

APPENDIX D-2. SUPPLEMENTAL RESOURCE SUPPLEMENTS: SOLAR PV AND SOLAR WATER HEATERS

Appendix D-2 provides the details behind the potential estimates for solar PV and solar water heaters.

Table D-2.1. Solar PV Technical Potential Results

	Cumulative Technical Potential (MW)																			
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
CA	332	341	351	360	369	379	388	398	407	417	426	436	445	455	464	474	483	492	502	511
ID	570	599	629	659	688	718	747	777	806	836	866	895	925	954	984	1,013	1,043	1,073	1,102	1,132
OR	4,618	4,765	4,911	5,058	5,204	5,351	5,497	5,644	5,790	5,937	6,083	6,230	6,376	6,522	6,669	6,815	6,962	7,108	7,255	7,401
UT	7,291	7,580	7,869	8,158	8,447	8,735	9,024	9,313	9,602	9,891	10,180	10,469	10,758	11,046	11,335	11,624	11,913	12,202	12,491	12,780
WA	1,100	1,132	1,164	1,196	1,228	1,260	1,292	1,324	1,356	1,388	1,420	1,452	1,484	1,516	1,548	1,580	1,612	1,644	1,676	1,708
WY	1,456	1,506	1,555	1,605	1,655	1,705	1,755	1,804	1,854	1,904	1,954	2,003	2,053	2,103	2,153	2,202	2,252	2,302	2,352	2,402
Total	15,367	15,923	16,479	17,035	17,591	18,147	18,703	19,259	19,816	20,372	20,928	21,484	22,040	22,596	23,152	23,709	24,265	24,821	25,377	25,933

Table D-2.2. Solar PV Market Potential Results

	Cumulative Market Potential (MW)																			
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
CA	0.49	0.99	1.48	1.98	2.47	2.97	3.46	3.95	4.45	4.94	5.44	5.93	6.42	6.92	7.41	7.91	8.40	8.90	9.39	9.88
ID	0.00	0.01	0.02	0.04	0.07	0.11	0.16	0.21	0.44	0.67	0.90	1.13	1.36	1.59	1.82	2.05	2.28	2.51	2.74	2.96
OR	7.12	14.24	21.36	28.47	35.59	42.71	49.83	56.95	64.07	71.18	78.30	85.42	92.54	99.66	106.78	113.90	121.01	128.13	135.25	142.37
UT	7.11	18.07	32.24	48.58	65.44	78.57	91.70	104.82	117.95	131.07	144.20	157.32	170.45	183.57	196.70	209.82	222.95	236.07	249.20	262.32
WA	0.00	0.01	0.03	0.06	0.11	0.16	0.23	0.31	0.64	0.98	1.31	1.64	1.97	2.31	2.64	2.97	3.30	3.64	3.97	4.30
WY	0.01	0.02	0.04	0.08	0.14	0.22	0.31	0.42	0.87	1.32	1.77	2.22	2.67	3.12	3.57	4.02	4.47	4.92	5.37	5.82
Total	14.73	33.34	55.18	79.22	103.83	124.74	145.68	166.67	188.42	210.17	231.92	253.67	275.42	297.17	318.92	340.66	362.41	384.16	405.91	427.66

	Cumulative Market Potential (aMW)																			
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
CA	0.08	0.15	0.23	0.31	0.38	0.45	0.53	0.60	0.67	0.74	0.81	0.88	0.95	1.02	1.08	1.15	1.22	1.28	1.34	1.41
ID	0.00	0.00	0.00	0.01	0.01	0.02	0.03	0.04	0.07	0.11	0.15	0.18	0.22	0.26	0.29	0.33	0.36	0.40	0.43	0.46
OR	1.12	2.23	3.33	4.41	5.49	6.55	7.61	8.65	9.68	10.70	11.71	12.70	13.69	14.67	15.63	16.58	17.52	18.45	19.37	20.28
UT	1.23	3.12	5.54	8.32	11.15	13.31	15.45	17.57	19.66	21.73	23.77	25.80	27.80	29.78	31.73	33.67	35.58	37.46	39.33	41.17
WA	0.00	0.00	0.01	0.01	0.02	0.02	0.04	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.44	0.49	0.54	0.58	0.63
WY	0.00	0.00	0.01	0.02	0.03	0.04	0.06	0.08	0.16	0.24	0.32	0.40	0.48	0.56	0.64	0.72	0.79	0.87	0.94	1.02
Total	2.43	5.51	9.12	13.07	17.08	20.41	23.70	26.98	30.34	33.67	36.97	40.22	43.44	46.63	49.77	52.89	55.96	59.00	62.00	64.97

Table D-2.3. State and Sector Level Solar PV Levelized Cost of Energy Results

California		PV Residential		*Note-no Federal ITC assumed 2017-2032																			
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032		
Year		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
Utility Expenditures		\$ 4,346	\$ 4,146	\$ 3,955	\$ 3,773	\$ 3,600	\$ 3,434	\$ 3,276	\$ 3,125	\$ 2,982	\$ 2,845	\$ 2,714	\$ 2,589	\$ 2,470	\$ 2,356	\$ 2,248	\$ 2,144	\$ 2,046	\$ 1,952	\$ 1,862	\$ 1,776		
Installed Cost		\$ 16,080	\$ 15,340	\$ 14,634	\$ 13,961	\$ 19,027	\$ 18,152	\$ 17,317	\$ 16,520	\$ 15,760	\$ 15,035	\$ 14,344	\$ 13,684	\$ 13,054	\$ 12,454	\$ 11,881	\$ 11,335	\$ 10,813	\$ 10,316	\$ 9,841	\$ 9,388		
O&M		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Generation (kWh)		4,671	4,625	4,578	4,533	4,487	4,442	4,398	4,354	4,310	4,267	4,225	4,182	4,141	4,099	4,058	4,018	3,977	3,938	3,898	3,859		
LCOE		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032		
TRC		\$ 0.30	\$ 0.28	\$ 0.27	\$ 0.26	\$ 0.35	\$ 0.33	\$ 0.32	\$ 0.30	\$ 0.29	\$ 0.28	\$ 0.27	\$ 0.25	\$ 0.24	\$ 0.23	\$ 0.22	\$ 0.21	\$ 0.20	\$ 0.20	\$ 0.19	\$ 0.18		
UCT		\$ 0.08	\$ 0.07	\$ 0.07	\$ 0.07	\$ 0.06	\$ 0.06	\$ 0.06	\$ 0.05	\$ 0.05	\$ 0.05	\$ 0.05	\$ 0.05	\$ 0.04	\$ 0.04	\$ 0.04	\$ 0.04	\$ 0.04	\$ 0.03	\$ 0.03	\$ 0.03		

California		PV Commercial		*Note-no Federal ITC assumed 2017-2032																			
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032		
Year		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
Utility Expenditures		\$ 25,939	\$ 24,746	\$ 23,607	\$ 22,521	\$ 21,485	\$ 20,497	\$ 19,554	\$ 18,655	\$ 17,797	\$ 16,978	\$ 16,197	\$ 15,452	\$ 14,741	\$ 14,063	\$ 13,416	\$ 12,799	\$ 12,210	\$ 11,649	\$ 11,113	\$ 10,602		
Installed Cost		\$ 95,974	\$ 91,559	\$ 87,347	\$ 83,329	\$ 113,566	\$ 108,342	\$ 103,358	\$ 98,604	\$ 94,068	\$ 89,741	\$ 85,613	\$ 81,675	\$ 77,918	\$ 74,333	\$ 70,914	\$ 67,652	\$ 64,540	\$ 61,571	\$ 58,739	\$ 56,037		
O&M		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Generation (kWh)		30,999	30,689	30,382	30,078	29,778	29,480	29,185	28,893	28,604	28,318	28,035	27,755	27,477	27,202	26,930	26,661	26,394	26,131	25,869	25,611		
LCOE		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032		
TRC		\$ 0.27	\$ 0.26	\$ 0.25	\$ 0.24	\$ 0.32	\$ 0.30	\$ 0.29	\$ 0.28	\$ 0.26	\$ 0.25	\$ 0.24	\$ 0.23	\$ 0.22	\$ 0.21	\$ 0.20	\$ 0.19	\$ 0.19	\$ 0.18	\$ 0.17	\$ 0.16		
UCT		\$ 0.07	\$ 0.07	\$ 0.06	\$ 0.06	\$ 0.06	\$ 0.05	\$ 0.05	\$ 0.05	\$ 0.05	\$ 0.04	\$ 0.04	\$ 0.04	\$ 0.04	\$ 0.04	\$ 0.04	\$ 0.03	\$ 0.03	\$ 0.03	\$ 0.03	\$ 0.03		

