.5	796.8	587.7	580.4	574.8	568.8	564.0	568.2	564.5	560.8	558.8	557.2	554.3
Total CO2 Emissions Reduced from 2005		66.6%	61.6%	66.3%	66.3%	64.4%	67.2%	70.0%	69.0%	72.0%	72.1%	79.3%	79.5%	79.8%	80.1%	80.3%	80.6%	80.8%	81.0%	81.1%	81.2%	81.3%
CO2 Intensity Reduced from 2005		42.8%	51.8%	61.7%	62.7%	61.6%	63.5%	63.8%	62.8%	65.0%	65.5%	74.5%	74.8%	75.1%	75.3%	75.6%	75.4%	75.5%	75.7%	75.8%	75.8%	76.0%
Annual NOx Emissions - Tons		989	921	612	603	676	588	567	630	538	532	156	152	149	144	142	139	136	133	133	132	131
Accumulated NOx Emissions - Tons		989	1,910	2,522	3,125	3,800	4,388	4,955	5,585	6,123	6,655	6,812	6,963	7,113	7,257	7,399	7,538	7,674	7,807	7,941	8,073	8,204
Average NOx Emissions per Year - Tons		989	955	841	781	760	731	708	698	680	666	619	580	547	518	493	471	451	434	418	404	391
Annual NOx Intensity - lbs/MWh Generated		0.9	0.6	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Total NOx Emissions Reduced from 2005		77.4%	78.9%	86.0%	86.2%	84.5%	86.6%	87.0%	85.6%	87.7%	87.8%	96.4%	96.5%	96.6%	96.7%	96.8%	96.8%	96.9%	96.9%	96.9%	97.0%	97.0%
NOx Intensity Reduced from 2005		61.3%	73.6%	84.1%	84.7%	83.3%	85.1%	84.4%	82.7%	84.6%	84.9%	95.6%	95.7%	95.8%	95.8%	96.0%	96.0%	96.0%	96.1%	96.1%	96.1%	96.2%
Annual SO2 Emissions - Tons		3,111	2,684	1,604	1,575	1,846	1,554	1,557	1,813	1,492	1,467	9	9	9	9	9	9	9	9	8	8	8
Accumulated SO2 Emissions - Tons		3,111	5,795	7,399	8,974	10,819	12,373	13,930	15,744	17,235	18,702	18,711	18,720	18,729	18,738	18,747	18,756	18,764	18,773	18,781	18,790	18,798
Average SO2 Emissions per Year - Tons		3,111	2,897	2,466	2,243	2,164	2,062	1,990	1,968	1,915	1,870	1,701	1,560	1,441	1,338	1,250	1,172	1,104	1,043	988	939	895
Annual SO2 Intensity - lbs/MWh Generated		2.8	1.8	1.0	0.9	1.1	0.9	1.0	1.2	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total SO2 Emissions Reduced from 2005		71.9%	75.8%	85.5%	85.8%	83.3%	86.0%	85.9%	83.6%	86.5%	86.8%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%
SO2 Intensity Reduced from 2005		51.9%	69.6%	83.5%	84.3%	82.0%	84.4%	83.1%	80.3%	83.1%	83.6%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%
Renewable Energy MWh %		14%	16%	23%	25%	25%	26%	26%	26%	27%	28%	28%	28%	28%	28%	28%	26%	26%	26%	26%	26%	26%
Renewable Energy RPS %		32%	19%	26%	28%	29%	29%	29%	29%	30%	30%	31%	31%	32%	32%	32%	29%	29%	29%	29%	29%	29%
Energy Efficiency %		10%	11%	12%	13%	14%	15%	16%	17%	19%	19%	20%	21%	22%	22%	23%	23%	24%	24%	24%	24%	24%
Clean Energy %		39%	28%	35%	37%	38%	39%	40%	42%	43%	43%	45%	46%	47%	47%	47%	46%	46%	46%	46%	46%	46%

2.0 v1: Model Configuration & Constraints

15% Renewable Energy 2021+

Erickson Retires December 2025 and Dispatched Optimally

Min Annual Incremental Energy Efficiency

Pegasus Online 7/1/2020

Regular Growth

No Incentive for Electric Vehicles

No Incentive for Customer Solar

Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy

Expansion Plan

2021: 10MW Solar | C&I Bin 1

2022: 80MW Solar

2023: 26MW Solar

2025: Erickson Retirement

2030: Demand Response C&I | 100MW, 4-Hr Battery

IRP 2.0

Summary of Modeling

Model Configuration and Constraints

15% Renewable Energy 2021+ | Erickson Retires December 2025 and Dispatched Optimally | Min Annual Incremental Energy Efficiency | Pegasus Online 7/1/2020 | Regular Growth | No Incentive for Electric Vehicles | No Incentive for Customer Solar | Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy | Question Answered: What is the impact of our current strategy being above state requirements?

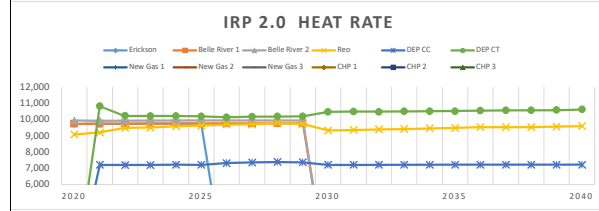
Expansion Plan:

2021: 10MW Solar | C&I Bin 1 | 2022: 80MW Solar | 2023: 26MW Solar | 2025: Erickson Retirement | 2030: Demand Response C&I | 100MW, 4-Hr Battery |

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
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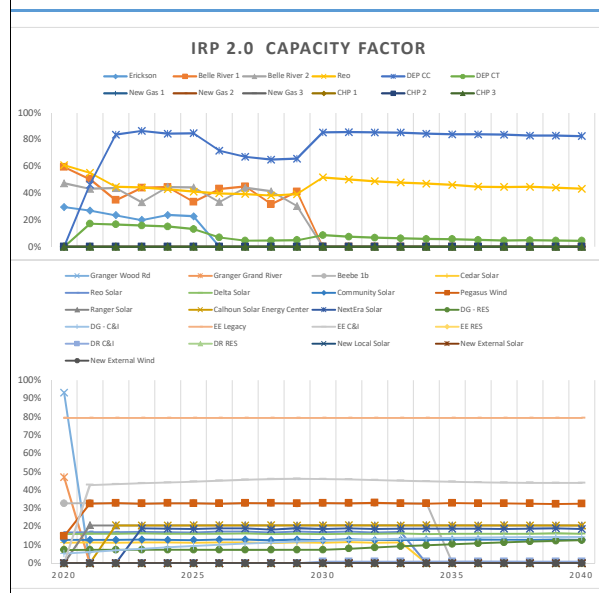
Heat Rate

	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Erickson	9,727	9,737	9,729	9,740	9,733	9,734	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Belle River 1	9,728	9,739	9,749	9,748	9,749	9,753	9,754	9,757	9,756	9,761	--	--	--	--	--	--	--	--	--	--	--
Belle River 2	9,929	9,913	9,924	9,937	9,927	9,931	9,933	9,933	9,931	9,938	--	--	--	--	--	--	--	--	--	--	--
Reo	9,072	9,200	9,483	9,496	9,573	9,621	9,683	9,701	9,770	9,715	9,318	9,349	9,390	9,409	9,448	9,477	9,525	9,525	9,529	9,556	9,587
DEP CC	--	7,200	7,188	7,192	7,206	7,204	7,315	7,353	7,376	7,363	7,201	7,201	7,204	7,205	7,207	7,210	7,212	7,212	7,213	7,216	7,217
DEP CT	--	10,818	10,221	10,206	10,209	10,195	10,135	10,169	10,180	10,185	10,470	10,487	10,471	10,506	10,510	10,503	10,543	10,563	10,553	10,570	10,614
New Gas 1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Gas 2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Gas 3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--



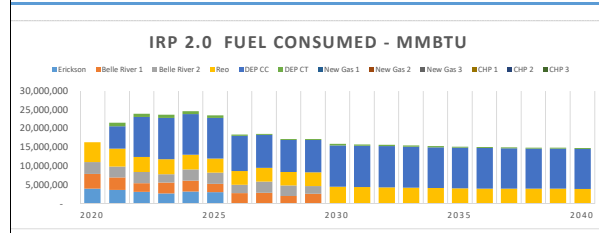
Capacity Factor

	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Erickson	30%	27%	24%	20%	24%	23%	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Belle River 1	60%	51%	35%	44%	45%	34%	43%	45%	32%	41%	--	--	--	--	--	--	--	--	--	--	--
Belle River 2	47%	43%	44%	33%	44%	44%	33%	44%	41%	31%	--	--	--	--	--	--	--	--	--	--	--
Reo	61%	55%	45%	44%	43%	41%	40%	39%	38%	39%	52%	50%	49%	48%	47%	46%	45%	45%	45%	44%	43%
DEP CC	--	46%	84%	87%	84%	85%	72%	67%	65%	66%	86%	86%	85%	84%	84%	84%	84%	83%	83%	83%	83%
DEP CT	--	17%	17%	16%	15%	13%	7%	5%	5%	5%	9%	7%	7%	6%	6%	6%	5%	5%	5%	5%	5%
New Gas 1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Gas 2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Gas 3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Granger Wood Rd	93%	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Granger Grand River	47%	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beebe 1b	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	--	--	--	--	--	--
Cedar Solar	11%	11%	11%	11%	11%	11%	11%	12%	11%	12%	11%	12%	11%	11%	--	--	--	--	--	--	--
Reo Solar	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	--	--	--	--	--	--	--
Delta Solar	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%
Community Solar	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%
Pegasus Wind	15%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	32%	33%
Ranger Solar	--	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%
Calhoun Solar Energy Center	--	--	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%
NextEra Solar	--	--	--	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%
DG - RES	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	8%	9%	9%	10%	10%	11%	11%	12%	12%	13%
DG - C&I	5%	6%	7%	8%	9%	10%	10%	11%	11%	12%	12%	13%	13%	14%	14%	14%	14%	14%	14%	14%	14%
EE Legacy	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%
EE C&I	--	43%	43%	44%	44%	45%	45%	46%	46%	46%	46%	46%	46%	45%	45%	45%	44%	44%	44%	44%	44%
EE RES	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
DR C&I	--	--	--	--	--	--	--	--	--	--	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
DR RES	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Local Solar	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New External Solar	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New External Wind	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--



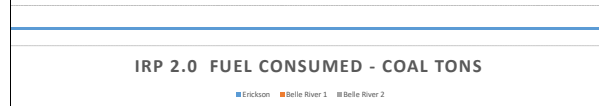
Fuel Consumed - MMBtu

	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Erickson	4,032,074	3,678,607	3,203,202	2,717,255	3,236,336	3,082,356	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Belle River 1	3,922,062	3,327,200	2,292,953	2,899,147	2,939,687	2,208,601	2,843,724	2,964,351	2,100,325	2,706,917	--	--	--	--	--	--	--	--	--	--	--
Belle River 2	3,188,137	2,901,844	2,935,689	2,229,383	2,998,658	2,970,189	2,238,329	2,950,994	2,782,324	2,045,004	--	--	--	--	--	--	--	--	--	--	--
Reo	5,266,330	4,826,865	4,028,358	4,002,559	3,919,398	3,769,686	3,667,142	3,629,775	3,563,509	3,622,579	4,588,408	4,471,900	4,379,864	4,293,486	4,238,769	4,162,071	4,071,454	4,043,908	4,051,383	4,013,856	3,959,924
DEP CC	--	5,931,565	10,702,557	11,057,544	10,839,830	10,856,267	9,335,446	8,796,317	8,557,577	8,616,682	10,936,836	10,959,813	10,964,278	10,921,818	10,814,252	10,758,863	10,793,079	10,723,237	10,647,950	10,655,541	10,632,153
DEP CT	--	931,176	852,496	814,262	772,358	676,338	353,075	238,578	234,912	254,235	454,244	390,926	352,536	333,655	304,624	297,568	267,436	247,998	260,497	247,859	239,817
New Gas 1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Gas 2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Gas 3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--



Fuel Consumed - Coal Tons

	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Erickson	229,095	209,012	182,000	154,389	183,883	175,134	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Belle River 1	222,844	189,045	130,281	164,724	167,028	125,489	161,575	168,429	119,337	153,802	--	--	--	--	--	--	--	--	--	--	--
Belle River 2	181,144	164,877	166,801	126,670	170,378	168,761	127,178	167,670	158,087	116,193	--	--	--	--	--	--	--	--	--	--	--



Fuel Consumed - Gas Mcf

	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Reo	5,029,923	4,610,186	3,847,524	3,822,883	3,743,456	3,600,464	3,502,523	3,466,834	3,403,542	3,459,961	4,382,433	4,271,156	4,183,251	4,100,751	4,048,490	3,975,235	3,888				

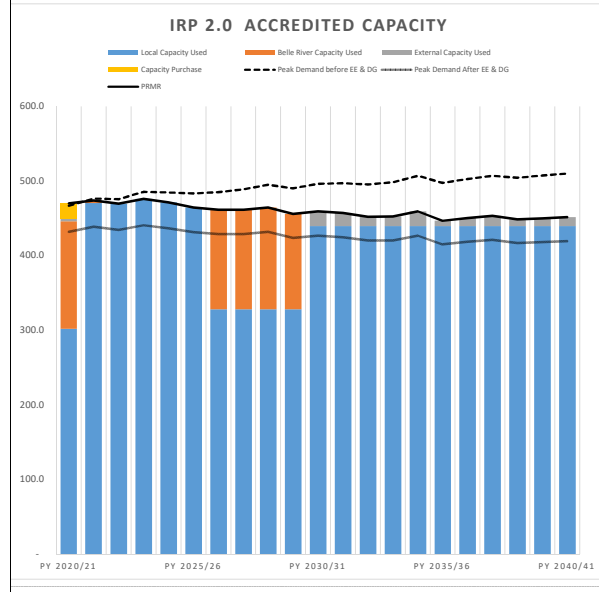
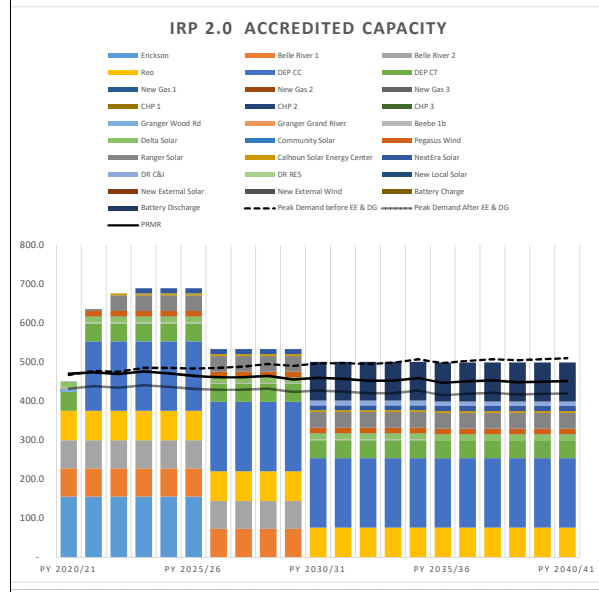
IRP 2.0

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Model Configuration and Constraints
 15% Renewable Energy 2021+ | Erickson Retires December 2025 and Dispatched Optimally | Min Annual Incremental Energy Efficiency | Pegasus Online 7/1/2020 | Regular Growth | No Incentive for Electric Vehicles | No Incentive for Customer Solar | Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy | Question Answered: What is the impact of our current strategy being above state requirements?

Expansion Plan:
 2021: 10MW Solar | C&I Bin 1 | 2022: 80MW Solar | 2023: 26MW Solar | 2025: Erickson Retirement | 2030: Demand Response C&I | 100MW, 4-Hr Battery |

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
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Accredited Capacity	PY 2020/21	PY 2021/22	PY 2022/23	PY 2023/24	PY 2024/25	PY 2025/26	PY 2026/27	PY 2027/28	PY 2028/29	PY 2029/30	PY 2030/31	PY 2031/32	PY 2032/33	PY 2033/34	PY 2034/35	PY 2035/36	PY 2036/37	PY 2037/38	PY 2038/39	PY 2039/40	PY 2040/41
Peak Demand before EE & DG	466.9	476.7	475.5	485.5	484.8	483.4	485.2	488.8	494.9	490.2	496.4	497.1	495.4	498.1	506.9	497.7	502.9	507.0	504.5	507.2	510.0
Net Load Offsets																					
EE Legacy		34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3
EE C&I		-	2.9	6.1	9.5	13.2	17.0	20.9	24.4	27.9	31.0	34.0	36.7	39.2	41.5	43.6	45.7	46.9	47.9	48.9	49.4
EE RES		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DG - RES		0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.6	0.7	0.8	0.9	1.0	1.2
DG - C&I		0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.5	0.6	0.7	0.9	1.1	1.4	1.7	2.1	2.6	3.1	3.8	4.6
Cedar Solar		0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-	-	-	-	-	-	-
Reo Solar		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Community Solar		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Peak Demand After EE & DG	431.8	438.7	434.3	440.8	436.5	431.3	429.1	429.1	431.7	423.7	426.9	424.7	420.3	420.5	426.8	415.1	418.6	421.1	416.9	418.3	419.6
Reserve Margin Percent	1.089	1.080	1.081	1.080	1.080	1.077	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076
PRMR	470.2	473.8	469.5	476.1	471.4	464.5	461.7	461.7	464.5	455.9	459.3	457.0	452.2	452.4	459.3	446.7	450.4	453.1	448.6	450.1	451.5
Local Capacity																					
Erickson	155.4	155.4	155.4	155.4	155.4	155.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Reo	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0
DEP CC	-	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7
DEP CT	49.2	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3
New Gas 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Granger Wood Rd	6.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Delta Solar	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1
NextEra Solar	-	-	-	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9
DR C&I	-	-	-	-	-	-	-	-	-	-	-	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7
DR RES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Local Solar	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Battery Charge	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Battery Discharge	-	-	-	-	-	-	-	-	-	-	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total Local Capacity	301.9	470.5	470.5	483.4	483.4	483.4	328.0	328.0	328.0	328.0	439.7	439.7	439.7	439.7	439.7	439.7	439.7	439.7	439.7	439.7	
Transmission Entitlements																					
Belle River Transmission Entitlement	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	-	-	-	-	-	-	-	-	-	-	-
Belle River 1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	-	-	-	-	-	-	-	-	-	-	-
Belle River 2	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	-	-	-	-	-	-	-	-	-	-	-
Remaining Entitlement	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	-	-	-	-	-	-	-	-	-	-	-
METC Settlement Entitlement	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6
Total Transmission Entitlements Remaining	18.4	18.4	18.4	18.4	18.4	18.4	18.4	18.4	18.4	18.4	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6
External Capacity																					
Granger Grand River	1.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Beebe 1b	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
Pegasus Wind	-	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
Ranger Solar	-	5.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
Calhoun Solar Energy Center	-	-	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
New External Solar	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New External Wind	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Available External Capacity	3.5	21.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	59.0	59.0	59.0	59.0	59.0	59.0
Summary																					
PRMR	470.2	473.8	469.5	476.1	471.4	464.5	461.7	461.7	464.5	455.9	459.3	457.0	452.2	452.4	459.3	446.7	450.4	453.1	448.6	450.1	451.5
Local Capacity Used	301.9	470.5	469.5	476.1	471.4	464.5	328.0	328.0	328.0	328.0	439.7	439.7	439.7	439.7	439.7	439.7	439.7	439.7	439.7	439.7	
Local Capacity Remaining	-	-	0.9	7.3	12.0	18.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Capacity Used	301.9	470.5	469.5	476.1	471.4	464.5	328.0	328.0	328.0	328.0	439.7	439.7	439.7	439.7	439.7	439.7	439.7	439.7	439.7	439.7	
Capacity Short	168.3	3.3	-	-	-	-	133.7	133.7	136.5	127.9	19.6	17.3	12.5	12.7	19.6	7.0	10.7	13.5	8.9	10.4	11.8
Belle River Capacity Used	144.2	3.3	-	-	-	-	133.7	133.7	136.5	127.9	-	-	-	-	-	-	-	-	-	-	-
Belle River Capacity Remaining	-	140.9	144.2	144.2	144.2	144.2	10.5	10.5	7.7	16.3	-	-	-	-	-	-	-	-	-	-	-
Total Capacity Used	446.1	473.8	469.5	476.1	471.4	464.5	461.7	461.7	464.5	455.9	439.7	439.7	439.7	439.7	439.7	439.7	439.7	439.7	439.7	439.7	
Capacity Short	24.1	-	-	-	-	-	-	-	-	-	19.6	17.3	12.5	12.7	19.6	7.0	10.7	13.5	8.9	10.4	11.8
External Capacity Used	3.5	-	-																		

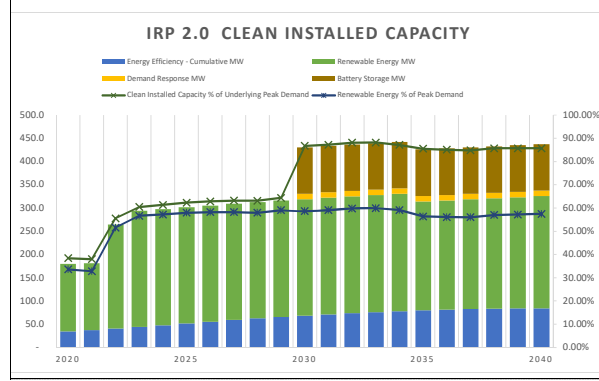
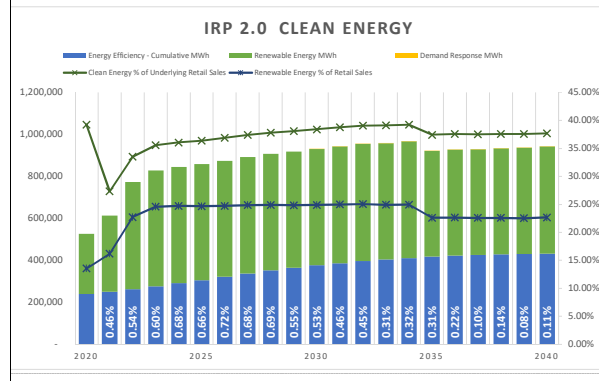
IRP 2.0

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	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Clean Energy	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Renewable Energy MWh	285,558	363,422	510,187	551,630	554,141	552,125	552,511	554,469	554,257	552,790	553,614	555,457	557,109	554,521	555,534	503,498	504,431	504,488	505,829	506,202	510,740
Renewable Energy % of Retail Sales	13.54%	16.20%	22.72%	24.57%	24.72%	24.66%	24.72%	24.85%	24.89%	24.84%	24.89%	24.98%	25.06%	24.92%	24.95%	22.61%	22.62%	22.57%	22.58%	22.53%	22.68%
Renewable Energy % of Underlying Retail Sales	12.16%	14.57%	20.35%	21.89%	21.89%	21.70%	21.62%	21.60%	21.49%	21.35%	21.29%	21.28%	21.27%	21.10%	21.07%	19.04%	19.02%	18.97%	18.96%	18.92%	19.03%
Renewable Energy RPS	682,092	431,576	578,371	620,462	622,311	620,215	621,084	623,319	622,051	621,362	621,221	624,025	625,524	623,302	622,907	571,274	572,885	572,231	573,536	575,087	578,545
Renewable Energy % of Retail Sales	32.33%	19.23%	25.76%	27.64%	27.76%	27.70%	27.79%	27.94%	27.93%	27.92%	27.93%	28.06%	28.13%	28.01%	27.98%	25.65%	25.69%	25.60%	25.61%	25.60%	25.69%
Renewable Energy % of Underlying Retail Sales	29.04%	17.31%	23.07%	24.62%	24.58%	24.30%	24.28%	24.12%	23.99%	23.99%	23.89%	23.91%	23.88%	23.71%	23.62%	21.60%	21.60%	21.52%	21.50%	21.49%	21.55%
Energy Efficiency - Cumulative MWh	239,413	249,656	261,830	275,238	290,499	305,172	321,291	336,531	351,999	364,208	375,917	386,170	396,243	403,121	410,349	417,200	422,136	424,405	427,509	429,310	431,850
Energy Efficiency - Cumulative % of Underlying Retail Sales	10.19%	10.01%	10.44%	10.92%	11.47%	12.00%	12.57%	13.11%	13.65%	14.06%	14.46%	14.80%	15.13%	15.34%	15.56%	15.78%	15.92%	15.96%	16.03%	16.05%	16.09%
Energy Efficiency - Annual Incremental MWh		10,243	12,174	13,408	15,261	14,672	16,119	15,240	15,467	12,209	11,709	10,253	10,072	6,878	7,228	6,852	4,935	2,270	3,104	1,801	2,540
Energy Efficiency - Annual Incremental % of Retail Sales		0.46%	0.54%	0.60%	0.68%	0.66%	0.72%	0.68%	0.69%	0.55%	0.53%	0.46%	0.45%	0.31%	0.32%	0.31%	0.22%	0.10%	0.14%	0.08%	0.11%
Energy Efficiency - Annual Incremental % of Underlying Retail Sales		0.41%	0.49%	0.53%	0.60%	0.58%	0.63%	0.59%	0.60%	0.47%	0.45%	0.39%	0.38%	0.26%	0.27%	0.26%	0.19%	0.09%	0.12%	0.07%	0.09%
Demand Response MWh	-	-	-	-	-	-	-	-	-	-	955	966	949	916	945	967	989	972	938	928	968
Demand Response % of Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.04%	0.04%	0.04%	0.04%	0.04%	0.04%	0.04%	0.04%	0.04%	0.04%	
Demand Response % of Underlying Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.04%	0.04%	0.04%	0.03%	0.04%	0.04%	0.04%	0.04%	0.04%	0.03%	0.04%
Clean Energy Credits	921,505	681,231	840,201	895,701	912,810	925,387	942,376	959,850	974,050	985,570	998,093	1,011,161	1,022,716	1,027,338	1,034,201	989,442	996,009	997,608	1,001,983	1,005,325	1,011,363
Clean Energy % of Underlying Retail Sales	39.23%	27.32%	33.51%	35.54%	36.05%	36.38%	36.87%	37.39%	37.77%	38.06%	38.39%	38.74%	39.04%	39.09%	39.22%	37.41%	37.56%	37.51%	37.57%	37.57%	37.68%
Clean Installed Capacity	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Renewable Energy MW	145.0	143.8	223.8	249.8	249.8	249.9	250.0	250.1	250.2	250.3	250.5	250.9	251.3	251.9	252.4	234.0	235.0	236.1	237.6	239.3	241.3
Renewable Energy % of Peak Demand	33.57%	32.78%	51.53%	56.66%	57.23%	57.94%	58.26%	58.28%	57.95%	59.07%	58.68%	59.07%	59.80%	59.91%	59.13%	56.36%	56.13%	56.07%	56.98%	57.20%	57.50%
Renewable Energy % of Underlying Peak Demand	31.05%	30.17%	47.07%	51.45%	51.53%	51.69%	51.52%	51.16%	50.55%	51.06%	50.47%	50.47%	50.73%	50.56%	49.79%	47.01%	46.73%	46.58%	47.09%	47.17%	47.31%
Energy Efficiency - Cumulative MW	34.3	37.2	40.4	43.8	47.5	51.3	55.2	58.7	62.2	65.3	68.3	71.0	73.5	75.8	77.9	80.0	81.2	82.2	83.2	83.7	84.1
Energy Efficiency - Cumulative % of Underlying Peak Demand	7.35%	7.80%	8.49%	9.03%	9.79%	10.60%	11.37%	12.02%	12.56%	13.33%	13.76%	14.28%	14.83%	15.21%	15.38%	16.08%	16.15%	16.22%	16.50%	16.51%	16.50%
Energy Efficiency - Annual Incremental MW		2.9	3.2	3.4	3.6	3.8	3.9	3.6	3.4	3.2	2.9	2.7	2.5	2.3	2.2	2.1	1.2	1.1	1.0	0.5	0.4
Energy Efficiency - Annual Incremental % of Peak Demand		0.66%	0.73%	0.78%	0.83%	0.88%	0.91%	0.83%	0.79%	0.75%	0.69%	0.63%	0.59%	0.55%	0.51%	0.50%	0.28%	0.25%	0.23%	0.12%	0.10%
Energy Efficiency - Annual Incremental % of Underlying Peak Demand		0.61%	0.67%	0.71%	0.75%	0.79%	0.80%	0.73%	0.69%	0.65%	0.59%	0.54%	0.50%	0.46%	0.43%	0.42%	0.23%	0.21%	0.19%	0.10%	0.08%
Demand Response MW	-	-	-	-	-	-	-	-	-	-	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7
Demand Response % of Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.74%	2.75%	2.78%	2.78%	2.74%	2.82%	2.78%	2.80%	2.79%	2.79%	
Demand Response % of Underlying Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.36%	2.35%	2.36%	2.35%	2.31%	2.35%	2.32%	2.31%	2.32%	2.30%	2.29%
Battery Storage MW	-	-	-	-	-	-	-	-	-	-	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
Battery Storage % of Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	23.43%	23.54%	23.79%	23.78%	23.43%	24.09%	23.89%	23.75%	23.99%	23.91%	
Battery Storage % of Underlying Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	20.15%	20.12%	20.19%	20.07%	19.73%	20.09%	19.89%	19.72%	19.82%	19.72%	
Clean Installed Capacity MW	179	181	264	294	297	301	305	309	312	316	430	434	436	439	442	426	428	430	432	435	437
Clean Installed Capacity % of Underlying Peak Demand	38.40%	37.97%	55.56%	60.47%	61.32%	62.29%	62.89%	63.17%	63.11%	64.39%	86.73%	87.22%	88.11%	88.20%	87.20%	85.53%	85.08%	84.83%	85.73%	85.70%	85.71%



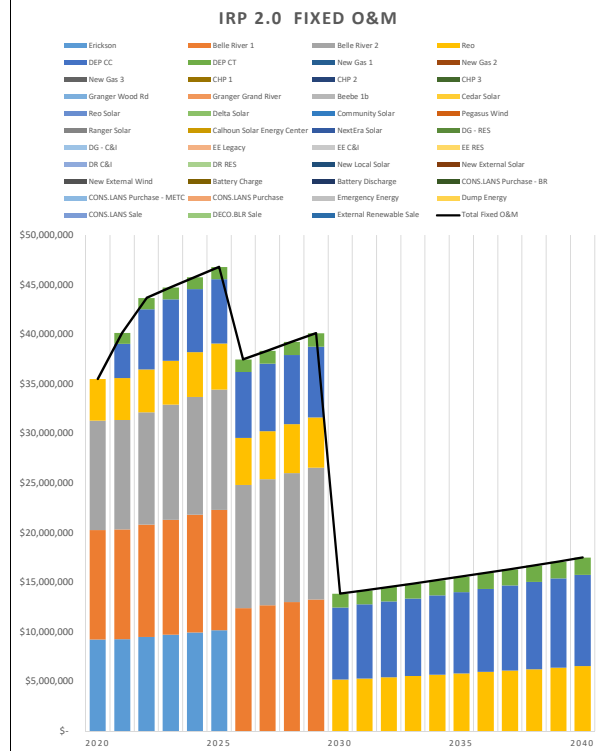
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Summary of Modeling

Model Configuration and Constraints
 15% Renewable Energy 2021+ | Erickson Retires December 2025 and Dispatched Optimally | Min Annual Incremental Energy Efficiency | Pegasus Online 7/1/2020 | Regular Growth | No Incentive for Electric Vehicles | No Incentive for Customer Solar | Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy | Question Answered: What is the impact of our current strategy being above state requirements?

Expansion Plan:
 2021: 10MW Solar | C&I Bin 1 | 2022: 80MW Solar | 2023: 26MW Solar | 2025: Erickson Retirement | 2030: Demand Response C&I | 100MW, 4-Hr Battery |

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	
Fixed O&M																						
Erickson	\$ 9,253,780	\$ 9,272,961	\$ 9,502,518	\$ 9,728,812	\$ 9,956,452	\$ 10,166,484	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Belle River 1	\$ 11,026,481	\$ 11,049,336	\$ 11,322,868	\$ 11,592,513	\$ 11,863,760	\$ 12,137,409	\$ 12,418,189	\$ 12,706,066	\$ 13,002,483	\$ 13,282,352	\$ 13,562,221	\$ 13,842,090	\$ 14,121,959	\$ 14,401,828	\$ 14,681,697	\$ 14,961,566	\$ 15,241,435	\$ 15,521,304	\$ 15,801,173	\$ 16,081,042	\$ 16,360,911	\$ 16,640,780
Belle River 2	\$ 11,026,481	\$ 11,049,336	\$ 11,322,868	\$ 11,592,513	\$ 11,863,760	\$ 12,137,409	\$ 12,418,189	\$ 12,706,066	\$ 13,002,483	\$ 13,282,352	\$ 13,562,221	\$ 13,842,090	\$ 14,121,959	\$ 14,401,828	\$ 14,681,697	\$ 14,961,566	\$ 15,241,435	\$ 15,521,304	\$ 15,801,173	\$ 16,081,042	\$ 16,360,911	\$ 16,640,780
Reo	\$ 4,202,450	\$ 4,212,588	\$ 4,316,815	\$ 4,419,591	\$ 4,522,980	\$ 4,627,311	\$ 4,734,359	\$ 4,844,120	\$ 4,957,142	\$ 5,073,783	\$ 5,193,170	\$ 5,315,365	\$ 5,440,435	\$ 5,568,449	\$ 5,699,474	\$ 5,833,583	\$ 5,970,747	\$ 6,111,141	\$ 6,255,141	\$ 6,402,325	\$ 6,552,971	\$ 6,707,617
DEP CC	\$ -	\$ 3,453,722	\$ 6,058,589	\$ 6,202,869	\$ 6,348,007	\$ 6,494,430	\$ 6,642,668	\$ 6,792,704	\$ 6,945,310	\$ 7,101,155	\$ 7,260,000	\$ 7,422,575	\$ 7,588,550	\$ 7,757,675	\$ 7,930,000	\$ 8,105,375	\$ 8,283,550	\$ 8,464,275	\$ 8,647,400	\$ 8,832,875	\$ 9,020,550	\$ 9,210,275
DEP CT	\$ -	\$ 1,121,260	\$ 1,149,077	\$ 1,176,442	\$ 1,203,969	\$ 1,231,739	\$ 1,260,234	\$ 1,289,448	\$ 1,319,529	\$ 1,350,578	\$ 1,382,357	\$ 1,414,884	\$ 1,448,176	\$ 1,482,252	\$ 1,517,129	\$ 1,552,827	\$ 1,589,365	\$ 1,626,763	\$ 1,665,041	\$ 1,704,219	\$ 1,744,319	\$ 1,785,279
New Gas 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Granger Wood Rd	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Granger Grand River	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Beebe 1b	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Cedar Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Reo Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Delta Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Community Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Pegasus Wind	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ranger Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Calhoun Solar Energy Center	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
NextEra Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DG - RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DG - C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
EE Legacy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
EE C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
EE RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DR C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DR RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Local Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New External Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New External Wind	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Battery Charge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Battery Discharge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CONS.LANS Purchase - BR	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CONS.LANS Purchase - METC	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CONS.LANS Purchase	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Emergency Energy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Dump Energy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CONS.LANS Sale	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DECO.BLR Sale	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
External Renewable Sale	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Fixed O&M	\$ 35,509,191	\$ 40,159,203	\$ 43,672,735	\$ 44,712,740	\$ 45,758,927	\$ 46,794,783	\$ 47,475,638	\$ 48,344,405	\$ 49,298,947	\$ 50,110,081	\$ 50,864,099	\$ 51,652,322	\$ 52,474,220	\$ 53,329,975	\$ 54,219,771	\$ 55,143,798	\$ 56,102,250	\$ 57,095,324	\$ 58,123,223	\$ 59,186,156	\$ 60,284,319	\$ 61,417,911



	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01	
Fixed O&M per MWh																						
Erickson	\$ 22.32	\$ 24.55	\$ 28.86	\$ 34.87	\$ 29.94	\$ 32.10	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Belle River 1	\$ 27.35	\$ 32.34	\$ 48.14	\$ 38.98	\$ 39.35	\$ 53.60	\$ 42.60	\$ 41.82	\$ 60.40	\$ 47.89	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Belle River 2	\$ 34.34	\$ 37.74	\$ 38.28	\$ 51.67	\$ 39.28	\$ 40.58	\$ 55.11	\$ 42.77	\$ 46.41	\$ 64.55	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Reo	\$ 7.24	\$ 8.03	\$ 10.16	\$ 10.49	\$ 11.05	\$ 11.81	\$ 12.50	\$ 12.95	\$ 13.59	\$ 13.61	\$ 10.55	\$ 11.11	\$ 11.66	\$ 12.20	\$ 12.70	\$ 13.28	\$ 13.97	\$ 14.40	\$ 14.71	\$ 15.24	\$ 15.86	
DEP CC	\$ -	\$ 4.19	\$ 4.07	\$ 4.03	\$ 4.22	\$ 4.31	\$ 5.21	\$ 5.68	\$ 6.00	\$ 6.08	\$ 4.80	\$ 4.90	\$ 5.02	\$ 5.16	\$ 5.33	\$ 5.49	\$ 5.77	\$ 5.95	\$ 6.09	\$ 6.24	\$ 6.40	
DEP CT	\$ -	\$ 13.03	\$ 13.78	\$ 14.75	\$ 15.91	\$ 18.57	\$ 36.18	\$ 54.96	\$ 57.18	\$ 54.11	\$ 31.86	\$ 37.95	\$ 43.01	\$ 46.67	\$ 52.34	\$ 54.81	\$ 62.66	\$ 69.29	\$ 67.45	\$ 72.68	\$ 77.20	
New Gas 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Gas 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Gas 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 3	\$ -	\$ -	\$ -</																			

