

Appendix E
Klamath CAPP Alternatives Economic
Analysis

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Baseload Pricing

Year	Schedule 37 Avoided Cost Prices (¢/kWh)				Change in Avoided Cost (¢/kWh/year)				
	On-Peak Standard	Off-Peak Standard	On-Peak Renewable	Off-Peak Renewable	On-Peak Standard	Off-Peak Standard	On-Peak Renewable	Off-Peak Renewable	
2015	2.77	2.19	2.77	2.19	-	-	-	-	
2016	2.87	2.20	2.87	2.20	0.10	0.01	0.10	0.01	
2017	3.13	2.43	3.13	2.43	0.26	0.23	0.26	0.23	
2018	3.38	2.54	3.38	2.54	0.25	0.11	0.25	0.11	
2019	3.55	2.73	3.55	2.73	0.17	0.19	0.17	0.19	
2020	3.82	2.93	3.82	2.93	0.27	0.20	0.27	0.20	
2021	4.11	3.18	4.11	3.18	0.29	0.25	0.29	0.25	
2022	4.41	3.44	4.41	3.44	0.30	0.26	0.30	0.26	
2023	4.72	3.69	4.72	3.69	0.31	0.25	0.31	0.25	
2024	6.16	3.06	11.96	7.05	1.44	-0.63	7.24	3.36	
2025	6.35	3.18	12.19	7.24	0.19	0.12	0.23	0.19	
2026	6.41	3.18	12.36	7.51	0.06	0.00	0.17	0.27	
2027	6.61	3.31	12.59	7.71	0.20	0.13	0.23	0.20	
2028	6.98	3.61	12.82	7.91	0.37	0.30	0.23	0.20	
2029	7.15	3.71	13.05	8.11	0.17	0.10	0.23	0.20	
2030	7.30	3.79	13.27	8.32	0.15	0.08	0.22	0.21	
2031	7.62	4.03	13.47	8.59	0.32	0.24	0.20	0.27	
2032	7.80	4.14	13.78	8.75	0.18	0.11	0.31	0.16	
2033	7.93	4.20	13.97	9.05	0.13	0.06	0.19	0.30	
2034	8.15	4.34	14.17	9.36	0.22	0.14	0.20	0.31	
2035	8.40	4.51	14.47	9.55	0.25	0.17	0.30	0.19	
2036	8.59	4.62	14.85	9.65	0.19	0.11	0.38	0.10	
2037	8.82	4.76	15.06	9.98	0.23	0.14	0.21	0.33	
2038	9.05	4.91	15.58	9.94	0.23	0.15	0.52	-0.04	
2039	9.25	5.02	16.04	10.01	0.20	0.11	0.46	0.07	
2040	9.51	5.19	16.38	10.22	0.26	0.17	0.34	0.21	
2041	9.71	5.30	16.66	10.51	0.20	0.11	0.28	0.29	
					2015-2023:	6.89%	6.74%	6.89%	6.74%
					2023-2041:	2.71%	3.28%	1.97%	2.38%
					average:	4.80%	5.01%	4.43%	4.56%

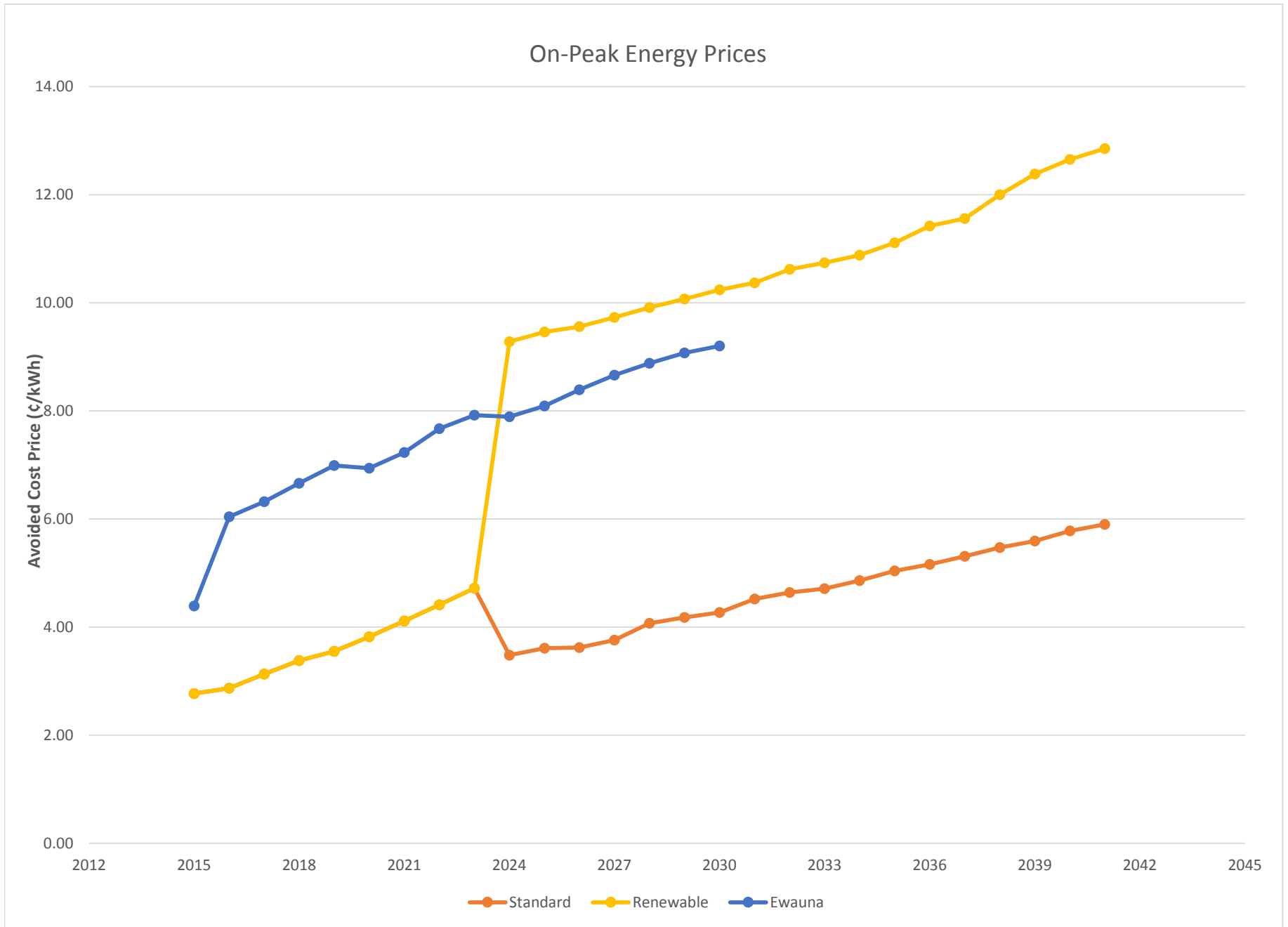
Inflation Estimates for Baseload:	
Avg. Standard Rate:	4.83%
Avg. Renewable Rate:	4.45%

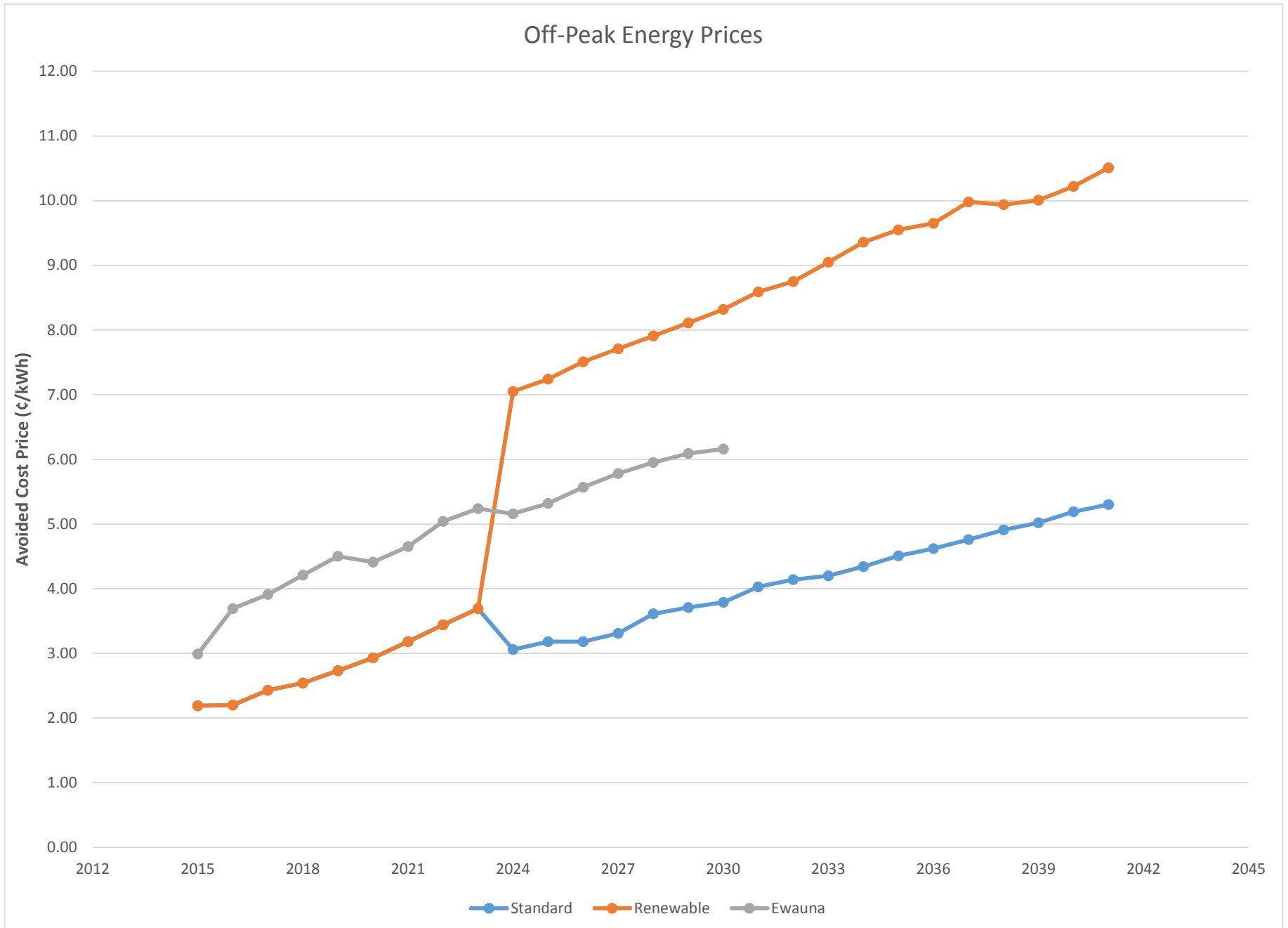
Solar Pricing

Year	Schedule 37 Avoided Cost Prices (¢/kWh)				Change in Avoided Cost (¢/kWh/year)				
	On-Peak Standard	Off-Peak Standard	On-Peak Renewable	Off-Peak Renewable	On-Peak Standard	Off-Peak Standard	On-Peak Renewable	Off-Peak Renewable	
2015	2.77	2.19	2.77	2.19	-	-	-	-	
2016	2.87	2.20	2.87	2.20	0.10	0.01	0.10	0.01	
2017	3.13	2.43	3.13	2.43	0.26	0.23	0.26	0.23	
2018	3.38	2.54	3.38	2.54	0.25	0.11	0.25	0.11	
2019	3.55	2.73	3.55	2.73	0.17	0.19	0.17	0.19	
2020	3.82	2.93	3.82	2.93	0.27	0.20	0.27	0.20	
2021	4.11	3.18	4.11	3.18	0.29	0.25	0.29	0.25	
2022	4.41	3.44	4.41	3.44	0.30	0.26	0.30	0.26	
2023	4.72	3.69	4.72	3.69	0.31	0.25	0.31	0.25	
2024	3.48	3.06	9.28	7.05	-1.24	-0.63	4.56	3.36	
2025	3.61	3.18	9.46	7.24	0.13	0.12	0.18	0.19	
2026	3.62	3.18	9.56	7.51	0.01	0.00	0.10	0.27	
2027	3.76	3.31	9.73	7.71	0.14	0.13	0.17	0.20	
2028	4.07	3.61	9.91	7.91	0.31	0.30	0.18	0.20	
2029	4.18	3.71	10.07	8.11	0.11	0.10	0.16	0.20	
2030	4.27	3.79	10.24	8.32	0.09	0.08	0.17	0.21	
2031	4.52	4.03	10.37	8.59	0.25	0.24	0.13	0.27	
2032	4.64	4.14	10.62	8.75	0.12	0.11	0.25	0.16	
2033	4.71	4.20	10.74	9.05	0.07	0.06	0.12	0.30	
2034	4.86	4.34	10.88	9.36	0.15	0.14	0.14	0.31	
2035	5.04	4.51	11.11	9.55	0.18	0.17	0.23	0.19	
2036	5.16	4.62	11.42	9.65	0.12	0.11	0.31	0.10	
2037	5.31	4.76	11.56	9.98	0.15	0.14	0.14	0.33	
2038	5.47	4.91	12.00	9.94	0.16	0.15	0.44	-0.04	
2039	5.59	5.02	12.38	10.01	0.12	0.11	0.38	0.07	
2040	5.78	5.19	12.65	10.22	0.19	0.17	0.27	0.21	
2041	5.90	5.30	12.85	10.51	0.12	0.11	0.20	0.29	
					2015-2023:	6.89%	6.74%	6.89%	6.74%
					2023-2041:	3.15%	3.28%	1.93%	2.38%
					average:	5.02%	5.01%	4.41%	4.56%

Average Inflation Estimate:
4.68%

Inflation Estimates for Solar:
Avg. Standard Rate: 5.02%
Avg. Renewable Rate: 4.43%





Alternative 1: Utility-Scale Solar

Based on Standard Solar Fixed Avoided Cost Prices as provided in Schedule 37

On-Peak hours are 6 am to 10 pm

Project Size (kW):	15,384.62
Capacity Factor:	0.3
Project Annual Generation (kWh):	40,430,769.22
Estimated O&M Costs (\$/kW):	27
Project Annual O&M (\$):	415,384.62

Current Cost Information

OR Energy Use (kWh):	96000000
CA Energy Use (kWh):	22000000
PAC 41 rate (\$/kWh):	0.09674
PAC PA-20 rate (\$/kWh):	0.12933

Inflation Assumptions:

General Rate:	5.0%
Average Energy Rate:	4.7%

Delivery Year	On-Peak Price (¢/kWh)	Off-Peak Price (¢/kWh)	Gross Revenue (\$)	Net Revenue (\$)	New Effective OR Rate (¢/kWh)	New Effective CA Rate (¢/kWh)	OR Cost Reduction (%)	CA Cost Reduction (%)
2015	2.77	2.19	1,082,413	667,028	9.108	12.369	5.8	4.4
2016	2.87	2.20	1,117,021	680,867	9.550	12.963	5.7	4.3
2017	3.13	2.43	1,220,201	762,239	9.955	13.529	6.1	4.5
2018	3.38	2.54	1,312,221	831,361	10.393	14.134	6.4	4.7
2019	3.55	2.73	1,382,247	877,345	10.874	14.790	6.4	4.8
2020	3.82	2.93	1,486,882	956,734	11.351	15.451	6.7	5.0
2021	4.11	3.18	1,601,544	1,044,889	11.846	16.138	7.0	5.2
2022	4.41	3.44	1,720,248	1,135,761	12.366	16.859	7.2	5.4
2023	4.72	3.69	1,841,702	1,227,990	12.912	17.615	7.5	5.6
2024	3.48	3.06	1,379,821	735,423	13.983	18.906	4.3	3.2
2025	3.61	3.18	1,431,734	755,117	14.651	19.804	4.2	3.1
2026	3.62	3.18	1,435,131	724,682	15.393	20.787	3.8	2.9
2027	3.76	3.31	1,491,087	745,116	16.125	21.772	3.8	2.8
2028	4.07	3.61	1,615,775	832,506	16.836	22.748	4.0	3.0
2029	4.18	3.71	1,659,602	837,169	17.654	23.843	3.9	2.9
2030	4.27	3.79	1,695,343	831,788	18.519	24.997	3.7	2.7
2031	4.52	4.03	1,795,773	889,041	19.371	26.153	3.7	2.8
2032	4.64	4.14	1,843,643	891,574	20.312	27.411	3.6	2.7
2033	4.71	4.20	1,871,298	871,625	21.316	28.748	3.4	2.5
2034	4.86	4.34	1,931,297	881,641	22.340	30.120	3.2	2.4
2035	5.04	4.51	2,003,425	901,286	23.405	31.550	3.2	2.4
2036	5.16	4.62	2,051,296	894,050	24.544	33.069	3.0	2.2
2037	5.31	4.76	2,111,295	896,186	25.727	34.652	2.9	2.1
2038	5.47	4.91	2,175,337	899,473	26.965	36.308	2.8	2.1
2039	5.59	5.02	2,223,207	883,550	28.278	38.058	2.6	1.9
2040	5.78	5.19	2,298,732	892,092	29.630	39.869	2.5	1.9
2041	5.90	5.30	2,346,602	869,630	31.073	41.791	2.3	1.7

Alternative 1: Utility-Scale Solar

Based on Renewable Solar Fixed Avoided Cost Prices from Schedule 37

On-Peak hours are 6 am to 10 pm

		<u>Current Cost Information</u>		<u>Inflation Assumptions:</u>	
Project Size (kW):	15,385	OR Energy Use (kWh):	96000000	General Rate:	5.0%
Project Annual Generation (kWh):	40,430,769	CA Energy Use (kWh):	22000000	Average Energy Rate:	4.7%
Estimated O&M Costs (\$/kW):	27	PAC 41 rate (\$/kWh):	0.09674		
Project Annual O&M (\$):	415,385	PAC PA-20 rate (\$/kWh):	0.12933		

Delivery Year	On-Peak Price (¢/kWh)	Off-Peak Price (¢/kWh)	Gross Revenue (\$)	Net Revenue (\$)	New Effective OR Rate (¢/kWh)	New Effective CA Rate (¢/kWh)	OR Cost Reduction (%)	CA Cost Reduction (%)
2015	2.77	2.19	1,082,413	667,028	9.108	12.369	5.8	4.4
2016	2.87	2.20	1,117,021	680,867	9.550	12.963	5.7	4.3
2017	3.13	2.43	1,220,201	762,239	9.955	13.529	6.1	4.5
2018	3.38	2.54	1,312,221	831,361	10.393	14.134	6.4	4.7
2019	3.55	2.73	1,382,247	877,345	10.874	14.790	6.4	4.8
2020	3.82	2.93	1,486,882	956,734	11.351	15.451	6.7	5.0
2021	4.11	3.18	1,601,544	1,044,889	11.846	16.138	7.0	5.2
2022	4.41	3.44	1,720,248	1,135,761	12.366	16.859	7.2	5.4
2023	4.72	3.69	1,841,702	1,227,990	12.912	17.615	7.5	5.6
2024	9.28	7.05	3,607,718	2,963,321	12.094	17.022	17.2	12.8
2025	9.46	7.24	3,681,141	3,004,523	12.743	17.902	16.7	12.4
2026	9.56	7.51	3,732,569	3,022,120	13.445	18.845	16.0	11.9
2027	9.73	7.71	3,803,242	3,057,271	14.165	19.818	15.5	11.5
2028	9.91	7.91	3,877,311	3,094,041	14.919	20.836	15.0	11.2
2029	10.07	8.11	3,944,588	3,122,154	15.717	21.911	14.4	10.8
2030	10.24	8.32	4,015,907	3,152,353	16.551	23.035	13.9	10.4
2031	10.37	8.59	4,077,524	3,170,791	17.436	24.224	13.4	10.0
2032	10.62	8.75	4,172,779	3,220,710	18.337	25.442	13.0	9.7
2033	10.74	9.05	4,232,940	3,233,267	19.313	26.751	12.4	9.3
2034	10.88	9.36	4,300,540	3,250,884	20.331	28.117	11.9	8.9
2035	11.11	9.55	4,390,943	3,288,804	21.381	29.531	11.5	8.6
2036	11.42	9.65	4,502,694	3,345,448	22.465	30.997	11.2	8.4
2037	11.56	9.98	4,571,588	3,356,480	23.641	32.572	10.7	8.0
2038	12.00	9.94	4,718,432	3,442,569	24.809	34.158	10.5	7.9
2039	12.38	10.01	4,852,016	3,512,359	26.048	35.836	10.3	7.7
2040	12.65	10.22	4,957,297	3,550,658	27.376	37.621	9.9	7.4
2041	12.85	10.51	5,043,981	3,567,009	28.785	39.510	9.5	7.1