Idaho		PV Residential		*Note-no Federal ITC assumed 2017-2032																			
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032		
Year		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
Utility Expenditures		\$ 4,346	\$ 4,146	\$ 3,955	\$ 3,773	\$ 3,600	\$ 3,434	\$ 3,276	\$ 3,125	\$ 2,982	\$ 2,845	\$ 2,714	\$ 2,589	\$ 2,470	\$ 2,356	\$ 2,248	\$ 2,144	\$ 2,046	\$ 1,952	\$ 1,862	\$ 1,776		
Installed Cost		\$ 16,080	\$ 15,340	\$ 14,634	\$ 13,961	\$ 19,027	\$ 18,152	\$ 17,317	\$ 16,520	\$ 15,760	\$ 15,035	\$ 14,344	\$ 13,684	\$ 13,054	\$ 12,454	\$ 11,881	\$ 11,335	\$ 10,813	\$ 10,316	\$ 9,841	\$ 9,388		
O&M		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Generation (kWh)		4,963	4,914	4,865	4,816	4,768	4,720	4,673	4,626	4,580	4,534	4,489	4,444	4,399	4,355	4,312	4,269	4,226	4,184	4,142	4,101		
LCOE		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032		
TRC		\$ 0.28	\$ 0.27	\$ 0.26	\$ 0.24	\$ 0.33	\$ 0.31	\$ 0.30	\$ 0.29	\$ 0.28	\$ 0.26	\$ 0.25	\$ 0.24	\$ 0.23	\$ 0.22	\$ 0.21	\$ 0.20	\$ 0.19	\$ 0.18	\$ 0.18	\$ 0.17		
UCT		\$ 0.07	\$ 0.07	\$ 0.07	\$ 0.06	\$ 0.06	\$ 0.06	\$ 0.05	\$ 0.05	\$ 0.05	\$ 0.05	\$ 0.04	\$ 0.04	\$ 0.04	\$ 0.04	\$ 0.04	\$ 0.04	\$ 0.03	\$ 0.03	\$ 0.03	\$ 0.03		

Idaho		PV Commercial		*Note-no Federal ITC assumed 2017-2032																			
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032		
Year		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
Utility Expenditures		\$ 25,939	\$ 24,746	\$ 23,607	\$ 22,521	\$ 21,485	\$ 20,497	\$ 19,554	\$ 18,655	\$ 17,797	\$ 16,978	\$ 16,197	\$ 15,452	\$ 14,741	\$ 14,063	\$ 13,416	\$ 12,799	\$ 12,210	\$ 11,649	\$ 11,113	\$ 10,602		
Installed Cost		\$ 95,974	\$ 91,559	\$ 87,347	\$ 83,329	\$ 113,566	\$ 108,342	\$ 103,358	\$ 98,604	\$ 94,068	\$ 89,741	\$ 85,613	\$ 81,675	\$ 77,918	\$ 74,333	\$ 70,914	\$ 67,652	\$ 64,540	\$ 61,571	\$ 58,739	\$ 56,037		
O&M		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Generation (kWh)		32,386	32,062	31,741	31,424	31,110	30,798	30,490	30,186	29,884	29,585	29,289	28,996	28,706	28,419	28,135	27,854	27,575	27,299	27,026	26,756		
LCOE		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032		
TRC		\$ 0.26	\$ 0.25	\$ 0.24	\$ 0.23	\$ 0.30	\$ 0.29	\$ 0.28	\$ 0.26	\$ 0.25	\$ 0.24	\$ 0.23	\$ 0.22	\$ 0.21	\$ 0.20	\$ 0.19	\$ 0.19	\$ 0.18	\$ 0.17	\$ 0.16	\$ 0.16		
UCT		\$ 0.07	\$ 0.06	\$ 0.06	\$ 0.06	\$ 0.05	\$ 0.05	\$ 0.05	\$ 0.05	\$ 0.05	\$ 0.04	\$ 0.04	\$ 0.04	\$ 0.04	\$ 0.04	\$ 0.04	\$ 0.03	\$ 0.03	\$ 0.03	\$ 0.03	\$ 0.03		

Oregon		PV Residential		*Note-no Federal ITC assumed 2017-2032																			
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032		
Year		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
Utility Expenditures		\$ 4,346	\$ 4,146	\$ 3,955	\$ 3,773	\$ 3,600	\$ 3,434	\$ 3,276	\$ 3,125	\$ 2,982	\$ 2,845	\$ 2,714	\$ 2,589	\$ 2,470	\$ 2,356	\$ 2,248	\$ 2,144	\$ 2,046	\$ 1,952	\$ 1,862	\$ 1,776		
Installed Cost		\$ 16,080	\$ 15,340	\$ 14,634	\$ 13,961	\$ 19,027	\$ 18,152	\$ 17,317	\$ 16,520	\$ 15,760	\$ 15,035	\$ 14,344	\$ 13,684	\$ 13,054	\$ 12,454	\$ 11,881	\$ 11,335	\$ 10,813	\$ 10,316	\$ 9,841	\$ 9,388		
O&M		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Generation (kWh)		4,599	4,553	4,507	4,462	4,417	4,373	4,329	4,286	4,243	4,201	4,159	4,117	4,076	4,035	3,995	3,955	3,915	3,876	3,838	3,799		
LCOE		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032		
TRC		\$ 0.30	\$ 0.29	\$ 0.28	\$ 0.26	\$ 0.35	\$ 0.34	\$ 0.32	\$ 0.31	\$ 0.30	\$ 0.28	\$ 0.27	\$ 0.26	\$ 0.25	\$ 0.24	\$ 0.23	\$ 0.22	\$ 0.21	\$ 0.20	\$ 0.19	\$ 0.18		
UCT		\$ 0.08	\$ 0.07	\$ 0.07	\$ 0.07	\$ 0.06	\$ 0.06	\$ 0.06	\$ 0.06	\$ 0.05	\$ 0.05	\$ 0.05	\$ 0.05	\$ 0.04	\$ 0.04	\$ 0.04	\$ 0.04	\$ 0.04	\$ 0.03	\$ 0.03	\$ 0.03		

Oregon		*Note-no Federal ITC assumed 2017-2032																			
PV Commercial		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Year		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Utility Expendituc	\$	25,939	24,746	23,607	22,521	21,485	20,497	19,554	18,655	17,797	16,978	16,197	15,452	14,741	14,063	13,416	12,799	12,210	11,649	11,113	10,602
Installed Cost	\$	95,974	91,559	87,347	83,329	113,566	108,342	103,358	98,604	94,068	89,741	85,613	81,675	77,918	74,333	70,914	67,652	64,540	61,571	58,739	56,037
O&M		0	0	0	0	0	0	0	0	0	0	0	0	0	0	14,220					
Generation (kWh)		30,485	30,180	29,878	29,579	29,284	28,991	28,701	28,414	28,130	27,848	27,570	27,294	27,021	26,751	26,484	26,219	25,956	25,697	25,440	25,186
LOOE		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
TRC	\$	0.27	0.26	0.25	0.24	0.32	0.31	0.29	0.28	0.27	0.26	0.25	0.23	0.22	0.21	0.21	0.20	0.19	0.18	0.17	0.17
UCT	\$	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.04	0.03	0.03	0.03	0.03	0.03