IRP 2.0

Summary of Modeling

Model Configuration and Constraints

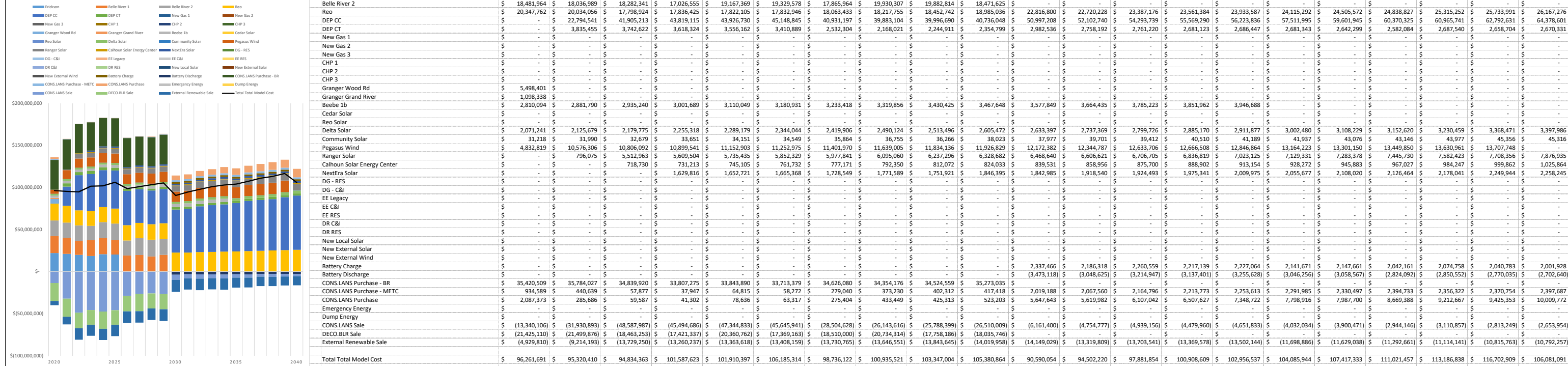
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Expansion Plan:

2021: 10MW Solar | C&I Bin 1 | 2022: 80MW Solar | 2023: 26MW Solar | 2025: Erickson Retirement | 2030: Demand Response C&I | 100MW, 4-Hr Battery |

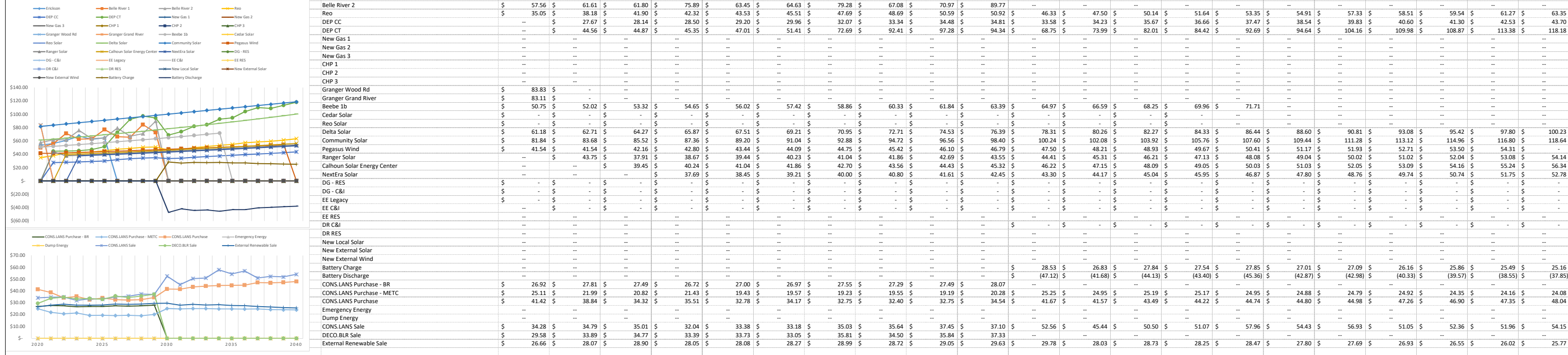
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
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Total Model Cost	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
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Total Model Cost	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
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Total Model Cost per MWh	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
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Total Model Cost per MWh	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
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IRP 2.0	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040		
Summary of Modeling																							
Model Configuration and Constraints		Expansion Plan:																					
15% Renewable Energy 2021+ Erickson Retires December 2025 and Dispatched Optimally Min Annual Incremental Energy Efficiency Pegasus Online 7/1/2020 Regular Growth No Incentive for Electric Vehicles No Incentive for Customer Solar Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy Question Answered: What is the impact of our current strategy being above state requirements?		2021: 10MW Solar C&I Bin 1 2022: 80MW Solar 2023: 26MW Solar 2025: Erickson Retirement 2030: Demand Response C&I 100MW, 4-Hr Battery																					
Post Processing Costs - Coal Penalties		2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01	
Coal on Ground Year Start		200,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Coal Needed		229,095	209,012	182,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Pile used first pile remaining		200,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Ending Pile		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Deliveries Used		29,095	209,012	182,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Penalty Tons		370,905	190,988	218,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Erickson - Coal Penalties (PRB)		\$ 982,898	\$ 506,119	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Erickson - Rail Penalties (BNSF/CN)		\$ 4,304,779	\$ 2,284,035	\$ 2,687,256	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Post Processing Costs - Customer Programs		2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01	
EE C&I		\$ -	\$ 918,836	\$ 1,062,052	\$ 1,210,086	\$ 1,347,138	\$ 1,543,165	\$ 1,740,058	\$ 1,854,993	\$ 1,930,442	\$ 1,987,539	\$ 1,976,434	\$ 2,034,395	\$ 2,013,454	\$ 2,066,441	\$ 2,056,109	\$ 2,093,256	\$ 2,425,396	\$ 2,530,706	\$ 2,583,831	\$ 2,661,814	\$ 2,673,893	
EE RES		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DR C&I		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 205,053	\$ 174,775	\$ 260,973	\$ 279,054	\$ 265,795	\$ 260,654	\$ 261,215	\$ 263,458	\$ 266,176	\$ 269,105	\$ 275,202
DR RES		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DG - RES		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DG - C&I		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Electric Vehicles		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Post Processing Costs - Capital & FOM		2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01	
New Gas 1 - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Gas 1 - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Gas 2 - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Gas 2 - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Gas 3 - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Gas 3 - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 1 - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 1 - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 2 - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 2 - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 3 - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 3 - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Local Solar - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Local Solar - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New External Solar - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New External Solar - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New External Wind - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New External Wind - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Battery - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 9,204,164	\$ 8,976,672	\$ 8,749,180	\$ 8,521,687	\$ 8,294,195	\$ 8,066,703	\$ 7,839,210	\$ 7,611,718	\$ 7,384,226	\$ 7,156,733	\$ 6,929,241	
Battery - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Post Processing Costs - Capacity Expense		PY 2020/21	PY 2021/22	PY 2022/23	PY 2023/24	PY 2024/25	PY 2025/26	PY 2026/27	PY 2027/28	PY 2028/29	PY 2029/30	PY 2030/31	PY 2031/32	PY 2032/33	PY 2033/34	PY 2034/35	PY 2035/36	PY 2036/37	PY 2037/38	PY 2038/39	PY 2039/40	PY 2040/41	
Capacity Price - Purchase (\$/kW-Mo)		\$ 0.92	\$ 0.94	\$ 0.97	\$ 1.00	\$ 1.03	\$ 1.06	\$ 1.09	\$ 1.13	\$ 1.16	\$ 1.20	\$ 1.23	\$ 1.27	\$ 1.31	\$ 1.35	\$ 1.39	\$ 1.43	\$ 1.47	\$ 1.52	\$ 1.56	\$ 1.61	\$ 1.66	
Capacity Price - Sale (\$/kW-Mo)		\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 1.00	\$ 0.98	\$ 0.96	\$ 0.96	\$ 0.96	\$ 0.88	\$ 0.88	\$ 0.88	\$ 0.88	\$ 0.88	\$ 0.73	
Capacity Purchase		\$ 231,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Local Capacity Sale		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
External Capacity Sale		\$ -	\$ (1,044,524)	\$ (1,320,073)	\$ (1,320,073)	\$ (1,320,073)	\$ (1,320,073)	\$ (461,385)	\$ (461,385)	\$ (442,160)	\$ (499,834)	\$ (506,100)	\$ (517,440)	\$ (561,540)	\$ (561,540)	\$ (481,320)	\$ (546,520)	\$ (514,990)	\$ (483,460)	\$ (536,010)	\$ (514,990)	\$ (421,920)	
Post Processing Costs - Transmission Expense		2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01	
Transmission - BR - Total Annual MWs during Peak		1,799.3	1,772.0	1,754.7	1,748.2	1,719.3	1,709.8	1,718.2	1,717.5	1,711.8	1,707.7	-	-	-	-	-	-	-	-	-	-	-	
Transmission - BR - Average Monthly MWs during Peak		149.9	147.7	146.2	145.7	143.3	142.5	143.2	143.1	142.6	142.3	-	-	-	-	-	-	-	-	-	-	-	
Transmission - METC - Total Annual MWs during Peak		106.8	55.6	22.2	15.7	20.8	19.7	37.4	41.7	42.4	44.0	119.2	121.7	126.5	130.2	132.4	133.4	135.3	138.0	138.9	141.2	142.9	
Transmission - METC - Average Monthly MWs during Peak		8.9	4.6	1.9	1.3	1.7	1.6	3.1	3.5	3.5	3.7	9.9	10.1	10.5	10.9	11.0	11.1	11.3	11.5	11.6	11.8	11.9	
Transmission - Non-Entitlement - Total Annual MWs during Peak		411.3	101.5	29.5	18.1	27.3	25.4	45.3	44.3	49.7	39.1	321.8	317.7	330.1	359.3	376.6	370.7	379.6	385.7	402.4	386.4	408.5	
Transmission - Non-Entitlement - Average Monthly MWs during Peak		34.3	8.5	2.5	1.5	2.3	2.1	3.8	3.7	4.1	3.3	26.8	26.5	27.5	29.9	31.4	30.9	31.6	32.1	33.5	32.2	34.0	
PIP - CONS.LANS Purchase - BR - Fixed Expense		\$ 972,648	\$ 1,191,528	\$ 1,286,208	\$ 1,388,448	\$ 1,471,230	\$ 1,558,998	\$ 1,652,040	\$ 1,750,680	\$ 1,855,224	\$ 1,966,068	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
PIP - CONS.LANS Purchase - BR - Redirect Revenue		\$ (295)	\$ (13,877)	\$ (24,267)	\$ (29,989)	\$ (49,498)	\$ (58,577)	\$ (56,322)	\$ (60,181)	\$ (68,196)	\$ (75,651)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
NITS - CONS.LANS Purchase - BR - Fixed Expense		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
NITS - CONS.LANS Purchase - BR - Redirect Revenue		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
PIP - CONS.LANS Purchase - METC - Fixed Expense		\$ 119,908	\$ 138,678	\$ 146,823	\$ 155,606	\$ 162,755	\$ 170,322	\$ 178,334	\$ 186,818	\$ 195,799	\$ 205,308	\$ 215,378	\$ 226,042	\$ 237,337	\$ 249,299	\$ 261,966	\$ 275,385						

Model Configuration and Constraints
 15% Renewable Energy 2021+ | Erickson Retires December 2025 and Dispatched Optimally | Min Annual Incremental Energy Efficiency | Pegasus Online 7/1/2020 | Regular Growth | No Incentive for Customer Solar | No Incentive for Customer Solar | Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy | Question Answered: What is the impact of our current strategy being above state requirements?

Expansion Plan:
 2021: 10MW Solar | C&I Bin 1 | 2022: 80MW Solar | 2023: 26MW Solar | 2025: Erickson Retirement | 2030: Demand Response C&I | 100MW, 4-Hr Battery |

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	
Total Costs w/ Post Processing	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01	
Erickson	\$ 27,449,571	\$ 24,074,910	\$ 22,677,498	\$ 18,770,335	\$ 20,777,783	\$ 20,479,362	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Belle River 1	\$ 20,180,514	\$ 19,057,383	\$ 16,752,647	\$ 18,645,871	\$ 19,022,577	\$ 17,480,063	\$ 19,333,371	\$ 19,955,223	\$ 18,192,282	\$ 20,148,330	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Belle River 2	\$ 18,481,964	\$ 18,036,989	\$ 17,282,341	\$ 17,026,555	\$ 17,862,369	\$ 17,862,369	\$ 17,862,369	\$ 19,930,307	\$ 19,882,814	\$ 18,471,625	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Reo	\$ 20,347,762	\$ 20,034,056	\$ 17,988,924	\$ 17,836,425	\$ 17,822,105	\$ 17,822,105	\$ 18,063,433	\$ 18,217,755	\$ 18,452,742	\$ 18,985,036	\$ 22,816,800	\$ 22,720,228	\$ 23,387,176	\$ 23,561,384	\$ 23,933,587	\$ 24,115,292	\$ 24,505,572	\$ 24,838,827	\$ 25,315,252	\$ 25,733,991	\$ 26,167,276	
DEP CC	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DEP CT	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Gas 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Gas 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Gas 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Granger Wood Rd	\$ 5,498,401	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Granger Grand River	\$ 1,098,338	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Beebe 1b	\$ 2,810,094	\$ 2,881,790	\$ 2,935,240	\$ 3,001,689	\$ 3,110,049	\$ 3,180,931	\$ 3,233,418	\$ 3,319,856	\$ 3,430,425	\$ 3,467,648	\$ 3,577,849	\$ 3,664,435	\$ 3,785,223	\$ 3,851,962	\$ 3,946,688	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Cedar Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Reo Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Delta Solar	\$ 2,071,241	\$ 2,125,679	\$ 2,179,775	\$ 2,255,318	\$ 2,289,179	\$ 2,344,044	\$ 2,419,906	\$ 2,490,124	\$ 2,513,496	\$ 2,605,472	\$ 2,633,397	\$ 2,737,369	\$ 2,799,726	\$ 2,885,170	\$ 2,911,877	\$ 3,002,480	\$ 3,108,229	\$ 3,152,620	\$ 3,230,459	\$ 3,368,471	\$ 3,397,986	
Community Solar	\$ 31,218	\$ 32,679	\$ 34,151	\$ 36,623	\$ 38,100	\$ 40,579	\$ 43,058	\$ 45,537	\$ 48,016	\$ 50,495	\$ 52,974	\$ 55,453	\$ 57,932	\$ 60,411	\$ 62,890	\$ 65,369	\$ 67,848	\$ 70,327	\$ 72,806	\$ 75,285	\$ 77,764	
Pegasus Wind	\$ 4,832,819	\$ 10,576,306	\$ 10,806,092	\$ 10,899,541	\$ 11,152,903	\$ 11,252,975	\$ 11,401,970	\$ 11,639,005	\$ 11,834,136	\$ 11,926,829	\$ 12,172,382	\$ 12,344,787	\$ 12,633,706	\$ 12,846,868	\$ 13,164,223	\$ 13,301,150	\$ 13,449,850	\$ 13,630,961	\$ 13,849,850	\$ 14,107,748	\$ 14,405,646	\$ 14,743,544
Ranger Solar	\$ -	\$ 796,075	\$ 5,129,963	\$ 5,609,504	\$ 5,735,435	\$ 5,852,329	\$ 5,977,841	\$ 6,095,060	\$ 6,237,296	\$ 6,328,682	\$ 6,468,640	\$ 6,606,621	\$ 6,706,705	\$ 6,836,818	\$ 7,129,331	\$ 7,283,378	\$ 7,445,730	\$ 7,582,423	\$ 7,783,378	\$ 7,883,378	\$ 8,125,378	\$ 8,367,378
Calhoun Solar Energy Center	\$ -	\$ -	\$ 718,730	\$ 731,213	\$ 745,105	\$ 761,732	\$ 777,171	\$ 792,350	\$ 812,072	\$ 824,033	\$ 839,531	\$ 858,956	\$ 875,700	\$ 888,902	\$ 913,154	\$ 928,272	\$ 945,883	\$ 967,027	\$ 984,247	\$ 999,862	\$ 1,025,864	\$ 1,052,866
NextEra Solar	\$ -	\$ -	\$ -	\$ 1,629,816	\$ 1,652,721	\$ 1,665,368	\$ 1,728,549	\$ 1,771,589	\$ 1,751,921	\$ 1,846,395	\$ 1,842,985	\$ 1,918,540	\$ 1,924,493	\$ 1,975,341	\$ 2,009,975	\$ 2,055,677	\$ 2,108,020	\$ 2,126,464	\$ 2,178,041	\$ 2,249,944	\$ 2,258,245	\$ 2,258,245
DG - RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DG - C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
EE Legacy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
EE C&I	\$ -	\$ 918,836	\$ 1,062,052	\$ 1,210,086	\$ 1,347,138	\$ 1,543,165	\$ 1,740,058	\$ 1,854,993	\$ 1,930,442	\$ 1,987,539	\$ 1,976,434	\$ 2,034,395	\$ 2,013,454	\$ 2,066,441	\$ 2,056,109	\$ 2,093,256	\$ 2,425,396	\$ 2,530,706	\$ 2,583,831	\$ 2,661,814	\$ 2,673,893	
EE RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DR C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DR RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Local Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New External Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New External Wind	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Battery Charge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Battery Discharge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CONS.LANS Purchase - BR	\$ 36,392,863	\$ 36,961,678	\$ 36,101,861	\$ 35,165,734	\$ 35,265,623	\$ 35,213,800	\$ 36,221,798	\$ 36,044,674	\$ 36,311,587	\$ 37,163,452	\$ 37,163,452	\$ 37,163,452	\$ 37,163,452	\$ 37,163,452	\$ 37,163,452	\$ 37,163,452	\$ 37,163,452	\$ 37,163,452	\$ 37,163,452	\$ 37,163,452	\$ 37,163,452	\$ 37,163,452
CONS.LANS Purchase - METC	\$ 1,028,100	\$ 513,535	\$ 110,767	\$ 88,933	\$ 122,309	\$ 117,530	\$ 356,727	\$ 450,590	\$ 492,442	\$ 513,539	\$ 2,200,326	\$ 2,260,502	\$ 2,373,006	\$ 2,437,117	\$ 2,491,151	\$ 2,543,086	\$ 2,597,310	\$ 2,679,509	\$ 2,657,425	\$ 2,691,544	\$ 2,738,388	
CONS.LANS Sale	\$ 1,759,343	\$ 285,686	\$ 59,587	\$ 41,302	\$ 78,636	\$ 63,317	\$ 275,404	\$ 433,449	\$ 425,313	\$ 523,203	\$ 5,034,988	\$ 5,159,819	\$ 6,107,042	\$ 6,407,950	\$ 6,621,886	\$ 7,798,916	\$ 7,987,700	\$ 8,551,297	\$ 9,212,667	\$ 9,425,353	\$ 10,009,772	
Emergency Energy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Dump Energy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CONS.LANS Sale	\$ (13,340,106)	\$ (31,390,893)	\$ (48,587,987)	\$ (45,494,686)	\$ (47,344,833)	\$ (45,645,941)	\$ (28,504,628)	\$ (26,143,616)	\$ (25,788,399)	\$ (26,510,009)	\$ (6,161,400)	\$ (4,754,777)	\$ (4,939,156)	\$ (4,479,960)	\$ (4,651,833)	\$ (4,032,034)	\$ (3,900,471)	\$ (2,944,146)	\$ (3,110,857)	\$ (2,813,249)	\$ (2,653,954)	
DECO.BLR Sale	\$ (21,425,110)	\$ (21,499,876)	\$ (18,463,253)	\$ (17,421,337)	\$ (20,360,762)	\$ (17,369,163)	\$ (18,510,000)	\$ (20,734,314)	\$ (17,758,186)	\$ (18,035,746)	\$ (14,149,029)	\$ (13,319,809)	\$ (13,703,541)	\$ (13,369,578)	\$ (13,502,144)	\$ (11,698,886)	\$ (11,629,038)	\$ (11,292,661)	\$ (11,114,141)	\$ (10,815,763)	\$ (10,792,257)	
External Renewable Sale	\$ (4,929,810)	\$ (9,214,193)	\$ (13,729,250)	\$ (13,260,237)	\$ (13,363,618)	\$ (13,730,765)	\$ (13,646,551)	\$ (13,843,645)	\$ (13,843,645)	\$ (14,019,958)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Electric Vehicle Program	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Capacity Purchase	\$ 231,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Capacity Sale	\$ -	\$ (1,044,524)	\$ (1,320,073)	\$ (1,320,073)	\$ (1,320,073)	\$ (1,320,073)	\$ (461,385)	\$ (461,385)	\$ (442,160)	\$ (499,834)	\$ (506,100)	\$ (517,440)	\$ (561,540)	\$ (561,540)	\$ (481,320)	\$ (546,520)	\$ (514,990)	\$ (483,460)	\$ (536,010)	\$ (514,990)	\$ (421,920)	
Total Total Costs w/ Post Processing	\$ 102,518,203	\$ 99,235,423	\$ 98,578,429	\$ 102,887,081	\$ 103,416,687	\$ 107,968,085	\$ 101,688,199	\$ 104,104,988	\$ 106,712,443	\$ 108,855,107	\$ 101,038,088	\$ 104,903,400	\$ 108,552,132	\$ 111,337,920	\$ 112,602,017	\$ 114,211,138	\$ 117,694,977	\$ 121,110,563	\$ 123,186,164	\$ 126,596,361	\$ 115,878,208	
Total Cost per Retail Sales MWh	\$ 48.60	\$ 44.22	\$ 43.90	\$ 45.83	\$ 46.14	\$ 48.23	\$ 45.51	\$ 46.66	\$ 47.92	\$ 48.91	\$ 45.43	\$ 47.17	\$ 48.82	\$ 50.03	\$ 51.28	\$ 51.28	\$ 52.78	\$ 				

IRP 2.0		2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	
Summary of Modeling																							
Model Configuration and Constraints		Expansion Plan:																					
15% Renewable Energy 2021+ Erickson Retires December 2025 and Dispatched Optimally Min Annual Incremental Energy Efficiency Pegasus Online 7/1/2020 Regular Growth No Incentive for Electric Vehicles No Incentive for Customer Solar Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy Question Answered: What is the impact of our current strategy being above state requirements?		2021: 10MW Solar C&I Bin 1 2022: 80MW Solar 2023: 26MW Solar 2025: Erickson Retirement 2030: Demand Response C&I 100MW, 4-Hr Battery																					
Summary Metrics		2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01	
Total Cost		\$ 102,518,203	\$ 99,235,423	\$ 98,578,429	\$ 102,887,081	\$ 103,416,687	\$ 107,968,085	\$ 101,688,199	\$ 104,104,988	\$ 106,712,443	\$ 108,855,107	\$ 101,038,088	\$ 104,903,400	\$ 108,552,132	\$ 111,337,920	\$ 112,602,017	\$ 114,211,138	\$ 117,694,977	\$ 121,110,563	\$ 123,186,164	\$ 126,596,361	\$ 115,878,208	
Nominal Rates		\$ 48.60	\$ 44.22	\$ 43.90	\$ 45.83	\$ 46.14	\$ 48.23	\$ 45.51	\$ 46.66	\$ 47.92	\$ 48.91	\$ 45.43	\$ 47.17	\$ 48.82	\$ 50.03	\$ 50.58	\$ 51.28	\$ 52.78	\$ 54.19	\$ 55.00	\$ 56.36	\$ 51.45	
Accumulated Net Present Value Total Cost		\$ 102,518,203	\$ 197,335,156	\$ 287,330,581	\$ 377,077,316	\$ 463,269,463	\$ 549,248,335	\$ 626,620,754	\$ 702,305,164	\$ 776,430,934	\$ 848,678,336	\$ 912,751,743	\$ 976,314,325	\$ 1,039,159,160	\$ 1,100,746,807	\$ 1,160,260,369	\$ 1,217,936,683	\$ 1,274,725,948	\$ 1,330,561,344	\$ 1,384,824,967	\$ 1,438,107,804	\$ 1,484,707,938	
Accumulated NPV Retail Sales		2,109,624	4,253,713	6,303,686	8,261,739	10,129,821	11,912,638	13,612,938	15,234,824	16,781,626	18,258,658	19,669,111	21,016,643	22,303,816	23,534,771	24,711,506	25,836,297	26,912,202	27,942,564	28,929,201	29,874,651	30,780,404	
Accumulated NPV Rate Impact		\$ 48.60	\$ 46.39	\$ 45.58	\$ 45.64	\$ 45.73	\$ 46.11	\$ 46.03	\$ 46.10	\$ 46.27	\$ 46.48	\$ 46.41	\$ 46.45	\$ 46.59	\$ 46.77	\$ 46.95	\$ 47.14	\$ 47.37	\$ 47.62	\$ 47.87	\$ 48.14	\$ 48.24	
Risk Premium		\$ 16,067,638	\$ 23,722,878	\$ 33,379,691	\$ 31,106,102	\$ 30,643,528	\$ 29,743,701	\$ 24,033,415	\$ 20,309,322	\$ 20,580,479	\$ 24,848,456	\$ 19,631,227	\$ 13,007,267	\$ 17,947,205	\$ 15,905,949	\$ 17,251,847	\$ 14,326,461	\$ 14,679,211	\$ 15,451,059	\$ 11,989,711	\$ 12,630,734	\$ 9,286,780	
Present Value of Risk Premium		\$ 16,067,638	\$ 22,666,614	\$ 30,473,396	\$ 27,133,349	\$ 25,539,703	\$ 23,685,980	\$ 18,286,522	\$ 14,764,893	\$ 14,295,838	\$ 16,491,981	\$ 12,449,163	\$ 7,881,303	\$ 10,390,299	\$ 8,798,530	\$ 9,118,122	\$ 7,234,824	\$ 7,082,899	\$ 7,123,375	\$ 5,281,479	\$ 5,316,119	\$ 3,734,656	
Accumulated NPV Risk Premium		\$ 16,067,638	\$ 38,734,252	\$ 69,207,648	\$ 96,340,997	\$ 121,880,699	\$ 145,566,679	\$ 163,853,201	\$ 178,618,094	\$ 192,913,932	\$ 209,405,914	\$ 221,855,076	\$ 229,736,379	\$ 240,126,678	\$ 248,925,208	\$ 258,043,329	\$ 265,278,153	\$ 272,361,052	\$ 279,484,427	\$ 284,765,907	\$ 290,082,026	\$ 293,816,682	
Total Cost with Risk Premium		\$ 118,585,841	\$ 122,958,301	\$ 131,958,120	\$ 133,993,183	\$ 134,060,215	\$ 137,711,786	\$ 125,721,615	\$ 124,414,310	\$ 127,292,922	\$ 133,703,563	\$ 120,669,316	\$ 117,910,667	\$ 126,499,336	\$ 127,243,869	\$ 129,853,864	\$ 128,537,599	\$ 132,374,188	\$ 136,561,622	\$ 135,175,875	\$ 139,227,095	\$ 125,164,988	
Present Value of Total Cost with Risk Premium		\$ 118,585,841	\$ 117,483,567	\$ 120,468,820	\$ 116,880,083	\$ 111,731,850	\$ 109,664,852	\$ 95,658,941	\$ 90,449,303	\$ 88,421,609	\$ 88,739,383	\$ 76,522,570	\$ 71,443,885	\$ 73,235,134	\$ 70,386,176	\$ 68,631,684	\$ 64,911,138	\$ 63,872,163	\$ 62,958,772	\$ 59,545,102	\$ 58,598,957	\$ 50,334,789	
Accumulated NPV Total Cost with Risk Premium		\$ 118,585,841	\$ 236,069,408	\$ 356,538,229	\$ 473,418,312	\$ 585,150,162	\$ 694,815,014	\$ 790,473,955	\$ 880,923,258	\$ 969,344,866	\$ 1,058,084,250	\$ 1,134,606,819	\$ 1,206,050,704	\$ 1,279,285,838	\$ 1,349,672,014	\$ 1,418,303,698	\$ 1,483,214,836	\$ 1,547,087,000	\$ 1,610,045,772	\$ 1,669,590,874	\$ 1,728,189,830	\$ 1,778,524,619	
Percent Dispatchable Generation		70.2%	79.0%	72.1%	69.9%	69.6%	69.3%	63.1%	62.8%	62.6%	62.3%	60.1%	59.9%	59.6%	59.4%	60.5%	60.3%	60.1%	59.9%	59.8%	59.6%	59.6%	
Resource Diversity		0.66	0.50	0.57	0.59	0.59	0.60	0.54	0.54	0.54	0.55	0.52	0.52	0.53	0.53	0.51	0.52	0.52	0.52	0.52	0.52	0.53	
Annual CO2 Emissions - Tons		1,493,830	1,738,244	1,808,820	1,763,999	1,884,650	1,774,102	1,325,266	1,373,428	1,245,481	1,239,678	939,159	929,873	922,417	913,693	902,449	894,236	889,088	882,228	878,999	876,473	871,427	
Accumulated CO2 Emissions - Tons		1,493,830	3,232,074	5,040,894	6,804,893	8,689,543	10,463,645	11,788,911	13,162,339	14,407,820	15,647,498	16,586,657	17,516,530	18,438,946	19,352,639	20,255,088	21,149,325	22,038,413	22,920,640	23,799,639	24,676,112	25,547,539	
Average CO2 Emissions per Year - Tons		1,493,830	1,616,037	1,680,298	1,701,223	1,737,909	1,743,941	1,684,130	1,645,292	1,600,869	1,564,750	1,507,878	1,459,711	1,418,380	1,382,331	1,350,339	1,321,833	1,296,377	1,273,369	1,252,613	1,233,806	1,216,549	
Annual CO2 Intensity - lbs/MWh Generated		1,331.2	1,136.2	996.8	962.3	999.8	968.2	860.4	890.1	844.5	835.3	631.0	625.8	621.6	618.5	614.6	622.5	619.8	617.6	616.4	615.4	612.7	
Total CO2 Emissions Reduced from 2005		65.8%	60.2%	58.6%	59.6%	56.9%	59.4%	69.7%	68.6%	71.5%	71.6%	78.5%	78.7%	78.9%	79.1%	79.3%	79.5%	79.5%	79.5%	79.5%	79.5%	79.5%	
CO2 Intensity Reduced from 2005		42.3%	50.8%	56.8%	58.3%	56.7%	58.0%	62.7%	61.4%	63.4%	63.8%	72.7%	72.9%	73.1%	73.2%	73.4%	73.0%	73.1%	73.2%	73.3%	73.3%	73.4%	
Annual NOx Emissions - Tons		1,012	965	852	807	911	829	568	632	541	532	167	163	160	157	154	152	150	148	148	147	146	
Accumulated NOx Emissions - Tons		1,012	1,977	2,830	3,637	4,548	5,377	5,945	6,577	7,118	7,650	7,817	7,980	8,139	8,296	8,450	8,603	8,752	8,900	9,048	9,196	9,341	
Average NOx Emissions per Year - Tons		1,012	989	943	909	910	896	849	822	791	765	711	711	665	626	593	563	538	515	494	476	445	
Annual NOx Intensity - lbs/MWh Generated		0.9	0.6	0.5	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
Total NOx Emissions Reduced from 2005		76.9%	77.9%	80.5%	81.5%	79.2%	81.1%	87.0%	85.6%	87.6%	87.8%	96.2%	96.3%	96.4%	96.4%	96.5%	96.5%	96.6%	96.6%	96.6%	96.6%	96.7%	
NOx Intensity Reduced from 2005		61.0%	72.7%	79.7%	80.9%	79.1%	80.4%	84.0%	82.3%	84.1%	84.5%	95.1%	95.3%	95.3%	95.4%	95.5%	95.5%	95.5%	95.5%	95.5%	95.5%	95.6%	
Annual SO2 Emissions - Tons		3,190	2,837	2,414	2,261	2,639	2,369	1,558	1,812	1,496	1,457	9	9	9	9	9	9	9	9	9	9	9	
Accumulated SO2 Emissions - Tons		3,190	6,027	8,441	10,703	13,342	15,711	17,269	19,080	20,577	22,033	22,043	22,052	22,061	22,070	22,079	22,088	22,097	22,106	22,115	22,124	22,133	
Average SO2 Emissions per Year - Tons		3,190	3,014	2,814	2,676	2,668	2,618	2,467	2,385	2,286	2,203	2,004	1,838	1,697	1,576	1,472	1,381	1,300	1,228	1,164	1,106	1,054	
Annual SO2 Intensity - lbs/MWh Generated		2.8	1.9	1.3	1.2	1.4	1.3	1.0	1.2	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total SO2 Emissions Reduced from 2005		71.2%	74.4%	78.2%	79.6%	76.2%	78.6%	85.9%	83.6%	86.5%	86.8%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	
SO2 Intensity Reduced from 2005		51.4%	68.3%	77.2%	78.9%	76.1%	77.9%	82.7%	79.9%	82.6%	83.2%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	
Renewable Energy MWh %		14%	16%	23%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	23%	23%	23%	23%	23%	23%	23%	
Renewable Energy RPS %		32%	19%	26%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	26%	26%	26%	26%	26%	26%	
Energy Efficiency %		10%	10%	10%	11%	11%	12%	13%	13%	14%	14%	14%	15%	15%	15%	16%	16%	16%	16%	16%	16%	16%	
Clean Energy %		39%	27%	34%	36%	36%	36%	37%	37%	38%	38%	38%	39%	39%	39%	39%	37%	38%	38%	38%	38%	38%	

3.0 v1: Model Configuration & Constraints

35% Clean Energy in 2025

50% Clean Energy in 2030

Erickson Retires December 2025 and Dispatched Optimally

1% Annual Incremental Energy Efficiency

Pegasus Online 7/1/2020

Regular Growth

No Incentive for Electric Vehicles

No Incentive for Customer Solar

Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy

Expansion Plan

2021: 10MW Solar | C&I Bins 1, 2 & 3; Res Bins 1, 3 & 5

2022: 80MW Solar

2023: 26MW Solar

2025: Erickson Retirement

2030: 195MW Solar

2036: 50MW Solar

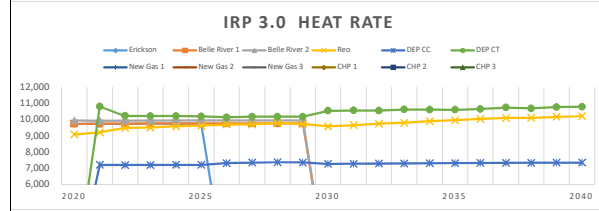
IRP 3.0

Summary of Modeling

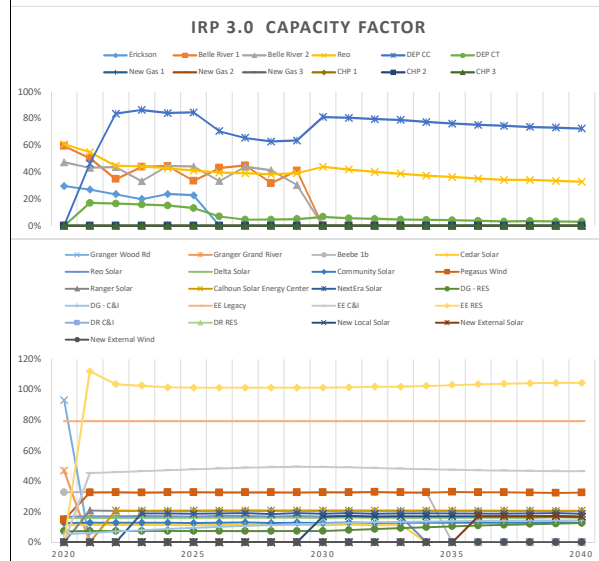
Model Configuration and Constraints
 35% Clean Energy in 2025, 50% Clean Energy in 2030 | Erickson Retires December 2025 and Dispatched Optimally | 1% Annual Incremental Energy Efficiency | Pegasus Online 7/1/2020 | Regular Growth | No Incentive for Electric Vehicles | No Incentive for Customer Solar | Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy | Question Answered: What is the impact of increasing our clean energy goal to 50% through renewable energy?