Based on Ewuana Solar Project PPA

Project Size (kW): 15,384.62
 Project Annual Generation (kWh): 40,430,769.22
 Estimated O&M Costs (\$/kW): 27
 Project Annual O&M (\$): 415,384.62

Current Cost Information

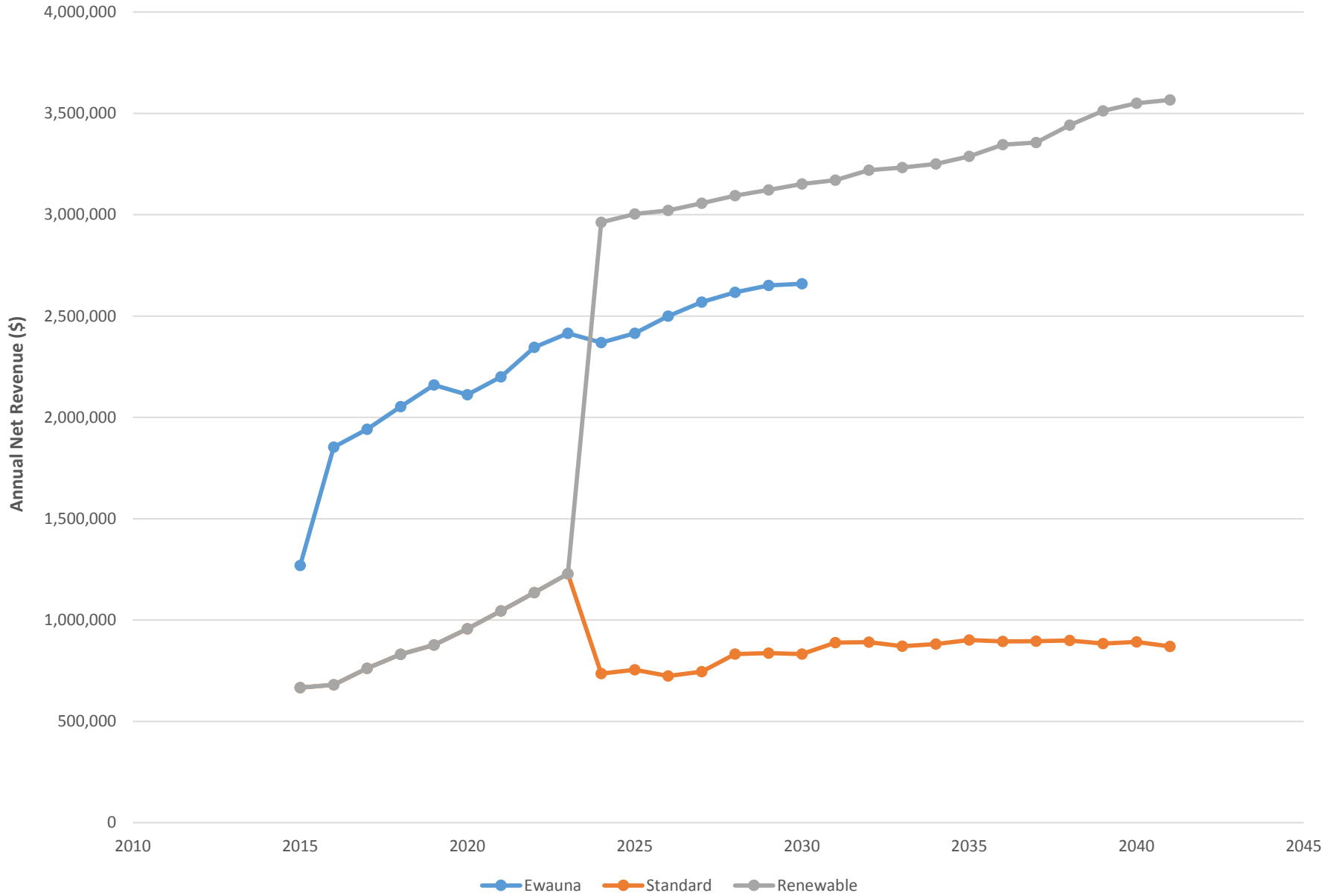
OR Energy Use (kWh): 96000000
 CA Energy Use (kWh): 22000000
 PAC 41 rate (\$/kWh): 0.09674
 PAC PA-20 rate (\$/kWh): 0.12933

Inflation Assumptions:

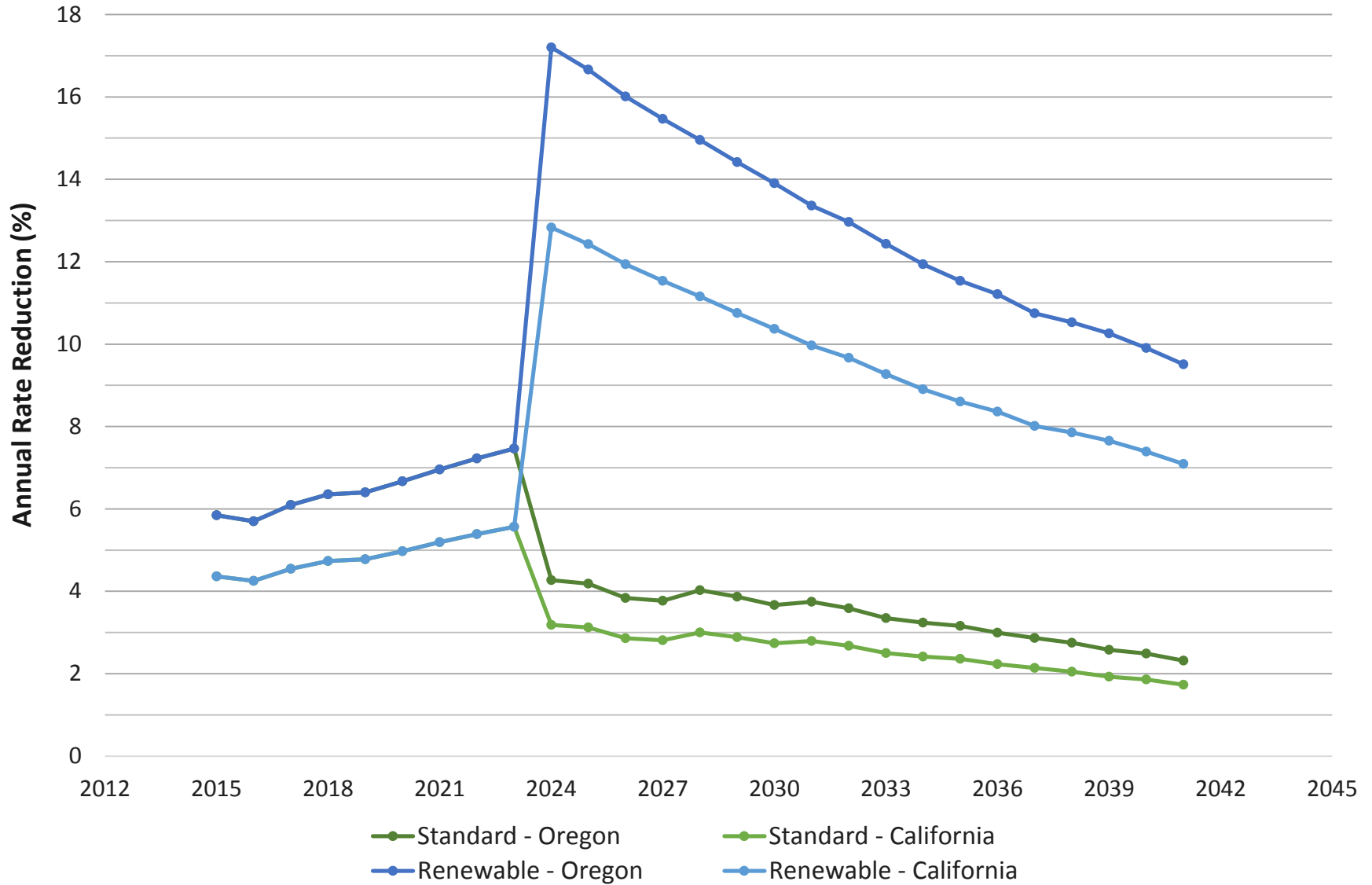
General Rate: 5.0%
 Off-Peak Rate: 5.1%
 On-Peak Rate: 4.9%
 Average of Peak Rates: 5.0%

Delivery Year	On-Peak Price (¢/kWh)	Off-Peak Price (¢/kWh)	Gross Revenue (\$)	Net Revenue (\$)	New Effective OR Rate (¢/kWh)	New Effective CA Rate (¢/kWh)	OR Cost Reduction (%)	CA Cost Reduction (%)
2015	4.39	2.99	1,684,346	1,268,961	8.598	11.860	11.1	8.3
2016	6.04	3.69	2,289,999	1,853,845	8.585	12.012	15.5	11.5
2017	6.32	3.91	2,399,324	1,941,362	9.019	12.616	15.4	11.5
2018	6.66	4.21	2,534,201	2,053,341	9.457	13.234	15.5	11.6
2019	6.99	4.5	2,665,035	2,160,132	9.926	13.892	15.6	11.6
2020	6.94	4.41	2,642,232	2,112,084	10.554	14.718	14.5	10.8
2021	7.23	4.65	2,756,246	2,199,591	11.096	15.468	14.4	10.7
2022	7.67	5.04	2,930,907	2,346,419	11.619	16.210	14.6	10.9
2023	7.92	5.24	3,028,750	2,415,038	12.241	17.061	14.3	10.7
2024	7.89	5.16	3,013,386	2,368,988	12.994	18.054	13.4	10.0
2025	8.09	5.32	3,091,660	2,415,042	13.705	19.018	13.0	9.7
2026	8.39	5.57	3,209,718	2,499,269	14.420	19.999	12.8	9.6
2027	8.66	5.78	3,315,000	2,569,029	15.188	21.044	12.5	9.4
2028	8.88	5.95	3,400,713	2,617,443	16.014	22.163	12.2	9.1
2029	9.07	6.09	3,474,297	2,651,864	16.896	23.352	11.7	8.8
2030	9.2	6.16	3,522,976	2,659,421	17.846	24.625	11.2	8.4

Alternative 1: Utility-Scale Solar Net Revenue 2015-2041



Alternative 1: Utility-Scale Solar Rate Reduction 2015-2041



Klamath Comprehensive Agricultural Power Plan
 Initial Alternatives Information Report
 Appendix E: Klamath CAPP Alternatives Economic Analysis

Alternative 2: Low-Head Hydro at Keno Dam

Based on Baseload Fixed Avoided Cost Prices as provided in Schedule 37

On-Peak hours are 6 am to 10 pm

Project Size (kW):	3,790.46
Capacity Factor:	0.825
Project Annual Generation (kWh):	27,393,680.80
Estimated O&M Costs (\$/kWh):	30
Project Annual O&M (\$):	113,713.91

Current Cost Information	
OR Energy Use (kWh):	96000000
CA Energy Use (kWh):	22000000
PAC 41 rate (\$/kWh):	0.09674
PAC PA-20 rate (\$/kWh):	0.12933

Inflation Assumptions:	
General Rate:	5.0%
Average Energy Rate:	4.7%

Delivery Year	Standard							Renewable								
	On-Peak Price (¢/kWh)	Off-Peak Price (¢/kWh)	Gross Revenue (\$)	Net Revenue (\$)	New Effective OR Rate (¢/kWh)	New Effective CA Rate (¢/kWh)	OR Cost Reduction (%)	CA Cost Reduction (%)	On-Peak Price (¢/kWh)	Off-Peak Price (¢/kWh)	Gross Revenue (\$)	Net Revenue (\$)	New Effective OR Rate (¢/kWh)	New Effective CA Rate (¢/kWh)	OR Cost Reduction (%)	CA Cost Reduction (%)
2015	2.77	2.19	688,896	575,182	9.186	12.447	5.0	3.8	2.77	2.19	688,896	575,182	9.186	12.447	5.0	3.8
2016	2.87	2.20	705,442	586,042	9.630	13.043	4.9	3.7	2.87	2.20	705,442	586,042	9.630	13.043	4.9	3.7
2017	3.13	2.43	773,050	647,680	10.052	13.626	5.2	3.9	3.13	2.43	773,050	647,680	10.052	13.626	5.2	3.9
2018	3.38	2.54	824,659	693,021	10.511	14.251	5.3	3.9	3.38	2.54	824,659	693,021	10.511	14.251	5.3	3.9
2019	3.55	2.73	873,639	735,419	10.995	14.910	5.4	4.0	3.55	2.73	873,639	735,419	10.995	14.910	5.4	4.0
2020	3.82	2.93	939,165	794,034	11.489	15.588	5.5	4.1	3.82	2.93	939,165	794,034	11.489	15.588	5.5	4.1
2021	4.11	3.18	1,013,785	861,398	12.002	16.293	5.7	4.3	4.11	3.18	1,013,785	861,398	12.002	16.293	5.7	4.3
2022	4.41	3.44	1,091,145	931,138	12.539	17.032	5.9	4.4	4.41	3.44	1,091,145	931,138	12.539	17.032	5.9	4.4
2023	4.72	3.69	1,168,834	1,000,826	13.104	17.807	6.1	4.5	4.72	3.69	1,168,834	1,000,826	13.104	17.807	6.1	4.5
2024	6.16	3.06	1,313,801	1,137,393	13.642	18.566	6.6	4.9	11.96	7.05	2,684,471	2,508,064	12.480	17.407	14.6	10.9
2025	6.35	3.18	1,357,412	1,172,184	14.297	19.451	6.5	4.8	12.19	7.24	2,742,655	2,557,427	13.123	18.280	14.2	10.6
2026	6.41	3.18	1,366,616	1,172,127	15.013	20.409	6.2	4.6	12.36	7.51	2,801,278	2,606,788	13.797	19.196	13.8	10.3
2027	6.61	3.31	1,412,966	1,208,752	15.732	21.380	6.1	4.6	12.59	7.71	2,860,667	2,656,453	14.505	20.157	13.4	10.0
2028	6.98	3.61	1,505,885	1,291,461	16.447	22.360	6.2	4.7	12.82	7.91	2,920,057	2,705,632	15.248	21.164	13.1	9.8
2029	7.15	3.71	1,544,017	1,318,872	17.246	23.435	6.1	4.5	13.05	8.11	2,979,446	2,754,301	16.029	22.222	12.7	9.5
2030	7.30	3.79	1,576,671	1,340,268	18.088	24.567	5.9	4.4	13.27	8.32	3,038,507	2,802,104	16.848	23.332	12.4	9.2
2031	7.62	4.03	1,654,688	1,406,465	18.932	25.716	5.9	4.4	13.47	8.59	3,101,732	2,853,508	17.705	24.492	12.0	9.0
2032	7.80	4.14	1,695,559	1,434,925	19.851	26.952	5.8	4.3	13.78	8.75	3,168,572	2,907,938	18.602	25.706	11.7	8.7
2033	7.93	4.20	1,722,734	1,449,068	20.826	28.259	5.6	4.2	13.97	9.05	3,233,879	2,960,213	19.545	26.982	11.4	8.5
2034	8.15	4.34	1,773,357	1,486,008	21.828	29.609	5.5	4.1	14.17	9.36	3,301,925	3,014,575	20.532	28.317	11.1	8.3
2035	8.40	4.51	1,832,199	1,530,482	22.872	31.018	5.4	4.0	14.47	9.55	3,370,847	3,069,130	21.567	29.717	10.8	8.0
2036	8.59	4.62	1,874,604	1,557,802	23.981	32.508	5.2	3.9	14.85	9.65	3,441,194	3,124,391	22.652	31.184	10.5	7.8
2037	8.82	4.76	1,926,762	1,594,119	25.135	34.062	5.1	3.8	15.06	9.98	3,513,185	3,180,542	23.790	32.721	10.2	7.6
2038	9.05	4.91	1,980,125	1,630,850	26.345	35.690	5.0	3.7	15.58	9.94	3,588,134	3,238,859	24.981	34.330	9.9	7.4
2039	9.25	5.02	2,024,064	1,657,326	27.621	37.404	4.8	3.6	16.04	10.01	3,667,137	3,300,399	26.228	36.015	9.6	7.2
2040	9.51	5.19	2,084,440	1,699,364	28.946	39.186	4.7	3.5	16.38	10.22	3,744,607	3,359,531	27.538	37.783	9.4	7.0
2041	9.71	5.30	2,128,379	1,724,050	30.348	41.069	4.6	3.4	16.66	10.51	3,822,514	3,418,185	28.912	39.636	9.1	6.8

Alternative 2: Low-Head Hydro at Westside Powerhouse

Based on Baseload Fixed Avoided Cost Prices as provided in Schedule 37

On-Peak hours are 6 am to 10 pm

Project Size (kW):	526.45
Capacity Factor:	0.825
Project Annual Generation (kWh):	3,804,677.93
Estimated O&M Costs (\$/kW):	30
Project Annual O&M (\$):	15,793.60

Current Cost Information

OR Energy Use (kWh):	96000000
CA Energy Use (kWh):	22000000
PAC 41 rate (\$/kWh):	0.09674
PAC PA-20 rate (\$/kWh):	0.12933

Inflation Assumptions:

General Rate:	5.0%
Average Energy Rate:	4.7%

Delivery Year	Standard								Renewable							
	On-Peak Price (¢/kWh)	Off-Peak Price (¢/kWh)	Gross Revenue (\$)	Net Revenue (\$)	New Effective OR Rate (¢/kWh)	New Effective CA Rate (¢/kWh)	OR Cost Reduction (%)	CA Cost Reduction (%)	On-Peak Price (¢/kWh)	Off-Peak Price (¢/kWh)	Gross Revenue (\$)	Net Revenue (\$)	New Effective OR Rate (¢/kWh)	New Effective CA Rate (¢/kWh)	OR Cost Reduction (%)	CA Cost Reduction (%)
	2015	2.77	2.19	95,680	79,886	9.606	12.865	0.7	0.5	2.77	2.19	95,680	79,886	9.606	12.865	0.7
2016	2.87	2.20	97,978	81,395	10.058	13.470	0.7	0.5	2.87	2.20	97,978	81,395	10.058	13.470	0.7	0.5
2017	3.13	2.43	107,368	89,956	10.525	14.097	0.7	0.5	3.13	2.43	107,368	89,956	10.525	14.097	0.7	0.5
2018	3.38	2.54	114,536	96,253	11.017	14.756	0.7	0.5	3.38	2.54	114,536	96,253	11.017	14.756	0.7	0.5
2019	3.55	2.73	121,339	102,142	11.532	15.446	0.7	0.6	3.55	2.73	121,339	102,142	11.532	15.446	0.7	0.6
2020	3.82	2.93	130,440	110,282	12.069	16.167	0.8	0.6	3.82	2.93	130,440	110,282	12.069	16.167	0.8	0.6
2021	4.11	3.18	140,804	119,639	12.631	16.920	0.8	0.6	4.11	3.18	140,804	119,639	12.631	16.920	0.8	0.6
2022	4.41	3.44	151,548	129,325	13.219	17.710	0.8	0.6	4.41	3.44	151,548	129,325	13.219	17.710	0.8	0.6
2023	4.72	3.69	162,338	139,004	13.835	18.536	0.8	0.6	4.72	3.69	162,338	139,004	13.835	18.536	0.8	0.6
2024	6.16	3.06	182,472	157,971	14.473	19.394	0.9	0.7	11.96	7.05	372,843	348,342	14.311	19.233	2.0	1.5
2025	6.35	3.18	188,529	162,803	15.153	20.305	0.9	0.7	12.19	7.24	380,924	355,198	14.990	20.142	2.0	1.5
2026	6.41	3.18	189,808	162,795	15.869	21.262	0.9	0.6	12.36	7.51	389,066	362,054	15.700	21.094	1.9	1.4
2027	6.61	3.31	196,245	167,882	16.615	22.260	0.8	0.6	12.59	7.71	397,315	368,952	16.444	22.090	1.9	1.4
2028	6.98	3.61	209,151	179,370	17.390	23.300	0.9	0.6	12.82	7.91	405,563	375,782	17.224	23.134	1.8	1.4
2029	7.15	3.71	214,447	183,177	18.209	24.396	0.8	0.6	13.05	8.11	413,812	382,542	18.040	24.227	1.8	1.3
2030	7.30	3.79	218,982	186,148	19.066	25.543	0.8	0.6	13.27	8.32	422,015	389,181	18.894	25.372	1.7	1.3
2031	7.62	4.03	229,818	195,342	19.959	26.739	0.8	0.6	13.47	8.59	430,796	396,321	19.789	26.570	1.7	1.2
2032	7.80	4.14	235,494	199,295	20.899	27.997	0.8	0.6	13.78	8.75	440,079	403,880	20.725	27.824	1.6	1.2
2033	7.93	4.20	239,269	201,259	21.884	29.314	0.8	0.6	13.97	9.05	449,150	411,141	21.706	29.137	1.6	1.2
2034	8.15	4.34	246,300	206,390	22.913	30.691	0.8	0.6	14.17	9.36	458,601	418,691	22.733	30.512	1.5	1.1
2035	8.40	4.51	254,472	212,567	23.989	32.132	0.7	0.6	14.47	9.55	468,173	426,268	23.808	31.951	1.5	1.1
2036	8.59	4.62	260,362	216,361	25.118	33.642	0.7	0.5	14.85	9.65	477,944	433,943	24.934	33.458	1.5	1.1
2037	8.82	4.76	267,606	221,405	26.299	35.223	0.7	0.5	15.06	9.98	487,942	441,742	26.112	35.036	1.4	1.1
2038	9.05	4.91	275,017	226,507	27.536	36.877	0.7	0.5	15.58	9.94	498,352	449,842	27.346	36.688	1.4	1.0
2039	9.25	5.02	281,120	230,184	28.832	38.611	0.7	0.5	16.04	10.01	509,325	458,389	28.638	38.418	1.3	1.0
2040	9.51	5.19	289,506	236,023	30.186	40.424	0.7	0.5	16.38	10.22	520,084	466,602	29.991	40.229	1.3	1.0
2041	9.71	5.30	295,608	239,451	31.607	42.324	0.6	0.5	16.66	10.51	530,905	474,748	31.407	42.125	1.3	0.9