Utah		*Note-no Federal ITC assumed 2017-2032																			
PV Residential		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Year		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Utility Expenditures	\$	4,346	4,146	3,955	3,773	3,600	3,434	3,276	3,125	2,982	2,845	2,714	2,589	2,470	2,356	2,248	2,144	2,046	1,952	1,862	1,776
Installed Cost	\$	16,080	15,340	14,634	13,961	19,027	18,152	17,317	16,520	15,760	15,035	14,344	13,684	13,054	12,454	11,881	11,335	10,813	10,316	9,841	9,388
O&M		0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,133					
Generation (kWh)		5,043	4,993	4,943	4,893	4,844	4,796	4,748	4,700	4,653	4,607	4,561	4,515	4,470	4,425	4,381	4,337	4,294	4,251	4,208	4,166
LOOE		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
TRC	\$	0.28	0.26	0.25	0.24	0.32	0.31	0.30	0.28	0.27	0.26	0.25	0.24	0.23	0.22	0.21	0.20	0.19	0.18	0.17	0.17
UCT	\$	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.04	0.03	0.03	0.03	0.03	0.03

Utah		*Note-no Federal ITC assumed 2017-2032																			
PV Commercial		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Year		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Utility Expenditures	\$	25,939	24,746	23,607	22,521	21,485	20,497	19,554	18,655	17,797	16,978	16,197	15,452	14,741	14,063	13,416	12,799	12,210	11,649	11,113	10,602
Installed Cost	\$	95,974	91,559	87,347	83,329	113,566	108,342	103,358	98,604	94,068	89,741	85,613	81,675	77,918	74,333	70,914	67,652	64,540	61,571	58,739	56,037
O&M		0	0	0	0	0	0	0	0	0	0	0	0	0	0	14,220					
Generation (kWh)		33,026	32,696	32,369	32,045	31,725	31,408	31,094	30,783	30,475	30,170	29,868	29,570	29,274	28,981	28,691	28,404	28,120	27,839	27,561	27,285
LOOE		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
TRC	\$	0.25	0.24	0.23	0.22	0.30	0.28	0.27	0.26	0.25	0.24	0.23	0.22	0.21	0.20	0.19	0.18	0.17	0.17	0.16	0.15
UCT	\$	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03

Washington		*Note-no Federal ITC assumed 2017-2032																			
PV Residential		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Year		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Utility Expenditures	\$	4,346	4,146	3,955	3,773	3,600	3,434	3,276	3,125	2,982	2,845	2,714	2,589	2,470	2,356	2,248	2,144	2,046	1,952	1,862	1,776
Installed Cost	\$	16,080	15,340	14,634	13,961	19,027	18,152	17,317	16,520	15,760	15,035	14,344	13,684	13,054	12,454	11,881	11,335	10,813	10,316	9,841	9,388
O&M		0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,133					
Generation (kWh)		4,573	4,527	4,482	4,437	4,393	4,349	4,305	4,262	4,219	4,177	4,135	4,094	4,053	4,013	3,973	3,933	3,893	3,855	3,816	3,778
LOOE		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
TRC	\$	0.30	0.29	0.28	0.27	0.36	0.34	0.33	0.31	0.30	0.28	0.27	0.26	0.25	0.24	0.23	0.22	0.21	0.20	0.19	0.18
UCT	\$	0.08	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.04	0.03	0.03	0.03

Washington		PV Commercial		*Note-no Federal ITC assumed 2017-2032																		
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	
	Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
	Utility Expenditures	\$ 25,939	\$ 24,746	\$ 23,607	\$ 22,521	\$ 21,485	\$ 20,497	\$ 19,554	\$ 18,655	\$ 17,797	\$ 16,978	\$ 16,197	\$ 15,452	\$ 14,741	\$ 14,063	\$ 13,416	\$ 12,799	\$ 12,210	\$ 11,649	\$ 11,113	\$ 10,602	
	Installed Cost	\$ 95,974	\$ 91,559	\$ 87,347	\$ 83,329	\$ 79,311	\$ 75,293	\$ 71,275	\$ 67,257	\$ 63,239	\$ 59,221	\$ 55,203	\$ 51,185	\$ 47,167	\$ 43,149	\$ 39,131	\$ 35,113	\$ 31,095	\$ 27,077	\$ 23,059	\$ 19,041	
	O&M	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Generation (kWh)	29,961	29,661	29,365	29,071	28,780	28,493	28,208	27,926	27,646	27,370	27,096	26,825	26,557	26,291	26,028	25,768	25,510	25,255	25,003	24,753	
	LCOE	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	
	TRC	\$ 0.28	\$ 0.27	\$ 0.25	\$ 0.24	\$ 0.33	\$ 0.31	\$ 0.30	\$ 0.29	\$ 0.27	\$ 0.26	\$ 0.25	\$ 0.24	\$ 0.23	\$ 0.22	\$ 0.21	\$ 0.20	\$ 0.19	\$ 0.18	\$ 0.18	\$ 0.17	
	UCT	\$ 0.07	\$ 0.07	\$ 0.06	\$ 0.06	\$ 0.06	\$ 0.06	\$ 0.05	\$ 0.05	\$ 0.05	\$ 0.05	\$ 0.04	\$ 0.04	\$ 0.04	\$ 0.04	\$ 0.04	\$ 0.04	\$ 0.03	\$ 0.03	\$ 0.03	\$ 0.03	

Wyoming		PV Residential		*Note-no Federal ITC assumed 2017-2032																		
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	
	Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
	Utility Expenditures	\$ 4,346	\$ 4,146	\$ 3,955	\$ 3,773	\$ 3,600	\$ 3,434	\$ 3,276	\$ 3,125	\$ 2,982	\$ 2,845	\$ 2,714	\$ 2,589	\$ 2,470	\$ 2,356	\$ 2,248	\$ 2,144	\$ 2,046	\$ 1,952	\$ 1,862	\$ 1,776	
	Installed Cost	\$ 16,080	\$ 15,340	\$ 14,634	\$ 13,961	\$ 13,327	\$ 12,732	\$ 12,177	\$ 11,662	\$ 11,176	\$ 10,719	\$ 10,291	\$ 9,891	\$ 9,518	\$ 9,171	\$ 8,849	\$ 8,551	\$ 8,277	\$ 8,027	\$ 7,800	\$ 7,595	
	O&M	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Generation (kWh)	5,471	5,417	5,363	5,309	5,256	5,203	5,151	5,100	5,049	4,998	4,948	4,899	4,850	4,801	4,753	4,706	4,659	4,612	4,566	4,520	
	LCOE	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	
	TRC	\$ 0.25	\$ 0.24	\$ 0.23	\$ 0.22	\$ 0.30	\$ 0.28	\$ 0.27	\$ 0.26	\$ 0.25	\$ 0.24	\$ 0.23	\$ 0.22	\$ 0.21	\$ 0.20	\$ 0.19	\$ 0.18	\$ 0.17	\$ 0.17	\$ 0.16	\$ 0.15	
	UCT	\$ 0.07	\$ 0.06	\$ 0.06	\$ 0.06	\$ 0.05	\$ 0.05	\$ 0.05	\$ 0.05	\$ 0.04	\$ 0.04	\$ 0.04	\$ 0.04	\$ 0.04	\$ 0.04	\$ 0.03	\$ 0.03	\$ 0.03	\$ 0.03	\$ 0.03	\$ 0.03	

