APPENDIX D-1. SUPPLEMENTAL RESOURCE SUPPLEMENT: COMBINED HEAT AND POWER

Appendix D-1 provides the details behind the potential estimates for combined heat and power (CHP).

Table D-1.1. Total CHP Market Potential by Year

	Installed Capacity (MW)	Annual Energy (aMW)
2013	17	9
2014	34	17
2015	50	26
2016	67	35
2017	84	43
2018	101	52
2019	117	60
2020	134	69
2021	151	77
2022	168	86
2023	182	93
2024	197	100
2025	211	107
2026	226	114
2027	241	121
2028	255	128
2029	270	135
2030	284	142
2031	298	149
2032	312	155

Table D-1.2. CHP Market Potential by State and Configuration – 2032

System Type	Projected Incremental Installed System Capacity Operating in 2032 (MW)						
	CA	ID	OR	UT	WA	WY	Total
Natural Gas	4	12	25	184	32	26	283
30–99 kW	*0.4*	*0.8*	*1.6*	*4.6*	*1.0*	*1.1*	*10*
100-199 kW	*0.8*	*2.3*	*3.7*	*23.5*	*4.6*	*4.0*	*39*
200-499 kW	*0.9*	*2.6*	*5.5*	*44.7*	*9.1*	*5.8*	*69*
500–999 kW	*0.2*	*0.6*	*2.9*	*28.9*	*6.1*	*2.6*	*41*
1–4.9 MW	*1.5*	*3.4*	*8.2*	*62.0*	*11.4*	*8.3*	*95*
5 MW+	*0.0*	*2.0*	*3.2*	*20.6*	*0.0*	*3.8*	*30*
Industrial Biomass	1.0	0.2	11.0	3.2	2.4	0.5	18
Biogas	0.1	1.5	2.1	3.5	0.5	2.8	10
Total	5	13	38	191	35	29	312

Table D-1.3. California CHP Market Potential – Natural Gas – Reciprocating Engines

	Installed Capacity (MW)	Annual Energy (aMW)	Net Heat Rate (MMBtu/MWh)	Levelized Cost ($/kWh)
2013	0.15	0.06	4.7	$0.08
2014	0.31	0.12	4.7	$0.08
2015	0.46	0.18	4.7	$0.08
2016	0.62	0.24	4.7	$0.08
2017	0.77	0.31	4.8	$0.08
2018	0.92	0.37	4.8	$0.09
2019	1.08	0.43	4.8	$0.09
2020	1.23	0.49	4.9	$0.09
2021	1.39	0.55	4.9	$0.09
2022	1.54	0.60	4.9	$0.09
2023	1.69	0.66	5.0	$0.09
2024	1.85	0.72	5.0	$0.09
2025	2.00	0.78	5.0	$0.09
2026	2.16	0.84	5.1	$0.09
2027	2.31	0.90	5.1	$0.09
2028	2.46	0.96	5.1	$0.09
2029	2.62	1.01	5.2	$0.09
2030	2.77	1.07	5.2	$0.09
2031	2.93	1.13	5.2	$0.09
2032	3.08	1.19	5.3	$0.09

Table D-1.4. California CHP Market Potential – Natural Gas – Microturbines

	Installed Capacity (MW)	Annual Energy (aMW)	Net Heat Rate (MMBtu/MWh)	Levelized Cost ($/kWh)
2013	0.02	0.01	6.8	$0.12
2014	0.05	0.02	6.8	$0.12
2015	0.07	0.04	6.9	$0.12
2016	0.10	0.05	6.9	$0.12
2017	0.12	0.06	7.0	$0.12
2018	0.14	0.07	7.0	$0.12
2019	0.17	0.08	7.1	$0.12
2020	0.19	0.09	7.1	$0.13
2021	0.22	0.10	7.1	$0.13
2022	0.24	0.12	7.2	$0.13
2023	0.24	0.12	7.2	$0.13
2024	0.24	0.12	7.2	$0.13
2025	0.24	0.12	7.2	$0.14
2026	0.24	0.12	7.2	$0.14
2027	0.24	0.12	7.2	$0.14
2028	0.24	0.12	7.2	$0.14
2029	0.24	0.12	7.2	$0.14
2030	0.24	0.12	7.2	$0.14
2031	0.24	0.12	7.2	$0.14
2032	0.24	0.12	7.2	$0.14

Table D-1.5. California CHP Market Potential – Natural Gas – Fuel Cells

	Installed Capacity (MW)	Annual Energy (aMW)	Net Heat Rate (MMBtu/MWh)	Levelized Cost ($/kWh)
2013	0.01	0.01	5.9	$0.14
2014	0.02	0.01	5.9	$0.14
2015	0.03	0.02	5.9	$0.14
2016	0.04	0.03	6.0	$0.14
2017	0.05	0.04	6.0	$0.15
2018	0.06	0.04	6.0	$0.15
2019	0.07	0.05	6.1	$0.16
2020	0.08	0.06	6.1	$0.16
2021	0.09	0.06	6.2	$0.16
2022	0.10	0.07	6.2	$0.17
2023	0.10	0.07	6.2	$0.17
2024	0.10	0.07	6.2	$0.17
2025	0.10	0.07	6.2	$0.18
2026	0.10	0.07	6.2	$0.18
2027	0.10	0.07	6.2	$0.18
2028	0.10	0.07	6.2	$0.19
2029	0.10	0.07	6.2	$0.19
2030	0.10	0.07	6.2	$0.19
2031	0.10	0.07	6.2	$0.19
2032	0.10	0.07	6.2	$0.19

Table D-1.6. California CHP Market Potential – Natural Gas – Gas Turbines

	Installed Capacity (MW)	Annual Energy (aMW)	Net Heat Rate (MMBtu/MWh)	Levelized Cost ($/kWh)
2013	0.02	0.02	6.4	$0.07
2014	0.05	0.04	6.5	$0.07
2015	0.07	0.06	6.5	$0.07
2016	0.09	0.07	6.6	$0.07
2017	0.12	0.09	6.6	$0.08
2018	0.14	0.11	6.7	$0.08
2019	0.16	0.13	6.7	$0.08
2020	0.18	0.15	6.7	$0.08
2021	0.21	0.17	6.8	$0.08
2022	0.23	0.18	6.8	$0.08
2023	0.25	0.20	6.9	$0.08
2024	0.28	0.22	6.9	$0.08
2025	0.30	0.24	7.0	$0.08
2026	0.32	0.26	7.0	$0.08
2027	0.35	0.27	7.1	$0.08
2028	0.37	0.29	7.1	$0.08
2029	0.39	0.31	7.2	$0.09
2030	0.42	0.33	7.2	$0.09
2031	0.44	0.34	7.2	$0.09
2032	0.46	0.36	7.3	$0.09