Expansion Plan:
 2021: 10MW Solar | C&I Bins 1, 2 & 3; Res Bins 1, 3 & 5 | 2022: 80MW Solar | 2023: 26MW Solar | 2025: Erickson Retirement | 2030: 195MW Solar | 2036: 50MW Solar |

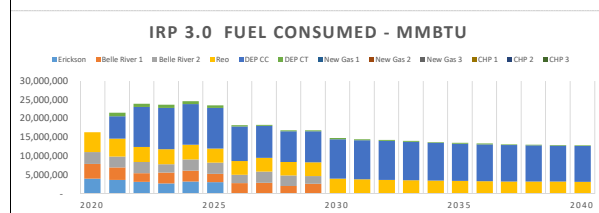
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
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Heat Rate	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Erickson	9,727	9,737	9,729	9,740	9,733	9,734	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Belle River 1	9,728	9,739	9,749	9,748	9,749	9,753	9,754	9,756	9,756	9,761	--	--	--	--	--	--	--	--	--	--	--
Belle River 2	9,929	9,913	9,924	9,937	9,927	9,931	9,933	9,933	9,931	9,938	--	--	--	--	--	--	--	--	--	--	--
Reo	9,072	9,202	9,483	9,497	9,573	9,622	9,683	9,698	9,769	9,712	9,580	9,650	9,742	9,796	9,892	9,952	10,031	10,092	10,102	10,156	10,200
DEP CC	--	7,200	7,188	7,191	7,205	7,203	7,307	7,341	7,361	7,347	7,259	7,269	7,281	7,287	7,300	7,310	7,321	7,328	7,330	7,339	7,343
DEP CT	--	10,804	10,218	10,204	10,207	10,191	10,131	10,164	10,173	10,175	10,533	10,553	10,545	10,616	10,603	10,595	10,648	10,730	10,678	10,758	10,777
New Gas 1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Gas 2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Gas 3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--



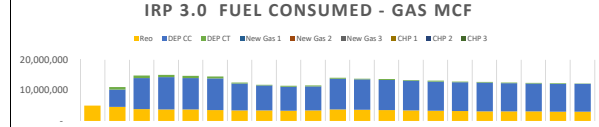
Capacity Factor	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Erickson	30%	27%	24%	20%	24%	23%	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Belle River 1	60%	51%	35%	44%	45%	34%	43%	45%	32%	41%	--	--	--	--	--	--	--	--	--	--	--
Belle River 2	47%	43%	44%	33%	45%	44%	33%	44%	41%	31%	--	--	--	--	--	--	--	--	--	--	--
Reo	61%	55%	45%	44%	43%	41%	40%	39%	38%	39%	44%	42%	40%	39%	37%	36%	35%	34%	34%	33%	33%
DEP CC	--	46%	84%	87%	84%	85%	71%	66%	63%	64%	81%	81%	80%	79%	78%	76%	75%	74%	73%	73%	73%
DEP CT	--	17%	17%	16%	15%	13%	7%	5%	5%	5%	7%	6%	5%	5%	4%	4%	4%	3%	4%	3%	3%
New Gas 1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Gas 2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Gas 3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Granger Wood Rd	93%	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Granger Grand River	47%	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beebe 1b	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	--	--	--	--	--	--
Cedar Solar	11%	11%	11%	11%	11%	11%	11%	12%	11%	12%	11%	12%	11%	11%	--	--	--	--	--	--	--
Reo Solar	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	--	--	--	--	--	--	--
Delta Solar	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%
Community Solar	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%
Pegasus Wind	15%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	32%	33%
Ranger Solar	--	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%
Calhoun Solar Energy Center	--	--	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%
NextEra Solar	--	--	--	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%
DG-RES	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	8%	9%	9%	10%	10%	11%	11%	12%	12%	13%
DG-C&I	5%	6%	7%	8%	9%	10%	10%	11%	11%	12%	12%	13%	13%	14%	14%	14%	14%	14%	14%	14%	14%
EE Legacy	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%
EE C&I	--	45%	46%	47%	47%	48%	48%	49%	49%	50%	49%	49%	49%	48%	48%	48%	47%	47%	47%	47%	47%
EE RES	--	112%	104%	103%	102%	102%	101%	101%	101%	101%	101%	102%	102%	102%	103%	103%	104%	104%	104%	105%	105%
DR C&I	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
DR RES	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Local Solar	--	--	--	--	--	--	--	--	--	--	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%
New External Solar	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	17%	17%	17%	17%	17%
New External Wind	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--



Fuel Consumed - MMBtu	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Erickson	4,031,072	3,670,399	3,205,147	2,717,885	3,231,873	3,083,694	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Belle River 1	3,922,124	3,327,200	2,292,953	2,899,147	2,939,687	2,208,563	2,843,724	2,964,342	2,100,242	2,706,917	-	-	-	-	-	-	-	-	-	-	-
Belle River 2	3,188,186	2,901,844	2,935,663	2,229,383	2,998,625	2,970,150	2,238,329	2,951,718	2,782,230	2,045,004	-	-	-	-	-	-	-	-	-	-	-
Reo	5,266,377	4,817,963	4,027,150	4,001,559	3,917,681	3,767,310	3,664,248	3,626,665	3,558,969	3,618,655	4,011,072	3,852,566	3,737,045	3,624,277	3,519,666	3,443,626	3,360,224	3,276,820	3,281,884	3,231,197	3,197,452
DEP CC	-	5,931,724	10,695,891	11,052,031	10,819,924	10,835,879	9,185,049	8,565,787	8,259,826	8,306,757	10,479,664	10,412,718	10,341,539	10,243,114	10,051,422	9,911,490	9,825,501	9,715,921	9,619,182	9,568,843	9,505,907
DEP CT	-	924,624	851,408	813,217	771,300	675,217	352,009	237,399	233,456	252,446	348,867	295,838	272,554	248,600	228,989	221,293	197,347	175,460	188,959	175,197	166,185
New Gas 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Fuel Consumed - Coal Tons	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Erickson	229,038	208,545	182,111	154,425	183,629	175,210	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Belle River 1	222,848	189,045	130,281	164,724	167,028	125,487	161,575	168,428	119,332	153,802	-	-	-	-	-	-	-	-	-	-	-
Belle River 2	181,147	164,877	166,799	126,670	170,376	168,759	127,178	167,711	158,081	116,193	-	-	-	-	-	-	-	-	-	-	-



Fuel Consumed - Gas Mcf	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Reo	5,029,968	4,601,684	3,846,371	3,821,929	3,741,815	3,598,194	3,499,760	3,463,864	3,399,206												

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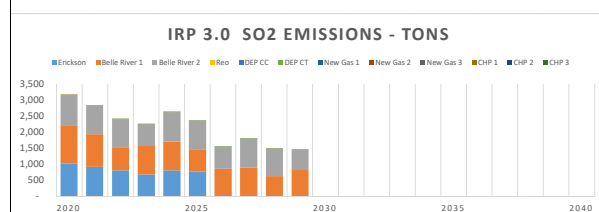
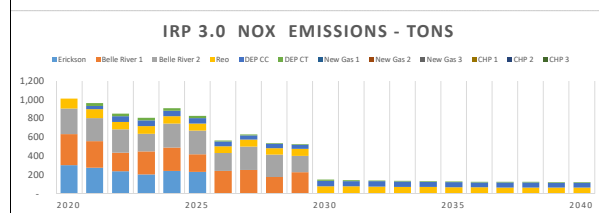
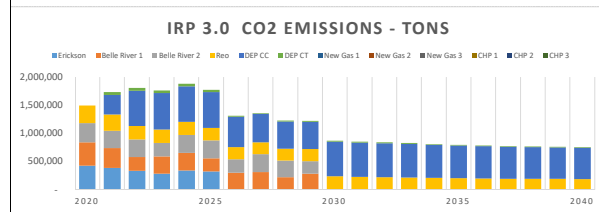
Summary of Modeling

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	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	
CO2 Emissions - Tons																						
Erickson	424,472	386,493	337,502	286,193	340,316	324,713	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Belle River 1	417,118	353,848	243,856	308,324	312,636	234,881	302,430	315,258	223,361	287,881	-	-	-	-	-	-	-	-	-	-	-	-
Belle River 2	339,064	308,611	312,208	237,095	318,904	315,875	238,046	313,915	295,890	217,486	-	-	-	-	-	-	-	-	-	-	-	-
Reo	313,086	286,428	239,414	237,893	232,906	223,967	217,840	215,605	211,581	215,129	238,458	229,035	222,167	215,463	209,244	204,724	199,765	194,807	195,108	192,095	190,089	
DEP CC	-	347,006	625,710	646,544	632,966	633,899	537,325	501,099	483,200	485,945	613,060	609,144	604,980	599,222	588,008	579,822	574,792	568,381	562,722	559,777	556,095	
DEP CT	-	54,091	49,807	47,573	45,121	39,500	20,593	13,888	13,657	14,768	20,409	17,307	15,944	14,543	13,396	12,946	11,545	10,264	11,054	10,249	9,722	
New Gas 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NOx Emissions - Tons																						
Erickson	302	275	240	204	242	231	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Belle River 1	333	283	195	246	250	188	242	252	179	230	-	-	-	-	-	-	-	-	-	-	-	-
Belle River 2	271	247	250	189	255	252	190	251	236	174	-	-	-	-	-	-	-	-	-	-	-	-
Reo	105	96	81	80	78	75	73	73	71	72	80	77	75	72	70	69	67	66	66	65	64	
DEP CC	-	33	59	61	60	60	51	47	45	46	58	57	57	56	55	55	54	53	53	53	52	
DEP CT	-	31	28	27	25	22	12	8	8	8	12	10	9	8	8	7	7	6	6	6	5	
New Gas 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
New Gas 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
New Gas 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
CHP 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
CHP 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
CHP 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
SO2 Emissions - Tons																						
Erickson	1,020	929	811	688	818	780	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Belle River 1	1,196	1,015	699	884	897	674	867	904	641	826	-	-	-	-	-	-	-	-	-	-	-	
Belle River 2	972	885	895	680	915	906	683	900	849	624	-	-	-	-	-	-	-	-	-	-	-	
Reo	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
DEP CC	-	4	8	8	8	8	6	6	6	6	7	7	7	7	7	7	7	7	7	7	7	
DEP CT	-	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
New Gas 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
New Gas 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
New Gas 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
CHP 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
CHP 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
CHP 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	



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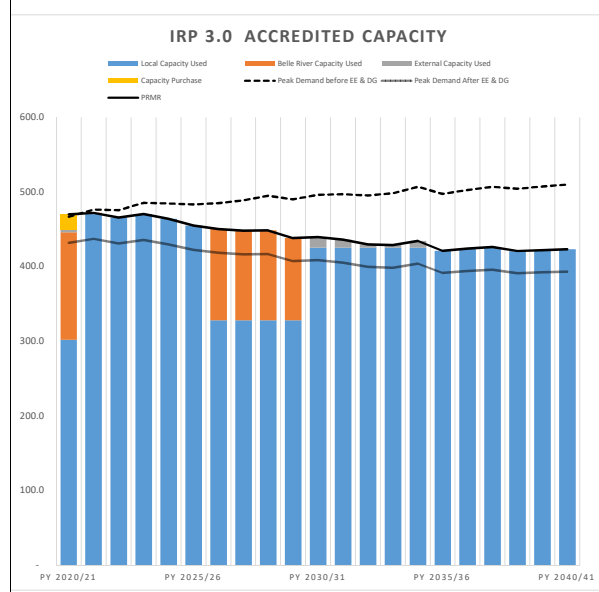
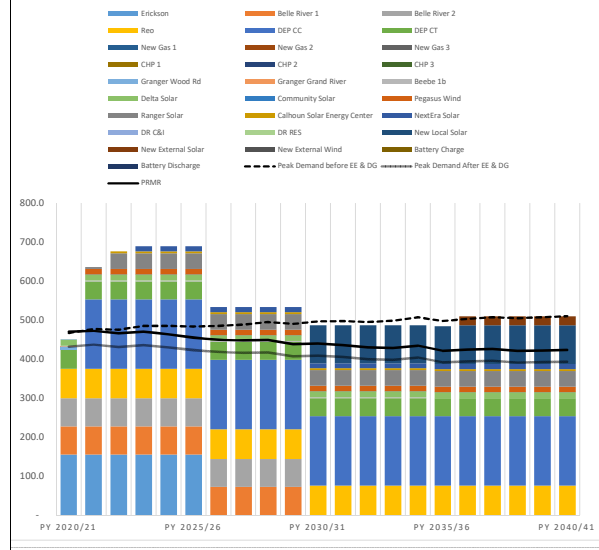
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	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
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Accredited Capacity	PY 2020/21	PY 2021/22	PY 2022/23	PY 2023/24	PY 2024/25	PY 2025/26	PY 2026/27	PY 2027/28	PY 2028/29	PY 2029/30	PY 2030/31	PY 2031/32	PY 2032/33	PY 2033/34	PY 2034/35	PY 2035/36	PY 2036/37	PY 2037/38	PY 2038/39	PY 2039/40	PY 2040/41
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Peak Demand before EE & DG	466.9	476.7	475.5	485.5	484.8	483.4	485.2	488.8	494.9	490.2	496.4	497.1	495.4	498.1	506.9	497.7	502.9	507.0	504.5	507.2	510.0
Net Load Offsets																					
EE Legacy	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3	34.3
EE C&I	-	4.1	8.5	13.3	18.4	23.6	28.9	33.8	38.5	42.9	46.9	50.4	53.8	56.8	59.7	62.5	64.3	66.0	67.5	68.4	69.0
EE RES	-	0.4	0.9	1.3	1.5	2.0	2.6	3.3	3.9	4.6	5.3	5.8	6.2	6.5	6.8	6.9	7.1	7.1	7.1	7.1	7.1
DG - RES	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.6	0.7	0.8	0.9	1.0	1.2
DG - C&I	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.5	0.6	0.7	0.9	1.1	1.4	1.7	2.1	2.6	3.1	3.8	4.6
Cedar Solar	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-	-	-	-	-	-	-
Reo Solar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Community Solar	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Peak Demand After EE & DG	431.8	437.1	431.0	435.8	429.8	422.6	418.4	416.4	417.1	407.3	408.7	405.2	399.5	398.6	404.0	391.4	394.2	396.0	391.2	392.2	393.4
Reserve Margin Percent	1.089	1.080	1.081	1.080	1.080	1.077	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076	1.076
PRMR	470.2	472.1	465.9	470.6	464.1	455.1	450.2	448.1	448.8	438.2	439.8	436.0	429.9	428.9	434.7	421.2	424.1	426.1	426.1	422.1	423.3
Local Capacity																					
Erickson	155.4	155.4	155.4	155.4	155.4	155.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Reo	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0
DEP CC	-	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7	177.7
DEP CT	49.2	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3
New Gas 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Granger Wood Rd	6.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Delta Solar	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1
NextEra Solar	-	-	-	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9
DR C&I	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DR RES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Local Solar	-	-	-	-	-	-	-	-	-	-	97.5	97.5	97.5	97.5	97.5	97.5	100.0	100.0	100.0	100.0	100.0
Battery Charge	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Battery Discharge	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Local Capacity	301.9	470.5	470.5	483.4	483.4	483.4	328.0	328.0	328.0	328.0	425.5	425.5	425.5	425.5	425.5	425.5	428.0	428.0	428.0	428.0	
Transmission Entitlements																					
Belle River Transmission Entitlement	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	-	-	-	-	-	-	-	-	-	-	-
Belle River 1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	-	-	-	-	-	-	-	-	-	-	-
Belle River 2	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	72.1	-	-	-	-	-	-	-	-	-	-	-
Remaining Entitlement	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	-	-	-	-	-	-	-	-	-	-	-
METC Settlement Entitlement	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6
Total Transmission Entitlements Remaining	18.4	18.4	18.4	18.4	18.4	18.4	18.4	18.4	18.4	18.4	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6
External Capacity																					
Granger Grand River	1.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Beebe 1b	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
Pegasus Wind	-	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
Ranger Solar	-	5.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
Calhoun Solar Energy Center	-	-	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
New External Solar	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	22.5	22.5	22.5	22.5	22.5
New External Wind	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Available External Capacity	3.5	21.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	61.3	59.0	81.5	81.5	81.5	81.5	81.5
Summary																					
PRMR	470.2	472.1	465.9	470.6	464.1	455.1	450.2	448.1	448.8	438.2	439.8	436.0	429.9	428.9	434.7	421.2	424.1	426.1	426.1	422.1	423.3
Local Capacity Used	301.9	470.5	465.9	470.6	464.1	455.1	328.0	328.0	328.0	328.0	425.5	425.5	425.5	425.5	425.5	421.2	424.1	426.1	420.9	422.1	423.3
Local Capacity Remaining	-	-	4.6	12.8	19.3	28.3	-	-	-	-	-	-	-	-	-	4.3	3.9	1.9	7.1	5.9	4.7
Total Capacity Used	301.9	470.5	465.9	470.6	464.1	455.1	328.0	328.0	328.0	328.0	425.5	425.5	425.5	425.5	425.5	421.2	424.1	426.1	420.9	422.1	423.3
Capacity Short	168.3	1.6	-	-	-	-	122.2	120.1	120.8	110.2	14.3	10.5	4.4	3.4	9.2	-	-	-	-	-	-
Belle River Capacity Used	144.2	1.6	-	-	-	-	122.2	120.1	120.8	110.2	-	-	-	-	-	-	-	-	-	-	-
Belle River Capacity Remaining	-	142.6	144.2	144.2	144.2	144.2	22.0	24.1	23.4	34.0	-	-	-	-	-	-	-	-	-	-	-
Total Capacity Used	446.1	472.1	465.9	470.6	464.1	455.1	450.2	448.1	448.8	438.2	425.5	425.5	425.5	425.5	425.5	421.2	424.1	426.1	420.9	422.1	423.3
Capacity Short	24.1	-	-	-																	

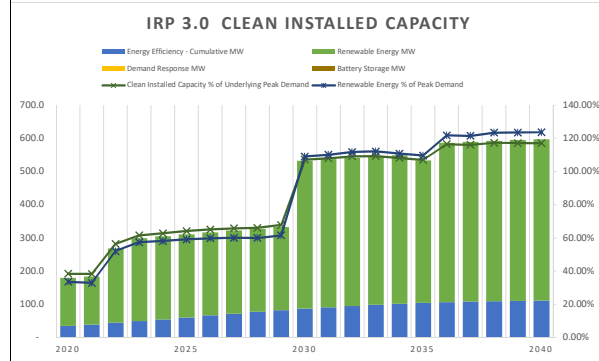
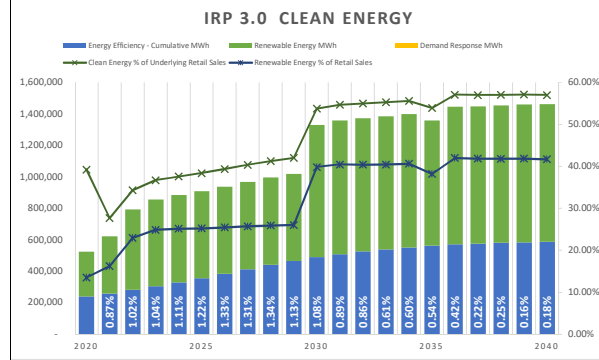
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Expansion Plan:
 2021: 10MW Solar | C&I Bins 1, 2 & 3; Res Bins 1, 3 & 5 | 2022: 80MW Solar | 2023: 26MW Solar | 2025: Erickson Retirement | 2030: 195MW Solar | 2036: 50MW Solar |

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Clean Energy	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Renewable Energy MWh	285,558	363,422	510,187	551,630	554,141	552,125	552,511	554,469	554,257	552,790	840,782	850,312	846,070	845,117	847,201	795,215	873,810	871,855	872,406	875,011	873,768
Renewable Energy % of Retail Sales	13.54%	16.26%	22.92%	24.90%	25.16%	25.23%	25.45%	25.74%	25.94%	26.03%	39.82%	40.44%	40.40%	40.43%	40.61%	38.18%	41.99%	41.84%	41.81%	41.83%	41.68%
Renewable Energy % of Underlying Retail Sales	12.16%	14.57%	20.35%	21.89%	21.89%	21.70%	21.62%	21.60%	21.49%	21.35%	32.34%	32.58%	32.30%	32.15%	32.13%	30.07%	32.95%	32.78%	32.71%	32.70%	32.55%
Renewable Energy RPS	682,092	431,576	578,371	620,462	622,311	620,215	621,084	623,319	622,051	621,362	908,389	918,880	914,485	913,897	914,575	862,991	942,265	939,598	940,113	943,896	941,573
Renewable Energy % of Retail Sales	32.33%	19.31%	25.99%	28.01%	28.25%	28.35%	28.61%	28.93%	29.11%	29.26%	43.02%	43.70%	43.67%	43.72%	43.84%	41.44%	45.28%	45.09%	45.05%	45.13%	44.91%
Renewable Energy % of Underlying Retail Sales	29.04%	17.31%	23.07%	24.62%	24.58%	24.30%	24.30%	24.28%	24.12%	23.99%	34.94%	35.20%	34.91%	34.77%	34.69%	32.63%	35.53%	35.33%	35.25%	35.28%	35.08%
Energy Efficiency - Cumulative MWh	239,413	258,772	281,539	304,634	329,108	355,870	384,759	412,991	441,698	465,728	488,568	507,385	525,316	538,137	550,663	561,970	570,804	575,363	580,589	583,972	587,679
Energy Efficiency - Cumulative % of Underlying Retail Sales	10.19%	10.38%	11.23%	12.09%	13.00%	13.99%	15.05%	16.09%	17.13%	17.98%	18.79%	19.44%	20.05%	20.47%	20.88%	21.25%	21.52%	21.64%	21.77%	21.83%	21.89%
Energy Efficiency - Annual Incremental MWh		19,360	22,767	23,095	24,474	26,762	28,889	28,231	28,707	24,031	22,839	18,817	17,931	12,822	12,526	11,307	8,834	4,559	5,226	3,383	3,707
Energy Efficiency - Annual Incremental % of Retail Sales		0.87%	1.02%	1.04%	1.11%	1.22%	1.33%	1.31%	1.34%	1.13%	1.08%	0.89%	0.86%	0.61%	0.60%	0.54%	0.42%	0.28%	0.25%	0.16%	0.18%
Energy Efficiency - Annual Incremental % of Underlying Retail Sales		0.78%	0.91%	0.92%	0.97%	1.05%	1.13%	1.10%	1.11%	0.93%	0.88%	0.72%	0.68%	0.49%	0.48%	0.43%	0.33%	0.17%	0.20%	0.13%	0.14%
Demand Response MWh	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Demand Response % of Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Demand Response % of Underlying Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Clean Energy Credits	921,505	690,348	859,910	925,096	951,419	976,085	1,005,844	1,036,309	1,063,749	1,087,090	1,396,957	1,426,265	1,439,801	1,452,034	1,465,238	1,424,961	1,513,069	1,514,961	1,520,702	1,527,868	1,529,252
Clean Energy % of Underlying Retail Sales	39.23%	27.68%	34.30%	36.71%	37.58%	38.37%	39.35%	40.36%	41.25%	41.98%	53.73%	54.64%	54.96%	55.24%	55.57%	53.88%	57.06%	56.97%	57.01%	57.10%	56.97%
Clean Installed Capacity	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Renewable Energy MW	145.0	143.8	223.8	249.8	249.8	249.9	250.0	250.1	250.2	250.3	445.5	445.9	446.3	446.9	447.4	429.0	480.0	481.1	482.6	484.3	486.3
Renewable Energy % of Peak Demand	33.57%	32.90%	51.94%	57.32%	58.13%	59.13%	59.74%	60.05%	59.98%	61.46%	109.00%	110.04%	111.72%	112.12%	110.75%	109.59%	121.76%	121.49%	123.35%	123.46%	123.62%
Renewable Energy % of Underlying Peak Demand	31.05%	30.17%	47.07%	51.45%	51.53%	51.69%	51.52%	51.16%	50.55%	51.06%	89.75%	89.70%	90.10%	89.71%	88.26%	86.19%	95.45%	94.90%	95.66%	95.48%	95.35%
Energy Efficiency - Cumulative MW	34.3	38.7	43.7	48.9	54.2	59.9	65.8	71.4	76.8	81.8	86.4	90.5	94.3	97.7	100.8	103.7	105.6	107.4	108.9	109.8	110.4
Energy Efficiency - Cumulative % of Underlying Peak Demand	7.35%	8.13%	9.20%	10.07%	11.17%	12.40%	13.57%	14.60%	15.51%	16.69%	17.41%	18.21%	19.03%	19.61%	19.89%	20.84%	21.01%	21.17%	21.59%	21.64%	21.65%
Energy Efficiency - Annual Incremental MW		4.4	5.0	5.1	5.3	5.8	5.9	5.6	5.4	5.0	4.6	4.1	3.7	3.4	3.1	2.9	1.9	1.7	1.6	0.9	0.7
Energy Efficiency - Annual Incremental % of Peak Demand		1.02%	1.16%	1.18%	1.23%	1.36%	1.41%	1.33%	1.29%	1.24%	1.13%	1.01%	0.93%	0.86%	0.77%	0.75%	0.49%	0.43%	0.40%	0.22%	0.17%
Energy Efficiency - Annual Incremental % of Underlying Peak Demand		0.93%	1.05%	1.06%	1.09%	1.19%	1.22%	1.14%	1.09%	1.03%	0.93%	0.82%	0.75%	0.69%	0.62%	0.59%	0.38%	0.34%	0.31%	0.17%	0.13%
Demand Response MW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Demand Response % of Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Demand Response % of Underlying Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Battery Storage MW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Battery Storage % of Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Battery Storage % of Underlying Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Clean Installed Capacity MW	179	183	268	299	304	310	316	321	327	332	532	536	541	545	548	533	586	588	591	594	597
Clean Installed Capacity % of Underlying Peak Demand	38.40%	38.29%	56.27%	61.51%	62.70%	64.08%	65.09%	65.76%	66.06%	67.75%	107.17%	107.90%	109.12%	109.32%	108.14%	107.03%	116.46%	116.07%	117.25%	117.12%	117.00%



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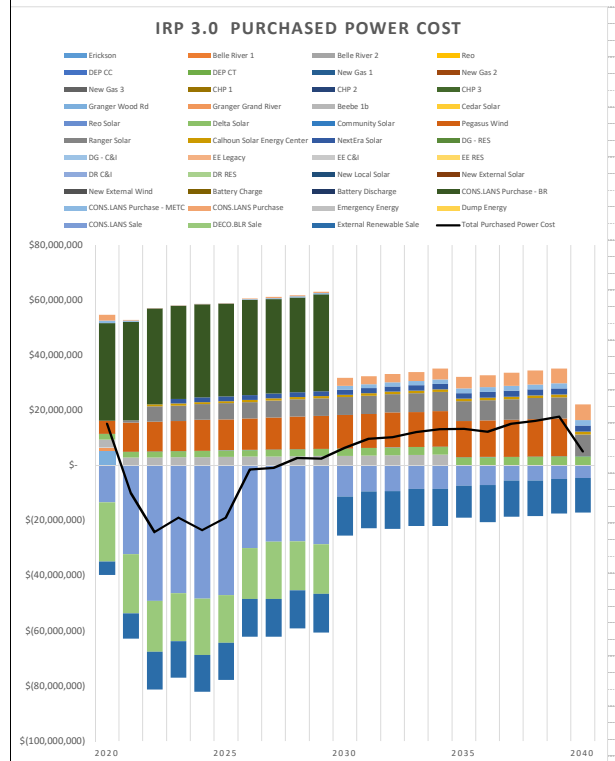
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	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
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	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
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Purchased Power Cost		2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Erickson		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Belle River 1		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Belle River 2		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Reo		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DEP CC		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DEP CT		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 1		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 2		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 3		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 1		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 2		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 3		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Granger Wood Rd		\$ 5,498,401	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Granger Grand River		\$ 1,098,338	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Beebe 1b		\$ 2,810,094	\$ 2,881,790	\$ 2,935,240	\$ 3,001,689	\$ 3,110,049	\$ 3,180,931	\$ 3,233,418	\$ 3,319,856	\$ 3,430,425	\$ 3,467,648	\$ 3,577,849	\$ 3,664,435	\$ 3,785,223	\$ 3,851,962	\$ 3,946,688	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Cedar Solar		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Reo Solar		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Delta Solar		\$ 2,071,241	\$ 2,125,679	\$ 2,179,775	\$ 2,255,318	\$ 2,289,179	\$ 2,344,044	\$ 2,419,906	\$ 2,490,124	\$ 2,513,496	\$ 2,605,472	\$ 2,633,397	\$ 2,737,369	\$ 2,799,726	\$ 2,885,170	\$ 2,911,877	\$ 3,002,480	\$ 3,108,229	\$ 3,152,620	\$ 3,230,459	\$ 3,368,471	\$ 3,397,986
Community Solar		\$ 31,218	\$ 31,990	\$ 32,679	\$ 33,651	\$ 34,549	\$ 34,549	\$ 35,864	\$ 36,755	\$ 37,977	\$ 38,023	\$ 39,701	\$ 39,412	\$ 40,510	\$ 41,189	\$ 41,937	\$ 43,076	\$ 43,146	\$ 43,977	\$ 45,356	\$ 45,316	\$ 45,316
Pegasus Wind		\$ 4,832,819	\$ 10,576,306	\$ 10,806,092	\$ 10,899,541	\$ 11,152,903	\$ 11,252,975	\$ 11,401,970	\$ 11,639,005	\$ 11,834,136	\$ 11,926,829	\$ 12,172,382	\$ 12,344,787	\$ 12,633,706	\$ 12,666,508	\$ 12,846,864	\$ 13,164,223	\$ 13,301,150	\$ 13,449,850	\$ 13,630,961	\$ 13,707,748	\$ 13,707,748
Ranger Solar		\$ -	\$ 796,075	\$ 5,512,963	\$ 5,609,504	\$ 5,735,435	\$ 5,852,329	\$ 5,977,841	\$ 6,095,060	\$ 6,237,296	\$ 6,328,682	\$ 6,468,640	\$ 6,606,621	\$ 6,706,705	\$ 6,836,819	\$ 7,023,125	\$ 7,129,331	\$ 7,283,378	\$ 7,445,730	\$ 7,582,423	\$ 7,708,356	\$ 7,876,935
Calhoun Solar Energy Center		\$ -	\$ -	\$ 718,730	\$ 731,213	\$ 745,105	\$ 761,732	\$ 777,171	\$ 792,350	\$ 812,072	\$ 824,033	\$ 839,531	\$ 858,956	\$ 875,700	\$ 888,902	\$ 913,154	\$ 928,272	\$ 945,883	\$ 967,027	\$ 984,247	\$ 999,862	\$ 1,025,864
NextEra Solar		\$ -	\$ -	\$ -	\$ 1,629,816	\$ 1,652,721	\$ 1,665,368	\$ 1,728,549	\$ 1,771,589	\$ 1,751,921	\$ 1,846,395	\$ 1,842,985	\$ 1,918,540	\$ 1,924,493	\$ 1,975,341	\$ 2,009,975	\$ 2,055,677	\$ 2,108,020	\$ 2,126,464	\$ 2,178,041	\$ 2,249,944	\$ 2,258,245
DG - RES		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DG - C&I		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
EE Legacy		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
EE C&I		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
EE RES		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DR C&I		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DR RES		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Local Solar		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New External Solar		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New External Wind		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Battery Charge		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Battery Discharge		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CONS.LANS Purchase - BR		\$ 35,420,589	\$ 35,778,855	\$ 34,829,555	\$ 33,789,508	\$ 33,816,090	\$ 33,673,675	\$ 34,568,514	\$ 34,280,552	\$ 34,430,519	\$ 35,170,847	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CONS.LANS Purchase - METC		\$ 934,750	\$ 434,991	\$ 55,864	\$ 35,570	\$ 62,596	\$ 279,162	\$ 374,656	\$ 404,634	\$ 414,308	\$ 414,308	\$ 1,341,472	\$ 1,398,125	\$ 1,496,276	\$ 1,568,553	\$ 1,624,209	\$ 1,690,854	\$ 1,729,435	\$ 1,824,480	\$ 1,797,036	\$ 1,846,083	\$ 1,892,302
CONS.LANS Purchase		\$ 2,088,735	\$ 280,127	\$ 59,279	\$ 39,619	\$ 74,773	\$ 58,417	\$ 256,555	\$ 389,922	\$ 377,283	\$ 443,784	\$ 2,922,079	\$ 2,823,107	\$ 3,032,662	\$ 3,269,370	\$ 3,849,781	\$ 4,163,496	\$ 4,271,766	\$ 4,669,114	\$ 5,118,553	\$ 5,255,842	\$ 5,709,988
Emergency Energy		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Dump Energy		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CONS.LANS Sale		\$ (13,338,530)	\$ (32,118,908)	\$ (49,115,959)	\$ (46,259,762)	\$ (48,322,326)	\$ (46,959,822)	\$ (29,900,310)	\$ (27,659,525)	\$ (27,509,640)	\$ (28,541,521)	\$ (11,280,267)	\$ (9,388,228)	\$ (9,291,401)	\$ (8,489,966)	\$ (8,465,966)	\$ (7,249,726)	\$ (7,037,311)	\$ (5,403,423)	\$ (5,447,709)	\$ (4,876,819)	\$ (4,514,832)
DECO.BLR Sale		\$ (21,425,357)	\$ (21,499,876)	\$ (18,463,198)	\$ (17,421,337)	\$ (20,360,705)	\$ (17,368,997)	\$ (18,510,000)	\$ (20,736,152)	\$ (17,757,753)	\$ (18,035,746)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
External Renewable Sale		\$ (4,929,810)	\$ (9,214,193)	\$ (13,729,250)	\$ (13,260,237)	\$ (13,363,618)	\$ (13,408,159)	\$ (13,730,765)	\$ (13,646,551)	\$ (13,843,645)	\$ (14,019,958)	\$ (14,149,029)	\$ (13,319,809)	\$ (13,703,541)	\$ (13,369,578)	\$ (13,502,144)	\$ (11,698,886)	\$ (13,534,512)	\$ (13,122,840)	\$ (12,897,784)	\$ (12,561,495)	\$ (12,496,717)
Total Purchased Power Cost		\$ 15,092,487	\$ (9,927,164)	\$ (24,178,228)	\$ (18,915,907)	\$ (23,373,647)	\$ (18,858,273)	\$ (1,462,125)	\$ (852,360)	\$ 2,717,010	\$ 2,468,798	\$ 6,407,016	\$ 9,683,605	\$ 10,298,961	\$ 12,123,589	\$ 13,198,753	\$ 13,227,657	\$ 12,219,114	\$ 15,152,167	\$ 16,220,205	\$ 17,743,349	\$ 5,195,089



Purchased Power Cost per MWh		2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
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Erickson		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Belle River 1		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Belle River 2		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Reo		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DEP CC		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DEP CT		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 1		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 2		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 3		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 1		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 2		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 3		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Granger Wood Rd		\$ 83.83	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Granger Grand River		\$ 83.11																				

IRP 3.0

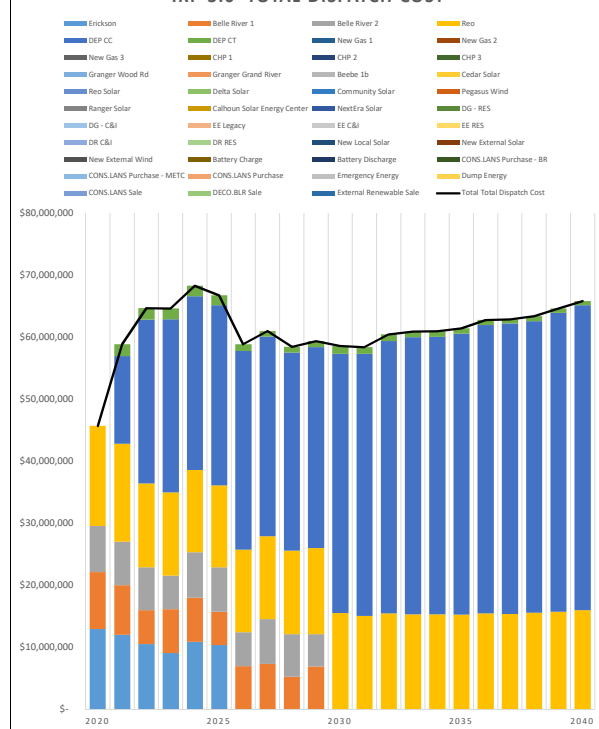
Summary of Modeling

Model Configuration and Constraints
 35% Clean Energy in 2025, 50% Clean Energy in 2030 | Erickson Retires December 2025 and Dispatched Optimally | 1% Annual Incremental Energy Efficiency | Pegasus Online 7/1/2020 | Regular Growth | No Incentive for Electric Vehicles | No Incentive for Customer Solar | Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy | Question Answered: What is the impact of increasing our clean energy goal to 50% through renewable energy?