Wyoming		PV Commercial		*Note-no Federal ITC assumed 2017-2032																		
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	
	Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
	Utility Expenditures	\$ 25,939	\$ 24,746	\$ 23,607	\$ 22,521	\$ 21,485	\$ 20,497	\$ 19,554	\$ 18,655	\$ 17,797	\$ 16,978	\$ 16,197	\$ 15,452	\$ 14,741	\$ 14,063	\$ 13,416	\$ 12,799	\$ 12,210	\$ 11,649	\$ 11,113	\$ 10,602	
	Installed Cost	\$ 95,974	\$ 91,559	\$ 87,347	\$ 83,329	\$ 79,311	\$ 75,293	\$ 71,275	\$ 67,257	\$ 63,239	\$ 59,221	\$ 55,203	\$ 51,185	\$ 47,167	\$ 43,149	\$ 39,131	\$ 35,113	\$ 31,095	\$ 27,077	\$ 23,059	\$ 19,041	
	O&M	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Generation (kWh)	35,599	35,243	34,890	34,541	34,196	33,854	33,516	33,180	32,849	32,520	32,195	31,873	31,554	31,239	30,926	30,617	30,311	30,008	29,708	29,411	
	LCOE	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	
	TRC	\$ 0.23	\$ 0.22	\$ 0.21	\$ 0.20	\$ 0.27	\$ 0.26	\$ 0.25	\$ 0.24	\$ 0.23	\$ 0.22	\$ 0.21	\$ 0.20	\$ 0.19	\$ 0.18	\$ 0.18	\$ 0.17	\$ 0.16	\$ 0.15	\$ 0.15	\$ 0.14	
	UCT	\$ 0.06	\$ 0.06	\$ 0.05	\$ 0.05	\$ 0.05	\$ 0.05	\$ 0.05	\$ 0.04	\$ 0.04	\$ 0.04	\$ 0.04	\$ 0.04	\$ 0.03	\$ 0.03	\$ 0.03	\$ 0.03	\$ 0.03	\$ 0.03	\$ 0.03	\$ 0.02	

Table D-2.4. Solar Water Heating (SWH) Market Potential

Cumulative Market Potential (MW)																				
State	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
CA	0.0	0.0	0.1	0.1	0.2	0.3	0.4	0.5	1.1	1.6	2.2	2.7	3.3	3.8	4.4	4.9	5.5	6.0	6.6	7.1
ID	0.0	0.0	0.1	0.1	0.2	0.3	0.4	0.6	1.2	1.8	2.4	3.0	3.6	4.2	4.8	5.4	6.0	6.6	7.2	7.8
UT	0.0	0.1	0.2	0.4	0.8	1.2	1.6	2.2	4.6	7.0	9.3	11.7	14.1	16.4	18.8	21.2	23.5	25.9	28.3	30.6
WA	0.0	0.0	0.1	0.2	0.3	0.4	0.6	0.8	1.6	2.4	3.2	4.0	4.8	5.6	6.4	7.2	8.1	8.9	9.7	10.5
WY	0.0	0.0	0.1	0.1	0.2	0.3	0.4	0.6	1.2	1.8	2.4	3.1	3.7	4.3	4.9	5.5	6.2	6.8	7.4	8.0
OR	Not assessed																			
Total	0.1	0.2	0.5	0.9	1.6	2.4	3.4	4.7	9.6	14.6	19.5	24.5	29.4	34.4	39.3	44.3	49.2	54.2	59.1	64.1
Cumulative Market Potential (aMW)																				
State	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
CA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.3	0.3
ID	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.4	0.4	0.4	0.5	0.5
UT	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.3	0.4	0.5	0.7	0.8	0.9	1.1	1.2	1.3	1.5	1.6	1.7
WA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.4	0.4	0.4	0.4
WY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.4
OR	Not Assessed																			
Total	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.3	0.5	0.8	1.1	1.3	1.6	1.9	2.1	2.4	2.6	2.9	3.1	3.4

Table D-2.5. State Level Solar Water Heating (SWH) Results

California SWH

Sector	Subsector	Vintage	% of customers	Installed cost	Incremental cost 2012-2016	Incremental Cost 2017 - 2032	Generation (kWh)	Admin Costs	Admin Costs 2012 - 2016	Admin Costs 2017 - 2016	O&M costs	System Life	Utility Rebate Amount 2012 - 2016	Utility Rebate Amount 2017 - 2032	Federal Rebate Amount	Equipment + Admin costs 2012 - 2016	Equipment + Admin costs 2017 - 2032	Performance Degradation	Inflation	Discount Rate
NonRes	health	retrofit and new	0.03%	\$ 47,276	\$ 33,093.20	\$ 47,276.00	16,762	20%	\$ 827.33	\$ 827.33	\$ 236	20	\$ 3,309.32	\$ 3,309.32	30%	\$ 33,921	\$ 48,103	1%	1.9%	6.88%
NonRes	lg office	retrofit and new	0.00%	\$ -	\$ -	\$ -	-	20%	\$ -	\$ -	\$ -	20	\$ -	\$ -	30%	\$ -	\$ -	1%	1.9%	6.88%
NonRes	retail	retrofit and new	0.00%	\$ -	\$ -	\$ -	-	20%	\$ -	\$ -	\$ -	20	\$ -	\$ -	30%	\$ -	\$ -	1%	1.9%	6.88%
NonRes	lodging	retrofit and new	0.10%	\$ 23,638	\$ 16,547	\$ 23,638.00	8,704	20%	\$ 413.67	\$ 413.67	\$ 118	20	\$ 1,654.66	\$ 1,654.66	30%	\$ 16,960	\$ 24,052	1%	1.9%	6.88%
NonRes	restaurant	retrofit and new	0.24%	\$ 27,030	\$ 18,921	\$ 27,030.00	9,660	20%	\$ 473.03	\$ 473.03	\$ 135	20	\$ 1,892.10	\$ 1,892.10	30%	\$ 19,394	\$ 27,503	1%	1.9%	6.88%
NonRes	school	retrofit and new	0.13%	\$ 64,236	\$ 44,965.20	\$ 64,236.00	22,857	20%	\$ 1,124.13	\$ 1,124.13	\$ 321	20	\$ 4,496.52	\$ 4,496.52	30%	\$ 46,089	\$ 65,360	1%	1.9%	6.88%
Res	manuf	retrofit and new	16.23%	\$ 8,500	\$ 5,950	\$ 8,500.00	732	20%	\$ 148.75	\$ 148.75	\$ 40	20	\$ 595.00	\$ 595.00	30%	\$ 6,099	\$ 8,649	1%	1.9%	6.88%
Res	MF	retrofit and new	21.60%	\$ 3,374	\$ 2,362	\$ 3,374.33	850	20%	\$ 59.05	\$ 59.05	\$ 40	20	\$ 236.20	\$ 236.20	30%	\$ 2,421	\$ 3,433	1%	1.9%	6.88%
Res	SF	retrofit and new	61.67%	\$ 8,500	\$ 5,950.00	\$ 8,500.00	1220	20%	\$ 148.75	\$ 148.75	\$ 40	20	\$ 595.00	\$ 595.00	30%	\$ 6,099	\$ 8,649	1%	1.9%	6.88%

Sector	Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
NonRes	Cost	\$ 26,745.92	\$ 186.38	\$ 186.38	\$ 186.38	\$ 186.38	\$ 186.38	\$ 186.38	\$ 186.38	\$ 186.38	\$ 186.38	\$ 186.38	\$ 186.38	\$ 186.38	\$ 186.38	\$ 186.38	\$ 186.38	\$ 186.38	\$ 186.38	\$ 186.38	\$ 186.38
	Generation	15,014	14,864	14,713	14,563	14,413	14,263	14,113	13,963	13,813	13,662	13,512	13,362	13,212	13,062	12,912	12,762	12,612	12,461	12,311	12,161
Res	Cost	\$ 5,300.34	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00
	Generation	1,197	1,185	1,173	1,161	1,149	1,137	1,125	1,113	1,101	1,089	1,077	1,065	1,053	1,041	1,029	1,017	1,005	993	981	970

Sector	TRC Values	UCT Values	
NonRes	Cost NPV	\$ 28,689.75	\$ 3,261.70
	Generation NPV	\$ 158,982.65	\$ 158,982.65
	Cost NPV	\$ 5,717.52	\$ 646.38
Res	Generation NPV	\$ 12,674.55	\$ 12,674.55

Sector	2012 TRC Levelized Costs	2012 UCT Levelized Cost
NonRes	\$0.18	\$ 0.02
Res	\$0.45	\$ 0.05