Table D-1.7. California CHP Market Potential – Industrial Biomass

	Installed Capacity (MW)	Annual Energy (aMW)	Levelized Cost ($/kWh)
2013	0.05	0.04	$0.01
2014	0.10	0.09	$0.01
2015	0.14	0.13	$0.01
2016	0.19	0.17	$0.01
2017	0.24	0.21	$0.01
2018	0.29	0.26	$0.01
2019	0.33	0.30	$0.01
2020	0.38	0.34	$0.01
2021	0.43	0.38	$0.01
2022	0.48	0.42	$0.01
2023	0.52	0.46	$0.01
2024	0.57	0.50	$0.01
2025	0.62	0.55	$0.01
2026	0.67	0.59	$0.01
2027	0.72	0.63	$0.01
2028	0.76	0.67	$0.01
2029	0.81	0.71	$0.01
2030	0.86	0.75	$0.01
2031	0.91	0.79	$0.01
2032	0.95	0.83	$0.01

Table D-1.8. California CHP Market Potential – Biogas

	Installed Capacity (MW)	Annual Energy (aMW)	Levelized Cost ($/kWh)
2013	0.01	0.003	$0.06
2014	0.01	0.01	$0.06
2015	0.02	0.01	$0.06
2016	0.02	0.01	$0.06
2017	0.03	0.01	$0.07
2018	0.04	0.02	$0.07
2019	0.04	0.02	$0.07
2020	0.05	0.02	$0.07
2021	0.05	0.02	$0.07
2022	0.06	0.03	$0.07
2023	0.07	0.03	$0.07
2024	0.07	0.03	$0.07
2025	0.08	0.03	$0.07
2026	0.09	0.04	$0.07
2027	0.09	0.04	$0.07
2028	0.10	0.04	$0.07
2029	0.10	0.04	$0.07
2030	0.10	0.04	$0.07
2031	0.10	0.04	$0.07
2032	0.10	0.04	$0.07

Table D-1.9. California CHP Market Potential – Total

	Installed Capacity (MW)	Annual Energy (aMW)
2013	0.3	0.1
2014	0.5	0.3
2015	0.8	0.4
2016	1.1	0.6
2017	1.3	0.7
2018	1.6	0.9
2019	1.9	1.0
2020	2.1	1.1
2021	2.4	1.3
2022	2.7	1.4
2023	2.9	1.5
2024	3.1	1.7
2025	3.3	1.8
2026	3.6	1.9
2027	3.8	2.0
2028	4.0	2.1
2029	4.3	2.3
2030	4.5	2.4
2031	4.7	2.5
2032	4.9	2.6

Table D-1.10. Idaho CHP Market Potential – Natural Gas – Reciprocating Engines

	Installed Capacity (MW)	Annual Energy (aMW)	Net Heat Rate (MMBtu/MWh)	Levelized Cost ($/kWh)
2013	0.40	0.16	4.6	$0.08
2014	0.80	0.32	4.7	$0.08
2015	1.20	0.48	4.7	$0.08
2016	1.60	0.64	4.7	$0.08
2017	2.00	0.79	4.8	$0.08
2018	2.40	0.95	4.8	$0.09
2019	2.79	1.10	4.8	$0.09
2020	3.19	1.26	4.9	$0.09
2021	3.59	1.41	4.9	$0.09
2022	3.99	1.57	4.9	$0.09
2023	4.39	1.72	4.9	$0.09
2024	4.79	1.87	5.0	$0.09
2025	5.19	2.03	5.0	$0.09
2026	5.59	2.18	5.0	$0.09
2027	5.99	2.33	5.1	$0.09
2028	6.39	2.48	5.1	$0.09
2029	6.79	2.63	5.2	$0.09
2030	7.19	2.78	5.2	$0.09
2031	7.59	2.93	5.2	$0.09
2032	7.99	3.08	5.3	$0.09

Table D-1.11. Idaho CHP Market Potential – Natural Gas – Microturbines

	Installed Capacity (MW)	Annual Energy (aMW)	Net Heat Rate (MMBtu/MWh)	Levelized Cost ($/kWh)
2013	0.06	0.03	6.7	$0.11
2014	0.13	0.06	6.8	$0.12
2015	0.19	0.09	6.8	$0.12
2016	0.25	0.12	6.9	$0.12
2017	0.32	0.15	6.9	$0.12
2018	0.38	0.19	6.9	$0.12
2019	0.44	0.22	7.0	$0.12
2020	0.51	0.25	7.0	$0.12
2021	0.57	0.28	7.1	$0.12
2022	0.64	0.31	7.1	$0.13
2023	0.64	0.31	7.1	$0.13
2024	0.64	0.31	7.1	$0.13
2025	0.64	0.31	7.1	$0.13
2026	0.64	0.31	7.1	$0.14
2027	0.64	0.31	7.1	$0.14
2028	0.64	0.31	7.1	$0.14
2029	0.64	0.31	7.1	$0.14
2030	0.64	0.31	7.1	$0.14
2031	0.64	0.31	7.1	$0.14
2032	0.64	0.31	7.1	$0.14

Table D-1.12. Idaho CHP Market Potential – Natural Gas – Fuel Cells

	Installed Capacity (MW)	Annual Energy (aMW)	Net Heat Rate (MMBtu/MWh)	Levelized Cost ($/kWh)
2013	0.03	0.02	5.9	$0.14
2014	0.05	0.04	5.9	$0.14
2015	0.08	0.05	6.0	$0.14
2016	0.10	0.07	6.0	$0.14
2017	0.13	0.09	6.1	$0.15
2018	0.15	0.11	6.1	$0.15
2019	0.18	0.12	6.1	$0.16
2020	0.20	0.14	6.2	$0.16
2021	0.23	0.16	6.2	$0.16
2022	0.25	0.18	6.3	$0.16
2023	0.25	0.18	6.3	$0.17
2024	0.25	0.18	6.3	$0.17
2025	0.25	0.18	6.3	$0.18
2026	0.25	0.18	6.3	$0.18
2027	0.25	0.18	6.3	$0.18
2028	0.25	0.18	6.3	$0.19
2029	0.25	0.18	6.3	$0.19
2030	0.25	0.18	6.3	$0.19
2031	0.25	0.18	6.3	$0.19
2032	0.25	0.18	6.3	$0.19

Table D-1.13. Idaho CHP Market Potential – Natural Gas – Gas Turbines

	Installed Capacity (MW)	Annual Energy (aMW)	Net Heat Rate (MMBtu/MWh)	Levelized Cost ($/kWh)
2013	0.14	0.12	6.1	$0.06
2014	0.29	0.23	6.1	$0.06
2015	0.43	0.35	6.1	$0.06
2016	0.57	0.46	6.2	$0.06
2017	0.71	0.57	6.2	$0.07
2018	0.86	0.69	6.3	$0.07
2019	1.00	0.80	6.3	$0.07
2020	1.14	0.91	6.3	$0.07
2021	1.28	1.02	6.4	$0.07
2022	1.43	1.14	6.4	$0.07
2023	1.57	1.25	6.5	$0.07
2024	1.71	1.36	6.5	$0.07
2025	1.85	1.47	6.6	$0.07
2026	2.00	1.58	6.6	$0.07
2027	2.14	1.69	6.6	$0.07
2028	2.28	1.79	6.7	$0.07
2029	2.43	1.90	6.7	$0.07
2030	2.57	2.01	6.8	$0.07
2031	2.71	2.12	6.8	$0.08
2032	2.85	2.23	6.9	$0.08

