Appendix D

Affordable Power Measures Technical Details

Affordable Power Measures Technical Details

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Affordable Power Measure No. 1: Development of Solar PV Generating Facilities (Alternatives 1, 2 & 3)

Technical Documentation

USBR/Klamath Project - AWIA Power Cost Benchmark Analysis

APM No. 1/Alternative 1 - Small Scale Solar PV Installation Costs for Upper Klamath Basin Oregon Irrigation/Drainage Customers

System Parameters	Reference Case
System Size (DC KW)	46.55
System Losses (%)	14.08
System Size (AC KW)	40.00
Annual Average Generation (Kwh)	70,464
Annual Average Capacity Factor (%)	20.11
Gross Cost of System ($/KW AC)	3,520
Gross Cost of System ($)	140,800
Energy Trust of Oregon Incentive ($/KW DC)	80
Energy Trust of Oregon Incentive ($)	(3,200)
System Cost After Energy Trust Credit	137,600
Federal Investment Tax Credit @ 26%	(35,776)
Net Cost of System after Incentives ($)	101,824
Net Cost of System after Incentives ($/KW)	2,546

USBR/Klamath Project - AWIA Power Cost Benchmark Analysis

APM No. 1/Alternative 1 - Small Scale Solar PV Installation Costs for Upper Klamath Basin California Irrigation/Drainage Customers

System Parameters	Reference Case
System Size (DC KW)	46.55
System Losses (%)	14.08
System Size (AC KW)	40.00
Annual Average Generation (Kwh)	70,464
Annual Average Capacity Factor (%)	20.11
Gross Cost of System ($/KW AC)	3,520
Gross Cost of System ($)	140,800
Energy Trust of Oregon Incentive ($/KW DC)	0
Energy Trust of Oregon Incentive ($)	0
System Cost After Energy Trust Credit	140,800
Federal Investment Tax Credit @ 26%	(36,608)
Net Cost of System after Incentives ($)	104,192
Net Cost of System after Incentives ($/KW)	2,605

USBR/Klamath Project - AWIA Power Cost Benchmark Analysis

APM No. 1/Alternative 1 - Small-Scale Solar PV Installation Average Monthly Generation

Month	Reference Case (Kwh)
Jan	3,582
Feb	3,984
Mar	5,870
Apr	6,786
May	7,528
Jun	7,953
Jul	8,338
Aug	7,891
Sep	6,739
Oct	5,472
Nov	3,369
Dec	2,952
Total	**70,464**

USBR/Klamath Project - AWIA Power Cost Benchmark Analysis

APM No. 1/Alternative 1 - Small-Scale Solar PV Installation Average Monthly Generation
Input Parameters and Output Datasets from the NREL PVWatts Model

PVWatts: Monthly PV Performance Data
Requested Location: 135 Commercial Street Klamath Falls OR

Location:	Lat, Lon: 42.21, -121.78
Lat (deg N):	42.21
Long (deg W):	121.78
Elev (m):	1273.16
DC System Size (kW):	46.55
Module Type:	Standard
Array Type:	Fixed (open rack)
Array Tilt (deg):	20
Array Azimuth (deg):	180
System Losses:	14.08
Invert Efficiency:	96
DC to AC Size Ratio:	1.2

Month	AC System Output(kWh)	Solar Radiation (kWh/m^2/day)	Plane of Array Irradiance (W/m^2)	DC array Output (kWh)
1	3,582	3.011	93.34	3,745
2	3,984	3.713	103.97	4,164
3	5,870	5.150	159.64	6,126
4	6,786	6.038	181.15	7,093
5	7,528	6.821	211.44	7,857
6	7,953	7.812	234.37	8,298
7	8,338	8.236	255.31	8,696
8	7,891	7.656	237.34	8,229
9	6,739	6.570	197.11	7,024
10	5,472	4.941	153.16	5,707
11	3,368	2.942	88.26	3,527
12	2,952	2.489	77.15	3,093
Total	70,464	65.379	1,992.25	73,559

USBR/Klamath Project - AWIA Power Cost Benchmark Analysis

APM No. 1/Alternative 1 - Small-Scale Solar PV Installation 25-Year Levelized Cost of Energy Calculation
Low Case, Oregon Customers

Input Assumptions

Project Size (KW DC)	46.55
Project Size (KW AC)	40.00
Year 1 Annual Generation (Kwh)	70,464
Initial Capital Cost ($/KW AC)	2,546
Annual O&M Costs ($/KW AC)	0
Annual O&M Escalation Factor (%)	0.00%
Annual Panel Efficiency Loss (%)	0.25%
Annual Discount Rate (%)	1.00%

Output

25-Year Levelized Cost of Power (Cents/Kwh)	**6.763**

Year	Initial Investment Cost ($)	Capital Recovery Factor	Capital Recovery ($)	Annual O&M Costs ($) ($)	Total Annual Generation (Kwh)	Levelized Annual Cost ($)
0	101,824					
1		0.0454	4,623	0	70,464	6.562
2		0.0454	4,623	0	70,288	6.578
3		0.0454	4,623	0	70,112	6.594
4		0.0454	4,623	0	69,937	6.611
5		0.0454	4,623	0	69,762	6.628
6		0.0454	4,623	0	69,587	6.644
7		0.0454	4,623	0	69,413	6.661
8		0.0454	4,623	0	69,240	6.678
9		0.0454	4,623	0	69,067	6.694
10		0.0454	4,623	0	68,894	6.711
11		0.0454	4,623	0	68,722	6.728
12		0.0454	4,623	0	68,550	6.745
13		0.0454	4,623	0	68,379	6.762
14		0.0454	4,623	0	68,208	6.779
15		0.0454	4,623	0	68,037	6.796
16		0.0454	4,623	0	67,867	6.813
17		0.0454	4,623	0	67,697	6.830
18		0.0454	4,623	0	67,528	6.847
19		0.0454	4,623	0	67,359	6.864
20		0.0454	4,623	0	67,191	6.881
21		0.0454	4,623	0	67,023	6.898
22		0.0454	4,623	0	66,855	6.916
23		0.0454	4,623	0	66,688	6.933
24		0.0454	4,623	0	66,522	6.950
25		0.0454	4,623	0	66,355	6.968

USBR/Klamath Project - AWIA Power Cost Benchmark Analysis

APM No. 1/Alternative 1 - Small-Scale Solar PV Installation 25-Year Levelized Cost of Energy Calculation
High Case, Oregon Customers

Input Assumptions

Project Size (KW DC)	46.55
Project Size (KW AC)	40.00
Year 1 Annual Generation (Kwh)	70,464
Initial Capital Cost ($/KW AC)	2,546
Annual O&M Costs ($/KW AC)	0
Annual O&M Escalation Factor (%)	0.00%
Annual Panel Efficiency Loss (%)	0.50%
Annual Discount Rate (%)	3.00%

Output

25-Year Levelized Cost of Power (Cents/Kwh)	**8.819**

Year	Initial Investment Cost ($)	Capital Recovery Factor	Capital Recovery ($)	Annual O&M Costs ($) ($)	Total Annual Generation (Kwh)	Levelized Annual Cost ($)
0	101,824					
1		0.0574	5,848	0	70,464	8.299
2		0.0574	5,848	0	70,111	8.340
3		0.0574	5,848	0	69,761	8.382
4		0.0574	5,848	0	69,412	8.424
5		0.0574	5,848	0	69,065	8.467
6		0.0574	5,848	0	68,720	8.509
7		0.0574	5,848	0	68,376	8.552
8		0.0574	5,848	0	68,034	8.595
9		0.0574	5,848	0	67,694	8.638
10		0.0574	5,848	0	67,356	8.682
11		0.0574	5,848	0	67,019	8.725
12		0.0574	5,848	0	66,684	8.769
13		0.0574	5,848	0	66,350	8.813
14		0.0574	5,848	0	66,018	8.857
15		0.0574	5,848	0	65,688	8.902
16		0.0574	5,848	0	65,360	8.947
17		0.0574	5,848	0	65,033	8.992
18		0.0574	5,848	0	64,708	9.037
19		0.0574	5,848	0	64,384	9.082
20		0.0574	5,848	0	64,063	9.128
21		0.0574	5,848	0	63,742	9.174
22		0.0574	5,848	0	63,423	9.220
23		0.0574	5,848	0	63,106	9.266
24		0.0574	5,848	0	62,791	9.313
25		0.0574	5,848	0	62,477	9.360

USBR/Klamath Project - AWIA Power Cost Benchmark Analysis

APM No. 1/Alternative 1 - Small-Scale Solar PV Installation 25-Year Levelized Cost of Energy Calculation
Low Case, California Customers

Input Assumptions

Project Size (KW DC)	46.55
Project Size (KW AC)	40.00
Year 1 Annual Generation (Kwh)	70,464
Initial Capital Cost ($/KW AC)	2,605
Annual O&M Costs ($/KW AC)	0
Annual O&M Escalation Factor (%)	0.00%
Annual Panel Efficiency Loss (%)	0.25%
Annual Discount Rate (%)	1.00%

Output

25-Year Levelized Cost of Power (Cents/Kwh)	**6.920**

Year	Initial Investment Cost ($)	Capital Recovery Factor	Capital Recovery ($)	Annual O&M Costs ($) ($)	Total Annual Generation (Kwh)	Levelized Annual Cost ($)
0	104,192					
1		0.0454	4,731	0	70,464	6.714
2		0.0454	4,731	0	70,288	6.731
3		0.0454	4,731	0	70,112	6.748
4		0.0454	4,731	0	69,937	6.765
5		0.0454	4,731	0	69,762	6.782
6		0.0454	4,731	0	69,587	6.799
7		0.0454	4,731	0	69,413	6.816
8		0.0454	4,731	0	69,240	6.833
9		0.0454	4,731	0	69,067	6.850
10		0.0454	4,731	0	68,894	6.867
11		0.0454	4,731	0	68,722	6.884
12		0.0454	4,731	0	68,550	6.902
13		0.0454	4,731	0	68,379	6.919
14		0.0454	4,731	0	68,208	6.936
15		0.0454	4,731	0	68,037	6.954
16		0.0454	4,731	0	67,867	6.971
17		0.0454	4,731	0	67,697	6.988
18		0.0454	4,731	0	67,528	7.006
19		0.0454	4,731	0	67,359	7.024
20		0.0454	4,731	0	67,191	7.041
21		0.0454	4,731	0	67,023	7.059
22		0.0454	4,731	0	66,855	7.076
23		0.0454	4,731	0	66,688	7.094
24		0.0454	4,731	0	66,522	7.112
25		0.0454	4,731	0	66,355	7.130

USBR/Klamath Project - AWIA Power Cost Benchmark Analysis

APM No. 1/Alternative 1 - Small-Scale Solar PV Installation 25-Year Levelized Cost of Energy Calculation
High Case, California Customers

Input Assumptions

Project Size (KW DC)	46.55
Project Size (KW AC)	40.00
Year 1 Annual Generation (Kwh)	70,464
Initial Capital Cost ($/KW AC)	2,605
Annual O&M Costs ($/KW AC)	0
Annual O&M Escalation Factor (%)	0.00%
Annual Panel Efficiency Loss (%)	0.50%
Annual Discount Rate (%)	3.00%

Output

25-Year Levelized Cost of Power (Cents/Kwh)	**9.024**

Year	Initial Investment Cost ($)	Capital Recovery Factor	Capital Recovery ($)	Annual O&M Costs ($) ($)	Total Annual Generation (Kwh)	Levelized Annual Cost ($)
0	104,192					
1		0.0574	5,984	0	70,464	8.492
2		0.0574	5,984	0	70,111	8.534
3		0.0574	5,984	0	69,761	8.577
4		0.0574	5,984	0	69,412	8.620
5		0.0574	5,984	0	69,065	8.664
6		0.0574	5,984	0	68,720	8.707
7		0.0574	5,984	0	68,376	8.751
8		0.0574	5,984	0	68,034	8.795
9		0.0574	5,984	0	67,694	8.839
10		0.0574	5,984	0	67,356	8.883
11		0.0574	5,984	0	67,019	8.928
12		0.0574	5,984	0	66,684	8.973
13		0.0574	5,984	0	66,350	9.018
14		0.0574	5,984	0	66,018	9.063
15		0.0574	5,984	0	65,688	9.109
16		0.0574	5,984	0	65,360	9.155
17		0.0574	5,984	0	65,033	9.201
18		0.0574	5,984	0	64,708	9.247
19		0.0574	5,984	0	64,384	9.293
20		0.0574	5,984	0	64,063	9.340
21		0.0574	5,984	0	63,742	9.387
22		0.0574	5,984	0	63,423	9.434
23		0.0574	5,984	0	63,106	9.482
24		0.0574	5,984	0	62,791	9.529
25		0.0574	5,984	0	62,477	9.577

USBR/Klamath Project - AWIA Power Cost Benchmark Analysis

APM No. 1/Alternative 2 - Shared/Community Solar PV Installation Costs

System Parameters	Reference Case
System Size (DC KW)	2,328
System Losses (%)	14.08
System Size (AC KW)	2,000
Annual Average Generation (Kwh)	4,200,262
Annual Average Capacity Factor (%)	23.97
Gross Cost of System ($/KW AC)	2,110
Gross Cost of System ($)	4,220,000
Energy Trust of Oregon Incentive ($/KW DC)	80
Energy Trust of Oregon Incentive ($)	(160,000)
System Cost After Energy Trust Credit	4,060,000
Federal Investment Tax Credit @ 26%	(1,055,600)
Net Cost of System after Incentives ($)	3,004,400
Net Cost of System after Incentives ($/KW)	1,502

USBR/Klamath Project - AWIA Power Cost Benchmark Analysis

APM No. 1/Alternative 2 - Shared/Community Solar PV Installation Average Monthly Generation

Month	Reference Case (Kwh)
Jan	162,625
Feb	194,416
Mar	329,213
Apr	404,192
May	480,922
Jun	545,864
Jul	581,902
Aug	515,915
Sep	408,748
Oct	291,157
Nov	157,592
Dec	127,717
Total	**4,200,262**

USBR/Klamath Project - AWIA Power Cost Benchmark Analysis

APM No. 1/Alternative 2 - Shared/Community Solar PV Installation Average Monthly Generation

Input Parameters and Output Datasets from the NREL PVWatts Model

PVWatts: Monthly PV Performance Data

Requested Location: 135 Commercial Street Klamath Falls OR

Location:	Lat, Lon: 42.21, -121.78
Lat (deg N):	42.21
Long (deg W):	121.78
Elev (m):	1273.16
DC System Size (kW):	2,000
Module Type:	Premium
Array Type:	1-Axis Tracking
Array Tilt (deg):	0
Array Azimuth (deg):	180
System Losses:	14.08
Invert Efficiency:	96
DC to AC Size Ratio:	1.2
Ground Coverage Ratio:	0.4

Month	AC System Output(kWh)	Solar Radiation (kWh/m^2/day)	Plane of Array Irradiance (W/m^2)	DC array Output (kWh)
1	162,625	2.715	84.18	170,148
2	194,416	3.585	100.37	203,176
3	329,213	5.643	174.94	343,118
4	404,192	7.086	212.59	421,285
5	480,922	8.500	263.50	501,096
6	545,864	10.314	309.43	568,525
7	581,902	10.910	338.22	605,759
8	515,915	9.536	295.63	537,161
9	408,748	7.610	228.31	425,406
10	291,157	5.085	157.64	303,306
11	157,592	2.725	81.75	165,088
12	127,717	2.149	66.61	134,018
Total	4,200,261	75.860	2,313.16	4,378,087

USBR/Klamath Project - AWIA Power Cost Benchmark Analysis

APM No. 1/Alternative 2 - Shared/Community Solar PV Installation 25-Year Levelized Cost of Energy Calculation

Low Case

Input Assumptions

Project Size (KW DC)	2,328
Project Size (KW AC)	2,000
Year 1 Annual Generation (Kwh)	4,200,262
Initial Capital Cost ($/KW AC)	1,502
Annual O&M Costs ($/KW AC)	13.60
Annual O&M Escalation Factor (%)	1.00%
Annual Panel Efficiency Loss (%)	0.25%
Annual Discount Rate (%)	1.00%

Output

25-Year Levelized Cost of Power (Cents/Kwh)	**4.102**

Year	Initial Investment Cost ($)	Capital Recovery Factor	Capital Recovery ($)	Annual O&M Costs ($) ($)	Total Annual Generation (Kwh)	Levelized Annual Cost ($)
0	3,004,400					
1		0.0454	136,420	27,200	4,200,262	3.895
2		0.0454	136,420	27,472	4,189,761	3.912
3		0.0454	136,420	27,747	4,179,286	3.928
4		0.0454	136,420	28,024	4,168,838	3.945
5		0.0454	136,420	28,304	4,158,416	3.961
6		0.0454	136,420	28,587	4,148,020	3.978
7		0.0454	136,420	28,873	4,137,650	3.995
8		0.0454	136,420	29,162	4,127,306	4.012
9		0.0454	136,420	29,454	4,116,988	4.029
10		0.0454	136,420	29,748	4,106,695	4.046
11		0.0454	136,420	30,046	4,096,428	4.064
12		0.0454	136,420	30,346	4,086,187	4.081
13		0.0454	136,420	30,650	4,075,972	4.099
14		0.0454	136,420	30,956	4,065,782	4.117
15		0.0454	136,420	31,266	4,055,618	4.135
16		0.0454	136,420	31,578	4,045,478	4.153
17		0.0454	136,420	31,894	4,035,365	4.171
18		0.0454	136,420	32,213	4,025,276	4.189
19		0.0454	136,420	32,535	4,015,213	4.208
20		0.0454	136,420	32,861	4,005,175	4.227
21		0.0454	136,420	33,189	3,995,162	4.245
22		0.0454	136,420	33,521	3,985,174	4.264
23		0.0454	136,420	33,856	3,975,211	4.283
24		0.0454	136,420	34,195	3,965,273	4.303
25		0.0454	136,420	34,537	3,955,360	4.322

USBR/Klamath Project - AWIA Power Cost Benchmark Analysis

APM No. 1/Alternative 2 - Shared/Community Solar PV Installation 25-Year Levelized Cost of Energy Calculation

High Case

Input Assumptions

Project Size (KW DC)	2,328
Project Size (KW AC)	2,000
Year 1 Annual Generation (Kwh)	4,200,262
Initial Capital Cost ($/KW AC)	1,502
Annual O&M Costs ($/KW AC)	13.60
Annual O&M Escalation Factor (%)	2.00%
Annual Panel Efficiency Loss (%)	0.50%
Annual Discount Rate (%)	3.00%

Output

25-Year Levelized Cost of Power (Cents/Kwh)	**5.252**

Year	Initial Investment Cost ($)	Capital Recovery Factor	Capital Recovery ($)	Annual O&M Costs ($) ($)	Total Annual Generation (Kwh)	Levelized Annual Cost ($)
0	3,004,400					
1		0.0574	172,536	27,200	4,200,262	4.755
2		0.0574	172,536	27,744	4,179,260	4.792
3		0.0574	172,536	28,299	4,158,364	4.830
4		0.0574	172,536	28,865	4,137,572	4.868
5		0.0574	172,536	29,442	4,116,884	4.906
6		0.0574	172,536	30,031	4,096,300	4.945
7		0.0574	172,536	30,632	4,075,818	4.985
8		0.0574	172,536	31,244	4,055,439	5.025
9		0.0574	172,536	31,869	4,035,162	5.066
10		0.0574	172,536	32,507	4,014,986	5.107
11		0.0574	172,536	33,157	3,994,911	5.149
12		0.0574	172,536	33,820	3,974,937	5.191
13		0.0574	172,536	34,496	3,955,062	5.235
14		0.0574	172,536	35,186	3,935,287	5.278
15		0.0574	172,536	35,890	3,915,610	5.323
16		0.0574	172,536	36,608	3,896,032	5.368
17		0.0574	172,536	37,340	3,876,552	5.414
18		0.0574	172,536	38,087	3,857,169	5.461
19		0.0574	172,536	38,848	3,837,883	5.508
20		0.0574	172,536	39,625	3,818,694	5.556
21		0.0574	172,536	40,418	3,799,601	5.605
22		0.0574	172,536	41,226	3,780,603	5.654
23		0.0574	172,536	42,051	3,761,700	5.705
24		0.0574	172,536	42,892	3,742,891	5.756
25		0.0574	172,536	43,749	3,724,177	5.808

USBR/Klamath Project - AWIA Power Cost Benchmark Analysis

APM No. 1/Alternative 3 - Large Scale Solar PV Installation Costs

System Parameters	Reference Case
System Size (DC KW)	116,387
System Losses (%)	14.08
System Size (AC KW)	100,000
Annual Average Generation (Kwh)	259,861,218
Annual Average Capacity Factor (%)	29.66
Gross Cost of System ($/KW AC)	1,210
Gross Cost of System ($)	121,000,000
Energy Trust of Oregon Incentive ($/KW DC)	0
Energy Trust of Oregon Incentive ($)	0
System Cost After Energy Trust Credit	121,000,000
Federal Investment Tax Credit @ 26%	(31,460,000)
Net Cost of System after Incentives ($)	89,540,000
Net Cost of System after Incentives ($/KW)	895

USBR/Klamath Project - AWIA Power Cost Benchmark Analysis

APM No. 1/Alternative 3 - Large Solar PV Installation Average Monthly Generation

Month	Reference Case (Kwh)
Jan	13,770,869
Feb	14,049,594
Mar	20,715,972
Apr	22,802,106
May	26,344,862
Jun	29,900,892
Jul	32,414,366
Aug	29,567,820
Sep	25,534,610
Oct	20,576,886
Nov	12,630,877
Dec	11,552,364
Total	**259,861,218**

USBR/Klamath Project - AWIA Power Cost Benchmark Analysis

APM No. 1/Alternative 3 - Large Solar PV Installation Average Monthly Generation
Input Parameters and Output Datasets from the NREL PVWatts Model

PVWatts: Monthly PV Performance Data
Requested Location: 135 Commercial Street Klamath Falls OR

Location:	Lat, Lon: 42.21, -121.78
Lat (deg N):	42.21
Long (deg W):	121.78
Elev (m):	1273.16
DC System Size (kW):	116,387
Module Type:	Premium
Array Type:	2-Axis Tracking
Array Tilt (deg):	0
Array Azimuth (deg):	180
System Losses:	14.08
Invert Efficiency:	96
DC to AC Size Ratio:	1.2

Month	AC System Output(kWh)	Solar Radiation (kWh/m^2/day)	Plane of Array Irradiance (W/m^2)	DC array Output (kWh)
1	13,770,869	4.726	146.52	14,478,087
2	14,049,594	5.374	150.48	14,859,906
3	20,715,972	7.271	225.39	21,684,768
4	22,802,106	8.161	244.84	24,032,388
5	26,344,862	9.377	290.68	27,498,202
6	29,900,892	11.340	340.20	31,134,304
7	32,414,366	12.201	378.23	33,733,764
8	29,567,820	11.021	341.65	30,782,124
9	25,534,610	9.677	290.30	26,612,420
10	20,576,886	7.360	228.17	21,433,068
11	12,630,877	4.459	133.78	13,207,412
12	11,552,364	3.972	123.12	12,106,410
Total	259,861,218	94.939	2,893.35	271,562,853

USBR/Klamath Project - AWIA Power Cost Benchmark Analysis

APM No. 1/Alternative 3 - Large Solar PV Installation 25-Year Levelized Cost of Energy Calculation

Low Case

Input Assumptions

Project Size (KW DC)	116,387
Project Size (KW AC)	100,000
Year 1 Annual Generation (Kwh)	259,861,218
Initial Capital Cost ($/KW AC)	895
Annual O&M Costs ($/KW AC)	27.19
Annual O&M Escalation Factor (%)	1.00%
Annual Panel Efficiency Loss (%)	0.25%
Annual Discount Rate (%)	1.00%

Output

25-Year Levelized Cost of Power (Cents/Kwh)	**2.832**

Year	Initial Investment Cost ($)	Capital Recovery Factor	Capital Recovery ($)	Annual O&M Costs ($) ($)	Total Annual Generation (Kwh)	Levelized Annual Cost ($)
0	89,540,000					
1		0.0454	4,065,721	2,719,000	259,861,218	2.611
2		0.0454	4,065,721	2,746,190	259,211,565	2.628
3		0.0454	4,065,721	2,773,652	258,563,536	2.645
4		0.0454	4,065,721	2,801,388	257,917,127	2.663
5		0.0454	4,065,721	2,829,402	257,272,334	2.680
6		0.0454	4,065,721	2,857,696	256,629,154	2.698
7		0.0454	4,065,721	2,886,273	255,987,581	2.716
8		0.0454	4,065,721	2,915,136	255,347,612	2.734
9		0.0454	4,065,721	2,944,287	254,709,243	2.752
10		0.0454	4,065,721	2,973,730	254,072,470	2.771
11		0.0454	4,065,721	3,003,468	253,437,288	2.789
12		0.0454	4,065,721	3,033,502	252,803,695	2.808
13		0.0454	4,065,721	3,063,837	252,171,686	2.827
14		0.0454	4,065,721	3,094,476	251,541,257	2.847
15		0.0454	4,065,721	3,125,420	250,912,404	2.866
16		0.0454	4,065,721	3,156,675	250,285,123	2.886
17		0.0454	4,065,721	3,188,241	249,659,410	2.906
18		0.0454	4,065,721	3,220,124	249,035,261	2.926
19		0.0454	4,065,721	3,252,325	248,412,673	2.946
20		0.0454	4,065,721	3,284,848	247,791,641	2.966
21		0.0454	4,065,721	3,317,697	247,172,162	2.987
22		0.0454	4,065,721	3,350,874	246,554,232	3.008
23		0.0454	4,065,721	3,384,382	245,937,846	3.029
24		0.0454	4,065,721	3,418,226	245,323,002	3.051
25		0.0454	4,065,721	3,452,409	244,709,694	3.072