Number of Installs	Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
health		0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
lg office		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
lg retail		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
lodging		0.00	0.01	0.01	0.02	0.03	0.03	0.04	0.05	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
restaurant		0.01	0.01	0.03	0.04	0.06	0.08	0.09	0.11	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46
school		0.00	0.01	0.01	0.02	0.03	0.04	0.05	0.06	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
manuf		0.40	0.80	1.80	2.80	4.00	5.20	6.40	7.60	30.81	30.81	30.81	30.81	30.81	30.81	30.81	30.81	30.81	30.81	30.81	30.81
MF		0.53	1.07	2.40	3.73	5.33	6.93	8.52	10.12	41.02	41.02	41.02	41.02	41.02	41.02	41.02	41.02	41.02	41.02	41.02	41.02
SF		1.52	3.04	6.84	10.65	15.21	19.77	24.34	28.90	117.11	117.11	117.11	117.11	117.11	117.11	117.11	117.11	117.11	117.11	117.11	117.11

#2 of installs	#2/system	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
health	446	0	1	1	2	3	4	5	6	23	23	23	23	23	23	23	23	23	23	23	23
lg office		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
lg retail		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
lodging	223	1	1	3	4	6	7	9	11	44	44	44	44	44	44	44	44	44	44	44	44
restaurant	50	0	1	1	2	3	4	5	6	23	23	23	23	23	23	23	23	23	23	23	23
school	32	0	0	0	1	1	1	2	2	8	8	8	8	8	8	8	8	8	8	8	8
manuf	255	102	204	459	714	1,020	1,327	1,633	1,939	7,858	7,858	7,858	7,858	7,858	7,858	7,858	7,858	7,858	7,858	7,858	7,858
MF	606	323	646	1,453	2,260	3,228	4,197	5,165	6,134	24,858	24,858	24,858	24,858	24,858	24,858	24,858	24,858	24,858	24,858	24,858	24,858
SF	50	76	152	342	532	760	989	1,217	1,445	5,856	5,856	5,856	5,856	5,856	5,856	5,856	5,856	5,856	5,856	5,856	5,856
TOTAL FT2		502	1,004	2,260	3,515	5,022	6,528	8,035	9,542	38,669	38,669	38,669	38,669	38,669	38,669	38,669	38,669	38,669	38,669	38,669	38,669
TOTAL MW		0.03	0.06	0.14	0.21	0.31	0.40	0.49	0.58	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36

Idaho SWH

Sector	Subsector	Vintage	% of customers	Installed cost	Incremental cost 2012-2016	Incremental Cost 2017 - 2032	Generation (kWh)	Admin Costs	Admin Costs 2012 - 2016	Admin Costs 2017 - 2032	O&M costs	System Life	Utility Rebate Amount 2012 - 2016	Utility Rebate Amount 2017 - 2032	Federal Rebate Amount	Equipment + Admin costs 2012 - 2016	Equipment + Admin costs 2017 - 2032	Performance Degradation	Inflation	Discount Rate
NonRes	health	retrofit and new	0.00%	\$ -	\$ -	\$ -	-	20%	\$ -	\$ -	\$ -	20	\$ -	\$ -	30%	\$ -	\$ -	1%	1.9%	6.88%
NonRes	lg office	retrofit and new	0.14%	\$ 23,638	\$ 16,547	\$ 23,638	9,884	20%	\$ 413.67	\$ 413.67	\$ 118	20	\$ 1,654.66	\$ 1,654.66	30%	\$ 16,960	\$ 24,052	1%	1.9%	6.88%
NonRes	retail	retrofit and new	0.09%	\$ 16,854	\$ 11,798	\$ 16,854	6,930	20%	\$ 294.95	\$ 294.95	\$ 84	20	\$ 1,179.78	\$ 1,179.78	30%	\$ 12,093	\$ 17,149	1%	1.9%	6.88%
NonRes	lodging	retrofit and new	0.05%	\$ 23,638.00	\$ 16,547	\$ 23,638	9648	20%	\$ 413.67	\$ 413.67	\$ 118	20	\$ 1,654.66	\$ 1,654.66	30%	\$ 16,960	\$ 24,052	1%	1.9%	6.88%
NonRes	school	retrofit and new	0.13%	\$ 54,060	\$ 37,842	\$ 54,060	21,513	20%	\$ 946.05	\$ 946.05	\$ 270	20	\$ 3,784.20	\$ 3,784.20	30%	\$ 38,788	\$ 55,006	1%	1.9%	6.88%
NonRes	restaurant	retrofit and new	0.09%	\$ 33,814	\$ 23,670	\$ 33,814	14,003	20%	\$ 591.75	\$ 591.75	\$ 169	20	\$ 2,366.98	\$ 2,366.98	30%	\$ 24,262	\$ 34,406	1%	1.9%	6.88%
Res	manuf	retrofit and new	12.80%	\$ 8,500	\$ 5,950	\$ 8,500	1664	20%	\$ 148.75	\$ 148.75	\$ 40	20	\$ 595.00	\$ 595.00	30%	\$ 6,099	\$ 8,649	1%	1.9%	6.88%
Res	MF	retrofit and new	22.07%	\$ 3,374	\$ 2,362	\$ 3,374	1088	20%	\$ 59.05	\$ 59.05	\$ 40	20	\$ 236.20	\$ 236.20	30%	\$ 2,421	\$ 3,433	1%	1.9%	6.88%
Res	SF	retrofit and new	64.63%	\$ 8,500	\$ 5,950	\$ 8,500	1856	20%	\$ 148.75	\$ 148.75	\$ 40	20	\$ 595.00	\$ 595.00	30%	\$ 6,099	\$ 8,649	1%	1.9%	6.88%

Sector	Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
NonRes	Cost	\$ 23,142.21	\$ 161.27	\$ 161.27	\$ 161.27	\$ 161.27	\$ 161.27	\$ 161.27	\$ 161.27	\$ 161.27	\$ 161.27	\$ 161.27	\$ 161.27	\$ 161.27	\$ 161.27	\$ 161.27	\$ 161.27	\$ 161.27	\$ 161.27	\$ 161.27	\$ 161.27
	Generation	14,717	14,570	14,422	14,275	14,128	13,981	13,834	13,687	13,539	13,392	13,245	13,098	12,951	12,804	12,656	12,509	12,362	12,215	12,068	11,921
Res	Cost	\$ 5,282.91	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00
	Generation	1,876	1,857	1,839	1,820	1,801	1,782	1,763	1,745	1,726	1,707	1,688	1,670	1,651	1,632	1,613	1,595	1,576	1,557	1,538	1,520

Sector	TRC Values	UCT Values	
NonRes	Cost NPV	\$ 24,824.13	\$ 2,822.22
	Generation NPV	155,838.15	155,838.15
Res	Cost NPV	\$ 5,700.08	\$ 644.26
	Generation NPV	19,865.65	19,865.65

Sector	2012 TRC Levelized Costs	2012 UCT Levelized Cost
NonRes	\$0.16	\$ 0.02
Res	\$0.29	\$ 0.03

Number of Installs	Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
health		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
lg office		0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
retail		0.00	0.00	0.01	0.02	0.03	0.04	0.04	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
lodging		0.00	0.00	0.01	0.01	0.01	0.02	0.02	0.02	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
school		0.00	0.01	0.02	0.02	0.03	0.05	0.06	0.07	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27
restaurant		0.00	0.00	0.01	0.02	0.02	0.03	0.04	0.05	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
manuf		0.35	0.70	1.56	2.43	3.48	4.52	5.56	6.61	26.77	26.77	26.77	26.77	26.77	26.77	26.77	26.77	26.77	26.77	26.77	26.77
MF		0.60	1.20	2.70	4.20	6.00	7.79	9.59	11.39	46.16	46.16	46.16	46.16	46.16	46.16	46.16	46.16	46.16	46.16	46.16	46.16
SF		1.76	3.51	7.90	12.29	17.55	22.82	28.09	33.35	135.16	135.16	135.16	135.16	135.16	135.16	135.16	135.16	135.16	135.16	135.16	135.16