Klamath Comprehensive Agricultural Power Plan
 Initial Alternatives Information Report
 Appendix E: Klamath CAPP Alternatives Economic Analysis

Alternative 2: Low-Head Hydro at Eastside Powerhouse

Based on Baseload Fixed Avoided Cost Prices as provided in Schedule 37

On-Peak hours are 6 am to 10 pm

Project Size (kW):	2,227.48
Capacity Factor:	0.765
Project Annual Generation (kWh):	14,927,250.15
Estimated O&M Costs (\$/kW):	30
Project Annual O&M (\$):	66,824.47

Current Cost Information

OR Energy Use (kWh):	96000000
CA Energy Use (kWh):	22000000
PAC 41 rate (\$/kWh):	0.09674
PAC PA-20 rate (\$/kWh):	0.12933

Inflation Assumptions:

General Rate:	5.0%
Average Energy Rate:	4.7%

Delivery Year	Standard								Renewable							
	On-Peak Price (¢/kWh)	Off-Peak Price (¢/kWh)	Gross Revenue (\$)	Net Revenue (\$)	New Effective OR Rate (¢/kWh)	New Effective CA Rate (¢/kWh)	OR Cost Reduction (%)	CA Cost Reduction (%)	On-Peak Price (¢/kWh)	Off-Peak Price (¢/kWh)	Gross Revenue (\$)	Net Revenue (\$)	New Effective OR Rate (¢/kWh)	New Effective CA Rate (¢/kWh)	OR Cost Reduction (%)	CA Cost Reduction (%)
	2015	2.77	2.19	375,390	308,566	9.412	12.672	2.7	2.0	2.77	2.19	375,390	308,566	9.412	12.672	2.7
2016	2.87	2.20	384,407	314,241	9.861	13.273	2.6	2.0	2.87	2.20	384,407	314,241	9.861	13.273	2.6	2.0
2017	3.13	2.43	421,247	347,573	10.307	13.879	2.8	2.1	3.13	2.43	421,247	347,573	10.307	13.879	2.8	2.1
2018	3.38	2.54	449,370	372,012	10.783	14.523	2.8	2.1	3.38	2.54	449,370	372,012	10.783	14.523	2.8	2.1
2019	3.55	2.73	476,060	394,834	11.283	15.198	2.9	2.1	3.55	2.73	476,060	394,834	11.283	15.198	2.9	2.1
2020	3.82	2.93	511,766	426,479	11.801	15.899	3.0	2.2	3.82	2.93	511,766	426,479	11.801	15.899	3.0	2.2
2021	4.11	3.18	552,428	462,876	12.340	16.630	3.1	2.3	4.11	3.18	552,428	462,876	12.340	16.630	3.1	2.3
2022	4.41	3.44	594,582	500,553	12.904	17.396	3.2	2.4	4.41	3.44	594,582	500,553	12.904	17.396	3.2	2.4
2023	4.72	3.69	636,916	538,186	13.497	18.199	3.3	2.4	4.72	3.69	636,916	538,186	13.497	18.199	3.3	2.4
2024	6.16	3.06	715,911	612,244	14.088	19.010	3.6	2.7	11.96	7.05	1,462,811	1,359,144	13.454	18.378	7.9	5.9
2025	6.35	3.18	739,675	630,825	14.756	19.909	3.5	2.6	12.19	7.24	1,494,516	1,385,666	14.116	19.271	7.7	5.7
2026	6.41	3.18	744,691	630,398	15.473	20.867	3.3	2.5	12.36	7.51	1,526,461	1,412,168	14.810	20.206	7.5	5.6
2027	6.61	3.31	769,948	649,940	16.206	21.853	3.3	2.5	12.59	7.71	1,558,823	1,438,816	15.537	21.186	7.3	5.4
2028	6.98	3.61	820,581	694,573	16.953	22.865	3.4	2.5	12.82	7.91	1,591,185	1,465,178	16.300	22.213	7.1	5.3
2029	7.15	3.71	841,360	709,052	17.763	23.951	3.3	2.4	13.05	8.11	1,623,547	1,491,240	17.100	23.290	6.9	5.1
2030	7.30	3.79	859,153	720,230	18.614	25.092	3.2	2.4	13.27	8.32	1,655,731	1,516,807	17.938	24.418	6.7	5.0
2031	7.62	4.03	901,666	755,796	19.484	26.266	3.2	2.4	13.47	8.59	1,690,183	1,544,313	18.815	25.599	6.5	4.9
2032	7.80	4.14	923,937	770,774	20.414	27.513	3.1	2.3	13.78	8.75	1,726,605	1,573,442	19.734	26.835	6.3	4.7
2033	7.93	4.20	938,745	777,924	21.395	28.827	3.0	2.2	13.97	9.05	1,762,192	1,601,371	20.697	28.131	6.2	4.6
2034	8.15	4.34	966,330	797,468	22.412	30.191	2.9	2.2	14.17	9.36	1,799,271	1,630,409	21.705	29.487	6.0	4.5
2035	8.40	4.51	998,394	821,089	23.473	31.617	2.9	2.1	14.47	9.55	1,836,828	1,659,523	22.762	30.909	5.8	4.3
2036	8.59	4.62	1,021,502	835,331	24.593	33.119	2.8	2.1	14.85	9.65	1,875,161	1,688,991	23.870	32.397	5.7	4.2
2037	8.82	4.76	1,049,923	854,444	25.762	34.687	2.7	2.0	15.06	9.98	1,914,390	1,718,911	25.029	33.957	5.5	4.1
2038	9.05	4.91	1,079,001	873,748	26.987	36.330	2.7	2.0	15.58	9.94	1,955,231	1,749,978	26.244	35.589	5.4	4.0
2039	9.25	5.02	1,102,945	887,429	28.274	38.055	2.6	1.9	16.04	10.01	1,998,281	1,782,766	27.515	37.298	5.2	3.9
2040	9.51	5.19	1,135,844	909,553	29.615	39.854	2.5	1.9	16.38	10.22	2,040,495	1,814,204	28.848	39.089	5.1	3.8
2041	9.71	5.30	1,159,788	922,182	31.028	41.747	2.5	1.8	16.66	10.51	2,082,948	1,845,343	30.245	40.966	4.9	3.7

Alternative 2: Low-Head Hydro at Eastside Powerhouse with A Canal Water

Based on Baseload Fixed Avoided Cost Prices as provided in Schedule 37

On-Peak hours are 6 am to 10 pm

Project Size (kW):	2,194.48
Capacity Factor:	0.6
Project Annual Generation (kWh):	11,534,181.41
Estimated O&M Costs (\$/kW):	30
Project Annual O&M (\$):	65,834.37

Current Cost Information

OR Energy Use (kWh):	96000000
CA Energy Use (kWh):	22000000
PAC 41 rate (\$/kWh):	0.09674
PAC PA-20 rate (\$/kWh):	0.12933

Inflation Assumptions:

General Rate:	5.0%
Average Energy Rate:	4.7%

Delivery Year	Standard									Renewable								
	On-Peak Price (¢/kWh)	Off-Peak Price (¢/kWh)	Gross Revenue (\$)	Net Revenue (\$)	New Effective OR Rate (¢/kWh)	New Effective CA Rate (¢/kWh)	OR Cost Reduction (%)	CA Cost Reduction (%)	On-Peak Price (¢/kWh)	Off-Peak Price (¢/kWh)	Gross Revenue (\$)	Net Revenue (\$)	New Effective OR Rate (¢/kWh)	New Effective CA Rate (¢/kWh)	OR Cost Reduction (%)	CA Cost Reduction (%)		
	2015	2.77	2.19	290,062	224,227	9.484	12.743	2.0	1.5	2.77	2.19	290,062	224,227	9.484	12.743	2.0	1.5	
2016	2.87	2.20	297,028	227,902	9.934	13.346	1.9	1.4	2.87	2.20	297,028	227,902	9.934	13.346	1.9	1.4		
2017	3.13	2.43	325,495	252,912	10.387	13.959	2.0	1.5	3.13	2.43	325,495	252,912	10.387	13.959	2.0	1.5		
2018	3.38	2.54	347,225	271,013	10.868	14.608	2.1	1.5	3.38	2.54	347,225	271,013	10.868	14.608	2.1	1.5		
2019	3.55	2.73	367,848	287,826	11.374	15.289	2.1	1.6	3.55	2.73	367,848	287,826	11.374	15.289	2.1	1.6		
2020	3.82	2.93	395,438	311,415	11.898	15.996	2.2	1.6	3.82	2.93	395,438	311,415	11.898	15.996	2.2	1.6		
2021	4.11	3.18	426,857	338,633	12.445	16.735	2.3	1.7	4.11	3.18	426,857	338,633	12.445	16.735	2.3	1.7		
2022	4.41	3.44	459,430	366,794	13.018	17.509	2.3	1.7	4.41	3.44	459,430	366,794	13.018	17.509	2.3	1.7		
2023	4.72	3.69	492,140	394,873	13.618	18.320	2.4	1.8	4.72	3.69	492,140	394,873	13.618	18.320	2.4	1.8		
2024	6.16	3.06	553,179	451,049	14.224	19.146	2.6	2.0	11.96	7.05	1,130,304	1,028,173	13.735	18.658	6.0	4.5		
2025	6.35	3.18	571,542	464,305	14.897	20.050	2.6	1.9	12.19	7.24	1,154,802	1,047,565	14.403	19.557	5.8	4.3		
2026	6.41	3.18	575,417	462,818	15.615	21.009	2.5	1.8	12.36	7.51	1,179,485	1,066,886	15.103	20.498	5.7	4.2		
2027	6.61	3.31	594,933	476,704	16.353	21.999	2.4	1.8	12.59	7.71	1,204,491	1,086,262	15.836	21.484	5.5	4.1		
2028	6.98	3.61	634,057	509,916	17.110	23.021	2.5	1.8	12.82	7.91	1,229,498	1,105,357	16.605	22.517	5.3	4.0		
2029	7.15	3.71	650,113	519,765	17.923	24.111	2.4	1.8	13.05	8.11	1,254,504	1,124,156	17.411	23.600	5.2	3.9		
2030	7.30	3.79	663,861	526,996	18.777	25.255	2.3	1.7	13.27	8.32	1,279,371	1,142,506	18.256	24.735	5.0	3.8		
2031	7.62	4.03	696,711	553,003	19.656	26.437	2.3	1.7	13.47	8.59	1,305,992	1,162,284	19.139	25.922	4.9	3.7		
2032	7.80	4.14	713,920	563,026	20.590	27.689	2.3	1.7	13.78	8.75	1,334,136	1,183,242	20.064	27.165	4.8	3.6		
2033	7.93	4.20	725,362	566,923	21.574	29.005	2.2	1.6	13.97	9.05	1,361,633	1,203,195	21.034	28.467	4.6	3.5		
2034	8.15	4.34	746,677	580,317	22.596	30.375	2.1	1.6	14.17	9.36	1,390,284	1,223,924	22.050	29.831	4.5	3.4		
2035	8.40	4.51	771,452	596,774	23.663	31.807	2.1	1.6	14.47	9.55	1,419,304	1,244,626	23.114	31.259	4.4	3.3		
2036	8.59	4.62	789,307	605,895	24.788	33.313	2.0	1.5	14.85	9.65	1,448,924	1,265,512	24.229	32.755	4.2	3.2		
2037	8.82	4.76	811,268	618,685	25.962	34.887	2.0	1.5	15.06	9.98	1,479,236	1,286,653	25.396	34.322	4.1	3.1		
2038	9.05	4.91	833,737	631,525	27.192	36.535	1.9	1.4	15.58	9.94	1,510,793	1,308,581	26.618	35.962	4.0	3.0		
2039	9.25	5.02	852,238	639,915	28.484	38.264	1.9	1.4	16.04	10.01	1,544,058	1,331,735	27.897	37.679	3.9	2.9		
2040	9.51	5.19	877,659	654,720	29.831	40.070	1.8	1.4	16.38	10.22	1,576,676	1,353,738	29.239	39.479	3.8	2.8		
2041	9.71	5.30	896,160	662,074	31.249	41.966	1.8	1.3	16.66	10.51	1,609,480	1,375,394	30.644	41.363	3.7	2.7		

Klamath Comprehensive Agricultural Power Plan
 Initial Alternatives Information Report
 Appendix E: Klamath CAPP Alternatives Economic Analysis

Alternative 2: Low-Head Hydro at A Canal

Based on Baseload Fixed Avoided Cost Prices as provided in Schedule 37

On-Peak hours are 6 am to 10 pm

Project Size (kW):	926.56
Capacity Factor:	0.6
Project Annual Generation (kWh):	4,869,987.69
Estimated O&M Costs (\$/kW):	30
Project Annual O&M (\$):	27,796.73

Current Cost Information

OR Energy Use (kWh):	96000000
CA Energy Use (kWh):	22000000
PAC 41 rate (\$/kWh):	0.09674
PAC PA-20 rate (\$/kWh):	0.12933

Inflation Assumptions:

General Rate:	5.0%
Average Energy Rate:	4.7%

Delivery Year	Standard								Renewable							
	On-Peak Price (¢/kWh)	Off-Peak Price (¢/kWh)	Gross Revenue (\$)	Net Revenue (\$)	New Effective OR Rate (¢/kWh)	New Effective CA Rate (¢/kWh)	OR Cost Reduction (%)	CA Cost Reduction (%)	On-Peak Price (¢/kWh)	Off-Peak Price (¢/kWh)	Gross Revenue (\$)	Net Revenue (\$)	New Effective OR Rate (¢/kWh)	New Effective CA Rate (¢/kWh)	OR Cost Reduction (%)	CA Cost Reduction (%)
	2015	2.77	2.19	122,470	94,674	9.594	12.853	0.8	0.6	2.77	2.19	122,470	94,674	9.594	12.853	0.8
2016	2.87	2.20	125,412	96,225	10.046	13.458	0.8	0.6	2.87	2.20	125,412	96,225	10.046	13.458	0.8	0.6
2017	3.13	2.43	137,431	106,785	10.511	14.083	0.9	0.6	3.13	2.43	137,431	106,785	10.511	14.083	0.9	0.6
2018	3.38	2.54	146,606	114,428	11.001	14.740	0.9	0.7	3.38	2.54	146,606	114,428	11.001	14.740	0.9	0.7
2019	3.55	2.73	155,314	121,527	11.515	15.429	0.9	0.7	3.55	2.73	155,314	121,527	11.515	15.429	0.9	0.7
2020	3.82	2.93	166,963	131,486	12.051	16.149	0.9	0.7	3.82	2.93	166,963	131,486	12.051	16.149	0.9	0.7
2021	4.11	3.18	180,229	142,978	12.611	16.901	1.0	0.7	4.11	3.18	180,229	142,978	12.611	16.901	1.0	0.7
2022	4.41	3.44	193,981	154,869	13.197	17.688	1.0	0.7	4.41	3.44	193,981	154,869	13.197	17.688	1.0	0.7
2023	4.72	3.69	207,793	166,724	13.812	18.513	1.0	0.8	4.72	3.69	207,793	166,724	13.812	18.513	1.0	0.8
2024	6.16	3.06	233,565	190,443	14.445	19.366	1.1	0.8	11.96	7.05	477,239	434,117	14.239	19.160	2.5	1.9
2025	6.35	3.18	241,318	196,040	15.125	20.277	1.1	0.8	12.19	7.24	487,583	442,305	14.916	20.068	2.5	1.8
2026	6.41	3.18	242,954	195,412	15.842	21.235	1.0	0.8	12.36	7.51	498,005	450,463	15.625	21.019	2.4	1.8
2027	6.61	3.31	251,194	201,275	16.587	22.232	1.0	0.8	12.59	7.71	508,563	458,644	16.368	22.015	2.3	1.7
2028	6.98	3.61	267,713	215,298	17.360	23.270	1.0	0.8	12.82	7.91	519,121	466,706	17.146	23.057	2.3	1.7
2029	7.15	3.71	274,492	219,456	18.178	24.365	1.0	0.8	13.05	8.11	529,679	474,644	17.962	24.149	2.2	1.6
2030	7.30	3.79	280,297	222,510	19.036	25.513	1.0	0.7	13.27	8.32	540,179	482,392	18.815	25.293	2.1	1.6
2031	7.62	4.03	294,167	233,490	19.927	26.707	1.0	0.7	13.47	8.59	551,419	490,742	19.709	26.490	2.1	1.5
2032	7.80	4.14	301,433	237,722	20.866	27.964	1.0	0.7	13.78	8.75	563,302	499,591	20.644	27.743	2.0	1.5
2033	7.93	4.20	306,264	239,368	21.852	29.282	0.9	0.7	13.97	9.05	574,912	508,016	21.624	29.055	2.0	1.5
2034	8.15	4.34	315,264	245,023	22.880	30.659	0.9	0.7	14.17	9.36	587,009	516,768	22.650	30.429	1.9	1.4
2035	8.40	4.51	325,724	251,971	23.956	32.099	0.9	0.7	14.47	9.55	599,262	525,509	23.724	31.867	1.8	1.4
2036	8.59	4.62	333,263	255,822	25.085	33.609	0.9	0.6	14.85	9.65	611,768	534,327	24.849	33.374	1.8	1.3
2037	8.82	4.76	342,535	261,223	26.265	35.189	0.8	0.6	15.06	9.98	624,566	543,253	26.026	34.951	1.7	1.3
2038	9.05	4.91	352,022	266,644	27.502	36.843	0.8	0.6	15.58	9.94	637,890	552,512	27.259	36.602	1.7	1.3
2039	9.25	5.02	359,834	270,186	28.798	38.577	0.8	0.6	16.04	10.01	651,936	562,288	28.550	38.330	1.6	1.2
2040	9.51	5.19	370,567	276,437	30.152	40.389	0.8	0.6	16.38	10.22	665,708	571,578	29.902	40.140	1.6	1.2
2041	9.71	5.30	378,379	279,542	31.573	42.290	0.7	0.6	16.66	10.51	679,558	580,722	31.318	42.035	1.5	1.2

Alternative 2: Low-Head Hydro at G Canal

Based on Baseload Fixed Avoided Cost Prices as provided in Schedule 37

On-Peak hours are 6 am to 10 pm

Project Size (kW):	261.12
Capacity Factor:	0.6
Project Annual Generation (kWh):	1,372,451.08
Estimated O&M Costs (\$/kW):	30
Project Annual O&M (\$):	7,833.62