USBR/Klamath Project - AWIA Power Cost Benchmark Analysis

APM No. 1/Alternative 3 - Large Solar PV Installation 25-Year Levelized Cost of Energy Calculation

High Case

Input Assumptions

Project Size (KW DC)	116,387
Project Size (KW AC)	100,000
Year 1 Annual Generation (Kwh)	259,861,218
Initial Capital Cost ($/KW AC)	895
Annual O&M Costs ($/KW AC)	27.19
Annual O&M Escalation Factor (%)	2.00%
Annual Panel Efficiency Loss (%)	0.50%
Annual Discount Rate (%)	3.00%

Output

25-Year Levelized Cost of Power (Cents/Kwh)	**3.535**

Year	Initial Investment Cost ($)	Capital Recovery Factor	Capital Recovery ($)	Annual O&M Costs ($) ($)	Total Annual Generation (Kwh)	Levelized Annual Cost ($)
0	89,540,000					
1		0.0574	5,142,092	2,719,000	259,861,218	3.025
2		0.0574	5,142,092	2,773,380	258,561,912	3.061
3		0.0574	5,142,092	2,828,848	257,269,102	3.098
4		0.0574	5,142,092	2,885,425	255,982,757	3.136
5		0.0574	5,142,092	2,943,133	254,702,843	3.174
6		0.0574	5,142,092	3,001,996	253,429,329	3.214
7		0.0574	5,142,092	3,062,036	252,162,182	3.254
8		0.0574	5,142,092	3,123,276	250,901,371	3.294
9		0.0574	5,142,092	3,185,742	249,646,864	3.336
10		0.0574	5,142,092	3,249,457	248,398,630	3.378
11		0.0574	5,142,092	3,314,446	247,156,637	3.422
12		0.0574	5,142,092	3,380,735	245,920,854	3.466
13		0.0574	5,142,092	3,448,349	244,691,250	3.511
14		0.0574	5,142,092	3,517,316	243,467,793	3.557
15		0.0574	5,142,092	3,587,663	242,250,454	3.604
16		0.0574	5,142,092	3,659,416	241,039,202	3.651
17		0.0574	5,142,092	3,732,604	239,834,006	3.700
18		0.0574	5,142,092	3,807,256	238,634,836	3.750
19		0.0574	5,142,092	3,883,402	237,441,662	3.801
20		0.0574	5,142,092	3,961,070	236,254,453	3.853
21		0.0574	5,142,092	4,040,291	235,073,181	3.906
22		0.0574	5,142,092	4,121,097	233,897,815	3.960
23		0.0574	5,142,092	4,203,519	232,728,326	4.016
24		0.0574	5,142,092	4,287,589	231,564,685	4.072
25		0.0574	5,142,092	4,373,341	230,406,861	4.130

Affordable Power Measure No. 2:
Net Metering Programs

Technical Documentation

USBR/Klamath Project - AWIA Affordable Power Measures Analysis

Small Solar PV Net Excess Generation Accounting Example for Landell Valley Irrigation District
Oregon Net Metering - Excess Energy Carryovers for an April - March Accounting Period
Small Solar PV Facilities Sized to meet 100% of Landell Valley's Annual Load

Generic Small Solar PV Plant Scaling Factor	8.0016
Total Annual Scaled Solar PV Generation (Kwh)	563,822
Design Annual Gen to Total Load (%)	100.0
Scaled Generation Credited to Load (Kwh)	390,904
End-of-Period Forfeited Scaled Generation (Kwh)	172,918
Percent of Scaled Generation Credited to Load (%)	69.3
Forfeited Scaled Generation Percentage (%)	30.7

Month	Landell Valley Average Energy Usage (Kwh)	Base Solar PV Generation (Kwh)	Scaled Solar PV Generation (Kwh)	Current Month Net Excess Generation (Kwh)	Beginning Net Excess Generation Balance (Kwh)	Net Excess Generation Credited to Load (Kwh)	Ending Net Excess Generation Balance (Kwh)
Jan	0	3,582	28,660	28,660	65,411	0	94,071
Feb	0	3,984	31,875	31,875	94,071	0	125,947
Mar	0	5,870	46,972	46,972	125,947	0	172,918
Apr	0	6,786	54,302	54,302	0	0	54,302
May	0	7,528	60,234	60,234	54,302	0	114,536
Jun	99,660	7,953	63,638	0	114,536	36,022	78,514
Jul	151,860	8,338	66,717	0	78,514	78,514	0
Aug	136,950	7,891	63,139	0	0	0	0
Sep	146,400	6,739	53,924	0	0	0	0
Oct	28,950	5,472	43,787	14,837	0	0	14,837
Nov	0	3,369	26,953	26,953	14,837	0	41,791
Dec	0	2,952	23,621	23,621	41,791	0	65,411
Total	563,820	70,464	563,822	287,454			

USBR/Klamath Project - AWIA Affordable Power Measures Analysis

Small Solar PV Net Excess Generation Accounting Example for Landell Valley Irrigation District
Oregon Net Metering - Excess Energy Carryovers for an April - March Accounting Period
Small Solar PV Facilities Sized to meet 50% of Landell Valley's Annual Load

Generic Small Solar PV Plant Scaling Factor	4.0008
Total Annual Scaled Solar PV Generation (Kwh)	281,911
Design Annual Gen to Total Load (%)	50.0
Scaled Generation Credited to Load (Kwh)	202,871
End-of-Period Forfeited Scaled Generation (Kwh)	79,041
Percent of Scaled Generation Credited to Load (%)	72.0
Forfeited Scaled Generation Percentage (%)	28.0

Month	Landell Valley Average Energy Usage (Kwh)	Base Solar PV Generation (Kwh)	Scaled Solar PV Generation (Kwh)	Current Month Net Excess Generation (Kwh)	Beginning Net Excess Generation Balance (Kwh)	Net Excess Generation Credited to Load (Kwh)	Ending Net Excess Generation Balance (Kwh)
Jan	0	3,582	14,330	14,330	25,287	0	39,617
Feb	0	3,984	15,938	15,938	39,617	0	55,555
Mar	0	5,870	23,486	23,486	55,555	0	79,041
Apr	0	6,786	27,151	27,151	0	0	27,151
May	0	7,528	30,117	30,117	27,151	0	57,268
Jun	99,660	7,953	31,819	0	57,268	57,268	0
Jul	151,860	8,338	33,359	0	0	0	0
Aug	136,950	7,891	31,570	0	0	0	0
Sep	146,400	6,739	26,962	0	0	0	0
Oct	28,950	5,472	21,894	0	0	0	0
Nov	0	3,369	13,477	13,477	0	0	13,477
Dec	0	2,952	11,810	11,810	13,477	0	25,287
Total	563,820	70,464	281,911	136,308			

USBR/Klamath Project - AWIA Affordable Power Measures Analysis

Small Solar PV Net Excess Generation Accounting Example for Landell Valley Irrigation District
Oregon Net Metering - Excess Energy Carryovers for a November - October Accounting Period
Small Solar PV Facilities Sized to meet 100% of Landell Valley's Annual Load

Generic Small Solar PV Plant Scaling Factor	8.0016
Total Annual Scaled Solar PV Generation (Kwh)	563,822
Design Annual Gen to Total Load (%)	100.0
Scaled Generation Credited to Load (Kwh)	548,985
End-of-Period Forfeited Scaled Generation (Kwh)	14,837
Percent of Scaled Generation Credited to Load (%)	97.4
Forfeited Scaled Generation Percentage (%)	2.6

Month	Landell Valley Average Energy Usage (Kwh)	Base Solar PV Generation (Kwh)	Scaled Solar PV Generation (Kwh)	Current Month Net Excess Generation (Kwh)	Beginning Net Excess Generation Balance (Kwh)	Net Excess Generation Credited to Load (Kwh)	Ending Net Excess Generation Balance (Kwh)
Jan	0	3,582	28,660	28,660	50,574	0	79,234
Feb	0	3,984	31,875	31,875	79,234	0	111,109
Mar	0	5,870	46,972	46,972	111,109	0	158,081
Apr	0	6,786	54,302	54,302	158,081	0	212,383
May	0	7,528	60,234	60,234	212,383	0	272,617
Jun	99,660	7,953	63,638	0	272,617	36,022	236,595
Jul	151,860	8,338	66,717	0	236,595	85,143	151,453
Aug	136,950	7,891	63,139	0	151,453	73,811	77,642
Sep	146,400	6,739	53,924	0	77,642	77,642	0
Oct	28,950	5,472	43,787	14,837	0	0	14,837
Nov	0	3,369	26,953	26,953	0	0	26,953
Dec	0	2,952	23,621	23,621	26,953	0	50,574
Total	563,820	70,464	563,822	287,454			

USBR/Klamath Project - AWIA Affordable Power Measures Analysis

Small Solar PV Net Excess Generation Accounting Example for Landell Valley Irrigation District
Oregon Net Metering - Excess Energy Carryovers for a November - October Accounting Period
Small Solar PV Facilities Sized to meet 50% of Landell Valley's Annual Load

Generic Small Solar PV Plant Scaling Factor	4.0008
Total Annual Scaled Solar PV Generation (Kwh)	281,911
Design Annual Gen to Total Load (%)	50.0
Scaled Generation Credited to Load (Kwh)	281,911
End-of-Period Forfeited Scaled Generation (Kwh)	0
Percent of Scaled Generation Credited to Load (%)	100.0
Forfeited Scaled Generation Percentage (%)	0.0

Month	Landell Valley Average Energy Usage (Kwh)	Base Solar PV Generation (Kwh)	Scaled Solar PV Generation (Kwh)	Current Month Net Excess Generation (Kwh)	Beginning Net Excess Generation Balance (Kwh)	Net Excess Generation Credited to Load (Kwh)	Ending Net Excess Generation Balance (Kwh)
Jan	0	3,582	14,330	14,330	25,287	0	39,617
Feb	0	3,984	15,938	15,938	39,617	0	55,555
Mar	0	5,870	23,486	23,486	55,555	0	79,041
Apr	0	6,786	27,151	27,151	79,041	0	106,192
May	0	7,528	30,117	30,117	106,192	0	136,308
Jun	99,660	7,953	31,819	0	136,308	67,841	68,468
Jul	151,860	8,338	33,359	0	68,468	68,468	0
Aug	136,950	7,891	31,570	0	0	0	0
Sep	146,400	6,739	26,962	0	0	0	0
Oct	28,950	5,472	21,894	0	0	0	0
Nov	0	3,369	13,477	13,477	0	0	13,477
Dec	0	2,952	11,810	11,810	13,477	0	25,287
Total	563,820	70,464	281,911	136,308			

USBR/Klamath Project - AWIA Affordable Power Measures Analysis

Small Solar PV Net Excess Generation Accounting Example for Landell Valley Irrigation District

Monthly Generation Amounts for a Generic 40 KW AC Small Solar PV Facility Located in the Upper Klamath Basin

Installed Capacity (KW DC)	46.55
Installed Capacity (KW AC)	40.00

Month	Generation (Kwh)
Jan	3,582
Feb	3,984
Mar	5,870
Apr	6,786
May	7,528
Jun	7,953
Jul	8,338
Aug	7,891
Sep	6,739
Oct	5,472
Nov	3,369
Dec	2,952
Total	**70,464**

Available

In all territory served by Company in Oregon.

Applicable

To any Customer that uses a generating facility using solar power, wind power, fuel cells, hydroelectric power, landfill gas, digester gas, waste, dedicated energy crops available on a renewable basis or low-emission, nontoxic biomass based on solid organic fuels from wood, forest or field residues with a capacity of not more than twenty-five (25) kilowatts for residential customers and two (2) megawatts for non-residential customers that is located on the Customers' premises, is interconnected and operates in parallel with the Company's existing transmission and distribution facilities, and is intended primarily to offset part or all of the Customer's own electrical requirements. This Schedule is offered in compliance with ORS 757.300 and OAR 860-039-0005 through -0080.

Definitions

Net Metering Energy is the difference between the electricity supplied by the Company and the electricity generated by an eligible customer-generator and fed back to the electric grid over the applicable billing period.

Monthly Billing

The Electric Service Charge shall be computed in accordance with the Monthly Billing in the applicable standard service tariff.

Special Conditions

1. If the energy supplied to the Company is less than the energy supplied by the Company, the Company will charge the Customer the appropriate monthly charges and all applicable charges for the net electricity supplied by the Company.

2. If the energy supplied to the Company is greater than the energy supplied by the Company, the Customer shall be billed for the appropriate monthly charges and shall be credited for such Net Metering Energy with a cumulative kilowatt-hour credit to be applied at the full retail rate for each rate component on the bill that uses kilowatt-hours as the billing determinant on the customer-generator's next monthly bill.

3. For customers who are billed on time-of-use rates, kilowatt-hour usage during a monthly billing period shall be offset in the following sequence: (i) first by kilowatt-hours generated during the same time-of-use period; (ii) second by kilowatt-hour credits from previous monthly billing periods, but from the same time-of-use period; (iii) third by kilowatt-hours generated during different time-of-use periods, but from the same monthly billing period; (iv) last by kilowatt-hour credits from previous monthly billing periods and from different time-of-use periods.

4. When excess energy generated during the billing period or excess energy credits from previous billing periods from a designated meter that is subject to time-of-use rates are used to offset usage in an aggregated meter that is not subject to time-of-use rates, energy credits shall be applied in order of time-varying price with energy generated during the time of the highest price being applied first.

(continued)

Special Conditions (continued)

5. When excess energy generated during the billing period or excess energy credits from previous billing periods from a designated meter that is not subject to time-of-use rates are used to offset usage in an aggregated meter that is subject to time-of-use rates, energy credits shall be applied to usage in order of time-varying price with energy usage during the time of the highest price being offset first.

6. Any remaining unused kilowatt-hour credit accumulated through the March billing period each year shall be transferred to the Company's low-income assistance program at the Company's applicable average annual avoided cost rate.

7. Upon the customer-generator's request and with sixty (60) days notice to the Company, the Company shall aggregate for billing purposes the meter that is physically attached to the net metering facility ("designated meter") with one or more meters ("aggregated meter") if the following conditions are met: (i) the aggregated meter is located on the customer-generator's premises or property that is contiguous to such premises; (ii) the electricity recorded by the designated meter and any aggregated meters is for the customer-generator's requirements; and (iii) the designated meter and the aggregated meter are served by the same primary feeder at the time of application. At the time of notice to the Company, the customer-generator must identify the specific meters and designate a rank order for the aggregated meters to which Net Metering Energy credits are to be applied. Aggregated meters subject to the same rate schedule as the designated meter must be ranked above any other aggregated meters. A customer-generator may amend the rank order of the aggregated meters with at least 60 days advance notice before the next annual billing period.

8. The customer-generator is responsible for all costs associated with its facility and is also responsible for all costs related to any modifications to the facility that may be required by the company for purposes of safety and reliability.

9. A Net Metering facility installation shall be consistent with OAR 860-039-0020 and shall meet all applicable safety and performance standards established in the Oregon state building code.

10. Customer-generator must operate and maintain net metering facilities in compliance with Institute of Electrical and Electronics Engineers standards in OAR 860-039-0005(3)(j).

11. Except as provided for in OAR 860-039-0015, the customer-generator must install and maintain a manual disconnect switch that will disconnect the net metering facility from the Company's system. The disconnect switch must be a lockable, load-break switch that plainly indicates whether it is in the open or closed position. The disconnect switch must be readily accessible to the Company at all times and located within ten (10) feet of the Company's meter.

12. The Company may disconnect the customer-generator's electric service at any time if the net metering facility must be physically disconnected for any reason.

13. The Company shall not be liable directly or indirectly for permitting or continuing to allow an attachment of a net metering facility, or for the acts or omissions of the customer-generator that cause loss or injury, including death, to any third party.

(continued)

Special Conditions (continued)

14. Prior to receiving net metering service, an interconnection review may be required in accordance with OAR 860-039-0035 or -0040.

Continuing Service

This Schedule is based on continuing service at each service location. Disconnect and reconnect transactions shall not operate to relieve a Customer from monthly minimum charges.

Rules and Regulations

Service under this Schedule is subject to the general Rules and Regulations contained in the tariff of which this Schedule is a part, and to those prescribed by regulatory authorities.

Schedule No. NEM-35

NET METERING SERVICE

APPLICABILITY

Applicable on a first-come, first-served basis to a residential, small commercial, commercial, industrial, or agricultural Customer that owns and operates a renewable electricity generation facility, a facility that uses biomass, solar thermal, photovoltaic, wind, geothermal, fuel cells using renewable fuels, small hydroelectric generation, digester gas, municipal solid waste conversion, landfill gas, ocean wave, ocean thermal, or tidal current, with a capacity of not more than one megawatt that is located on the Customer's owned, leased, or rented premises, is interconnected and operates in parallel with the Utility's transmission and distribution facilities, and is intended primarily to offset part or all of the Customer's own electrical requirements. Notwithstanding the definition of applicability provided above, such definition shall also include the California Department of Corrections and Rehabilitation (CDCR) as set forth in Special Condition 12 of Schedule NEM-35 and the United States Armed Forces (USAF), as set forth in Special Condition 13 of Schedule NEM-35.

This provision shall be available until the later of the time that the total rated generating capacity used by the eligible Customer-generators exceeds five (5) percent of the aggregate Customer peak demand of the Utility or the Commission approves a Replacement Tariff, but in either circumstance no later than June 30, 2020. This Schedule is offered in compliance with Cal. Pub. Util. Code Ann. § 2827, *et seq.*
(West 2002).

TERRITORY

Within the entire territory served in California by the Utility.

DEFINITIONS

Net Energy Metering is the difference between electricity supplied through the electric grid and electricity generated by an eligible Customer-generator and fed back to the electric grid over a 12-month period.

Replacement Tariff refers to the NEM successor tariff PacifiCorp will propose in an upcoming application.

BILLING

An eligible residential or small commercial Customer-generator shall be billed, at the end of the 12-month period following the date of the Utility's final interconnection of their system, and on the anniversary date thereafter, for electricity used during that period. The Utility shall determine if the eligible Customer-generator was a net consumer or a net producer of electricity during that time period.

If the electricity supplied by the Utility exceeds the electricity generated by the eligible residential or small commercial Customer-generator, the eligible residential or small commercial Customer-generator is a net energy consumer and shall be billed for the net energy supplied to the Utility as follows:

(Continued)

Schedule No. NEM-35

NET METERING SERVICE
(Continued)

BILLING (continued)

For eligible Customer-generators taking service under tariffs employing "baseline" and "over baseline" rates, any net monthly consumption of electricity shall be calculated according to the terms of the contract or tariff to which the same Customer would be assigned to if the customer did not use an eligible renewable electricity generation facility, except that eligible Customer-generators shall not be assessed standby charges on the electrical generating capacity or the kilowatthour production of an eligible renewable electricity generation facility. If those same Customer-generators are net generators over a billing period, the net kilowatthours generated shall be valued at the same price per kilowatthour as the Utility would charge for the baseline quantity of electricity during that billing period, and if the number of kilowatthours generated exceeds the baseline quantity, the excess shall be valued at the same price per kilowatthour as the Utility would charge for electricity over the baseline quantity during that billing period.

For eligible Customer-generators taking service under tariffs employing "time of use" rates, any net monthly consumption of electricity shall be calculated according to the terms of the contract or tariff to which the same Customer would be assigned to if the customer did not use an eligible renewable electrical generation facility, except that eligible customer-generators shall not be assessed standby charges on the electrical generating capacity or the kilowatthour production of an eligible renewable electrical generation facility. When those same Customer-generators are net generators during any discrete time of use period, the net kilowatthours produced shall be valued at the same price per kilowatthour as the Utility would charge for retail kilowatthour sales during that same time of use period.

For a customer-generator electing to take service under net metering aggregation, the electrical consumption (kilowatthour) registered on each account’s meter will be reduced, for net metering billing purposes, by a proportional allocation, at the 15-minute interval level, of the electricity generated by the renewable electrical generation facility that is exported to Pacific Power’s grid. The proportional allocation is determined per billing period based on the cumulative consumption of each Aggregated Account compared to the cumulative consumption of the net metering Aggregation Arrangement since the start of the Relevant Period, and the cumulative generation exported from the renewable electrical generation facility since the start of the Relevant Period. The Customer is required to designate one account in the net metering Aggregation Arrangement to receive any remaining kilowatthour not allocated due to rounding after the proportional allocation methodology described above is completed.

For all residential or small commercial Customer-generators and for each monthly period, the net balance of moneys owed to the Utility for net consumption of electricity or credits owed to the Customer-generator for net generation of electricity shall be carried forward until the end of each 12-month period.

For all commercial, industrial, and agricultural Customer-generators the net balance of moneys owed shall be paid in accordance with the electric service provider's normal billing cycle, except that if the commercial, industrial, or agricultural customer-generator is a net electricity producer over a normal billing cycle, any excess kilowatthours generated during the billing cycle shall be carried over to the following billing period as a monetary value, calculated according to the same procedure as for residential and small commercial Customer-generators, and appear as a credit on the Customer-generator's account, until the end of the 12-month period.

(Continued)

Schedule No. NEM-35

NET METERING SERVICE
(Continued)

BILLING (continued)

If the electricity generated by the eligible Customer-generator exceeds the electricity supplied by the Utility, the eligible Customer-generator is a net energy producer and the Customer-generator may elect to receive credit for excess kilowatt-hours that will be rolled into the next 12-month period or compensation at the end of each 12-month period. To be eligible for such compensation a system must meet the definition of an eligible Customer-generator within Section 2827(b)(4), including that the system be intended to offset part or all of the customer's own electrical requirements. The estimated production of a system cannot be more than the estimated electrical requirements of a Customer-generator. The Customer-generator seeking compensation must notify the Utility that they are a Qualifying Facility exempt from Federal Energy Regulatory Commission certification filing requirements using a form available from the Utility. If an eligible Customer-generator declines to elect either option, the Utility shall retain any excess kWh generated during the prior 12-month period.

A Customer-generator electing to participate in net metering Aggregation Arrangement, as described in Special Condition 14 below, the Generating Account shall be permanently ineligible to receive net surplus electricity compensation and the Company shall retain any excess kilowatthours and zero out any credits remaining on each account included in the Aggregation Arrangement. However, if a non-generating account is separated from the Aggregation Arrangement, and subsequently qualifies for net metering, it is eligible to receive net surplus compensation on a going forward basis, provided it meets all other applicable net metering eligibility criteria.

A Customer-generator who elects to receive compensation for the excess kilowatt-hours generated over each 12-month period will receive a rate equal to the simple rolling average of the Pacific Gas & Electric Default Load Aggregation Point ("DLAP") prices from 7 a.m. to 5 p.m. corresponding to the customer-generator's 12-month true up period. In order to receive a check from the utility, the total amount of compensation must be equal to or greater than $25.00. If the amount is less than $25.00 the compensation will be credited to the bill of the Customer-generator.

SPECIAL CONDITIONS

1. The annualized net energy metering calculation shall be made by measuring the difference between the electricity supplied to the eligible Customer-generator and the electricity generated by the eligible Customer-generator and fed back to the electric grid over a 12-month period. If the Utility is the Customer's Electric Service Provider, this condition may be modified where the Customer has a signed contract to sell any portion of the Customer generated energy to the Utility.

2. If the Utility is not the Customer's Electric Service Provider, the Utility may recover from the Customer-generator's Electric Service Provider the incremental costs of metering and billing service related to net energy metering in an amount set by the Commission.

(Continued)

Schedule No. NEM-35

NET METERING SERVICE
(Continued)

SPECIAL CONDITIONS (continued)

3. Net Energy Metering shall be accomplished using a single meter capable of registering the flow of electricity in two directions. An additional meter or meters to monitor the flow of electricity in each direction may be installed with the consent of the customer-generator, at the expense of the Company, and the additional metering shall be used only to provide the information necessary to accurately bill or credit the customer-generator or to collect solar or wind electric generating system performance information for research purposes. If the existing electrical meter of an eligible customer-generator is not capable of measuring the flow of electricity in two directions, the customer-generator shall be responsible for all expenses involved in purchasing and installing a meter that is able to measure electricity flow in two directions. A Customer-generator electing to participate in net metering aggregation must select either of two metering configurations described in Special Condition 14.

4. If the Customer-generator refuses consent for dual metering, and due to billing purposes a single bi-directional meter cannot be installed, the Utility shall have the right to refuse interconnection.

5. Customer shall furnish and install on Customer's side of the meter a safety disconnect switch which shall be capable of fully disconnecting the Customer’s energy generating equipment from the Utility’s electric service. The disconnect switch shall be located adjacent to the Utility’s meters and shall be of the visible break type in a metal enclosure which can be secured by a padlock. The disconnect switch shall be accessible to utility personnel at all times. The Utility shall have the right to disconnect the Facility from The Utility’s supply at the disconnect switch when necessary to maintain safe electrical operating conditions or, if in The Utility’s sole judgment, the Facility at any time adversely affects The Utility’s operation of its electrical system or the quality of The Utility’s service to other Customers.

6. If the Utility is the Customer’s Electric Service Provider, the Utility shall provide net electricity consumption information on each regular bill to every eligible residential or small commercial Customer-generator. The consumption information shall contain the current monetary balance owed to the Utility for net electricity delivered/consumed since the last 12-month period ended. The Utility shall permit the Customer to pay monthly for net energy delivered/consumed.

7. A net metering system used by a Customer shall include, at the Customer’s own expense, all equipment necessary to meet applicable safety, power quality, and interconnection requirements established by the National Electrical Code, National Electrical Safety Code, the Institute of Electrical and Electronics Engineers, and Underwriters Laboratories. The Utility’s written approval of the Customer’s protection-isolation method to ensure generator disconnection in case of a power interruption from the Utility is required before service is provided under this Schedule.