Expansion Plan:
 2021: 10MW Solar | C&I Bins 1, 2 & 3; Res Bins 1, 3 & 5 | 2022: 80MW Solar | 2023: 26MW Solar | 2025: Erickson Retirement | 2030: 195MW Solar | 2036: 50MW Solar |

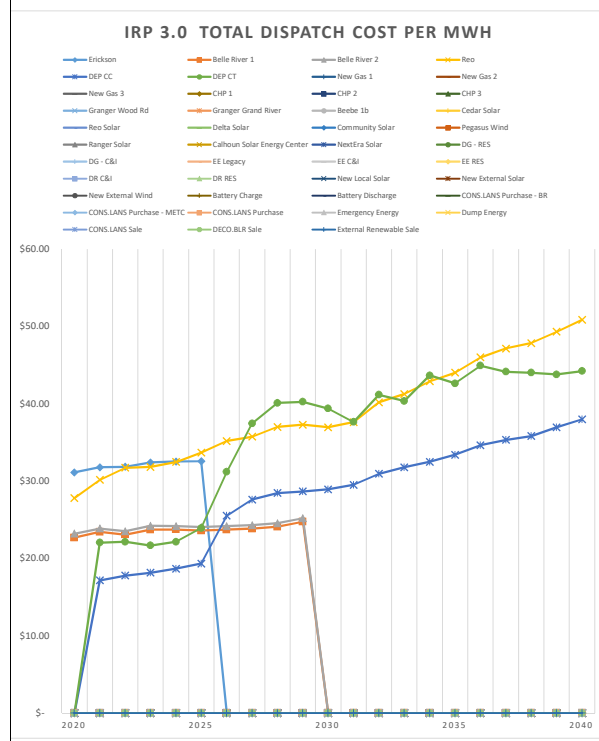
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
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IRP 3.0 TOTAL DISPATCH COST



Total Dispatch Cost	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Erickson	\$ 12,905,223	\$ 11,985,400	\$ 10,494,181	\$ 9,043,711	\$ 10,807,597	\$ 10,317,356	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Belle River 1	\$ 9,154,176	\$ 8,008,047	\$ 5,429,782	\$ 7,053,358	\$ 7,158,817	\$ 5,342,559	\$ 6,915,182	\$ 7,249,136	\$ 5,189,599	\$ 6,865,978	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Belle River 2	\$ 7,455,596	\$ 6,987,653	\$ 6,959,414	\$ 5,434,042	\$ 7,303,527	\$ 7,192,069	\$ 5,447,775	\$ 7,225,919	\$ 6,880,106	\$ 5,189,273	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Reo	\$ 16,145,387	\$ 15,794,278	\$ 13,478,548	\$ 13,414,200	\$ 13,293,847	\$ 13,197,963	\$ 13,319,696	\$ 13,365,562	\$ 13,480,680	\$ 13,901,153	\$ 15,481,299	\$ 15,019,702	\$ 15,418,323	\$ 15,266,769	\$ 15,264,315	\$ 15,236,539	\$ 15,416,068	\$ 15,306,704	\$ 15,548,115	\$ 15,687,593	\$ 15,946,493
DEP CC	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DEP CT	\$ -	\$ 14,152,166	\$ 26,465,318	\$ 27,924,228	\$ 28,036,717	\$ 29,099,108	\$ 32,086,930	\$ 32,228,339	\$ 31,932,055	\$ 32,410,144	\$ 41,785,636	\$ 42,291,531	\$ 43,944,333	\$ 44,682,564	\$ 44,755,374	\$ 45,297,859	\$ 46,514,612	\$ 46,857,111	\$ 47,027,395	\$ 48,201,168	\$ 49,185,023
New Gas 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
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CHP 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Granger Wood Rd	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Granger Grand River	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Beebe 1b	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Cedar Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Reo Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Delta Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Community Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Pegasus Wind	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ranger Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Calhoun Solar Energy Center	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
NextEra Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DG - RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DG - C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
EE Legacy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
EE C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
EE RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DR C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DR RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Local Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New External Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New External Wind	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Battery Charge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Battery Discharge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CONS.LANS Purchase - BR	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CONS.LANS Purchase - METC	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CONS.LANS Purchase	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Emergency Energy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Dump Energy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CONS.LANS Sale	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DECO.BLR Sale	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
External Renewable Sale	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Total Dispatch Cost	\$ 45,660,382	\$ 58,814,207	\$ 64,673,065	\$ 64,597,000	\$ 68,275,000	\$ 66,734,304	\$ 58,853,488	\$ 60,943,950	\$ 58,403,014	\$ 59,365,499	\$ 58,571,493	\$ 58,366,833	\$ 60,426,924	\$ 60,894,710	\$ 60,963,113	\$ 61,424,796	\$ 62,763,316	\$ 62,885,643	\$ 63,354,562	\$ 64,601,983	\$ 65,813,671

IRP 3.0 TOTAL DISPATCH COST PER MWh



Total Dispatch Cost per MWh	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Erickson	\$ 31.14	\$ 31.80	\$ 31.86	\$ 32.41	\$ 32.55	\$ 32.57	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Belle River 1	\$ 22.70	\$ 23.44	\$ 23.09	\$ 23.72	\$ 23.74	\$ 23.59	\$ 23.72	\$ 23.86	\$ 24.11	\$ 24.76	--	--	--	--	--	--	--	--	--	--	--
Belle River 2	\$ 23.22	\$ 23.87	\$ 23.53	\$ 24.22	\$ 24.18	\$ 24.05	\$ 24.18	\$ 24.32	\$ 24.56	\$ 25.22	--	--	--	--	--	--	--	--	--	--	--
Reo	\$ 27.81	\$ 30.17	\$ 31.74	\$ 31.83	\$ 32.48	\$ 33.71	\$ 35.20	\$ 35.74	\$ 37.00	\$ 37.31	\$ 36.97	\$ 37.62	\$ 40.19	\$ 41.26	\$ 42.90	\$ 44.03	\$ 46.02	\$ 47.14	\$ 47.86	\$ 49.31	\$ 50.87
DEP CC	--	\$ 17.18	\$ 17.79	\$ 18.17	\$ 18.67	\$ 19.34	\$ 25.53	\$ 27.62	\$ 28.46	\$ 28.67	\$ 28.94	\$ 29.52	\$ 30.94	\$ 31.79	\$ 32.51	\$ 33.41	\$ 34.66	\$ 35.34	\$ 35.84	\$ 36.97	\$ 37.99
DEP CT	--	\$ 22.04	\$ 22.15	\$ 21.67	\$ 22.16	\$ 23.93	\$ 31.20	\$ 37.46	\$ 40.11	\$ 40.26	\$ 39.39	\$ 37.66	\$ 41.18	\$ 40.37	\$ 43.68	\$ 42.63	\$ 44.93	\$ 44.14	\$ 44.02	\$ 43.79	\$ 44.24
New Gas 1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Gas 2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Gas 3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Granger Wood Rd	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Granger Grand River	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Beebe 1b	\$ -	\$ -	\$ -	\$ -																	

IRP 3.0

Summary of Modeling

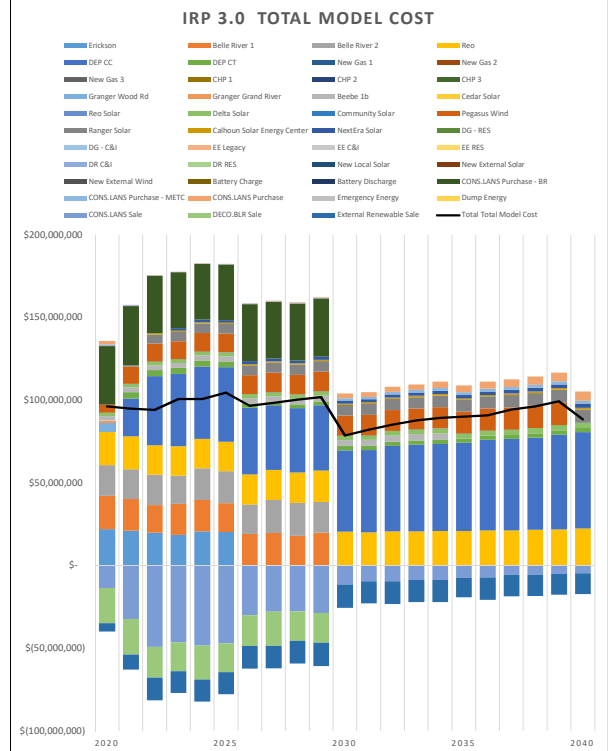
Model Configuration and Constraints
 35% Clean Energy in 2025, 50% Clean Energy in 2030 | Erickson Retires December 2025 and Dispatched Optimally | 1% Annual Incremental Energy Efficiency | Pegasus Online 7/1/2020 | Regular Growth | No Incentive for Electric Vehicles | No Incentive for Customer Solar | Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy | Question Answered: What is the impact of increasing our clean energy goal to 50% through renewable energy?

Expansion Plan:

2021: 10MW Solar | C&I Bins 1, 2 & 3; Res Bins 1, 3 & 5 | 2022: 80MW Solar | 2023: 26MW Solar | 2025: Erickson Retirement | 2030: 195MW Solar | 2036: 50MW Solar |

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
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Total Model Cost	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Erickson	\$ 22,159,003	\$ 21,258,361	\$ 19,996,698	\$ 18,772,523	\$ 20,764,048	\$ 20,483,841	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Belle River 1	\$ 20,180,656	\$ 19,057,383	\$ 16,752,650	\$ 18,645,871	\$ 19,022,577	\$ 17,479,968	\$ 19,333,371	\$ 19,955,203	\$ 18,192,082	\$ 20,148,330	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Belle River 2	\$ 18,482,077	\$ 18,036,989	\$ 18,282,282	\$ 17,026,555	\$ 19,167,287	\$ 19,329,478	\$ 17,865,964	\$ 19,931,986	\$ 19,882,590	\$ 18,471,625	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Reo	\$ 20,347,837	\$ 20,006,866	\$ 17,795,362	\$ 17,833,790	\$ 17,816,826	\$ 17,825,274	\$ 18,054,055	\$ 18,209,682	\$ 18,437,822	\$ 18,974,936	\$ 20,674,469	\$ 20,335,066	\$ 20,858,759	\$ 20,835,218	\$ 20,963,790	\$ 21,070,122	\$ 21,386,915	\$ 21,418,046	\$ 21,803,256	\$ 22,089,918	\$ 22,499,465
DEP CC	\$ -	\$ 22,794,978	\$ 41,880,704	\$ 43,795,446	\$ 43,850,025	\$ 45,072,797	\$ 40,398,908	\$ 39,027,043	\$ 38,889,365	\$ 39,531,160	\$ 49,074,208	\$ 49,751,604	\$ 51,579,941	\$ 52,497,838	\$ 52,754,541	\$ 53,485,247	\$ 54,894,649	\$ 55,434,330	\$ 55,806,436	\$ 57,186,781	\$ 58,382,067
DEP CT	\$ -	\$ 3,816,786	\$ 3,739,714	\$ 3,615,308	\$ 3,553,201	\$ 3,407,670	\$ 2,529,109	\$ 2,164,442	\$ 2,240,103	\$ 2,349,528	\$ 2,686,915	\$ 2,470,484	\$ 2,512,443	\$ 2,427,629	\$ 2,460,552	\$ 2,443,225	\$ 2,422,002	\$ 2,348,590	\$ 2,444,093	\$ 2,417,440	\$ 2,426,474
New Gas 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Granger Wood Rd	\$ 5,498,401	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Granger Grand River	\$ 1,098,338	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Beebe 1b	\$ 2,810,094	\$ 2,881,790	\$ 2,935,240	\$ 3,001,689	\$ 3,110,049	\$ 3,180,931	\$ 3,233,418	\$ 3,319,856	\$ 3,430,425	\$ 3,467,648	\$ 3,577,849	\$ 3,664,435	\$ 3,785,223	\$ 3,851,962	\$ 3,946,688	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Cedar Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Reo Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Delta Solar	\$ 2,071,241	\$ 2,125,679	\$ 2,179,775	\$ 2,255,318	\$ 2,289,179	\$ 2,344,044	\$ 2,419,906	\$ 2,490,124	\$ 2,513,496	\$ 2,605,472	\$ 2,633,397	\$ 2,737,369	\$ 2,799,726	\$ 2,885,170	\$ 2,911,877	\$ 3,002,480	\$ 3,108,229	\$ 3,152,620	\$ 3,230,459	\$ 3,368,471	\$ 3,397,986
Community Solar	\$ 31,218	\$ 31,990	\$ 32,679	\$ 33,651	\$ 34,151	\$ 34,549	\$ 35,864	\$ 36,755	\$ 36,266	\$ 38,023	\$ 37,977	\$ 39,701	\$ 39,412	\$ 40,510	\$ 41,189	\$ 41,937	\$ 43,076	\$ 43,146	\$ 43,977	\$ 45,356	\$ 45,316
Pegasus Wind	\$ 4,832,819	\$ 10,576,306	\$ 10,806,092	\$ 10,899,541	\$ 11,152,903	\$ 11,252,975	\$ 11,401,970	\$ 11,639,005	\$ 11,834,136	\$ 11,926,829	\$ 12,172,382	\$ 12,344,787	\$ 12,633,706	\$ 12,666,508	\$ 12,846,864	\$ 13,164,223	\$ 13,301,150	\$ 13,449,850	\$ 13,630,961	\$ 13,707,748	\$ 13,778,535
Ranger Solar	\$ -	\$ 796,075	\$ 5,512,963	\$ 5,718,329	\$ 5,735,435	\$ 5,852,329	\$ 5,977,841	\$ 6,095,060	\$ 6,237,296	\$ 6,328,682	\$ 6,468,640	\$ 6,606,621	\$ 6,706,705	\$ 6,836,819	\$ 7,023,125	\$ 7,129,331	\$ 7,283,378	\$ 7,445,730	\$ 7,582,423	\$ 7,708,356	\$ 7,876,935
Calhoun Solar Energy Center	\$ -	\$ -	\$ 718,730	\$ 731,213	\$ 745,105	\$ 761,732	\$ 777,171	\$ 792,350	\$ 812,072	\$ 824,033	\$ 839,531	\$ 858,956	\$ 875,700	\$ 888,902	\$ 913,154	\$ 928,272	\$ 945,883	\$ 967,027	\$ 984,247	\$ 999,862	\$ 1,025,864
NextEra Solar	\$ -	\$ -	\$ -	\$ 1,629,816	\$ 1,652,721	\$ 1,665,368	\$ 1,728,549	\$ 1,771,589	\$ 1,751,921	\$ 1,846,395	\$ 1,842,985	\$ 1,918,540	\$ 1,924,493	\$ 1,975,341	\$ 2,009,975	\$ 2,055,677	\$ 2,108,020	\$ 2,126,464	\$ 2,178,041	\$ 2,249,944	\$ 2,258,245
DG - RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DG - C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
EE Legacy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
EE C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
EE RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DR C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DR RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Local Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New External Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New External Wind	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Battery Charge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Battery Discharge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CONS.LANS Purchase - BR	\$ 35,420,589	\$ 35,778,855	\$ 34,829,555	\$ 33,789,508	\$ 33,816,090	\$ 33,673,675	\$ 34,568,514	\$ 34,280,552	\$ 34,430,519	\$ 35,170,847	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CONS.LANS Purchase - METC	\$ 934,750	\$ 434,991	\$ 55,864	\$ 35,790	\$ 62,596	\$ 54,685	\$ 279,162	\$ 374,656	\$ 404,634	\$ 414,308	\$ 1,341,472	\$ 1,398,125	\$ 1,496,276	\$ 1,568,553	\$ 1,624,209	\$ 1,690,854	\$ 1,729,435	\$ 1,824,480	\$ 1,797,036	\$ 1,846,083	\$ 1,892,302
CONS.LANS Purchase	\$ 2,088,735	\$ 280,127	\$ 59,279	\$ 39,619	\$ 74,773	\$ 58,417	\$ 256,555	\$ 389,922	\$ 377,283	\$ 443,784	\$ 2,922,079	\$ 2,823,107	\$ 3,032,662	\$ 3,269,370	\$ 3,849,781	\$ 4,163,496	\$ 4,271,766	\$ 4,669,114	\$ 5,118,553	\$ 5,255,842	\$ 5,709,988
Emergency Energy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Dump Energy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CONS.LANS Sale	\$ (13,338,530)	\$ (32,118,908)	\$ (49,115,959)	\$ (46,259,762)	\$ (48,322,326)	\$ (46,959,822)	\$ (29,900,310)	\$ (27,659,525)	\$ (27,509,640)	\$ (28,541,521)	\$ (11,280,267)	\$ (9,388,228)	\$ (9,291,401)	\$ (8,489,966)	\$ (8,465,966)	\$ (7,249,726)	\$ (7,037,311)	\$ (5,403,423)	\$ (5,447,709)	\$ (4,876,819)	\$ (4,514,832)
DECO.BLR Sale	\$ (21,425,357)	\$ (21,499,876)	\$ (18,463,198)	\$ (17,421,337)	\$ (20,360,705)	\$ (17,368,997)	\$ (18,510,000)	\$ (20,736,152)	\$ (17,757,753)	\$ (18,035,746)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
External Renewable Sale	\$ (4,929,810)	\$ (9,214,193)	\$ (13,729,250)	\$ (13,260,237)	\$ (13,408,618)	\$ (13,730,765)	\$ (13,730,765)	\$ (13,646,551)	\$ (13,843,645)	\$ (14,019,958)	\$ (14,149,029)	\$ (13,319,809)	\$ (13,703,541)	\$ (13,369,578)	\$ (13,502,144)	\$ (11,698,886)	\$ (13,534,512)	\$ (13,122,840)	\$ (12,897,784)	\$ (12,561,495)	\$ (12,496,717)
Total Total Model Cost	\$ 96,262,060	\$ 95,044,199	\$ 94,269,183	\$ 100,773,588	\$ 100,800,317	\$ 104,740,755	\$ 96,719,281	\$ 98,435,996	\$ 100,358,971	\$ 101,944,377	\$ 78,842,609	\$ 82,240,759	\$ 85,250,104	\$ 87,884,274	\$ 89,377,637	\$ 90,226,251	\$ 90,922,680	\$ 94,353,133	\$ 96,273,990	\$ 99,437,488	\$ 88,503,094



Total Model Cost per MWh	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
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Erickson	\$ 53.47	\$ 56.40	\$ 60.70	\$ 67.27	\$ 62.53	\$ 64.66	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Belle River 1	\$ 50.05	\$ 55.78	\$ 71.23	\$ 62.70	\$ 63.09</																

IRP 3.0	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	
Summary of Modeling																						
Model Configuration and Constraints		Expansion Plan:																				
35% Clean Energy in 2025, 50% Clean Energy in 2030 Erickson Retires December 2025 and Dispatched Optimally 1% Annual Incremental Energy Efficiency Pegasus Online 7/1/2020 Regular Growth No Incentive for Electric Vehicles No Incentive for Customer Solar Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy Question Answered: What is the impact of increasing our clean energy goal to 50% through renewable energy?		2021: 10MW Solar C&I Bins 1, 2 & 3; Res Bins 1, 3 & 5 2022: 80MW Solar 2023: 26MW Solar 2025: Erickson Retirement 2030: 195MW Solar 2036: 50MW Solar																				
Post Processing Costs - Coal Penalties		2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Coal on Ground Year Start		200,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Coal Needed		229,038	208,545	182,111	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pile used first pile remaining		200,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ending Pile		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Deliveries Used		29,038	208,545	182,111	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Penalty Tons		370,962	191,455	217,889	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Erickson - Coal Penalties (PRB)		\$ 983,049	\$ 507,355	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Erickson - Rail Penalties (BNSF/CN)		\$ 4,305,440	\$ 2,289,613	\$ 2,685,893	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Post Processing Costs - Customer Programs		2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
EE C&I		\$ -	\$ 1,927,998	\$ 2,236,862	\$ 2,541,845	\$ 2,822,942	\$ 3,143,712	\$ 3,426,552	\$ 3,587,237	\$ 3,650,577	\$ 3,671,777	\$ 3,569,314	\$ 4,000,628	\$ 4,015,937	\$ 4,292,621	\$ 4,301,564	\$ 4,339,053	\$ 4,697,335	\$ 4,796,973	\$ 4,789,353	\$ 4,837,838	\$ 4,801,417
EE RES		\$ -	\$ 627,475	\$ 746,789	\$ 825,481	\$ 873,268	\$ 992,891	\$ 1,112,347	\$ 1,232,513	\$ 1,352,209	\$ 1,473,129	\$ 1,570,366	\$ 1,320,972	\$ 1,273,873	\$ 1,231,922	\$ 1,196,363	\$ 1,154,211	\$ 1,283,659	\$ 1,276,845	\$ 1,267,652	\$ 1,282,604	\$ 1,284,848
DR C&I		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DR RES		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DG - RES		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DG - C&I		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Electric Vehicles		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Post Processing Costs - Capital & FOM		2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
New Gas 1 - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 1 - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 2 - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 2 - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 3 - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 3 - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 1 - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 1 - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 2 - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 2 - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 3 - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 3 - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Local Solar - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Local Solar - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New External Solar - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New External Solar - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New External Wind - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New External Wind - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Battery - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Battery - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Post Processing Costs - Capacity Expense		PY 2020/21	PY 2021/22	PY 2022/23	PY 2023/24	PY 2024/25	PY 2025/26	PY 2026/27	PY 2027/28	PY 2028/29	PY 2029/30	PY 2030/31	PY 2031/32	PY 2032/33	PY 2033/34	PY 2034/35	PY 2035/36	PY 2036/37	PY 2037/38	PY 2038/39	PY 2039/40	PY 2040/41
Capacity Price - Purchase (\$/kW-Mo)		\$ 0.92	\$ 0.94	\$ 0.97	\$ 1.00	\$ 1.03	\$ 1.06	\$ 1.09	\$ 1.13	\$ 1.16	\$ 1.20	\$ 1.23	\$ 1.27	\$ 1.31	\$ 1.35	\$ 1.39	\$ 1.43	\$ 1.47	\$ 1.52	\$ 1.56	\$ 1.61	\$ 1.66
Capacity Price - Sale (\$/kW-Mo)		\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 1.00	\$ 0.98	\$ 0.96	\$ 0.96	\$ 0.96	\$ 0.88	\$ 0.88	\$ 0.88	\$ 0.88	\$ 0.88	\$ 0.73
Capacity Purchase		\$ 231,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Local Capacity Sale		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
External Capacity Sale		\$ -	\$ (1,050,932)	\$ (1,320,073)	\$ (1,320,073)	\$ (1,320,073)	\$ (1,320,073)	\$ (538,282)	\$ (551,099)	\$ (544,690)	\$ (615,180)	\$ (578,400)	\$ (599,760)	\$ (653,220)	\$ (664,680)	\$ (607,380)	\$ (620,090)	\$ (861,820)	\$ (861,820)	\$ (861,820)	\$ (861,820)	\$ (720,780)
Post Processing Costs - Transmission Expense		2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Transmission - BR - Total Annual MWs during Peak		1,799.3	1,771.8	1,753.7	1,744.9	1,711.8	1,703.3	1,710.1	1,704.1	1,692.5	1,698.1	-	-	-	-	-	-	-	-	-	-	-
Transmission - BR - Average Monthly MWs during Peak		149.9	147.7	146.1	145.4	142.7	141.9	142.5	142.0	141.0	141.5	-	-	-	-	-	-	-	-	-	-	-
Transmission - METC - Total Annual MWs during Peak		106.9	55.3	20.9	14.4	19.3	18.2	32.9	37.1	36.5	36.6	97.8	100.3	104.2	108.4	116.2	116.7	119.1	122.4	127.0	129.1	132.6
Transmission - METC - Average Monthly MWs during Peak		8.9	4.6	1.7	1.2	1.6	1.5	2.7	3.1	3.0	3.1	8.2	8.4	8.7	9.0	9.7	9.9	9.9	10.2	10.6	10.8	11.1
Transmission - Non-Entitlement - Total Annual MWs during Peak		412.1	101.6	24.8	16.6	23.9	21.7	35.9	34.6	38.2	29.3	148.9	172.4	163.9	189.0	193.9	198.6	212.6	205.1	218.8	200.5	227.6
Transmission - Non-Entitlement - Average Monthly MWs during Peak		34.3	8.5	2.1	1.4	2.0	1.8	3.0	2.9	3.2	2.4	12.4	14.4	13.7	15.8	16.2	16.5	17.7	17.1	18.2	16.7	19.0
PIP - CONS.LANS Purchase - BR - Fixed Expense		\$ 972,648	\$ 1,191,528	\$ 1,286,208	\$ 1,388,448	\$ 1,471,230	\$ 1,558,998	\$ 1,652,040	\$ 1,750,680	\$ 1,855,224	\$ 1,966,068	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
PIP - CONS.LANS Purchase - BR - Redirect Revenue		\$ (295)	\$ (13,993)	\$ (24,820)	\$ (31,852)	\$ (54,051)	\$ (62,793)	\$ (61,867)	\$ (69,927)	\$ (83,079)	\$ (83,478)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
NITS - CONS.LANS Purchase - BR - Fixed Expense		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
NITS - CONS.LANS Purchase - BR - Redirect Revenue		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
PIP - CONS.LANS Purchase - METC - Fixed Expense		\$ 119,908	\$ 138,678	\$ 146,823	\$ 155,606	\$ 162,755	\$ 170,322	\$ 178,334	\$ 186,818	\$ 195,799	\$ 205,308	\$ 215,378	\$ 226,042	\$ 237,337	\$ 249,299							

Model Configuration and Constraints
 35% Clean Energy in 2025, 50% Clean Energy in 2030 | Erickson Retires December 2025 and Dispatched Optimally | 1% Annual Incremental Energy Efficiency | Pegasus Online 7/1/2020 | Regular Growth | No Incentive for Electric Vehicles | No Incentive for Customer Solar | Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy | Question Answered: What is the impact of increasing our clean energy goal to 50% through renewable energy?

Expansion Plan:

2021: 10MW Solar | C&I Bins 1, 2 & 3; Res Bins 1, 3 & 5 | 2022: 80MW Solar | 2023: 26MW Solar | 2025: Erickson Retirement | 2030: 195MW Solar | 2036: 50MW Solar |

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	
Total Costs w/ Post Processing	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01	
Erickson	\$ 27,447,492	\$ 24,055,328	\$ 22,682,592	\$ 18,772,523	\$ 20,764,048	\$ 20,483,841	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Belle River 1	\$ 20,180,656	\$ 19,057,383	\$ 16,752,650	\$ 18,645,871	\$ 19,022,577	\$ 17,479,968	\$ 19,333,371	\$ 19,955,203	\$ 18,192,082	\$ 20,148,330	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Belle River 2	\$ 18,482,077	\$ 18,036,989	\$ 17,282,282	\$ 17,026,555	\$ 19,329,478	\$ 17,865,964	\$ 19,931,986	\$ 19,882,590	\$ 19,882,590	\$ 18,471,625	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Reo	\$ 20,347,837	\$ 20,006,866	\$ 17,953,362	\$ 17,833,790	\$ 17,816,826	\$ 17,825,274	\$ 18,054,055	\$ 18,209,682	\$ 18,437,822	\$ 18,974,936	\$ 20,674,469	\$ 20,335,066	\$ 20,858,759	\$ 20,835,218	\$ 20,963,790	\$ 21,070,122	\$ 21,386,915	\$ 21,418,046	\$ 21,803,256	\$ 22,089,918	\$ 22,499,465	
DEP CC	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DEP CT	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Gas 1	\$ -	\$ 3,816,786	\$ 3,739,714	\$ 3,615,308	\$ 3,553,201	\$ 3,407,670	\$ 2,529,109	\$ 2,164,442	\$ 2,240,103	\$ 2,349,528	\$ 2,686,915	\$ 2,470,484	\$ 2,512,443	\$ 2,427,629	\$ 2,460,552	\$ 2,443,225	\$ 2,422,002	\$ 2,348,590	\$ 2,444,093	\$ 2,417,440	\$ 2,426,474	
New Gas 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Gas 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Granger Wood Rd	\$ 5,498,401	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Granger Grand River	\$ 1,098,338	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Beebe 1b	\$ 2,810,094	\$ 2,881,790	\$ 2,935,240	\$ 3,001,689	\$ 3,110,049	\$ 3,180,931	\$ 3,233,418	\$ 3,319,856	\$ 3,430,425	\$ 3,467,648	\$ 3,577,849	\$ 3,664,435	\$ 3,785,223	\$ 3,851,962	\$ 3,946,688	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Cedar Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Reo Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Delta Solar	\$ 2,071,241	\$ 2,125,679	\$ 2,179,775	\$ 2,255,318	\$ 2,289,179	\$ 2,344,044	\$ 2,419,906	\$ 2,490,124	\$ 2,513,496	\$ 2,605,472	\$ 2,633,397	\$ 2,737,369	\$ 2,799,726	\$ 2,885,170	\$ 2,911,877	\$ 3,002,480	\$ 3,108,229	\$ 3,152,620	\$ 3,230,459	\$ 3,368,471	\$ 3,397,986	
Community Solar	\$ 31,218	\$ 31,990	\$ 32,679	\$ 33,651	\$ 34,151	\$ 34,549	\$ 35,864	\$ 36,755	\$ 36,266	\$ 38,023	\$ 37,977	\$ 39,701	\$ 39,412	\$ 40,510	\$ 41,189	\$ 41,937	\$ 43,076	\$ 43,977	\$ 45,356	\$ 45,356	\$ 45,316	
Pegasus Wind	\$ 4,832,819	\$ 10,576,306	\$ 10,806,092	\$ 10,899,541	\$ 11,152,903	\$ 11,252,975	\$ 11,401,970	\$ 11,639,005	\$ 11,834,136	\$ 11,926,829	\$ 12,172,382	\$ 12,344,787	\$ 12,633,706	\$ 12,666,508	\$ 12,846,864	\$ 13,164,223	\$ 13,301,150	\$ 13,449,850	\$ 13,630,961	\$ 13,707,748	\$ 13,707,748	\$ 13,707,748
Ranger Solar	\$ -	\$ 796,075	\$ 5,112,963	\$ 5,609,504	\$ 5,735,435	\$ 5,852,329	\$ 5,977,841	\$ 6,095,060	\$ 6,237,296	\$ 6,328,682	\$ 6,468,640	\$ 6,606,621	\$ 6,706,705	\$ 6,836,819	\$ 7,023,125	\$ 7,129,331	\$ 7,283,378	\$ 7,445,730	\$ 7,582,423	\$ 7,708,356	\$ 7,876,935	\$ 7,876,935
Calhoun Solar Energy Center	\$ -	\$ -	\$ 718,730	\$ 731,213	\$ 745,105	\$ 761,732	\$ 777,171	\$ 792,350	\$ 812,072	\$ 824,033	\$ 839,531	\$ 858,956	\$ 875,700	\$ 888,902	\$ 913,154	\$ 928,272	\$ 945,883	\$ 967,027	\$ 984,247	\$ 999,862	\$ 1,025,864	\$ 1,025,864
NextEra Solar	\$ -	\$ -	\$ -	\$ 1,629,816	\$ 1,652,721	\$ 1,665,368	\$ 1,728,549	\$ 1,771,589	\$ 1,751,921	\$ 1,846,395	\$ 1,842,985	\$ 1,918,540	\$ 1,924,493	\$ 1,975,341	\$ 2,009,975	\$ 2,055,677	\$ 2,108,020	\$ 2,126,464	\$ 2,178,041	\$ 2,249,944	\$ 2,258,245	\$ 2,258,245
DG - RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DG - C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
EE Legacy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
EE C&I	\$ -	\$ 1,927,998	\$ 2,236,862	\$ 2,541,845	\$ 2,822,942	\$ 3,143,712	\$ 3,426,552	\$ 3,587,237	\$ 3,650,577	\$ 3,671,777	\$ 3,569,314	\$ 4,000,628	\$ 4,015,937	\$ 4,292,621	\$ 4,301,564	\$ 4,339,053	\$ 4,697,335	\$ 4,796,973	\$ 4,789,353	\$ 4,837,838	\$ 4,801,417	
EE RES	\$ -	\$ 627,475	\$ 746,789	\$ 825,481	\$ 873,268	\$ 992,891	\$ 1,112,347	\$ 1,232,513	\$ 1,352,209	\$ 1,473,129	\$ 1,570,366	\$ 1,320,972	\$ 1,273,873	\$ 1,231,922	\$ 1,196,363	\$ 1,154,211	\$ 1,283,659	\$ 1,276,845	\$ 1,267,652	\$ 1,282,604	\$ 1,284,848	
DR C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DR RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Local Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New External Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New External Wind	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Battery Charge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Battery Discharge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CONS.LANS Purchase - BR	\$ 36,392,942	\$ 36,956,390	\$ 36,090,943	\$ 35,146,104	\$ 35,233,269	\$ 35,169,881	\$ 36,158,686	\$ 35,961,304	\$ 36,202,664	\$ 37,053,438	\$ 36,202,664	\$ 37,053,438	\$ 36,202,664	\$ 37,053,438	\$ 36,202,664	\$ 37,053,438	\$ 36,202,664	\$ 37,053,438	\$ 36,202,664	\$ 37,053,438	\$ 36,202,664	\$ 37,053,438
CONS.LANS Purchase - METC	\$ 1,028,336	\$ 507,730	\$ 107,756	\$ 85,582	\$ 118,878	\$ 112,647	\$ 352,835	\$ 455,758	\$ 488,995	\$ 502,950	\$ 1,499,845	\$ 1,567,103	\$ 1,678,300	\$ 1,764,870	\$ 1,840,749	\$ 1,919,066	\$ 1,972,934	\$ 2,085,598	\$ 2,079,211	\$ 2,146,640	\$ 2,214,932	
CONS.LANS Purchase	\$ 1,760,743	\$ 280,127	\$ 59,279	\$ 39,619	\$ 74,773	\$ 58,417	\$ 256,555	\$ 389,922	\$ 377,283	\$ 443,784	\$ 2,744,873	\$ 2,823,107	\$ 3,032,662	\$ 3,269,370	\$ 3,849,781	\$ 4,163,496	\$ 4,271,766	\$ 4,669,114	\$ 5,118,553	\$ 5,255,842	\$ 5,709,988	
Emergency Energy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Dump Energy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CONS.LANS Sale	\$ (13,338,530)	\$ (32,118,908)	\$ (49,115,959)	\$ (46,259,762)	\$ (48,322,326)	\$ (46,959,822)	\$ (29,900,310)	\$ (27,659,525)	\$ (27,509,640)	\$ (28,541,521)	\$ (11,280,267)	\$ (9,388,228)	\$ (9,291,401)	\$ (8,489,966)	\$ (8,465,966)	\$ (7,249,726)	\$ (7,037,311)	\$ (5,403,423)	\$ (5,447,709)	\$ (4,876,819)	\$ (4,514,832)	
DECO.BLR Sale	\$ (21,425,357)	\$ (21,499,876)	\$ (18,463,198)	\$ (17,421,337)	\$ (20,360,705)	\$ (17,368,997)	\$ (18,510,000)	\$ (20,736,152)	\$ (17,757,753)	\$ (18,035,746)	\$ (14,149,029)	\$ (13,319,809)	\$ (13,703,541)	\$ (13,369,578)	\$ (13,502,144)	\$ (11,698,886)	\$ (13,534,512)	\$ (13,122,840)	\$ (12,897,784)	\$ (12,561,495)	\$ (12,496,717)	
External Renewable Sale	\$ (4,929,810)	\$ (9,214,193)	\$ (13,729,250)	\$ (13,260,237)	\$ (13,363,618)	\$ (13,408,159)	\$ (13,730,765)	\$ (13,643,645)	\$ (13,843,645)	\$ (14,019,958)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Electric Vehicle Program	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Capacity Purchase	\$ 231,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Capacity Sale	\$ -	\$ (1,050,932)	\$ (1,320,073)	\$ (1,320,073)	\$ (1,320,073)	\$ (1,320,073)	\$ (538,282)	\$ (551,099)	\$ (544,690)	\$ (615,180)	\$ (578,400)	\$ (599,760)	\$ (653,220)	\$ (664,680)	\$ (607,380)	\$ (620,090)	\$ (861,820)	\$ (861,820)	\$ (861,820)	\$ (861,820)	\$ (720,780)	
Total Total Costs w/ Post Processing	\$ 102,519,497	\$ 100,595,981	\$ 99,931,934	\$ 104,227,449	\$ 104,649,915	\$ 109,111,451	\$ 102,383,745	\$ 104,466,502	\$ 106,673,573	\$ 108,445,336	\$ 98,574,179	\$ 101,992,660	\$ 104,601,760	\$ 107,145,455	\$ 108,361,684	\$ 						