Table D-1.14. Idaho CHP Market Potential – Industrial Biomass

	Installed Capacity (MW)	Annual Energy (aMW)	Levelized Cost ($/kWh)
2013	0.01	0.01	$0.01
2014	0.02	0.02	$0.01
2015	0.03	0.03	$0.01
2016	0.04	0.04	$0.01
2017	0.05	0.05	$0.01
2018	0.06	0.06	$0.01
2019	0.07	0.07	$0.01
2020	0.09	0.08	$0.01
2021	0.10	0.08	$0.01
2022	0.11	0.09	$0.01
2023	0.12	0.10	$0.01
2024	0.13	0.11	$0.01
2025	0.14	0.12	$0.01
2026	0.15	0.13	$0.01
2027	0.16	0.14	$0.01
2028	0.17	0.15	$0.01
2029	0.18	0.16	$0.01
2030	0.19	0.17	$0.01
2031	0.20	0.18	$0.01
2032	0.21	0.18	$0.01

Table D-1.15. Idaho CHP Market Potential – Biogas

	Installed Capacity (MW)	Annual Energy (aMW)	Levelized Cost ($/kWh)
2013	0.09	0.04	$0.07
2014	0.17	0.08	$0.07
2015	0.26	0.12	$0.07
2016	0.35	0.16	$0.07
2017	0.43	0.20	$0.07
2018	0.52	0.24	$0.07
2019	0.61	0.28	$0.07
2020	0.69	0.31	$0.07
2021	0.78	0.35	$0.07
2022	0.87	0.39	$0.07
2023	0.96	0.43	$0.07
2024	1.04	0.46	$0.07
2025	1.13	0.50	$0.07
2026	1.22	0.53	$0.07
2027	1.30	0.56	$0.07
2028	1.39	0.60	$0.07
2029	1.48	0.63	$0.07
2030	1.48	0.63	$0.07
2031	1.48	0.63	$0.07
2032	1.48	0.63	$0.07

Table D-1.16. Idaho CHP Market Potential – Total

	Installed Capacity (MW)	Annual Energy (aMW)
2013	0.7	0.4
2014	1.5	0.7
2015	2.2	1.1
2016	2.9	1.5
2017	3.6	1.9
2018	4.4	2.2
2019	5.1	2.6
2020	5.8	3.0
2021	6.6	3.3
2022	7.3	3.7
2023	7.9	4.0
2024	8.6	4.3
2025	9.2	4.6
2026	9.8	4.9
2027	10.5	5.2
2028	11.1	5.5
2029	11.8	5.8
2030	12.3	6.1
2031	12.9	6.3
2032	13.4	6.6

Table D-1.17. Oregon CHP Market Potential – Natural Gas – Reciprocating Engines

	Installed Capacity (MW)	Annual Energy (aMW)	Net Heat Rate (MMBtu/MWh)	Levelized Cost ($/kWh)
2013	0.89	0.35	4.6	$0.08
2014	1.77	0.71	4.7	$0.08
2015	2.66	1.06	4.7	$0.08
2016	3.55	1.41	4.7	$0.08
2017	4.43	1.76	4.8	$0.08
2018	5.32	2.11	4.8	$0.09
2019	6.21	2.45	4.8	$0.09
2020	7.10	2.80	4.9	$0.09
2021	7.98	3.14	4.9	$0.09
2022	8.87	3.48	4.9	$0.09
2023	9.76	3.83	5.0	$0.09
2024	10.64	4.16	5.0	$0.09
2025	11.53	4.50	5.0	$0.09
2026	12.42	4.84	5.1	$0.09
2027	13.30	5.18	5.1	$0.09
2028	14.19	5.51	5.1	$0.09
2029	15.08	5.84	5.2	$0.09
2030	15.96	6.17	5.2	$0.09
2031	16.85	6.50	5.2	$0.09
2032	17.74	6.83	5.3	$0.09

Table D-1.18. Oregon CHP Market Potential – Natural Gas – Microturbines

	Installed Capacity (MW)	Annual Energy (aMW)	Net Heat Rate (MMBtu/MWh)	Levelized Cost ($/kWh)
2013	0.13	0.06	6.8	$0.12
2014	0.26	0.13	6.8	$0.12
2015	0.40	0.19	6.9	$0.12
2016	0.53	0.26	6.9	$0.12
2017	0.66	0.32	7.0	$0.12
2018	0.79	0.38	7.0	$0.12
2019	0.92	0.45	7.0	$0.13
2020	1.06	0.51	7.1	$0.13
2021	1.19	0.57	7.1	$0.13
2022	1.32	0.64	7.2	$0.13
2023	1.32	0.64	7.2	$0.13
2024	1.32	0.64	7.2	$0.13
2025	1.32	0.64	7.2	$0.13
2026	1.32	0.64	7.2	$0.14
2027	1.32	0.64	7.2	$0.14
2028	1.32	0.64	7.2	$0.14
2029	1.32	0.64	7.2	$0.14
2030	1.32	0.64	7.2	$0.14
2031	1.32	0.64	7.2	$0.14
2032	1.32	0.64	7.2	$0.14

Table D-1.19. Oregon CHP Market Potential – Natural Gas – Fuel Cells

	Installed Capacity (MW)	Annual Energy (aMW)	Net Heat Rate (MMBtu/MWh)	Levelized Cost ($/kWh)
2013	0.06	0.04	5.9	$0.14
2014	0.12	0.09	6.0	$0.14
2015	0.18	0.13	6.0	$0.14
2016	0.24	0.17	6.0	$0.14
2017	0.31	0.22	6.1	$0.15
2018	0.37	0.26	6.1	$0.16
2019	0.43	0.30	6.2	$0.16
2020	0.49	0.34	6.2	$0.16
2021	0.55	0.38	6.2	$0.17
2022	0.61	0.43	6.3	$0.17
2023	0.61	0.43	6.3	$0.17
2024	0.61	0.43	6.3	$0.18
2025	0.61	0.43	6.3	$0.18
2026	0.61	0.43	6.3	$0.18
2027	0.61	0.43	6.3	$0.18
2028	0.61	0.43	6.3	$0.19
2029	0.61	0.43	6.3	$0.19
2030	0.61	0.43	6.3	$0.19
2031	0.61	0.43	6.3	$0.19
2032	0.61	0.43	6.3	$0.19

Table D-1.20. Oregon CHP Market Potential – Natural Gas – Gas Turbines

	Installed Capacity (MW)	Annual Energy (aMW)	Net Heat Rate (MMBtu/MWh)	Levelized Cost ($/kWh)
2013	0.27	0.22	6.1	$0.07
2014	0.54	0.44	6.2	$0.07
2015	0.81	0.66	6.2	$0.07
2016	1.08	0.87	6.3	$0.07
2017	1.35	1.09	6.3	$0.07
2018	1.63	1.30	6.3	$0.07
2019	1.90	1.52	6.4	$0.07
2020	2.17	1.73	6.4	$0.07
2021	2.44	1.94	6.5	$0.07
2022	2.71	2.16	6.5	$0.07
2023	2.98	2.37	6.5	$0.07
2024	3.25	2.58	6.6	$0.07
2025	3.52	2.79	6.6	$0.08
2026	3.79	2.99	6.7	$0.08
2027	4.06	3.20	6.7	$0.08
2028	4.34	3.41	6.8	$0.08
2029	4.61	3.61	6.8	$0.08
2030	4.88	3.82	6.9	$0.08
2031	5.15	4.02	6.9	$0.08
2032	5.42	4.23	7.0	$0.08