(Continued)

Schedule No. NEM-35

NET METERING SERVICE
(Continued)

SPECIAL CONDITIONS (continued)

8. Notwithstanding any other provisions within this Schedule, any wind energy project greater than 50 kW, but not exceeding one megawatt ("wind energy co-metering") shall be subject to the following additional requirements:

   The eligible customer-generator shall be required to utilize a meter, or multiple meters, capable of separately measuring electricity flow in both directions. All meters shall provide "time-of-use" measurements of electricity flow, and the customer shall take service on a time-of-use rate schedule. If the existing meter of the eligible customer generator is not a time-of-use meter or is not capable of measuring total flow of energy in both directions, the eligible customer-generator is responsible for all expenses involved in purchasing and installing a meter that is both time-of-use and able to measure total electricity flow in both directions. This condition shall not restrict the ability of an eligible customer-generator to utilize any economic incentives provided by a government agency or the electric service provider to reduce its costs for purchasing and installing a time-of-use meter.

   The consumption of electricity from the Utility for wind energy co-metering by an eligible customer-generator shall be priced in accordance with the standard rate charged to the eligible customer-generator in accordance with the rate structure to which the customer would be assigned if the customer did not use an eligible wind electrical generation facility. The generation of electricity provided to the Utility shall result in a credit to the eligible customer-generator and shall be priced in accordance with the generation component established under the applicable structure to which the customer would be assigned if the customer did not use an eligible wind electrical generating facility.

9. The Utility shall make all necessary forms and contracts for net metering service available for download from its website.

10. The Utility shall ensure that requests for establishment of net energy metering are processed in a time period not exceeding that for similarly situated customers requesting new electric service, but not to exceed 30 working days from the date the Utility receives a completed application form for net metering service, including a signed interconnection agreement from an eligible customer-generator and the electric inspection clearance from the governmental authority having jurisdiction. If the Utility is unable to process the request within the allowable timeframe, the Utility shall notify both the customer-generator and the Commission of the reason for its inability to process the request and the expected completion date.

(Continued)

Schedule No. NEM-35

NET METERING SERVICE
(Continued)

SPECIAL CONDITIONS (continued)

11. Any Customer with an existing electrical generation facility over 30 kilowatts and meter who enters into a new net energy metering contract shall complete and submit a copy of *Form 3584*, the *NEM Inspection Report,* to the Utility, unless the electrical generating facility and meter have been installed and inspected within the previous three years. The *NEM Inspection Report* shall be prepared by a California licensed contractor who is not the owner or operator of the facility and meter. A California licensed electrician shall perform the inspection of the electrical portion of the facility and meter and sign the *NEM Inspection Report.* If an inspection is required, the Customer shall submit the completed *NEM Inspection Report* to the Utility within 90 days of becoming the customer of record, or disconnect the generating facility and inform the Utility that the Customer will discontinue Schedule NEM-35 service. The *NEM Inspection Report* shall be incorporated into the net energy metering contract.

12. California Department of Corrections and Rehabilitation(CDCR) Provisions

a) For the purposes of Special Condition 12 only, "Eligible customer-generator" includes the CDCR using:
   1. A renewable electricity generating facility, or
   2. A combination of renewable electricity generating facilities.

b) CDCR's total generation capacity shall not exceed eight (8) megawatts.

c) All generation shall be located on CDCR's owned, leased or rented premises, and shall be interconnected and operated in parallel with the electrical grid.

d) CDCR's generation at each CDCR renewable electricity generating facility shall be intended primarily to offset part or all of such facility's own electrical requirements.

e) The amount of any wind generation exported to the Utility's electrical grid by any such facility shall not exceed 1.35 megawatts at any time to qualify for service hereunder.

f) To the extent that CDCR interconnects a renewable electricity generating facility with a capacity greater than 1 MW, CDCR shall provide notice to the Utility that CDCR is self-certifying such facility as a Qualifying Facility pursuant to the Public Utility Regulatory Policies Act of 1978 by properly completing and filing FERC Form NO. 556 with the FERC, if CDCR elects to apply for Net Surplus Compensation. FERC Form No. 556 is not a requirement for interconnection.

g) CDCR Eligible Customer Generators are subject to network and distribution upgrade costs that arise solely from the interconnection of the renewable electrical generating facility.

(Continued)

Schedule No. NEM-35

NET METERING SERVICE
(Continued)

SPECIAL CONDITIONS (continued)

13. United States Armed Forces (USAF) Provisions

a) A USAF base or facility is defined as an establishment under the jurisdiction of the United States Army, Navy, Air Force, Marine Corps, or Coast Guard.

b) For the purposes of Special Condition 13 only, "Eligible customer-generator" includes the USAF using:
   1. A renewable electricity generating facility, or
   2. A combination of renewable electricity generating facilities.

c) USAF's total renewable electrical generation facility generation capacity shall not exceed the lesser of twelve (12) megawatts or one megawatt greater than the minimum load of the base of facility over the prior 36 month.

d) The renewable electrical generation facility shall not be eligible for net energy metering for privatized military housing for the purposes of Special Condition 13 if the renewable electrical generation facility was procured using a sole source process. A renewable electrical generation facility procured using best value criteria, if otherwise eligible, may be used for net energy metering for privatized military housing for purposes of Special Condition 13. "Best value criteria" means a value determined by objective criteria and may include, but is not limited to, price, features, functions, and life-cycle costs.

e) All generation shall be located on premises owned, leased or rented by the USAF base or facility, and shall be interconnected and operated in parallel with the electrical grid.

f) USAF's generation at each USAF renewable electricity generating facility shall be intended primarily to offset part or all of such base or facility's own electrical requirements.

g) Customers receiving service under this special condition shall not receive compensation, including net surplus compensation, as defined above, for energy exported to the grid. Energy exported to the grid shall not be netted with energy supplied by the Utility.

h) Customers eligible to take service under this special condition may elect to take service under the general provisions of this tariff rather than under the provision of this special condition. If a customer elects to take service under the general provisions of this tariff they must abide by all of the general provisions including the sizing limitations.

i) USAF Eligible Customer Generators are subject to network and distribution upgrade costs that arise solely from the interconnection of the renewable electrical generating facility.

j) Except as otherwise stated, the provisions set forth under this rate schedule shall apply to customers receiving service under this special condition.

(Continued)

Schedule No. NEM-35

NET METERING SERVICE
(Continued)

SPECIAL CONDITIONS (continued)

14. Net Metering Aggregation

a) Except as otherwise provided for below under this Special Condition, all other terms and conditions of this schedule shall be applicable to customers receiving service under this Special Condition. Under this Special Condition, an eligible Customer-generator with multiple meters("Aggregated Accounts") may elect to aggregate the electrical load of the meters located on the property where the renewable energy generation facility ("Generating Account") is located and on all property adjacent or contiguous to the property on which the renewable energy generating facility is located, provided that all properties are solely owned, leased, or rented by the eligible customer-generator that elects to aggregate its electric load pursuant to this Special Condition. All of the Aggregated Accounts, including a single Generating Account, that are billed together under this Special Condition are referred to as an Aggregation Arrangement.

b) For the purposes of net metering aggregation only, parcels that are divided by a street, highway, or public thoroughfare are considered contiguous, provided they are within an unbroken chain of otherwise contiguous parcels and are all solely owned, leased or rented by the Customer. Customers are also eligible to participate in net metering aggregation where all meters in an Aggregation Arrangement are located within an unbroken chain of contiguous parcels that are all solely owned, leased, or rented by the Customer. For example, if there are three parcels (A, B and C), all of which are solely owned, leased or rented by the Customer, where A contains the renewable electrical generation facility and A abuts B, B abuts C, but A and C are separated by B, then the loads of all three parcels shall be eligible to participate in net metering aggregation. Refer to Diagram 1 (for illustrative purposes only). In addition, if there are five parcels (A, B, C, D and E) that form a cluster of contiguous parcels, where A contains the renewable electrical generation facility, and D and E are separated from A, B, and C by a street, highway or public thoroughfare, for the purposes of participating in net metering aggregation only, all five parcels are considered contiguous, provided they are otherwise contiguous and all solely owned, leased or rented by the Customer. Refer to Diagram 2 (for illustrative purposes only). In addition, an irrevocable easement granting sole use and control to the customer generator for an entire parcel can be used to establish contiguity. Otherwise, a customer generator's easement on a third party owned parcel will not be sufficient to establish parcel contiguity.

(Continued)

Schedule No. NEM-35

NET METERING SERVICE
(Continued)

SPECIAL CONDITIONS (continued)

Diagram 1

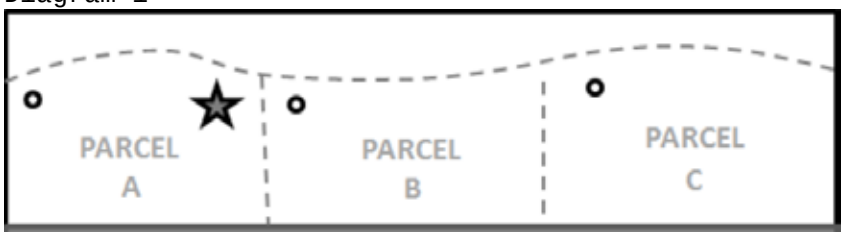
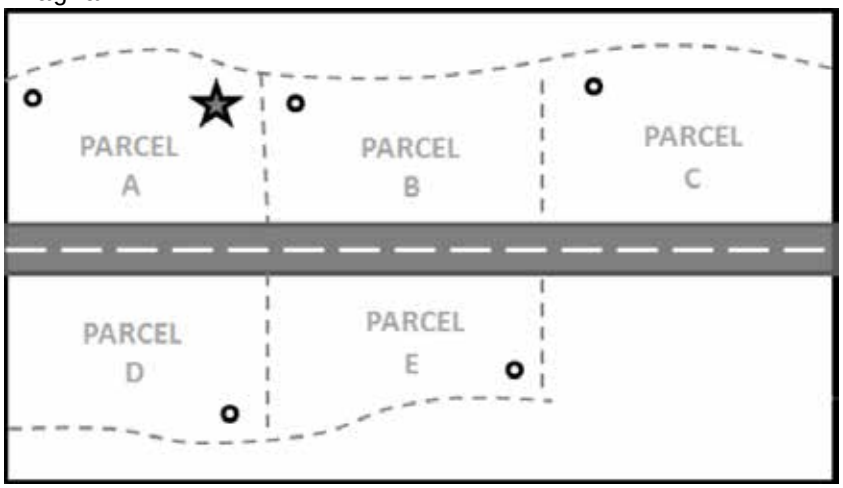


Diagram 2



= RENEWABLE ELECTRICAL GENERATION FACILITY

= METER

= ELIGIBLE

c) Billing Service Charges: An eligible customer-generator electing net metering aggregation shall remit service charges for the cost of providing billing services as follows. These charges shall include:

i) One-time setup charge of $25.00 per Aggregated Account and for the Generating Account, and cumulatively, shall be limited to no more than $500 per Aggregation Arrangement. Any account added to an Aggregation Arrangement is subject to this one-time setup charge;

ii) Monthly charge of $5 per Aggregated Account and for the Generating Account;

iii) These billing service charges may be subject to change upon approval by the Commission on a going-forward basis.

(Continued)

Schedule No. NEM-35

NET METERING SERVICE
(Continued)

SPECIAL CONDITIONS (continued)

c) The maximum capacity of the renewable electrical generation facility, or a combination of those facilities, eligible for participation under this Special condition is 1 MW. The customer-generator must provide Pacific Power with a list of additional Aggregated Accounts on the Net Metering Aggregation Form that are to be included in the Aggregation Arrangement.

d) A Customer-generator may have more than one Aggregation Arrangement, but accounts may not be shared across multiple arrangements.

e) A Customer-Generator may elect to modify the Aggregated Accounts included in an Aggregation Arrangement provided a minimum of 60-days notice is provided to Pacific Power prior to the change taking effect, and such change remains in effect for a minimum of 12 months and doesn't result in the renewable electrical generation facility being oversized compared to the electrical requirements of the Aggregation Arrangement.

f) All accounts in an Aggregation Arrangement will be placed on the same billing cycle, and will be billed individually pursuant to this schedule. The electrical consumption (kilowatthours) registered on each account's meter will be reduced, for net metering billing purposes, by a proportional allocation of the electricity generated by the renewable electrical generation facility that is exported to the Pacific Power grid. The proportional allocation is determined per billing period based on the cumulative consumption of the aggregated account compared to the cumulative consumption of the Aggregation Arrangement.

g) All accounts included in an Aggregation Arrangement are ineligible to receive net surplus compensation from Pacific Power. However, if an Aggregated Account that is not a Generating Account is separated from the Aggregation Arrangement and subsequently qualifies for net metering, that account is eligible for net surplus compensation on a going-forward basis, provided it meets all other applicable net energy metering eligibility criteria.

h) Accounts included in an Aggregation Arrangement are permitted to have non net metering eligible generating facilities interconnected to them.

i) Existing net metering customers electing to create an Aggregation Arrangement who also have executed an interconnection agreement and who are making no modifications to their renewable electrical generation facilities other than electing aggregation will not be required to complete a new interconnection agreement, nor conduct new interconnection studies. (T) (T)

(Continued)

Schedule No. NEM-35

NET METERING SERVICE
(Continued)

SPECIAL CONDITIONS (continued)

j) The net metering aggregation customer may elect to follow the standard net metering interconnection model where the renewable electrical generation facility is located behind an existing billing account meter. In this case no additional metering equipment is necessary. Customers may also request an additional service from Pacific Power for the purposes of interconnecting the renewable electrical generation facility. This additional service and associated metering must comply with the same locational constraints placed on all Aggregated Accounts by being located on the same or contiguous properties as the load of the Aggregated Accounts. The location must be approved by Pacific Power and must not result in adverse impacts to the electrical system, as determined by Pacific Power. No additional load other than the incidental load related to the inverters and support of the renewable electrical generation facility may be registered on this additional metered service. All costs associated with the installation of the new service location must be paid by the customer.

Affordable Power Measure No. 3: Out-of-Basin Renewable Energy Investment

Technical Documentation

USBR/Klamath Project - AWIA Power Cost Benchmark Analysis

APM No. 3 - Out-of-Basin Large Scale Solar PV Installation Costs

Generic 100 MW Solar PV Plant located near La Pine, OR

System Parameters	Reference Case
System Size (DC KW)	116,387
System Losses (%)	14.08
System Size (AC KW)	100,000
Annual Average Generation (Kwh)	247,686,891
Annual Average Capacity Factor (%)	28.27
Gross Cost of System ($/KW AC)	1,210
Gross Cost of System ($)	121,000,000
Energy Trust of Oregon Incentive ($/KW DC)	0.0
Energy Trust of Oregon Incentive ($)	0.0
System Cost After Energy Trust Credit	121,000,000
Federal Investment Tax Credit @ 26%	(31,460,000)
Net Cost of System after Incentives ($)	89,540,000
Net Cost of System after Incentives ($/KW)	895

USBR/Klamath Project - AWIA Power Cost Benchmark Analysis

APM No. 3 - Out-of-Basin Large Scale Solar PV Installation Costs

Generic 100 MW Solar PV Plant located near La Pine, OR

Month	Reference Case (Kwh)
Jan	12,442,295
Feb	13,338,446
Mar	19,467,934
Apr	22,766,826
May	25,877,006
Jun	28,345,060
Jul	31,299,130
Aug	28,018,454
Sep	24,743,612
Oct	17,986,302
Nov	12,282,649
Dec	11,119,177
Total	**247,686,891**

USBR/Klamath Project - AWIA Power Cost Benchmark Analysis

APM No. 3 - Out-of-Basin Large Scale Solar PV Installation Costs
Input Parameters and Output Datasets from the NREL PVWatts Model
Generic 100 MW Solar PV Plant located near La Pine, OR

PVWatts: Monthly PV Performance Data
Requested Location: 51649 Huntington Road La Pine OR 97739

Location:	Lat, Lon: 43.69, -121.5
Lat (deg N):	43.69
Long (deg W):	121.5
Elev (m):	1,277.70
DC System Size (kW):	116,387
Module Type:	Premium
Array Type:	2-Axis Tracking
Array Tilt (deg):	0
Array Azimuth (deg):	180
System Losses:	14.08
Invert Efficiency:	96
DC to AC Size Ratio:	1.2

Month	AC System Output(kWh)	Solar Radiation (kWh/m^2/day)	Plane of Array Irradiance (W/m^2)	DC array Output (kWh)
1	12,442,295	4.227	131.03	13,047,292
2	13,338,446	5.076	142.13	14,011,113
3	19,467,934	6.727	208.55	20,325,786
4	22,766,826	8.225	246.75	23,967,908
5	25,877,006	9.258	287.01	26,991,850
6	28,345,060	10.540	316.19	29,532,328
7	31,299,130	11.626	360.40	32,577,898
8	28,018,454	10.386	321.98	29,172,338
9	24,743,612	9.347	280.41	25,769,116
10	17,986,302	6.485	201.02	18,748,756
11	12,282,649	4.378	131.34	12,864,000
12	11,119,177	3.788	117.43	11,658,640
Total	247,686,891	90.063	2,744.24	258,667,025

USBR/Klamath Project - AWIA Power Cost Benchmark Analysis

APM No. 3 - Out-of-Basin Large Scale Solar PV Installation Costs
Generic 100 MW Solar PV Plant located near La Pine, OR
Low Case

Input Assumptions

Project Size (KW DC)	116,387
Project Size (KW AC)	100,000
Year 1 Annual Generation (Kwh)	247,686,891
Initial Capital Cost ($/KW AC)	895
Annual O&M Costs ($/KW AC)	27.19
Annual O&M Escalation Factor (%)	1.00%
Annual Panel Efficiency Loss (%)	0.25%
Annual Discount Rate (%)	1.00%

Output

25-Year Levelized Cost of Power (Cents/Kwh)	**2.972**

Year	Initial Investment Cost ($)	Capital Recovery Factor	Capital Recovery ($)	Annual O&M Costs ($) ($)	Total Annual Generation (Kwh)	Levelized Annual Cost ($)
0	89,540,000					
1		0.0454	4,065,721	2,719,000	247,686,891	2.739
2		0.0454	4,065,721	2,746,190	247,067,674	2.757
3		0.0454	4,065,721	2,773,652	246,450,005	2.775
4		0.0454	4,065,721	2,801,388	245,833,880	2.793
5		0.0454	4,065,721	2,829,402	245,219,295	2.812
6		0.0454	4,065,721	2,857,696	244,606,247	2.830
7		0.0454	4,065,721	2,886,273	243,994,731	2.849
8		0.0454	4,065,721	2,915,136	243,384,744	2.868
9		0.0454	4,065,721	2,944,287	242,776,282	2.887
10		0.0454	4,065,721	2,973,730	242,169,342	2.907
11		0.0454	4,065,721	3,003,468	241,563,918	2.926
12		0.0454	4,065,721	3,033,502	240,960,008	2.946
13		0.0454	4,065,721	3,063,837	240,357,608	2.966
14		0.0454	4,065,721	3,094,476	239,756,714	2.986
15		0.0454	4,065,721	3,125,420	239,157,323	3.007
16		0.0454	4,065,721	3,156,675	238,559,429	3.028
17		0.0454	4,065,721	3,188,241	237,963,031	3.048
18		0.0454	4,065,721	3,220,124	237,368,123	3.069
19		0.0454	4,065,721	3,252,325	236,774,703	3.091
20		0.0454	4,065,721	3,284,848	236,182,766	3.112
21		0.0454	4,065,721	3,317,697	235,592,309	3.134
22		0.0454	4,065,721	3,350,874	235,003,328	3.156
23		0.0454	4,065,721	3,384,382	234,415,820	3.178
24		0.0454	4,065,721	3,418,226	233,829,781	3.201
25		0.0454	4,065,721	3,452,409	233,245,206	3.223

USBR/Klamath Project - AWIA Power Cost Benchmark Analysis

APM No. 3 - Out-of-Basin Large Scale Solar PV Installation Costs
Generic 100 MW Solar PV Plant located near La Pine, OR
High Case

Input Assumptions

Project Size (KW DC)	116,387
Project Size (KW AC)	100,000
Year 1 Annual Generation (Kwh)	247,686,891
Initial Capital Cost ($/KW AC)	895
Annual O&M Costs ($/KW AC)	27.19
Annual O&M Escalation Factor (%)	2.00%
Annual Panel Efficiency Loss (%)	0.50%
Annual Discount Rate (%)	3.00%

Output

25-Year Levelized Cost of Power (Cents/Kwh)	**3.709**

Year	Initial Investment Cost ($)	Capital Recovery Factor	Capital Recovery ($)	Annual O&M Costs ($) ($)	Total Annual Generation (Kwh)	Levelized Annual Cost ($)
0	89,540,000					
1		0.0574	5,142,092	2,719,000	247,686,891	3.174
2		0.0574	5,142,092	2,773,380	246,448,457	3.212
3		0.0574	5,142,092	2,828,848	245,216,214	3.251
4		0.0574	5,142,092	2,885,425	243,990,133	3.290
5		0.0574	5,142,092	2,943,133	242,770,183	3.330
6		0.0574	5,142,092	3,001,996	241,556,332	3.372
7		0.0574	5,142,092	3,062,036	240,348,550	3.413
8		0.0574	5,142,092	3,123,276	239,146,807	3.456
9		0.0574	5,142,092	3,185,742	237,951,073	3.500
10		0.0574	5,142,092	3,249,457	236,761,318	3.544
11		0.0574	5,142,092	3,314,446	235,577,511	3.590
12		0.0574	5,142,092	3,380,735	234,399,624	3.636
13		0.0574	5,142,092	3,448,349	233,227,626	3.683
14		0.0574	5,142,092	3,517,316	232,061,487	3.732
15		0.0574	5,142,092	3,587,663	230,901,180	3.781
16		0.0574	5,142,092	3,659,416	229,746,674	3.831
17		0.0574	5,142,092	3,732,604	228,597,941	3.882
18		0.0574	5,142,092	3,807,256	227,454,951	3.935
19		0.0574	5,142,092	3,883,402	226,317,676	3.988
20		0.0574	5,142,092	3,961,070	225,186,088	4.043
21		0.0574	5,142,092	4,040,291	224,060,157	4.098
22		0.0574	5,142,092	4,121,097	222,939,857	4.155
23		0.0574	5,142,092	4,203,519	221,825,157	4.213
24		0.0574	5,142,092	4,287,589	220,716,032	4.272
25		0.0574	5,142,092	4,373,341	219,612,451	4.333

USBR/Klamath Project - AWIA Power Cost Benchmark Analysis

APM No. 3 Out-of-Basin Large Scale Solar PV Installation Costs

Generic 100 MW Solar PV Plant located near Goldendale, WA

System Parameters	Reference Case
System Size (DC KW)	116,387
System Losses (%)	14.08
System Size (AC KW)	100,000
Annual Average Generation (Kwh)	237,746,940
Annual Average Capacity Factor (%)	27.14
Gross Cost of System ($/KW AC)	1,210
Gross Cost of System ($)	121,000,000
Energy Trust of Oregon Incentive ($/KW DC)	0.0
Energy Trust of Oregon Incentive ($)	0.0
System Cost After Energy Trust Credit	121,000,000
Federal Investment Tax Credit @ 26%	(31,460,000)
Net Cost of System after Incentives ($)	89,540,000
Net Cost of System after Incentives ($/KW)	895

USBR/Klamath Project - AWIA Power Cost Benchmark Analysis

APM No. 3 - Out-of-Basin Large Scale Solar PV Installation Costs

Generic 100 MW Solar PV Plant located near Goldendale, WA

Month	Reference Case (Kwh)
Jan	7,757,148
Feb	11,392,674
Mar	18,962,160
Apr	22,579,064
May	27,193,080
Jun	30,117,622
Jul	32,115,686
Aug	28,401,322
Sep	24,289,504
Oct	17,528,826
Nov	10,368,167
Dec	7,041,688
Total	**237,746,940**

USBR/Klamath Project - AWIA Power Cost Benchmark Analysis

APM No. 3 - Out-of-Basin Large Scale Solar PV Installation Costs
Input Parameters and Output Datasets from the NREL PVWatts Model
Generic 100 MW Solar PV Plant located near Goldendale, WA

PVWatts: Monthly PV Performance Data
Requested Location: 1020 S. Columbus Ave Goldendale WA 98620

Location:	Lat, Lon: 45.81, -120.82
Lat (deg N):	45.81
Long (deg W):	120.82
Elev (m):	516.80
DC System Size (kW):	116,387
Module Type:	Premium
Array Type:	2-Axis Tracking
Array Tilt (deg):	0
Array Azimuth (deg):	180
System Losses:	14.08
Invert Efficiency:	96
DC to AC Size Ratio:	1.2

Month	AC System Output(kWh)	Solar Radiation (kWh/m^2/day)	Plane of Array Irradiance (W/m^2)	DC array Output (kWh)
1	7,757,148	2.603	80.69	8,143,174
2	11,392,674	4.288	120.05	11,933,901
3	18,962,160	6.429	199.30	19,873,526
4	22,579,064	8.118	243.55	23,606,324
5	27,193,080	9.619	298.20	28,345,578
6	30,117,622	11.082	332.47	31,366,156
7	32,115,686	11.797	365.69	33,421,612
8	28,401,322	10.315	319.77	29,565,732
9	24,289,504	9.162	274.86	25,285,566
10	17,528,826	6.092	188.84	18,277,662
11	10,368,167	3.569	107.07	10,849,797
12	7,041,688	2.352	72.92	7,391,944
Total	237,746,940	85.426	2,603.41	248,060,971

USBR/Klamath Project - AWIA Power Cost Benchmark Analysis

APM No. 3 - Out-of-Basin Large Scale Solar PV Installation Costs
Generic 100 MW Solar PV Plant located near Goldendale, WA
Low Case

Input Assumptions

Project Size (KW DC)	116,387
Project Size (KW AC)	100,000
Year 1 Annual Generation (Kwh)	237,746,940
Initial Capital Cost ($/KW AC)	895
Annual O&M Costs ($/KW AC)	27.19
Annual O&M Escalation Factor (%)	1.00%
Annual Panel Efficiency Loss (%)	0.25%
Annual Discount Rate (%)	1.00%