IRP 3.0		2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	
Summary of Modeling																							
Model Configuration and Constraints		Expansion Plan:																					
35% Clean Energy in 2025, 50% Clean Energy in 2030 Erickson Retires December 2025 and Dispatched Optimally 1% Annual Incremental Energy Efficiency Pegasus Online 7/1/2020 Regular Growth No Incentive for Electric Vehicles No Incentive for Customer Solar Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy Question Answered: What is the impact of increasing our clean energy goal to 50% through renewable energy?		2021: 10MW Solar C&I Bins 1, 2 & 3; Res Bins 1, 3 & 5 2022: 80MW Solar 2023: 26MW Solar 2025: Erickson Retirement 2030: 195MW Solar 2036: 50MW Solar																					
Summary Metrics		2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01	
Total Cost		\$ 102,519,497	\$ 100,595,981	\$ 99,931,934	\$ 104,227,449	\$ 104,649,915	\$ 109,111,451	\$ 102,383,745	\$ 104,466,502	\$ 106,673,573	\$ 108,445,336	\$ 98,574,179	\$ 101,992,660	\$ 104,601,760	\$ 107,145,455	\$ 108,361,684	\$ 108,876,557	\$ 113,141,631	\$ 116,275,966	\$ 117,794,505	\$ 120,633,260	\$ 109,421,240	
Nominal Rates		\$ 48.60	\$ 45.01	\$ 44.90	\$ 47.05	\$ 47.51	\$ 49.87	\$ 47.16	\$ 48.49	\$ 49.92	\$ 51.06	\$ 46.68	\$ 48.50	\$ 49.95	\$ 51.26	\$ 51.94	\$ 52.28	\$ 54.37	\$ 55.80	\$ 56.45	\$ 57.67	\$ 52.19	
Accumulated Net Present Value Total Cost		\$ 102,519,497	\$ 198,636,429	\$ 289,867,512	\$ 380,783,428	\$ 468,003,403	\$ 554,892,779	\$ 632,794,424	\$ 708,741,654	\$ 782,840,424	\$ 854,815,861	\$ 917,326,777	\$ 979,125,697	\$ 1,039,683,516	\$ 1,098,952,060	\$ 1,156,224,478	\$ 1,211,206,844	\$ 1,265,799,063	\$ 1,319,405,574	\$ 1,371,294,166	\$ 1,422,067,208	\$ 1,466,070,688	
Accumulated NPV Retail Sales		2,109,624	4,245,003	6,276,983	8,209,394	10,045,298	11,787,743	13,439,751	15,006,051	16,490,546	17,900,198	19,239,213	20,513,301	21,725,748	22,882,018	23,984,592	25,036,274	26,040,445	27,001,211	27,920,416	28,800,771	29,643,858	
Accumulated NPV Rate Impact		\$ 48.60	\$ 46.79	\$ 46.18	\$ 46.38	\$ 46.59	\$ 47.07	\$ 47.08	\$ 47.23	\$ 47.47	\$ 47.75	\$ 47.68	\$ 47.73	\$ 47.85	\$ 48.03	\$ 48.21	\$ 48.38	\$ 48.61	\$ 48.86	\$ 49.11	\$ 49.38	\$ 49.46	
Risk Premium		\$ 16,038,820	\$ 23,741,506	\$ 33,403,319	\$ 31,097,209	\$ 30,907,906	\$ 29,701,761	\$ 24,474,492	\$ 20,942,788	\$ 20,829,440	\$ 25,107,102	\$ 17,769,491	\$ 12,316,648	\$ 16,818,591	\$ 15,152,829	\$ 16,183,516	\$ 12,794,101	\$ 14,968,398	\$ 14,078,553	\$ 10,816,703	\$ 11,187,361	\$ 8,853,464	
Present Value of Risk Premium		\$ 16,038,820	\$ 22,684,413	\$ 30,494,966	\$ 27,125,592	\$ 25,760,048	\$ 23,652,582	\$ 18,622,128	\$ 15,225,424	\$ 14,468,774	\$ 16,663,645	\$ 11,268,541	\$ 7,462,846	\$ 9,736,903	\$ 8,381,934	\$ 8,553,476	\$ 6,460,986	\$ 7,222,435	\$ 6,490,611	\$ 4,764,768	\$ 4,708,622	\$ 3,560,398	
Accumulated NPV Risk Premium		\$ 16,038,820	\$ 38,723,233	\$ 69,218,199	\$ 96,343,790	\$ 122,103,838	\$ 145,756,420	\$ 164,378,548	\$ 179,603,972	\$ 194,072,746	\$ 210,736,391	\$ 222,004,933	\$ 229,467,779	\$ 239,204,682	\$ 247,586,615	\$ 256,140,091	\$ 262,601,078	\$ 269,823,513	\$ 276,314,124	\$ 281,078,892	\$ 285,787,513	\$ 289,347,912	
Total Cost with Risk Premium		\$ 118,558,317	\$ 124,337,487	\$ 133,335,252	\$ 135,324,658	\$ 135,557,821	\$ 138,813,213	\$ 126,858,237	\$ 125,409,291	\$ 127,503,012	\$ 133,552,439	\$ 116,343,671	\$ 114,309,308	\$ 121,420,351	\$ 122,298,284	\$ 124,545,200	\$ 121,670,657	\$ 128,110,030	\$ 130,354,519	\$ 128,611,207	\$ 131,820,621	\$ 118,274,703	
Present Value of Total Cost with Risk Premium		\$ 118,558,317	\$ 118,801,345	\$ 121,726,049	\$ 118,041,507	\$ 112,980,023	\$ 110,541,958	\$ 96,523,773	\$ 91,172,654	\$ 88,567,544	\$ 88,639,082	\$ 73,779,458	\$ 69,261,766	\$ 70,294,722	\$ 67,650,478	\$ 65,825,894	\$ 61,443,352	\$ 61,814,654	\$ 60,097,122	\$ 56,653,359	\$ 55,481,664	\$ 47,563,878	
Accumulated NPV Total Cost with Risk Premium		\$ 118,558,317	\$ 237,359,662	\$ 359,085,711	\$ 477,127,218	\$ 590,107,241	\$ 700,649,199	\$ 797,172,972	\$ 888,345,626	\$ 976,913,170	\$ 1,065,552,252	\$ 1,139,331,709	\$ 1,208,593,476	\$ 1,278,888,198	\$ 1,346,538,675	\$ 1,412,364,570	\$ 1,473,807,922	\$ 1,535,622,576	\$ 1,595,719,698	\$ 1,652,373,058	\$ 1,707,854,721	\$ 1,755,418,600	
Percent Dispatchable Generation		70.2%	78.9%	71.8%	69.5%	69.1%	68.7%	62.3%	61.9%	61.5%	61.1%	40.9%	40.7%	40.5%	40.3%	40.2%	38.6%	38.5%	38.4%	38.3%	38.2%		
Resource Diversity		0.66	0.50	0.57	0.59	0.60	0.60	0.55	0.55	0.56	0.56	0.52	0.52	0.53	0.53	0.52	0.53	0.53	0.53	0.53	0.53		
Annual CO2 Emissions - Tons		1,493,739	1,736,476	1,808,496	1,763,622	1,882,848	1,772,835	1,316,234	1,359,765	1,227,689	1,221,209	871,927	855,486	843,092	829,229	810,648	797,491	786,102	773,453	768,884	762,121	755,906	
Accumulated CO2 Emissions - Tons		1,493,739	3,230,216	5,038,712	6,802,334	8,685,183	10,458,017	11,774,251	13,134,016	14,361,704	15,582,913	16,454,841	17,310,326	18,153,418	18,982,647	19,793,295	20,590,786	21,376,888	22,150,341	22,919,225	23,681,346	24,437,252	
Average CO2 Emissions per Year - Tons		1,493,739	1,615,108	1,679,571	1,700,584	1,737,037	1,743,003	1,682,036	1,641,752	1,595,745	1,558,291	1,495,895	1,442,527	1,396,417	1,355,903	1,319,553	1,286,924	1,257,464	1,230,574	1,206,275	1,184,067	1,163,679	
Annual CO2 Intensity - lbs/MWh Generated		1,331.2	1,132.5	991.4	954.6	989.6	955.1	842.6	868.1	818.3	806.2	540.7	531.8	526.8	521.1	514.3	517.8	500.7	496.7	494.8	492.1	490.1	
Total CO2 Emissions Reduced from 2005		65.8%	60.3%	58.6%	59.6%	56.9%	59.4%	69.9%	68.9%	71.9%	72.0%	80.0%	80.4%	80.7%	81.0%	81.4%	82.0%	82.3%	82.4%	82.6%	82.7%	82.7%	
CO2 Intensity Reduced from 2005		42.3%	50.9%	57.0%	58.6%	57.1%	58.6%	63.5%	62.4%	64.5%	65.1%	76.6%	77.0%	77.2%	77.4%	77.6%	77.6%	78.3%	78.5%	78.6%	78.7%	78.8%	
Annual NOx Emissions - Tons		1,012	964	852	807	910	829	567	630	539	530	149	144	141	133	131	128	125	125	123	122		
Accumulated NOx Emissions - Tons		1,012	1,976	2,829	3,636	4,546	5,375	5,943	6,573	7,112	7,643	7,792	7,936	8,077	8,214	8,347	8,478	8,605	8,730	8,855	8,978	9,100	
Average NOx Emissions per Year - Tons		1,012	988	943	909	909	896	849	822	790	764	708	661	621	587	556	530	506	485	466	449	433	
Annual NOx Intensity - lbs/MWh Generated		0.9	0.6	0.5	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
Total NOx Emissions Reduced from 2005		76.9%	78.0%	80.5%	81.5%	79.2%	81.1%	87.0%	85.6%	87.7%	87.9%	96.6%	96.7%	96.8%	96.9%	97.0%	97.0%	97.1%	97.1%	97.1%	97.2%	97.2%	
NOx Intensity Reduced from 2005		61.0%	72.8%	79.8%	81.1%	79.3%	80.7%	84.3%	82.6%	84.4%	84.8%	96.0%	96.1%	96.2%	96.3%	96.3%	96.3%	96.5%	96.5%	96.5%	96.6%	96.6%	
Annual SO2 Emissions - Tons		3,190	2,835	2,415	2,261	2,638	2,369	1,558	1,812	1,496	1,456	9	9	9	8	8	8	8	8	8	8	8	
Accumulated SO2 Emissions - Tons		3,190	6,025	8,440	10,701	13,339	15,708	17,266	19,078	20,574	22,030	22,039	22,047	22,056	22,065	22,073	22,081	22,089	22,097	22,105	22,113	22,120	
Average SO2 Emissions per Year - Tons		3,190	3,012	2,813	2,675	2,668	2,813	2,467	2,385	2,286	2,203	2,004	2,047	1,997	1,976	1,972	1,969	1,967	1,966	1,965	1,964	1,963	
Annual SO2 Intensity - lbs/MWh Generated		2.8	1.8	1.3	1.2	1.4	1.3	1.0	1.2	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total SO2 Emissions Reduced from 2005		71.2%	74.4%	78.2%	79.6%	76.2%	78.6%	85.9%	83.6%	86.5%	86.8%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	
SO2 Intensity Reduced from 2005		51.4%	68.4%	77.4%	79.1%	76.3%	78.2%	82.9%	80.2%	82.9%	83.6%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	
Renewable Energy MWh %		14%	16%	23%	25%	25%	25%	25%	26%	26%	26%	40%	40%	40%	40%	41%	38%	42%	42%	42%	42%	42%	
Renewable Energy RPS %		32%	19%	26%	28%	28%	28%	29%	29%	29%	29%	43%	44%	44%	44%	44%	41%	45%	45%	45%	45%	45%	
Energy Efficiency %		10%	10%	11%	12%	13%	14%	15%	16%	17%	18%	19%	19%	20%	20%	21%	21%	22%	22%	22%	22%	22%	
Clean Energy %		39%	28%	34%	37%	38%	38%	39%	40%	41%	42%	54%	55%	55%	55%	56%	54%	57%	57%	57%	57%	57%	

3.1 v1: Model Configuration & Constraints

35% Clean Energy in 2025

50% Clean Energy in 2030

Erickson Retires December 2025 and Dispatched Optimally

Max Annual Incremental Energy Efficiency

Pegasus Online 7/1/2020

Regular Growth

No Incentive for Electric Vehicles

No Incentive for Customer Solar

Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy

Expansion Plan

2021: 10MW Solar | C&I Bins 1, 2, 3, 4 & 5; Res Bins 1, 2, 3, 4 & 5

2022: 80MW Solar

2023: 26MW Solar

2025: Erickson Retirement

2030: 170.3MW Solar

2036: 20MW Solar

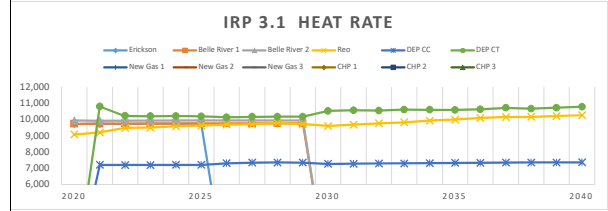
IRP 3.1

Summary of Modeling

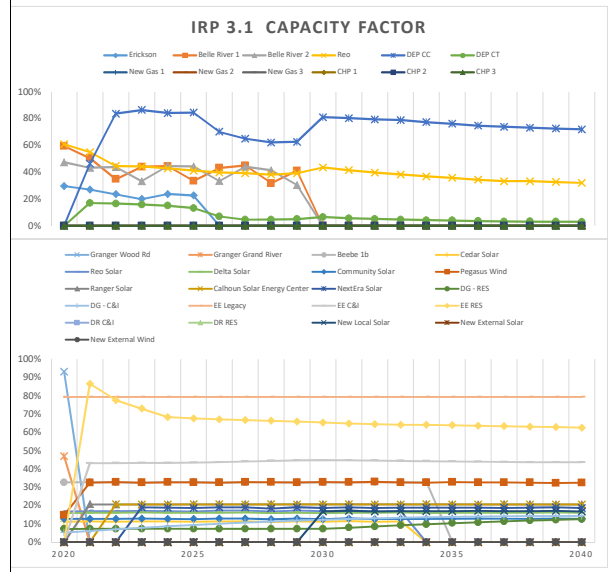
Model Configuration and Constraints
 35% Clean Energy in 2025, 50% Clean Energy in 2030 | Erickson Retires December 2025 and Dispatched Optimally | Max Annual Incremental Energy Efficiency | Pegasus Online 7/1/2020 | Regular Growth | No Incentive for Electric Vehicles | No Incentive for Customer Solar | Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy | Question Answered: What is the impact of increasing our clean energy goal to 50% through energy efficiency and renewable

Expansion Plan:
 2021: 10MW Solar | C&I Bins 1, 2, 3, 4 & 5; Res Bins 1, 2, 3, 4 & 5 |
 2022: 80MW Solar | 2023: 26MW Solar | 2025: Erickson Retirement |
 2030: 170.3MW Solar | 2036: 20MW Solar |

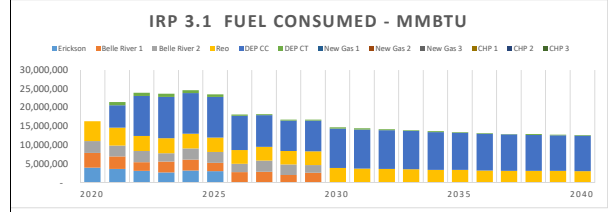
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
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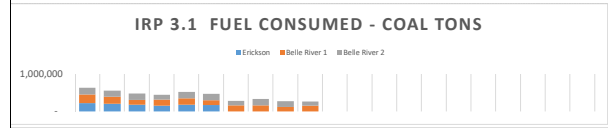
Heat Rate	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Erickson	9,727	9,737	9,729	9,739	9,733	9,734	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Belle River 1	9,728	9,739	9,749	9,748	9,749	9,753	9,754	9,756	9,756	9,761	--	--	--	--	--	--	--	--	--	--	--
Belle River 2	9,929	9,913	9,924	9,937	9,927	9,931	9,933	9,933	9,931	9,938	--	--	--	--	--	--	--	--	--	--	--
Reo	9,072	9,203	9,483	9,497	9,574	9,623	9,684	9,701	9,772	9,713	9,598	9,672	9,769	9,827	9,929	9,993	10,085	10,148	10,161	10,214	10,267
DEP CC	--	7,199	7,188	7,192	7,205	7,203	7,303	7,337	7,356	7,340	7,263	7,275	7,288	7,294	7,309	7,320	7,335	7,341	7,345	7,351	7,357
DEP CT	--	10,798	10,216	10,202	10,207	10,189	10,128	10,160	10,171	10,174	10,530	10,564	10,542	10,598	10,591	10,585	10,627	10,715	10,659	10,726	10,779
New Gas 1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Gas 2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Gas 3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--



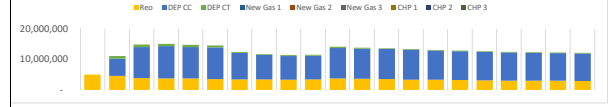
Capacity Factor	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Erickson	30%	27%	24%	20%	24%	23%	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Belle River 1	60%	51%	35%	44%	45%	34%	43%	45%	32%	41%	--	--	--	--	--	--	--	--	--	--	--
Belle River 2	47%	43%	44%	33%	44%	44%	33%	44%	41%	31%	--	--	--	--	--	--	--	--	--	--	--
Reo	61%	55%	45%	44%	43%	41%	40%	39%	38%	39%	44%	42%	40%	38%	37%	36%	34%	33%	33%	33%	32%
DEP CC	--	46%	84%	87%	84%	85%	70%	65%	62%	63%	81%	80%	80%	79%	77%	76%	73%	74%	73%	73%	72%
DEP CT	--	17%	17%	16%	15%	13%	7%	5%	5%	5%	7%	5%	5%	5%	4%	4%	4%	3%	3%	3%	3%
New Gas 1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Gas 2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Gas 3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Granger Wood Rd	93%	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Granger Grand River	47%	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beebe 1b	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	--	--	--	--	--	--
Cedar Solar	11%	11%	11%	11%	11%	11%	11%	12%	11%	12%	11%	12%	11%	11%	--	--	--	--	--	--	--
Reo Solar	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	--	--	--	--	--	--	--
Delta Solar	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%
Community Solar	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%
Pegasus Wind	15%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	32%	33%
Ranger Solar	--	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%
Calhoun Solar Energy Center	--	--	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%
NextEra Solar	--	--	--	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%
DG-RES	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%
DG-C&I	5%	6%	7%	8%	9%	10%	10%	11%	11%	12%	12%	13%	13%	14%	14%	14%	14%	14%	14%	14%	14%
EE Legacy	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%
EE C&I	--	43%	43%	43%	43%	44%	44%	44%	45%	45%	45%	45%	45%	45%	44%	44%	44%	44%	44%	44%	44%
EE RES	--	87%	78%	73%	68%	68%	67%	67%	67%	66%	66%	65%	65%	64%	64%	64%	64%	63%	63%	63%	63%
DR C&I	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
DR RES	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Local Solar	--	--	--	--	--	--	--	--	--	--	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%
New External Solar	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New External Wind	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--



Fuel Consumed - MMBtu	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Erickson	4,034,735	3,666,986	3,204,112	2,719,946	3,234,035	3,077,465	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Belle River 1	3,922,042	3,327,200	2,292,931	2,899,147	2,939,687	2,208,563	2,843,686	2,964,342	2,100,283	2,706,917	-	-	-	-	-	-	-	-	-	-	-
Belle River 2	3,188,106	2,901,844	2,935,689	2,229,383	2,998,658	2,970,150	2,238,284	2,951,718	2,782,277	2,045,004	-	-	-	-	-	-	-	-	-	-	-
Reo	5,266,114	4,814,196	4,025,834	4,001,208	3,916,841	3,766,325	3,661,786	3,622,142	3,555,243	3,616,693	3,981,021	3,820,783	3,702,604	3,583,940	3,478,122	3,402,430	3,302,707	3,216,587	3,220,588	3,174,340	3,132,736
DEP CC	-	5,930,904	10,694,677	11,051,362	10,814,709	10,828,070	9,113,863	8,481,743	8,150,658	8,178,775	10,469,492	10,397,596	10,325,758	10,225,119	10,051,324	9,916,415	9,775,127	9,649,565	9,554,491	9,484,341	9,432,684
DEP CT	-	920,905	850,416	812,635	771,038	674,920	351,374	236,855	233,038	251,939	344,291	290,268	265,358	241,161	220,202	214,600	187,218	165,018	177,418	164,101	155,220
New Gas 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Gas 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHP 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Fuel Consumed - Coal Tons	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Erickson	229,246	208,351	182,052	154,542	183,752	174,856	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Belle River 1	222,843	189,045	130,280	164,724	167,028	125,487	161,573	168,428	119,334	153,802	-	-	-	-	-	-	-	-	-	-	-
Belle River 2	181,142	164,877	166,801	126,670	170,378	168,759	127,175	167,711	158,084	116,193	-	-	-	-	-	-	-	-	-	-	-



Fuel Consumed - Gas Mcf	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Reo	5,029,718	4,598,086	3,845,114	3,821,593	3,741,014	3,597,254	3,497,408	3,459,544	3,395,648	3,454,339	3,802,3										

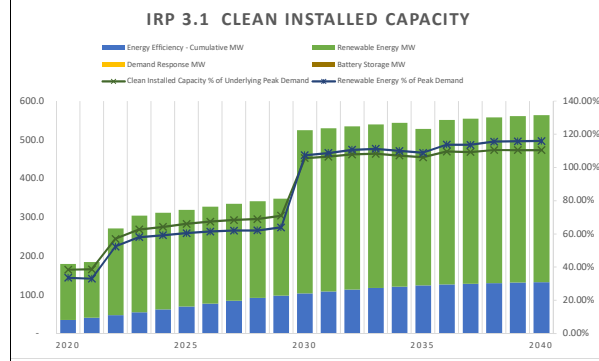
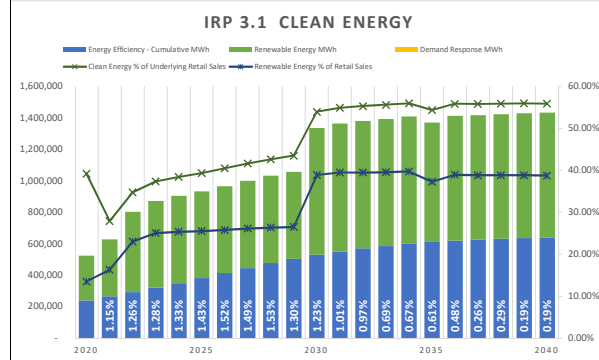
IRP 3.1

Summary of Modeling

Model Configuration and Constraints
 35% Clean Energy in 2025, 50% Clean Energy in 2030 | Erickson Retires December 2025 and Dispatched Optimally | Max Annual Incremental Energy Efficiency | Pegasus Online 7/1/2020 | Regular Growth | No Incentive for Electric Vehicles | No Incentive for Customer Solar | Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy | Question Answered: What is the impact of increasing our clean energy goal to 50% through energy efficiency and renewable

Expansion Plan:
 2021: 10MW Solar | C&I Bins 1, 2, 3, 4 & 5; Res Bins 1, 2, 3, 4 & 5 |
 2022: 80MW Solar | 2023: 26MW Solar | 2025: Erickson Retirement |
 2030: 170.3MW Solar | 2036: 20MW Solar |

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Clean Energy	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Renewable Energy MWh	285,558	363,422	510,187	551,630	554,141	552,125	552,511	554,469	554,257	552,790	804,320	812,922	809,397	808,327	810,242	758,245	791,424	789,972	790,486	792,495	792,568
Renewable Energy % of Retail Sales	13.54%	16.31%	23.04%	25.09%	25.40%	25.53%	25.79%	26.13%	26.38%	26.51%	38.85%	39.47%	39.50%	39.55%	39.75%	37.28%	38.96%	38.85%	38.83%	38.85%	38.77%
Renewable Energy % of Underlying Retail Sales	12.16%	14.57%	20.35%	21.89%	21.89%	21.70%	21.62%	21.60%	21.49%	21.35%	30.93%	31.14%	30.90%	30.75%	30.73%	28.67%	29.84%	29.71%	29.64%	29.62%	29.53%
Renewable Energy RPS	682,092	431,576	578,371	620,462	622,311	620,215	621,084	623,319	622,051	621,362	871,927	881,490	877,812	877,108	877,616	826,021	859,879	857,715	858,193	861,380	860,373
Renewable Energy % of Retail Sales	32.33%	19.36%	26.12%	28.22%	28.52%	28.67%	28.99%	29.37%	29.60%	29.80%	42.12%	42.80%	42.84%	42.92%	43.06%	40.62%	42.33%	42.18%	42.16%	42.22%	42.08%
Renewable Energy % of Underlying Retail Sales	29.04%	17.31%	23.07%	24.62%	24.58%	24.30%	24.30%	24.28%	24.12%	23.99%	33.53%	33.77%	33.51%	33.37%	33.28%	31.24%	32.42%	32.25%	32.17%	32.19%	32.05%
Energy Efficiency - Cumulative MWh	239,413	264,975	292,946	321,013	350,127	380,991	413,655	445,340	477,408	504,530	529,947	550,694	570,510	584,683	598,430	610,806	620,652	625,845	631,703	635,631	639,604
Energy Efficiency - Cumulative % of Underlying Retail Sales	10.19%	10.63%	11.68%	12.74%	13.83%	14.98%	16.18%	17.35%	18.51%	19.48%	20.38%	21.10%	21.78%	22.24%	22.70%	23.10%	23.40%	23.53%	23.68%	23.76%	23.83%
Energy Efficiency - Annual Incremental MWh	-	25,562	27,971	28,067	29,114	30,864	32,664	31,685	32,068	27,122	25,417	20,747	19,816	14,173	13,748	12,376	9,846	5,193	5,858	3,928	3,973
Energy Efficiency - Annual Incremental % of Retail Sales	-	1.15%	1.26%	1.28%	1.33%	1.43%	1.52%	1.49%	1.53%	1.30%	1.23%	1.01%	0.97%	0.69%	0.67%	0.61%	0.26%	0.29%	0.29%	0.19%	0.19%
Energy Efficiency - Annual Incremental % of Underlying Retail Sales	-	1.03%	1.12%	1.11%	1.15%	1.21%	1.28%	1.23%	1.24%	1.05%	0.98%	0.79%	0.76%	0.54%	0.52%	0.47%	0.37%	0.20%	0.22%	0.15%	0.15%
Demand Response MWh	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Demand Response % of Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Demand Response % of Underlying Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Clean Energy Credits	921,505	696,550	871,317	941,475	972,437	1,001,206	1,034,739	1,068,658	1,099,459	1,125,892	1,401,874	1,432,184	1,448,321	1,461,790	1,476,046	1,436,827	1,480,531	1,483,560	1,489,896	1,497,011	1,499,977
Clean Energy % of Underlying Retail Sales	39.23%	27.93%	34.75%	37.36%	38.41%	39.36%	40.48%	41.62%	42.63%	43.48%	53.92%	54.87%	55.29%	55.61%	55.98%	54.33%	55.83%	55.79%	55.86%	55.95%	55.88%
Clean Installed Capacity	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Renewable Energy MW	145.0	143.8	223.8	249.8	249.8	249.9	250.0	250.1	250.2	250.3	420.8	421.2	421.6	422.2	422.7	404.3	425.3	426.4	427.9	429.6	431.6
Renewable Energy % of Peak Demand	33.57%	33.02%	52.36%	58.03%	59.14%	60.45%	61.37%	61.96%	62.12%	63.93%	107.40%	108.72%	110.68%	111.28%	109.98%	108.86%	113.77%	113.60%	115.54%	115.73%	115.98%
Renewable Energy % of Underlying Peak Demand	31.05%	30.17%	47.07%	51.45%	51.53%	51.69%	51.52%	51.16%	50.55%	51.06%	84.78%	84.73%	85.11%	84.75%	83.38%	81.23%	84.57%	84.11%	84.82%	84.69%	84.63%
Energy Efficiency - Cumulative MW	34.3	40.4	47.2	54.3	61.5	69.2	76.9	84.2	91.1	97.5	103.3	108.3	112.8	116.9	120.4	123.8	126.0	128.0	129.8	130.9	131.7
Energy Efficiency - Cumulative % of Underlying Peak Demand	7.35%	8.48%	9.93%	11.17%	12.68%	14.31%	15.86%	17.23%	18.41%	19.89%	20.82%	21.78%	22.77%	23.46%	23.76%	24.87%	25.06%	25.25%	25.73%	25.80%	25.82%
Energy Efficiency - Annual Incremental MW	-	6.1	6.8	7.0	7.2	7.7	7.8	7.2	6.9	6.4	5.8	5.0	4.5	4.1	3.6	3.3	2.3	2.0	1.8	1.1	0.8
Energy Efficiency - Annual Incremental % of Peak Demand	-	1.41%	1.59%	1.63%	1.71%	1.86%	1.90%	1.80%	1.72%	1.64%	1.48%	1.28%	1.19%	1.07%	0.93%	0.89%	0.60%	0.53%	0.48%	0.29%	0.22%
Energy Efficiency - Annual Incremental % of Underlying Peak Demand	-	1.29%	1.43%	1.45%	1.49%	1.59%	1.60%	1.48%	1.40%	1.31%	1.17%	1.00%	0.91%	0.81%	0.71%	0.67%	0.45%	0.39%	0.35%	0.21%	0.16%
Demand Response MW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Demand Response % of Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Demand Response % of Underlying Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Battery Storage MW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Battery Storage % of Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Battery Storage % of Underlying Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Clean Installed Capacity MW	179	184	271	304	311	319	327	334	341	348	524	529	534	539	543	528	551	554	558	560	563
Clean Installed Capacity % of Underlying Peak Demand	38.40%	38.65%	57.00%	62.62%	64.21%	66.00%	67.38%	68.38%	68.96%	70.96%	105.59%	106.51%	107.88%	108.21%	107.14%	106.10%	109.63%	109.36%	110.55%	110.49%	110.44%



IRP 3.1

Summary of Modeling

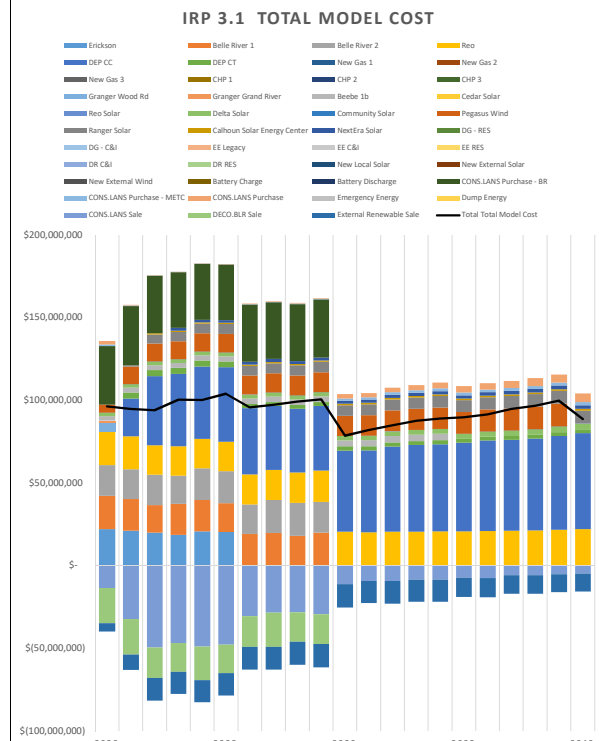
Model Configuration and Constraints
 35% Clean Energy in 2025, 50% Clean Energy in 2030 | Erickson Retires December 2025 and Dispatched Optimally | Max Annual Incremental Energy Efficiency | Pegasus Online 7/1/2020 | Regular Growth | No Incentive for Electric Vehicles | No Incentive for Customer Solar | Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy | Question Answered: What is the impact of increasing our clean energy goal to 50% through energy efficiency and renewable

Expansion Plan:

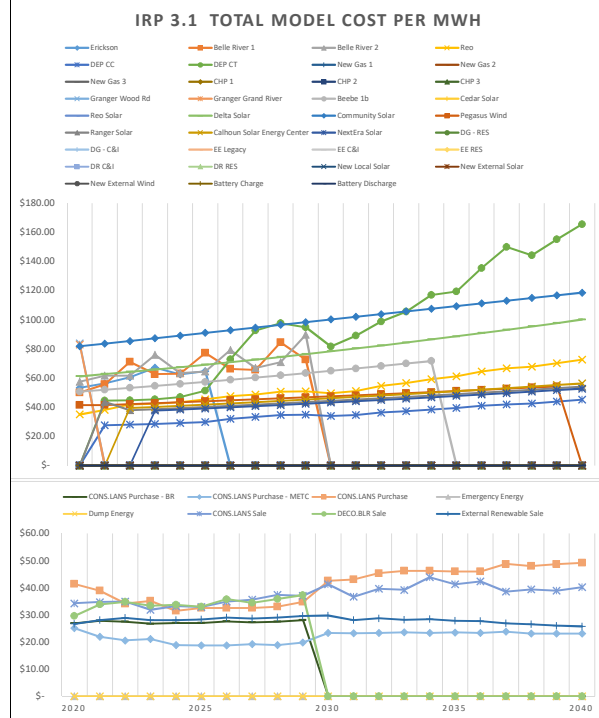
2021: 10MW Solar | C&I Bins 1, 2, 3, 4 & 5 | Res Bins 1, 2, 3, 4 & 5 |
 2022: 80MW Solar | 2023: 26MW Solar | 2025: Erickson Retirement |
 2030: 170.3MW Solar | 2036: 20MW Solar |

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
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Total Model Cost	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Erickson	\$ 22,170,274	\$ 21,248,164	\$ 19,993,088	\$ 18,779,338	\$ 20,770,578	\$ 20,462,597	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Belle River 1	\$ 20,180,467	\$ 19,057,383	\$ 16,752,597	\$ 18,645,871	\$ 19,022,577	\$ 17,479,968	\$ 19,333,282	\$ 19,955,203	\$ 18,192,186	\$ 20,148,330	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Belle River 2	\$ 18,481,891	\$ 18,036,989	\$ 18,282,341	\$ 17,026,555	\$ 19,167,369	\$ 17,865,860	\$ 19,931,986	\$ 19,882,706	\$ 18,471,625	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Reo	\$ 20,347,015	\$ 19,996,626	\$ 17,791,177	\$ 17,832,816	\$ 17,814,228	\$ 17,822,367	\$ 18,044,113	\$ 18,194,818	\$ 18,424,576	\$ 18,966,300	\$ 20,563,803	\$ 20,209,060	\$ 20,724,327	\$ 20,666,893	\$ 20,789,220	\$ 20,889,674	\$ 21,131,643	\$ 21,144,857	\$ 21,521,848	\$ 21,814,096	\$ 22,178,138
DEP CC	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DEP CT	\$ -	\$ 3,806,710	\$ 3,736,975	\$ 3,613,926	\$ 3,552,399	\$ 3,406,838	\$ 2,527,075	\$ 2,162,758	\$ 2,238,730	\$ 2,347,995	\$ 2,673,203	\$ 2,452,151	\$ 2,489,058	\$ 2,404,441	\$ 2,432,015	\$ 2,420,965	\$ 2,387,956	\$ 2,310,628	\$ 2,400,504	\$ 2,375,236	\$ 2,385,240
New Gas 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Granger Wood Rd	\$ 5,498,401	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Granger Grand River	\$ 1,098,338	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Beebe 1b	\$ 2,810,094	\$ 2,881,790	\$ 2,935,240	\$ 3,001,689	\$ 3,110,049	\$ 3,180,931	\$ 3,233,418	\$ 3,319,856	\$ 3,430,425	\$ 3,467,648	\$ 3,577,849	\$ 3,664,435	\$ 3,785,223	\$ 3,851,962	\$ 3,946,688	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Cedar Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Reo Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Delta Solar	\$ 2,071,241	\$ 2,125,679	\$ 2,179,775	\$ 2,255,318	\$ 2,289,179	\$ 2,344,044	\$ 2,419,906	\$ 2,490,124	\$ 2,513,496	\$ 2,605,472	\$ 2,633,397	\$ 2,737,369	\$ 2,799,726	\$ 2,885,170	\$ 2,911,877	\$ 3,002,480	\$ 3,108,229	\$ 3,152,620	\$ 3,230,459	\$ 3,368,471	\$ 3,397,986
Community Solar	\$ 31,218	\$ 31,990	\$ 32,679	\$ 33,651	\$ 34,151	\$ 34,549	\$ 35,864	\$ 36,755	\$ 36,266	\$ 38,023	\$ 37,977	\$ 39,701	\$ 39,412	\$ 40,510	\$ 41,189	\$ 41,937	\$ 43,076	\$ 43,146	\$ 43,977	\$ 45,356	\$ 45,316
Pegasus Wind	\$ 4,832,819	\$ 10,576,306	\$ 10,806,092	\$ 10,899,541	\$ 11,152,903	\$ 11,252,975	\$ 11,401,970	\$ 11,639,005	\$ 11,834,136	\$ 11,926,829	\$ 12,172,382	\$ 12,344,787	\$ 12,633,706	\$ 12,666,508	\$ 12,846,864	\$ 13,164,223	\$ 13,301,150	\$ 13,449,850	\$ 13,630,961	\$ 13,707,748	\$ 13,778,935
Ranger Solar	\$ -	\$ 796,075	\$ 5,512,963	\$ 5,512,963	\$ 5,735,435	\$ 5,735,435	\$ 5,977,841	\$ 6,095,060	\$ 6,237,296	\$ 6,328,682	\$ 6,468,640	\$ 6,606,621	\$ 6,706,705	\$ 6,836,819	\$ 7,023,125	\$ 7,129,331	\$ 7,283,378	\$ 7,445,730	\$ 7,582,423	\$ 7,708,356	\$ 7,876,935
Calhoun Solar Energy Center	\$ -	\$ -	\$ 718,730	\$ 731,213	\$ 745,105	\$ 761,732	\$ 777,171	\$ 792,350	\$ 812,072	\$ 824,033	\$ 839,531	\$ 858,956	\$ 875,700	\$ 888,902	\$ 913,154	\$ 928,272	\$ 945,883	\$ 967,027	\$ 984,247	\$ 999,862	\$ 1,025,864
NextEra Solar	\$ -	\$ -	\$ -	\$ 1,629,816	\$ 1,652,721	\$ 1,665,368	\$ 1,728,549	\$ 1,771,589	\$ 1,751,921	\$ 1,846,395	\$ 1,842,985	\$ 1,918,540	\$ 1,924,493	\$ 1,975,341	\$ 2,009,975	\$ 2,055,677	\$ 2,108,020	\$ 2,126,464	\$ 2,178,041	\$ 2,249,944	\$ 2,258,245
DG - RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DG - C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
EE Legacy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
EE C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
EE RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DR C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DR RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Local Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New External Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New External Wind	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Battery Charge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Battery Discharge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CONS.LANS Purchase - BR	\$ 35,420,437	\$ 35,777,500	\$ 34,821,628	\$ 33,781,081	\$ 33,797,482	\$ 33,655,537	\$ 34,546,229	\$ 34,250,780	\$ 34,393,037	\$ 35,141,100	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CONS.LANS Purchase - METC	\$ 934,368	\$ 430,929	\$ 54,553	\$ 34,307	\$ 59,921	\$ 52,425	\$ 278,583	\$ 370,593	\$ 400,791	\$ 412,265	\$ 1,332,230	\$ 1,388,627	\$ 1,485,556	\$ 1,560,512	\$ 1,610,780	\$ 1,676,195	\$ 1,683,823	\$ 1,788,593	\$ 1,756,388	\$ 1,815,291	\$ 1,858,015
CONS.LANS Purchase	\$ 2,088,345	\$ 271,339	\$ 60,447	\$ 38,989	\$ 68,944	\$ 53,904	\$ 248,785	\$ 370,214	\$ 361,248	\$ 425,668	\$ 2,725,993	\$ 2,603,430	\$ 2,810,625	\$ 3,010,781	\$ 3,538,169	\$ 3,816,103	\$ 3,849,257	\$ 4,251,993	\$ 4,685,053	\$ 4,811,816	\$ 5,219,336
Emergency Energy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Dump Energy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CONS.LANS Sale	\$ (13,348,360)	\$ (32,261,598)	\$ (49,418,326)	\$ (46,705,367)	\$ (48,871,855)	\$ (47,594,805)	\$ (30,528,893)	\$ (28,316,180)	\$ (28,209,714)	\$ (29,308,737)	\$ (11,090,877)	\$ (9,172,271)	\$ (9,116,441)	\$ (8,301,037)	\$ (8,297,688)	\$ (7,158,795)	\$ (7,355,630)	\$ (5,642,749)	\$ (5,685,249)	\$ (5,075,162)	\$ (4,705,101)
DECO.BLR Sale	\$ (21,424,997)	\$ (21,499,876)	\$ (18,463,203)	\$ (17,421,337)	\$ (20,360,762)	\$ (17,368,997)	\$ (18,509,817)	\$ (20,736,152)	\$ (17,757,979)	\$ (18,035,746)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
External Renewable Sale	\$ (4,929,810)	\$ (9,214,193)	\$ (13,260,237)	\$ (13,260,237)	\$ (13,406,159)	\$ (13,406,159)	\$ (13,730,765)	\$ (13,730,765)	\$ (13,843,645)	\$ (14,019,958)	\$ (14,149,029)	\$ (13,319,809)	\$ (13,703,541)	\$ (13,369,578)	\$ (13,502,144)	\$ (11,698,886)	\$ (11,629,038)	\$ (11,292,661)	\$ (11,114,141)	\$ (10,815,763)	\$ (10,792,257)
Total Total Model Cost	\$ 96,261,740	\$ 94,855,104	\$ 93,944,080	\$ 100,320,067	\$ 100,206,818	\$ 104,026,534	\$ 95,804,633	\$ 97,394,829	\$ 99,177,528	\$ 100,626,458	\$ 78,667,239	\$ 82,015,558	\$ 84,964,189	\$ 87,537,002	\$ 89,021,118	\$ 89,792,116	\$ 91,511,815	\$ 94,858,883	\$ 96,700,244	\$ 99,756,589	\$ 88,755,815