Table D-1.21. Oregon CHP Market Potential – Industrial Biomass

	Installed Capacity (MW)	Annual Energy (aMW)	Levelized Cost ($/kWh)
2013	0.55	0.49	$0.01
2014	1.10	0.99	$0.01
2015	1.65	1.48	$0.01
2016	2.20	1.97	$0.01
2017	2.75	2.46	$0.01
2018	3.30	2.94	$0.01
2019	3.85	3.42	$0.01
2020	4.40	3.90	$0.01
2021	4.95	4.38	$0.01
2022	5.50	4.86	$0.01
2023	6.05	5.34	$0.01
2024	6.60	5.81	$0.01
2025	7.15	6.28	$0.01
2026	7.70	6.75	$0.01
2027	8.25	7.22	$0.01
2028	8.80	7.69	$0.01
2029	9.35	8.15	$0.01
2030	9.90	8.61	$0.01
2031	10.45	9.07	$0.01
2032	11.00	9.53	$0.01

Table D-1.22. Oregon CHP Market Potential – Biogas

	Installed Capacity (MW)	Annual Energy (aMW)	Levelized Cost ($/kWh)
2013	0.12	0.06	$0.07
2014	0.25	0.11	$0.07
2015	0.37	0.17	$0.07
2016	0.49	0.22	$0.07
2017	0.61	0.28	$0.07
2018	0.74	0.33	$0.07
2019	0.86	0.39	$0.07
2020	0.98	0.44	$0.07
2021	1.10	0.50	$0.07
2022	1.23	0.55	$0.07
2023	1.35	0.60	$0.07
2024	1.47	0.65	$0.07
2025	1.59	0.70	$0.07
2026	1.72	0.75	$0.07
2027	1.84	0.80	$0.07
2028	1.96	0.84	$0.07
2029	2.08	0.89	$0.07
2030	2.08	0.89	$0.07
2031	2.08	0.89	$0.07
2032	2.08	0.89	$0.07

Table D-1.23. Oregon CHP Market Potential – Total

	Installed Capacity (MW)	Annual Energy (aMW)
2013	2.0	1.2
2014	4.0	2.5
2015	6.1	3.7
2016	8.1	4.9
2017	10.1	6.1
2018	12.1	7.3
2019	14.2	8.5
2020	16.2	9.7
2021	18.2	10.9
2022	20.2	12.1
2023	22.1	13.2
2024	23.9	14.3
2025	25.7	15.3
2026	27.6	16.4
2027	29.4	17.5
2028	31.2	18.5
2029	33.0	19.6
2030	34.8	20.6
2031	36.5	21.6
2032	38.2	22.5

Table D-1.24. Utah CHP Market Potential – Natural Gas – Reciprocating Engines

	Installed Capacity (MW)	Annual Energy (aMW)	Net Heat Rate (MMBtu/MWh)	Levelized Cost ($/kWh)
2013	6.61	2.64	4.6	$0.08
2014	13.22	5.28	4.7	$0.08
2015	19.83	7.90	4.7	$0.08
2016	26.43	10.51	4.7	$0.08
2017	33.04	13.11	4.8	$0.08
2018	39.65	15.70	4.8	$0.08
2019	46.26	18.28	4.8	$0.08
2020	52.87	20.85	4.9	$0.09
2021	59.48	23.41	4.9	$0.09
2022	66.08	25.96	4.9	$0.09
2023	72.69	28.50	5.0	$0.09
2024	79.30	31.03	5.0	$0.09
2025	85.91	33.55	5.0	$0.09
2026	92.52	36.06	5.1	$0.09
2027	99.13	38.56	5.1	$0.09
2028	105.74	41.05	5.1	$0.09
2029	112.34	43.53	5.2	$0.09
2030	118.95	46.00	5.2	$0.09
2031	125.56	48.46	5.2	$0.09
2032	132.17	50.91	5.3	$0.09

Table D-1.25. Utah CHP Market Potential – Natural Gas – Microturbines

	Installed Capacity (MW)	Annual Energy (aMW)	Net Heat Rate (MMBtu/MWh)	Levelized Cost ($/kWh)
2013	0.95	0.46	6.8	$0.12
2014	1.90	0.93	6.8	$0.12
2015	2.85	1.39	6.8	$0.12
2016	3.80	1.85	6.9	$0.12
2017	4.74	2.31	6.9	$0.12
2018	5.69	2.76	7.0	$0.12
2019	6.64	3.22	7.0	$0.12
2020	7.59	3.67	7.1	$0.13
2021	8.54	4.12	7.1	$0.13
2022	9.49	4.57	7.2	$0.13
2023	9.49	4.57	7.2	$0.13
2024	9.49	4.57	7.2	$0.13
2025	9.49	4.57	7.2	$0.13
2026	9.49	4.57	7.2	$0.13
2027	9.49	4.57	7.2	$0.13
2028	9.49	4.57	7.2	$0.13
2029	9.49	4.57	7.2	$0.13
2030	9.49	4.57	7.2	$0.13
2031	9.49	4.57	7.2	$0.13
2032	9.49	4.57	7.2	$0.13

Table D-1.26. Utah CHP Market Potential – Natural Gas – Fuel Cells

	Installed Capacity (MW)	Annual Energy (aMW)	Net Heat Rate (MMBtu/MWh)	Levelized Cost ($/kWh)
2013	0.48	0.34	6.0	$0.14
2014	0.95	0.67	6.0	$0.14
2015	1.43	1.01	6.1	$0.14
2016	1.90	1.34	6.1	$0.14
2017	2.38	1.67	6.2	$0.15
2018	2.85	2.00	6.2	$0.16
2019	3.33	2.33	6.2	$0.16
2020	3.80	2.66	6.3	$0.16
2021	4.28	2.99	6.3	$0.17
2022	4.75	3.31	6.4	$0.17
2023	4.75	3.31	6.4	$0.17
2024	4.75	3.31	6.4	$0.17
2025	4.75	3.31	6.4	$0.18
2026	4.75	3.31	6.4	$0.18
2027	4.75	3.31	6.4	$0.18
2028	4.75	3.31	6.4	$0.18
2029	4.75	3.31	6.4	$0.19
2030	4.75	3.31	6.4	$0.19
2031	4.75	3.31	6.4	$0.19
2032	4.75	3.31	6.4	$0.19