Output

25-Year Levelized Cost of Power (Cents/Kwh)	**3.096**

Year	Initial Investment Cost ($)	Capital Recovery Factor	Capital Recovery ($)	Annual O&M Costs ($) ($)	Total Annual Generation (Kwh)	Levelized Annual Cost ($)
0	89,540,000					
1		0.0454	4,065,721	2,719,000	237,746,940	2.854
2		0.0454	4,065,721	2,746,190	237,152,573	2.872
3		0.0454	4,065,721	2,773,652	236,559,691	2.891
4		0.0454	4,065,721	2,801,388	235,968,292	2.910
5		0.0454	4,065,721	2,829,402	235,378,371	2.929
6		0.0454	4,065,721	2,857,696	234,789,925	2.949
7		0.0454	4,065,721	2,886,273	234,202,951	2.968
8		0.0454	4,065,721	2,915,136	233,617,443	2.988
9		0.0454	4,065,721	2,944,287	233,033,400	3.008
10		0.0454	4,065,721	2,973,730	232,450,816	3.028
11		0.0454	4,065,721	3,003,468	231,869,689	3.049
12		0.0454	4,065,721	3,033,502	231,290,015	3.069
13		0.0454	4,065,721	3,063,837	230,711,790	3.090
14		0.0454	4,065,721	3,094,476	230,135,010	3.111
15		0.0454	4,065,721	3,125,420	229,559,673	3.133
16		0.0454	4,065,721	3,156,675	228,985,774	3.154
17		0.0454	4,065,721	3,188,241	228,413,309	3.176
18		0.0454	4,065,721	3,220,124	227,842,276	3.198
19		0.0454	4,065,721	3,252,325	227,272,670	3.220
20		0.0454	4,065,721	3,284,848	226,704,488	3.242
21		0.0454	4,065,721	3,317,697	226,137,727	3.265
22		0.0454	4,065,721	3,350,874	225,572,383	3.288
23		0.0454	4,065,721	3,384,382	225,008,452	3.311
24		0.0454	4,065,721	3,418,226	224,445,931	3.334
25		0.0454	4,065,721	3,452,409	223,884,816	3.358

USBR/Klamath Project - AWIA Power Cost Benchmark Analysis

APM No. 3 - Out-of-Basin Large Scale Solar PV Installation Costs
Generic 100 MW Solar PV Plant located near Goldendale, WA
High Case

Input Assumptions

Project Size (KW DC)	116,387
Project Size (KW AC)	100,000
Year 1 Annual Generation (Kwh)	237,746,940
Initial Capital Cost ($/KW AC)	895
Annual O&M Costs ($/KW AC)	27.19
Annual O&M Escalation Factor (%)	2.00%
Annual Panel Efficiency Loss (%)	0.50%
Annual Discount Rate (%)	3.00%

Output

25-Year Levelized Cost of Power (Cents/Kwh)	**3.864**

Year	Initial Investment Cost ($)	Capital Recovery Factor	Capital Recovery ($)	Annual O&M Costs ($) ($)	Total Annual Generation (Kwh)	Levelized Annual Cost ($)
0	89,540,000					
1		0.0574	5,142,092	2,719,000	237,746,940	3.306
2		0.0574	5,142,092	2,773,380	236,558,205	3.346
3		0.0574	5,142,092	2,828,848	235,375,414	3.386
4		0.0574	5,142,092	2,885,425	234,198,537	3.428
5		0.0574	5,142,092	2,943,133	233,027,545	3.470
6		0.0574	5,142,092	3,001,996	231,862,407	3.512
7		0.0574	5,142,092	3,062,036	230,703,095	3.556
8		0.0574	5,142,092	3,123,276	229,549,579	3.601
9		0.0574	5,142,092	3,185,742	228,401,831	3.646
10		0.0574	5,142,092	3,249,457	227,259,822	3.692
11		0.0574	5,142,092	3,314,446	226,123,523	3.740
12		0.0574	5,142,092	3,380,735	224,992,906	3.788
13		0.0574	5,142,092	3,448,349	223,867,941	3.837
14		0.0574	5,142,092	3,517,316	222,748,601	3.888
15		0.0574	5,142,092	3,587,663	221,634,858	3.939
16		0.0574	5,142,092	3,659,416	220,526,684	3.991
17		0.0574	5,142,092	3,732,604	219,424,051	4.045
18		0.0574	5,142,092	3,807,256	218,326,930	4.099
19		0.0574	5,142,092	3,883,402	217,235,296	4.155
20		0.0574	5,142,092	3,961,070	216,149,119	4.212
21		0.0574	5,142,092	4,040,291	215,068,374	4.270
22		0.0574	5,142,092	4,121,097	213,993,032	4.329
23		0.0574	5,142,092	4,203,519	212,923,067	4.389
24		0.0574	5,142,092	4,287,589	211,858,451	4.451
25		0.0574	5,142,092	4,373,341	210,799,159	4.514

Affordable Power Measure No. 4:
Time-of-Use Power Rates

Technical Documentation

USBR/Klamath Project - AWIA Affordable Power Measures Analysis

PacifiCorp Oregon Irrigation Time of Use Pilot Tariff Savings Summary

Amount of Customer's On-Peak Hour Usage Shift (Percent)	Increase/(Reduction) in Customer's PacifiCorp Annual Energy Charges (Percent)
0	15.3
20	5.0
40	(5.3)
60	(15.5)
80	(25.8)
100	(36.1)

USBR/Klamath Project - AWIA Affordable Power Measures Analysis

PacifiCorp Oregon Irrigation Time of Use Pilot Tariff Savings Calculations

0% Load Reduction during On-Peak Hours Case

Base Hourly Maximum Load (KW)	100
Base Number of HLH Pumping Hours	16
Base Number of LLH Pumping Hours	0
Percent Load Reduction during On-Peak Hours	**0.00**
On-Peak Hour Surcharge (cents/Kwh)	22.313
Off-Peak Hour Credit (cents/Kwh)	(3.161)
Total Schedule 41 Energy Charge (cents/Kwh)	8.756

Total Summer Schedule 41 Base Energy Cost ($)	12,889
Time of Use Net Surcharge/(Credit)	1,970
Time of Use Total Costs ($)	14,859
Difference from Schedule 41 Energy Costs (%)	**15.29**

		Total	**26,000**	**121,200**		**Total**	**1,970**				**Total**	**1,970**
Date	Day	Peak Day (1=Yes, 0=No)	Base On-peak Hour Usage (Kwh)	Base Off-Peak Hour Usage (Kwh)	Base On-Peak Surcharge ($)	Base Off-Peak Credit ($)	Base Net Surcharge/ (Credit) ($)	Shifted On-peak Hour Usage (Kwh)	Shifted Off-Peak Hour Usage (Kwh)	Shifted On-Peak Surcharge ($)	Shifted Off-Peak Credit ($)	Shifted Net Surcharge/ (Credit) ($)
6/1/2019	Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
6/2/2019	Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
6/3/2019	Mon	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
6/4/2019	Tue	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
6/5/2019	Wed	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
6/6/2019	Thur	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
6/7/2019	Fri	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
6/8/2019	Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
6/9/2019	Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
6/10/2019	Mon	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
6/11/2019	Tue	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
6/12/2019	Wed	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
6/13/2019	Thur	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
6/14/2019	Fri	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
6/15/2019	Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
6/16/2019	Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
6/17/2019	Mon	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
6/18/2019	Tue	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
6/19/2019	Wed	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
6/20/2019	Thur	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
6/21/2019	Fri	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
6/22/2019	Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
6/23/2019	Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
6/24/2019	Mon	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
6/25/2019	Tue	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
6/26/2019	Wed	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
6/27/2019	Thur	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
6/28/2019	Fri	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
6/29/2019	Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
6/30/2019	Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
7/1/2019	Mon	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
7/2/2019	Tue	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
7/3/2019	Wed	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
7/4/2019	Hol	0	400	1,200	89	(38)	51	400	1,200	89	(38)	51
7/5/2019	Fri	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
7/6/2019	Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
7/7/2019	Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
7/8/2019	Mon	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
7/9/2019	Tue	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51

USBR/Klamath Project - AWIA Affordable Power Measures Analysis

PacifiCorp Oregon Irrigation Time of Use Pilot Tariff Savings Calculations

0% Load Reduction during On-Peak Hours Case

7/10/2019 Wed	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
7/11/2019 Thur	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
7/12/2019 Fri	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
7/13/2019 Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
7/14/2019 Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
7/15/2019 Mon	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
7/16/2019 Tue	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
7/17/2019 Wed	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
7/18/2019 Thur	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
7/19/2019 Fri	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
7/20/2019 Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
7/21/2019 Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
7/22/2019 Mon	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
7/23/2019 Tue	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
7/24/2019 Wed	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
7/25/2019 Thur	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
7/26/2019 Fri	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
7/27/2019 Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
7/28/2019 Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
7/29/2019 Mon	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
7/30/2019 Tue	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
7/31/2019 Wed	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
8/1/2019 Thur	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
8/2/2019 Fri	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
8/3/2019 Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
8/4/2019 Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
8/5/2019 Mon	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
8/6/2019 Tue	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
8/7/2019 Wed	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
8/8/2019 Thur	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
8/9/2019 Fri	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
8/10/2019 Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
8/11/2019 Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
8/12/2019 Mon	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
8/13/2019 Tue	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
8/14/2019 Wed	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
8/15/2019 Thur	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
8/16/2019 Fri	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
8/17/2019 Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
8/18/2019 Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
8/19/2019 Mon	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
8/20/2019 Tue	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
8/21/2019 Wed	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
8/22/2019 Thur	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
8/23/2019 Fri	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
8/24/2019 Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
8/25/2019 Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
8/26/2019 Mon	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
8/27/2019 Tue	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
8/28/2019 Wed	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
8/29/2019 Thur	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
8/30/2019 Fri	1	400	1,200	89	(38)	51	400	1,200	89	(38)	51
8/31/2019 Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)

USBR/Klamath Project - AWIA Affordable Power Measures Analysis

PacifiCorp Oregon Irrigation Time of Use Pilot Tariff Savings Calculations

20% Load Reduction during On-Peak Hours Case

Base Hourly Maximum Load (KW)	100
Base Number of HLH Pumping Hours	16
Base Number of LLH Pumping Hours	0
Percent Load Reduction during On-Peak Hours	**20.00**
On-Peak Hour Surcharge (cents/Kwh)	22.313
Off-Peak Hour Credit (cents/Kwh)	(3.161)
Total Schedule 41 Energy Charge (cents/Kwh)	8.756

Total Summer Schedule 41 Base Energy Cost ($)	12,889
Time of Use Net Surcharge/(Credit)	646
Time of Use Total Costs ($)	13,535
Difference from Schedule 41 Energy Costs (%)	**5.01**

		Total	**26,000**	**121,200**		**Total**	**1,970**				**Total**	**646**
Date	Day	Peak Day (1=Yes, 0=No)	Base On-peak Hour Usage (Kwh)	Base Off-Peak Hour Usage (Kwh)	Base On-Peak Surcharge ($)	Base Off-Peak Credit ($)	Base Net Surcharge/ (Credit) ($)	Shifted On-peak Hour Usage (Kwh)	Shifted Off-Peak Hour Usage (Kwh)	Shifted On-Peak Surcharge ($)	Shifted Off-Peak Credit ($)	Shifted Net Surcharge/ (Credit) ($)
6/1/2019	Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
6/2/2019	Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
6/3/2019	Mon	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
6/4/2019	Tue	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
6/5/2019	Wed	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
6/6/2019	Thur	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
6/7/2019	Fri	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
6/8/2019	Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
6/9/2019	Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
6/10/2019	Mon	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
6/11/2019	Tue	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
6/12/2019	Wed	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
6/13/2019	Thur	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
6/14/2019	Fri	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
6/15/2019	Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
6/16/2019	Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
6/17/2019	Mon	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
6/18/2019	Tue	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
6/19/2019	Wed	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
6/20/2019	Thur	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
6/21/2019	Fri	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
6/22/2019	Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
6/23/2019	Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
6/24/2019	Mon	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
6/25/2019	Tue	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
6/26/2019	Wed	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
6/27/2019	Thur	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
6/28/2019	Fri	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
6/29/2019	Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
6/30/2019	Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
7/1/2019	Mon	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
7/2/2019	Tue	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
7/3/2019	Wed	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
7/4/2019	Hol	0	400	1,200	89	(38)	51	320	1,280	71	(40)	31
7/5/2019	Fri	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
7/6/2019	Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
7/7/2019	Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
7/8/2019	Mon	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
7/9/2019	Tue	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31

USBR/Klamath Project - AWIA Affordable Power Measures Analysis

PacifiCorp Oregon Irrigation Time of Use Pilot Tariff Savings Calculations

20% Load Reduction during On-Peak Hours Case

7/10/2019 Wed	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
7/11/2019 Thur	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
7/12/2019 Fri	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
7/13/2019 Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
7/14/2019 Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
7/15/2019 Mon	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
7/16/2019 Tue	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
7/17/2019 Wed	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
7/18/2019 Thur	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
7/19/2019 Fri	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
7/20/2019 Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
7/21/2019 Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
7/22/2019 Mon	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
7/23/2019 Tue	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
7/24/2019 Wed	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
7/25/2019 Thur	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
7/26/2019 Fri	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
7/27/2019 Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
7/28/2019 Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
7/29/2019 Mon	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
7/30/2019 Tue	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
7/31/2019 Wed	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
8/1/2019 Thur	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
8/2/2019 Fri	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
8/3/2019 Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
8/4/2019 Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
8/5/2019 Mon	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
8/6/2019 Tue	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
8/7/2019 Wed	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
8/8/2019 Thur	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
8/9/2019 Fri	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
8/10/2019 Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
8/11/2019 Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
8/12/2019 Mon	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
8/13/2019 Tue	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
8/14/2019 Wed	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
8/15/2019 Thur	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
8/16/2019 Fri	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
8/17/2019 Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
8/18/2019 Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
8/19/2019 Mon	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
8/20/2019 Tue	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
8/21/2019 Wed	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
8/22/2019 Thur	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
8/23/2019 Fri	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
8/24/2019 Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
8/25/2019 Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
8/26/2019 Mon	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
8/27/2019 Tue	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
8/28/2019 Wed	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
8/29/2019 Thur	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
8/30/2019 Fri	1	400	1,200	89	(38)	51	320	1,280	71	(40)	31
8/31/2019 Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)

USBR/Klamath Project - AWIA Affordable Power Measures Analysis

PacifiCorp Oregon Irrigation Time of Use Pilot Tariff Savings Calculations

40% Load Reduction during On-Peak Hours Case

Base Hourly Maximum Load (KW)	100
Base Number of HLH Pumping Hours	16
Base Number of LLH Pumping Hours	0
Percent Load Reduction during On-Peak Hours	**40.00**
On-Peak Hour Surcharge (cents/Kwh)	22.313
Off-Peak Hour Credit (cents/Kwh)	(3.161)
Total Schedule 41 Energy Charge (cents/Kwh)	8.756

Total Summer Schedule 41 Base Energy Cost ($)	12,889
Time of Use Net Surcharge/(Credit)	(679)
Time of Use Total Costs ($)	12,210
Difference from Schedule 41 Energy Costs (%)	**(5.27)**

		Total	**26,000**	**121,200**		**Total**	**1,970**				**Total**	**(679)**
Date	Day	Peak Day (1=Yes, 0=No)	Base On-peak Hour Usage (Kwh)	Base Off-Peak Hour Usage (Kwh)	Base On-Peak Surcharge ($)	Base Off-Peak Credit ($)	Base Net Surcharge/ (Credit) ($)	Shifted On-peak Hour Usage (Kwh)	Shifted Off-Peak Hour Usage (Kwh)	Shifted On-Peak Surcharge ($)	Shifted Off-Peak Credit ($)	Shifted Net Surcharge/ (Credit) ($)
6/1/2019	Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
6/2/2019	Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
6/3/2019	Mon	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
6/4/2019	Tue	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
6/5/2019	Wed	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
6/6/2019	Thur	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
6/7/2019	Fri	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
6/8/2019	Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
6/9/2019	Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
6/10/2019	Mon	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
6/11/2019	Tue	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
6/12/2019	Wed	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
6/13/2019	Thur	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
6/14/2019	Fri	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
6/15/2019	Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
6/16/2019	Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
6/17/2019	Mon	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
6/18/2019	Tue	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
6/19/2019	Wed	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
6/20/2019	Thur	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
6/21/2019	Fri	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
6/22/2019	Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
6/23/2019	Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
6/24/2019	Mon	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
6/25/2019	Tue	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
6/26/2019	Wed	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
6/27/2019	Thur	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
6/28/2019	Fri	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
6/29/2019	Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
6/30/2019	Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
7/1/2019	Mon	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
7/2/2019	Tue	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
7/3/2019	Wed	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
7/4/2019	Hol	0	400	1,200	89	(38)	51	240	1,360	54	(43)	11
7/5/2019	Fri	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
7/6/2019	Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
7/7/2019	Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
7/8/2019	Mon	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
7/9/2019	Tue	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11

USBR/Klamath Project - AWIA Affordable Power Measures Analysis

PacifiCorp Oregon Irrigation Time of Use Pilot Tariff Savings Calculations

40% Load Reduction during On-Peak Hours Case

7/10/2019 Wed	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
7/11/2019 Thur	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
7/12/2019 Fri	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
7/13/2019 Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
7/14/2019 Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
7/15/2019 Mon	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
7/16/2019 Tue	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
7/17/2019 Wed	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
7/18/2019 Thur	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
7/19/2019 Fri	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
7/20/2019 Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
7/21/2019 Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
7/22/2019 Mon	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
7/23/2019 Tue	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
7/24/2019 Wed	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
7/25/2019 Thur	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
7/26/2019 Fri	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
7/27/2019 Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
7/28/2019 Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
7/29/2019 Mon	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
7/30/2019 Tue	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
7/31/2019 Wed	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
8/1/2019 Thur	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
8/2/2019 Fri	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
8/3/2019 Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
8/4/2019 Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
8/5/2019 Mon	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
8/6/2019 Tue	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
8/7/2019 Wed	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
8/8/2019 Thur	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
8/9/2019 Fri	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
8/10/2019 Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
8/11/2019 Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
8/12/2019 Mon	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
8/13/2019 Tue	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
8/14/2019 Wed	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
8/15/2019 Thur	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
8/16/2019 Fri	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
8/17/2019 Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
8/18/2019 Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
8/19/2019 Mon	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
8/20/2019 Tue	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
8/21/2019 Wed	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
8/22/2019 Thur	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
8/23/2019 Fri	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
8/24/2019 Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
8/25/2019 Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
8/26/2019 Mon	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
8/27/2019 Tue	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
8/28/2019 Wed	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
8/29/2019 Thur	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
8/30/2019 Fri	1	400	1,200	89	(38)	51	240	1,360	54	(43)	11
8/31/2019 Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)

USBR/Klamath Project - AWIA Affordable Power Measures Analysis

PacifiCorp Oregon Irrigation Time of Use Pilot Tariff Savings Calculations

60% Load Reduction during On-Peak Hours Case

Base Hourly Maximum Load (KW)	100
Base Number of HLH Pumping Hours	16
Base Number of LLH Pumping Hours	0
Percent Load Reduction during On-Peak Hours	**60.00**
On-Peak Hour Surcharge (cents/Kwh)	22.313
Off-Peak Hour Credit (cents/Kwh)	(3.161)
Total Schedule 41 Energy Charge (cents/Kwh)	8.756

Total Summer Schedule 41 Base Energy Cost ($)	12,889
Time of Use Net Surcharge/(Credit)	(2,004)
Time of Use Total Costs ($)	10,885
Difference from Schedule 41 Energy Costs (%)	**(15.55)**

		Total	**26,000**	**121,200**		**Total**	**1,970**				**Total**	**(2,004)**
Date	Day	Peak Day (1=Yes, 0=No)	Base On-peak Hour Usage (Kwh)	Base Off-Peak Hour Usage (Kwh)	Base On-Peak Surcharge ($)	Base Off-Peak Credit ($)	Base Net Surcharge/ (Credit) ($)	Shifted On-peak Hour Usage (Kwh)	Shifted Off-Peak Hour Usage (Kwh)	Shifted On-Peak Surcharge ($)	Shifted Off-Peak Credit ($)	Shifted Net Surcharge/ (Credit) ($)
6/1/2019	Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
6/2/2019	Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
6/3/2019	Mon	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
6/4/2019	Tue	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
6/5/2019	Wed	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
6/6/2019	Thur	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
6/7/2019	Fri	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
6/8/2019	Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
6/9/2019	Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
6/10/2019	Mon	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
6/11/2019	Tue	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
6/12/2019	Wed	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
6/13/2019	Thur	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
6/14/2019	Fri	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
6/15/2019	Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
6/16/2019	Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
6/17/2019	Mon	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
6/18/2019	Tue	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
6/19/2019	Wed	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
6/20/2019	Thur	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
6/21/2019	Fri	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
6/22/2019	Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
6/23/2019	Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
6/24/2019	Mon	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
6/25/2019	Tue	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
6/26/2019	Wed	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
6/27/2019	Thur	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
6/28/2019	Fri	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
6/29/2019	Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
6/30/2019	Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
7/1/2019	Mon	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
7/2/2019	Tue	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
7/3/2019	Wed	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
7/4/2019	Hol	0	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
7/5/2019	Fri	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
7/6/2019	Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
7/7/2019	Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
7/8/2019	Mon	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
7/9/2019	Tue	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)

USBR/Klamath Project - AWIA Affordable Power Measures Analysis

PacifiCorp Oregon Irrigation Time of Use Pilot Tariff Savings Calculations

60% Load Reduction during On-Peak Hours Case

7/10/2019 Wed	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
7/11/2019 Thur	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
7/12/2019 Fri	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
7/13/2019 Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
7/14/2019 Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
7/15/2019 Mon	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
7/16/2019 Tue	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
7/17/2019 Wed	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
7/18/2019 Thur	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
7/19/2019 Fri	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
7/20/2019 Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
7/21/2019 Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
7/22/2019 Mon	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
7/23/2019 Tue	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
7/24/2019 Wed	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
7/25/2019 Thur	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
7/26/2019 Fri	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
7/27/2019 Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
7/28/2019 Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
7/29/2019 Mon	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
7/30/2019 Tue	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
7/31/2019 Wed	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
8/1/2019 Thur	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
8/2/2019 Fri	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
8/3/2019 Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
8/4/2019 Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
8/5/2019 Mon	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
8/6/2019 Tue	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
8/7/2019 Wed	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
8/8/2019 Thur	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
8/9/2019 Fri	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
8/10/2019 Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
8/11/2019 Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
8/12/2019 Mon	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
8/13/2019 Tue	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
8/14/2019 Wed	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
8/15/2019 Thur	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
8/16/2019 Fri	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
8/17/2019 Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
8/18/2019 Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
8/19/2019 Mon	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
8/20/2019 Tue	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
8/21/2019 Wed	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
8/22/2019 Thur	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
8/23/2019 Fri	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
8/24/2019 Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
8/25/2019 Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
8/26/2019 Mon	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
8/27/2019 Tue	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
8/28/2019 Wed	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
8/29/2019 Thur	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
8/30/2019 Fri	1	400	1,200	89	(38)	51	160	1,440	36	(46)	(10)
8/31/2019 Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)

USBR/Klamath Project - AWIA Affordable Power Measures Analysis

PacifiCorp Oregon Irrigation Time of Use Pilot Tariff Savings Calculations

80% Load Reduction during On-Peak Hours Case

Base Hourly Maximum Load (KW)	100
Base Number of HLH Pumping Hours	16
Base Number of LLH Pumping Hours	0
Percent Load Reduction during On-Peak Hours	**80.00**
On-Peak Hour Surcharge (cents/Kwh)	22.313
Off-Peak Hour Credit (cents/Kwh)	(3.161)
Total Schedule 41 Energy Charge (cents/Kwh)	8.756

Total Summer Schedule 41 Base Energy Cost ($)	12,889
Time of Use Net Surcharge/(Credit)	(3,328)
Time of Use Total Costs ($)	9,561
Difference from Schedule 41 Energy Costs (%)	**(25.82)**

		Total	**26,000**	**121,200**		**Total**	**1,970**				**Total**	**(3,328)**
Date	Day	Peak Day (1=Yes, 0=No)	Base On-peak Hour Usage (Kwh)	Base Off-Peak Hour Usage (Kwh)	Base On-Peak Surcharge ($)	Base Off-Peak Credit ($)	Base Net Surcharge/ (Credit) ($)	Shifted On-peak Hour Usage (Kwh)	Shifted Off-Peak Hour Usage (Kwh)	Shifted On-Peak Surcharge ($)	Shifted Off-Peak Credit ($)	Shifted Net Surcharge/ (Credit) ($)
6/1/2019	Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
6/2/2019	Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
6/3/2019	Mon	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
6/4/2019	Tue	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
6/5/2019	Wed	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
6/6/2019	Thur	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
6/7/2019	Fri	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
6/8/2019	Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
6/9/2019	Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
6/10/2019	Mon	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
6/11/2019	Tue	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
6/12/2019	Wed	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
6/13/2019	Thur	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
6/14/2019	Fri	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
6/15/2019	Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
6/16/2019	Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
6/17/2019	Mon	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
6/18/2019	Tue	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
6/19/2019	Wed	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
6/20/2019	Thur	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
6/21/2019	Fri	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
6/22/2019	Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
6/23/2019	Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
6/24/2019	Mon	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
6/25/2019	Tue	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
6/26/2019	Wed	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
6/27/2019	Thur	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
6/28/2019	Fri	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
6/29/2019	Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
6/30/2019	Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
7/1/2019	Mon	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
7/2/2019	Tue	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
7/3/2019	Wed	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
7/4/2019	Hol	0	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
7/5/2019	Fri	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
7/6/2019	Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
7/7/2019	Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
7/8/2019	Mon	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
7/9/2019	Tue	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)