Total Model Cost per MWh	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
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Erickson	\$ 53.45	\$ 56.42	\$ 60.71	\$ 67.24	\$ 62.51	\$ 64.72	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Belle River 1	\$ 50.05	\$ 55.78	\$ 71.23	\$ 62.70	\$ 63.09	\$ 77.19	\$ 66.32	\$ 65.68	\$ 84.50	\$ 72.65	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Belle River 2	\$ 57.56	\$ 61.61	\$ 61.80	\$ 75.89	\$																

IRP 3.1	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	
Summary of Modeling																						
Model Configuration and Constraints		Expansion Plan:																				
35% Clean Energy in 2025, 50% Clean Energy in 2030 Erickson Retires December 2025 and Dispatched Optimally Max Annual Incremental Energy Efficiency Pegasus Online 7/1/2020 Regular Growth No Incentive for Electric Vehicles No Incentive for Customer Solar Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy Question Answered: What is the impact of increasing our clean energy goal to 50% through energy efficiency and renewable		2021: 10MW Solar C&I Bins 1, 2, 3, 4 & 5; Res Bins 1, 2, 3, 4 & 5 2022: 80MW Solar 2023: 26MW Solar 2025: Erickson Retirement 2030: 170.3MW Solar 2036: 20MW Solar																				
Post Processing Costs - Coal Penalties		2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Coal on Ground Year Start		200,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Coal Needed		229,246	208,351	182,052	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pile used first pile remaining		200,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ending Pile		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Deliveries Used		29,246	208,351	182,052	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Penalty Tons		370,754	191,649	217,948	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Erickson - Coal Penalties (PRB)		\$ 982,497	\$ 507,869	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Erickson - Rail Penalties (BNSF/CN)		\$ 4,303,025	\$ 2,291,931	\$ 2,686,618	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Post Processing Costs - Customer Programs		2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
EE C&I		\$ -	\$ 4,139,175	\$ 4,388,678	\$ 4,486,184	\$ 4,486,836	\$ 4,517,629	\$ 4,516,195	\$ 4,446,664	\$ 4,347,123	\$ 4,285,732	\$ 3,872,477	\$ 4,333,754	\$ 4,343,566	\$ 6,649,420	\$ 6,529,938	\$ 6,301,574	\$ 6,498,354	\$ 6,248,414	\$ 5,959,135	\$ 5,801,839	\$ 5,642,776
EE RES		\$ -	\$ 868,854	\$ 1,053,166	\$ 1,198,268	\$ 1,314,506	\$ 1,503,652	\$ 1,693,971	\$ 1,887,439	\$ 2,080,833	\$ 2,277,161	\$ 2,451,619	\$ 2,190,574	\$ 2,148,800	\$ 2,116,280	\$ 2,090,309	\$ 2,055,197	\$ 2,193,219	\$ 2,196,603	\$ 2,198,303	\$ 2,226,454	\$ 2,240,093
DR C&I		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DR RES		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DG - RES		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DG - C&I		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Electric Vehicles		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Post Processing Costs - Capital & FOM		2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
New Gas 1 - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 1 - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 2 - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 2 - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 3 - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 3 - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 1 - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 1 - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 2 - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 2 - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 3 - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 3 - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Local Solar - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Local Solar - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New External Solar - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New External Solar - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New External Wind - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New External Wind - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Battery - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Battery - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Post Processing Costs - Capacity Expense		PY 2020/21	PY 2021/22	PY 2022/23	PY 2023/24	PY 2024/25	PY 2025/26	PY 2026/27	PY 2027/28	PY 2028/29	PY 2029/30	PY 2030/31	PY 2031/32	PY 2032/33	PY 2033/34	PY 2034/35	PY 2035/36	PY 2036/37	PY 2037/38	PY 2038/39	PY 2039/40	PY 2040/41
Capacity Price - Purchase (\$/kW-Mo)		\$ 0.92	\$ 0.94	\$ 0.97	\$ 1.00	\$ 1.03	\$ 1.06	\$ 1.09	\$ 1.13	\$ 1.16	\$ 1.20	\$ 1.23	\$ 1.27	\$ 1.31	\$ 1.35	\$ 1.39	\$ 1.43	\$ 1.47	\$ 1.52	\$ 1.56	\$ 1.61	\$ 1.66
Capacity Price - Sale (\$/kW-Mo)		\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 1.00	\$ 0.98	\$ 0.96	\$ 0.96	\$ 0.96	\$ 0.88	\$ 0.88	\$ 0.88	\$ 0.88	\$ 0.88	\$ 0.73
Capacity Purchase		\$ 231,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Local Capacity Sale		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
External Capacity Sale		\$ -	\$ (1,063,748)	\$ (1,320,073)	\$ (1,320,073)	\$ (1,320,073)	\$ (1,320,073)	\$ (615,180)	\$ (640,812)	\$ (647,220)	\$ (724,118)	\$ (638,650)	\$ (682,080)	\$ (710,520)	\$ (710,520)	\$ (699,060)	\$ (620,090)	\$ (620,090)	\$ (620,090)	\$ (620,090)	\$ (620,090)	\$ (518,610)
Post Processing Costs - Transmission Expense		2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Transmission - BR - Total Annual MWs during Peak		1,799.3	1,770.6	1,752.8	1,741.8	1,709.8	1,700.4	1,706.7	1,705.9	1,689.6	1,696.3	-	-	-	-	-	-	-	-	-	-	-
Transmission - BR - Average Monthly MWs during Peak		149.9	147.5	146.1	145.1	142.5	141.7	142.2	142.2	140.8	141.4	-	-	-	-	-	-	-	-	-	-	-
Transmission - METC - Total Annual MWs during Peak		106.9	54.8	20.9	14.2	18.1	16.6	30.4	34.9	33.9	33.4	99.1	99.3	103.9	109.8	114.6	117.0	116.6	122.1	125.9	128.8	130.6
Transmission - METC - Average Monthly MWs during Peak		8.9	4.6	1.7	1.2	1.5	1.4	2.5	2.9	2.8	2.8	8.3	8.3	8.7	9.1	9.6	9.8	9.7	10.2	10.5	10.7	10.9
Transmission - Non-Entitlement - Total Annual MWs during Peak		412.6	98.3	26.7	16.4	21.5	18.1	33.4	29.8	34.7	24.3	179.0	178.2	184.4	191.9	210.1	217.2	205.9	186.2	212.9	192.1	217.1
Transmission - Non-Entitlement - Average Monthly MWs during Peak		34.4	8.2	2.2	1.4	1.8	1.5	2.8	2.5	2.9	2.0	14.9	14.9	15.4	16.0	17.5	18.1	17.2	15.5	17.7	16.0	18.1
PIP - CONS.LANS Purchase - BR - Fixed Expense		\$ 972,648	\$ 1,191,528	\$ 1,286,208	\$ 1,388,448	\$ 1,471,230	\$ 1,558,998	\$ 1,652,040	\$ 1,750,680	\$ 1,855,224	\$ 1,966,068	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
PIP - CONS.LANS Purchase - BR - Redirect Revenue		\$ (295)	\$ (14,621)	\$ (25,275)	\$ (33,674)	\$ (55,301)	\$ (64,722)	\$ (64,234)	\$ (68,618)	\$ (85,366)	\$ (84,939)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
NITS - CONS.LANS Purchase - BR - Fixed Expense		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
NITS - CONS.LANS Purchase - BR - Redirect Revenue		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
PIP - CONS.LANS Purchase - METC - Fixed Expense		\$ 119,908	\$ 138,678	\$ 146,823	\$ 155,606	\$ 162,755	\$ 170,322	\$ 178,334	\$ 186,818	\$ 195,799	\$ 205,308	\$ 215,378	\$ 226,042	\$								

Model Configuration and Constraints
 35% Clean Energy in 2025, 50% Clean Energy in 2030 | Erickson Retires December 2025 and Dispatched Optimally | Max Annual Incremental Energy Efficiency | Pegasus Online 7/1/2020 | Regular Growth | No Incentive for Electric Vehicles | No Incentive for Customer Solar | Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy | Question Answered: What is the impact of increasing our clean energy goal to 50% through energy efficiency and renewable

Expansion Plan:
 2021: 10MW Solar | C&I Bins 1, 2, 3, 4 & 5; Res Bins 1, 2, 3, 4 & 5 |
 2022: 80MW Solar | 2023: 26MW Solar | 2025: Erickson Retirement |
 2030: 170.3MW Solar | 2036: 20MW Solar |

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	
Total Costs w/ Post Processing	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01	
Erickson	\$ 27,455,796	\$ 24,047,964	\$ 22,679,706	\$ 18,779,338	\$ 20,770,578	\$ 20,462,597	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Belle River 1	\$ 20,180,467	\$ 19,057,383	\$ 16,752,597	\$ 18,645,871	\$ 19,022,577	\$ 17,479,968	\$ 19,333,282	\$ 19,955,203	\$ 18,192,186	\$ 20,148,330	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Belle River 2	\$ 18,481,891	\$ 18,036,989	\$ 18,282,341	\$ 17,026,555	\$ 19,329,478	\$ 17,865,860	\$ 19,931,986	\$ 19,882,706	\$ 18,471,625	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Reo	\$ 20,347,015	\$ 19,996,626	\$ 17,791,177	\$ 17,812,816	\$ 17,814,228	\$ 17,822,367	\$ 18,045,110	\$ 18,194,812	\$ 18,424,576	\$ 18,968,300	\$ 20,563,803	\$ 20,209,060	\$ 20,724,327	\$ 20,666,893	\$ 20,789,220	\$ 20,889,674	\$ 21,131,643	\$ 21,144,857	\$ 21,521,848	\$ 21,814,096	\$ 22,178,138	
DEP CC	\$ -	\$ 22,793,292	\$ 41,776,576	\$ 43,793,390	\$ 43,830,012	\$ 45,043,454	\$ 40,154,463	\$ 38,712,622	\$ 38,479,981	\$ 39,038,531	\$ 49,039,155	\$ 49,683,961	\$ 51,509,639	\$ 52,419,778	\$ 52,757,892	\$ 53,524,941	\$ 54,654,067	\$ 55,113,384	\$ 55,485,732	\$ 56,751,338	\$ 58,008,098	
DEP CT	\$ -	\$ 3,806,710	\$ 3,736,975	\$ 3,613,926	\$ 3,552,399	\$ 3,406,838	\$ 2,527,075	\$ 2,162,758	\$ 2,238,730	\$ 2,347,995	\$ 2,673,203	\$ 2,452,151	\$ 2,489,058	\$ 2,404,441	\$ 2,432,015	\$ 2,420,965	\$ 2,387,956	\$ 2,310,628	\$ 2,400,504	\$ 2,375,236	\$ 2,385,240	
New Gas 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Gas 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Gas 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Granger Wood Rd	\$ 5,498,401	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Granger Grand River	\$ 1,098,338	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Beebe 1b	\$ 2,810,094	\$ 2,881,790	\$ 2,935,240	\$ 3,001,689	\$ 3,110,049	\$ 3,180,931	\$ 3,233,418	\$ 3,319,856	\$ 3,430,425	\$ 3,467,648	\$ 3,577,849	\$ 3,664,435	\$ 3,785,223	\$ 3,851,962	\$ 3,946,688	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Cedar Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Reo Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Delta Solar	\$ 2,071,241	\$ 2,125,679	\$ 2,179,775	\$ 2,255,318	\$ 2,289,179	\$ 2,344,044	\$ 2,419,906	\$ 2,490,124	\$ 2,513,496	\$ 2,605,472	\$ 2,633,397	\$ 2,737,369	\$ 2,799,726	\$ 2,885,170	\$ 2,911,877	\$ 3,002,480	\$ 3,108,229	\$ 3,152,620	\$ 3,230,459	\$ 3,368,471	\$ 3,397,986	
Community Solar	\$ 31,218	\$ 32,679	\$ 33,651	\$ 34,151	\$ 34,549	\$ 35,864	\$ 36,755	\$ 38,266	\$ 38,023	\$ 37,977	\$ 39,701	\$ 39,412	\$ 40,510	\$ 41,189	\$ 41,819	\$ 43,977	\$ 43,076	\$ 43,977	\$ 45,356	\$ 45,316	\$ 45,316	
Pegasus Wind	\$ 4,832,819	\$ 10,576,306	\$ 10,806,092	\$ 10,899,541	\$ 11,152,903	\$ 11,252,975	\$ 11,401,970	\$ 11,639,005	\$ 11,834,136	\$ 11,926,829	\$ 12,172,382	\$ 12,344,787	\$ 12,633,706	\$ 12,666,508	\$ 12,846,864	\$ 13,164,223	\$ 13,301,150	\$ 13,449,850	\$ 13,630,961	\$ 13,707,748	\$ 13,707,748	\$ 13,707,748
Ranger Solar	\$ -	\$ 796,075	\$ 5,512,963	\$ 5,609,504	\$ 5,735,435	\$ 5,977,841	\$ 6,095,060	\$ 6,237,296	\$ 6,328,682	\$ 6,468,640	\$ 6,606,621	\$ 6,706,705	\$ 6,836,819	\$ 7,023,125	\$ 7,129,331	\$ 7,283,378	\$ 7,445,730	\$ 7,582,423	\$ 7,788,356	\$ 7,788,356	\$ 7,788,356	\$ 7,788,356
Calhoun Solar Energy Center	\$ -	\$ -	\$ 718,730	\$ 731,213	\$ 745,105	\$ 761,732	\$ 777,171	\$ 792,350	\$ 812,072	\$ 824,033	\$ 839,531	\$ 858,956	\$ 875,700	\$ 888,902	\$ 913,154	\$ 928,272	\$ 945,883	\$ 967,027	\$ 984,247	\$ 999,862	\$ 1,025,864	\$ 1,025,864
NextEra Solar	\$ -	\$ -	\$ -	\$ 1,629,816	\$ 1,652,721	\$ 1,665,368	\$ 1,728,549	\$ 1,771,589	\$ 1,751,921	\$ 1,846,395	\$ 1,842,985	\$ 1,918,540	\$ 1,924,493	\$ 1,975,341	\$ 2,009,975	\$ 2,055,677	\$ 2,108,020	\$ 2,126,464	\$ 2,178,041	\$ 2,249,944	\$ 2,258,245	\$ 2,258,245
DG - RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DG - C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
EE Legacy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
EE C&I	\$ -	\$ 4,139,175	\$ 4,388,678	\$ 4,486,184	\$ 4,486,836	\$ 4,517,629	\$ 4,516,195	\$ 4,446,664	\$ 4,347,123	\$ 4,285,732	\$ 3,872,477	\$ 4,333,754	\$ 4,343,566	\$ 6,649,420	\$ 6,529,938	\$ 6,301,574	\$ 6,498,354	\$ 6,248,414	\$ 5,959,135	\$ 5,801,839	\$ 5,642,776	
EE RES	\$ -	\$ 868,854	\$ 1,053,166	\$ 1,198,268	\$ 1,314,506	\$ 1,503,652	\$ 1,693,971	\$ 1,887,439	\$ 2,080,833	\$ 2,277,161	\$ 2,451,619	\$ 2,190,574	\$ 2,148,800	\$ 2,116,280	\$ 2,090,309	\$ 2,055,197	\$ 2,193,219	\$ 2,196,603	\$ 2,198,303	\$ 2,226,454	\$ 2,240,093	
DR C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DR RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Local Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New External Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New External Wind	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Battery Charge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Battery Discharge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CONS.LANS Purchase - BR	\$ 36,392,790	\$ 36,954,407	\$ 36,082,561	\$ 35,135,855	\$ 35,213,411	\$ 35,149,814	\$ 36,134,034	\$ 35,932,842	\$ 36,162,894	\$ 37,022,229	\$ 36,162,894	\$ 37,022,229	\$ 36,162,894	\$ 37,022,229	\$ 36,162,894	\$ 37,022,229	\$ 36,162,894	\$ 37,022,229	\$ 36,162,894	\$ 37,022,229	\$ 36,162,894	
CONS.LANS Purchase - METC	\$ 1,027,954	\$ 503,325	\$ 106,503	\$ 84,191	\$ 115,228	\$ 109,002	\$ 350,062	\$ 449,625	\$ 482,622	\$ 497,654	\$ 1,491,959	\$ 1,556,515	\$ 1,667,265	\$ 1,758,583	\$ 1,825,189	\$ 1,904,910	\$ 1,923,704	\$ 2,049,219	\$ 2,036,703	\$ 2,115,360	\$ 2,177,007	
CONS.LANS Purchase	\$ 1,760,466	\$ 271,339	\$ 60,447	\$ 38,989	\$ 68,944	\$ 53,904	\$ 248,785	\$ 370,214	\$ 361,248	\$ 425,668	\$ 2,725,993	\$ 2,603,430	\$ 2,810,625	\$ 3,010,781	\$ 3,538,169	\$ 3,816,103	\$ 3,849,257	\$ 4,251,993	\$ 4,685,053	\$ 4,811,816	\$ 5,219,336	
Emergency Energy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Dump Energy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CONS.LANS Sale	\$ (13,348,360)	\$ (32,261,598)	\$ (49,418,326)	\$ (46,705,367)	\$ (48,871,855)	\$ (47,594,805)	\$ (30,528,893)	\$ (28,316,180)	\$ (28,209,714)	\$ (29,308,737)	\$ (11,090,877)	\$ (9,172,271)	\$ (9,116,441)	\$ (8,301,037)	\$ (8,297,688)	\$ (7,158,795)	\$ (7,355,630)	\$ (5,642,749)	\$ (5,685,249)	\$ (5,075,162)	\$ (4,705,101)	
DECO.BLR Sale	\$ (21,424,997)	\$ (21,499,876)	\$ (18,463,203)	\$ (17,421,337)	\$ (20,360,762)	\$ (17,368,997)	\$ (18,509,817)	\$ (20,736,152)	\$ (17,757,979)	\$ (18,035,746)	\$ (14,149,029)	\$ (13,319,809)	\$ (13,703,541)	\$ (13,369,578)	\$ (13,502,144)	\$ (11,698,886)	\$ (11,629,038)	\$ (11,292,661)	\$ (11,114,141)	\$ (10,815,763)	\$ (10,792,257)	
External Renewable Sale	\$ (4,929,810)	\$ (9,214,193)	\$ (13,260,237)	\$ (13,363,618)	\$ (13,408,618)	\$ (13,730,765)	\$ (13,730,765)	\$ (13,843,645)	\$ (13,843,645)	\$ (14,019,958)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Electric Vehicle Program	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Capacity Purchase	\$ 231,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Capacity Sale	\$ -	\$ (1,063,748)	\$ (1,320,073)	\$ (1,320,073)	\$ (1,320,073)	\$ (1,320,073)	\$ (615,180)	\$ (640,812)	\$ (647,220)	\$ (724,118)	\$ (638,650)	\$ (682,080)	\$ (710,520)	\$ (710,520)	\$ (699,060)	\$ (620,090)	\$ (620,090)	\$ (620,090)	\$ (620,090)	\$ (620,090)	\$ (518,610)	
Total Total Costs w/ Post Processing	\$ 102,516,322	\$ 102,848,488	\$ 102,059,352	\$ 106,089,104	\$ 106,159,322	\$ 110,278,595	\$ 103,058,903	\$ 														

IRP 3.1

Summary of Modeling

Model Configuration and Constraints

35% Clean Energy in 2025, 50% Clean Energy in 2030 | Erickson Retires December 2025 and Dispatched Optimally | Max Annual Incremental Energy Efficiency | Pegasus Online 7/1/2020 | Regular Growth | No Incentive for Electric Vehicles | No Incentive for Customer Solar | Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy | Question Answered: What is the impact of increasing our clean energy goal to 50% through energy efficiency and renewable

Expansion Plan:

2021: 10MW Solar | C&I Bins 1, 2, 3, 4 & 5; Res Bins 1, 2, 3, 4 & 5 |
 2022: 80MW Solar | 2023: 26MW Solar | 2025: Erickson Retirement |
 2030: 170.3MW Solar | 2036: 20MW Solar |

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Summary Metrics																					
Total Cost	\$ 102,516,322	\$ 102,848,488	\$ 102,065,352	\$ 106,089,104	\$ 106,159,322	\$ 110,278,595	\$ 103,058,903	\$ 104,849,213	\$ 106,809,952	\$ 108,431,750	\$ 97,777,581	\$ 101,004,373	\$ 103,619,934	\$ 108,195,954	\$ 109,275,926	\$ 109,590,235	\$ 112,879,593	\$ 115,681,741	\$ 116,936,104	\$ 119,563,949	\$ 108,219,045
Nominal Rates	\$ 48.59	\$ 46.15	\$ 46.09	\$ 48.24	\$ 48.66	\$ 50.99	\$ 48.11	\$ 49.41	\$ 50.83	\$ 52.00	\$ 47.23	\$ 49.04	\$ 50.57	\$ 52.94	\$ 53.61	\$ 53.89	\$ 55.57	\$ 56.89	\$ 57.45	\$ 58.61	\$ 52.93
Accumulated Net Present Value Total Cost	\$ 102,516,322	\$ 200,785,468	\$ 293,964,218	\$ 386,504,025	\$ 474,982,008	\$ 562,800,824	\$ 641,216,183	\$ 717,441,644	\$ 791,635,148	\$ 863,601,567	\$ 925,607,320	\$ 986,807,422	\$ 1,046,796,826	\$ 1,106,646,463	\$ 1,164,402,086	\$ 1,219,744,857	\$ 1,274,210,640	\$ 1,327,543,196	\$ 1,379,053,661	\$ 1,429,376,644	\$ 1,472,896,664
Accumulated NPV Retail Sales	2,109,624	4,239,077	6,260,643	8,178,767	9,997,153	11,719,593	13,349,615	14,892,398	16,352,087	17,735,987	19,048,762	20,296,607	21,482,889	22,613,412	23,690,740	24,717,760	25,697,879	26,635,371	27,532,061	28,390,673	29,212,878
Accumulated NPV Rate Impact	\$ 48.59	\$ 47.37	\$ 46.95	\$ 47.26	\$ 47.51	\$ 48.02	\$ 48.03	\$ 48.18	\$ 48.41	\$ 48.69	\$ 48.59	\$ 48.62	\$ 48.73	\$ 48.94	\$ 49.15	\$ 49.35	\$ 49.58	\$ 49.84	\$ 50.09	\$ 50.35	\$ 50.42
Risk Premium	\$ 16,033,889	\$ 23,559,202	\$ 33,391,947	\$ 31,228,631	\$ 30,985,825	\$ 29,689,996	\$ 24,493,253	\$ 21,013,899	\$ 20,662,187	\$ 24,916,665	\$ 17,762,214	\$ 12,334,442	\$ 16,781,316	\$ 15,132,718	\$ 16,297,028	\$ 12,895,235	\$ 14,787,893	\$ 14,057,504	\$ 10,567,245	\$ 11,303,646	\$ 8,679,460
Present Value of Risk Premium	\$ 16,033,889	\$ 22,510,226	\$ 30,484,584	\$ 27,240,229	\$ 25,824,989	\$ 23,643,213	\$ 18,636,403	\$ 15,277,122	\$ 14,352,596	\$ 16,537,252	\$ 11,263,926	\$ 7,473,628	\$ 9,715,323	\$ 8,370,809	\$ 8,613,471	\$ 6,512,059	\$ 7,135,339	\$ 6,480,907	\$ 4,654,882	\$ 4,757,564	\$ 3,490,423
Accumulated NPV Risk Premium	\$ 16,033,889	\$ 38,544,115	\$ 69,028,699	\$ 96,268,928	\$ 122,093,916	\$ 145,737,129	\$ 164,373,532	\$ 179,650,653	\$ 194,003,249	\$ 210,540,501	\$ 221,804,428	\$ 229,278,056	\$ 238,993,379	\$ 247,364,188	\$ 255,977,659	\$ 262,489,717	\$ 269,625,056	\$ 276,105,963	\$ 280,760,845	\$ 285,518,409	\$ 289,008,833
Total Cost with Risk Premium	\$ 118,550,211	\$ 126,407,690	\$ 135,457,299	\$ 137,317,735	\$ 137,145,147	\$ 139,968,592	\$ 127,552,156	\$ 125,863,113	\$ 127,472,139	\$ 133,348,416	\$ 115,539,796	\$ 113,338,816	\$ 120,401,250	\$ 123,328,672	\$ 125,572,954	\$ 122,485,470	\$ 127,667,485	\$ 129,739,245	\$ 127,503,349	\$ 130,867,595	\$ 116,898,505
Present Value of Total Cost with Risk Premium	\$ 118,550,211	\$ 120,779,372	\$ 123,663,334	\$ 119,780,036	\$ 114,302,972	\$ 111,462,028	\$ 97,051,762	\$ 91,502,583	\$ 88,546,099	\$ 88,503,671	\$ 73,269,680	\$ 68,673,730	\$ 69,704,727	\$ 68,220,447	\$ 66,369,093	\$ 61,854,830	\$ 61,601,121	\$ 59,813,463	\$ 56,165,347	\$ 55,080,547	\$ 47,010,444
Accumulated NPV Total Cost with Risk Premium	\$ 118,550,211	\$ 239,329,583	\$ 362,992,917	\$ 482,772,953	\$ 597,075,925	\$ 708,537,953	\$ 805,589,715	\$ 897,092,298	\$ 985,638,397	\$ 1,074,142,068	\$ 1,147,411,748	\$ 1,216,085,477	\$ 1,285,790,204	\$ 1,354,010,651	\$ 1,420,379,744	\$ 1,482,234,574	\$ 1,543,835,696	\$ 1,603,649,159	\$ 1,659,814,506	\$ 1,714,895,053	\$ 1,761,905,497
Percent Dispatchable Generation	70.2%	78.7%	71.5%	69.1%	68.6%	68.1%	61.5%	61.0%	60.5%	60.0%	41.3%	41.0%	40.8%	40.6%	40.4%	41.1%	40.1%	39.9%	39.8%	39.7%	39.5%
Resource Diversity	0.66	0.50	0.58	0.60	0.60	0.61	0.56	0.56	0.57	0.57	0.53	0.53	0.53	0.54	0.54	0.52	0.53	0.53	0.54	0.54	0.54
Annual CO2 Emissions - Tons	1,494,092	1,735,627	1,808,181	1,763,745	1,882,709	1,771,646	1,311,819	1,354,547	1,221,066	1,213,576	869,278	852,386	839,700	825,343	807,659	794,939	779,143	765,379	760,781	753,148	747,133
Accumulated CO2 Emissions - Tons	1,494,092	3,229,719	5,037,900	6,801,645	8,684,354	10,456,000	11,767,819	13,122,366	14,343,432	15,557,008	16,426,286	17,278,671	18,118,371	18,943,714	19,751,373	20,546,311	21,325,455	22,090,834	22,851,614	23,604,763	24,351,896
Average CO2 Emissions per Year - Tons	1,494,092	1,614,860	1,679,300	1,700,411	1,736,871	1,742,667	1,681,117	1,640,296	1,593,715	1,555,701	1,493,299	1,439,889	1,393,721	1,353,122	1,316,758	1,284,144	1,254,439	1,227,269	1,202,717	1,180,238	1,159,614
Annual CO2 Intensity - lbs/MWh Generated	1,331.3	1,130.1	988.3	950.5	984.2	948.5	834.6	859.1	808.1	795.3	539.4	530.2	524.7	518.7	512.0	515.4	504.3	499.8	497.8	494.8	492.5
Total CO2 Emissions Reduced from 2005	65.8%	60.3%	58.6%	59.6%	56.9%	59.4%	70.0%	69.0%	72.0%	72.2%	80.1%	80.5%	80.8%	81.1%	81.5%	82.2%	82.5%	82.5%	82.6%	82.8%	82.9%
CO2 Intensity Reduced from 2005	42.3%	51.0%	57.2%	58.8%	57.3%	58.9%	63.8%	62.8%	65.0%	65.5%	76.6%	77.0%	77.3%	77.5%	77.8%	77.7%	78.1%	78.3%	78.4%	78.6%	78.7%
Annual NOx Emissions - Tons	1,012	964	852	808	911	828	567	630	539	530	149	143	140	136	132	130	126	123	123	121	120
Accumulated NOx Emissions - Tons	1,012	1,976	2,828	3,636	4,546	5,374	5,941	6,571	7,110	7,639	7,788	7,931	8,071	8,207	8,339	8,468	8,594	8,717	8,840	8,961	9,081
Average NOx Emissions per Year - Tons	1,012	988	943	909	909	896	849	821	790	764	708	661	621	586	556	529	506	484	465	448	432
Annual NOx Intensity - lbs/MWh Generated	0.9	0.6	0.5	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Total NOx Emissions Reduced from 2005	76.9%	78.0%	80.5%	81.5%	79.2%	81.1%	87.0%	85.6%	87.7%	87.9%	96.6%	96.7%	96.8%	96.9%	97.0%	97.0%	97.1%	97.2%	97.2%	97.2%	97.3%
NOx Intensity Reduced from 2005	61.0%	72.8%	79.8%	81.2%	79.4%	80.8%	84.4%	82.7%	84.6%	85.0%	96.0%	96.1%	96.2%	96.3%	96.4%	96.4%	96.5%	96.5%	96.5%	96.6%	96.6%
Annual SO2 Emissions - Tons	3,191	2,834	2,415	2,262	2,639	2,367	1,558	1,812	1,496	1,456	9	9	9	8	8	8	8	8	8	8	8
Accumulated SO2 Emissions - Tons	3,191	6,025	8,439	10,701	13,340	15,707	17,265	19,077	20,573	22,029	22,038	22,047	22,055	22,063	22,072	22,080	22,088	22,096	22,103	22,111	22,119
Average SO2 Emissions per Year - Tons	3,191	3,012	2,813	2,675	2,668	2,618	2,466	2,385	2,286	2,203	2,003	1,837	1,697	1,576	1,471	1,380	1,299	1,228	1,163	1,106	1,053
Annual SO2 Intensity - lbs/MWh Generated	2.8	1.8	1.3	1.2	1.4	1.3	1.0	1.1	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total SO2 Emissions Reduced from 2005	71.2%	74.4%	78.2%	79.6%	76.2%	78.6%	85.9%	83.6%	86.5%	86.8%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%
SO2 Intensity Reduced from 2005	51.4%	68.4%	77.4%	79.2%	76.4%	78.3%	83.1%	80.4%	83.1%	83.7%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%
Renewable Energy MWh %	14%	16%	23%	25%	25%	26%	26%	26%	26%	27%	39%	39%	40%	40%	40%	37%	39%	39%	39%	39%	39%
Renewable Energy RPS %	32%	19%	26%	28%	29%	29%	29%	29%	29%	30%	42%	43%	43%	43%	43%	41%	42%	42%	42%	42%	42%
Energy Efficiency %	10%	11%	12%	13%	14%	15%	16%	17%	19%	19%	20%	21%	22%	22%	23%	23%	23%	24%	24%	24%	24%
Clean Energy %	39%	28%	35%	37%	38%	39%	40%	42%	43%	43%	54%	55%	55%	56%	56%	54%	56%	56%	56%	56%	56%

4.0 v2: Model Configuration & Constraints

35% Clean Energy in 2025

50% Renewable Energy in 2030

Erickson Retires December 2025 and Dispatched Optimally

1% Annual Incremental Energy Efficiency

Pegasus Online 7/1/2020

Regular Growth

No Incentive for Electric Vehicles

No Incentive for Customer Solar

Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy

Expansion Plan

2021: 10MW Solar | C&I Bins 1, 2 & 3; Res Bins 1, 3 & 5

2022: 80MW Solar

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2025: Erickson Retirement

2030: 210MW Solar | 40MW Wind

2032: 5MW Solar

2033: 5MW Solar

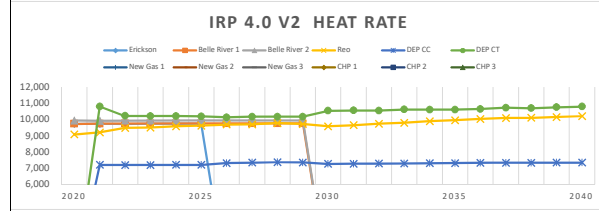
IRP 4.0 V2

Summary of Modeling

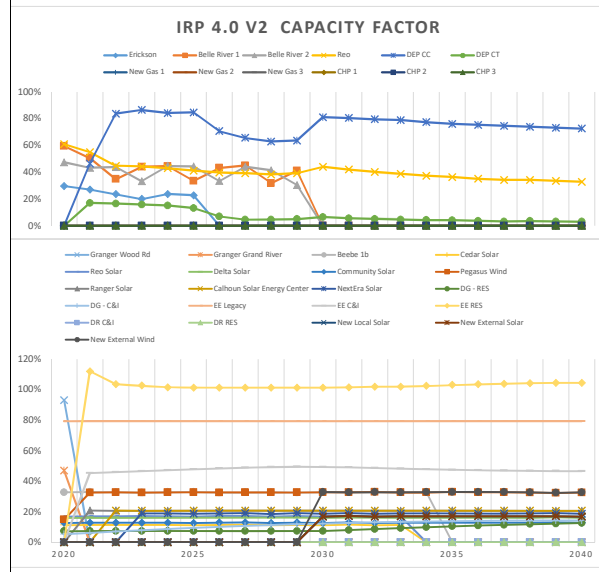
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 2021: 10MW Solar | C&I Bins 1, 2 & 3; Res Bins 1, 3 & 5 | 2022: 80MW Solar | 2023: 26MW Solar | 2025: Erickson Retirement | 2030: 210MW Solar | 40MW Wind | 2032: 5MW Solar | 2033: 5MW Solar | 2034:

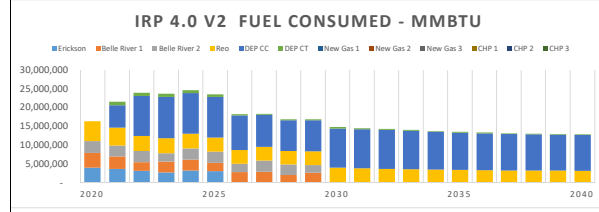
Heat Rate	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Erickson	9,727	9,737	9,729	9,740	9,733	9,734	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Belle River 1	9,728	9,739	9,749	9,748	9,749	9,753	9,754	9,756	9,756	9,761	--	--	--	--	--	--	--	--	--	--	--
Belle River 2	9,929	9,913	9,924	9,937	9,927	9,931	9,933	9,933	9,931	9,938	--	--	--	--	--	--	--	--	--	--	--
Reo	9,072	9,202	9,483	9,497	9,573	9,622	9,683	9,698	9,769	9,712	9,579	9,649	9,742	9,799	9,894	9,956	10,036	10,091	10,102	10,155	10,202
DEP CC	--	7,200	7,188	7,191	7,205	7,203	7,307	7,341	7,361	7,347	7,258	7,269	7,281	7,288	7,301	7,312	7,324	7,328	7,331	7,339	7,343
DEP CT	--	10,804	10,218	10,204	10,207	10,191	10,131	10,164	10,173	10,175	10,533	10,555	10,544	10,613	10,602	10,600	10,643	10,725	10,691	10,747	10,788
New Gas 1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Gas 2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Gas 3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--



Capacity Factor	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Erickson	30%	27%	24%	20%	24%	23%	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Belle River 1	60%	51%	35%	44%	45%	34%	43%	45%	32%	41%	--	--	--	--	--	--	--	--	--	--	--
Belle River 2	47%	43%	44%	43%	45%	44%	33%	44%	41%	31%	--	--	--	--	--	--	--	--	--	--	--
Reo	61%	55%	45%	44%	43%	41%	40%	39%	38%	39%	44%	42%	40%	39%	37%	36%	35%	34%	34%	34%	33%
DEP CC	--	46%	84%	87%	84%	85%	71%	66%	63%	64%	81%	81%	80%	79%	77%	76%	75%	74%	73%	73%	73%
DEP CT	--	17%	17%	16%	15%	13%	7%	5%	5%	5%	7%	6%	5%	5%	4%	4%	4%	3%	4%	3%	3%
New Gas 1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Gas 2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Gas 3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Granger Wood Rd	93%	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Granger Grand River	47%	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beebe 1b	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	--	--	--	--	--	--
Cedar Solar	11%	11%	11%	11%	11%	11%	11%	12%	11%	12%	11%	12%	11%	11%	--	--	--	--	--	--	--
Reo Solar	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	--	--	--	--	--	--	--
Delta Solar	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%
Community Solar	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%
Pegasus Wind	15%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	32%	33%
Ranger Solar	--	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%
Calhoun Solar Energy Center	--	--	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%
NextEra Solar	--	--	--	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%
DG - RES	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	8%	9%	9%	10%	10%	11%	11%	12%	12%	13%
DG - C&I	5%	6%	7%	8%	9%	10%	10%	11%	11%	12%	12%	13%	13%	14%	14%	14%	14%	14%	14%	14%	14%
EE Legacy	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%
EE C&I	--	45%	46%	47%	47%	48%	48%	49%	49%	50%	49%	49%	49%	48%	48%	48%	47%	47%	47%	47%	47%
EE RES	--	112%	104%	103%	102%	102%	101%	101%	101%	101%	101%	102%	102%	102%	103%	103%	104%	104%	104%	105%	105%
DR C&I	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
DR RES	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Local Solar	--	--	--	--	--	--	--	--	--	--	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%
New External Solar	--	--	--	--	--	--	--	--	--	--	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%
New External Wind	--	--	--	--	--	--	--	--	--	--	33%	33%	33%	33%	33%	33%	33%	33%	32%	33%	33%



Fuel Consumed - MMBtu	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Erickson	4,035,314	3,670,399	3,205,147	2,717,885	3,231,873	3,083,694	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Belle River 1	3,922,042	3,327,200	2,292,953	2,899,147	2,939,687	2,208,563	2,843,724	2,964,342	2,100,242	2,706,917	--	--	--	--	--	--	--	--	--	--	--
Belle River 2	3,188,106	2,901,844	2,935,663	2,229,383	2,998,625	2,970,150	2,238,329	2,951,718	2,782,230	2,045,004	--	--	--	--	--	--	--	--	--	--	--
Reo	5,266,148	4,817,963	4,027,150	4,001,559	3,917,681	3,767,310	3,664,248	3,626,665	3,558,969	3,618,655	4,011,601	3,851,878	3,733,718	3,618,730	3,516,815	3,437,807	3,355,222	3,277,360	3,281,661	3,233,376	3,195,969
DEP CC	--	5,931,724	10,695,891	11,052,031	10,819,924	10,835,879	9,185,049	8,565,787	8,259,826	8,306,757	10,466,883	10,400,630	10,325,116	10,228,847	10,037,767	9,895,690	9,841,494	9,713,563	9,621,667	9,559,782	9,501,863
DEP CT	--	924,624	851,408	813,217	771,300	675,217	352,009	237,399	233,456	252,446	348,677	295,457	271,392	247,195	227,523	220,409	196,187	175,154	188,457	175,428	166,926
New Gas 1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Gas 2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Gas 3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHP 3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--



Fuel Consumed - Coal Tons	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Erickson	229,279	208,545	182,111	15																	

IRP 4.0 V2

Summary of Modeling

Model Configuration and Constraints
35% Clean Energy in 2025, 50% Renewable Energy in 2030 | Erickson Retires December 2025 and Dispatched Optimally | 1% Annual Incremental Energy Efficiency | Pegasus Online 7/1/2020 | Regular Growth | No Incentive for Electric Vehicles | No Incentive for Customer Solar | Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy | Question Answered: What is the impact of increasing our renewable energy goal to 50%?