Current Cost Information

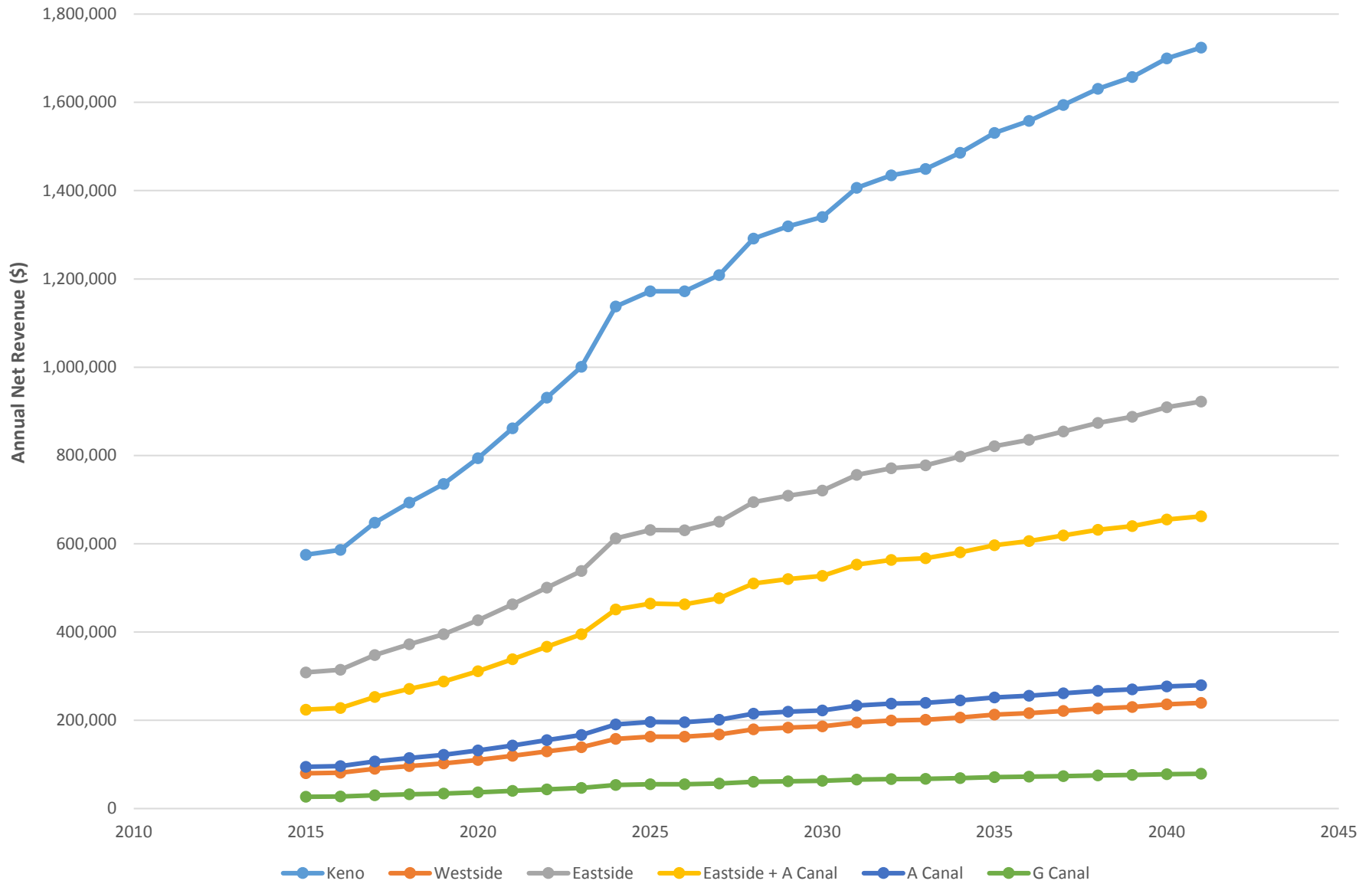
OR Energy Use (kWh):	96000000
CA Energy Use (kWh):	22000000
PAC 41 rate (\$/kWh):	0.09674
PAC PA-20 rate (\$/kWh):	0.12933

Inflation Assumptions:

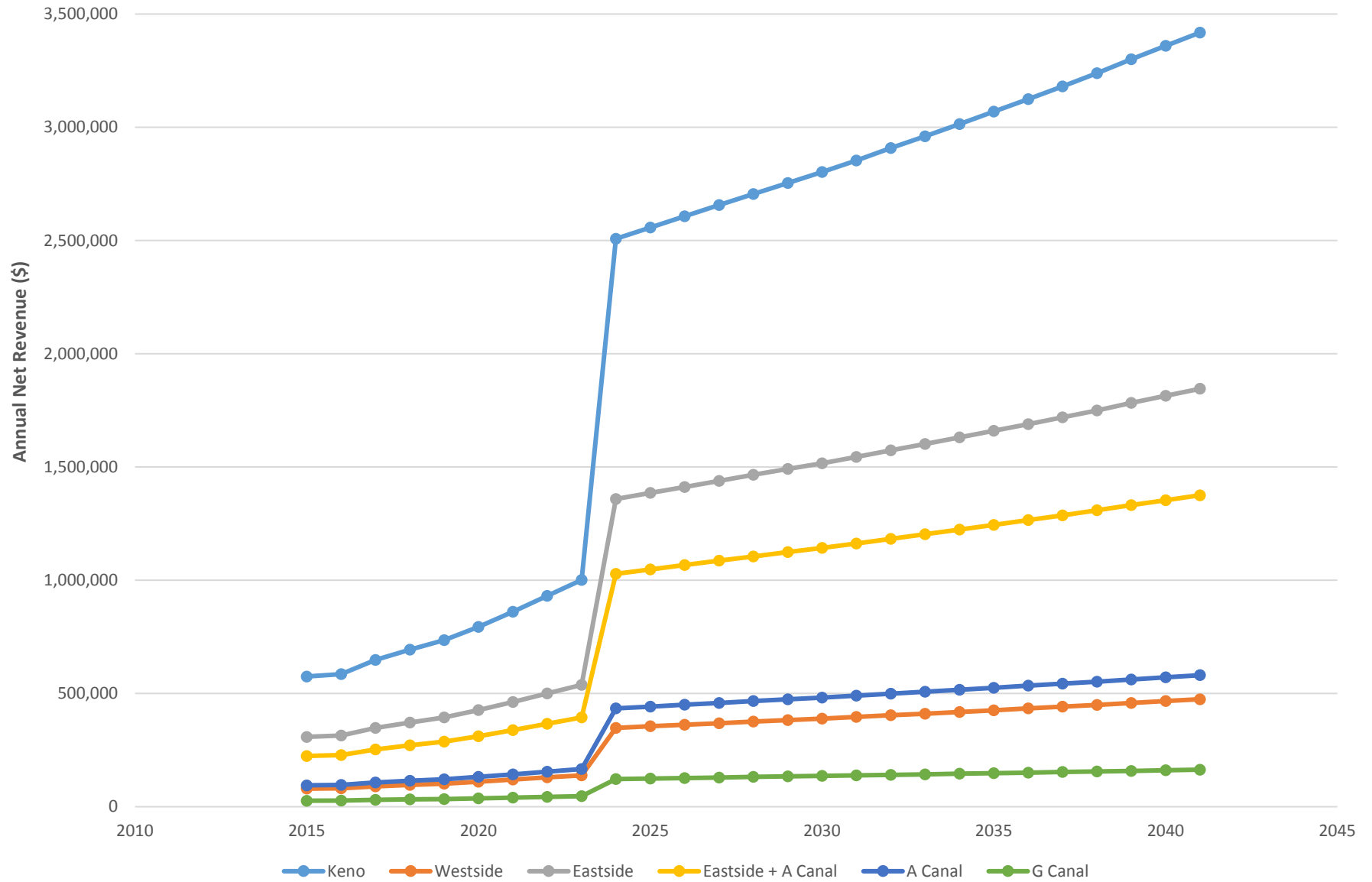
General Rate:	5.0%
Average Energy Rate:	4.7%

Delivery Year	Standard								Renewable							
	On-Peak Price (¢/kWh)	Off-Peak Price (¢/kWh)	Gross Revenue (\$)	Net Revenue (\$)	New Effective OR Rate (¢/kWh)	New Effective CA Rate (¢/kWh)	OR Cost Reduction (%)	CA Cost Reduction (%)	On-Peak Price (¢/kWh)	Off-Peak Price (¢/kWh)	Gross Revenue (\$)	Net Revenue (\$)	New Effective OR Rate (¢/kWh)	New Effective CA Rate (¢/kWh)	OR Cost Reduction (%)	CA Cost Reduction (%)
	2015	2.77	2.19	34,514	26,681	9.651	12.910	0.2	0.2	2.77	2.19	34,514	26,681	9.651	12.910	0.2
2016	2.87	2.20	35,343	27,118	10.104	13.516	0.2	0.2	2.87	2.20	35,343	27,118	10.104	13.516	0.2	0.2
2017	3.13	2.43	38,731	30,094	10.576	14.148	0.2	0.2	3.13	2.43	38,731	30,094	10.576	14.148	0.2	0.2
2018	3.38	2.54	41,316	32,248	11.071	14.810	0.2	0.2	3.38	2.54	41,316	32,248	11.071	14.810	0.2	0.2
2019	3.55	2.73	43,770	34,248	11.589	15.503	0.2	0.2	3.55	2.73	43,770	34,248	11.589	15.503	0.2	0.2
2020	3.82	2.93	47,053	37,055	12.131	16.228	0.3	0.2	3.82	2.93	47,053	37,055	12.131	16.228	0.3	0.2
2021	4.11	3.18	50,792	40,294	12.698	16.987	0.3	0.2	4.11	3.18	50,792	40,294	12.698	16.987	0.3	0.2
2022	4.41	3.44	54,667	43,645	13.292	17.782	0.3	0.2	4.41	3.44	54,667	43,645	13.292	17.782	0.3	0.2
2023	4.72	3.69	58,560	46,986	13.913	18.614	0.3	0.2	4.72	3.69	58,560	46,986	13.913	18.614	0.3	0.2
2024	6.16	3.06	65,823	53,670	14.561	19.482	0.3	0.2	11.96	7.05	134,495	122,342	14.503	19.424	0.7	0.5
2025	6.35	3.18	68,008	55,248	15.244	20.396	0.3	0.2	12.19	7.24	137,410	124,650	15.185	20.337	0.7	0.5
2026	6.41	3.18	68,469	55,071	15.961	21.353	0.3	0.2	12.36	7.51	140,347	126,949	15.900	21.293	0.7	0.5
2027	6.61	3.31	70,791	56,723	16.709	22.354	0.3	0.2	12.59	7.71	143,322	129,254	16.648	22.293	0.7	0.5
2028	6.98	3.61	75,446	60,675	17.491	23.401	0.3	0.2	12.82	7.91	146,298	131,526	17.431	23.341	0.6	0.5
2029	7.15	3.71	77,357	61,847	18.312	24.498	0.3	0.2	13.05	8.11	149,273	133,763	18.251	24.437	0.6	0.5
2030	7.30	3.79	78,993	62,707	19.171	25.648	0.3	0.2	13.27	8.32	152,232	135,947	19.109	25.586	0.6	0.4
2031	7.62	4.03	82,902	65,802	20.069	26.849	0.3	0.2	13.47	8.59	155,400	138,300	20.008	26.788	0.6	0.4
2032	7.80	4.14	84,949	66,994	21.011	28.108	0.3	0.2	13.78	8.75	158,749	140,794	20.948	28.046	0.6	0.4
2033	7.93	4.20	86,311	67,458	21.997	29.427	0.3	0.2	13.97	9.05	162,021	143,168	21.933	29.363	0.6	0.4
2034	8.15	4.34	88,847	69,052	23.029	30.807	0.3	0.2	14.17	9.36	165,430	145,635	22.964	30.743	0.5	0.4
2035	8.40	4.51	91,795	71,010	24.109	32.252	0.2	0.2	14.47	9.55	168,883	148,098	24.044	32.186	0.5	0.4
2036	8.59	4.62	93,920	72,095	25.240	33.764	0.2	0.2	14.85	9.65	172,407	150,583	25.174	33.698	0.5	0.4
2037	8.82	4.76	96,533	73,617	26.424	35.348	0.2	0.2	15.06	9.98	176,014	153,099	26.357	35.280	0.5	0.4
2038	9.05	4.91	99,206	75,145	27.664	37.005	0.2	0.2	15.58	9.94	179,769	155,708	27.596	36.937	0.5	0.4
2039	9.25	5.02	101,408	76,143	28.962	38.741	0.2	0.2	16.04	10.01	183,727	158,463	28.892	38.671	0.5	0.3
2040	9.51	5.19	104,433	77,905	30.320	40.557	0.2	0.2	16.38	10.22	187,609	161,081	30.250	40.487	0.4	0.3
2041	9.71	5.30	106,634	78,780	31.743	42.460	0.2	0.2	16.66	10.51	191,512	163,658	31.671	42.388	0.4	0.3

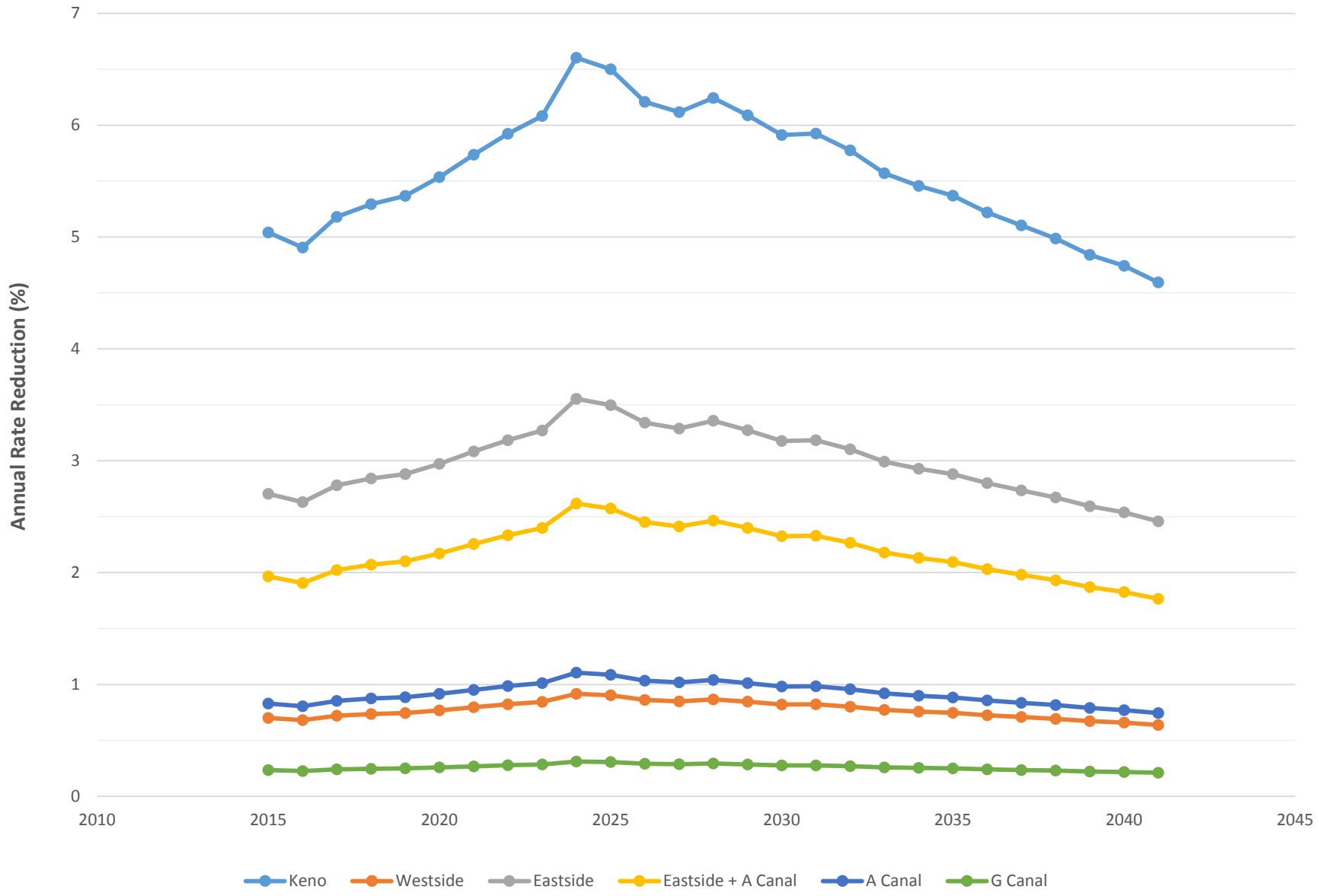
Alternative 2: Low-Head Hydropower Net Revenue (2015-2041) Standard Pricing



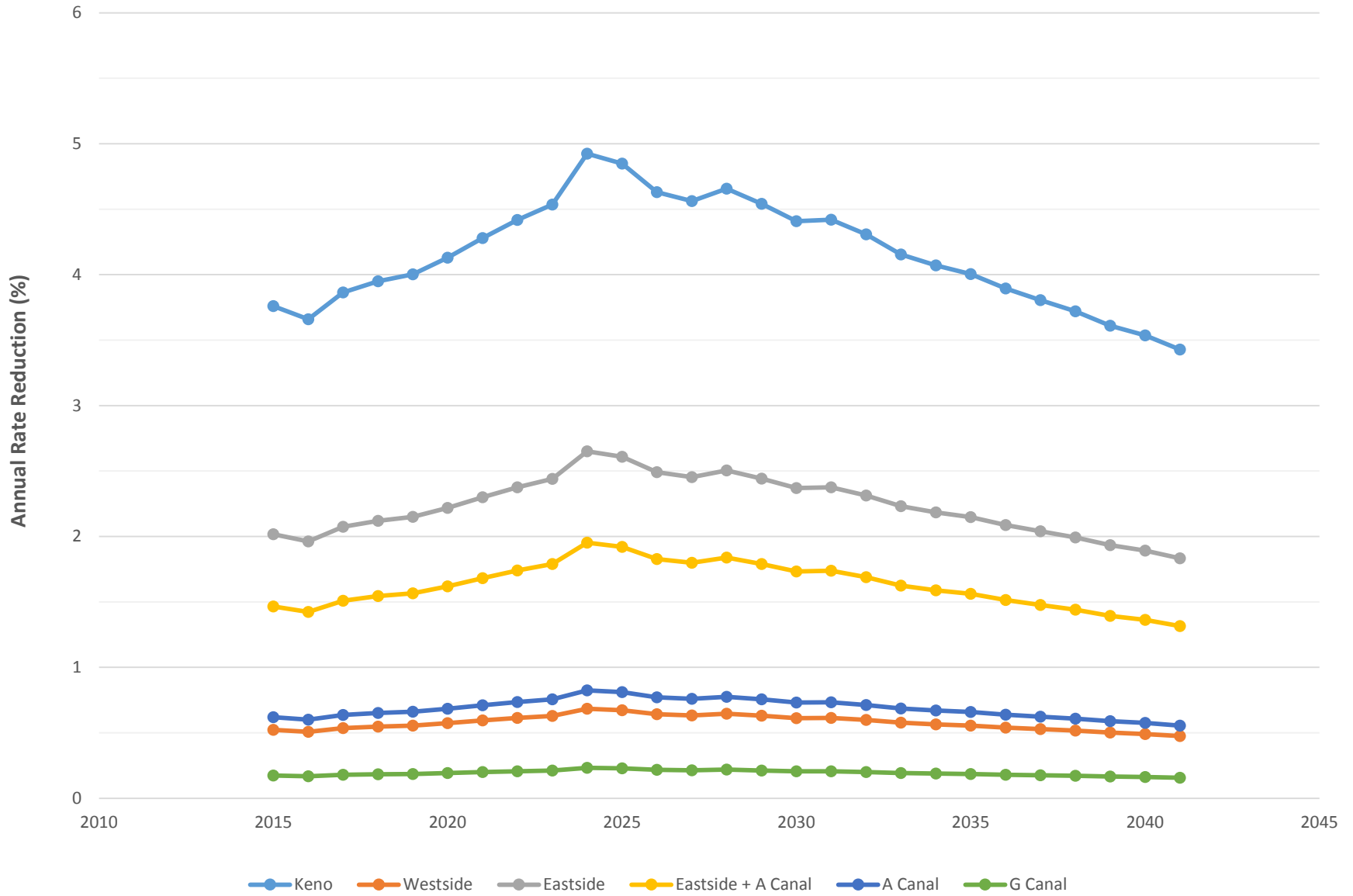
Alternative 2: Low-Head Hydropower Net Revenue (2015-2041) Renewable Pricing