USBR/Klamath Project - AWIA Affordable Power Measures Analysis

PacifiCorp Oregon Irrigation Time of Use Pilot Tariff Savings Calculations

80% Load Reduction during On-Peak Hours Case

7/10/2019 Wed	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
7/11/2019 Thur	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
7/12/2019 Fri	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
7/13/2019 Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
7/14/2019 Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
7/15/2019 Mon	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
7/16/2019 Tue	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
7/17/2019 Wed	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
7/18/2019 Thur	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
7/19/2019 Fri	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
7/20/2019 Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
7/21/2019 Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
7/22/2019 Mon	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
7/23/2019 Tue	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
7/24/2019 Wed	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
7/25/2019 Thur	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
7/26/2019 Fri	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
7/27/2019 Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
7/28/2019 Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
7/29/2019 Mon	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
7/30/2019 Tue	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
7/31/2019 Wed	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
8/1/2019 Thur	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
8/2/2019 Fri	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
8/3/2019 Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
8/4/2019 Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
8/5/2019 Mon	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
8/6/2019 Tue	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
8/7/2019 Wed	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
8/8/2019 Thur	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
8/9/2019 Fri	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
8/10/2019 Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
8/11/2019 Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
8/12/2019 Mon	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
8/13/2019 Tue	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
8/14/2019 Wed	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
8/15/2019 Thur	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
8/16/2019 Fri	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
8/17/2019 Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
8/18/2019 Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
8/19/2019 Mon	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
8/20/2019 Tue	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
8/21/2019 Wed	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
8/22/2019 Thur	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
8/23/2019 Fri	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
8/24/2019 Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
8/25/2019 Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
8/26/2019 Mon	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
8/27/2019 Tue	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
8/28/2019 Wed	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
8/29/2019 Thur	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
8/30/2019 Fri	1	400	1,200	89	(38)	51	80	1,520	18	(48)	(30)
8/31/2019 Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)

USBR/Klamath Project - AWIA Affordable Power Measures Analysis

PacifiCorp Oregon Irrigation Time of Use Pilot Tariff Savings Calculations

100% Load Reduction during On-Peak Hours Case

Base Hourly Maximum Load (KW)	100
Base Number of HLH Pumping Hours	16
Base Number of LLH Pumping Hours	0
Percent Load Reduction during On-Peak Hours	**100.00**
On-Peak Hour Surcharge (cents/Kwh)	22.313
Off-Peak Hour Credit (cents/Kwh)	(3.161)
Total Schedule 41 Energy Charge (cents/Kwh)	8.756

Total Summer Schedule 41 Base Energy Cost ($)	12,889
Time of Use Net Surcharge/(Credit)	(4,653)
Time of Use Total Costs ($)	8,236
Difference from Schedule 41 Energy Costs (%)	**(36.10)**

		Total	**26,000**	**121,200**		**Total**	**1,970**				**Total**	**(4,653)**
Date	Day	Peak Day (1=Yes, 0=No)	Base On-peak Hour Usage (Kwh)	Base Off-Peak Hour Usage (Kwh)	Base On-Peak Surcharge ($)	Base Off-Peak Credit ($)	Base Net Surcharge/ (Credit) ($)	Shifted On-peak Hour Usage (Kwh)	Shifted Off-Peak Hour Usage (Kwh)	Shifted On-Peak Surcharge ($)	Shifted Off-Peak Credit ($)	Shifted Net Surcharge/ (Credit) ($)
6/1/2019	Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
6/2/2019	Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
6/3/2019	Mon	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
6/4/2019	Tue	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
6/5/2019	Wed	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
6/6/2019	Thur	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
6/7/2019	Fri	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
6/8/2019	Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
6/9/2019	Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
6/10/2019	Mon	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
6/11/2019	Tue	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
6/12/2019	Wed	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
6/13/2019	Thur	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
6/14/2019	Fri	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
6/15/2019	Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
6/16/2019	Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
6/17/2019	Mon	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
6/18/2019	Tue	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
6/19/2019	Wed	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
6/20/2019	Thur	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
6/21/2019	Fri	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
6/22/2019	Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
6/23/2019	Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
6/24/2019	Mon	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
6/25/2019	Tue	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
6/26/2019	Wed	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
6/27/2019	Thur	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
6/28/2019	Fri	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
6/29/2019	Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
6/30/2019	Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
7/1/2019	Mon	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
7/2/2019	Tue	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
7/3/2019	Wed	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
7/4/2019	Hol	0	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
7/5/2019	Fri	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
7/6/2019	Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
7/7/2019	Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
7/8/2019	Mon	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
7/9/2019	Tue	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)

USBR/Klamath Project - AWIA Affordable Power Measures Analysis

PacifiCorp Oregon Irrigation Time of Use Pilot Tariff Savings Calculations

100% Load Reduction during On-Peak Hours Case

7/10/2019 Wed	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
7/11/2019 Thur	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
7/12/2019 Fri	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
7/13/2019 Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
7/14/2019 Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
7/15/2019 Mon	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
7/16/2019 Tue	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
7/17/2019 Wed	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
7/18/2019 Thur	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
7/19/2019 Fri	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
7/20/2019 Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
7/21/2019 Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
7/22/2019 Mon	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
7/23/2019 Tue	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
7/24/2019 Wed	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
7/25/2019 Thur	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
7/26/2019 Fri	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
7/27/2019 Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
7/28/2019 Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
7/29/2019 Mon	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
7/30/2019 Tue	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
7/31/2019 Wed	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
8/1/2019 Thur	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
8/2/2019 Fri	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
8/3/2019 Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
8/4/2019 Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
8/5/2019 Mon	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
8/6/2019 Tue	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
8/7/2019 Wed	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
8/8/2019 Thur	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
8/9/2019 Fri	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
8/10/2019 Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
8/11/2019 Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
8/12/2019 Mon	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
8/13/2019 Tue	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
8/14/2019 Wed	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
8/15/2019 Thur	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
8/16/2019 Fri	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
8/17/2019 Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
8/18/2019 Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
8/19/2019 Mon	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
8/20/2019 Tue	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
8/21/2019 Wed	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
8/22/2019 Thur	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
8/23/2019 Fri	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
8/24/2019 Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
8/25/2019 Sun	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)
8/26/2019 Mon	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
8/27/2019 Tue	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
8/28/2019 Wed	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
8/29/2019 Thur	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
8/30/2019 Fri	1	400	1,200	89	(38)	51	0	1,600	0	(51)	(51)
8/31/2019 Sat	0	0	1,600	0	(51)	(51)	0	1,600	0	(51)	(51)

USBR/Klamath Project - AWIA Affordable Power Measures Analysis

PacifiCorp California Irrigation Time of Use Pilot Tariff Savings Summary

Amount of Customer's On-Peak Hour Usage Shift (Percent)	Increase/(Reduction) in Customer's PacifiCorp Annual Energy Charges (Percent)
0	14.2
20	4.7
40	(4.9)
60	(14.5)
80	(24.0)
100	(33.6)

Note: The above figures incorporate the California Climate Credit, which is available to customers with loads up to 20 KW in size.

USBR/Klamath Project - AWIA Affordable Power Measures Analysis

PacifiCorp California Irrigation Time of Use Pilot Tariff Savings Calculations

0% Load Reduction during On-Peak Hours Case

Base Hourly Maximum Load (KW)	100
Base Number of HLH Pumping Hours	16
Base Number of LLH Pumping Hours	0
Percent Load Reduction during On-Peak Hours	**0.00**
On-Peak Hour Surcharge (cents/Kwh)	30.022
Off-Peak Hour Credit (cents/Kwh)	(4.254)
Total Schedule PA-20 Energy Charge (cents/Kwh)	11.905

Total Summer Schedule PA-20 Base Energy Cost ($)	17,524
Time of Use Net Surcharge/(Credit)	2,650
Time of Use Total Costs ($)	20,174
Difference from Schedule PA-20 Energy Costs (%)	**15.12**

		Total	**26,000**	**121,200**		**Total**	**2,650**				**Total**	**2,650**
Date	Day	Peak Day (1=Yes, 0=No)	Base On-peak Hour Usage (Kwh)	Base Off-Peak Hour Usage (Kwh)	Base On-Peak Surcharge ($)	Base Off-Peak Credit ($)	Base Net Surcharge/ (Credit) ($)	Shifted On-peak Hour Usage (Kwh)	Shifted Off-Peak Hour Usage (Kwh)	Shifted On-Peak Surcharge ($)	Shifted Off-Peak Credit ($)	Shifted Net Surcharge/ (Credit) ($)
6/1/2019	Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
6/2/2019	Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
6/3/2019	Mon	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
6/4/2019	Tue	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
6/5/2019	Wed	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
6/6/2019	Thur	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
6/7/2019	Fri	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
6/8/2019	Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
6/9/2019	Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
6/10/2019	Mon	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
6/11/2019	Tue	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
6/12/2019	Wed	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
6/13/2019	Thur	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
6/14/2019	Fri	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
6/15/2019	Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
6/16/2019	Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
6/17/2019	Mon	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
6/18/2019	Tue	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
6/19/2019	Wed	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
6/20/2019	Thur	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
6/21/2019	Fri	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
6/22/2019	Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
6/23/2019	Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
6/24/2019	Mon	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
6/25/2019	Tue	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
6/26/2019	Wed	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
6/27/2019	Thur	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
6/28/2019	Fri	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
6/29/2019	Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
6/30/2019	Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
7/1/2019	Mon	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
7/2/2019	Tue	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
7/3/2019	Wed	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
7/4/2019	Hol	0	400	1,200	120	(51)	69	400	1,200	120	(51)	69
7/5/2019	Fri	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
7/6/2019	Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
7/7/2019	Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
7/8/2019	Mon	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
7/9/2019	Tue	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69

USBR/Klamath Project - AWIA Affordable Power Measures Analysis

PacifiCorp California Irrigation Time of Use Pilot Tariff Savings Calculations

0% Load Reduction during On-Peak Hours Case

7/10/2019 Wed	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
7/11/2019 Thur	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
7/12/2019 Fri	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
7/13/2019 Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
7/14/2019 Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
7/15/2019 Mon	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
7/16/2019 Tue	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
7/17/2019 Wed	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
7/18/2019 Thur	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
7/19/2019 Fri	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
7/20/2019 Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
7/21/2019 Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
7/22/2019 Mon	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
7/23/2019 Tue	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
7/24/2019 Wed	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
7/25/2019 Thur	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
7/26/2019 Fri	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
7/27/2019 Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
7/28/2019 Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
7/29/2019 Mon	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
7/30/2019 Tue	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
7/31/2019 Wed	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
8/1/2019 Thur	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
8/2/2019 Fri	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
8/3/2019 Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
8/4/2019 Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
8/5/2019 Mon	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
8/6/2019 Tue	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
8/7/2019 Wed	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
8/8/2019 Thur	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
8/9/2019 Fri	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
8/10/2019 Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
8/11/2019 Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
8/12/2019 Mon	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
8/13/2019 Tue	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
8/14/2019 Wed	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
8/15/2019 Thur	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
8/16/2019 Fri	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
8/17/2019 Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
8/18/2019 Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
8/19/2019 Mon	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
8/20/2019 Tue	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
8/21/2019 Wed	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
8/22/2019 Thur	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
8/23/2019 Fri	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
8/24/2019 Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
8/25/2019 Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
8/26/2019 Mon	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
8/27/2019 Tue	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
8/28/2019 Wed	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
8/29/2019 Thur	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
8/30/2019 Fri	1	400	1,200	120	(51)	69	400	1,200	120	(51)	69
8/31/2019 Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)

Note: The above calculations incorporate the California Climate Credit, which is available to customers with loads up to 20 KW in size.

USBR/Klamath Project - AWIA Affordable Power Measures Analysis

PacifiCorp California Irrigation Time of Use Pilot Tariff Savings Calculations

20% Load Reduction during On-Peak Hours Case

Base Hourly Maximum Load (KW)	100
Base Number of HLH Pumping Hours	16
Base Number of LLH Pumping Hours	0
Percent Load Reduction during On-Peak Hours	**20.00**
On-Peak Hour Surcharge (cents/Kwh)	30.022
Off-Peak Hour Credit (cents/Kwh)	(4.254)
Total Schedule PA-20 Energy Charge (cents/Kwh)	11.905

Total Summer Schedule PA-20 Base Energy Cost ($)	17,524
Time of Use Net Surcharge/(Credit)	868
Time of Use Total Costs ($)	18,392
Difference from Schedule PA-20 Energy Costs (%)	**4.95**

		Total	**26,000**	**121,200**		**Total**	**2,650**				**Total**	**868**
Date	Day	Peak Day (1=Yes, 0=No)	Base On-peak Hour Usage (Kwh)	Base Off-Peak Hour Usage (Kwh)	Base On-Peak Surcharge ($)	Base Off-Peak Credit ($)	Base Net Surcharge/ (Credit) ($)	Shifted On-peak Hour Usage (Kwh)	Shifted Off-Peak Hour Usage (Kwh)	Shifted On-Peak Surcharge ($)	Shifted Off-Peak Credit ($)	Shifted Net Surcharge/ (Credit) ($)
6/1/2019	Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
6/2/2019	Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
6/3/2019	Mon	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
6/4/2019	Tue	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
6/5/2019	Wed	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
6/6/2019	Thur	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
6/7/2019	Fri	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
6/8/2019	Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
6/9/2019	Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
6/10/2019	Mon	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
6/11/2019	Tue	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
6/12/2019	Wed	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
6/13/2019	Thur	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
6/14/2019	Fri	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
6/15/2019	Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
6/16/2019	Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
6/17/2019	Mon	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
6/18/2019	Tue	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
6/19/2019	Wed	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
6/20/2019	Thur	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
6/21/2019	Fri	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
6/22/2019	Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
6/23/2019	Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
6/24/2019	Mon	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
6/25/2019	Tue	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
6/26/2019	Wed	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
6/27/2019	Thur	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
6/28/2019	Fri	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
6/29/2019	Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
6/30/2019	Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
7/1/2019	Mon	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
7/2/2019	Tue	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
7/3/2019	Wed	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
7/4/2019	Hol	0	400	1,200	120	(51)	69	320	1,280	96	(54)	42
7/5/2019	Fri	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
7/6/2019	Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
7/7/2019	Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
7/8/2019	Mon	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
7/9/2019	Tue	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42

USBR/Klamath Project - AWIA Affordable Power Measures Analysis

PacifiCorp California Irrigation Time of Use Pilot Tariff Savings Calculations

20% Load Reduction during On-Peak Hours Case

7/10/2019 Wed	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
7/11/2019 Thur	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
7/12/2019 Fri	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
7/13/2019 Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
7/14/2019 Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
7/15/2019 Mon	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
7/16/2019 Tue	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
7/17/2019 Wed	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
7/18/2019 Thur	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
7/19/2019 Fri	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
7/20/2019 Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
7/21/2019 Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
7/22/2019 Mon	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
7/23/2019 Tue	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
7/24/2019 Wed	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
7/25/2019 Thur	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
7/26/2019 Fri	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
7/27/2019 Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
7/28/2019 Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
7/29/2019 Mon	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
7/30/2019 Tue	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
7/31/2019 Wed	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
8/1/2019 Thur	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
8/2/2019 Fri	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
8/3/2019 Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
8/4/2019 Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
8/5/2019 Mon	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
8/6/2019 Tue	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
8/7/2019 Wed	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
8/8/2019 Thur	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
8/9/2019 Fri	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
8/10/2019 Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
8/11/2019 Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
8/12/2019 Mon	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
8/13/2019 Tue	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
8/14/2019 Wed	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
8/15/2019 Thur	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
8/16/2019 Fri	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
8/17/2019 Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
8/18/2019 Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
8/19/2019 Mon	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
8/20/2019 Tue	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
8/21/2019 Wed	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
8/22/2019 Thur	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
8/23/2019 Fri	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
8/24/2019 Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
8/25/2019 Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
8/26/2019 Mon	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
8/27/2019 Tue	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
8/28/2019 Wed	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
8/29/2019 Thur	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
8/30/2019 Fri	1	400	1,200	120	(51)	69	320	1,280	96	(54)	42
8/31/2019 Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)

Note: The above calculations incorporate the California Climate Credit, which is available to customers with loads up to 20 KW in size.

USBR/Klamath Project - AWIA Affordable Power Measures Analysis

PacifiCorp California Irrigation Time of Use Pilot Tariff Savings Calculations

40% Load Reduction during On-Peak Hours Case

Base Hourly Maximum Load (KW)	100
Base Number of HLH Pumping Hours	16
Base Number of LLH Pumping Hours	0
Percent Load Reduction during On-Peak Hours	**40.00**
On-Peak Hour Surcharge (cents/Kwh)	30.022
Off-Peak Hour Credit (cents/Kwh)	(4.254)
Total Schedule PA-20 Energy Charge (cents/Kwh)	11.905

Total Summer Schedule PA-20 Base Energy Cost ($)	17,524
Time of Use Net Surcharge/(Credit)	(915)
Time of Use Total Costs ($)	16,609
Difference from Schedule PA-20 Energy Costs (%)	**(5.22)**

		Total	**26,000**	**121,200**		**Total**	**2,650**				**Total**	**(915)**
Date	Day	Peak Day (1=Yes, 0=No)	Base On-peak Hour Usage (Kwh)	Base Off-Peak Hour Usage (Kwh)	Base On-Peak Surcharge ($)	Base Off-Peak Credit ($)	Base Net Surcharge/ (Credit) ($)	Shifted On-peak Hour Usage (Kwh)	Shifted Off-Peak Hour Usage (Kwh)	Shifted On-Peak Surcharge ($)	Shifted Off-Peak Credit ($)	Shifted Net Surcharge/ (Credit) ($)
6/1/2019	Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
6/2/2019	Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
6/3/2019	Mon	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14
6/4/2019	Tue	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14
6/5/2019	Wed	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14
6/6/2019	Thur	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14
6/7/2019	Fri	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14
6/8/2019	Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
6/9/2019	Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
6/10/2019	Mon	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14
6/11/2019	Tue	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14
6/12/2019	Wed	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14
6/13/2019	Thur	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14
6/14/2019	Fri	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14
6/15/2019	Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
6/16/2019	Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
6/17/2019	Mon	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14
6/18/2019	Tue	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14
6/19/2019	Wed	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14
6/20/2019	Thur	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14
6/21/2019	Fri	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14
6/22/2019	Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
6/23/2019	Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
6/24/2019	Mon	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14
6/25/2019	Tue	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14
6/26/2019	Wed	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14
6/27/2019	Thur	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14
6/28/2019	Fri	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14
6/29/2019	Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
6/30/2019	Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
7/1/2019	Mon	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14
7/2/2019	Tue	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14
7/3/2019	Wed	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14
7/4/2019	Hol	0	400	1,200	120	(51)	69	240	1,360	72	(58)	14
7/5/2019	Fri	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14
7/6/2019	Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
7/7/2019	Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
7/8/2019	Mon	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14
7/9/2019	Tue	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14

USBR/Klamath Project - AWIA Affordable Power Measures Analysis

PacifiCorp California Irrigation Time of Use Pilot Tariff Savings Calculations

40% Load Reduction during On-Peak Hours Case

7/10/2019 Wed	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14
7/11/2019 Thur	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14
7/12/2019 Fri	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14
7/13/2019 Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
7/14/2019 Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
7/15/2019 Mon	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14
7/16/2019 Tue	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14
7/17/2019 Wed	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14
7/18/2019 Thur	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14
7/19/2019 Fri	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14
7/20/2019 Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
7/21/2019 Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
7/22/2019 Mon	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14
7/23/2019 Tue	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14
7/24/2019 Wed	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14
7/25/2019 Thur	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14
7/26/2019 Fri	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14
7/27/2019 Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
7/28/2019 Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
7/29/2019 Mon	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14
7/30/2019 Tue	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14
7/31/2019 Wed	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14
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8/3/2019 Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
8/4/2019 Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
8/5/2019 Mon	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14
8/6/2019 Tue	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14
8/7/2019 Wed	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14
8/8/2019 Thur	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14
8/9/2019 Fri	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14
8/10/2019 Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
8/11/2019 Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
8/12/2019 Mon	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14
8/13/2019 Tue	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14
8/14/2019 Wed	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14
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8/17/2019 Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
8/18/2019 Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
8/19/2019 Mon	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14
8/20/2019 Tue	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14
8/21/2019 Wed	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14
8/22/2019 Thur	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14
8/23/2019 Fri	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14
8/24/2019 Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
8/25/2019 Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
8/26/2019 Mon	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14
8/27/2019 Tue	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14
8/28/2019 Wed	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14
8/29/2019 Thur	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14
8/30/2019 Fri	1	400	1,200	120	(51)	69	240	1,360	72	(58)	14
8/31/2019 Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)

Note: The above calculations incorporate the California Climate Credit, which is available to customers with loads up to 20 KW in size.

USBR/Klamath Project - AWIA Affordable Power Measures Analysis

PacifiCorp California Irrigation Time of Use Pilot Tariff Savings Calculations

60% Load Reduction during On-Peak Hours Case

Base Hourly Maximum Load (KW)	100
Base Number of HLH Pumping Hours	16
Base Number of LLH Pumping Hours	0
Percent Load Reduction during On-Peak Hours	**60.00**
On-Peak Hour Surcharge (cents/Kwh)	30.022
Off-Peak Hour Credit (cents/Kwh)	(4.254)
Total Schedule PA-20 Energy Charge (cents/Kwh)	11.905

Total Summer Schedule PA-20 Base Energy Cost ($)	17,524
Time of Use Net Surcharge/(Credit)	(2,697)
Time of Use Total Costs ($)	14,827
Difference from Schedule PA-20 Energy Costs (%)	**(15.39)**

		Total	**26,000**	**121,200**		**Total**	**2,650**				**Total**	**(2,697)**
Date	Day	Peak Day (1=Yes, 0=No)	Base On-peak Hour Usage (Kwh)	Base Off-Peak Hour Usage (Kwh)	Base On-Peak Surcharge ($)	Base Off-Peak Credit ($)	Base Net Surcharge/ (Credit) ($)	Shifted On-peak Hour Usage (Kwh)	Shifted Off-Peak Hour Usage (Kwh)	Shifted On-Peak Surcharge ($)	Shifted Off-Peak Credit ($)	Shifted Net Surcharge/ (Credit) ($)
6/1/2019	Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
6/2/2019	Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
6/3/2019	Mon	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
6/4/2019	Tue	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
6/5/2019	Wed	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
6/6/2019	Thur	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
6/7/2019	Fri	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
6/8/2019	Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
6/9/2019	Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
6/10/2019	Mon	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
6/11/2019	Tue	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
6/12/2019	Wed	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
6/13/2019	Thur	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
6/14/2019	Fri	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
6/15/2019	Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
6/16/2019	Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
6/17/2019	Mon	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
6/18/2019	Tue	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
6/19/2019	Wed	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
6/20/2019	Thur	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
6/21/2019	Fri	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
6/22/2019	Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
6/23/2019	Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
6/24/2019	Mon	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
6/25/2019	Tue	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
6/26/2019	Wed	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
6/27/2019	Thur	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
6/28/2019	Fri	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
6/29/2019	Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
6/30/2019	Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
7/1/2019	Mon	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
7/2/2019	Tue	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
7/3/2019	Wed	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
7/4/2019	Hol	0	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
7/5/2019	Fri	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
7/6/2019	Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
7/7/2019	Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
7/8/2019	Mon	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
7/9/2019	Tue	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)

USBR/Klamath Project - AWIA Affordable Power Measures Analysis

PacifiCorp California Irrigation Time of Use Pilot Tariff Savings Calculations

60% Load Reduction during On-Peak Hours Case

7/10/2019 Wed	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
7/11/2019 Thur	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
7/12/2019 Fri	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
7/13/2019 Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
7/14/2019 Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
7/15/2019 Mon	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
7/16/2019 Tue	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
7/17/2019 Wed	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
7/18/2019 Thur	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
7/19/2019 Fri	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
7/20/2019 Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
7/21/2019 Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
7/22/2019 Mon	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
7/23/2019 Tue	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
7/24/2019 Wed	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
7/25/2019 Thur	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
7/26/2019 Fri	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
7/27/2019 Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
7/28/2019 Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
7/29/2019 Mon	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
7/30/2019 Tue	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
7/31/2019 Wed	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
8/1/2019 Thur	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
8/2/2019 Fri	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
8/3/2019 Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
8/4/2019 Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
8/5/2019 Mon	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
8/6/2019 Tue	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
8/7/2019 Wed	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
8/8/2019 Thur	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
8/9/2019 Fri	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
8/10/2019 Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
8/11/2019 Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
8/12/2019 Mon	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
8/13/2019 Tue	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
8/14/2019 Wed	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
8/15/2019 Thur	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
8/16/2019 Fri	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
8/17/2019 Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
8/18/2019 Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
8/19/2019 Mon	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
8/20/2019 Tue	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
8/21/2019 Wed	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
8/22/2019 Thur	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
8/23/2019 Fri	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
8/24/2019 Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
8/25/2019 Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
8/26/2019 Mon	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
8/27/2019 Tue	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
8/28/2019 Wed	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
8/29/2019 Thur	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
8/30/2019 Fri	1	400	1,200	120	(51)	69	160	1,440	48	(61)	(13)
8/31/2019 Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)

Note: The above calculations incorporate the California Climate Credit, which is available to customers with loads up to 20 KW in size.