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Table header with columns: Accredited Capacity, PY 2020/21, PY 2021/22, PY 2022/23, PY 2023/24, PY 2024/25, PY 2025/26, PY 2026/27, PY 2027/28, PY 2028/29, PY 2029/30, PY 2030/31, PY 2031/32, PY 2032/33, PY 2033/34, PY 2034/35, PY 2035/36, PY 2036/37, PY 2037/38, PY 2038/39, PY 2039/40, PY 2040/41

IRP 4.0 V2 ACCREDITED CAPACITY

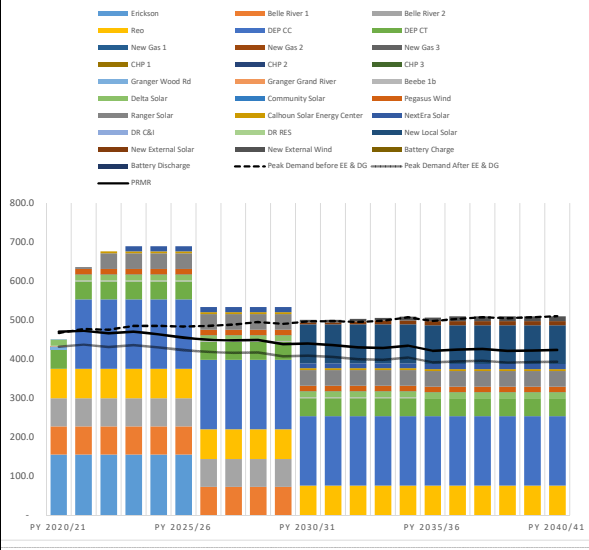


Table rows: Peak Demand before EE & DG, Net Load Offsets (EE Legacy, EE C&I, EE RES, DG-RES, DG-C&I, Cedar Solar, Reo Solar, Community Solar), Peak Demand After EE & DG, Reserve Margin Percent, PRMR.

Table rows: Local Capacity (Erickson, Reo, DEP CC, DEP CT, New Gas 1-3, CHP 1-3, Granger Wood Rd, Delta Solar, NextEra Solar, DR C&I, DR RES, New Local Solar, Battery Charge, Battery Discharge), Total Local Capacity.

IRP 4.0 V2 ACCREDITED CAPACITY

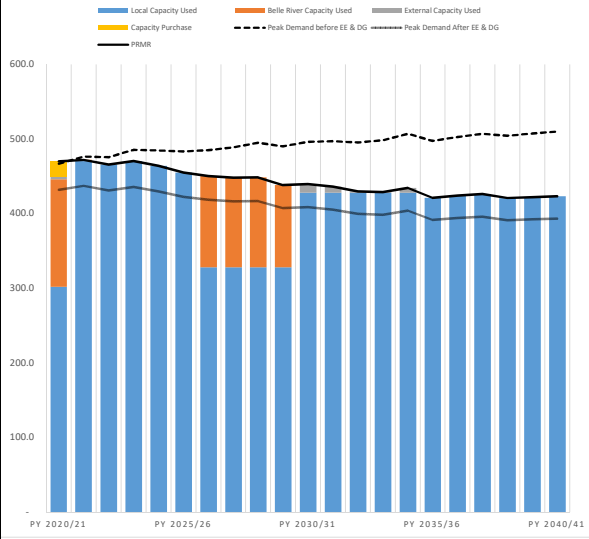


Table rows: Transmission Entitlements (Belle River Transmission Entitlement, Belle River 1, Belle River 2, Remaining Entitlement, METC Settlement Entitlement, Total Transmission Entitlements Remaining).

Table rows: External Capacity (Granger Grand River, Beebe 1b, Pegasus Wind, Ranger Solar, Calhoun Solar Energy Center, New External Solar, New External Wind, Total Available External Capacity).

Table rows: Summary (PRMR, Local Capacity Used, Local Capacity Remaining, Total Capacity Used, Capacity Short, Belle River Capacity Used, Belle River Capacity Remaining, Total Capacity Used, Capacity Short, External Capacity Used, External Capacity Remaining, Total Capacity Used, Capacity Short, Capacity Purchase, Local Capacity Sale, Belle River & External Capacity Sale).

MISO Treatment of Transmission for Resource Adequacy: PIP Needed

Table rows: Excess Transmission Entitlements Used, Firm Transmission Purchases Needed.

Summary of Modeling

Model Configuration and Constraints
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Table with columns for years (2020-2040) and rows for MWh Balances and Installed Capacity, detailing various energy sources and their contributions over time.

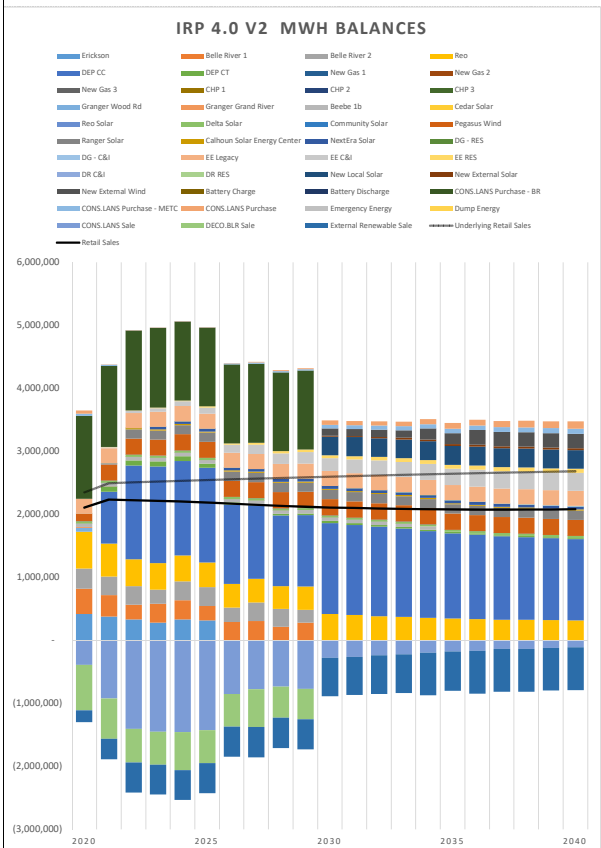
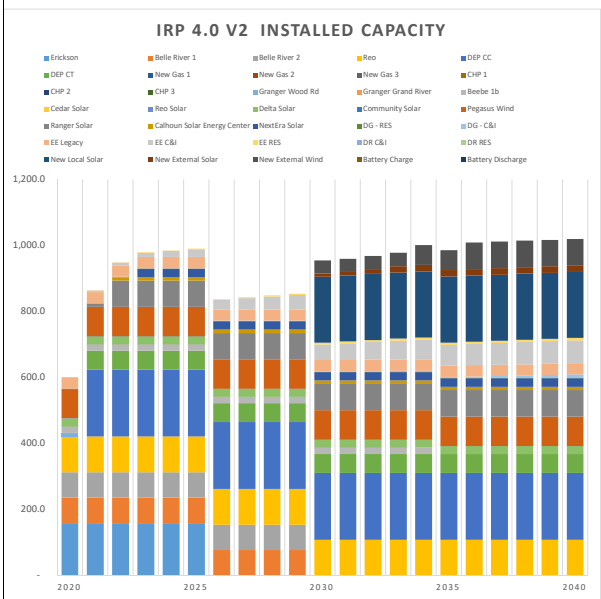


Table with columns for years (2020-2040) and rows for Installed Capacity, detailing the cumulative capacity of various energy assets over time.



IRP 4.0 V2

Summary of Modeling

Model Configuration and Constraints
 35% Clean Energy in 2025, 50% Renewable Energy in 2030 | Erickson Retires December 2025 and Dispatched Optimally | 1% Annual Incremental Energy Efficiency | Pegasus Online 7/1/2020 | Regular Growth | No Incentive for Electric Vehicles | No Incentive for Customer Solar | Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy | Question Answered: What is the impact of increasing our renewable energy goal to 50%?

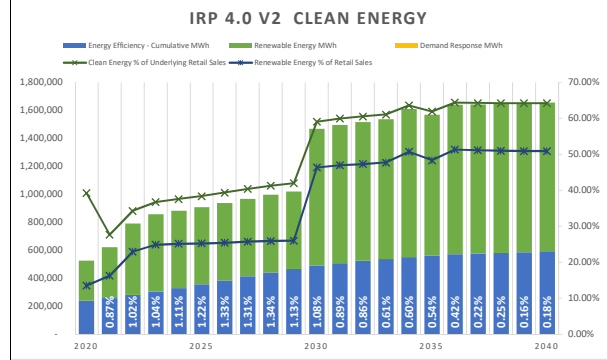
Expansion Plan:

2021: 10MW Solar | C&I Bins 1, 2 & 3; Res Bins 1, 3 & 5 | 2022: 80MW Solar | 2023: 26MW Solar | 2025: Erickson Retirement | 2030: 210MW Solar | 40MW Wind | 2032: 5MW Solar | 2033: 5MW Solar | 2034:

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
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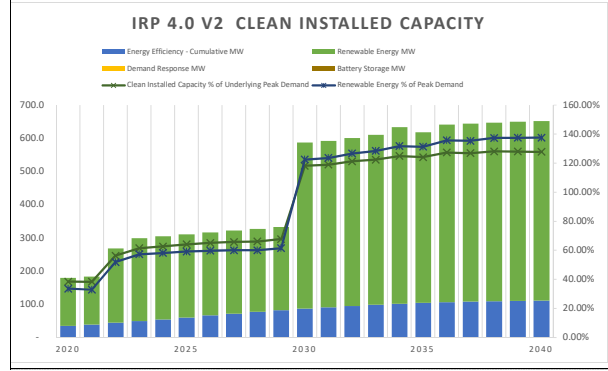
Clean Energy

	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Renewable Energy MWh	285,558	363,422	510,187	551,630	554,141	552,125	552,511	554,469	554,257	552,790	978,478	987,928	991,167	997,571	1,057,853	1,006,274	1,067,905	1,065,724	1,064,475	1,065,152	1,067,362
Renewable Energy % of Retail Sales	13.54%	16.26%	22.92%	24.90%	25.16%	25.23%	25.45%	25.74%	25.94%	26.03%	46.34%	46.98%	47.33%	47.72%	50.71%	48.32%	51.31%	51.14%	51.01%	50.92%	50.91%
Renewable Energy % of Underlying Retail Sales	12.16%	14.57%	20.35%	21.89%	21.89%	21.70%	21.62%	21.60%	21.49%	21.35%	37.63%	37.85%	37.84%	37.95%	40.12%	38.05%	40.27%	40.07%	39.91%	39.81%	39.77%
Renewable Energy RPS	682,092	431,576	578,371	620,462	622,311	620,215	621,084	623,319	622,051	621,362	1,046,085	1,056,496	1,059,582	1,066,352	1,125,226	1,074,050	1,136,359	1,133,467	1,132,182	1,134,037	1,135,166
Renewable Energy % of Retail Sales	32.33%	19.31%	25.99%	28.01%	28.25%	28.35%	28.61%	28.93%	29.11%	29.26%	49.54%	50.24%	50.59%	51.01%	53.94%	51.57%	54.60%	54.39%	54.26%	54.22%	54.15%
Renewable Energy % of Underlying Retail Sales	29.04%	17.31%	23.07%	24.62%	24.58%	24.30%	24.30%	24.28%	24.12%	23.99%	40.23%	40.48%	40.45%	40.57%	42.67%	40.61%	42.85%	42.62%	42.45%	42.38%	42.29%
Energy Efficiency - Cumulative MWh	239,413	258,772	281,539	304,634	329,108	355,870	384,759	412,991	441,698	465,728	488,568	507,385	525,316	538,137	550,663	561,970	570,804	575,363	580,589	583,972	587,679
Energy Efficiency - Cumulative % of Underlying Retail Sales	10.19%	10.38%	11.23%	12.09%	13.00%	13.99%	15.05%	16.09%	17.13%	17.98%	18.79%	19.44%	20.05%	20.47%	20.88%	21.25%	21.52%	21.64%	21.77%	21.83%	21.89%
Energy Efficiency - Annual Incremental MWh		19,360	22,767	23,095	24,474	26,762	28,889	28,231	28,707	24,031	22,839	18,817	17,931	12,822	12,526	11,307	8,834	4,559	5,226	3,383	3,707
Energy Efficiency - Annual Incremental % of Retail Sales		0.87%	1.02%	1.04%	1.11%	1.22%	1.33%	1.31%	1.34%	1.13%	1.08%	0.89%	0.86%	0.60%	0.54%	0.42%	0.25%	0.25%	0.16%	0.16%	0.18%
Energy Efficiency - Annual Incremental % of Underlying Retail Sales		0.78%	0.91%	0.92%	0.97%	1.05%	1.13%	1.10%	1.11%	0.93%	0.88%	0.72%	0.68%	0.49%	0.48%	0.43%	0.33%	0.17%	0.20%	0.13%	0.14%
Demand Response MWh	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Demand Response % of Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Demand Response % of Underlying Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Clean Energy Credits	921,505	690,348	859,910	925,096	951,419	976,085	1,005,844	1,036,309	1,063,749	1,087,090	1,534,652	1,563,880	1,584,898	1,604,489	1,675,890	1,636,020	1,707,163	1,708,830	1,712,771	1,718,009	1,722,846
Clean Energy % of Underlying Retail Sales	39.23%	27.68%	34.30%	36.71%	37.58%	38.37%	39.35%	40.36%	41.25%	41.98%	59.02%	59.92%	60.50%	61.04%	63.56%	61.86%	64.37%	64.26%	64.21%	64.21%	64.19%



Clean Installed Capacity

	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Renewable Energy MW	145.0	143.8	223.8	249.8	249.8	249.9	250.0	250.1	250.2	250.3	500.5	500.9	506.3	511.9	532.4	514.0	535.0	536.1	537.6	539.3	541.3
Renewable Energy % of Peak Demand	33.57%	32.90%	51.94%	57.32%	58.13%	59.13%	59.74%	60.05%	59.98%	61.46%	122.46%	123.62%	126.74%	128.43%	131.79%	131.31%	135.72%	135.38%	137.41%	137.48%	137.61%
Renewable Energy % of Underlying Peak Demand	31.05%	30.17%	47.07%	51.45%	51.53%	51.69%	51.52%	51.16%	50.55%	51.06%	100.83%	100.76%	102.21%	102.76%	105.03%	103.27%	106.39%	105.75%	106.56%	106.32%	106.14%
Energy Efficiency - Cumulative MW	34.3	38.7	43.7	48.9	54.2	59.9	65.8	71.4	76.8	81.8	86.4	90.5	94.3	97.7	100.8	103.7	105.6	107.4	108.9	109.8	110.4
Energy Efficiency - Cumulative % of Underlying Peak Demand	7.35%	8.13%	9.20%	10.07%	11.17%	12.40%	13.57%	14.60%	15.51%	16.69%	17.41%	18.21%	19.03%	19.61%	19.89%	20.84%	21.01%	21.17%	21.59%	21.64%	21.65%
Energy Efficiency - Annual Incremental MW		4.4	5.0	5.1	5.3	5.8	5.9	5.6	5.4	5.0	4.6	4.1	3.7	3.4	3.1	2.9	1.9	1.7	1.6	0.9	0.7
Energy Efficiency - Annual Incremental % of Peak Demand		1.02%	1.16%	1.18%	1.23%	1.36%	1.41%	1.33%	1.29%	1.24%	1.13%	1.01%	0.93%	0.86%	0.77%	0.75%	0.49%	0.43%	0.40%	0.22%	0.17%
Energy Efficiency - Annual Incremental % of Underlying Peak Demand		0.93%	1.05%	1.06%	1.09%	1.19%	1.22%	1.14%	1.09%	1.03%	0.93%	0.82%	0.75%	0.69%	0.62%	0.59%	0.38%	0.34%	0.31%	0.17%	0.13%
Demand Response MW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Demand Response % of Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Demand Response % of Underlying Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Battery Storage MW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Battery Storage % of Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Battery Storage % of Underlying Retail Sales	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Clean Installed Capacity MW	179	183	268	299	304	310	316	321	327	332	587	591	601	610	633	618	641	643	646	649	652
Clean Installed Capacity % of Underlying Peak Demand	38.40%	38.29%	56.27%	61.51%	62.70%	64.08%	65.09%	65.76%	66.06%	67.75%	118.25%	118.97%	121.23%	122.36%	124.91%	124.11%	127.39%	126.92%	128.15%	127.96%	127.79%



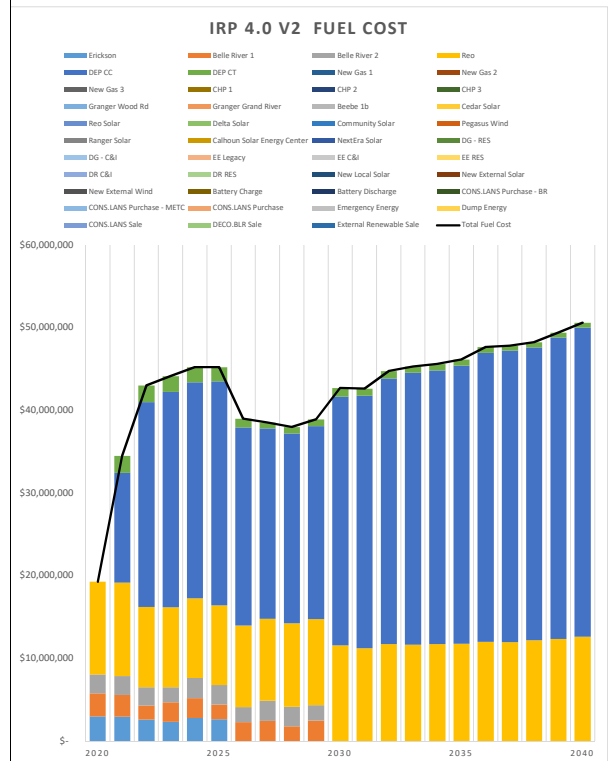
IRP 4.0 V2

Summary of Modeling

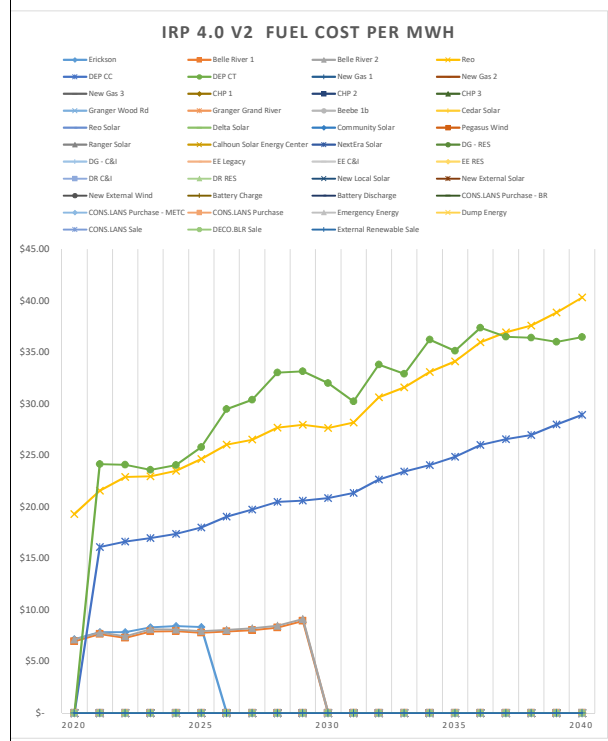
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	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	
Fuel Cost																						
Erickson	\$ 2,981,355	\$ 2,966,598	\$ 2,593,279	\$ 2,324,913	\$ 2,803,668	\$ 2,646,273	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Belle River 1	\$ 2,800,278	\$ 2,617,983	\$ 1,715,197	\$ 2,356,740	\$ 2,396,524	\$ 1,764,687	\$ 2,308,350	\$ 2,444,903	\$ 1,787,207	\$ 2,480,773	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Belle River 2	\$ 2,290,679	\$ 2,286,666	\$ 2,203,640	\$ 1,822,441	\$ 2,445,754	\$ 2,380,427	\$ 1,821,683	\$ 2,444,136	\$ 2,372,893	\$ 1,876,367	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Reo	\$ 11,211,883	\$ 11,298,300	\$ 9,733,916	\$ 9,675,119	\$ 9,621,624	\$ 9,651,991	\$ 9,857,063	\$ 9,919,200	\$ 10,085,106	\$ 10,419,785	\$ 11,581,219	\$ 11,248,105	\$ 11,738,043	\$ 11,669,937	\$ 11,764,307	\$ 11,778,480	\$ 12,025,775	\$ 11,996,137	\$ 12,206,115	\$ 12,372,394	\$ 12,626,522	
DEP CC	\$ -	\$ 13,279,073	\$ 24,782,271	\$ 26,077,411	\$ 26,128,992	\$ 27,077,493	\$ 23,971,396	\$ 23,033,231	\$ 22,987,190	\$ 23,315,137	\$ 30,087,812	\$ 30,554,658	\$ 32,154,454	\$ 32,890,721	\$ 33,067,684	\$ 33,648,869	\$ 34,954,009	\$ 35,231,306	\$ 35,417,734	\$ 36,468,710	\$ 37,414,865	
DEP CT	\$ -	\$ 2,066,087	\$ 2,006,155	\$ 1,879,076	\$ 1,816,947	\$ 1,708,618	\$ 1,024,471	\$ 709,756	\$ 757,637	\$ 822,276	\$ 1,059,910	\$ 846,677	\$ 869,755	\$ 766,331	\$ 777,398	\$ 730,860	\$ 688,973	\$ 596,031	\$ 642,030	\$ 587,493	\$ 564,185	
New Gas 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Gas 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Gas 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CHP 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Granger Wood Rd	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Granger Grand River	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Beebe 1b	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Cedar Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Reo Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Delta Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Community Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Pegasus Wind	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Ranger Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Calhoun Solar Energy Center	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
NextEra Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DG - RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DG - C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
EE Legacy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
EE C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
EE RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DR C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DR RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New Local Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New External Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
New External Wind	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Battery Charge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Battery Discharge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CONS.LANS Purchase - BR	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CONS.LANS Purchase - METC	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CONS.LANS Purchase	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Emergency Energy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Dump Energy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CONS.LANS Sale	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DECO.BLR Sale	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
External Renewable Sale	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Total Fuel Cost	\$ 19,284,195	\$ 34,514,707	\$ 43,034,458	\$ 44,135,700	\$ 45,213,511	\$ 45,229,490	\$ 38,982,963	\$ 38,553,226	\$ 37,990,034	\$ 38,914,338	\$ 42,728,941	\$ 42,649,440	\$ 44,762,253	\$ 45,326,989	\$ 45,609,389	\$ 46,158,210	\$ 47,668,757	\$ 47,823,474	\$ 48,265,879	\$ 49,428,597	\$ 50,605,572	



	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
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Erickson	\$ 7.19	\$ 7.87	\$ 7.87	\$ 8.33	\$ 8.44	\$ 8.35	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Belle River 1	\$ 6.95	\$ 7.66	\$ 7.29	\$ 7.92	\$ 7.95	\$ 7.79	\$ 7.92	\$ 8.05	\$ 8.30	\$ 8.95	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Belle River 2	\$ 7.13	\$ 7.81	\$ 7.45	\$ 8.12	\$ 8.10	\$ 7.96	\$ 8.08	\$ 8.22	\$ 8.47	\$ 9.12	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Reo	\$ 19.31	\$ 21.58	\$ 22.92	\$ 22.96	\$ 23.51	\$ 24.65	\$ 26.05	\$ 26.53	\$ 27.68	\$ 27.97	\$ 27.65	\$ 28.18	\$ 30.63	\$ 31.60	\$ 33.10	\$ 34.11	\$ 35.97	\$ 36.94	\$ 37.58	\$ 38.86	\$ 40.31
DEP CC	\$ -	\$ 16.12	\$ 16.65	\$ 16.97	\$ 17.40	\$ 18.00	\$ 19.07	\$ 19.74	\$ 20.49	\$ 20.62	\$ 20.86	\$ 21.35	\$ 22.68	\$ 23.43	\$ 24.05	\$ 24.86	\$ 26.01	\$ 26.58	\$ 26.98	\$ 28.00	\$ 28.92
DEP CT	\$ -	\$ 24.14	\$ 24.08	\$ 23.58	\$ 24.04	\$ 25.79	\$ 29.49	\$ 30.39	\$ 33.01	\$ 33.14	\$ 32.02	\$ 30.25	\$ 33.79	\$ 32.90	\$ 36.22	\$ 35.15	\$ 37.37	\$ 36.50	\$ 36.42	\$ 35.99	\$ 36.46
New Gas 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Granger Wood Rd	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Granger Grand River	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Beebe 1b	\$ -	\$ -	\$ -	\$ -																	

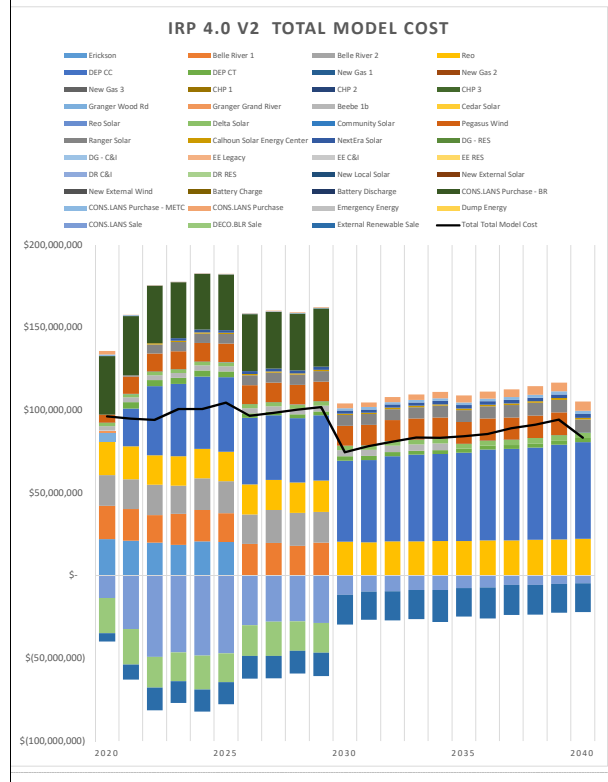
IRP 4.0 V2

Summary of Modeling

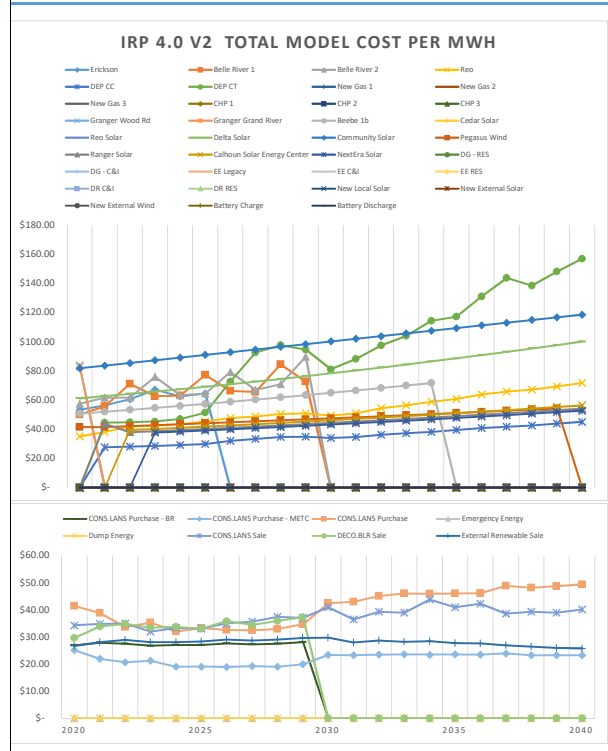
Model Configuration and Constraints
 35% Clean Energy in 2025, 50% Renewable Energy in 2030 | Erickson Retires December 2025 and Dispatched Optimally | 1% Annual Incremental Energy Efficiency | Pegasus Online 7/1/2020 | Regular Growth | No Incentive for Electric Vehicles | No Incentive for Customer Solar | Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy | Question Answered: What is the impact of increasing our renewable energy goal to 50%?