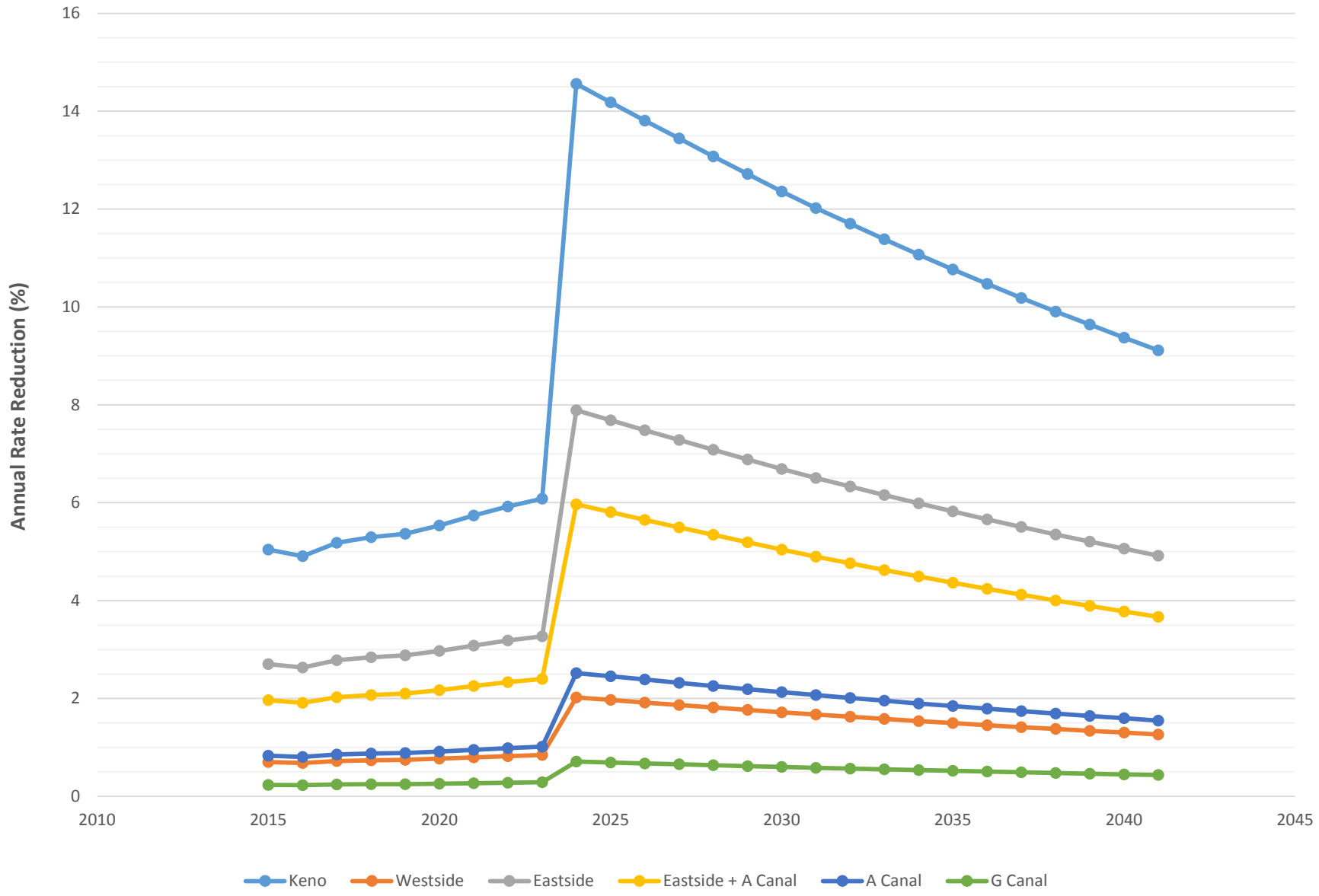
Alternative 2: Low-Head Hydropower Rate Reduction in Oregon (2015-2041) Standard Pricing



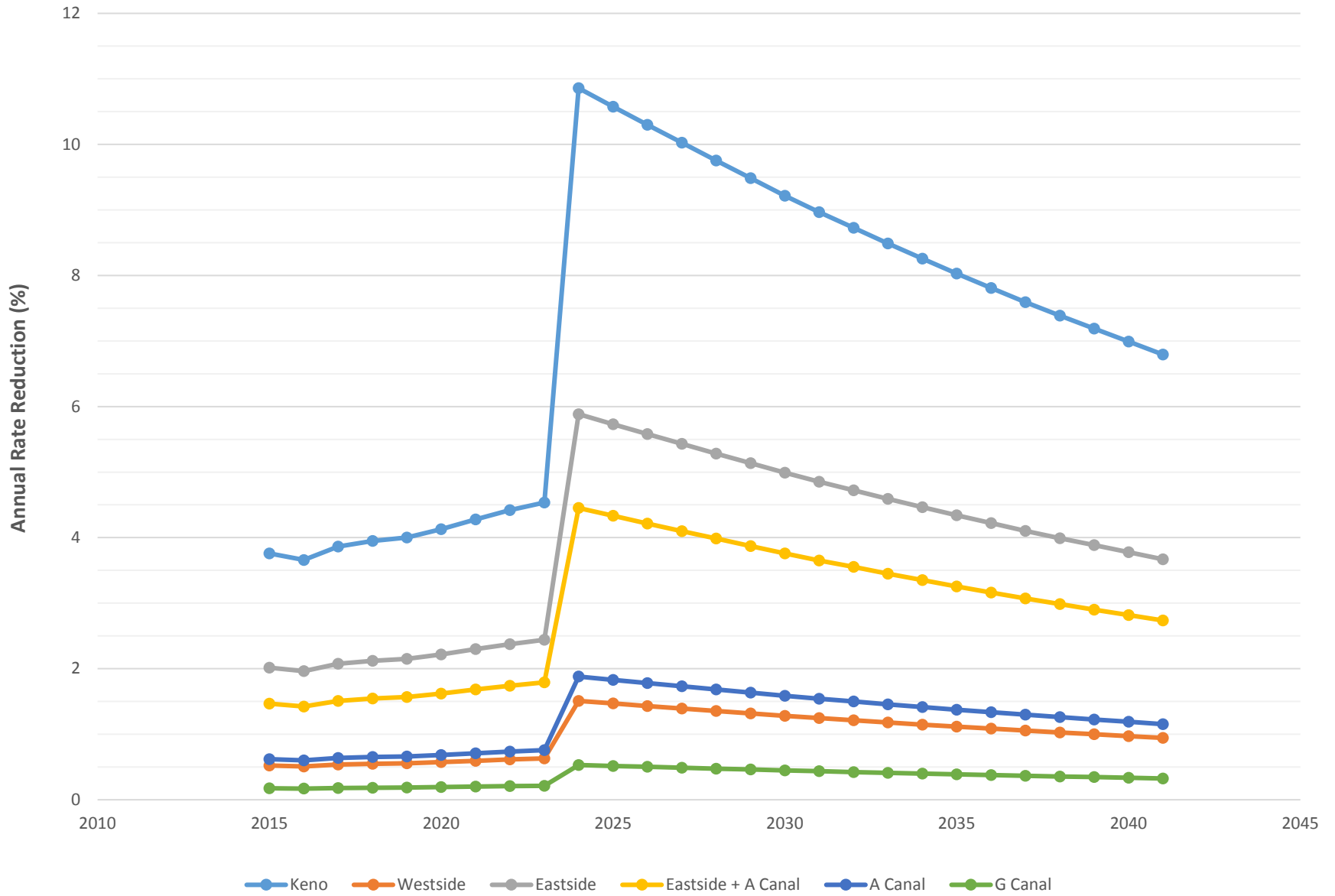
Alternative 2: Low-Head Hydropower Rate Reduction in California (2015-2041) Standard Pricing



Alternative 2: Low-Head Hydropower Rate Reduction in Oregon (2015-2041) Renewable Pricing



Alternative 2: Low-Head Hydropower Rate Reduction in California (2015-2041) Renewable Pricing



Alternative 3: Out-of-Basin Investment

Current Cost Information

OR Energy Use (kWh):	96000000
CA Energy Use (kWh):	22000000
PAC 41 rate (\$/kWh):	0.09674
PAC PA-20 rate (\$/kWh):	0.12933

Yieldco Yield Assumptions:

Average Yield: 4.0%

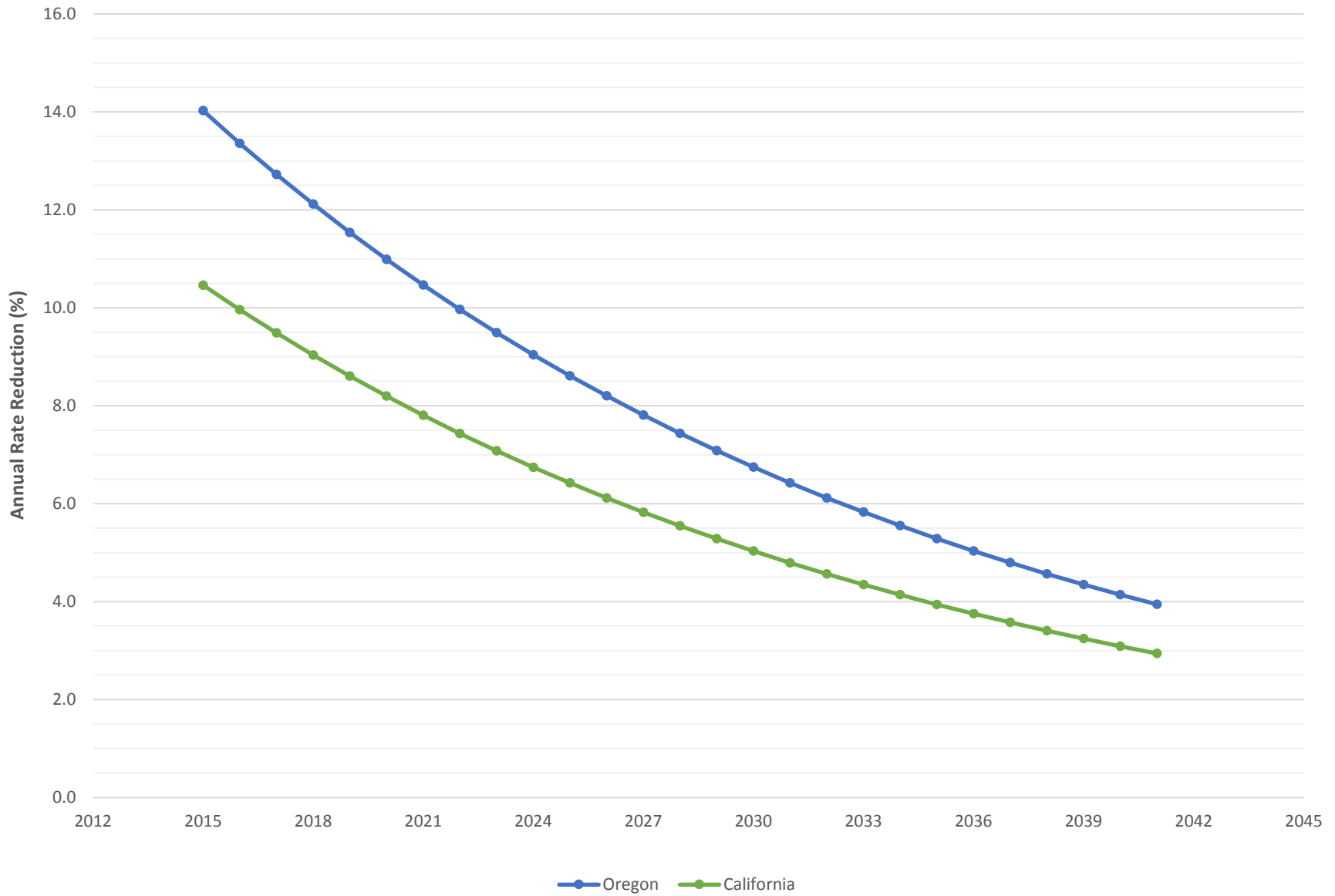
Inflation Assumptions:

General Rate: 5.0%

Initial Investment (\$): 40,000,000.00

Delivery Year	Dividend (Revenue) (\$)	New Effective OR Rate (¢/kWh)	New Effective CA Rate (¢/kWh)	OR Cost Reduction (%)	CA Cost Reduction (%)
2015	1,600,000.00	8.317	11.580	14.0	10.5
2016	1,600,000.00	8.801	12.227	13.4	10.0
2017	1,600,000.00	9.309	12.906	12.7	9.5
2018	1,600,000.00	9.842	13.619	12.1	9.0
2019	1,600,000.00	10.402	14.367	11.5	8.6
2020	1,600,000.00	10.990	15.153	11.0	8.2
2021	1,600,000.00	11.607	15.979	10.5	7.8
2022	1,600,000.00	12.256	16.845	10.0	7.4
2023	1,600,000.00	12.936	17.755	9.5	7.1
2024	1,600,000.00	13.651	18.711	9.0	6.7
2025	1,600,000.00	14.401	19.714	8.6	6.4
2026	1,600,000.00	15.189	20.767	8.2	6.1
2027	1,600,000.00	16.016	21.873	7.8	5.8
2028	1,600,000.00	16.885	23.034	7.4	5.5
2029	1,600,000.00	17.797	24.254	7.1	5.3
2030	1,600,000.00	18.755	25.534	6.7	5.0
2031	1,600,000.00	19.760	26.878	6.4	4.8
2032	1,600,000.00	20.816	28.290	6.1	4.6
2033	1,600,000.00	21.925	29.772	5.8	4.3
2034	1,600,000.00	23.089	31.328	5.5	4.1
2035	1,600,000.00	24.311	32.962	5.3	3.9
2036	1,600,000.00	25.595	34.678	5.0	3.8
2037	1,600,000.00	26.942	36.480	4.8	3.6
2038	1,600,000.00	28.357	38.371	4.6	3.4
2039	1,600,000.00	29.843	40.357	4.3	3.2
2040	1,600,000.00	31.403	42.443	4.1	3.1
2041	1,600,000.00	33.041	44.633	3.9	2.9

Alternative 3: Out-of-Basin Investments Rate Reduction 2015-2041



Alternative 4: Utility-Scale Solar and Out-of-Basin Investment

Based on Standard Solar Fixed Avoided Cost Prices as provided in Schedule 37

On-Peak hours are 6 am to 10 pm

Project Size (kW):	7,692.31
Capacity Factor:	0.3
Project Annual Generation (kWh):	20,215,384.61
Estimated O&M Costs (\$/kW):	27
Project Annual O&M (\$):	207,692.31
Yieldco Initial Investment (\$):	20,000,000.00

Current Cost Information

OR Energy Use (kWh):	96000000
CA Energy Use (kWh):	22000000
PAC 41 rate (\$/kWh):	0.09674
PAC PA-20 rate (\$/kWh):	0.12933

Inflation Assumptions:

General Rate:	5.0%
Average Energy Rate:	4.7%

Yieldco Yield Assumptions:

Average Yield:	4.0%
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Delivery Year	On-Peak Price (¢/kWh)	Off-Peak Price (¢/kWh)	Solar Gross Revenue (\$)	Yieldco Revenue (\$)	Net Revenue (\$)	New Effective OR Rate (¢/kWh)	New Effective CA Rate (¢/kWh)	OR Cost Reduction (%)	CA Cost Reduction (%)
2015	2.77	2.19	541,206	800,000	1,133,514	8.713	11.975	9.9	7.4
2016	2.87	2.20	558,511	800,000	1,140,434	9.160	12.575	9.5	7.1
2017	3.13	2.43	610,100	800,000	1,181,120	9.600	13.175	9.4	7.0
2018	3.38	2.54	656,111	800,000	1,215,681	10.067	13.809	9.3	6.9
2019	3.55	2.73	691,124	800,000	1,238,672	10.568	14.485	9.0	6.7
2020	3.82	2.93	743,441	800,000	1,278,367	11.078	15.179	8.9	6.6
2021	4.11	3.18	800,772	800,000	1,322,444	11.611	15.903	8.8	6.6
2022	4.41	3.44	860,124	800,000	1,367,880	12.169	16.662	8.7	6.5
2023	4.72	3.69	920,851	800,000	1,413,995	12.754	17.458	8.6	6.4
2024	3.48	3.06	689,911	800,000	1,167,712	13.617	18.540	6.8	5.1
2025	3.61	3.18	715,867	800,000	1,177,558	14.293	19.447	6.5	4.9
2026	3.62	3.18	717,565	800,000	1,162,341	15.022	20.417	6.2	4.6
2027	3.76	3.31	745,543	800,000	1,172,558	15.763	21.411	5.9	4.4
2028	4.07	3.61	807,888	800,000	1,216,253	16.511	22.424	5.9	4.4
2029	4.18	3.71	829,801	800,000	1,218,585	17.331	23.520	5.6	4.2
2030	4.27	3.79	847,672	800,000	1,215,894	18.193	24.673	5.4	4.0
2031	4.52	4.03	897,887	800,000	1,244,520	19.070	25.852	5.2	3.9
2032	4.64	4.14	921,822	800,000	1,245,787	20.011	27.112	5.0	3.7
2033	4.71	4.20	935,649	800,000	1,235,813	21.007	28.440	4.8	3.5
2034	4.86	4.34	965,648	800,000	1,240,820	22.036	29.817	4.6	3.4
2035	5.04	4.51	1,001,713	800,000	1,250,643	23.109	31.254	4.4	3.3
2036	5.16	4.62	1,025,648	800,000	1,247,025	24.244	32.771	4.2	3.1
2037	5.31	4.76	1,055,647	800,000	1,248,093	25.429	34.355	4.0	3.0
2038	5.47	4.91	1,087,669	800,000	1,249,737	26.668	36.012	3.8	2.9
2039	5.59	5.02	1,111,604	800,000	1,241,775	27.974	37.755	3.6	2.7
2040	5.78	5.19	1,149,366	800,000	1,246,046	29.330	39.570	3.5	2.6
2041	5.90	5.30	1,173,301	800,000	1,234,815	30.763	41.482	3.3	2.5

Alternative 4: Utility-Scale Solar and Out-of-Basin Investment

Based on Renewable Solar Fixed Avoided Cost Prices as provided in Schedule 37

On-Peak hours are 6 am to 10 pm

Project Size (kW):	7,692
Project Annual Generation (kWh):	20,215,385
Estimated O&M Costs (\$/kW):	27
Project Annual O&M (\$):	207,692
Yieldco Initial Investment (\$):	20,000,000

Current Cost Information	
OR Energy Use (kWh):	96000000
CA Energy Use (kWh):	22000000
PAC 41 rate (\$/kWh):	0.09674
PAC PA-20 rate (\$/kWh):	0.12933

Inflation Assumptions:	
General Rate:	5.0%
Average Energy Rate:	4.7%

Yieldo Yield Assumptions:	
Average Yield:	4%

Delivery Year	On-Peak Price (¢/kWh)	Off-Peak Price (¢/kWh)	Solar Gross Revenue (\$)	Yieldco Revenue (\$)	Net Revenue (\$)	New Effective OR Rate (¢/kWh)	New Effective CA Rate (¢/kWh)	OR Cost Reduction (%)	CA Cost Reduction (%)
2015	2.77	2.19	541,206	800,000	1,133,514	8.713	11.975	9.9	7.4
2016	2.87	2.20	558,511	800,000	1,140,434	9.160	12.575	9.5	7.1
2017	3.13	2.43	610,100	800,000	1,181,120	9.600	13.175	9.4	7.0
2018	3.38	2.54	656,111	800,000	1,215,681	10.067	13.809	9.3	6.9
2019	3.55	2.73	691,124	800,000	1,238,672	10.568	14.485	9.0	6.7
2020	3.82	2.93	743,441	800,000	1,278,367	11.078	15.179	8.9	6.6
2021	4.11	3.18	800,772	800,000	1,322,444	11.611	15.903	8.8	6.6
2022	4.41	3.44	860,124	800,000	1,367,880	12.169	16.662	8.7	6.5
2023	4.72	3.69	920,851	800,000	1,413,995	12.754	17.458	8.6	6.4
2024	9.28	7.05	1,803,859	800,000	2,281,660	12.672	17.598	13.2	9.9
2025	9.46	7.24	1,840,570	800,000	2,302,261	13.339	18.496	12.8	9.5
2026	9.56	7.51	1,866,284	800,000	2,311,060	14.048	19.446	12.2	9.1
2027	9.73	7.71	1,901,621	800,000	2,328,635	14.783	20.434	11.8	8.8
2028	9.91	7.91	1,938,655	800,000	2,347,021	15.552	21.468	11.3	8.5
2029	10.07	8.11	1,972,294	800,000	2,361,077	16.362	22.554	10.9	8.1
2030	10.24	8.32	2,007,954	800,000	2,376,176	17.210	23.692	10.5	7.8
2031	10.37	8.59	2,038,762	800,000	2,385,396	18.102	24.888	10.1	7.5
2032	10.62	8.75	2,086,389	800,000	2,410,355	19.024	26.127	9.7	7.2
2033	10.74	9.05	2,116,470	800,000	2,416,634	20.006	27.441	9.3	6.9
2034	10.88	9.36	2,150,270	800,000	2,425,442	21.031	28.815	8.9	6.6
2035	11.11	9.55	2,195,472	800,000	2,444,402	22.097	30.245	8.6	6.4
2036	11.42	9.65	2,251,347	800,000	2,472,724	23.205	31.735	8.3	6.2
2037	11.56	9.98	2,285,794	800,000	2,478,240	24.386	33.315	7.9	5.9
2038	12.00	9.94	2,359,216	800,000	2,521,284	25.590	34.937	7.7	5.8
2039	12.38	10.01	2,426,008	800,000	2,556,179	26.859	36.644	7.5	5.6
2040	12.65	10.22	2,478,649	800,000	2,575,329	28.203	38.446	7.2	5.4
2041	12.85	10.51	2,521,991	800,000	2,583,505	29.619	40.342	6.9	5.1