#2 of installs	#2/system	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
health		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
lg office	223	1	2	4	6	9	11	14	16	66	66	66	66	66	66	66	66	66	66	66	66
retail	159	0	1	2	3	4	5	6	7	29	29	29	29	29	29	29	29	29	29	29	29
lodging	223	0	1	1	2	3	4	4	5	21	21	21	21	21	21	21	21	21	21	21	21
school	50	0	0	1	1	2	2	3	3	13	13	13	13	13	13	13	13	13	13	13	13
restaurant	32	0	0	1	1	1	1	1	1	6	6	6	6	6	6	6	6	6	6	6	6
manuf	319	111	222	499	776	1,109	1,442	1,774	2,107	8,540	8,540	8,540	8,540	8,540	8,540	8,540	8,540	8,540	8,540	8,540	8,540
MF	510	306	612	1,376	2,140	3,058	3,975	4,892	5,809	23,544	23,544	23,544	23,544	23,544	23,544	23,544	23,544	23,544	23,544	23,544	23,544
SF	88	176	395	814	1,228	1,755	2,282	2,809	3,335	13,516	13,516	13,516	13,516	13,516	13,516	13,516	13,516	13,516	13,516	13,516	13,516
TOTAL FT2	506	1,012	2,278	3,543	5,062	6,580	8,099	9,618	11,137	45,072	45,072	45,072	45,072	45,072	45,072	45,072	45,072	45,072	45,072	45,072	45,072
TOTAL MW	0.03	0.06	0.14	0.22	0.31	0.40	0.49	0.59	0.69	2.38	2.38	2.38	2.38	2.38	2.38	2.38	2.38	2.38	2.38	2.38	2.38

Utah SWH

Sector	Subsector	Vintage	% of customers	Installed cost	Incremental cost 2012-2016	Incremental Cost 2017-2032	Generation (kWh)	Admin Costs	Admin Costs 2012-2016	Admin Costs 2016	O&M costs	System Life	Utility Rebate Amount 2012-2016	Utility Rebate Amount 2017-2032	Federal Rebate Amount	Equipment + Admin costs 2012-2016	Equipment + Admin costs 2017-2032	Performance Degradation	Inflation	Discount Rate
NonRes	health	retrofit and new	0.03%	\$ 13,568	\$ 9,498	\$ 13,568	6,285	20%	\$ 237.44	\$ 237.44	\$ 68	20	\$ 949.76	\$ 949.76	30%	\$ 9,735	\$ 13,805	1%	1.9%	6.88%
NonRes	lg office	retrofit and new	0.35%	\$ 16,854	\$ 11,798	\$ 16,854	7,907	20%	\$ 294.95	\$ 294.95	\$ 84	20	\$ 1,179.78	\$ 1,179.78	30%	\$ 12,093	\$ 17,149	1%	1.9%	6.88%
NonRes	retail	retrofit and new	0.27%	\$ 13,568	\$ 9,498	\$ 13,568	6,615	20%	\$ 237.44	\$ 237.44	\$ 68	20	\$ 949.76	\$ 949.76	30%	\$ 9,735	\$ 13,805	1%	1.9%	6.88%
NonRes	lodging	retrofit and new	0.05%	\$ 16,854	\$ 11,798	\$ 16,854	8,165	20%	\$ 294.95	\$ 294.95	\$ 84	20	\$ 1,179.78	\$ 1,179.78	30%	\$ 12,093	\$ 17,149	1%	1.9%	6.88%
NonRes	school	retrofit and new	0.10%	\$ 64,326	\$ 45,028	\$ 64,326	28,827	20%	\$ 1,125.71	\$ 1,125.71	\$ 322	20	\$ 4,502.82	\$ 4,502.82	30%	\$ 46,154	\$ 65,452	1%	1.9%	6.88%
NonRes	restaurant	retrofit and new	0.19%	\$ 33,814	\$ 23,670	\$ 33,814	15,370	20%	\$ 591.75	\$ 591.75	\$ 169	20	\$ 2,366.98	\$ 2,366.98	30%	\$ 24,262	\$ 34,406	1%	1.9%	6.88%
Res	manuf	retrofit and new	2.58%	\$ 8,500	\$ 5,950	\$ 8,500	1,292	20%	\$ 148.75	\$ 148.75	\$ 40	20	\$ 595.00	\$ 595.00	30%	\$ 6,099	\$ 8,649	1%	1.9%	6.88%
Res	MF	retrofit and new	57.84%	\$ 3,374	\$ 2,362	\$ 3,374	918	20%	\$ 59.05	\$ 59.05	\$ 40	20	\$ 236.20	\$ 236.20	30%	\$ 2,421	\$ 3,433	1%	1.9%	6.88%
Res	SF	retrofit and new	38.58%	\$ 8,500	\$ 5,950	\$ 8,500	1,666	20%	\$ 148.75	\$ 148.75	\$ 40	20	\$ 595.00	\$ 595.00	30%	\$ 6,099	\$ 8,649	1%	1.9%	6.88%

Sector	Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
NonRes	Cost	\$ 17,126.29	\$ 119.35	\$ 119.35	\$ 119.35	\$ 119.35	\$ 119.35	\$ 119.35	\$ 119.35	\$ 119.35	\$ 119.35	\$ 119.35	\$ 119.35	\$ 119.35	\$ 119.35	\$ 119.35	\$ 119.35	\$ 119.35	\$ 119.35	\$ 119.35	\$ 119.35
	Generation	12,182	11,980	11,859	11,738	11,617	11,496	11,375	11,254	11,133	11,012	10,891	10,770	10,649	10,528	10,407	10,286	10,165	10,044	9,923	9,802
	Cost	\$ 3,950.07	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00
Res	Cost	1,336	1,331	1,318	1,304	1,291	1,277	1,264	1,250	1,237	1,224	1,210	1,197	1,183	1,170	1,156	1,143	1,129	1,116	1,103	1,089
	Generation																				

Sector	TRC Values	UCT Values
NonRes	Cost NPV	\$ 18,371.00
	Generation NPV	\$ 128,219.35
	Cost NPV	\$ 4,367.24
Res	Cost NPV	\$ 14,228.33
	Generation NPV	\$ 14,228.33

Sector	2012 TRC Levelized Costs	2012 UCT Levelized Cost
NonRes	\$0.14	\$ 0.02
Res	\$0.31	\$ 0.03

Number of Installs	Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
health		0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29
lg office		0.04	0.09	0.19	0.30	0.43	0.56	0.69	0.82	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33	3.33
lg retail		0.03	0.07	0.15	0.23	0.33	0.43	0.53	0.64	2.57	2.57	2.57	2.57	2.57	2.57	2.57	2.57	2.57	2.57	2.57	2.57
lodging		0.01	0.01	0.03	0.04	0.06	0.08	0.10	0.11	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46
school		0.01	0.02	0.06	0.09	0.12	0.16	0.20	0.23	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
restaurant		0.02	0.05	0.11	0.16	0.23	0.30	0.37	0.44	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80
manuf		0.31	0.63	1.42	2.20	3.15	4.09	5.03	5.98	24.23	24.23	24.23	24.23	24.23	24.23	24.23	24.23	24.23	24.23	24.23	24.23
MF		7.05	14.09	31.71	49.33	70.47	91.61	112.75	133.89	542.60	542.60	542.60	542.60	542.60	542.60	542.60	542.60	542.60	542.60	542.60	542.60
SF		4.70	9.40	21.15	32.90	47.00	61.10	75.20	89.30	361.89	361.89	361.89	361.89	361.89	361.89	361.89	361.89	361.89	361.89	361.89	361.89