Expansion Plan:
 2021: 10MW Solar | C&I Bins 1, 2 & 3; Res Bins 1, 3 & 5 | 2022: 80MW Solar | 2023: 26MW Solar | 2025: Erickson Retirement | 2030: 210MW Solar | 40MW Wind | 2032: 5MW Solar | 2033: 5MW Solar | 2034:

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
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Total Model Cost	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Erickson	\$ 22,172,014	\$ 21,258,361	\$ 19,996,698	\$ 18,772,523	\$ 20,764,048	\$ 20,483,841	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Belle River 1	\$ 20,180,467	\$ 19,057,383	\$ 16,752,650	\$ 18,645,871	\$ 19,022,577	\$ 17,479,968	\$ 19,333,371	\$ 19,955,203	\$ 18,192,082	\$ 20,148,330	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Belle River 2	\$ 18,481,891	\$ 18,036,989	\$ 18,282,282	\$ 17,026,555	\$ 19,167,287	\$ 19,329,478	\$ 17,865,964	\$ 19,931,986	\$ 19,882,590	\$ 18,471,625	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Reo	\$ 20,347,136	\$ 20,006,866	\$ 17,795,362	\$ 17,833,790	\$ 17,816,826	\$ 17,825,274	\$ 18,054,055	\$ 18,209,682	\$ 18,437,822	\$ 18,974,936	\$ 20,678,594	\$ 20,329,938	\$ 20,844,703	\$ 20,811,874	\$ 20,952,557	\$ 21,042,749	\$ 21,364,009	\$ 21,418,944	\$ 21,805,849	\$ 22,094,802	\$ 22,487,730
DEP CC	\$ -	\$ 22,794,978	\$ 41,880,704	\$ 43,795,446	\$ 43,850,025	\$ 45,072,797	\$ 40,398,908	\$ 39,027,043	\$ 38,889,365	\$ 39,531,160	\$ 49,020,723	\$ 49,699,883	\$ 51,505,514	\$ 52,433,034	\$ 52,691,080	\$ 53,415,335	\$ 54,969,730	\$ 55,420,067	\$ 55,828,446	\$ 57,138,692	\$ 58,358,571
DEP CT	\$ -	\$ 3,816,786	\$ 3,739,714	\$ 3,615,308	\$ 3,553,201	\$ 3,407,670	\$ 2,529,109	\$ 2,164,442	\$ 2,240,103	\$ 2,349,528	\$ 2,685,931	\$ 2,468,588	\$ 2,508,694	\$ 2,422,704	\$ 2,455,305	\$ 2,439,931	\$ 2,417,784	\$ 2,347,552	\$ 2,441,820	\$ 2,417,471	\$ 2,428,508
New Gas 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Granger Wood Rd	\$ 5,498,401	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Granger Grand River	\$ 1,098,338	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Beebe 1b	\$ 2,810,094	\$ 2,881,790	\$ 2,935,240	\$ 3,001,689	\$ 3,110,049	\$ 3,180,931	\$ 3,233,418	\$ 3,319,856	\$ 3,430,425	\$ 3,467,648	\$ 3,577,849	\$ 3,664,435	\$ 3,785,223	\$ 3,851,962	\$ 3,946,688	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Cedar Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Reo Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Delta Solar	\$ 2,071,241	\$ 2,125,679	\$ 2,179,775	\$ 2,255,318	\$ 2,289,179	\$ 2,344,044	\$ 2,419,906	\$ 2,490,124	\$ 2,513,496	\$ 2,605,472	\$ 2,633,397	\$ 2,737,369	\$ 2,799,726	\$ 2,885,170	\$ 2,911,877	\$ 3,002,480	\$ 3,108,229	\$ 3,152,620	\$ 3,230,459	\$ 3,368,471	\$ 3,397,986
Community Solar	\$ 31,218	\$ 31,990	\$ 32,679	\$ 33,651	\$ 34,151	\$ 34,549	\$ 35,864	\$ 36,755	\$ 36,266	\$ 38,023	\$ 37,977	\$ 39,701	\$ 39,412	\$ 40,510	\$ 41,189	\$ 41,937	\$ 43,076	\$ 43,146	\$ 43,977	\$ 45,356	\$ 45,316
Pegasus Wind	\$ 4,832,819	\$ 10,576,306	\$ 10,806,092	\$ 10,899,541	\$ 11,152,903	\$ 11,252,975	\$ 11,401,970	\$ 11,639,005	\$ 11,834,136	\$ 11,926,829	\$ 12,172,382	\$ 12,344,787	\$ 12,633,706	\$ 12,666,508	\$ 12,846,864	\$ 13,164,223	\$ 13,301,150	\$ 13,449,850	\$ 13,630,961	\$ 13,707,748	\$ 13,778,535
Ranger Solar	\$ -	\$ 796,075	\$ 5,512,963	\$ 5,735,435	\$ 5,797,841	\$ 5,852,935	\$ 5,977,841	\$ 6,095,060	\$ 6,237,296	\$ 6,328,682	\$ 6,468,640	\$ 6,606,621	\$ 6,706,705	\$ 6,836,819	\$ 7,023,125	\$ 7,129,331	\$ 7,283,378	\$ 7,445,730	\$ 7,582,423	\$ 7,708,356	\$ 7,876,935
Calhoun Solar Energy Center	\$ -	\$ -	\$ 718,730	\$ 731,213	\$ 745,105	\$ 761,732	\$ 777,171	\$ 792,350	\$ 812,072	\$ 824,033	\$ 839,531	\$ 858,956	\$ 875,700	\$ 888,902	\$ 913,154	\$ 928,272	\$ 945,883	\$ 967,027	\$ 984,247	\$ 999,862	\$ 1,025,864
NextEra Solar	\$ -	\$ -	\$ -	\$ 1,629,816	\$ 1,652,721	\$ 1,665,368	\$ 1,728,549	\$ 1,771,589	\$ 1,751,921	\$ 1,846,395	\$ 1,842,985	\$ 1,918,540	\$ 1,924,493	\$ 1,975,341	\$ 2,009,975	\$ 2,055,677	\$ 2,108,020	\$ 2,126,464	\$ 2,178,041	\$ 2,249,944	\$ 2,258,245
DG - RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DG - C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
EE Legacy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
EE C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
EE RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DR C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DR RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Local Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New External Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New External Wind	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Battery Charge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Battery Discharge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CONS.LANS Purchase - BR	\$ 35,420,503	\$ 35,778,855	\$ 34,829,555	\$ 33,789,508	\$ 33,816,090	\$ 33,673,675	\$ 34,568,514	\$ 34,280,552	\$ 34,430,519	\$ 35,170,847	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CONS.LANS Purchase - METC	\$ 934,468	\$ 434,991	\$ 55,864	\$ 35,570	\$ 62,596	\$ 54,685	\$ 279,162	\$ 374,656	\$ 404,634	\$ 414,308	\$ 1,340,228	\$ 1,393,434	\$ 1,492,536	\$ 1,560,896	\$ 1,614,398	\$ 1,679,257	\$ 1,720,620	\$ 1,826,243	\$ 1,795,322	\$ 1,845,032	\$ 1,892,742
CONS.LANS Purchase	\$ 2,087,655	\$ 280,127	\$ 59,279	\$ 39,619	\$ 74,773	\$ 58,417	\$ 256,555	\$ 389,922	\$ 377,283	\$ 443,784	\$ 2,934,122	\$ 2,820,943	\$ 3,048,938	\$ 3,271,493	\$ 3,813,127	\$ 4,138,232	\$ 4,234,013	\$ 4,671,598	\$ 5,138,515	\$ 5,255,049	\$ 5,717,018
Emergency Energy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Dump Energy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CONS.LANS Sale	\$ (13,349,913)	\$ (32,118,908)	\$ (49,115,959)	\$ (46,259,762)	\$ (48,322,326)	\$ (46,959,822)	\$ (29,900,310)	\$ (27,659,525)	\$ (27,509,640)	\$ (28,541,521)	\$ (11,541,638)	\$ (9,619,422)	\$ (9,429,514)	\$ (8,661,746)	\$ (8,664,242)	\$ (7,377,745)	\$ (7,043,598)	\$ (5,399,122)	\$ (5,450,562)	\$ (4,844,489)	\$ (4,481,802)
DECO.BLR Sale	\$ (21,424,997)	\$ (21,499,876)	\$ (18,463,198)	\$ (17,421,337)	\$ (20,360,705)	\$ (17,368,997)	\$ (18,510,000)	\$ (20,736,152)	\$ (17,757,753)	\$ (18,035,746)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
External Renewable Sale	\$ (4,929,810)	\$ (9,214,193)	\$ (13,729,250)	\$ (13,260,237)	\$ (13,406,618)	\$ (13,730,765)	\$ (13,406,159)	\$ (13,730,765)	\$ (13,843,645)	\$ (14,019,958)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Total Model Cost	\$ 96,261,524	\$ 95,044,199	\$ 94,269,183	\$ 100,773,588	\$ 100,800,317	\$ 104,740,755	\$ 96,719,281	\$ 98,435,996	\$ 100,358,971	\$ 101,944,377	\$ 74,699,376	\$ 78,339,976	\$ 81,109,131	\$ 83,521,423	\$ 83,290,614	\$ 84,351,458	\$ 85,628,109	\$ 89,156,670	\$ 91,253,933	\$ 94,480,531	\$ 83,496,212



Total Model Cost per MWh	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Erickson	\$ 53.45	\$ 56.40	\$ 60.70	\$ 67.27	\$ 62.53	\$ 64.66	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Belle River 1	\$ 50.05	\$ 55.78	\$ 71.23	\$ 62.70	\$ 63.09	\$ 77.19	\$ 66.32	\$ 65.68	\$ 84.50	\$ 72.65	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Belle River 2	\$ 57.56	\$ 61.61	\$ 61.80	\$ 75.89																	

IRP 4.0 V2 Summary of Modeling		2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Model Configuration and Constraints 35% Clean Energy in 2025, 50% Renewable Energy in 2030 Erickson Retires December 2025 and Dispatched Optimally 1% Annual Incremental Energy Efficiency Pegasus Online 7/1/2020 Regular Growth No Incentive for Electric Vehicles No Incentive for Customer Solar Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy Question Answered: What is the impact of increasing our renewable energy goal to 50%?		Expansion Plan: 2021: 10MW Solar C&I Bins 1, 2 & 3; Res Bins 1, 3 & 5 2022: 80MW Solar 2023: 26MW Solar 2025: Erickson Retirement 2030: 210MW Solar 40MW Wind 2032: 5MW Solar 2033: 5MW Solar 2034:																				
Post Processing Costs - Coal Penalties		2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Coal on Ground Year Start		200,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Coal Needed		229,279	208,545	182,111	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pile used first pile remaining		200,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ending Pile		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Deliveries Used		29,279	208,545	182,111	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Penalty Tons		370,721	191,455	217,889	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Erickson - Coal Penalties (PRB)		\$ 982,410	\$ 507,355	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Erickson - Rail Penalties (BNSF/CN)		\$ 4,302,643	\$ 2,289,613	\$ 2,685,893	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Post Processing Costs - Customer Programs		2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
EE C&I		\$ -	\$ 1,927,998	\$ 2,236,862	\$ 2,541,845	\$ 2,822,942	\$ 3,143,712	\$ 3,426,552	\$ 3,587,237	\$ 3,650,577	\$ 3,671,777	\$ 3,569,314	\$ 4,000,628	\$ 4,015,937	\$ 4,292,621	\$ 4,301,564	\$ 4,339,053	\$ 4,697,335	\$ 4,796,973	\$ 4,789,353	\$ 4,837,838	\$ 4,801,417
EE RES		\$ -	\$ 627,475	\$ 746,789	\$ 825,481	\$ 873,268	\$ 992,891	\$ 1,112,347	\$ 1,232,513	\$ 1,352,209	\$ 1,473,129	\$ 1,570,366	\$ 1,320,972	\$ 1,273,873	\$ 1,231,922	\$ 1,196,363	\$ 1,154,211	\$ 1,283,659	\$ 1,276,845	\$ 1,267,652	\$ 1,282,604	\$ 1,284,848
DR C&I		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DR RES		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DG - RES		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DG - C&I		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Electric Vehicles		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Post Processing Costs - Capital & FOM		2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
New Gas 1 - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 1 - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 2 - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 2 - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 3 - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 3 - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 1 - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 1 - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 2 - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 2 - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 3 - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 3 - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Local Solar - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 13,612,588	\$ 13,276,136	\$ 12,939,684	\$ 12,603,232	\$ 12,266,780	\$ 11,930,328	\$ 11,593,876	\$ 11,257,424	\$ 10,920,972	\$ 10,584,520	\$ 10,248,068
New Local Solar - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,965,000	\$ 1,965,000	\$ 1,965,000	\$ 1,965,000	\$ 1,966,000	\$ 1,966,000	\$ 1,966,000	\$ 1,966,000	\$ 1,966,000	\$ 1,966,000	
New External Solar - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 680,629	\$ 663,807	\$ 1,038,676	\$ 1,399,151	\$ 1,363,082	\$ 1,327,014	\$ 1,290,945	\$ 1,254,877	\$ 1,218,809	\$ 1,182,740	\$ 1,146,672
New External Solar - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 98,300	\$ 98,300	\$ 154,800	\$ 210,650	\$ 210,650	\$ 210,650	\$ 210,650	\$ 210,650	\$ 210,650	\$ 210,650	\$ 210,650
New External Wind - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,070,988	\$ 5,920,936	\$ 5,770,884	\$ 5,620,832	\$ 5,470,780	\$ 5,320,728	\$ 5,170,676	\$ 5,020,624	\$ 4,870,572	\$ 4,720,520	\$ 4,570,468
New External Wind - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Battery - Capital		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Battery - FOM		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Post Processing Costs - Capacity Expense		PY 2020/21	PY 2021/22	PY 2022/23	PY 2023/24	PY 2024/25	PY 2025/26	PY 2026/27	PY 2027/28	PY 2028/29	PY 2029/30	PY 2030/31	PY 2031/32	PY 2032/33	PY 2033/34	PY 2034/35	PY 2035/36	PY 2036/37	PY 2037/38	PY 2038/39	PY 2039/40	PY 2040/41
Capacity Price - Purchase (\$/kW-Mo)		\$ 0.92	\$ 0.94	\$ 0.97	\$ 1.00	\$ 1.03	\$ 1.06	\$ 1.09	\$ 1.13	\$ 1.16	\$ 1.20	\$ 1.23	\$ 1.27	\$ 1.31	\$ 1.35	\$ 1.39	\$ 1.43	\$ 1.47	\$ 1.52	\$ 1.56	\$ 1.61	\$ 1.66
Capacity Price - Sale (\$/kW-Mo)		\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 0.53	\$ 1.00	\$ 0.98	\$ 0.96	\$ 0.96	\$ 0.96	\$ 0.88	\$ 0.88	\$ 0.88	\$ 0.88	\$ 0.88	\$ 0.73
Capacity Purchase		\$ 231,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Local Capacity Sale		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
External Capacity Sale		\$ -	\$ (1,050,932)	\$ (1,320,073)	\$ (1,320,073)	\$ (1,320,073)	\$ (1,320,073)	\$ (538,282)	\$ (551,099)	\$ (544,690)	\$ (615,180)	\$ (735,050)	\$ (764,400)	\$ (848,040)	\$ (882,420)	\$ (859,500)	\$ (830,290)	\$ (861,820)	\$ (861,820)	\$ (861,820)	\$ (861,820)	\$ (720,780)
Post Processing Costs - Transmission Expense		2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Transmission - BR - Total Annual MWs during Peak		1,799.3	1,771.8	1,753.7	1,744.9	1,711.8	1,703.3	1,710.1	1,704.1	1,692.5	1,698.1	-	-	-	-	-	-	-	-	-	-	-
Transmission - BR - Average Monthly MWs during Peak		149.9	147.7	146.1	145.4	142.7	141.9	142.5	142.0	141.0	141.5	-	-	-	-	-	-	-	-	-	-	-
Transmission - METC - Total Annual MWs during Peak		106.9	55.3	20.9	14.4	19.3	18.2	32.9	37.1	36.5	36.6	97.6	96.2	102.6	107.3	113.1	114.6	119.5	125.2	127.0	130.5	132.1
Transmission - METC - Average Monthly MWs during Peak		8.9	4.6	1.7	1.2	1.6	1.5	2.7	3.1	3.0	3.1	8.1	8.0	8.6	8.9	9.4	9.5	10.0	10.4	10.6	10.9	11.0
Transmission - Non-Entitlement - Total Annual MWs during Peak		412.2	101.6	24.8	16.6	23.9	21.7	35.9	34.6	38.2	29.3	161.8	164.6	154.0	195.4	193.9	201.3	211.9	207.7	221.9	205.4	215.9
Transmission - Non-Entitlement - Average Monthly MWs during Peak		34.4	8.5	2.1	1.4	2.0	1.8	3.0	2.9	3.2	2.4	13.5	13.7	12.8	16.3	16.2	16.8	17.7	17.3	18.5	17.1	18.0
PIP - CONS.LANS Purchase - BR - Fixed Expense		\$ 972,648	\$ 1,191,528	\$ 1,286,208	\$ 1,388,448	\$ 1,471,230	\$ 1,558,998	\$ 1,652,040	\$ 1,750,680	\$ 1,855,224	\$ 1,966,068	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
PIP - CONS.LANS Purchase - BR - Redirect Revenue		\$ (295)	\$ (13,993)	\$ (24,820)	\$ (31,852)	\$ (54,051)	\$ (62,793)	\$ (61,867)	\$ (69,927)	\$ (83,079)	\$ (83,478)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
NITS - CONS.LANS Purchase - BR - Fixed Expense		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
NITS - CONS.LANS Purchase - BR - Redirect Revenue		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
PIP - CONS.LANS Purchase - METC - Fixed Expense		\$ 119,908	\$ 138,678	\$ 146,823	\$ 155,606	\$ 162,755	\$ 170,322	\$ 178,334	\$ 186,818	\$ 195,799	\$ 205,308	\$ 215,378	\$ 226,042									

IRP 4.0 V2

Summary of Modeling

Model Configuration and Constraints
 35% Clean Energy in 2025, 50% Renewable Energy in 2030 | Erickson Retires December 2025 and Dispatched Optimally | 1% Annual Incremental Energy Efficiency | Pegasus Online 7/1/2020 | Regular Growth | No Incentive for Electric Vehicles | No Incentive for Customer Solar | Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy | Question Answered: What is the impact of increasing our renewable energy goal to 50%?

Expansion Plan:
 2021: 10MW Solar | C&I Bins 1, 2 & 3; Res Bins 1, 3 & 5 | 2022: 80MW Solar | 2023: 26MW Solar | 2025: Erickson Retirement | 2030: 210MW Solar | 40MW Wind | 2032: 5MW Solar | 2033: 5MW Solar | 2034:

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Total Costs w/ Post Processing	2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01
Erickson	\$ 27,457,067	\$ 24,055,328	\$ 22,682,592	\$ 18,772,523	\$ 20,764,048	\$ 20,483,841	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Belle River 1	\$ 20,180,467	\$ 19,057,383	\$ 16,752,650	\$ 18,645,871	\$ 19,022,577	\$ 17,479,968	\$ 19,333,371	\$ 19,955,203	\$ 18,192,082	\$ 20,148,330	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Belle River 2	\$ 18,481,891	\$ 18,036,989	\$ 17,282,282	\$ 17,026,555	\$ 19,329,478	\$ 17,865,964	\$ 19,931,986	\$ 19,882,590	\$ 19,882,590	\$ 18,471,625	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Reo	\$ 20,347,136	\$ 20,006,866	\$ 17,953,362	\$ 17,833,790	\$ 17,816,826	\$ 17,825,274	\$ 18,054,055	\$ 18,209,682	\$ 18,437,822	\$ 18,974,936	\$ 20,678,594	\$ 20,329,938	\$ 20,844,703	\$ 20,811,874	\$ 20,952,557	\$ 21,042,749	\$ 21,364,009	\$ 21,418,944	\$ 21,805,849	\$ 22,094,802	\$ 22,487,730
DEP CC	\$ -	\$ -	\$ 41,880,704	\$ 43,795,446	\$ 43,850,025	\$ 45,072,797	\$ 40,398,908	\$ 39,027,043	\$ 38,889,365	\$ 39,531,160	\$ 49,020,723	\$ 49,699,883	\$ 51,505,514	\$ 52,433,034	\$ 52,691,080	\$ 53,415,335	\$ 54,969,730	\$ 55,420,667	\$ 55,828,446	\$ 57,138,623	\$ 58,358,571
DEP CT	\$ -	\$ 3,816,786	\$ 3,739,714	\$ 3,615,308	\$ 3,553,201	\$ 3,407,670	\$ 2,529,109	\$ 2,164,442	\$ 2,240,103	\$ 2,349,528	\$ 2,685,931	\$ 2,468,588	\$ 2,508,694	\$ 2,422,704	\$ 2,455,305	\$ 2,439,931	\$ 2,417,784	\$ 2,347,552	\$ 2,441,820	\$ 2,417,471	\$ 2,428,508
New Gas 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Gas 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CHP 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Granger Wood Rd	\$ 5,498,401	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Granger Grand River	\$ 1,098,338	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Beebe 1b	\$ 2,810,094	\$ 2,881,790	\$ 2,935,240	\$ 3,001,689	\$ 3,110,049	\$ 3,180,931	\$ 3,233,418	\$ 3,319,856	\$ 3,430,425	\$ 3,467,648	\$ 3,577,849	\$ 3,664,435	\$ 3,785,223	\$ 3,851,962	\$ 3,946,688	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Cedar Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Reo Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Delta Solar	\$ 2,071,241	\$ 2,125,679	\$ 2,179,775	\$ 2,255,318	\$ 2,289,179	\$ 2,344,044	\$ 2,419,906	\$ 2,490,124	\$ 2,519,496	\$ 2,605,472	\$ 2,633,397	\$ 2,737,369	\$ 2,799,726	\$ 2,885,170	\$ 2,911,877	\$ 3,002,480	\$ 3,108,229	\$ 3,152,620	\$ 3,230,459	\$ 3,368,471	\$ 3,397,986
Community Solar	\$ 31,218	\$ 32,679	\$ 34,151	\$ 36,625	\$ 38,100	\$ 39,575	\$ 41,050	\$ 42,525	\$ 44,000	\$ 45,475	\$ 46,950	\$ 48,425	\$ 49,900	\$ 51,375	\$ 52,850	\$ 54,325	\$ 55,800	\$ 57,275	\$ 58,750	\$ 60,225	\$ 61,700
Pegasus Wind	\$ 4,832,819	\$ 10,576,306	\$ 10,806,092	\$ 10,899,541	\$ 11,152,903	\$ 11,252,975	\$ 11,401,970	\$ 11,639,005	\$ 11,834,136	\$ 11,926,829	\$ 12,172,382	\$ 12,344,787	\$ 12,633,705	\$ 12,666,508	\$ 12,846,864	\$ 13,164,223	\$ 13,301,150	\$ 13,449,850	\$ 13,630,961	\$ 13,707,748	\$ 13,778,535
Ranger Solar	\$ -	\$ 796,075	\$ 5,609,504	\$ 5,735,435	\$ 5,977,841	\$ 6,095,060	\$ 6,237,296	\$ 6,328,682	\$ 6,468,640	\$ 6,606,621	\$ 6,706,705	\$ 6,836,818	\$ 7,023,125	\$ 7,129,331	\$ 7,283,378	\$ 7,445,730	\$ 7,582,423	\$ 7,708,356	\$ 7,823,378	\$ 7,938,400	\$ 8,053,422
Calhoun Solar Energy Center	\$ -	\$ -	\$ 718,730	\$ 731,213	\$ 745,105	\$ 761,732	\$ 777,171	\$ 792,350	\$ 812,072	\$ 824,033	\$ 839,514	\$ 858,956	\$ 875,700	\$ 888,902	\$ 913,154	\$ 928,272	\$ 945,883	\$ 967,027	\$ 984,247	\$ 999,862	\$ 1,025,864
NextEra Solar	\$ -	\$ -	\$ -	\$ 1,629,816	\$ 1,652,721	\$ 1,665,368	\$ 1,728,549	\$ 1,771,589	\$ 1,751,921	\$ 1,846,395	\$ 1,842,985	\$ 1,918,540	\$ 1,924,493	\$ 1,975,341	\$ 2,009,975	\$ 2,055,677	\$ 2,108,020	\$ 2,126,464	\$ 2,178,041	\$ 2,249,944	\$ 2,258,245
DG - RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DG - C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
EE Legacy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
EE C&I	\$ -	\$ 1,927,998	\$ 2,236,862	\$ 2,541,845	\$ 2,822,942	\$ 3,143,712	\$ 3,426,552	\$ 3,587,237	\$ 3,650,577	\$ 3,671,777	\$ 3,569,314	\$ 4,000,628	\$ 4,015,937	\$ 4,292,621	\$ 4,301,564	\$ 4,339,053	\$ 4,697,335	\$ 4,796,973	\$ 4,789,353	\$ 4,837,838	\$ 4,801,417
EE RES	\$ -	\$ 627,475	\$ 746,789	\$ 825,481	\$ 873,268	\$ 992,891	\$ 1,112,347	\$ 1,232,513	\$ 1,352,209	\$ 1,473,129	\$ 1,570,366	\$ 1,320,972	\$ 1,273,873	\$ 1,231,922	\$ 1,196,363	\$ 1,154,211	\$ 1,283,659	\$ 1,276,845	\$ 1,267,652	\$ 1,282,604	\$ 1,284,848
DR C&I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
DR RES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Local Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New External Solar	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New External Wind	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Battery Charge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Battery Discharge	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CONS.LANS Purchase - BR	\$ 36,392,856	\$ 36,956,390	\$ 36,090,943	\$ 35,146,104	\$ 35,233,269	\$ 35,169,881	\$ 36,158,686	\$ 35,961,304	\$ 36,202,664	\$ 37,053,438	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CONS.LANS Purchase - METC	\$ 1,028,055	\$ 507,730	\$ 107,756	\$ 85,582	\$ 118,878	\$ 112,647	\$ 352,835	\$ 455,758	\$ 488,995	\$ 502,950	\$ 1,498,316	\$ 1,557,790	\$ 1,672,687	\$ 1,755,963	\$ 1,826,844	\$ 1,904,587	\$ 1,964,666	\$ 2,091,618	\$ 2,077,496	\$ 2,147,947	\$ 2,214,438
CONS.LANS Purchase	\$ 1,759,765	\$ 280,127	\$ 59,279	\$ 39,619	\$ 74,773	\$ 58,417	\$ 256,555	\$ 389,922	\$ 377,283	\$ 443,784	\$ 2,934,122	\$ 2,820,943	\$ 3,048,938	\$ 3,271,493	\$ 3,813,127	\$ 4,138,232	\$ 4,234,013	\$ 4,671,598	\$ 5,138,515	\$ 5,255,049	\$ 5,717,018
Emergency Energy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Dump Energy	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CONS.LANS Sale	\$ (13,349,913)	\$ (32,118,908)	\$ (49,115,959)	\$ (46,259,762)	\$ (48,322,326)	\$ (46,959,822)	\$ (29,900,310)	\$ (27,659,525)	\$ (27,509,640)	\$ (28,541,521)	\$ (11,541,638)	\$ (9,619,422)	\$ (9,429,514)	\$ (8,661,746)	\$ (8,664,242)	\$ (7,377,745)	\$ (7,043,598)	\$ (5,399,122)	\$ (5,450,562)	\$ (4,844,489)	\$ (4,481,802)
DECO.BLR Sale	\$ (21,424,997)	\$ (21,499,876)	\$ (18,463,198)	\$ (17,421,337)	\$ (20,360,705)	\$ (17,368,997)	\$ (18,510,000)	\$ (20,736,152)	\$ (17,757,753)	\$ (18,035,746)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
External Renewable Sale	\$ (4,929,810)	\$ (9,214,193)	\$ (13,729,250)	\$ (13,260,237)	\$ (13,363,618)	\$ (13,408,159)	\$ (13,730,765)	\$ (13,643,645)	\$ (13,843,645)	\$ (14,019,958)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Electric Vehicle Program	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Capacity Purchase	\$ 231,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Capacity Sale	\$ -	\$ (1,050,932)	\$ (1,320,073)	\$ (1,320,073)	\$ (1,320,073)	\$ (1,320,073)	\$ (538,282)	\$ (551,099)	\$ (544,690)	\$ (615,180)	\$ (735,050)	\$ (764,400)	\$ (848,040)	\$ (882,420)	\$ (859,500)	\$ (830,290)	\$ (861,820)	\$ (861,820)	\$ (861,820)	\$ (861,820)	\$ (720,780)
Total Total Costs w/ Post Processing	\$ 102,515,627	\$ 100,595,981	\$ 99,931,934	\$ 104,227,449	\$ 104,649,915	\$ 109,111,451	\$ 102,383,745	\$ 104,466,502	\$ 106,673,573	\$ 108,445,336	\$ 101,690,599	\$ 104,986,711	\$ 107,601,097	\$ 110,158,477	\$ 112,454,273	\$ 112,954,950	\$ 117,144,412	\$ 120,114,502	\$ 121,539,126	\$ 124,177,279	\$ 112,645,979</

IRP 4.0 V2		2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	
Summary of Modeling																							
Model Configuration and Constraints		Expansion Plan:																					
35% Clean Energy in 2025, 50% Renewable Energy in 2030 Erickson Retires December 2025 and Dispatched Optimally 1% Annual Incremental Energy Efficiency Pegasus Online 7/1/2020 Regular Growth No Incentive for Electric Vehicles No Incentive for Customer Solar Point to Point Transmission & Pay for Transmission for External Resource Capacity for Resource Adequacy Question Answered: What is the impact of increasing our renewable energy goal to 50%?		2021: 10MW Solar C&I Bins 1, 2 & 3; Res Bins 1, 3 & 5 2022: 80MW Solar 2023: 26MW Solar 2025: Erickson Retirement 2030: 210MW Solar 40MW Wind 2032: 5MW Solar 2033: 5MW Solar 2034:																					
Summary Metrics		2020-01	2021-01	2022-01	2023-01	2024-01	2025-01	2026-01	2027-01	2028-01	2029-01	2030-01	2031-01	2032-01	2033-01	2034-01	2035-01	2036-01	2037-01	2038-01	2039-01	2040-01	
Total Cost	\$ 102,515,627	\$ 100,595,981	\$ 99,931,934	\$ 104,227,449	\$ 104,649,915	\$ 109,111,451	\$ 102,383,745	\$ 104,466,502	\$ 106,673,573	\$ 108,445,336	\$ 101,690,599	\$ 104,986,711	\$ 107,601,097	\$ 110,158,477	\$ 112,454,273	\$ 112,954,950	\$ 117,144,412	\$ 120,114,502	\$ 121,539,126	\$ 124,177,279	\$ 112,645,979		
Nominal Rates	\$ 48.59	\$ 45.01	\$ 44.90	\$ 47.05	\$ 47.51	\$ 49.87	\$ 47.16	\$ 48.49	\$ 49.92	\$ 51.06	\$ 48.16	\$ 49.93	\$ 51.38	\$ 52.70	\$ 53.91	\$ 54.24	\$ 56.29	\$ 57.64	\$ 58.24	\$ 59.37	\$ 53.73		
Accumulated Net Present Value Total Cost	\$ 102,515,627	\$ 198,632,559	\$ 289,863,642	\$ 380,779,558	\$ 467,999,533	\$ 554,888,909	\$ 632,790,554	\$ 708,737,785	\$ 782,836,554	\$ 854,811,991	\$ 919,299,188	\$ 982,912,249	\$ 1,045,206,495	\$ 1,106,141,721	\$ 1,165,577,196	\$ 1,222,619,139	\$ 1,279,142,749	\$ 1,334,518,934	\$ 1,388,057,035	\$ 1,440,321,710	\$ 1,485,622,011		
Accumulated NPV Retail Sales	2,109,624	4,245,003	6,276,983	8,209,394	10,045,298	11,787,743	13,439,751	15,006,051	16,490,546	17,900,198	19,239,213	20,513,301	21,725,748	22,882,018	23,984,592	25,036,274	26,040,445	27,001,211	27,920,416	28,800,771	29,643,858		
Accumulated NPV Rate Impact	\$ 48.59	\$ 46.79	\$ 46.18	\$ 46.38	\$ 46.59	\$ 47.07	\$ 47.08	\$ 47.23	\$ 47.47	\$ 47.75	\$ 47.78	\$ 47.92	\$ 48.11	\$ 48.34	\$ 48.60	\$ 48.83	\$ 49.12	\$ 49.42	\$ 49.71	\$ 50.01	\$ 50.12		
Risk Premium	\$ 16,037,032	\$ 23,741,506	\$ 33,403,319	\$ 31,097,209	\$ 30,907,906	\$ 29,701,761	\$ 24,474,492	\$ 20,942,788	\$ 20,829,440	\$ 25,107,102	\$ 17,660,530	\$ 12,295,921	\$ 16,777,774	\$ 15,228,331	\$ 16,262,558	\$ 12,690,323	\$ 14,897,883	\$ 13,827,118	\$ 10,766,275	\$ 11,026,473	\$ 8,707,660		
Present Value of Risk Premium	\$ 16,037,032	\$ 22,684,413	\$ 30,494,966	\$ 27,125,592	\$ 25,760,048	\$ 23,652,582	\$ 18,622,128	\$ 15,225,424	\$ 14,468,774	\$ 16,663,645	\$ 11,199,443	\$ 7,450,288	\$ 9,713,273	\$ 8,423,699	\$ 8,595,253	\$ 6,408,579	\$ 7,188,410	\$ 6,374,693	\$ 4,742,554	\$ 4,640,906	\$ 3,501,764		
Accumulated NPV Risk Premium	\$ 16,037,032	\$ 38,721,445	\$ 69,216,411	\$ 96,342,003	\$ 122,102,050	\$ 145,754,632	\$ 164,376,760	\$ 179,602,184	\$ 194,070,958	\$ 210,734,604	\$ 221,934,046	\$ 229,384,334	\$ 239,097,607	\$ 247,521,305	\$ 256,116,558	\$ 262,525,137	\$ 269,713,547	\$ 276,088,240	\$ 280,830,794	\$ 285,471,700	\$ 288,973,464		
Total Cost with Risk Premium	\$ 118,552,659	\$ 124,337,487	\$ 133,335,252	\$ 135,324,658	\$ 135,557,821	\$ 138,813,213	\$ 126,858,237	\$ 125,409,291	\$ 127,503,012	\$ 133,552,439	\$ 119,351,128	\$ 117,282,632	\$ 124,378,871	\$ 125,386,809	\$ 128,716,832	\$ 125,645,274	\$ 132,042,294	\$ 133,941,620	\$ 132,305,401	\$ 135,203,751	\$ 121,353,639		
Present Value of Total Cost with Risk Premium	\$ 118,552,659	\$ 118,801,345	\$ 121,726,049	\$ 118,041,507	\$ 112,980,023	\$ 110,541,958	\$ 96,523,773	\$ 91,172,654	\$ 88,567,544	\$ 88,639,082	\$ 75,686,640	\$ 71,063,349	\$ 72,007,518	\$ 69,358,925	\$ 68,030,728	\$ 63,450,522	\$ 63,712,020	\$ 61,750,877	\$ 58,280,655	\$ 56,905,581	\$ 48,802,064		
Accumulated NPV Total Cost with Risk Premium	\$ 118,552,659	\$ 237,354,004	\$ 359,080,053	\$ 477,121,561	\$ 590,101,583	\$ 700,643,541	\$ 797,167,314	\$ 888,339,968	\$ 976,907,512	\$ 1,065,546,594	\$ 1,141,233,234	\$ 1,212,296,583	\$ 1,284,304,102	\$ 1,353,663,027	\$ 1,421,693,754	\$ 1,485,144,276	\$ 1,548,856,297	\$ 1,610,607,174	\$ 1,668,887,829	\$ 1,725,793,410	\$ 1,774,595,475		
Percent Dispatchable Generation	70.2%	78.9%	71.8%	69.5%	69.1%	68.7%	62.3%	61.9%	61.5%	61.1%	38.6%	38.4%	38.0%	37.7%	36.8%	37.4%	36.5%	36.4%	36.3%	36.2%	36.1%		
Resource Diversity	0.66	0.50	0.57	0.59	0.60	0.60	0.55	0.55	0.55	0.56	0.56	0.56	0.56	0.57	0.57	0.58	0.59	0.60	0.60	0.60	0.60	0.60	
Annual CO2 Emissions - Tons	1,494,155	1,736,476	1,808,496	1,763,622	1,882,848	1,772,835	1,316,234	1,359,765	1,227,689	1,221,209	871,200	854,715	841,865	827,982	809,594	796,169	786,672	773,329	768,987	761,734	755,624		
Accumulated CO2 Emissions - Tons	1,494,155	3,230,631	5,039,128	6,802,750	8,685,598	10,458,433	11,774,667	13,134,431	14,362,120	15,583,329	16,454,529	17,309,244	18,151,110	18,979,092	19,788,686	20,584,855	21,371,527	22,144,856	22,913,843	23,675,577	24,431,201		
Average CO2 Emissions per Year - Tons	1,494,155	1,615,316	1,679,709	1,700,688	1,737,120	1,743,072	1,682,095	1,641,804	1,595,791	1,558,333	1,495,866	1,442,437	1,396,239	1,355,649	1,319,246	1,286,553	1,257,149	1,230,270	1,205,992	1,183,779	1,163,391		
Annual CO2 Intensity - lbs/MWh Generated	1,331.3	1,132.5	991.4	954.6	989.6	955.1	842.6	868.1	818.3	806.2	518.4	509.8	503.6	497.0	481.9	484.3	471.7	467.6	466.0	463.6	461.1		
Total CO2 Emissions Reduced from 2005	65.8%	60.3%	58.6%	59.6%	56.9%	59.4%	69.9%	68.9%	71.9%	72.0%	80.1%	80.4%	80.7%	81.0%	81.5%	82.0%	82.3%	82.4%	82.4%	82.6%	82.7%		
CO2 Intensity Reduced from 2005	42.3%	50.9%	57.0%	58.6%	57.1%	58.6%	63.5%	62.4%	64.5%	65.1%	77.5%	77.9%	78.2%	78.5%	79.0%	79.6%	79.7%	79.7%	79.8%	79.9%	80.0%		
Annual NOx Emissions - Tons	1,012	964	852	807	910	829	567	630	539	530	149	144	140	137	133	130	128	125	125	123	122		
Accumulated NOx Emissions - Tons	1,012	1,977	2,829	3,636	4,547	5,375	5,943	6,573	7,113	7,643	7,792	7,936	8,077	8,213	8,346	8,477	8,605	8,729	8,854	8,977	9,099		
Average NOx Emissions per Year - Tons	1,012	988	943	909	909	896	849	822	790	764	708	661	621	587	556	530	506	485	466	449	433		
Annual NOx Intensity - lbs/MWh Generated	0.9	0.6	0.5	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1		
Total NOx Emissions Reduced from 2005	76.9%	78.0%	80.5%	81.5%	79.2%	81.1%	87.0%	85.6%	87.7%	87.9%	96.6%	96.7%	96.8%	96.9%	97.0%	97.1%	97.1%	97.1%	97.1%	97.2%	97.2%		
NOx Intensity Reduced from 2005	61.0%	72.8%	79.8%	81.1%	79.3%	80.7%	84.3%	82.6%	84.4%	84.8%	96.2%	96.3%	96.4%	96.4%	96.6%	96.7%	96.7%	96.7%	96.7%	96.8%	96.8%		
Annual SO2 Emissions - Tons	3,191	2,835	2,415	2,261	2,638	2,369	1,558	1,812	1,496	1,456	9	9	9	8	8	8	8	8	8	8	8		
Accumulated SO2 Emissions - Tons	3,191	6,026	8,441	10,702	13,340	15,709	17,267	19,079	20,575	22,031	22,040	22,049	22,057	22,066	22,074	22,082	22,090	22,098	22,106	22,114	22,121		
Average SO2 Emissions per Year - Tons	3,191	3,013	2,814	2,676	2,668	2,618	2,467	2,385	2,286	2,203	2,004	2,004	1,997	1,997	1,997	1,997	1,997	1,997	1,997	1,997	1,997		
Annual SO2 Intensity - lbs/MWh Generated	2.8	1.8	1.3	1.2	1.4	1.3	1.0	1.2	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total SO2 Emissions Reduced from 2005	71.2%	74.4%	78.2%	79.6%	76.2%	78.6%	85.9%	83.6%	86.5%	86.8%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%		
SO2 Intensity Reduced from 2005	51.4%	68.4%	77.4%	79.1%	76.3%	78.2%	82.9%	80.2%	82.9%	83.6%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%		
Renewable Energy MWh %	14%	16%	23%	25%	25%	25%	25%	26%	26%	26%	46%	47%	47%	48%	51%	48%	51%	51%	51%	51%	51%		
Renewable Energy RPS %	32%	19%	26%	28%	28%	28%	28%	29%	29%	29%	50%	50%	51%	51%	54%	52%	55%	54%	54%	54%	54%		
Energy Efficiency %	10%	10%	11%	12%	13%	14%	15%	16%	17%	18%	19%	19%	20%	20%	21%	21%	22%	22%	22%	22%	22%		
Clean Energy %	39%	28%	34%	37%	38%	38%	39%	40%	41%	42%	59%	60%	61%	61%	64%	62%	64%	64%	64%	64%	64%		