USBR/Klamath Project - AWIA Affordable Power Measures Analysis

PacifiCorp California Irrigation Time of Use Pilot Tariff Savings Calculations

80% Load Reduction during On-Peak Hours Case

Base Hourly Maximum Load (KW)	100
Base Number of HLH Pumping Hours	16
Base Number of LLH Pumping Hours	0
Percent Load Reduction during On-Peak Hours	**80.00**
On-Peak Hour Surcharge (cents/Kwh)	30.022
Off-Peak Hour Credit (cents/Kwh)	(4.254)
Total Schedule PA-20 Energy Charge (cents/Kwh)	11.905

Total Summer Schedule PA-20 Base Energy Cost ($)	17,524
Time of Use Net Surcharge/(Credit)	(4,480)
Time of Use Total Costs ($)	13,045
Difference from Schedule PA-20 Energy Costs (%)	**(25.56)**

		Total	**26,000**	**121,200**		**Total**	**2,650**				**Total**	**(4,480)**
Date	Day	Peak Day (1=Yes, 0=No)	Base On-peak Hour Usage (Kwh)	Base Off-Peak Hour Usage (Kwh)	Base On-Peak Surcharge ($)	Base Off-Peak Credit ($)	Base Net Surcharge/ (Credit) ($)	Shifted On-peak Hour Usage (Kwh)	Shifted Off-Peak Hour Usage (Kwh)	Shifted On-Peak Surcharge ($)	Shifted Off-Peak Credit ($)	Shifted Net Surcharge/ (Credit) ($)
6/1/2019	Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
6/2/2019	Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
6/3/2019	Mon	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
6/4/2019	Tue	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
6/5/2019	Wed	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
6/6/2019	Thur	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
6/7/2019	Fri	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
6/8/2019	Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
6/9/2019	Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
6/10/2019	Mon	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
6/11/2019	Tue	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
6/12/2019	Wed	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
6/13/2019	Thur	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
6/14/2019	Fri	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
6/15/2019	Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
6/16/2019	Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
6/17/2019	Mon	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
6/18/2019	Tue	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
6/19/2019	Wed	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
6/20/2019	Thur	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
6/21/2019	Fri	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
6/22/2019	Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
6/23/2019	Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
6/24/2019	Mon	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
6/25/2019	Tue	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
6/26/2019	Wed	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
6/27/2019	Thur	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
6/28/2019	Fri	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
6/29/2019	Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
6/30/2019	Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
7/1/2019	Mon	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
7/2/2019	Tue	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
7/3/2019	Wed	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
7/4/2019	Hol	0	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
7/5/2019	Fri	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
7/6/2019	Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
7/7/2019	Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
7/8/2019	Mon	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
7/9/2019	Tue	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)

USBR/Klamath Project - AWIA Affordable Power Measures Analysis

PacifiCorp California Irrigation Time of Use Pilot Tariff Savings Calculations

80% Load Reduction during On-Peak Hours Case

7/10/2019 Wed	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
7/11/2019 Thur	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
7/12/2019 Fri	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
7/13/2019 Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
7/14/2019 Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
7/15/2019 Mon	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
7/16/2019 Tue	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
7/17/2019 Wed	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
7/18/2019 Thur	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
7/19/2019 Fri	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
7/20/2019 Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
7/21/2019 Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
7/22/2019 Mon	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
7/23/2019 Tue	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
7/24/2019 Wed	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
7/25/2019 Thur	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
7/26/2019 Fri	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
7/27/2019 Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
7/28/2019 Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
7/29/2019 Mon	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
7/30/2019 Tue	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
7/31/2019 Wed	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
8/1/2019 Thur	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
8/2/2019 Fri	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
8/3/2019 Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
8/4/2019 Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
8/5/2019 Mon	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
8/6/2019 Tue	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
8/7/2019 Wed	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
8/8/2019 Thur	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
8/9/2019 Fri	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
8/10/2019 Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
8/11/2019 Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
8/12/2019 Mon	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
8/13/2019 Tue	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
8/14/2019 Wed	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
8/15/2019 Thur	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
8/16/2019 Fri	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
8/17/2019 Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
8/18/2019 Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
8/19/2019 Mon	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
8/20/2019 Tue	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
8/21/2019 Wed	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
8/22/2019 Thur	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
8/23/2019 Fri	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
8/24/2019 Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
8/25/2019 Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
8/26/2019 Mon	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
8/27/2019 Tue	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
8/28/2019 Wed	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
8/29/2019 Thur	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
8/30/2019 Fri	1	400	1,200	120	(51)	69	80	1,520	24	(65)	(41)
8/31/2019 Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)

Note: The above calculations incorporate the California Climate Credit, which is available to customers with loads up to 20 KW in size.

USBR/Klamath Project - AWIA Affordable Power Measures Analysis

PacifiCorp California Irrigation Time of Use Pilot Tariff Savings Calculations

100% Load Reduction during On-Peak Hours Case

Base Hourly Maximum Load (KW)	100
Base Number of HLH Pumping Hours	16
Base Number of LLH Pumping Hours	0
Percent Load Reduction during On-Peak Hours	**100.00**
On-Peak Hour Surcharge (cents/Kwh)	30.022
Off-Peak Hour Credit (cents/Kwh)	(4.254)
Total Schedule PA-20 Energy Charge (cents/Kwh)	11.905

Total Summer Schedule PA-20 Base Energy Cost ($)	17,524
Time of Use Net Surcharge/(Credit)	(6,262)
Time of Use Total Costs ($)	11,262
Difference from Schedule PA-20 Energy Costs (%)	**(35.73)**

Date	Day	Peak Day (1=Yes, 0=No)	Base On-peak Hour Usage (Kwh)	Base Off-Peak Hour Usage (Kwh)	Base On-Peak Surcharge ($)	Base Off-Peak Credit ($)	Base Net Surcharge/ (Credit) ($)	Shifted On-peak Hour Usage (Kwh)	Shifted Off-Peak Hour Usage (Kwh)	Shifted On-Peak Surcharge ($)	Shifted Off-Peak Credit ($)	Shifted Net Surcharge/ (Credit) ($)
Total		**26,000**	**121,200**		**Total**	**2,650**				**Total**	**(6,262)**	
6/1/2019	Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
6/2/2019	Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
6/3/2019	Mon	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
6/4/2019	Tue	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
6/5/2019	Wed	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
6/6/2019	Thur	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
6/7/2019	Fri	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
6/8/2019	Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
6/9/2019	Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
6/10/2019	Mon	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
6/11/2019	Tue	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
6/12/2019	Wed	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
6/13/2019	Thur	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
6/14/2019	Fri	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
6/15/2019	Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
6/16/2019	Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
6/17/2019	Mon	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
6/18/2019	Tue	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
6/19/2019	Wed	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
6/20/2019	Thur	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
6/21/2019	Fri	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
6/22/2019	Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
6/23/2019	Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
6/24/2019	Mon	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
6/25/2019	Tue	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
6/26/2019	Wed	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
6/27/2019	Thur	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
6/28/2019	Fri	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
6/29/2019	Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
6/30/2019	Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
7/1/2019	Mon	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
7/2/2019	Tue	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
7/3/2019	Wed	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
7/4/2019	Hol	0	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
7/5/2019	Fri	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
7/6/2019	Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
7/7/2019	Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
7/8/2019	Mon	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
7/9/2019	Tue	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)

USBR/Klamath Project - AWIA Affordable Power Measures Analysis

PacifiCorp California Irrigation Time of Use Pilot Tariff Savings Calculations

100% Load Reduction during On-Peak Hours Case

7/10/2019 Wed	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
7/11/2019 Thur	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
7/12/2019 Fri	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
7/13/2019 Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
7/14/2019 Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
7/15/2019 Mon	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
7/16/2019 Tue	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
7/17/2019 Wed	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
7/18/2019 Thur	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
7/19/2019 Fri	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
7/20/2019 Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
7/21/2019 Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
7/22/2019 Mon	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
7/23/2019 Tue	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
7/24/2019 Wed	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
7/25/2019 Thur	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
7/26/2019 Fri	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
7/27/2019 Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
7/28/2019 Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
7/29/2019 Mon	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
7/30/2019 Tue	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
7/31/2019 Wed	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
8/1/2019 Thur	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
8/2/2019 Fri	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
8/3/2019 Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
8/4/2019 Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
8/5/2019 Mon	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
8/6/2019 Tue	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
8/7/2019 Wed	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
8/8/2019 Thur	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
8/9/2019 Fri	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
8/10/2019 Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
8/11/2019 Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
8/12/2019 Mon	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
8/13/2019 Tue	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
8/14/2019 Wed	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
8/15/2019 Thur	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
8/16/2019 Fri	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
8/17/2019 Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
8/18/2019 Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
8/19/2019 Mon	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
8/20/2019 Tue	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
8/21/2019 Wed	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
8/22/2019 Thur	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
8/23/2019 Fri	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
8/24/2019 Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
8/25/2019 Sun	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)
8/26/2019 Mon	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
8/27/2019 Tue	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
8/28/2019 Wed	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
8/29/2019 Thur	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
8/30/2019 Fri	1	400	1,200	120	(51)	69	0	1,600	0	(68)	(68)
8/31/2019 Sat	0	0	1,600	0	(68)	(68)	0	1,600	0	(68)	(68)

Note: The above calculations incorporate the California Climate Credit, which is available to customers with loads up to 20 KW in size.

USBR/Klamath Project - AWIA Affordable Power Measures Analysis

PacifiCorp Oregon Irrigation Rate Schedule 41 Worksheet

Rates Effective January 1, 2020

Charge Type	Tariff Base Rate	Delivery Service									
		Transmission & Ancillary	System Usage S200	System Usage T&A&S201	GIA Schedule 80	Schedule 93	Schedule 95	Schedule 96	Schedule 97	Schedule 196	Schedule 299
Basic Charge, Single Phase or Three Phase < 50 KW											
Single Phase or Three Phase < 50 KW	0										
Three Phase, 50 to 300 KW	300										
Three Phase > 300 KW	1,180										
Annual Load Size KW Charge											
Single Phase, Three Phase <50 KW	15.00										
Three Phase 51 to 300 KW	10.00										
Three Phase > 301 KW	6.00										
Single Phase Net Minimum Bills Adjustment											
Three Phase Net Minimum Bills Adjustment											
Energy Charge - Schedule 200/201											
Winter 1st 100 Kwh/KW	3.4680	0.3560	0.0720	0.0740	0.1610	0.0000	0.0010	0.0000	0.0000	(0.0210)	(0.5950)
Winter All Additional Kwh/KW	3.4680	0.3560	0.0720	0.0740	0.1610	0.0000	0.0010	0.0000	0.0000	(0.0210)	(0.5950)
Summer, All Kwh/KW	3.4680	0.3560	0.0720	0.0740	0.1610	0.0000	0.0010	0.0000	0.0000	(0.0210)	(0.5950)

USBR/Klamath Project - AWIA Affordable Power Measures Analysis

PacifiCorp Oregon Irrigation Rate Schedule 41 Worksheet

Rates Effective January 1, 2020

Supply Service											
Base Supply Schedule 200 200	Cost-Based Supply Schedule 201	Schedule 202	Schedule 203	Schedule 204	Schedule 205	Schedule 205	Federal Tax Adjustment Schedule 195	Energy Conservation Schedule 297	BPA Res Ex Credit Schedule 98	Public Purpose Schedule 290 (%)	Total Energy Charges ($/Kwh)
4.4970	3.6530	0.1540	0.0050	0.0370	0.0290	0.0030	(0.4560)	0.3320	(0.6910)	3.0000	11.432
3.0660	2.4950	0.1540	0.0050	0.0370	0.0200	0.0030	(0.4560)	0.3320	(0.6910)	3.0000	8.756
3.0660	2.4950	0.1540	0.0050	0.0370	0.0200	0.0030	(0.4560)	0.3320	(0.6910)	3.0000	8.756

USBR/Klamath Project - AWIA Affordable Power Measures Analysis

PacifiCorp California Irrigation Rate Schedule PA-20 Worksheet

Actual Rates Effective January 1, 2020

Charge Type	Tariff Base Rate	Public Purpose Charges					Projected (Base) ECAC Price	GHG Schedule 92	CEMA Schedule 96	GHG Schedule 93	Klamath Dam Removal Schedule 199	Total Charges
		Schedule 99	Schedule 100	Schedule 191	Schedule 192	Generation Franchise Fee						
Annual Load Size Charge												
Single Phase	75.27											75.27
Three Phase, 50 KW or Less	75.27											75.27
Three Phase, 51 KW to 300 KW	155.48											155.48
Three Phase, Over 300 KW	155.48											155.48
Distribution Demand												
Single Phase	16.27											16.27
Three Phase, 50 KW or Less	16.27											16.27
Three Phase, 51 KW to 300 KW	16.27											16.27
Three Phase, Over 300 KW	16.27											16.27
Generation and Transmission	1.9600						1.86					3.8200
Reactive Power	0.60											0.60
Energy Charge	7.5950	0.0580	0.6740	0.1100	0.0290	0.0220	2.5640	1.1240	0.1870	(0.6740)	0.2160	11.9050

Notes: 1) Loads greater than 20 KW are not eligible to receive the California Climate Credit (Schedule 93).

Purpose

To implement a pilot program for optional time-of-use rates for irrigation customers.

Available

To areas served by the Company in and around Klamath Falls and Albany, Oregon.

Applicable

To agricultural irrigation or agricultural soil drainage pumping Consumers receiving Delivery Service under Schedule 41, in conjunction with Supply Service Schedule 201, who have been invited to participate in this pilot and who elect to take this service. New participation in 2016 will be limited to approximately twenty-five (25) metered points of delivery. No more than two metered points of delivery belonging to one Consumer will be allowed into the pilot.

Monthly Billing

The Monthly Billing shall be the Energy Charge. The Monthly Billing is in addition to all other charges contained in Delivery Service Schedule 41, Base Supply Service Schedule 200 and Supply Service Schedule 201.

Energy Charge

		Prime Summer Season
41	On-Peak kWh, per kWh	22.313¢
	Off-Peak kWh, per kWh	(3.161)¢

Seasonal Definition

Prime Summer season is defined as June 1 through August 31. Time-of-use adders under this pilot apply for the Prime Summer season only. No adjustments will be applied in other months.

On-Peak Period

Prime Summer
Monday through Friday 2:00 p.m. to 6:00 p.m.

All other months have no time-of-use periods.

Off-Peak Period

Prime Summer
All non On-Peak Period hours and days plus the following holiday: Independence Day.

All other months have no time-of-use periods.

(continued)

Guarantee Payment

The Company shall guarantee against excessive increase of consumer costs for the 2014 and 2015 Prime Summers of enrollment in the program and thereafter for the first Prime Summer of enrollment. If the total energy costs incurred on this Schedule for the Prime Summer season exceed 10% over what costs would have been for the same period under Cost-Based Supply Service, the net difference, Guarantee Payment, will be credited on the customer's bill following the end of the Prime Summer season. No Guarantee Payment shall be given for a Prime Summer period if Consumer terminates service before the end of the Prime Summer period.

Special Conditions

1. In 2016, eligible Consumers in the Klamath Falls area will be invited via mail to participate in this pilot. Participants will be chosen on a first-come, first-served basis. New participation will be limited to approximately twenty-five (25) metered points. No more than two accounts belonging to one Consumer will be allowed into the pilot.

2. The Consumer must have a time-of-use meter installed to participate in this option. The appropriate meter will be installed or the existing meter reprogrammed on the Consumer premises at no extra charge to the Consumer. The replacement of older meters may result in more accurate metering. The Consumer will be responsible for all charges based on accurate meter measurements from new meters. Billing under this schedule shall begin for the Consumer following installation of the time-of-use meter and the initial meter reading. Rates under this schedule prior to the beginning of the Prime Summer time-of-use rate season will be standard cost-based rates.

3. Consumers requesting service under this pilot program beginning in 2015 agree to remain on the pilot through the end of the 2015 Prime Summer season, which ends on August 31, 2015. Consumers will have the option to opt out of the pilot after this date by notifying the Company. Service will continue under this schedule until Consumer notifies the Company to discontinue service or this schedule terminates. In the event that participants are added to the pilot after the 2015 Prime Summer season, such participants agree to remain on the pilot through the end of their first Prime Summer season of participation.

4. All Consumers invited to participate in this pilot program may be asked to complete a survey following the end of the Prime Summer season. Survey responses will be used to further evaluate the potential of future time-of-use irrigation rates. Data gathered will be used for pilot evaluation only.

5. Meters enrolled in this pilot will not be eligible to participate concurrently in any load control pilot which is offered by the Company.

Continuing Service

This Schedule is based on continuing service at each service location. Disconnect and reconnect transactions shall not operate to relieve a Consumer from monthly minimum charges.

Schedule No. PA-115

IRRIGATION TIME-OF-USE PILOT

APPLICABILITY

This Schedule is applicable only to customers otherwise eligible to take service under Schedule No. PA-20, Agricultural Pumping Service, who have been invited to participate in this pilot and who elect to take this service. Service furnished under this Schedule will be metered and billed separately at each point of delivery. Participation will be limited to approximately twenty-five (25) metered points of delivery belonging to customer accounts in good standing. No more than two metered points of delivery belonging to one customer will be allowed into the pilot.

TERRITORY

In select territory served by the Utility around Tule Lake in the State of California.

MONTHLY CHARGE

The Monthly Billing during the Prime Summer season shall be the Energy Charge below plus all charges set forth in Schedule PA-20 of this tariff. The Monthly Billing in all other months shall be the charges set forth in Schedule PA-20.

	Distrib.	FERC Trans.	Calif. Trans.	Gener-ation	Public Purpose	Total Rate
Energy Charge/per on-peak kWh				30.022¢		30.022¢
Energy Charge/per off-peak kWh				(4.254¢)		(4.254¢)

SEASONAL DEFINITION:

Prime Summer season is defined as June 1 through August 31. Time-of-use adders under this pilot apply for the Prime Summer season only. No adjustments will be applied in other months.

ON- AND OFF-PEAK PERIODS:

Prime Summer on-peak hours are
Monday through Friday 2:00 p.m. to 6:00 p.m.

Prime Summer off-peak hours are all other hours during the Prime Summer season plus the Independence Day holiday.

All other months have no time-of-use periods.

(Continued)

Schedule No. PA-115

IRRIGATION TIME-OF-USE PILOT
(Continued)

GUARANTEE PAYMENT

The Company shall guarantee against excessive increase of customer costs for the first Prime Summer season of enrollment in the program. If the total energy costs incurred on this Schedule for the Prime Summer season exceed 10% over what costs would have been for the same period under Schedule No. PA-20, the net difference, Guarantee Payment, will be credited on the customer's bill following the end of the Prime Summer season. No Guarantee Payment shall be given for a Prime Summer period if customer terminates service before the end of the Prime Summer period.

SPECIAL CONDITIONS

1. Eligible customers in the Tule Lake area will be invited to participate in this pilot. Participants will be randomly chosen from list of interested customers. Participation will be limited to approximately twenty-five (25) metered points. No more than two accounts belonging to one customer will be allowed into the pilot.

2. The customer must have a time-of-use meter installed to participate in this option. The appropriate meter will be installed or the existing meter reprogrammed on the customer premises at no extra charge to the customer. The replacement of older meters may result in more accurate metering. The customer will be responsible for all charges based on accurate meter measurements from new meters. Billing under this schedule shall begin for the customer following installation of the time-of-use meter and the initial meter reading. Rates under this schedule prior to the beginning of the Prime Summer time-of-use rate season will be standard irrigation rates.

3. Customers requesting service under this pilot program agree to remain on the pilot through the end of the first Prime Summer season, which ends on August 31. Customers will have the option to opt out of the pilot after this date by notifying the Company. Service will continue under this schedule until customer notifies the Company to discontinue service or this schedule terminates.

4. All customers invited to participate in this pilot program may be asked to complete a survey following the end of the Prime Summer season. Survey responses will be used to further evaluate the potential of future time-of-use irrigation rates. Data gathered will be used for pilot evaluation only.

5. Meters enrolled in this pilot will not be eligible to participate concurrently in any load control pilot which is offered by the Company.

6. All conditions and special conditions of Schedule No. PA-20 shall apply also to this Schedule.

(continued)

Schedule No. PA-115

IRRIGATION TIME-OF-USE PILOT
(Continued)

CONTINUING SERVICE

Except as specifically provided otherwise, the rates of this tariff are based on continuing service at each service location. Disconnect and reconnect transactions shall not operate to relieve a customer from minimum monthly charges.

RULES AND REGULATIONS

Service under this schedule is subject to the General Rules and Regulations contained in the tariff of which this schedule is a part and to those prescribed by regulatory authorities.

Affordable Power Measure No. 5:
Irrigation Load-Control Programs

Technical Documentation

USBR/Klamath Project - AWIA Affordable Power Measures Analysis

Potential Savings from Participation in PacifiCorp's Day-Ahead Irrigation Load Control Program

10/50/100 HP Pumps Running at a May - September Average Load Factor of 25%

Example Load	Maximum Demand (KW)	May-Sep Load Factor (%)	May-Sep Energy Usage (Kwh)	Oct-Apr Load Factor (%)	Oct-Apr Energy Usage (Kwh)
10 HP Pump	7.457	25.0	6,846	0	0
50 HP Pump	37.29	25.0	34,228	0	0
100 HP Pump	74.57	25.0	68,455	0	0

Annual Basic Charge ($)	Annual Load Size Charge ($)	Load Control Usage Curtailment at Full Load (Kwh)	Total Annual Energy Usage Charge ($)	Maximum Day-Ahead Load Control Payment ($)	Total Net Power Costs ($)	Load Control Payment as a Percentage of Total Costs (%)
0.00	111.86	388	565	135.00	542.31	19.9
0.00	559.28	1,939	2,827	675.00	2,711.53	19.9
300.00	745.70	3,878	5,655	1,350.00	5,350.22	20.1

USBR/Klamath Project - AWIA Affordable Power Measures Analysis

Potential Savings from Participation in PacifiCorp's Day-Ahead Irrigation Load Control Program

10/50/100 HP Pumps Running at a May - September Average Load Factor of 50%

Example Load	Maximum Demand (KW)	May-Sep Load Factor (%)	May-Sep Energy Usage (Kwh)	Oct-Apr Load Factor (%)	Oct-Apr Energy Usage (Kwh)	Annual Basic Charge ($)	Annual Load Size Charge ($)	Load Control Usage Curtailment at Full Load (Kwh)	Total Annual Energy Usage Charge ($)	Maximum Day-Ahead Load Control Payment ($)	Total Net Power Costs ($)	Load Control Payment as a Percentage of Total Costs (%)
10 HP Pump	7.457	50.0	13,691	0	0	0.00	111.86	388	1,165	135.00	1,141.71	10.6
50 HP Pump	37.29	50.0	68,455	0	0	0.00	559.28	1,939	5,824	675.00	5,708.56	10.6
100 HP Pump	74.57	50.0	136,911	0	0	300.00	745.70	3,878	11,649	1,350.00	11,344.27	10.6

USBR/Klamath Project - AWIA Affordable Power Measures Analysis

Potential Savings from Participation in PacifiCorp's Day-Ahead Irrigation Load Control Program

10/50/100 HP Pumps Running at a May - September Average Load Factor of 75%

Example Load	Maximum Demand (KW)	May-Sep Load Factor (%)	May-Sep Energy Usage (Kwh)	Oct-Apr Load Factor (%)	Oct-Apr Energy Usage (Kwh)	Annual Basic Charge ($)	Annual Load Size Charge ($)	Load Control Usage Curtailment at Full Load (Kwh)	Total Annual Energy Usage Charge ($)	Maximum Day-Ahead Load Control Payment ($)	Total Net Power Costs ($)	Load Control Payment as a Percentage of Total Costs (%)
10 HP Pump	7.457	75.0	20,537	0	0	0.00	111.86	388	1,764	135.00	1,741.12	7.2
50 HP Pump	37.29	75.0	102,683	0	0	0.00	559.28	1,939	8,821	675.00	8,705.59	7.2
100 HP Pump	74.57	75.0	205,366	0	0	300.00	745.70	3,878	17,643	1,350.00	17,338.32	7.2

USBR/Klamath Project - AWIA Affordable Power Measures Analysis

Potential Savings from Participation in PacifiCorp's Day-Ahead Irrigation Load Control Program

10/50/100 HP Pumps Running at a May - September Average Load Factor of 100%

Example Load	Maximum Demand (KW)	May-Sep Load Factor (%)	May-Sep Energy Usage (Kwh)	Oct-Apr Load Factor (%)	Oct-Apr Energy Usage (Kwh)	Annual Basic Charge ($)	Annual Load Size Charge ($)	Load Control Usage Curtailment at Full Load (Kwh)	Total Annual Energy Usage Charge ($)	Maximum Day-Ahead Load Control Payment ($)	Total Net Power Costs ($)	Load Control Payment as a Percentage of Total Costs (%)
10 HP Pump	7.457	100.0	27,382	0	0	0.00	111.86	388	2,364	135.00	2,340.52	5.5
50 HP Pump	37.29	100.0	136,911	0	0	0.00	559.28	1,939	11,818	675.00	11,702.61	5.5
100 HP Pump	74.57	100.0	273,821	0	0	300.00	745.70	3,878	23,637	1,350.00	23,332.38	5.5

USBR/Klamath Project - AWIA Affordable Power Measures Analysis

Potential Savings from Participation in PacifiCorp's Hour-Ahead Irrigation Load Control Program

10/50/100 HP Pumps Running at a May - September Average Load Factor of 25%

Example Load	Maximum Demand (KW)	May-Sep Load Factor (%)	May-Sep Energy Usage (Kwh)	Oct-Apr Load Factor (%)	Oct-Apr Energy Usage (Kwh)	Annual Basic Charge ($)	Annual Load Size Charge ($)	Load Control Usage Curtailment at Full Load (Kwh)	Total Annual Energy Usage Charge ($)	Maximum Day-Ahead Load Control Payment ($)	Total Net Power Costs ($)	Load Control Payment as a Percentage of Total Costs (%)
10 HP Pump	7.457	25.0	6,846	0	0	0.00	111.86	388	565	225.00	452.31	33.2
50 HP Pump	37.29	25.0	34,228	0	0	0.00	559.28	1,939	2,827	1,125.00	2,261.53	33.2
100 HP Pump	74.57	25.0	68,455	0	0	300.00	745.70	3,878	5,655	2,250.00	4,450.22	33.6

USBR/Klamath Project - AWIA Affordable Power Measures Analysis

Potential Savings from Participation in PacifiCorp's Hour-Ahead Irrigation Load Control Program

10/50/100 HP Pumps Running at a May - September Average Load Factor of 50%

Example Load	Maximum Demand (KW)	May-Sep Load Factor (%)	May-Sep Energy Usage (Kwh)	Oct-Apr Load Factor (%)	Oct-Apr Energy Usage (Kwh)	Annual Basic Charge ($)	Annual Load Size Charge ($)	Load Control Usage Curtailment at Full Load (Kwh)	Total Annual Energy Usage Charge ($)	Maximum Day-Ahead Load Control Payment ($)	Total Net Power Costs ($)	Load Control Payment as a Percentage of Total Costs (%)
10 HP Pump	7.457	50.0	13,691	0	0	0.00	111.86	388	1,165	225.00	1,051.71	17.6
50 HP Pump	37.29	50.0	68,455	0	0	0.00	559.28	1,939	5,824	1,125.00	5,258.56	17.6
100 HP Pump	74.57	50.0	136,911	0	0	300.00	745.70	3,878	11,649	2,250.00	10,444.27	17.7