Table D-1.27. Utah CHP Market Potential – Natural Gas – Gas Turbines

	Installed Capacity (MW)	Annual Energy (aMW)	Net Heat Rate (MMBtu/MWh)	Levelized Cost ($/kWh)
2013	1.90	1.54	6.2	$0.07
2014	3.80	3.07	6.2	$0.07
2015	5.70	4.60	6.2	$0.07
2016	7.60	6.12	6.3	$0.07
2017	9.50	7.63	6.3	$0.07
2018	11.40	9.14	6.4	$0.07
2019	13.29	10.64	6.4	$0.07
2020	15.19	12.14	6.5	$0.07
2021	17.09	13.63	6.5	$0.07
2022	18.99	15.11	6.5	$0.07
2023	20.89	16.59	6.6	$0.07
2024	22.79	18.06	6.6	$0.07
2025	24.69	19.53	6.7	$0.07
2026	26.59	20.99	6.7	$0.08
2027	28.49	22.44	6.8	$0.08
2028	30.39	23.89	6.8	$0.08
2029	32.29	25.33	6.9	$0.08
2030	34.19	26.77	6.9	$0.08
2031	36.09	28.20	6.9	$0.08
2032	37.98	29.63	7.0	$0.08

Table D-1.28. Utah CHP Market Potential – Industrial Biomass

	Installed Capacity (MW)	Annual Energy (aMW)	Levelized Cost ($/kWh)
2013	0.16	0.14	$0.01
2014	0.32	0.29	$0.01
2015	0.48	0.43	$0.01
2016	0.64	0.57	$0.01
2017	0.80	0.71	$0.01
2018	0.96	0.85	$0.01
2019	1.11	0.99	$0.01
2020	1.27	1.13	$0.01
2021	1.43	1.27	$0.01
2022	1.59	1.41	$0.01
2023	1.75	1.55	$0.01
2024	1.91	1.68	$0.01
2025	2.07	1.82	$0.01
2026	2.23	1.96	$0.01
2027	2.39	2.09	$0.01
2028	2.55	2.23	$0.01
2029	2.71	2.36	$0.01
2030	2.87	2.49	$0.01
2031	3.03	2.63	$0.01
2032	3.19	2.76	$0.01

Table D-1.29. Utah CHP Market Potential – Biogas

	Installed Capacity (MW)	Annual Energy (aMW)	Levelized Cost ($/kWh)
2013	0.20	0.09	$0.07
2014	0.41	0.19	$0.07
2015	0.61	0.28	$0.07
2016	0.81	0.37	$0.07
2017	1.02	0.46	$0.07
2018	1.22	0.56	$0.07
2019	1.43	0.65	$0.07
2020	1.63	0.74	$0.07
2021	1.83	0.83	$0.07
2022	2.04	0.92	$0.07
2023	2.24	1.00	$0.07
2024	2.44	1.08	$0.07
2025	2.65	1.16	$0.07
2026	2.85	1.24	$0.07
2027	3.06	1.32	$0.07
2028	3.26	1.40	$0.07
2029	3.46	1.48	$0.07
2030	3.46	1.48	$0.07
2031	3.46	1.48	$0.07
2032	3.46	1.48	$0.07

Table D-1.30. Utah CHP Market Potential – Total

	Installed Capacity (MW)	Annual Energy (aMW)
2013	10.3	5.2
2014	20.6	10.4
2015	30.9	15.6
2016	41.2	20.8
2017	51.5	25.9
2018	61.8	31.0
2019	72.1	36.1
2020	82.4	41.2
2021	92.7	46.2
2022	102.9	51.3
2023	111.8	55.5
2024	120.7	59.7
2025	129.6	63.9
2026	138.4	68.1
2027	147.3	72.3
2028	156.2	76.4
2029	165.0	80.6
2030	173.7	84.6
2031	182.4	88.6
2032	191.0	92.7

Table D-1.31. Washington CHP Market Potential – Natural Gas – Reciprocating Engines

	Installed Capacity (MW)	Annual Energy (aMW)	Net Heat Rate (MMBtu/MWh)	Levelized Cost ($/kWh)
2013	1.28	0.51	4.6	$0.08
2014	2.57	1.02	4.7	$0.08
2015	3.85	1.53	4.7	$0.08
2016	5.13	2.04	4.7	$0.08
2017	6.42	2.55	4.7	$0.08
2018	7.70	3.05	4.8	$0.08
2019	8.98	3.55	4.8	$0.09
2020	10.27	4.05	4.8	$0.09
2021	11.55	4.55	4.9	$0.09
2022	12.83	5.04	4.9	$0.09
2023	14.12	5.53	4.9	$0.09
2024	15.40	6.03	5.0	$0.09
2025	16.68	6.52	5.0	$0.09
2026	17.97	7.00	5.0	$0.09
2027	19.25	7.49	5.1	$0.09
2028	20.53	7.97	5.1	$0.09
2029	21.82	8.45	5.1	$0.09
2030	23.10	8.93	5.2	$0.09
2031	24.38	9.41	5.2	$0.09
2032	25.66	9.89	5.2	$0.09

Table D-1.32. Washington CHP Market Potential – Natural Gas – Microturbines

	Installed Capacity (MW)	Annual Energy (aMW)	Net Heat Rate (MMBtu/MWh)	Levelized Cost ($/kWh)
2013	0.19	0.09	6.8	$0.12
2014	0.39	0.19	6.8	$0.12
2015	0.58	0.28	6.9	$0.12
2016	0.77	0.38	6.9	$0.12
2017	0.96	0.47	6.9	$0.12
2018	1.16	0.56	7.0	$0.12
2019	1.35	0.65	7.0	$0.12
2020	1.54	0.75	7.1	$0.13
2021	1.74	0.84	7.1	$0.13
2022	1.93	0.93	7.2	$0.13
2023	1.93	0.93	7.2	$0.13
2024	1.93	0.93	7.2	$0.13
2025	1.93	0.93	7.2	$0.13
2026	1.93	0.93	7.2	$0.13
2027	1.93	0.93	7.2	$0.14
2028	1.93	0.93	7.2	$0.14
2029	1.93	0.93	7.2	$0.14
2030	1.93	0.93	7.2	$0.14
2031	1.93	0.93	7.2	$0.14
2032	1.93	0.93	7.2	$0.14

Table D-1.33. Washington CHP Market Potential – Natural Gas – Fuel Cells

	Installed Capacity (MW)	Annual Energy (aMW)	Net Heat Rate (MMBtu/MWh)	Levelized Cost ($/kWh)
2013	0.09	0.07	6.0	$0.14
2014	0.19	0.13	6.0	$0.14
2015	0.28	0.20	6.1	$0.14
2016	0.37	0.26	6.1	$0.14
2017	0.47	0.33	6.1	$0.15
2018	0.56	0.40	6.2	$0.16
2019	0.66	0.46	6.2	$0.16
2020	0.75	0.52	6.3	$0.16
2021	0.84	0.59	6.3	$0.17
2022	0.94	0.65	6.4	$0.17
2023	0.94	0.65	6.4	$0.17
2024	0.94	0.65	6.4	$0.17
2025	0.94	0.65	6.4	$0.17
2026	0.94	0.65	6.4	$0.18
2027	0.94	0.65	6.4	$0.18
2028	0.94	0.65	6.4	$0.18
2029	0.94	0.65	6.4	$0.18
2030	0.94	0.65	6.4	$0.18
2031	0.94	0.65	6.4	$0.18
2032	0.94	0.65	6.4	$0.18