#2 of installs	#2/system	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
health	128	0	1	2	3	4	5	6	8	37	37	37	37	37	37	37	37	37	37	37	37
lg office	159	7	14	31	48	69	89	110	130	529	529	529	529	529	529	529	529	529	529	529	529
lg retail	128	4	9	19	30	43	56	68	81	329	329	329	329	329	329	329	329	329	329	329	329
lodging	159	1	2	4	7	10	12	15	18	74	74	74	74	74	74	74	74	74	74	74	74
school	50	1	1	3	4	6	8	10	12	47	47	47	47	47	47	47	47	47	47	47	47
restaurant	32	1	1	3	5	7	10	12	14	57	57	57	57	57	57	57	57	57	57	57	57
manuf	606	191	381	858	1,335	1,907	2,479	3,051	3,622	14,681	14,681	14,681	14,681	14,681	14,681	14,681	14,681	14,681	14,681	14,681	14,681
MF	319	2,248	4,496	10,116	15,735	22,479	29,223	35,967	42,711	173,090	173,090	173,090	173,090	173,090	173,090	173,090	173,090	173,090	173,090	173,090	173,090
SF	50	235	470	1,057	1,645	2,350	3,055	3,760	4,465	18,094	18,094	18,094	18,094	18,094	18,094	18,094	18,094	18,094	18,094	18,094	18,094
TOTAL FT2		2,688	5,375	12,094	18,813	26,875	34,938	43,000	51,063	206,938	206,938	206,938	206,938	206,938	206,938	206,938	206,938	206,938	206,938	206,938	206,938
TOTAL MW		0.16	0.33	0.74	1.15	1.64	2.13	2.62	3.11	12.62	12.62	12.62	12.62	12.62	12.62	12.62	12.62	12.62	12.62	12.62	12.62

Washington SWH

Sector	Subsector	Vintage	% of customers	Installed cost	Incremental cost 2012-2016	Incremental Cost 2017-2032	Generation (kWh)	Admin Costs	Admin Costs 2012 - 2016	Admin Costs 2017 - 2032	O&M costs	System Life	Utility Rebate Amount 2012 - 2016	Utility Rebate Amount 2017 - 2032	Federal Rebate Amount	Equipment + Admin costs 2012 - 2016	Equipment + Admin costs 2017 - 2032	Performance Degradation	Inflation	Discount Rate
NonRes	health	retrofit and new	0.00%		\$ -	\$ -		20%	\$ -	\$ -	\$ -	20	\$ -	\$ -	30%	\$ -	\$ -	1%	1.9%	6.88%
NonRes	lg office	retrofit and new	0.12%	\$ 30,422.00	\$ 21,295	\$ 30,422	10,492	20%	\$ 532.39	\$ 532.39	\$ 152	20	\$ 2,129.54	\$ 2,129.54	30%	\$ 21,828	\$ 30,954	1%	1.9%	6.88%
NonRes	retail	retrofit and new	0.07%	\$ 20,246.00	\$ 14,172	\$ 20,246	7,140	20%	\$ 354.31	\$ 354.31	\$ 101	20	\$ 1,417.22	\$ 1,417.22	30%	\$ 14,527	\$ 20,600	1%	1.9%	6.88%
NonRes	lodging	retrofit and new	0.03%	\$ 27,030.00	\$ 18,921	\$ 27,030	9881	20%	\$ 473.03	\$ 473.03	\$ 135	20	\$ 1,892.10	\$ 1,892.10	30%	\$ 19,394	\$ 27,503	1%	1.9%	6.88%
NonRes	school	retrofit and new	0.16%	\$ 57,452.00	\$ 40,216	\$ 57,452	20,168	20%	\$ 1,005.41	\$ 1,005.41	\$ 287	20	\$ 4,021.64	\$ 4,021.64	30%	\$ 41,222	\$ 58,457	1%	1.9%	6.88%
NonRes	restaurant	retrofit and new	0.22%	\$ 33,814.00	\$ 23,670	\$ 33,814	12,512	20%	\$ 591.75	\$ 591.75	\$ 169	20	\$ 2,366.98	\$ 2,366.98	30%	\$ 24,262	\$ 34,406	1%	1.9%	6.88%
Res	manuf	retrofit and new	8.87%	\$ 8,500	\$ 5,950	\$ 8,500	0	20%	\$ 148.75	\$ 148.75	\$ 40	20	\$ 595.00	\$ 595.00	30%	\$ 6,099	\$ 8,649	1%	1.9%	6.88%
Res	MF	retrofit and new	57.14%	\$ 3,374	\$ 2,362	\$ 3,374	735	20%	\$ 59.05	\$ 59.05	\$ 40	20	\$ 236.20	\$ 236.20	30%	\$ 2,421	\$ 3,433	1%	1.9%	6.88%
Res	SF	retrofit and new	33.39%	\$ 8,500	\$ 5,950	\$ 8,500	1220	20%	\$ 148.75	\$ 148.75	\$ 40	20	\$ 595.00	\$ 595.00	30%	\$ 6,099	\$ 8,649	1%	1.9%	6.88%

Sector	Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
NonRes	Cost	\$ 26,956.02	\$ 187.85	\$ 187.85	\$ 187.85	\$ 187.85	\$ 187.85	\$ 187.85	\$ 187.85	\$ 187.85	\$ 187.85	\$ 187.85	\$ 187.85	\$ 187.85	\$ 187.85	\$ 187.85	\$ 187.85	\$ 187.85	\$ 187.85	\$ 187.85	\$ 187.85
	Generation	14,821	14,673	14,525	14,377	14,229	14,080	13,932	13,784	13,636	13,487	13,339	13,191	13,043	12,895	12,746	12,598	12,450	12,302	12,154	12,005
Res	Cost	\$ 3,984.70	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00
	Generation	921	912	903	894	885	875	866	857	848	838	829	820	811	802	792	783	774	765	756	746

Sector	TRC Values	UCT Values	
NonRes	Cost NPV	\$ 28,915.13	\$ 3,287.32
	Generation NPV	\$ 156,946.37	\$ 156,946.37
Res	Cost NPV	\$ 4,401.87	\$ 485.94
	Generation NPV	\$ 9,756.76	\$ 9,756.76

Sector	2012 TRC Levelized Costs	2012 UCT Levelized Cost
NonRes	\$0.18	\$ 0.02
Res	\$0.45	\$ 0.05

Number of Installs	Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
health		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
lg office		0.00	0.01	0.02	0.03	0.05	0.06	0.08	0.09	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37
lg retail		0.00	0.01	0.01	0.02	0.03	0.04	0.05	0.06	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23
lodging		0.00	0.00	0.01	0.01	0.01	0.02	0.02	0.02	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
school		0.01	0.01	0.03	0.05	0.07	0.09	0.11	0.13	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52
restaurant		0.01	0.02	0.04	0.06	0.09	0.12	0.14	0.17	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
manuf		0.37	0.74	1.66	2.58	3.68	4.79	5.89	7.00	28.36	28.36	28.36	28.36	28.36	28.36	28.36	28.36	28.36	28.36	28.36	28.36
MF		2.37	4.74	10.67	16.60	23.72	30.83	37.95	45.07	182.63	182.63	182.63	182.63	182.63	182.63	182.63	182.63	182.63	182.63	182.63	182.63
SF		1.39	2.77	6.24	9.70	13.86	18.02	22.18	26.33	106.72	106.72	106.72	106.72	106.72	106.72	106.72	106.72	106.72	106.72	106.72	106.72

#2 of installs	ft2/system	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
health		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
lg office	287	1	3	6	10	14	18	22	26	107	107	107	107	107	107	107	107	107	107	107	107
lg retail	191	1	1	3	4	6	7	9	11	44	44	44	44	44	44	44	44	44	44	44	44
lodging	255	0	1	1	2	3	4	5	6	25	25	25	25	25	25	25	25	25	25	25	25
school	50	0	1	2	2	3	4	5	6	26	26	26	26	26	26	26	26	26	26	26	26
restaurant	32	0	1	1	2	3	4	5	5	22	22	22	22	22	22	22	22	22	22	22	22
manuf	542	200	399	898	1,398	1,996	2,595	3,194	3,793	15,373	15,373	15,373	15,373	15,373	15,373	15,373	15,373	15,373	15,373	15,373	15,373
MF	319	757	1,513	3,405	5,296	7,566	9,836	12,106	14,376	58,260	58,260	58,260	58,260	58,260	58,260	58,260	58,260	58,260	58,260	58,260	58,260
SF	50	69	139	312	485	693	901	1,109	1,317	5,336	5,336	5,336	5,336	5,336	5,336	5,336	5,336	5,336	5,336	5,336	5,336
TOTAL FT2		1,029	2,057	4,628	7,200	10,285	13,371	16,456	19,542	79,195	79,195	79,195	79,195	79,195	79,195	79,195	79,195	79,195	79,195	79,195	79,195
TOTAL MW		0.06	0.13	0.28	0.44	0.63	0.82	1.00	1.19	4.83	4.83	4.83	4.83	4.83	4.83	4.83	4.83	4.83	4.83	4.83	4.83