USBR/Klamath Project - AWIA Affordable Power Measures Analysis

Potential Savings from Participation in PacifiCorp's Hour-Ahead Irrigation Load Control Program

10/50/100 HP Pumps Running at a May - September Average Load Factor of 75%

Example Load	Maximum Demand (KW)	May-Sep Load Factor (%)	May-Sep Energy Usage (Kwh)	Oct-Apr Load Factor (%)	Oct-Apr Energy Usage (Kwh)	Annual Basic Charge ($)	Annual Load Size Charge ($)	Load Control Usage Curtailment at Full Load (Kwh)	Total Annual Energy Usage Charge ($)	Maximum Day-Ahead Load Control Payment ($)	Total Net Power Costs ($)	Load Control Payment as a Percentage of Total Costs (%)
10 HP Pump	7.457	75.0	20,537	0	0	0.00	111.86	388	1,764	225.00	1,651.12	12.0
50 HP Pump	37.29	75.0	102,683	0	0	0.00	559.28	1,939	8,821	1,125.00	8,255.59	12.0
100 HP Pump	74.57	75.0	205,366	0	0	300.00	745.70	3,878	17,643	2,250.00	16,438.32	12.0

USBR/Klamath Project - AWIA Affordable Power Measures Analysis

Potential Savings from Participation in PacifiCorp's Hour-Ahead Irrigation Load Control Program

10/50/100 HP Pumps Running at a May - September Average Load Factor of 100%

Example Load	Maximum Demand (KW)	May-Sep Load Factor (%)	May-Sep Energy Usage (Kwh)	Oct-Apr Load Factor (%)	Oct-Apr Energy Usage (Kwh)	Annual Basic Charge ($)	Annual Load Size Charge ($)	Load Control Usage Curtailment at Full Load (Kwh)	Total Annual Energy Usage Charge ($)	Maximum Day-Ahead Load Control Payment ($)	Total Net Power Costs ($)	Load Control Payment as a Percentage of Total Costs (%)
10 HP Pump	7.457	100.0	27,382	0	0	0.00	111.86	388	2,364	225.00	2,250.52	9.1
50 HP Pump	37.29	100.0	136,911	0	0	0.00	559.28	1,939	11,818	1,125.00	11,252.61	9.1
100 HP Pump	74.57	100.0	273,821	0	0	300.00	745.70	3,878	23,637	2,250.00	22,432.38	9.1

USBR/Klamath Project - AWIA Affordable Power Measures Analysis

PacifiCorp Oregon Irrigation Rate Schedule 41 Worksheet

Rates Effective January 1, 2020

Charge Type	Tariff Base Rate	Delivery Service									
		Transmission & Ancillary	System Usage S200	System Usage T&A&S201	GIA Schedule 80	Schedule 93	Schedule 95	Schedule 96	Schedule 97	Schedule 196	Schedule 299
Basic Charge, Single Phase or Three Phase < 50 KW											
Single Phase or Three Phase < 50 KW	0										
Three Phase, 50 to 300 KW	300										
Three Phase > 300 KW	1,180										
Annual Load Size KW Charge											
Single Phase, Three Phase <50 KW	15.00										
Three Phase 51 to 300 KW	10.00										
Three Phase > 301 KW	6.00										
Single Phase Net Minimum Bills Adjustment											
Three Phase Net Minimum Bills Adjustment											
Energy Charge - Schedule 200/201											
Winter 1st 100 Kwh/KW	3.4680	0.3560	0.0720	0.0740	0.1610	0.0000	0.0010	0.0000	0.0000	(0.0210)	(0.5950)
Winter All Additional Kwh/KW	3.4680	0.3560	0.0720	0.0740	0.1610	0.0000	0.0010	0.0000	0.0000	(0.0210)	(0.5950)
Summer, All Kwh/KW	3.4680	0.3560	0.0720	0.0740	0.1610	0.0000	0.0010	0.0000	0.0000	(0.0210)	(0.5950)

USBR/Klamath Project - AWIA Affordable Power Measures Analysis

PacifiCorp Oregon Irrigation Rate Schedule 41 Worksheet

Rates Effective January 1, 2020

Supply Service											
Base Supply Schedule 200 200	Cost-Based Supply Schedule 201	Schedule 202	Schedule 203	Schedule 204	Schedule 205	Schedule 205	Federal Tax Adjustment Schedule 195	Energy Conservation Schedule 297	BPA Res Ex Credit Schedule 98	Public Purpose Schedule 290 (%)	Total Energy Charges ($/Kwh)
4.4970	3.6530	0.1540	0.0050	0.0370	0.0290	0.0030	(0.4560)	0.3320	(0.6910)	3.0000	11.432
3.0660	2.4950	0.1540	0.0050	0.0370	0.0200	0.0030	(0.4560)	0.3320	(0.6910)	3.0000	8.756
3.0660	2.4950	0.1540	0.0050	0.0370	0.0200	0.0030	(0.4560)	0.3320	(0.6910)	3.0000	8.756

PACIFIC POWER
A DIVISION OF PACIFICORP

825 NE Multnomah, Suite 2000
Portland, Oregon 97232

July 22, 2019

VIA ELECTRONIC FILING

Public Utility Commission of Oregon
201 High Street SE, Suite 100
Salem, OR 97301-3398

Attention: Filing Center

RE: Advice No. 19-008
Irrigation Load Control Program Pilot expansion

In compliance with ORS 757.205, OAR 860-022-0025, and OAR 860-022-0030, PacifiCorp, d/b/a Pacific Power, submits for filing the following proposed tariff pages associated with Tariff P.U.C. OR No. 36, which sets forth all rates, tolls, charges, rules, and regulations applicable to electric service in Oregon. The company requests an effective date of August 28, 2019.

First Revision of Sheet No. 105-1	Schedule 105	Irrigation Load Control Program Pilot
First Revision of Sheet No. 105-2	Schedule 105	Irrigation Load Control Program Pilot

Purpose

The purpose of this filing is to request authorization to extend and expand the pilot irrigation load control program (Pilot Program). The Pilot Program has been available since 2016 for irrigation customers in the Klamath Basin through Schedule 105, Irrigation Load Control Program Pilot. With this filing, the company proposes the following changes:

- Extend the Pilot Program through 2023;
- Offer the Pilot Program to a broader targeted set of customers beyond the Klamath Basin;
- Expand the hours, days, and weeks the load control events may be called;
- Add an hour-ahead notice option with a higher incentive than events called with a day-ahead notice; and
- Test a new method of dispatch and analysis by creating an option for selected large loads to participate in the program using Automated Meter Infrastructure (AMI) data and manual control.

The proposed expansion of the Pilot Program to customers in selected areas is intended to test whether localized deferral values can be achieved. The proposed expanded hours and shorter notice option is a direct response to the need for increased resource flexibility identified by the company's Energy Supply Management (ESM) group. This added flexibility should help generate higher value from quickly curtailable resources.

The proposed expansion aligns with the Post Year Three Recommendation provided in the 2018 Annual Report filed in Advice 16-04 on March 29, 2019. The proposed expansion is designed to balance added benefits from increased customer participation and resource flexibility with intentional controls on delivery costs to provide a sustainable delivery model for the company and its third party delivery partner. Targeted delivery within the company's extensive rural territory is an important tool to control costs and concentrate potential benefits.

The proposed expansion reflects changes in company planning efforts and results. During the first three years of the Pilot Program (2016-2018), West system demand response capacity resources identified by the company's Integrated Resource Plans (IRP) and updates[1] have consistently moved further into the future. At the same time system wide selections are moving out, there is an increased focus on planning for and deploying added tools and analysis to identify localized values and solutions. The Distributed Energy Resources Alternatives process and tool provides a consistent way to compare costs and benefits of facility upgrades with the cost and benefits of various non-wire solutions, including load management.[2] Localized deferral value may be higher in select areas than the system wide values in the 2017 IRP.[3] These two trends, support the targeted expansion to customers in areas with potential localized deferral value.

Expanding and increasing the flexibility of this resource as proposed maintains a presence in the demand response space in Oregon and provides flexibility to respond to changes triggered by legislation on carbon, increasing renewable resource penetration, or potential economic coal retirements.

Pilot Program Design Changes

Requested changes are based on operational experience during the first three years of the Pilot Program. The changes are designed to increase customer participation and focus that increased participation in areas where localized deferral values may be achieved. Focus on areas with the highest value helps control delivery costs—a key learning from prior years. The proposed changes to available days and hours and the additional option for a shorter event notice are intended to increase resource flexibility in response to trends in the Energy Imbalance Market. This flexibility should help generate higher value from quickly curtailable resources when dispatched by the company's ESM group.

The Pilot Program provides PacifiCorp with a summer capacity product and, consistent with the characterization of the voluntary load reductions as a capacity product, the company provides participants incentive payments based on the availability of load reduction, regardless of whether the company calls upon a load reduction for any given event. The value of a capacity product with standby characteristics similar to generating resources that can be called upon when needed to manage system reliability, is the *ability* to call for the load reduction *should* it be needed. In other words, the value of the resource is not limited to resource utilization (in this case, the need

[1] 2015 IRP Update, 2017 IRP and 2017 IRP Update.
[2] 2017 Smart Grid Report – Appendix E https://edocs.puc.state.or.us/efdocs/HAQ/um1667haq11754.pdf.
[3] 2017 IRP – T&D deferral value - $13.57/kilowatts (kW) which reflects a utilization factor. For a substation with a need, the 100% utilization value for D from the 2017 IRP is $15.60/kW.

for load reduction). This concept is similar to capacity benefits from operating reserves, representing system capacity that is set aside and available as needed to respond to unanticipated changes in system conditions.

During the last three years, the Pilot Program utilized a day-ahead notice to participants to inform them of scheduled events. Grower acceptance of this notice has been good and no growers have opted out. However, during the same period, the company's ESM group identified the increasing need for more flexible responses; those that are available and can be dispatched with relatively short notice on the same day the resource is needed. For this reason, the company will add an option for growers to participate in the Pilot Program utilizing an hour-ahead notice. Incentives offered for this more flexible hour-ahead resource will be higher than those offered for the day-ahead resource. Growers will be allowed to sign up for either option at the beginning of the enrollment period with the intention of staying with their elected option (by load control switch) for the entire season. Selection of a notice option for the season will help the ESM group quantify available resource by size (megawatt) and flexibility attributes (elapsed time between notice and start of an event). To increase the uptake of the shorter notice period option, there will be a "no regrets" option that allows growers to move back to the day-ahead notice option for the balance of the season should the hour-ahead notice not fit their business requirements. However, growers who switch options will receive incentives for all available capacity for the season at the lower (day-ahead notice) rate.

Based on data collected during the first three years of the Pilot Program, connected irrigation load decreases materially beginning in early September. Maintaining program dispatch capability during a month when the resources are steadily declining in size adds costs without adding additional value. The company's proposal to extend the Pilot Program Dispatch Period from the week including August 15 to the week including September 1 and eliminate voluntary events is intended to be a cost efficient way to capture most of the value of connected loads toward the end of the irrigation season.

Deployment of AMI started in Oregon during the 2018 season and is expected to be complete in 2019. While AMI equipment is not capable of controlling (stopping and starting) three-phase irrigation equipment, the infrastructure can provide an alternate means to acquiring information on connected load without installing a load control switch. PacifiCorp has identified this AMI capability as a potential solution for customers with unique configurations, specifically large, medium voltage pumps where installing load control equipment is prohibitive from a logistical and operations perspective. Customers with this type of equipment may be agreeable and capable to manually control the equipment in response to either day-ahead or hour-ahead event notifications. The implementation contractor has indicated a willingness to integrate AMI provided data into their system that provides real time information on kW available for dispatch. It is expected there will be a lag (up to one day) on information uploaded this way compared to the intra-hour data acquired through a load control switch. This lag and the dependence on operator versus automated control are reasons PacifiCorp would limit the use of this option to installations meeting the following criteria: a) technical barriers to installation of conventional equipment; b) loads $\geq$ 200 kW; c) loads with relatively low intraday variability; and d) in-place operational personnel and/or systems to control the equipment. Impacts for these sites would be validated using AMI data, and incentives would be paid based on the validated kW curtailed

relative to the baseline. While this alternate approach is not likely to provide the certainty needed to defer infrastructure investments, successful performance during events will generate some arbitrage value and provide an opportunity for testing a new method of dispatch and data analysis.

The current and proposed program parameters are summarized in the table below:

Program Parameters	**Description – current**	**Description – proposed**
Eligible Customers	Irrigation Customers on Schedules 41 or 48 in and around Klamath Falls.	Irrigation customers on Schedules 41 or 48 in and around targeted areas posted on company web site.
Program Period	Week including June 1 through week including August 15[4]. Voluntary period: August 15 September 30.	Week including June 1 through week including September 1. Voluntary events eliminated.
Program Hours	Weekdays, 12:00 p.m. to 8:00 p.m. Pacific Time.	All days, 12:00 p.m. to 10:00 p.m. Pacific Time.
Dispatch Limitations	52 hours per year, 20 events per year, up to 4 hours per event.	No change
Dispatch notification	Day ahead	Day ahead and hour ahead
Incentive Rate	Estimated at $23-$27/kw per year. The program vendor may adjust the incentive rate based upon the needs of the program.	• Day ahead at $18/kW per year • Day ahead (2018 participants and any new participants prior to 2019 approval) at $23/kW per year for at least the 2019 season • Hour ahead at $30/kW per year
Opt-Outs	Participants may opt-out of dispatches. Opting out will lower participation payments proportionally.	No change
Incentive Payments	The incentive payment is calculated at the end of the irrigation season and paid to each participant in the Fall. Participant incentives will be determined by multiplying the average load (kW) a customer can reliably shut-off during program hours by the incentive rate, adjusted for event participation (opt-outs).	No changes in payment timing or calculations. Payments will be different by Dispatch Notification option selected.

[4] In addition, voluntary events may be dispatched separately through September 30.

The company will continue to use Connected Energy who started delivering the Pilot Program in 2018. The company initiated a competitive Request for Proposal (RFP) process in 2017 in response to the learnings from the first two seasons, which concluded pilot delivery was not sustainable for the original provider. Connected Energy was the successful respondent to the RFP and is responsible for the installation, operation and maintenance of the irrigation load control devices, dispatch of the devices as directed by the company, customer participation, customer service, and issuance of irrigation incentives to be paid to participating irrigation customers. The Connected Energy equipment also provides participating customers with near real-time access to energy usage data available through a dynamic web portal.

To maintain engagement with prior participants and to position the program for expansion requested in this filing, the company proposes two tactics for the 2019 season. First, growers who participated in the 2018 season and any new participants prior to the approval of this advice filing will be offered the legacy day-ahead incentives for at least the 2019 season. Second, the company and Connected Energy would begin marketing to the new offer(s) ahead of the requested August 28, 2019 effective date.

The Pilot Program continues as a complement to the irrigation time-of-use pilot program[5]. To ensure both programs are positioned to deliver useful information about grower acceptance of the incentive offers and their ability to shift usage in response to these offers, customer participation will continue to be limited to one pilot program during each season.

Pilot Program Period and Size

PacifiCorp is proposing to extend the pilot period from 2020 to 2023 to test the revised program design, and provide information on the value of enhanced flexibility and deployment in areas with localized deferral value. Enrollment will focus on 70 of the larger pumps in targeted areas in the Klamath Basin, Central Oregon, and south of Medford. Targeted areas with localized deferral value will be posted on the company's web site and used as one of the criteria for program eligibility.

Customer data from the targeted areas was used to inform the expected average availability of the Pilot Program summarized in the table below:

	2019	2020	2021	2022	2023
Est. kW Delivered	500 - 2,500	5,000	5,000	5,000	5,000

Note: 2019 availability is estimated as a range between current enrollment and half of the targeted pumps given timing of expansion approval and interest from potential new customers.

Through the end of the extension requested in this filing, the company will continue to provide an annual report within 90 days of the end of each calendar year with the same content and format as provided in past reports. A recommendation regarding continuation of the program will be provided after the 2021 season (three seasons after the expansion requested in this filing has been in effect). In response to Recommendation No. 3 in the April 26, 2016 Commission

[5] Irrigation time-of-use was filed under tariff advice letter 15-003 and 15-006, and approved by the Public Utility Commission of Oregon on March 24, 2015, and April 28, 2015, respectively.

staff memo in Advice No. 16-04, the company will continue to use Appendix A: Demand Response Cost Effectiveness Protocols of the California Public Utilities Commission Distributed Energy Resource Avoided Cost Framework as a guide to report the costs and benefits of the Pilot Program.

Pilot Program Costs

Estimated costs for the Pilot Program are provided in the table below and includes: vendor costs, customer incentives, and customer outreach/advertising. These costs align with the new Connected Energy contract and reflect a targeted focus on enrolling larger pumps.

	2019	2020	2021	2022	2023
Est. Program Costs (Calendar Year)	$425,000	$325,000	$325,000	$325,000	$325,000

Note: Costs are estimates and based on the expected average availability (i.e., 5,000 kW in years 2020-2023) and all customers enrolling in the hour-ahead notice option. 2019 costs are higher than other years due to one-time installation costs for switches.

Cost Recovery

The company will continue to recover Pilot Program costs through Oregon Schedule 95, Pilot Program Cost Adjustment. Revenue, expenditures, and the account balance will be reviewed regularly. Collection rate adjustments that may necessary to keep the account in balance will be filed for Commission approval.

Stakeholder Involvement

The company has provided annual reports on the program and included information in the company's Smart Grid Report.

In early 2018, the company provided Commission staff with a high level briefing on options under consideration for new delivery contracts. The company received general direction that there was value in capacity management tools, and continuation of the program with a new provider appeared to be an appropriate course of action. In May 2019, the company met informally with staff to discuss the company's proposed changes to the Pilot Program. During this meeting, staff requested any information available on grower willingness to respond to shorter event notifications.

Pacific Power's Regional Business Manager in Klamath Falls has discussed the existing program with growers and water user groups during on-going conversations covering multiple topics. Customers have generally been appreciative of the company's efforts to offer programs that help them manage energy costs. The Regional Business Manager circulated a very brief survey regarding willingness to participate utilizing shorter event notifications in return for a higher incentive. Feedback was limited and informal and generally receptive to shorter notifications in return for higher incentives.

In addition to the survey mentioned above, the company contacted the three participants in the current program to assess their interest in the proposed shorter event notifications. Only two participants responded, and both were agreeable to the proposal.

It is respectfully requested that all formal data requests regarding this matter be addressed to:

By email (preferred): datarequest@pacificorp.com

By regular mail: Data Request Response Center
PacifiCorp
Lloyd Center Mall, Room 2265
Portland, OR 97232

Please direct any informal questions about this filing to Cathie Allen, Regulatory Affairs Manager, at (503) 813-5934.

Sincerely,

Etta Lockey
Vice President, Regulation

Enclosures

Proposed Tariffs

Purpose

This optional tariff allows Customers in target areas in Oregon posted on the Company web site, taking service for agricultural irrigation and agricultural soil drainage pumping under Electric Service Schedule Nos. 41, and 48 to participate in a demand response pilot program. (C) (C)

Available

To areas served by the Company in target areas in Oregon posted on the Company web site. (C) (C)

Applicable

Available to qualifying customers in target areas on Schedule Nos. 41, or 48 who are receiving service for agricultural irrigation and agricultural soil drainage pumping. The Program Pilot will expire after the 2023 irrigation season. (C)

Program Description

A detailed description of the program can be found on the Company website at: www.pacificpower.net/orilc.

- **Mandatory Program Events:** The Company shall have the right to implement a Mandatory Dispatch Event according to the following criteria:

  a) Dispatch Period: Week including June 1 through week including September 1. (C)
  b) Available Dispatch Hours: 12 PM to 10:00 PM Pacific Time (C)
  c) Maximum Dispatch Hours: 52 hours per Program Year
  d) Dispatch Duration: Not more than four hours per Dispatch Event or twelve hours per week
  e) Dispatch Event Frequency: limited to a single (1) Dispatch Event per day (C)
  f) Dispatch Days: all days during Dispatch Period.
  g) Dispatch Notification: Day-ahead or hour-ahead notification will be provided for each Dispatch Event (C)

(D)

- **Program Provider**: The Irrigation Load Control Program will be operated by a third party load control program provider. Participating Customers will contract directly with the Program Provider.

- **Incentives**: Incentive options for participation shall be provided by the Program Provider to any eligible customer upon request through the process described on the Company website. Incentives will differ based on the Dispatch Notification requirements. (M2) | (C) (M2)(C)

(Continued)

Program Description (continued)

(M1)

- **Non-Discrimination**: Eligible facilities of similar size, operations and ability to participate will be treated in a fair and consistent manner. Any claims of discriminatory treatment should be addressed through the dispute resolution process described below.

- **Participation**: The Company or Program Provider shall have the right to qualify program participants, at their sole discretion based on criteria the Company or Program Provider considers necessary to ensure the effective operation of the Program and utility system. Criteria may include, but will not be limited to: impact on the Company's transmission and distribution system and/or cost effectiveness. The Company may limit participation levels. Participation limits beyond those included in this schedule will be described on the Company website.

- Metered points of delivery enrolled in this pilot will not be eligible to participate concurrently in any time-of-use (TOU) pilot which is offered by the Company.

For additional information or to initiate participation, Schedule 41, or 48 customers who are receiving service for agricultural irrigation and agricultural soil drainage pumping should visit www.pacificpower.net/orilc.

DISPUTE RESOLUTION: Issues associated with the Irrigation Load Control Program that have not been resolved by the Program Provider should be directed to the Pacific Power irrigation hotline at (1-800-715-9238). In the event the issue is not resolved by Pacific Power, the customer may elect to follow the process outlined at
http://www.puc.state.or.us/consumer/Customer Complaint Process.pdf.