Table D-1.34. Washington CHP Market Potential – Natural Gas – Gas Turbines

	Installed Capacity (MW)	Annual Energy (aMW)	Net Heat Rate (MMBtu/MWh)	Levelized Cost ($/kWh)
2013	0.18	0.15	6.5	$0.07
2014	0.37	0.30	6.5	$0.08
2015	0.55	0.44	6.6	$0.08
2016	0.73	0.59	6.6	$0.08
2017	0.92	0.74	6.6	$0.08
2018	1.10	0.88	6.7	$0.08
2019	1.28	1.03	6.7	$0.08
2020	1.47	1.17	6.8	$0.08
2021	1.65	1.31	6.8	$0.08
2022	1.83	1.46	6.9	$0.08
2023	2.01	1.60	6.9	$0.08
2024	2.20	1.74	7.0	$0.08
2025	2.38	1.88	7.0	$0.09
2026	2.56	2.02	7.1	$0.09
2027	2.75	2.16	7.1	$0.09
2028	2.93	2.30	7.1	$0.09
2029	3.11	2.44	7.2	$0.09
2030	3.30	2.58	7.2	$0.09
2031	3.48	2.72	7.3	$0.09
2032	3.66	2.86	7.3	$0.09

Table D-1.35. Washington CHP Market Potential – Industrial Biomass

	Installed Capacity (MW)	Annual Energy (aMW)	Levelized Cost ($/kWh)
2013	0.12	0.11	$0.01
2014	0.24	0.21	$0.01
2015	0.36	0.32	$0.01
2016	0.48	0.43	$0.01
2017	0.60	0.53	$0.01
2018	0.71	0.64	$0.01
2019	0.83	0.74	$0.01
2020	0.95	0.85	$0.01
2021	1.07	0.95	$0.01
2022	1.19	1.05	$0.01
2023	1.31	1.16	$0.01
2024	1.43	1.26	$0.01
2025	1.55	1.36	$0.01
2026	1.67	1.46	$0.01
2027	1.79	1.56	$0.01
2028	1.91	1.66	$0.01
2029	2.02	1.76	$0.01
2030	2.14	1.87	$0.01
2031	2.26	1.96	$0.01
2032	2.38	2.06	$0.01

Table D-1.36. Washington CHP Market Potential – Biogas

	Installed Capacity (MW)	Annual Energy (aMW)	Levelized Cost ($/kWh)
2013	0.03	0.01	$0.07
2014	0.06	0.03	$0.07
2015	0.09	0.04	$0.07
2016	0.12	0.06	$0.07
2017	0.15	0.07	$0.07
2018	0.18	0.08	$0.07
2019	0.21	0.10	$0.07
2020	0.24	0.11	$0.07
2021	0.27	0.12	$0.07
2022	0.30	0.14	$0.07
2023	0.33	0.15	$0.07
2024	0.36	0.16	$0.07
2025	0.39	0.17	$0.07
2026	0.42	0.18	$0.07
2027	0.45	0.20	$0.07
2028	0.48	0.21	$0.07
2029	0.51	0.22	$0.07
2030	0.51	0.22	$0.07
2031	0.51	0.22	$0.07
2032	0.51	0.22	$0.07

Table D-1.37. Washington CHP Market Potential – Total

	Installed Capacity (MW)	Annual Energy (aMW)
2013	1.9	0.9
2014	3.8	1.9
2015	5.7	2.8
2016	7.6	3.8
2017	9.5	4.7
2018	11.4	5.6
2019	13.3	6.5
2020	15.2	7.4
2021	17.1	8.4
2022	19.0	9.3
2023	20.6	10.0
2024	22.3	10.8
2025	23.9	11.5
2026	25.5	12.3
2027	27.1	13.0
2028	28.7	13.7
2029	30.3	14.5
2030	31.9	15.2
2031	33.5	15.9
2032	35.1	16.6

Table D-1.38. Wyoming CHP Market Potential – Natural Gas – Reciprocating Engines

	Installed Capacity (MW)	Annual Energy (aMW)	Net Heat Rate (MMBtu/MWh)	Levelized Cost ($/kWh)
2013	0.89	0.36	4.7	$0.08
2014	1.78	0.71	4.7	$0.08
2015	2.66	1.06	4.7	$0.08
2016	3.55	1.41	4.7	$0.08
2017	4.44	1.76	4.8	$0.08
2018	5.33	2.11	4.8	$0.09
2019	6.22	2.46	4.8	$0.09
2020	7.11	2.80	4.9	$0.09
2021	7.99	3.15	4.9	$0.09
2022	8.88	3.49	4.9	$0.09
2023	9.77	3.83	5.0	$0.09
2024	10.66	4.17	5.0	$0.09
2025	11.55	4.51	5.0	$0.09
2026	12.44	4.85	5.1	$0.09
2027	13.32	5.18	5.1	$0.09
2028	14.21	5.52	5.1	$0.09
2029	15.10	5.85	5.2	$0.09
2030	15.99	6.18	5.2	$0.09
2031	16.88	6.51	5.2	$0.09
2032	17.76	6.84	5.3	$0.09

Table D-1.39. Wyoming CHP Market Potential – Natural Gas – Microturbines

	Installed Capacity (MW)	Annual Energy (aMW)	Net Heat Rate (MMBtu/MWh)	Levelized Cost ($/kWh)
2013	0.13	0.06	6.7	$0.12
2014	0.26	0.13	6.8	$0.12
2015	0.40	0.19	6.8	$0.12
2016	0.53	0.26	6.9	$0.12
2017	0.66	0.32	6.9	$0.12
2018	0.79	0.38	7.0	$0.12
2019	0.92	0.45	7.0	$0.12
2020	1.05	0.51	7.1	$0.13
2021	1.19	0.57	7.1	$0.13
2022	1.32	0.63	7.2	$0.13
2023	1.32	0.63	7.2	$0.13
2024	1.32	0.63	7.2	$0.13
2025	1.32	0.63	7.2	$0.13
2026	1.32	0.63	7.2	$0.13
2027	1.32	0.63	7.2	$0.14
2028	1.32	0.63	7.2	$0.14
2029	1.32	0.63	7.2	$0.14
2030	1.32	0.63	7.2	$0.14
2031	1.32	0.63	7.2	$0.14
2032	1.32	0.63	7.2	$0.14

Table D-1.40. Wyoming CHP Market Potential – Natural Gas – Fuel Cells

	Installed Capacity (MW)	Annual Energy (aMW)	Net Heat Rate (MMBtu/MWh)	Levelized Cost ($/kWh)
2013	0.06	0.04	6.0	$0.14
2014	0.12	0.09	6.0	$0.14
2015	0.18	0.13	6.0	$0.14
2016	0.24	0.17	6.1	$0.14
2017	0.30	0.21	6.1	$0.15
2018	0.36	0.26	6.2	$0.16
2019	0.42	0.30	6.2	$0.16
2020	0.48	0.34	6.2	$0.16
2021	0.54	0.38	6.3	$0.17
2022	0.61	0.42	6.3	$0.17
2023	0.61	0.42	6.3	$0.17
2024	0.61	0.42	6.3	$0.17
2025	0.61	0.42	6.3	$0.18
2026	0.61	0.42	6.3	$0.18
2027	0.61	0.42	6.3	$0.18
2028	0.61	0.42	6.3	$0.19
2029	0.61	0.42	6.3	$0.19
2030	0.61	0.42	6.3	$0.19
2031	0.61	0.42	6.3	$0.19
2032	0.61	0.42	6.3	$0.19