Based on Ewuana Solar Project PPA

Project Size (kW): 7,692.31
 Project Annual Generation (kWh): 20,215,384.61
 Estimated O&M Costs (\$/kW): 27
 Project Annual O&M (\$): 207,692.31
 Yieldco Initial Investment (\$): 20,000,000.00

Current Cost Information

OR Energy Use (kWh): 96000000
 CA Energy Use (kWh): 22000000
 PAC 41 rate (\$/kWh): 0.09674
 PAC PA-20 rate (\$/kWh): 0.12933

Inflation Assumptions:

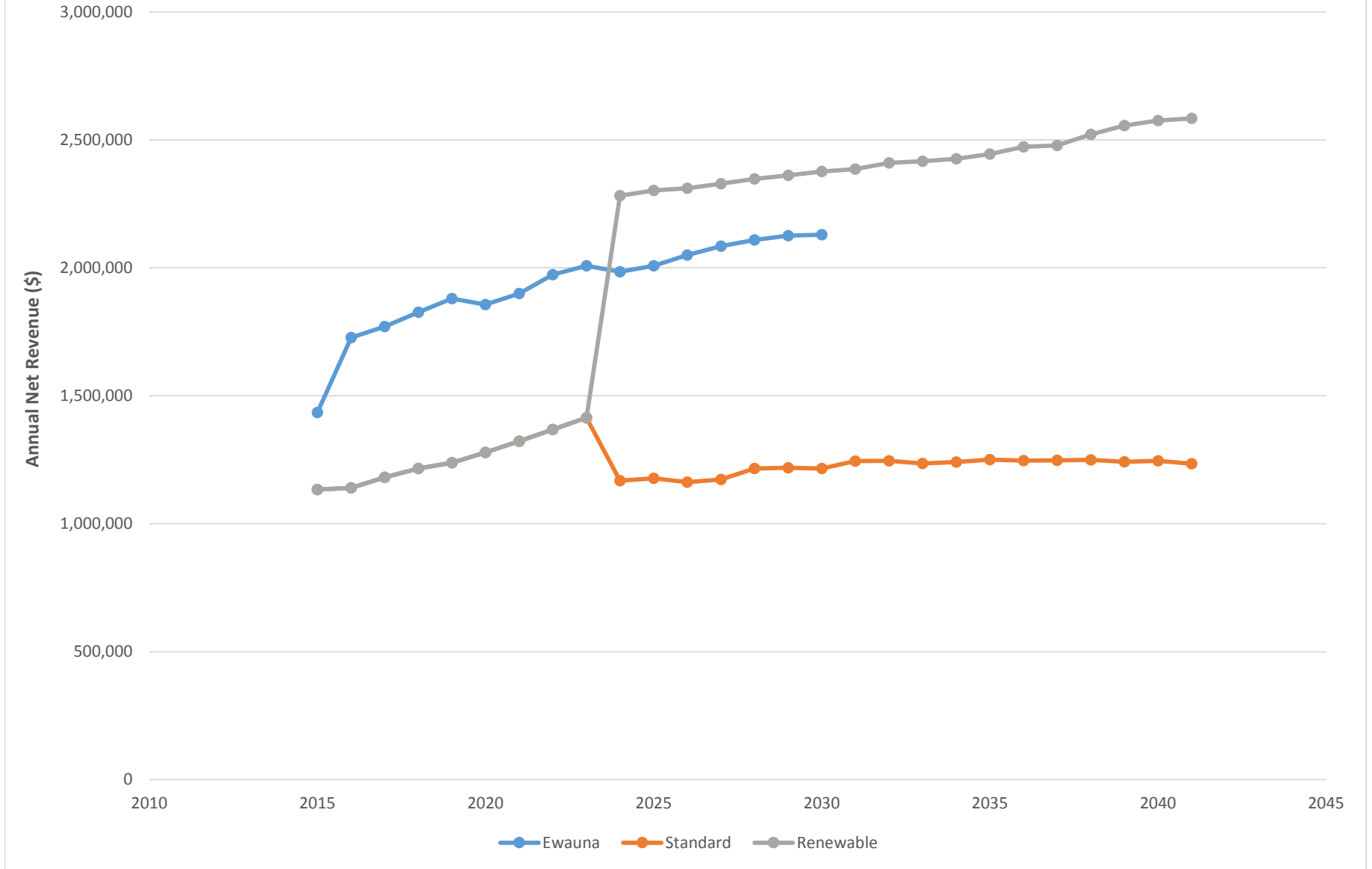
General Rate: 5.0%
 Off-Peak Rate: 5.1%
 On-Peak Rate: 4.9%
 Average of Peak Rates: 5.0%

Yieldo Yield Assumptions:

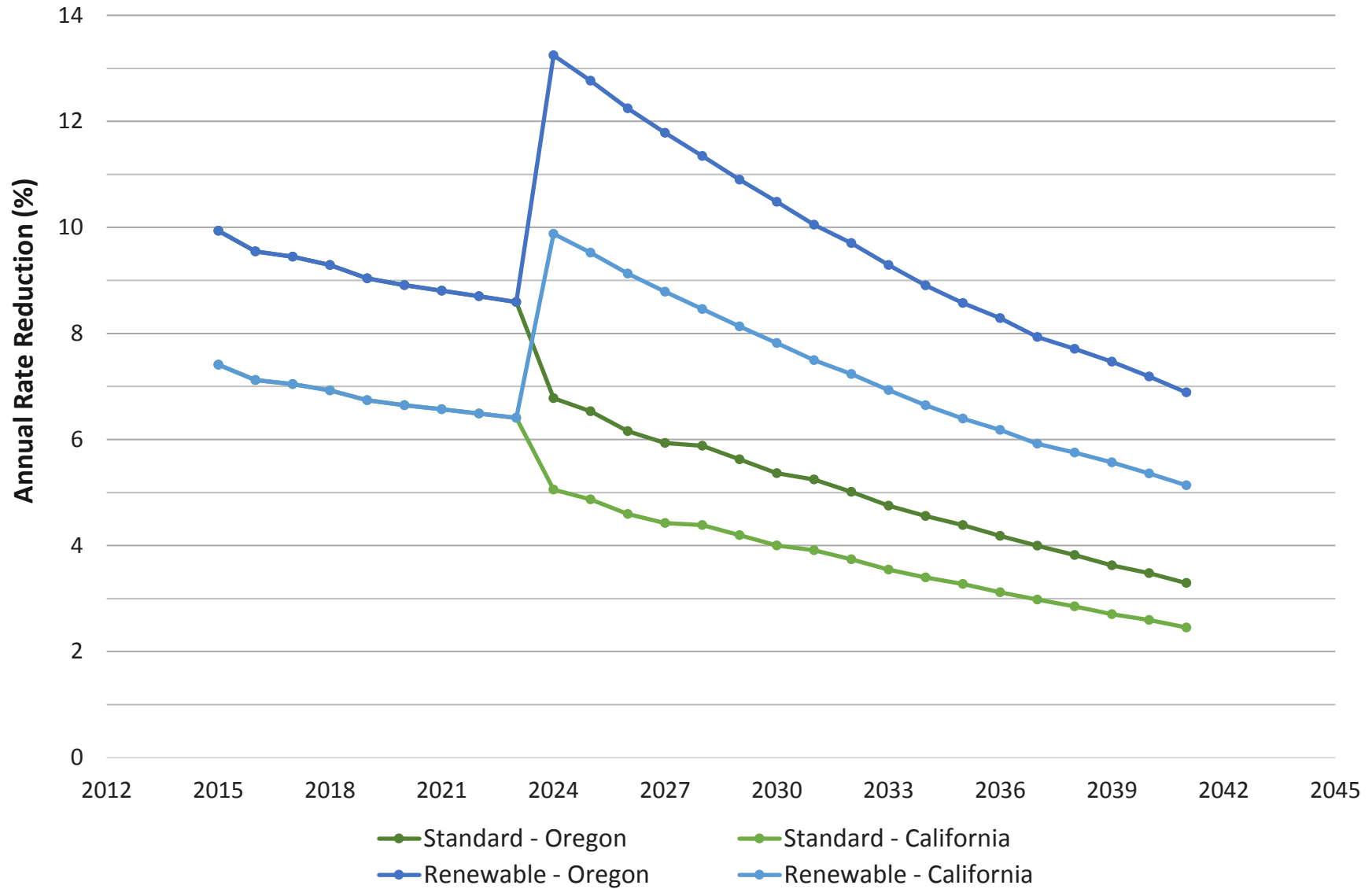
Average Yield: 4%

Delivery Year	On-Peak Price (¢/kWh)	Off-Peak Price (¢/kWh)	Solar Gross Revenue (\$)	Yieldco Revenue (\$)	Net Revenue (\$)	New Effective OR Rate (¢/kWh)	New Effective CA Rate (¢/kWh)	OR Cost Reduction (%)	CA Cost Reduction (%)
2015	4.39	2.99	842,173	800,000	1,434,481	8.458	11.720	12.6	9.4
2016	6.04	3.69	1,144,999	800,000	1,726,922	8.693	12.119	14.4	10.8
2017	6.32	3.91	1,199,662	800,000	1,770,681	9.163	12.761	14.1	10.5
2018	6.66	4.21	1,267,100	800,000	1,826,670	9.649	13.426	13.8	10.3
2019	6.99	4.5	1,332,517	800,000	1,880,066	10.163	14.128	13.6	10.1
2020	6.94	4.41	1,321,116	800,000	1,856,042	10.771	14.934	12.7	9.5
2021	7.23	4.65	1,378,123	800,000	1,899,796	11.351	15.722	12.4	9.3
2022	7.67	5.04	1,465,454	800,000	1,973,210	11.936	16.525	12.3	9.2
2023	7.92	5.24	1,514,375	800,000	2,007,519	12.587	17.405	11.9	8.9
2024	7.89	5.16	1,506,693	800,000	1,984,494	13.320	18.379	11.2	8.4
2025	8.09	5.32	1,545,830	800,000	2,007,521	14.050	19.362	10.8	8.1
2026	8.39	5.57	1,604,859	800,000	2,049,635	14.802	20.379	10.5	7.8
2027	8.66	5.78	1,657,500	800,000	2,084,514	15.599	21.454	10.2	7.6
2028	8.88	5.95	1,700,356	800,000	2,108,722	16.446	22.593	9.8	7.3
2029	9.07	6.09	1,737,148	800,000	2,125,932	17.342	23.797	9.4	7.0
2030	9.2	6.16	1,761,488	800,000	2,129,710	18.295	25.072	9.0	6.7

Alternative 4: Utility-Scale Solar and Out-of-Basin Investments Net Revenue 2015-2041



Alternative 4: Utility-Scale Solar and Out-of-Basin Investments Rate Reduction 2015-2041



Alternative 5: Geothermal

Based on Standard Fixed Avoided Cost Prices as provided in Schedule 37

On-Peak hours are 6 am to 10 pm

Project Size (kW):	6,779.66
Capacity Factor:	0.85
Project Annual Generation (kWh):	50,481,355.93
Estimated Well Cost (\$):	500,000.00
Estimated O&M Costs (\$/kW):	120
Project Annual O&M (\$):	813,559.32

Current Cost Information

OR Energy Use (kWh):	96000000
CA Energy Use (kWh):	22000000
PAC 41 rate (\$/kWh):	0.09674
PAC PA-20 rate (\$/kWh):	0.12933

Inflation Assumptions:

General Rate:	5.0%
Average Energy Rate:	4.7%

Delivery Year	On-Peak Price (¢/kWh)	Off-Peak Price (¢/kWh)	Gross Revenue (\$)	Net Revenue (\$)	New Effective OR Rate (¢/kWh)	New Effective CA Rate (¢/kWh)	OR Cost Reduction (%)	CA Cost Reduction (%)
2015	2.77	2.19	1,269,505	(44,054)	9.711	12.970	-0.4	-0.3
2016	2.87	2.20	1,299,996	445,759	9.749	13.162	3.7	2.8
2017	3.13	2.43	1,424,584	527,635	10.154	13.727	4.2	3.1
2018	3.38	2.54	1,519,691	577,894	10.608	14.348	4.4	3.3
2019	3.55	2.73	1,609,951	621,065	11.092	15.007	4.5	3.4
2020	3.82	2.93	1,730,703	692,372	11.575	15.674	4.8	3.6
2021	4.11	3.18	1,868,214	777,967	12.073	16.364	5.2	3.9
2022	4.41	3.44	2,010,773	866,014	12.594	17.087	5.5	4.1
2023	4.72	3.69	2,153,938	951,941	13.146	17.849	5.8	4.3
2024	6.16	3.06	2,421,086	1,158,988	13.624	18.548	6.7	5.0
2025	6.35	3.18	2,501,452	1,176,250	14.294	19.448	6.5	4.9
2026	6.41	3.18	2,518,414	1,126,951	15.052	20.447	6.0	4.5
2027	6.61	3.31	2,603,828	1,142,793	15.788	21.436	5.8	4.3
2028	6.98	3.61	2,775,061	1,240,974	16.490	22.403	6.0	4.5
2029	7.15	3.71	2,845,331	1,234,539	17.317	23.507	5.7	4.3
2030	7.30	3.79	2,905,505	1,214,174	18.195	24.674	5.4	4.0
2031	7.62	4.03	3,049,276	1,273,378	19.045	25.828	5.4	4.0
2032	7.80	4.14	3,124,594	1,259,901	19.999	27.100	5.1	3.8
2033	7.93	4.20	3,174,672	1,216,744	21.023	28.456	4.7	3.5
2034	8.15	4.34	3,267,961	1,212,137	22.060	29.841	4.5	3.3
2035	8.40	4.51	3,376,395	1,217,780	23.137	31.282	4.3	3.2
2036	8.59	4.62	3,454,540	1,187,994	24.294	32.821	4.0	3.0
2037	8.82	4.76	3,550,657	1,170,784	25.494	34.420	3.7	2.8
2038	9.05	4.91	3,648,994	1,150,128	26.753	36.096	3.5	2.6
2039	9.25	5.02	3,729,966	1,106,156	28.089	37.870	3.2	2.4
2040	9.51	5.19	3,841,227	1,086,227	29.465	39.705	3.0	2.3
2041	9.71	5.30	3,922,199	1,029,449	30.937	41.656	2.7	2.0

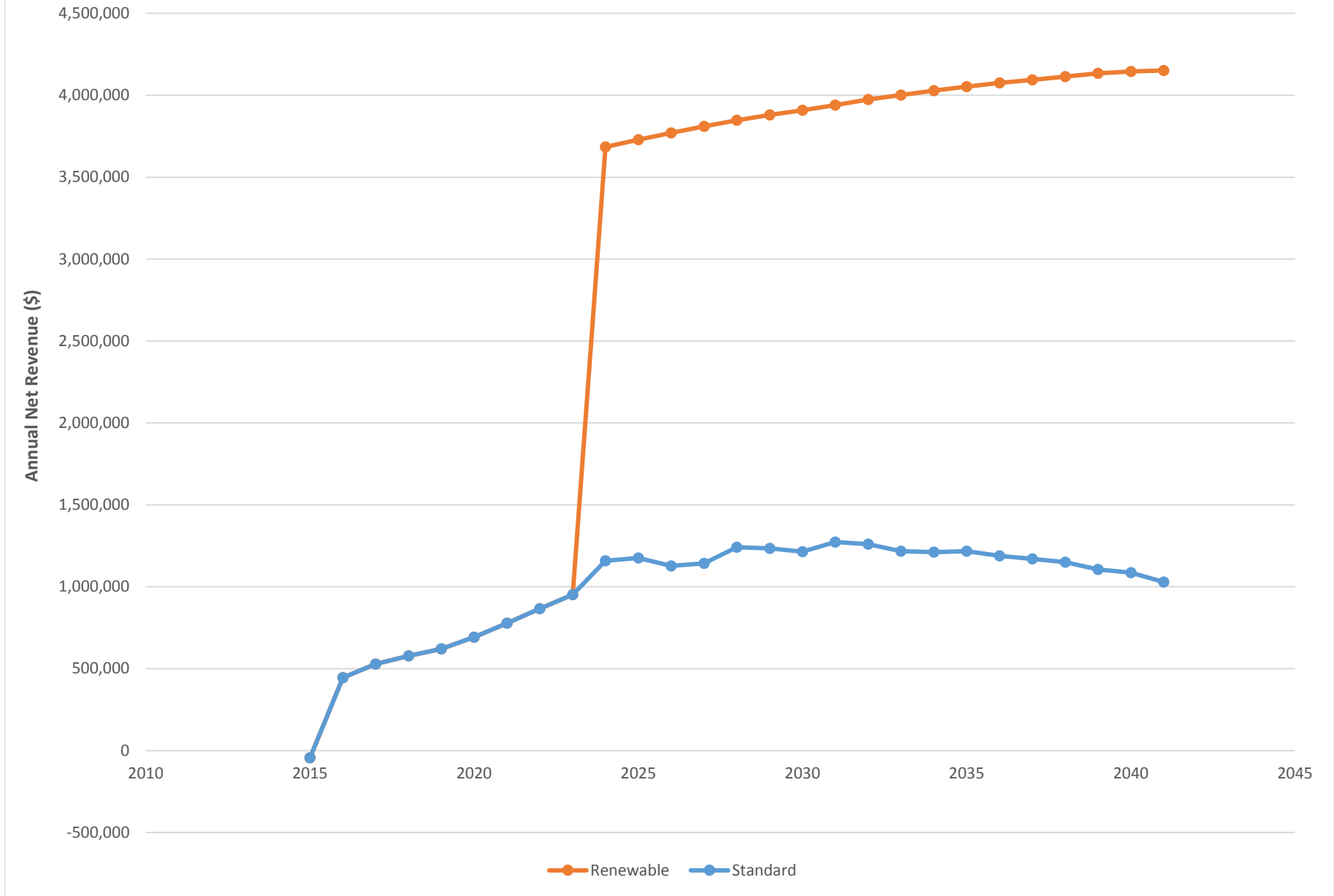
Based on Renewable Fixed Avoided Cost Prices from Schedule 37