Wyoming SWH

Sector	Subsector	Vintage	% of customers	Installed cost	Incremental cost 2012-2016	Incremental Cost 2017 - 2032	Generation (kWh)	Admin Costs	Admin Costs 2012 - 2016	Admin Costs 2016	O&M costs	System Life	Utility Rebate Amount 2012 - 2016	Utility Rebate Amount 2017 - 2032	Federal Rebate Amount	Equipment + Admin costs 2012 - 2016	Equipment + Admin costs 2017 - 2032	Performance Degradation	Inflation	Discount Rate
NonRes	health	retrofit and new	0.08%	\$ 13,568	\$ 9,497.60	\$ 13,568	6,405	20%	\$ 237.44	\$ 237.44	\$ 68	20	\$ 949.76	\$ 949.76	30%	\$ 9,735	\$ 13,805	1%	1.9%	6.88%
NonRes	lg office	retrofit and new	0.16%	\$ 23,638.00	\$ 16,547	\$ 23,638	10,340	20%	\$ 413.67	\$ 413.67	\$ 118	20	\$ 1,654.66	\$ 1,654.66	30%	\$ 16,960	\$ 24,052	1%	1.9%	6.88%
NonRes	retail	retrofit and new	0.00%	\$ -	\$ -	\$ -	-	20%	\$ -	\$ -	\$ -	20	\$ -	\$ -	30%	\$ -	\$ -	1%	1.9%	6.88%
NonRes	lodging	retrofit and new	0.10%	\$ 16,854.00	\$ 11,798	\$ 16,854	7799	20%	\$ 294.95	\$ 294.95	\$ 84	20	\$ 1,179.78	\$ 1,179.78	30%	\$ 12,093	\$ 17,149	1%	1.9%	6.88%
NonRes	school	retrofit and new	0.24%	\$ 47,276.00	\$ 33,093	\$ 47,276	20,889	20%	\$ 827.33	\$ 827.33	\$ 236	20	\$ 3,309.32	\$ 3,309.32	30%	\$ 33,921	\$ 48,103	1%	1.9%	6.88%
NonRes	restaurant	retrofit and new	0.08%	\$ 33,814.00	\$ 23,670	\$ 33,814	15,210	20%	\$ 591.75	\$ 591.75	\$ 169	20	\$ 2,366.98	\$ 2,366.98	30%	\$ 24,262	\$ 34,406	1%	1.9%	6.88%
Res	manuf	retrofit and new	11.30%	\$ 8,500	\$ 5,950	\$ 8,500	1541	20%	\$ 148.75	\$ 148.75	\$ 40	20	\$ 595.00	\$ 595.00	30%	\$ 6,099	\$ 8,649	1%	1.9%	6.88%
Res	MF	retrofit and new	46.72%	\$ 3,374	\$ 2,362	\$ 3,374	770	20%	\$ 59.05	\$ 59.05	\$ 40	20	\$ 236.20	\$ 236.20	30%	\$ 2,421	\$ 3,433	1%	1.9%	6.88%
Res	SF	retrofit and new	41.32%	\$ 8,500	\$ 5,950	\$ 8,500	1407	20%	\$ 148.75	\$ 148.75	\$ 40	20	\$ 595.00	\$ 595.00	30%	\$ 6,099	\$ 8,649	1%	1.9%	6.88%

Sector	Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
NonRes	Cost	\$ 22,358.17	\$ 155.81	\$ 155.81	\$ 155.81	\$ 155.81	\$ 155.81	\$ 155.81	\$ 155.81	\$ 155.81	\$ 155.81	\$ 155.81	\$ 155.81	\$ 155.81	\$ 155.81	\$ 155.81	\$ 155.81	\$ 155.81	\$ 155.81	\$ 155.81	\$ 155.81
	Generation	15,232	15,080	14,927	14,775	14,623	14,470	14,318	14,166	14,013	13,861	13,709	13,556	13,404	13,252	13,099	12,947	12,795	12,642	12,490	12,338
Res	Cost	\$ 4,369.23	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00	\$ 40.00
	Generation	1,241	1,228	1,216	1,203	1,191	1,179	1,166	1,154	1,141	1,129	1,117	1,104	1,092	1,079	1,067	1,055	1,042	1,030	1,017	1,005

Sector	TRC Values	UCT Values	
NonRes	Cost NPV	\$ 23,983.11	\$ 2,726.61
	Generation NPV	\$ 161,292.74	\$ 161,292.74
Res	Cost NPV	\$ 4,786.40	\$ 532.83
	Generation NPV	\$ 13,137.79	\$ 13,137.79

Sector	2012 TRC Levelized Costs	2012 UCT Levelized Cost
NonRes	\$0.15	\$ 0.02
Res	\$0.36	\$ 0.04

Number of Installs	Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
health		0.00	0.00	0.01	0.02	0.02	0.03	0.04	0.05	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
lg office		0.01	0.01	0.02	0.04	0.05	0.07	0.08	0.10	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39
lg retail		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
lodging		0.00	0.01	0.01	0.02	0.03	0.04	0.05	0.06	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23
school		0.01	0.01	0.03	0.05	0.07	0.10	0.12	0.14	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56
restaurant		0.00	0.00	0.01	0.02	0.02	0.03	0.04	0.04	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
manuf		0.35	0.69	1.55	2.42	3.46	4.49	5.53	6.57	26.61	26.61	26.61	26.61	26.61	26.61	26.61	26.61	26.61	26.61	26.61	26.61
MF		1.43	2.86	6.43	10.00	14.28	18.56	22.85	27.13	109.95	109.95	109.95	109.95	109.95	109.95	109.95	109.95	109.95	109.95	109.95	109.95
SF		1.26	2.53	5.68	8.84	12.63	16.42	20.21	24.00	97.24	97.24	97.24	97.24	97.24	97.24	97.24	97.24	97.24	97.24	97.24	97.24

#2 of installs	#2/system	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
health	128	0	1	1	2	3	4	5	6	24	24	24	24	24	24	24	24	24	24	24	24
lg office	223	1	2	5	8	11	15	18	21	86	86	86	86	86	86	86	86	86	86	86	86
lg retail	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
lodging	159	0	1	2	3	5	6	8	9	37	37	37	37	37	37	37	37	37	37	37	37
school	50	0	1	2	3	4	5	6	7	28	28	28	28	28	28	28	28	28	28	28	28
restaurant	32	0	0	1	1	1	1	1	1	6	6	6	6	6	6	6	6	6	6	6	6
manuf	446	154	308	693	1,079	1,541	2,003	2,466	2,928	11,866	11,866	11,866	11,866	11,866	11,866	11,866	11,866	11,866	11,866	11,866	11,866
MF	319	456	911	2,050	3,189	4,555	5,922	7,288	8,655	35,075	35,075	35,075	35,075	35,075	35,075	35,075	35,075	35,075	35,075	35,075	35,075
SF	50	63	126	284	442	631	821	1,010	1,200	4,862	4,862	4,862	4,862	4,862	4,862	4,862	4,862	4,862	4,862	4,862	4,862
TOTAL FT2		675	1,350	3,038	4,726	6,751	8,777	10,802	12,827	51,984	51,984	51,984	51,984	51,984	51,984	51,984	51,984	51,984	51,984	51,984	51,984
TOTAL MW		0.04	0.08	0.19	0.29	0.41	0.54	0.66	0.78	3.17	3.17	3.17	3.17	3.17	3.17	3.17	3.17	3.17	3.17	3.17	3.17