Table D-1.41. Wyoming CHP Market Potential – Natural Gas – Gas Turbines

	Installed Capacity (MW)	Annual Energy (aMW)	Net Heat Rate (MMBtu/MWh)	Levelized Cost ($/kWh)
2013	0.30	0.24	6.1	$0.06
2014	0.60	0.48	6.1	$0.06
2015	0.90	0.72	6.2	$0.07
2016	1.20	0.96	6.2	$0.07
2017	1.50	1.20	6.3	$0.07
2018	1.79	1.44	6.3	$0.07
2019	2.09	1.68	6.3	$0.07
2020	2.39	1.91	6.4	$0.07
2021	2.69	2.15	6.4	$0.07
2022	2.99	2.38	6.5	$0.07
2023	3.29	2.61	6.5	$0.07
2024	3.59	2.84	6.6	$0.07
2025	3.89	3.08	6.6	$0.07
2026	4.19	3.31	6.6	$0.07
2027	4.49	3.53	6.7	$0.07
2028	4.79	3.76	6.7	$0.07
2029	5.09	3.99	6.8	$0.08
2030	5.38	4.22	6.8	$0.08
2031	5.68	4.44	6.9	$0.08
2032	5.98	4.67	6.9	$0.08

Table D-1.42. Wyoming CHP Market Potential – Industrial Biomass

	Installed Capacity (MW)	Annual Energy (aMW)	Levelized Cost ($/kWh)
2013	0.02	0.02	$0.01
2014	0.05	0.04	$0.01
2015	0.07	0.06	$0.01
2016	0.10	0.09	$0.01
2017	0.12	0.11	$0.01
2018	0.14	0.13	$0.01
2019	0.17	0.15	$0.01
2020	0.19	0.17	$0.01
2021	0.22	0.19	$0.01
2022	0.24	0.21	$0.01
2023	0.26	0.23	$0.01
2024	0.29	0.25	$0.01
2025	0.31	0.27	$0.01
2026	0.34	0.29	$0.01
2027	0.36	0.31	$0.01
2028	0.38	0.33	$0.01
2029	0.41	0.35	$0.01
2030	0.43	0.37	$0.01
2031	0.45	0.39	$0.01
2032	0.48	0.41	$0.01

Table D-1.43. Wyoming CHP Market Potential – Biogas

	Installed Capacity (MW)	Annual Energy (aMW)	Levelized Cost ($/kWh)
2013	0.16	0.08	$0.07
2014	0.33	0.15	$0.07
2015	0.49	0.22	$0.07
2016	0.65	0.30	$0.07
2017	0.82	0.37	$0.07
2018	0.98	0.45	$0.07
2019	1.14	0.52	$0.07
2020	1.31	0.59	$0.07
2021	1.47	0.66	$0.07
2022	1.63	0.74	$0.07
2023	1.80	0.80	$0.07
2024	1.96	0.87	$0.07
2025	2.12	0.93	$0.07
2026	2.29	1.00	$0.07
2027	2.45	1.06	$0.07
2028	2.61	1.13	$0.07
2029	2.78	1.19	$0.07
2030	2.78	1.19	$0.07
2031	2.78	1.19	$0.07
2032	2.78	1.19	$0.07

Table D-1.44. Wyoming CHP Market Potential – Total

	Installed Capacity (MW)	Annual Energy (aMW)
2013	1.6	0.8
2014	3.1	1.6
2015	4.7	2.4
2016	6.3	3.2
2017	7.8	4.0
2018	9.4	4.8
2019	11.0	5.5
2020	12.5	6.3
2021	14.1	7.1
2022	15.7	7.9
2023	17.0	8.5
2024	18.4	9.2
2025	19.8	9.8
2026	21.2	10.5
2027	22.5	11.1
2028	23.9	11.8
2029	25.3	12.4
2030	26.5	13.0
2031	27.7	13.6
2032	28.9	14.2

Table D-1.45. Landfills in PacifiCorp Service Area[1]

Landfill Name	Landfill City	Landfill County	State	Waste In Place (tons)	Landfill Opened	Landfill Closure	Project Status	LFGE Project Type	MW Capacity
Alturas SLF	Alturas	Modoc	CA	33,872		2028	Potential		
Cecilville Disposal Site	Cecilville	Siskiyou	CA	10,000		1994	Potential		
Cedarville LF - East	Cedarville	Modoc	CA	10,000		1993	Potential		
Crescent City SLF	Crescent City	Del Norte	CA	482,866	1977	2006	Potential		
Fort Bidwell LF	Fort Bidwell	Modoc	CA	10,000		1993	Potential		
Happy Camp Solid Waste Disposal site	Happy Camp	Siskiyou	CA	10,000		1996	Potential		
Intermountain Landfill, Inc.	Hat Creek	Shasta	CA	40,500		1993	Potential		
McCloud Community Services District LF	McCloud	Siskiyou	CA	50,000		1995	Potential		
Black Butte Solid Waste Disposal Site	Mount Shasta	Siskiyou	CA	150,000		2003	Potential		
Lava Beds Disposal Site	Tulelake	Siskiyou	CA	10,000		1995	Potential		
Tulelake SLF	Tulelake	Siskiyou	CA	75,000		2001	Potential		
Weed Solid Waste Disposal Site	Weed	Siskiyou	CA	25,000		1995	Potential		
Yreka Solid Waste LF	Yreka	Siskiyou	CA	200,000		2109	Potential		
Bingham County Landfill-Ridge Road	Blackfoot	Bingham	ID		1987	2002	Potential		
Bonneville County Landfill	Idaho Falls	Bonneville	ID		1993		Potential		
Montpelier Canyon Landfill	Montpelier	Bear Lake	ID		1973	2042	Potential		
Bingham County / Fielding / Goshen Landfill	Shelley	Bingham	ID			2000	Potential		
St. Anthony Landfill	St Anthony	Fremont	ID	75,000	1965		Potential		
Circular Butte Sanitary LF	Terreton	Jefferson	ID		1995	2031	Potential		
Franklin County Sanitary Landfill	Preston	Franklin	ID		1968	2007	Candidate		
Dry Creek Landfill	Eagle Point	Jackson	OR	2,000,000	1997	2138	Operational	Recip. Engine	3.2
Finley Buttes Regional Landfill	Boardman	Morrow	OR	4,000,000	1990	2242	Operational	Cogeneration	3.2
Coffin Butte LF	Corvallis	Benton	OR	4,500,000	1978	2053	Operational	Recip. Engine	2.4
Roseburg LF	Roseburg	Douglas	OR	1,600,000	1935	2020	Operational	Recip. Engine	1.8
Klamath Falls LF	Klamath Falls	Klamath	OR	1,000,000	1911	2001	Potential		

[1] Landfill Methane Outreach Program (LMOP), U.S. Environmental Protection Agency, http://www.epa.gov/lmop/documents/xls/lmopdata.xls