On-Peak hours are 6 am to 10 pm

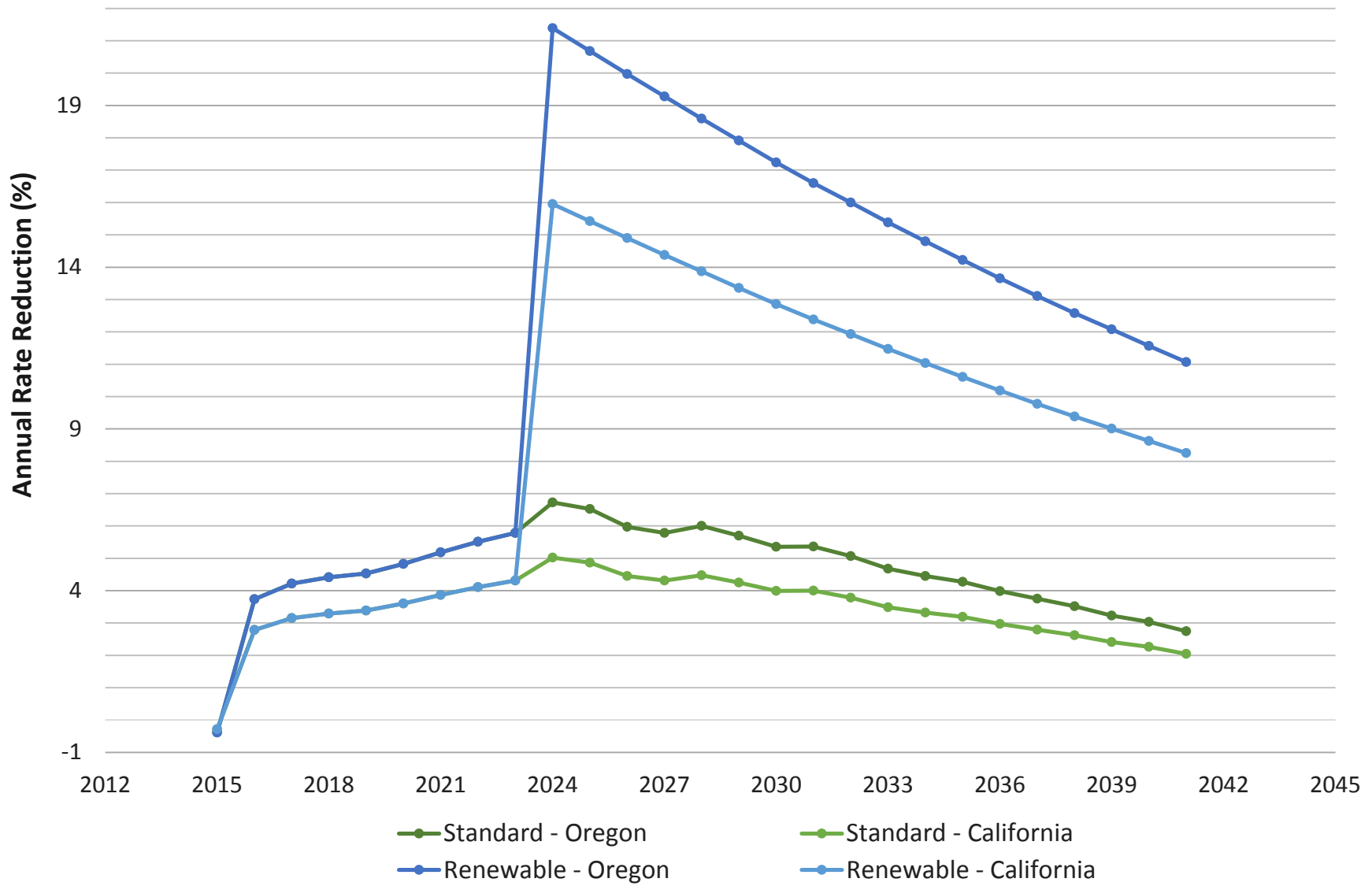
		Current Cost Information		Inflation Assumptions:	
Project Size (kW):	6,780	OR Energy Use (kWh):	96000000	General Rate:	5.0%
Project Annual Generation (kWh):	50,481,356	CA Energy Use (kWh):	22000000	Average Energy Rate:	4.7%
Estimated Well Cost (\$):	500,000	PAC 41 rate (\$/kWh):	0.09674		
Estimated O&M Costs (\$/kW):	120	PAC PA-20 rate (\$/kWh):	0.12933		
Project Annual O&M (\$):	813,559				

Delivery Year	On-Peak Price	Off-Peak Price	Gross Revenue		New Effective OR Rate	New Effective CA Rate	OR Cost Reduction	CA Cost Reduction
	(¢/kWh)	(¢/kWh)	(\$)	Net Revenue (\$)	(¢/kWh)	(¢/kWh)	(%)	(%)
2015	2.77	2.19	1,269,505	(44,054)	9.711	12.970	-0.4	-0.3
2016	2.87	2.20	1,299,996	445,759	9.749	13.162	3.7	2.8
2017	3.13	2.43	1,424,584	527,635	10.154	13.727	4.2	3.1
2018	3.38	2.54	1,519,691	577,894	10.608	14.348	4.4	3.3
2019	3.55	2.73	1,609,951	621,065	11.092	15.007	4.5	3.4
2020	3.82	2.93	1,730,703	692,372	11.575	15.674	4.8	3.6
2021	4.11	3.18	1,868,214	777,967	12.073	16.364	5.2	3.9
2022	4.41	3.44	2,010,773	866,014	12.594	17.087	5.5	4.1
2023	4.72	3.69	2,153,938	951,941	13.146	17.849	5.8	4.3
2024	11.96	7.05	4,946,971	3,684,873	11.482	16.412	21.4	16.0
2025	12.19	7.24	5,054,193	3,728,991	12.129	17.290	20.7	15.4
2026	12.36	7.51	5,162,223	3,770,761	12.810	18.212	20.0	14.9
2027	12.59	7.71	5,271,667	3,810,631	13.526	19.181	19.3	14.4
2028	12.82	7.91	5,381,111	3,847,023	14.280	20.199	18.6	13.9
2029	13.05	8.11	5,490,554	3,879,762	15.074	21.270	17.9	13.4
2030	13.27	8.32	5,599,392	3,908,061	15.911	22.397	17.2	12.9
2031	13.47	8.59	5,715,903	3,940,005	16.784	23.574	16.6	12.4
2032	13.78	8.75	5,839,077	3,974,385	17.698	24.805	16.0	11.9
2033	13.97	9.05	5,959,425	4,001,498	18.662	26.101	15.4	11.5
2034	14.17	9.36	6,084,821	4,028,997	19.672	27.459	14.8	11.0
2035	14.47	9.55	6,211,832	4,053,217	20.733	28.885	14.2	10.6
2036	14.85	9.65	6,341,468	4,074,922	21.846	30.380	13.7	10.2
2037	15.06	9.98	6,474,133	4,094,260	23.015	31.948	13.1	9.8
2038	15.58	9.94	6,612,250	4,113,383	24.240	33.591	12.6	9.4
2039	16.04	10.01	6,757,838	4,134,028	25.521	35.310	12.1	9.0
2040	16.38	10.22	6,900,599	4,145,599	26.871	37.118	11.6	8.6
2041	16.66	10.51	7,044,168	4,151,418	28.290	39.016	11.1	8.3

Alternative 5: Geothermal Net Revenue 2015-2041



Alternative 5: Geothermal Rate Reduction 2015-2041



Alternative 6: Shared Solar

Project Size (kW):	11,764.71
Capacity Factor:	0.28
Project Annual Generation (kWh):	28,856,470.58
Estimated O&M Costs (\$/kW):	28
Project Annual O&M (\$):	329,411.76

Current Cost Information

OR Energy Use (kWh):	96000000
CA Energy Use (kWh):	22000000
PAC 41 rate (\$/kWh):	0.09674
PAC PA-20 rate (\$/kWh):	0.12933

Inflation Assumptions:

General Rate: 5.0%

Delivery Year	Gross Revenue (\$)	Net Revenue (\$)	New Effective OR Rate (¢/kWh)	New Effective CA Rate (¢/kWh)	OR Cost Reduction (%)	CA Cost Reduction (%)
2015	2,966,495	2,637,084	7.438	10.703	23.1	17.2
2016	3,114,820	2,768,938	7.810	11.239	23.1	17.2
2017	3,270,561	2,907,385	8.200	11.801	23.1	17.2
2018	3,434,089	3,052,754	8.610	12.391	23.1	17.2
2019	3,605,794	3,205,392	9.041	13.010	23.1	17.2
2020	3,786,083	3,365,661	9.493	13.661	23.1	17.2
2021	3,975,388	3,533,944	9.968	14.344	23.1	17.2
2022	4,174,157	3,710,641	10.466	15.061	23.1	17.2
2023	4,382,865	3,896,174	10.989	15.814	23.1	17.2
2024	4,602,008	4,090,982	11.539	16.605	23.1	17.2
2025	4,832,108	4,295,531	12.116	17.435	23.1	17.2
2026	5,073,714	4,510,308	12.721	18.307	23.1	17.2
2027	5,327,400	4,735,823	13.358	19.222	23.1	17.2
2028	5,593,769	4,972,614	14.025	20.183	23.1	17.2
2029	5,873,458	5,221,245	14.727	21.192	23.1	17.2
2030	6,167,131	5,482,307	15.463	22.252	23.1	17.2
2031	6,475,487	5,756,423	16.236	23.364	23.1	17.2
2032	6,799,262	6,044,244	17.048	24.533	23.1	17.2
2033	7,139,225	6,346,456	17.900	25.759	23.1	17.2
2034	7,496,186	6,663,779	18.795	27.047	23.1	17.2
2035	7,870,995	6,996,968	19.735	28.399	23.1	17.2
2036	8,264,545	7,346,816	20.722	29.819	23.1	17.2
2037	8,677,772	7,714,157	21.758	31.310	23.1	17.2
2038	9,111,661	8,099,865	22.846	32.876	23.1	17.2
2039	9,567,244	8,504,858	23.988	34.520	23.1	17.2
2040	10,045,606	8,930,101	25.188	36.246	23.1	17.2
2041	10,547,887	9,376,606	26.447	38.058	23.1	17.2

Alternative 7: Utility-Scale and Net Metered Solar

Based on Standard Solar Fixed Avoided Cost Prices as provided in Schedule 37

On-Peak hours are 6 am to 10 pm

	<u>Utility Scale</u>	<u>Net Metered</u>
Project Size (kW):	7,692.31	5.00
Capacity Factor:	0.3	0.2
Project Annual Generation (kWh):	20,215,384.61	8,360.00
Estimated O&M Costs (\$/kW):	27	30
Project Annual O&M (\$):	207,692.31	150.00

No. of Units
 Oregon:
856
 California:
195

Current Cost Information
 OR Energy Use (kWh): 96000000
 CA Energy Use (kWh): 22000000
 PAC 41 rate (\$/kWh): 0.09674
 PAC PA-20 rate (\$/kWh): 0.12933

Inflation Assumptions:
 General Rate: 5.0%
 Average Energy Rate: 4.7%

<u>Delivery Year</u>	<u>On-Peak Price (¢/kWh)</u>	<u>Off-Peak Price (¢/kWh)</u>	<u>Gross Revenue Utility Scale (\$)</u>	<u>NEM Energy Credit OR (\$)</u>	<u>NEM Energy Credit CA (\$)</u>	<u>Net Revenue OR (\$)</u>	<u>Net Revenue CA (\$)</u>	<u>New Effective OR Rate (¢/kWh)</u>	<u>New Effective CA Rate (¢/kWh)</u>	<u>OR Cost Reduction (%)</u>	<u>CA Cost Reduction (%)</u>
2015	2.77	2.19	541,206	692,287	210,834	963,617	272,717	8.670	11.693	10.4	9.6
2016	2.87	2.20	558,511	724,718	220,711	1,001,674	283,874	9.084	12.249	10.3	9.5
2017	3.13	2.43	610,100	758,669	231,050	1,068,734	301,773	9.488	12.801	10.5	9.7
2018	3.38	2.54	656,111	794,209	241,874	1,132,400	319,017	9.919	13.387	10.6	9.8
2019	3.55	2.73	691,124	831,415	253,205	1,188,312	334,616	10.380	14.011	10.7	9.8
2020	3.82	2.93	743,441	870,364	265,067	1,259,564	353,851	10.850	14.651	10.8	9.9
2021	4.11	3.18	800,772	911,138	277,484	1,336,206	374,458	11.340	15.319	10.9	10.0
2022	4.41	3.44	860,124	953,821	290,483	1,415,865	395,898	11.854	16.019	11.1	10.1
2023	4.72	3.69	920,851	998,504	304,091	1,498,075	418,073	12.393	16.753	11.2	10.2
2024	3.48	3.06	689,911	1,045,281	318,337	1,344,365	386,499	13.206	17.771	9.6	9.0
2025	3.61	3.18	715,867	1,094,248	333,250	1,401,336	403,231	13.831	18.609	9.5	9.0
2026	3.62	3.18	717,565	1,145,510	348,861	1,440,199	416,000	14.507	19.509	9.4	8.8
2027	3.76	3.31	745,543	1,199,173	365,204	1,502,165	434,231	15.192	20.429	9.3	8.8
2028	4.07	3.61	807,888	1,255,350	382,313	1,593,897	459,453	15.882	21.363	9.5	8.9
2029	4.18	3.71	829,801	1,314,158	400,223	1,654,589	477,782	16.640	22.379	9.4	8.8
2030	4.27	3.79	847,672	1,375,722	418,972	1,713,948	496,016	17.439	23.446	9.3	8.8
2031	4.52	4.03	897,887	1,440,170	438,599	1,801,682	520,952	18.248	24.537	9.3	8.8
2032	4.64	4.14	921,822	1,507,636	459,146	1,870,163	541,718	19.120	25.703	9.2	8.7
2033	4.71	4.20	935,649	1,578,264	480,655	1,932,654	561,355	20.041	26.933	9.1	8.7
2034	4.86	4.34	965,648	1,652,200	503,172	2,010,648	584,786	20.993	28.208	9.1	8.6
2035	5.04	4.51	1,001,713	1,729,599	526,744	2,096,025	610,166	21.986	29.538	9.0	8.6
2036	5.16	4.62	1,025,648	1,810,625	551,420	2,174,085	634,149	23.037	30.943	9.0	8.5
2037	5.31	4.76	1,055,647	1,895,446	577,252	2,259,755	660,159	24.133	32.409	8.9	8.5
2038	5.47	4.91	1,087,669	1,984,241	604,294	2,349,866	687,485	25.280	33.944	8.8	8.4
2039	5.59	5.02	1,111,604	2,077,196	632,603	2,436,317	714,290	26.489	35.558	8.7	8.4
2040	5.78	5.19	1,149,366	2,174,505	662,238	2,537,078	744,695	27.744	37.238	8.7	8.3
2041	5.90	5.30	1,173,301	2,276,373	693,262	2,629,779	773,604	29.071	39.010	8.6	8.3

Alternative 7: Utility-Scale and Net Metered Solar

Based on Renewable Solar Fixed Avoided Cost Prices as provided in Schedule 37

On-Peak hours are 6 am to 10 pm

	<u>Utility Scale</u>	<u>Net Metered</u>	<u>No. of Units</u>	<u>Current Cost Information</u>	<u>Inflation Assumptions:</u>
Project Size (kW):	7,692	5.00	Oregon:	OR Energy Use (kWh): 96000000	General Rate: 5.0%
Project Annual Generation (kWh):	20,215,385	8,360.00	856	CA Energy Use (kWh): 22000000	Average Energy Rate: 4.7%
Estimated O&M Costs (\$/kW):	27	30	California:	PAC 41 rate (\$/kWh): 0.09674	
Project Annual O&M (\$):	207,692	150	195	PAC PA-20 rate (\$/kWh): 0.12933	

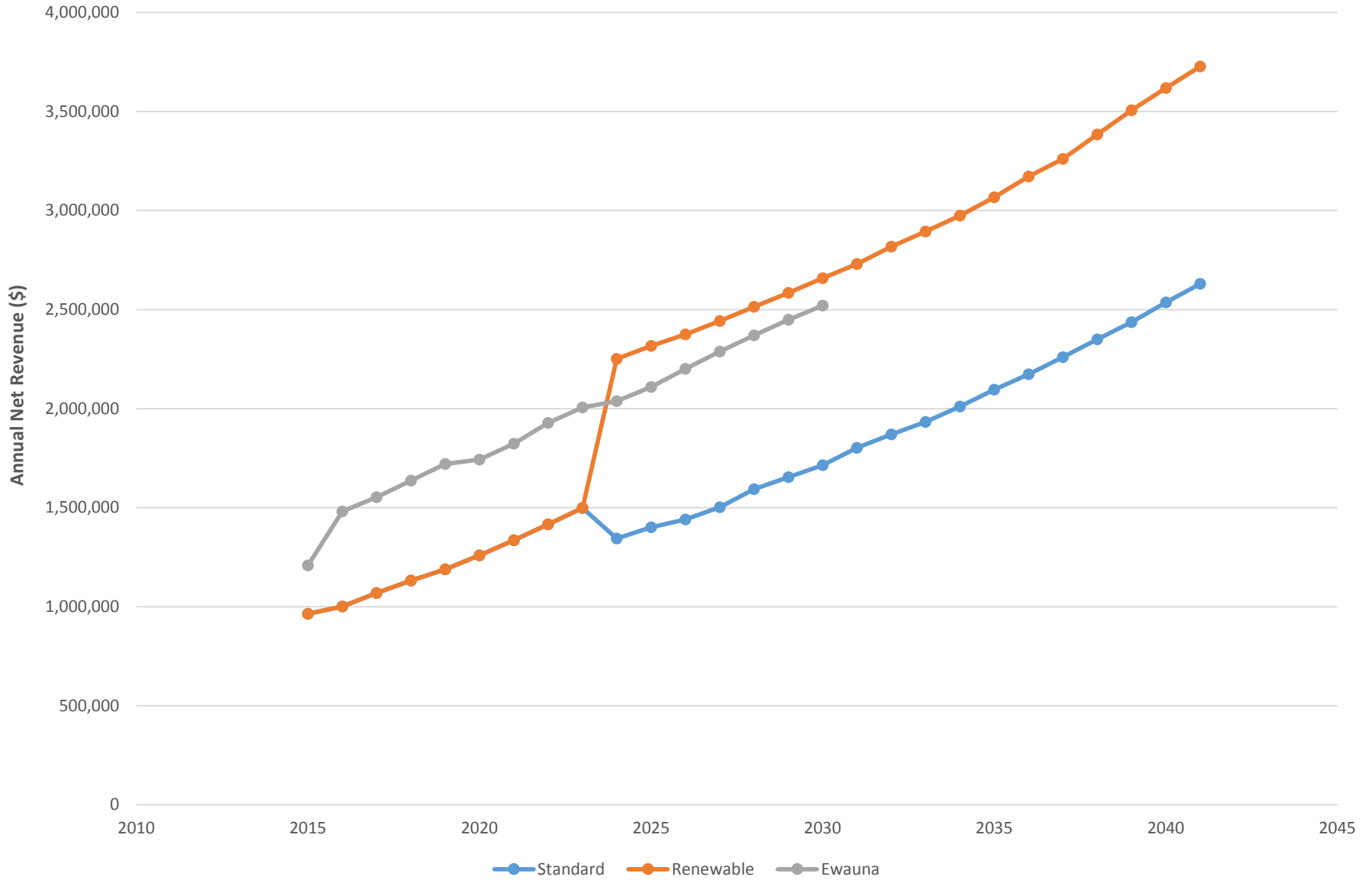
Delivery Year	On-Peak Price (¢/kWh)	Off-Peak Price (¢/kWh)	Gross Revenue - Utility Scale (\$)	NEM Energy Credit OR (\$)	NEM Energy Credit CA (\$)	Net Revenue OR (\$)	Net Revenue CA (\$)	New	New	OR Cost Reduction (%)	CA Cost
								Effective OR Rate (¢/kWh)	Effective CA Rate (¢/kWh)		n (%)
2015	2.77	2.19	541,206	692,287	210,834	963,617	272,717.36	8.670	11.693	10.4	9.6
2016	2.87	2.20	558,511	724,718	220,711	1,001,674	283,874	9.084	12.249	10.3	9.5
2017	3.13	2.43	610,100	758,669	231,050	1,068,734	301,773	9.488	12.801	10.5	9.7
2018	3.38	2.54	656,111	794,209	241,874	1,132,400	319,017	9.919	13.387	10.6	9.8
2019	3.55	2.73	691,124	831,415	253,205	1,188,312	334,616	10.380	14.011	10.7	9.8
2020	3.82	2.93	743,441	870,364	265,067	1,259,564	353,851	10.850	14.651	10.8	9.9
2021	4.11	3.18	800,772	911,138	277,484	1,336,206	374,458	11.340	15.319	10.9	10.0
2022	4.41	3.44	860,124	953,821	290,483	1,415,865	395,898	11.854	16.019	11.1	10.1
2023	4.72	3.69	920,851	998,504	304,091	1,498,075	418,073	12.393	16.753	11.2	10.2
2024	9.28	7.05	1,803,859	1,045,281	318,337	2,251,119	593,693	12.262	16.829	16.1	13.8
2025	9.46	7.24	1,840,570	1,094,248	333,250	2,316,845	612,426	12.878	17.659	15.8	13.6
2026	9.56	7.51	1,866,284	1,145,510	348,861	2,375,256	629,662	13.533	18.538	15.5	13.4
2027	9.73	7.71	1,901,621	1,199,173	365,204	2,443,213	649,261	14.212	19.451	15.2	13.2
2028	9.91	7.91	1,938,655	1,255,350	382,313	2,514,342	669,776	14.923	20.407	14.9	13.0
2029	10.07	8.11	1,972,294	1,314,158	400,223	2,584,578	690,286	15.672	21.413	14.7	12.8
2030	10.24	8.32	2,007,954	1,375,722	418,972	2,658,418	711,829	16.455	22.465	14.4	12.6
2031	10.37	8.59	2,038,762	1,440,170	438,599	2,730,354	733,155	17.281	23.572	14.1	12.4
2032	10.62	8.75	2,086,389	1,507,636	459,146	2,818,121	758,328	18.132	24.718	13.9	12.2
2033	10.74	9.05	2,116,470	1,578,264	480,655	2,893,843	780,988	19.040	25.934	13.7	12.0
2034	10.88	9.36	2,150,270	1,652,200	503,172	2,974,930	805,125	19.989	27.206	13.4	11.9
2035	11.11	9.55	2,195,472	1,729,599	526,744	3,067,745	832,205	20.974	28.529	13.2	11.7
2036	11.42	9.65	2,251,347	1,810,625	551,420	3,171,804	862,129	21.998	29.907	13.1	11.6
2037	11.56	9.98	2,285,794	1,895,446	577,252	3,261,095	888,966	23.090	31.369	12.8	11.4
2038	12.00	9.94	2,359,216	1,984,241	604,294	3,384,906	923,992	24.202	32.869	12.7	11.3
2039	12.38	10.01	2,426,008	2,077,196	632,603	3,506,242	958,769	25.374	34.447	12.6	11.2
2040	12.65	10.22	2,478,649	2,174,505	662,238	3,619,115	991,942	26.617	36.114	12.4	11.1
2041	12.85	10.51	2,521,991	2,276,373	693,262	3,727,612	1,024,460	27.927	37.870	12.2	11.0

Based on Ewuana Solar Project PPA

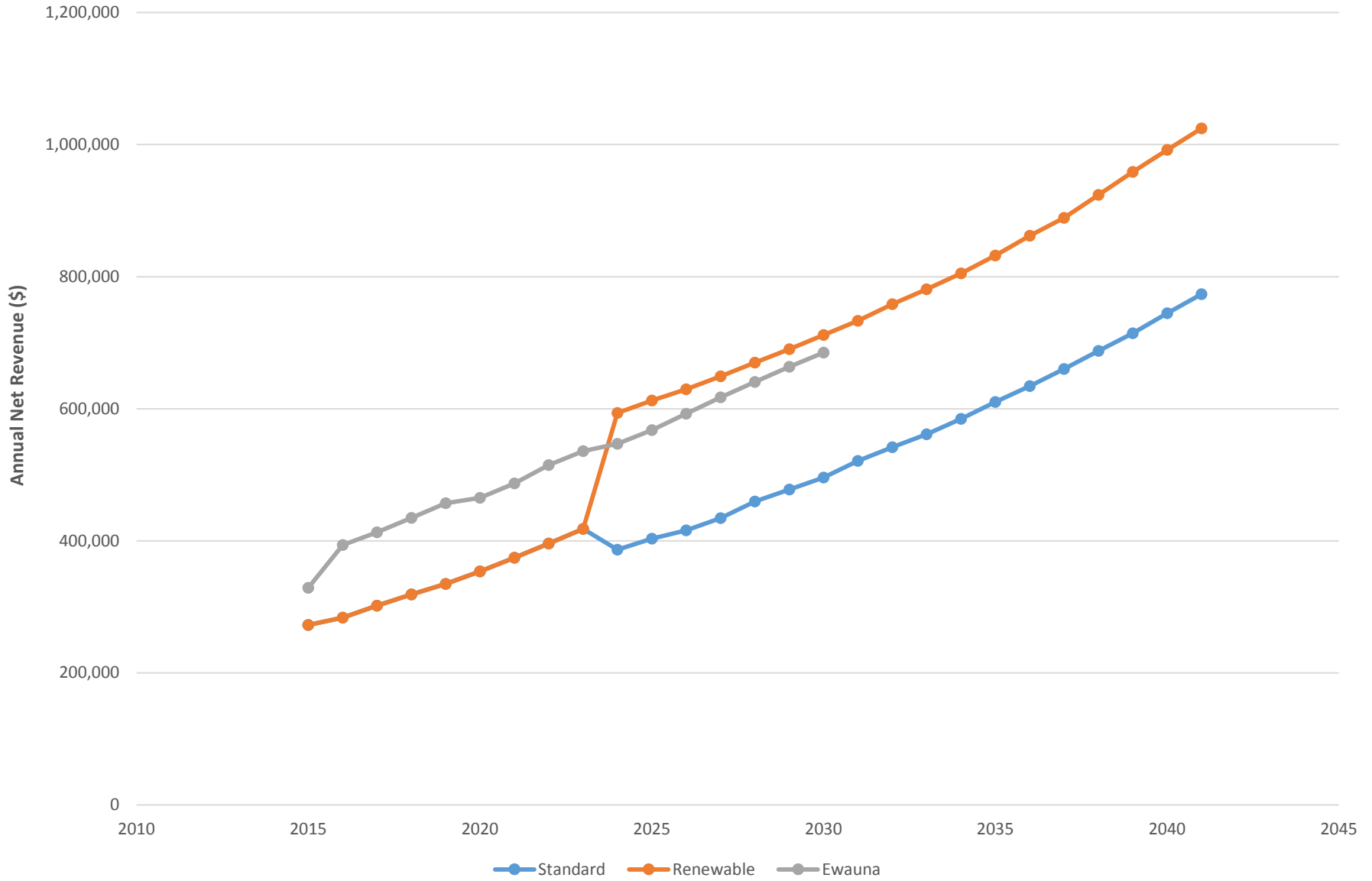
	<u>Utility Scale</u>	<u>Net Metered</u>	<u>No. of Units</u>	<u>Current Cost Information</u>	<u>Inflation Assumptions:</u>
Project Size (kW):	7,692.31	5.00	Oregon:	OR Energy Use (kWh): 96000000	General Rate: 5.0%
Project Annual Generation (kWh):	20,215,384.61	8,360.00	856	CA Energy Use (kWh): 22000000	On-Peak Rate: 5.1%
Estimated O&M Costs (\$/kW):	27	30	California:	PAC 41 rate (\$/kWh): 0.09674	Off-Peak Rate: 4.9%
Project Annual O&M (\$):	207,692.31	150	195	PAC PA-20 rate (\$/kWh): 0.12933	Average of Peak Rates: 5.0%

Delivery Year	On-Peak Price (¢/kWh)	Off-Peak Price (¢/kWh)	Gross Revenue - Utility Scale (\$)	NEM Energy Credit OR (\$)	NEM Energy Credit CA (\$)	Net Revenue OR (\$)	Net Revenue CA (\$)	New Effective OR Rate (¢/kWh)	New Effective CA Rate (¢/kWh)	OR Cost Reduction (%)	CA Cost Reduction (%)
2015	4.39	2.99	842,173	692,287	210,834	1,208,604	328,697.16	8.415	11.439	13.0	11.6
2016	6.04	3.69	1,144,999	726,876	221,368	1,481,234	393,618	8.614	11.790	15.2	13.2
2017	6.32	3.91	1,199,662	763,194	232,428	1,553,163	412,810	9.047	12.381	15.2	13.2
2018	6.66	4.21	1,267,100	801,327	244,041	1,636,863	434,829	9.493	12.994	15.2	13.2
2019	6.99	4.5	1,332,517	841,364	256,235	1,720,356	456,945	9.965	13.641	15.2	13.2
2020	6.94	4.41	1,321,116	883,402	269,037	1,742,829	465,270	10.529	14.388	14.7	12.8
2021	7.23	4.65	1,378,123	927,541	282,480	1,822,574	486,841	11.063	15.115	14.6	12.8
2022	7.67	5.04	1,465,454	973,885	296,594	1,928,667	514,599	11.600	15.855	14.8	12.9
2023	7.92	5.24	1,514,375	1,022,544	311,413	2,005,243	535,789	12.200	16.667	14.6	12.7
2024	7.89	5.16	1,506,693	1,073,635	326,972	2,037,580	547,055	12.880	17.571	14.1	12.4
2025	8.09	5.32	1,545,830	1,127,278	343,309	2,109,956	567,664	13.555	18.479	14.0	12.3
2026	8.39	5.57	1,604,859	1,183,602	360,462	2,200,548	592,638	14.247	19.418	13.9	12.2
2027	8.66	5.78	1,657,500	1,242,739	378,472	2,288,065	617,123	14.983	20.411	13.7	12.1
2028	8.88	5.95	1,700,356	1,304,832	397,382	2,369,849	640,522	15.765	21.465	13.5	11.9
2029	9.07	6.09	1,737,148	1,370,027	417,237	2,449,038	663,564	16.594	22.578	13.3	11.8
2030	9.2	6.16	1,761,488	1,438,479	438,084	2,520,552	685,099	17.476	23.759	13.1	11.6

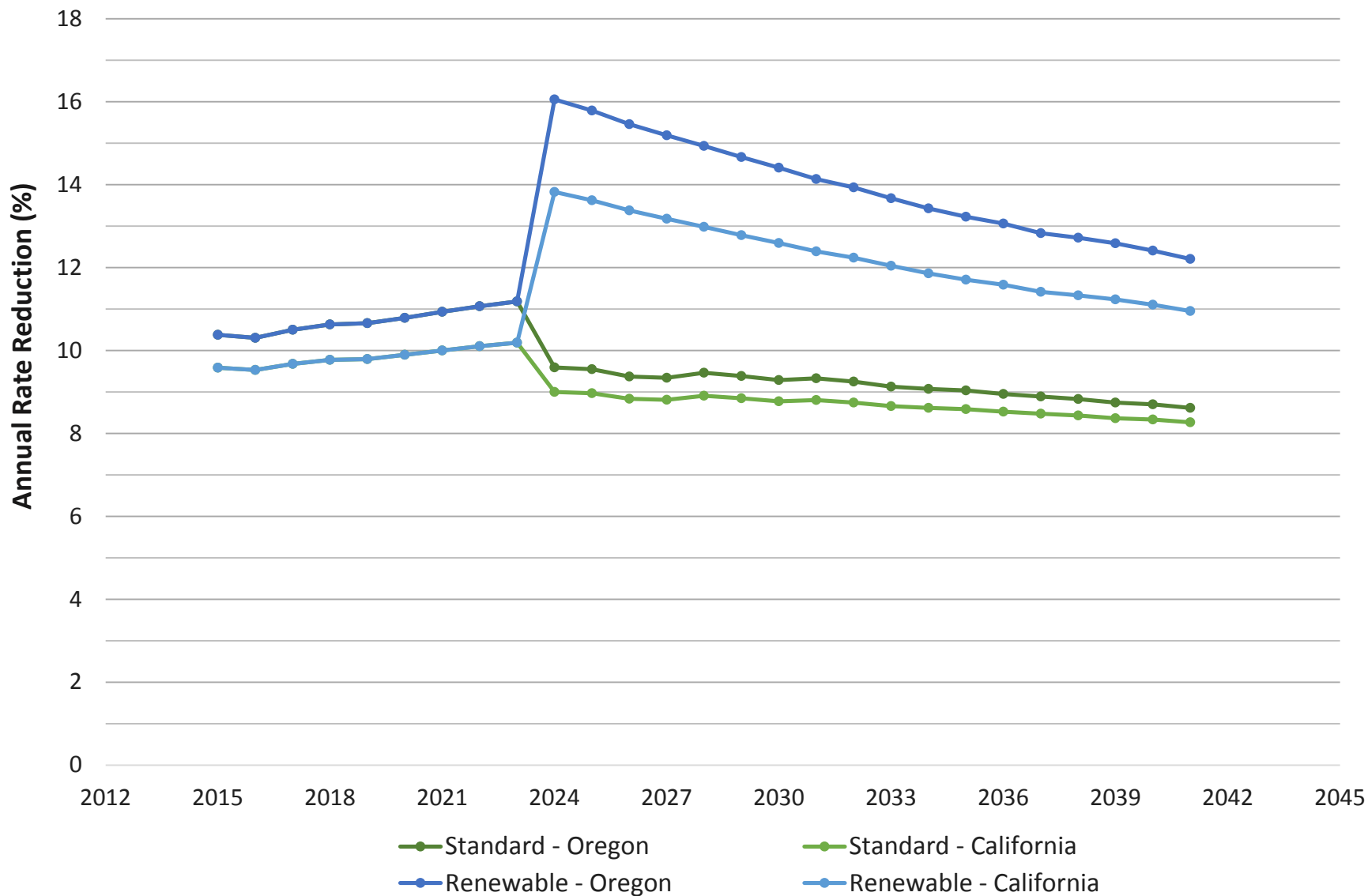
Alternative 7: Utility-Scale and Net Metered Solar in Oregon Net Revenue 2015-2041



Alternative 7: Utility-Scale and Net Metered Solar in California Net Revenue 2015-2041



Alternative 7: Utility-Scale and Net Metered Solar Rate Reduction 2015-2041



Klamath Comprehensive Agricultural Power Plan
 Initial Alternatives Information Report
 Appendix E: Klamath CAPP Alternatives Economic Analysis

Alternative 8: Net Metering

Project Size (kW):	Solar: 5.00	Fuel Cells: 8.00	Total Funding (\$):	OR: 40000000	CA: 74400000	Current Cost Information OR Energy Use (kWh): 96000000 CA Energy Use (kWh): 22000000 PAC 41 rate (\$/kWh): 0.09674 PAC PA-20 rate (\$/kWh): 0.12933	Fuel Cell Loan Repayment Individual Loan (\$): 20,000.00 Term (years): 25 Interest Rate: 3%	
Capacity Factor:	0.19	0.7	Solar PVs:	30000000	22560000			Inflation Rate: 5%
Project Annual Generation (kWh):	8,360.00	49,056.00	Fuel Cells:	10000000	10000000			
Estimated O&M Costs (\$/kWh):	30	35	No. of Solar Panels:	1187	391			
Projected Annual O&M (\$):	150	280	No. of Fuel Cells:	500	0			
Estimated Fuel Costs (\$/kWh):	--	0.030						
Projected Annual Fuel Cost (\$):	--	1471.68						
Total No. of Units (Installations):	1578	500						

*Fuel cells may not be eligible in California

Delivery Year	Solar Installations						Fuel Cell Installations						Combined Savings					
	Energy Credit OR - O&M (\$/unit)	Energy Credit CA - O&M (\$/unit)	New Effective OR Rate (¢/kWh)	New Effective CA Rate (¢/kWh)	OR Cost Reduction (%)	CA Cost Reduction (%)	Energy Credit OR (\$/unit)	Energy Credit CA* (\$/unit)	New Effective OR Rate (¢/kWh)	New Effective CA Rate* (¢/kWh)	OR Cost Reduction (%)	CA Cost Reduction* (%)	Annual Savings OR (\$)	Annual Savings CA (\$)	New Effective OR Rate (¢/kWh)	New Effective CA Rate (¢/kWh)	OR Cost Reduction (%)	CA Cost Reduction (%)
	2015	659	931	8.859	11.278	8.4	12.8	1,845	4,916	8.713	12.933	9.9	0.0	1,704,652	364,099	7.898	11.278	18.4
2016	692	978	9.302	11.842	8.4	12.8	1,938	5,162	9.148	13.580	9.9	0.0	1,789,885	382,304	8.293	11.842	18.4	12.8
2017	726	1,027	9.768	12.434	8.4	12.8	2,035	5,420	9.606	14.259	9.9	0.0	1,879,379	401,419	8.708	12.434	18.4	12.8
2018	763	1,078	10.256	13.056	8.4	12.8	2,136	5,691	10.086	14.972	9.9	0.0	1,973,348	421,490	9.143	13.056	18.4	12.8
2019	801	1,132	10.769	13.708	8.4	12.8	2,243	5,975	10.591	15.720	9.9	0.0	2,072,015	442,564	9.600	13.708	18.4	12.8
2020	841	1,188	11.307	14.394	8.4	12.8	2,355	6,274	11.120	16.506	9.9	0.0	2,175,616	464,692	10.080	14.394	18.4	12.8
2021	883	1,248	11.873	15.114	8.4	12.8	2,473	6,588	11.676	17.331	9.9	0.0	2,284,397	487,927	10.585	15.114	18.4	12.8
2022	927	1,310	12.466	15.869	8.4	12.8	2,597	6,917	12.260	18.198	9.9	0.0	2,398,617	512,323	11.114	15.869	18.4	12.8
2023	973	1,376	13.089	16.663	8.4	12.8	2,727	7,263	12.873	19.108	9.9	0.0	2,518,547	537,940	11.669	16.663	18.4	12.8
2024	1,022	1,445	13.744	17.496	8.4	12.8	2,863	7,626	13.516	20.063	9.9	0.0	2,644,475	564,837	12.253	17.496	18.4	12.8
2025	1,073	1,517	14.431	18.371	8.4	12.8	3,006	8,007	14.192	21.066	9.9	0.0	2,776,698	593,078	12.866	18.371	18.4	12.8
2026	1,127	1,593	15.153	19.289	8.4	12.8	3,156	8,408	14.902	22.120	9.9	0.0	2,915,533	622,732	13.509	19.289	18.4	12.8
2027	1,183	1,672	15.910	20.254	8.4	12.8	3,314	8,828	15.647	23.226	9.9	0.0	3,061,310	653,869	14.184	20.254	18.4	12.8
2028	1,242	1,756	16.706	21.266	8.4	12.8	3,480	9,270	16.429	24.387	9.9	0.0	3,214,376	686,562	14.893	21.266	18.4	12.8
2029	1,304	1,844	17.541	22.330	8.4	12.8	3,654	9,733	17.251	25.606	9.9	0.0	3,375,094	720,891	15.638	22.330	18.4	12.8
2030	1,369	1,936	18.418	23.446	8.4	12.8	3,837	10,220	18.113	26.887	9.9	0.0	3,543,849	756,935	16.420	23.446	18.4	12.8
2031	1,438	2,033	19.339	24.618	8.4	12.8	4,028	10,731	19.019	28.231	9.9	0.0	3,721,042	794,782	17.241	24.618	18.4	12.8
2032	1,510	2,134	20.306	25.849	8.4	12.8	4,230	11,267	19.970	29.643	9.9	0.0	3,907,094	834,521	18.103	25.849	18.4	12.8
2033	1,585	2,241	21.321	27.142	8.4	12.8	4,441	11,831	20.968	31.125	9.9	0.0	4,102,448	876,247	19.008	27.142	18.4	12.8
2034	1,665	2,353	22.387	28.499	8.4	12.8	4,663	12,422	22.017	32.681	9.9	0.0	4,307,571	920,059	19.959	28.499	18.4	12.8
2035	1,748	2,471	23.507	29.924	8.4	12.8	4,897	13,043	23.118	34.315	9.9	0.0	4,522,949	966,062	20.957	29.924	18.4	12.8
2036	1,835	2,594	24.682	31.420	8.4	12.8	5,141	13,695	24.274	36.031	9.9	0.0	4,749,097	1,014,365	22.004	31.420	18.4	12.8
2037	1,927	2,724	25.916	32.991	8.4	12.8	5,398	14,380	25.487	37.832	9.9	0.0	4,986,551	1,065,084	23.105	32.991	18.4	12.8
2038	2,023	2,860	27.212	34.641	8.4	12.8	5,668	15,099	26.762	39.724	9.9	0.0	5,235,879	1,118,338	24.260	34.641	18.4	12.8
2039	2,125	3,003	28.573	36.373	8.4	12.8	5,952	15,854	28.100	41.710	9.9	0.0	5,497,673	1,174,255	25.473	36.373	18.4	12.8
2040	2,231	3,153	30.001	38.191	8.4	12.8	6,251	16,645	29.483	43.796	24.0	0.0	5,772,084	1,232,968	26.825	38.191	32.5	12.8
2041	2,342	3,311	31.501	40.101	8.4	12.8	6,567	17,473	30.908	45.986	24.0	0.0	6,060,116	1,294,616	28.231	40.101	32.5	12.8

~Assumes irrigator negotiates to begin NEM services at the end of the irrigation season, which would allow energy credit accrual through the end of the irrigation season. (maximizes energy production and avoids excess credits being sent to low-income program instead of the PAC bill.)

~ Does not account for excess energy credit compensation. Assumes all generated energy is used to offset demand