Landfills in PacifiCorp Service Area (continued)

Landfill Name	Landfill City	Landfill County	State	Waste In Place (tons)	Landfill Opened	Landfill Closure	Project Status	LFGE Project Type	MW Capacity
Milton-Freewater LF	Milton-Freewater	Umatilla	OR	125,000	1972	2030	Potential		
Pendleton LF		Umatilla	OR	500,000	1972	1997	Potential		
Northern Wasco County LF	The Dalles	Wasco	OR	1,600,000	1972	2107	Candidate		
Davis County Landfill	Layton	Davis	UT	4,309,000	1952	2030	Operational	Recip. Engine	1.1
Weber County LF	Ogden	Weber	UT	3,500,000	1966	1996	Operational	Recip. Engine	1.0
Salt Lake Valley LF	Salt Lake	Salt Lake	UT	11,000,000	1982	2067	Operational	Recip. Engine	3.2
Trans-Jordan LF	South Jordan	Salt Lake	UT	7,272,671	1958	2031	Operational	Recip. Engine	4.8
Blanding LF	Blanding	San Juan	UT	50,780	1956	1995	Potential		
San Juan County/Bluff LF	Bluff	San Juan	UT	1,600	1980	1995	Potential		
Brigham City LF	Brigham	Box Elder	UT	693,000	1960	1995	Potential		
Emery County LF	Castle Dale	Emery	UT	212,184	1983	2024	Potential		
Summit County/Three Mile Canyon LF	Coalville	Summit	UT	358,896	1986	2026	Potential		
Millard County LF	Delta	Millard	UT	67,650	1986	2034	Potential		
Sevier County/Sage Flat LF	Glenwood	Sevier	UT	70,200	1993	2024	Potential		
Green River LF	Green River	Emery	UT	79,205	1965	1995	Potential		
San Juan County/Halls Crossing LF	Halls Crossing	San Juan	UT	9,464	1970	1995	Potential		
Rich County LF	Laketown	Rich	UT	40,688	1981	2030	Potential		
San Juan County/Mexican Hat LF	Mexican Hat	San Juan	UT	1,600	1980	1995	Potential		
Grand County LF	Moab	Grand	UT	76,300	1960	2004	Potential		
City of Monticello LF	Monticello	San Juan	UT	36,000	1960	1995	Potential		
Nephi LF	Nephi	Juab	UT	18,300	1987	2044	Potential		
Payson City LF	Payson	Utah	UT	616,029	1950	2014	Potential		
Carbon County LF	Price	Carbon	UT	280,000	1956	1995	Potential		
Provo LF	Provo	Utah	UT	1,131,000	1963	1991	Potential		
Santaquin County LF	Santaquin	Utah	UT	262,080	1900	1995	Potential		
White Hills Class I LF	Spring City	Sanpete	UT	108,396	1989	2066	Potential		

Landfills in PacifiCorp Service Area (continued)

Landfill Name	Landfill City	Landfill County	State	Waste In Place (tons)	Landfill Opened	Landfill Closure	Project Status	LFGE Project Type	MW Capacity
Tooele Army Depot LF #2	Tooele	Tooele	UT			1995	Potential		
Tremonton LF	Tremonton	Box Elder	UT	184,600	1970	1995	Potential		
Utah County SWSSD LF		Utah	UT	1,707,965	1964	1993	Potential		
Beaver County LF	Beaver	Beaver	UT	107,648	1968	2026	Potential		
Iron County/ Armstrong Pit LF	Cedar City	Iron	UT	44,962	1993	2014	Potential		
Snowville LF	Snowville	Box Elder	UT	8,100	1970	1997	Potential		
ECDC	East Carbon	Carbon	UT		1992	2010	Candidate		
South Utah County SSD/Bayview LF	Elberta	Utah	UT	1,100,000	1991	2106	Candidate		
City of Logan Sanitary Landfill	Logan	Cache	UT	1,400,000	1961	2022	Candidate		
Wasatch Regional Landfill	North Skull Valley	Tooele	UT			2015	Candidate		
Bountiful City Sanitary LF	Woods Cross	Davis	UT	2,171,531	1962	2050	Candidate		
Uintah County/Vernal City LF	Vernal	Uintah	UT	2,773,000	1950	2008	Candidate		
Washington County Landfill	Washington	Washington	UT	1,292,000	1978	2058	Candidate		
Yakima Firing Center	Yakima	Yakima	WA				Potential		
Sudbury Road LF	Walla Walla	Walla Walla	WA	1,102,317	1972	2007	Candidate		
Terrace Heights LF	Yakima	Yakima	WA	3,727,219	1974	2020	Candidate		
Cheyne Road LF	Zillah	Yakima	WA	1,198,976	1968	2040	Candidate		
City of Casper Regional Solid Waste Facility	Casper	Natrona	WY	3,438,356	1978	2040	Potential		

Table D-1.46. CHP-Eligible Farms in PacifiCorp States[2]

Farm Type	Herd Size	California	Idaho	Oregon	Utah	Washington	Wyoming
Dairy	500 to 999	681	230	196	112	135	240
	1,000 to 2,499	498	113	71	30	58	84
	2,500 or more	181	59	12	6	14	10
Swine	2,000 to 4,999	1	0	0	2	3	0
	5,000 or more	5	1	0	16	0	3

Table D-1.47. CHP-Eligible Wastewater Treatment Facilities in PacifiCorp States[3]

	California	Idaho	Oregon	Utah	Washington	Wyoming
Number of Facilities	63	7	13	0	9	1
Potential Electric Capacity (kW)	50,196	1,513	4,305	0	10,044	122

Table D-1.48. New CHP Installations in PacifiCorp Service Area – 2008-2011[4]

State	City	Facility Name	Application	Year	Prime Mover	Capacity (kW)	Fuel Type
CA	Weed	Roseburg Forest Products	Wood Products	2011	Steam Turbine	10,000	Wood
OR	Cave Junction	Rough & Ready Lumber	Wood Products	2008	Steam Turbine	1,500	Wood
OR	Corvallis	Oregon State University	Colleges/Univ.	2009	Gas Turbine	9,000	Natural Gas
OR	Eugene	Seneca Sawmill	Wood Products	2011	Steam Turbine	18,800	Wood
UT	Magna	Kennecott Utah Copper Refinery	Primary Metals	2010	Gas Turbine	6,000	Natural Gas
UT	Salt Lake City	University of Utah	Colleges/Univ.	2008	Gas Turbine	4,600	Natural Gas
WY	Riverton	Amoco Oil Co.	Energy Management Services	2008	Steam Turbine	350	Waste
Total						*50,250*	

[2] Census of Agriculture, U.S. Department of Agriculture, http://www.agcensus.usda.gov/Publications/2007/Full_Report/Volume_1,_Chapter_1_State_Level/

[3] Biomass Combined Heat and Power Catalog of Technologies, U.S. Environmental Protection Agency, page 19, http://www.epa.gov/chp/documents/biomass_chp_catalog.pdf

[4] Data from PacifiCorp and Combined Heat and Power Installation Database, ICF International, http://www.eea-inc.com/chpdata/