Affordable Power Measure No. 6: Small Hydroelectric Generating Plant Development

Technical Documentation

USBR/Klamath Project - AWIA Affordable Power Measures Analysis

Small-Scale Hydro Plant (Keno Dam) 50-Year Levelized Cost of Energy Calculation

Low Case

Input Assumptions

Annual Capacity Factor (%)	82.50%
Project Size (KW)	3,800
Year 1 Annual Generation (Kwh)	27,462,600
Initial Capital Cost ($/KW)	9,447
Annual O&M Costs ($/KW)	30.00
Annual O&M Escalation Factor (%)	1.00%
Generation Efficiency Loss (%)	0.00%
Annual Discount Rate (%)	2.00%

Output

50-Year Levelized Cost of Power (Cents/Kwh)	**4.695**

Year	Initial Investment Cost ($)	Capital Recovery Factor	Capital Recovery ($)	Annual O&M Costs ($) ($)	Total Annual Generation (Kwh)	Levelized Annual Cost ($)
0	35,898,600					
1		0.0318	1,142,409	114,000	27,462,600	4.575
2		0.0318	1,142,409	115,140	27,462,600	4.579
3		0.0318	1,142,409	116,291	27,462,600	4.583
4		0.0318	1,142,409	117,454	27,462,600	4.588
5		0.0318	1,142,409	118,629	27,462,600	4.592
6		0.0318	1,142,409	119,815	27,462,600	4.596
7		0.0318	1,142,409	121,013	27,462,600	4.601
8		0.0318	1,142,409	122,223	27,462,600	4.605
9		0.0318	1,142,409	123,446	27,462,600	4.609
10		0.0318	1,142,409	124,680	27,462,600	4.614
11		0.0318	1,142,409	125,927	27,462,600	4.618
12		0.0318	1,142,409	127,186	27,462,600	4.623
13		0.0318	1,142,409	128,458	27,462,600	4.628
14		0.0318	1,142,409	129,743	27,462,600	4.632
15		0.0318	1,142,409	131,040	27,462,600	4.637
16		0.0318	1,142,409	132,350	27,462,600	4.642
17		0.0318	1,142,409	133,674	27,462,600	4.647
18		0.0318	1,142,409	135,011	27,462,600	4.651
19		0.0318	1,142,409	136,361	27,462,600	4.656
20		0.0318	1,142,409	137,724	27,462,600	4.661

USBR/Klamath Project - AWIA Affordable Power Measures Analysis

Small-Scale Hydro Plant (Keno Dam) 50-Year Levelized Cost of Energy Calculation

Low Case

21		0.0318	1,142,409	139,102	27,462,600	4.666
22		0.0318	1,142,409	140,493	27,462,600	4.671
23		0.0318	1,142,409	141,898	27,462,600	4.677
24		0.0318	1,142,409	143,317	27,462,600	4.682
25		0.0318	1,142,409	144,750	27,462,600	4.687
26		0.0318	1,142,409	146,197	27,462,600	4.692
27		0.0318	1,142,409	147,659	27,462,600	4.698
28		0.0318	1,142,409	149,136	27,462,600	4.703
29		0.0318	1,142,409	150,627	27,462,600	4.708
30		0.0318	1,142,409	152,133	27,462,600	4.714
31		0.0318	1,142,409	153,655	27,462,600	4.719
32		0.0318	1,142,409	155,191	27,462,600	4.725
33		0.0318	1,142,409	156,743	27,462,600	4.731
34		0.0318	1,142,409	158,311	27,462,600	4.736
35		0.0318	1,142,409	159,894	27,462,600	4.742
36		0.0318	1,142,409	161,493	27,462,600	4.748
37		0.0318	1,142,409	163,108	27,462,600	4.754
38		0.0318	1,142,409	164,739	27,462,600	4.760
39		0.0318	1,142,409	166,386	27,462,600	4.766
40		0.0318	1,142,409	168,050	27,462,600	4.772
41		0.0318	1,142,409	169,730	27,462,600	4.778
42		0.0318	1,142,409	171,428	27,462,600	4.784
43		0.0318	1,142,409	173,142	27,462,600	4.790
44		0.0318	1,142,409	174,873	27,462,600	4.797
45		0.0318	1,142,409	176,622	27,462,600	4.803
46		0.0318	1,142,409	178,388	27,462,600	4.809
47		0.0318	1,142,409	180,172	27,462,600	4.816
48		0.0318	1,142,409	181,974	27,462,600	4.822
49		0.0318	1,142,409	183,794	27,462,600	4.829
50		0.0318	1,142,409	185,632	27,462,600	4.836

USBR/Klamath Project - AWIA Affordable Power Measures Analysis

Small-Scale Hydro Plant (Keno Dam) 50-Year Levelized Cost of Energy Calculation

High Case

Input Assumptions

Annual Capacity Factor (%)	82.50%
Project Size (KW)	3,800
Year 1 Annual Generation (Kwh)	27,462,600
Initial Capital Cost ($/KW)	9,447
Annual O&M Costs ($/KW)	30.00
Annual O&M Escalation Factor (%)	2.00%
Generation Efficiency Loss (%)	0.00%
Annual Discount Rate (%)	4.00%

Output

50-Year Levelized Cost of Power (Cents/Kwh)	**6.787**

Year	Initial Investment Cost ($)	Capital Recovery Factor	Capital Recovery ($)	Annual O&M Costs ($) ($)	Total Annual Generation (Kwh)	Levelized Annual Cost ($)
0	35,898,600					
1		0.0466	1,671,087	114,000	27,462,600	6.500
2		0.0466	1,671,087	116,280	27,462,600	6.508
3		0.0466	1,671,087	118,606	27,462,600	6.517
4		0.0466	1,671,087	120,978	27,462,600	6.525
5		0.0466	1,671,087	123,397	27,462,600	6.534
6		0.0466	1,671,087	125,865	27,462,600	6.543
7		0.0466	1,671,087	128,383	27,462,600	6.552
8		0.0466	1,671,087	130,950	27,462,600	6.562
9		0.0466	1,671,087	133,569	27,462,600	6.571
10		0.0466	1,671,087	136,241	27,462,600	6.581
11		0.0466	1,671,087	138,965	27,462,600	6.591
12		0.0466	1,671,087	141,745	27,462,600	6.601
13		0.0466	1,671,087	144,580	27,462,600	6.611
14		0.0466	1,671,087	147,471	27,462,600	6.622
15		0.0466	1,671,087	150,421	27,462,600	6.633
16		0.0466	1,671,087	153,429	27,462,600	6.644
17		0.0466	1,671,087	156,498	27,462,600	6.655
18		0.0466	1,671,087	159,628	27,462,600	6.666
19		0.0466	1,671,087	162,820	27,462,600	6.678
20		0.0466	1,671,087	166,076	27,462,600	6.690

USBR/Klamath Project - AWIA Affordable Power Measures Analysis

Small-Scale Hydro Plant (Keno Dam) 50-Year Levelized Cost of Energy Calculation

High Case

21		0.0466	1,671,087	169,398	27,462,600	6.702
22		0.0466	1,671,087	172,786	27,462,600	6.714
23		0.0466	1,671,087	176,242	27,462,600	6.727
24		0.0466	1,671,087	179,767	27,462,600	6.740
25		0.0466	1,671,087	183,362	27,462,600	6.753
26		0.0466	1,671,087	187,029	27,462,600	6.766
27		0.0466	1,671,087	190,770	27,462,600	6.780
28		0.0466	1,671,087	194,585	27,462,600	6.794
29		0.0466	1,671,087	198,477	27,462,600	6.808
30		0.0466	1,671,087	202,446	27,462,600	6.822
31		0.0466	1,671,087	206,495	27,462,600	6.837
32		0.0466	1,671,087	210,625	27,462,600	6.852
33		0.0466	1,671,087	214,838	27,462,600	6.867
34		0.0466	1,671,087	219,134	27,462,600	6.883
35		0.0466	1,671,087	223,517	27,462,600	6.899
36		0.0466	1,671,087	227,987	27,462,600	6.915
37		0.0466	1,671,087	232,547	27,462,600	6.932
38		0.0466	1,671,087	237,198	27,462,600	6.949
39		0.0466	1,671,087	241,942	27,462,600	6.966
40		0.0466	1,671,087	246,781	27,462,600	6.984
41		0.0466	1,671,087	251,717	27,462,600	7.002
42		0.0466	1,671,087	256,751	27,462,600	7.020
43		0.0466	1,671,087	261,886	27,462,600	7.039
44		0.0466	1,671,087	267,124	27,462,600	7.058
45		0.0466	1,671,087	272,466	27,462,600	7.077
46		0.0466	1,671,087	277,915	27,462,600	7.097
47		0.0466	1,671,087	283,474	27,462,600	7.117
48		0.0466	1,671,087	289,143	27,462,600	7.138
49		0.0466	1,671,087	294,926	27,462,600	7.159
50		0.0466	1,671,087	300,825	27,462,600	7.180

Affordable Power Measure No. 7:
Purchases of Federal Power

Technical Documentation

Current Power Rates

Bonneville Power Administration's wholesale power and transmission rates for the FY 2020-2021 rate period were established during the BP-20 Rate Case. The rate proceeding, conducted through a formal process described in Section 7(i) of the Northwest Power Act, concluded when the Administrator signed the Final Record of Decision on July 25, 2019.

The complete rate proceeding record was then sent to the Federal Energy Regulatory Commission for their review and approval of the rates. The Commission granted interim approval to the 2020 Power Rate Schedules and General Rate Schedule Provisions (Rev.12-11-2019) and the 2020 Transmission, Ancillary and Control Area Service Rate Schedules and General Rate Schedule Provisions on September 30, 2019. These rates are in effect from October 1, 2019 through September 30, 2021 (FY 2020-2021).

During this 2-year rate period, power rates may be adjusted in accordance with the Power Cost Recovery Adjustment Clause (Power CRAC), the Power Reserves Distribution Clause (Power RDC), and the Power Financial Reserves Policy (Power FRP) Surcharge (see Power GRSPs, sections II.O, II.P, and II.Q). Any such adjustments can be viewed at the FY 2020 – 2021 Rate Adjustments page.

Customer TOCA Billing Determinants for FY 2020-2021 can be viewed at BP-20 Rate Case Models and Datasets.

Past power rate schedules are available via the Previous Power Rates page. A graph of Historical Priority Firm Power Rates is also available. For information on transmission rates, see the Current Transmission Rates page.

The table below shows the average power rates for the 2-year rate period. See the 2020 Power Rates Schedules and GRSPs for the actual rates charged.

"Average" Power Rates[1]
Effective October 1, 2019 – September 30, 2021
(FY 2020-2021)

(Updated October 1, 2019)

Rate Category	**Average Rates** ($/MWh[2])
PF-20 Priority Firm	
Public Rate - Average Tier 1 + Tier 2 rate	35.56
Public Rate - Average Tier 1 rate	35.62
Exchange Rate	66.48
IP-20 Industrial Firm	41.11
NR-20 New Resource Firm	79.80

[1]The rates represented in this table assume no Power CRAC, Power RDC adjustment, or Power FRP Surcharge. The rates do not include the cost of transmission. The rates shown are averages as applied to the entire customer class and are shown for reference purposes only.

[2] $1/MWh = 1 mill/kWh = $0.001/kWh.

SCHEDULE PF-20
PRIORITY FIRM POWER RATE

1. Availability

This schedule is available for the contract purchase of Firm Requirements Power by public bodies, cooperatives, and Federal agencies pursuant to Section 5(b) of the Northwest Power Act. 16 U.S.C. § 839c(b). Firm Requirements Power may be purchased for use within the Pacific Northwest by public bodies, cooperatives, and Federal agencies for resale to ultimate consumers; for direct consumption; and for Construction, Test and Start-Up, and Station Service.

This schedule is also available for the contract purchase of Residential Exchange Program Power by utilities participating in the Residential Exchange Program under Section 5(c) of the Northwest Power Act. 16 U.S.C. § 839c(c). Purchases are made pursuant to a Residential Purchase and Sale Agreement or Residential Exchange Program Settlement Implementation Agreement.

With the exception of sales under the Residential Exchange Program, transmission and ancillary services for use of the Federal Columbia River Transmission System facilities shall be charged separately under the applicable rate schedules.

Effective October 1, 2019, this rate schedule supersedes the PF-18 rate schedule. Sales under the PF-20 rate schedule are subject to the General Rate Schedule Provisions (GRSPs). For sales under this rate schedule, bills shall be rendered and payments due pursuant to the GRSPs and billing process.

2. Priority Firm Public Rate

The PF Public Rate is applicable to the sale of Firm Requirements Power under CHWM Contracts for Load Following, Block, and Slice/Block power products.

2.1 Tier 1 Charges

Tier 1 charges for each customer include two of three Customer charges, a Demand charge, and a Load Shaping charge.

2.1.1 Customer Charges

The Customer Charges are applicable to customers that purchase the following products: Load Following, Block, and Slice/Block.

2.1.1.1 Customer Rates

The monthly Composite, Non-Slice, and Slice Customer rates are specified in the following table:

	Customer Charge ***Rate in dollars per percentage point of billing determinant***		
	Composite	***Non-Slice***	***Slice***
Customer Rate	1,980,553	(200,365)	0

2.1.1.2 Customer Billing Determinants

The Composite, Non-Slice, and Slice Customer billing determinants are specified in the following table:

	Customer Charge ***Billing determinant for each rate***		
	Composite	***Non-Slice***	***Slice***
Load Following	TOCA	TOCA	N/A
Block only	TOCA	TOCA	N/A
Block portion of Slice/Block	Non-Slice TOCA	Non-Slice TOCA	N/A
Slice portion of Slice/Block	Slice %	N/A	Slice %

N/A = Not Applicable

Where:

TOCA = Tier 1 Cost Allocator, expressed as a percentage

For each customer for each Fiscal Year of the Rate Period, the TOCA shall be calculated according to the following formula:

$$\frac{\textit{Minimum of the Customer's: a) RHWM, or b) Forecast Net Requirement for each Fiscal Year}}{\textit{Sum of all Customers' RHWMs}} \times 100$$

The TOCA for a Joint Operating Entity (JOE) is the sum of the TOCAs of the individual members of the JOE.

All customer TOCAs shall be posted on the BPA website. A customer's TOCA may be revised pursuant to the TOCA Adjustment, GRSP II.G.

Slice % = The Slice percentage for the relevant Fiscal Year as specified in Exhibit K of the Slice customer's CHWM Contract.

Non-Slice TOCA = TOCA minus Slice %, expressed as a percentage.

A customer's Non-Slice TOCA may be revised pursuant to the TOCA Adjustment, GRSP II.G.

2.1.2 Demand Charge

The Demand Charge is applicable to customers that purchase the following products: Load Following and Block with Shaping Capacity.

2.1.2.1 Demand Rate

Month	***Rate in $/kW***
October	11.42
November	12.07
December	13.45
January	12.10
February	11.66
March	9.19
April	8.61
May	5.60
June	5.04
July	10.27
August	12.10
September	11.91

2.1.2.2 Demand Billing Determinant

The Demand billing determinant for each billing month equals:

Tier 1 CSP – aHLH – CDQ – SuperPeak

Where:

Tier 1 CSP = Tier 1 Customer System Peak; the customer's maximum Actual Hourly Tier 1 Load during the Heavy Load Hours of the month, in kilowatts

aHLH = Average of the customer's Actual Hourly Tier 1 Loads during the HLH, in kilowatts

CDQ = Contract Demand Quantity specified in the customer's CHWM Contract, Exhibit B, Section 2, in kilowatts

SuperPeak = Super Peak Credit, if any, specified in the customer's CHWM Contract, Exhibit A, Section 9, in kilowatts

If the Demand Charge billing determinant calculation results in a value less than zero, the billing determinant is deemed to be zero.

If a customer does not supply the Super Peak amount listed in its CHWM Contract, Exhibit A, Section 9, for at least two hours of the Super Peak Period, then the customer does not receive a Super Peak Credit for that month.

The Demand billing determinant may be adjusted pursuant to the Demand Rate Billing Determinant Adjustments, GRSP II.D.

2.1.3 Load Shaping Charge

The Load Shaping Charge is applicable to customers that purchase the following products: Load Following, Block, and the Block portion of Slice/Block. In any diurnal period (HLH or LLH), the Load Shaping Charge may be a charge or a credit, depending upon whether the Load Shaping billing determinant is positive or negative.

2.1.3.1 Load Shaping Rate

Month	*Rate in mills/kWh*	
	HLH	***LLH***
October	23.84	18.88
November	25.19	21.84
December	28.09	23.56
January	25.24	19.21
February	24.36	19.28
March	19.19	16.11
April	17.98	14.40
May	11.71	6.55
June	10.52	1.68
July	21.45	15.31
August	25.24	20.21
September	24.86	19.98

2.1.3.2 Load Shaping Billing Determinant

The Load Shaping billing determinant for each of the two diurnal periods, HLH and LLH, for each month equals:

Customer's Actual Monthly/Diurnal Tier 1 Load,
in kilowatthours
minus
Customer's System Shaped Load for the relevant
diurnal period, in kilowatthours.

2.1.3.2.1 System Shaped Load

A System Shaped Load is calculated for each diurnal period of each month. The customer's System Shaped Load for each diurnal period equals:

$$RT1SC \times TOCA$$

Where:

RT1SC = RHWM Tier 1 System Capability for the relevant diurnal period, in kilowatthours. The RT1SC for each diurnal period of the Rate Period is specified in GRSP II.A.

TOCA = The effective TOCA for a Load Following or Block customer, or the effective Non-Slice TOCA for a Slice/Block customer, expressed as a percentage. The TOCA used in this System Shaped Load calculation shall reflect a customer's Adjusted TOCA pursuant to GRSP II.G.

2.1.3.2.2 Joint Operating Entity (JOE)

For calculating the Load Shaping Charge billing determinant for a JOE, the sum of the Actual Monthly/Diurnal Tier 1 Loads of the JOE's individual members and the sum of System Shaped Loads of the JOE's individual members shall be used.

2.1.4 Risk Adjustments

The Power CRAC (GRSP II.O), the Power RDC (GRSP II.P), and the Power FRP Surcharge (GRSP II.Q) are adjustments to certain Tier 1 rates that apply to the following products under the PF-20 rate schedule: Load Following, Block, and the Block portion of Slice/Block. Any adjustments to rates and GRSPs during the Rate Period due to such risk adjustments are summarized in GRSP Appendix A.

2.2 Tier 2 Charges

2.2.1 Tier 2 Load Shaping Charge

Pursuant to Section 4.3 of the Tiered Rate Methodology (TRM), BP-12-A-03, the Tier 2 Load Shaping charge is applicable to customers that have elected to serve Above-RHWM Load with purchases at Tier 2 rates and are forecast to have Above-RHWM Load less than 8,760 MWh.

2.2.1.1 Tier 2 Load Shaping Rates

The Tier 2 Load Shaping Rates shall be the rates specified in Section 2.1.3.1.

2.2.1.2 Tier 2 Load Shaping Billing Determinant

The Tier 2 Load Shaping billing determinant for each billing period is incorporated into the billing determinant established in Section 2.1.3.2.

2.2.2 Short-Term Charge

The Short-Term Charge is applicable to customers that have elected to purchase power at the Tier 2 Short-Term Rate, as specified in the customers' CHWM Contracts, Exhibit C, Section 2.5.

2.2.2.1 Short-Term Rate

Fiscal Year	*Rate in mills/kWh*
2020	30.32
2021	33.00

2.2.2.2 Short-Term Billing Determinant

The billing determinant is the annual amount of power specified in the customer's CHWM Contract. For the relevant billing month, the contract amount shall be converted from average megawatts to kilowatthours assuming a Flat Annual Shape.

3. Priority Firm Melded Rate

The PF Melded rate is applicable to the sale of Firm Requirements Power under contracts other than CHWM Contracts.

Rates under contracts that contain charges that escalate based on BPA's PF rate shall be based on the rates listed in this section in addition to any applicable transmission and ancillary service charges.

The PF Melded rate is not available to loads that are considered Unanticipated Loads as defined in Unanticipated Load Service, GRSP II.M.1.

3.1 Energy Charge

3.1.1 Energy Rate

Month	*Rate in mills/kWh*	
	HLH	*LLH*
October	38.68	33.72
November	40.03	36.68
December	42.93	38.40
January	40.08	34.05
February	39.20	34.12
March	34.03	30.95
April	32.82	29.24
May	26.55	21.39
June	25.36	16.52
July	36.29	30.15
August	40.08	35.05
September	39.70	34.82

The PF Melded energy rates in the table above are subject to risk adjustments during the Rate Period pursuant to the Power CRAC (GRSP II.O), the Power RDC (GRSP II.P), and the Power FRP Surcharge (GRSP II.Q). Any adjustments to rates and GRSPs during the Rate Period due to such risk adjustments are summarized in GRSP Appendix A.

3.1.2 Energy Billing Determinant

The Energy billing determinant is the total of the hourly loads, as specified in the customer's contract, for each diurnal period, in kilowatthours.

3.2 Demand Charge

3.2.1 Demand Rate

Month	***Rate in $/kW***
October	11.42
November	12.07
December	13.45
January	12.10
February	11.66
March	9.19
April	8.61
May	5.60
June	5.04
July	10.27
August	12.10
September	11.91

3.2.2 Demand Billing Determinant

The Demand billing determinant is the maximum hourly load, as specified in the customer's contract, during the HLH of the month, in kilowatts, less the average of the hourly loads during the HLH of the month, in kilowatts.

4. Unanticipated Load Service Charge

The Unanticipated Load Service Charge under the PF-20 Rate Schedule, specified in GRSP II.M.2, is applicable to the sale of Firm Requirements Power to serve Unanticipated Loads.

5. Resource Support Services Rates

Resource Support Services rates are applicable to customers that elect to take Diurnal Flattening Service, Secondary Crediting Service, or Grandfathered Generation Management Service for non-Federal resources. The Resource Shaping Charge and Adjustment are applicable to customers that elect this option to financially convert the output of certain types of non-Federal resources to a flat annual block of power as specified in their CHWM Contracts.

5.1 Diurnal Flattening Service (DFS)

Customers that have elected to take DFS for their non-Federal resources are subject to the DFS Energy and Capacity Charges specified in GRSP II.I.1.

5.2 Resource Shaping Charge and Adjustment

Customers that have elected to take this option for their new resources other than small non-dispatchable resources are subject to the Resource Shaping Charge and Adjustment specified in GRSP II.I.2.

5.3 Secondary Crediting Service (SCS)

Customers that have elected to take SCS for their non-Federal resources are subject to the SCS Shortfall Energy Charge, SCS Secondary Energy Charge, and SCS Administrative Charge specified in GRSP II.I.3.

5.4 Grandfathered Generation Management Service (GMS)

Load Following customers dedicating to their Tier 1 Load the entire output of an Existing Resource that received GMS under Subscription are subject to a GMS Reservation Fee specified in GRSP II.I.6.

6. Priority Firm Exchange Rate

The PF Exchange rate applies to sales of Residential Exchange Program Power under a Residential Purchase and Sale Agreement or Residential Exchange Program Settlement Implementation Agreement.

6.1. Energy Rate

A utility-specific PF Exchange rate is calculated for each utility purchasing Residential Exchange Program Power. For investor-owned utilities, the PF Exchange rate equals the Base PF Exchange rate plus a utility-specific 7(b)(3) Surcharge. For consumer-owned utilities, the PF Exchange rate equals the Base Tier 1 PF Exchange rate plus a utility-specific 7(b)(3) Surcharge.

Investor-Owned Utilities	*Rates in mills/kWh*		
	Base PF Exchange Rates	***7(b)(3) Surcharge***	***PF Exchange Rates***
Avista	52.03	11.87	63.89580
Idaho Power	52.03	9.09	61.11240
NorthWestern	52.03	22.15	74.17480
PacifiCorp	52.03	20.46	72.48300
Portland General	52.03	18.29	70.31570
Puget Sound Energy	52.03	16.99	69.01780
Consumer-Owned Utilities	***Base Tier 1 PF Exchange Rates***	***7(b)(3) Surcharge***	***PF Exchange Rates***
Clark Public Utilities	52.13	2.22	54.35
Snohomish County PUD No 1	52.13	1.86	53.99

6.2 Energy Billing Determinant

The billing determinant for the PF Exchange Power charge is the customer's Residential Load specified in GRSP II.S, Table H.

7. Adjustments, Charges, and Special Rate Provisions

Adjustments, charges, and special rate provisions are applicable to PF rates as shown in the following tables.

GRSP II.	***Adjustments, Charges, and Special Rate Provisions***	***Applicable to:***			
		Firm Requirements			***REP***
		Load Following	***Block only and Block Portion of Slice/Block***	***Slice Portion of Slice/Block***	
Calculating Rates (including Discounts and Adjustments)					
A	RHWM Tier 1 System Capability (RT1SC)	X	X		
B	Low Density Discount (LDD)	X	X	X	
C	Irrigation Rate Discount	X	X	X	
D	Demand Rate Billing Determinant Adjustments	X			
E	Load Shaping Charge True-Up Adjustment	X			
F	Tier 2 Rate TCMS Adjustment	X			
G	TOCA Adjustment	X	X	X	
Resource Support Services & Related Services					
I	Resource Support Services and Transmission Scheduling Service	X	X	X	
K	Remarketing	X	X	X	

GRSP II.	*Adjustments, Charges, and Special Rate Provisions*	*Applicable to:*			
		Firm Requirements			
		Load Following	*Block only and Block Portion of Slice/Block*	*Slice Portion of Slice/Block*	*REP*
Transfer Service					
L	Transfer Service Charges	X	X	X	
Other Charges					
M	Unanticipated Load Service	X	X	X	
N	Unauthorized Increase (UAI) Charge	X	X	X	X
Risk Adjustments					
O	Power Cost Recovery Adjustment Clause (Power CRAC)	X	X		
P	Power Reserves Distribution Clause (Power RDC)	X	X		
Q	Power Financial Reserves Policy (Power FRP) Surcharge	X	X		
Slice True-Up					
R	Slice True-Up Adjustment			X	
Residential Exchange Program					
S	Residential Exchange Program Residential Load				X
T	Residential Exchange Program 7(b)(3) Surcharge Adjustment				X
Conservation					
U	Conservation Surcharge	X	X	X	
Payment Options					
W	Flexible Priority Firm Power (PF) Rate Option	X	X	X	
X	Priority Firm Power (PF) Shaping Option	X	X	X	
Informational					
Z	Cost Contributions	X	X	X	X

GRSP Appendix	*Adjustments and Charges*	*Applicable to:*		
		Load Following	*Block only and Block Portion of Slice/Block*	*Slice Portion of Slice/Block*
A	Supplemental Information	X	X	X

2020 Transmission, Ancillary and Control Area Services Rates Summary

Effective October 1, 2019

Transmission Rates

1. ***FPT-20.1 and FPT-20.3*** [1/]	
Formula Power Transmission	*[see rate schedule]*
2. ***NT-20 Network Integration*** [2/]	
Rate	$1.771 /kW/mo
Short Distance Discount	*[see rate schedule]*
3. ***PTP-20 Point-To-Point*** [2/ 3/]	
Long-Term	$1.533 /kW/mo
Short-Term (firm and non-firm)	
– Monthly, Weekly, Daily	
• Days 1 through 5	$0.070 /kW/day
• Days 6 and beyond	$0.050 /kW/day
– Hourly (firm and nonfirm)	4.41 mills/kWh
Short Distance Discount Rate	*[see rate schedule]*
4. ***IS-20 Southern Intertie*** [2/ 3/]	
Long-Term	$1.084 /kW/mo
Short-Term (firm and non-firm)	
– Monthly, Weekly, Daily	
• Days 1 through 5	$0.050 /kW/day
• Day 6 and beyond	$0.036/kW/day
– Hourly (firm and nonfirm)	9.98 mills/kWh
5. ***IM-20 Montana Intertie Rate*** [2/ 3/]	
Long-Term	$0.506 /kW/mo
Short-Term (firm and non-firm)	
– Monthly, Weekly, Daily	
• Days 1 through 5	$0.023 /kW/day
• Days 6 and beyond	$0.017 /kW/day
– Hourly (firm and nonfirm)	1.46 mills/kWh
6. ***IE-20 Eastern Intertie Rate***	
Long-Term	1.46 mills/kWh
7. ***Regional Compliance Enforcement and Regional Coordinator Rates***	
Regional Compliance Enforcement Rate	0.05 mills/kWh
Regional Coordinator Rate	0.04 mills/kWh

Ancillary and Control Area Services Rates (ACS-20)

8. ***Scheduling, System Control and Dispatch Service*** [2/ 3/]	
For NT customers	$0.365 /kW/mo
For PTP customers	$0.317 /kW/mo
Short-Term (firm and non-firm PTP)	
– Monthly, Weekly, Daily	
• Days 1 through 5	$0.015 /kW/day
• Days 6 and beyond	$0.010 /kW/day
– Hourly	0.91 mills/kWh
9. ***Reactive Supply and Voltage Control From Generation Sources Service (GSR)*** [2/ 3/]	Formula rate determined quarterly *[see rate schedule]*
10. ***Regulation and Frequency Response Service***	0.49 mills/kWh
11. ***Energy Imbalance Service***	*[see rate schedule]*
12. ***Operating Reserve – Spinning Reserve Service***	
– Spinning	9.53 mills/kWh
– Spinning Default	10.96 mills/kWh
Energy Delivered	*[see rate schedule]*
13. ***Operating Reserve -- Supplemental Reserve Service***	
– Supplemental	8.32 mills/kWh
– Supplemental Default	9.57 mills/kWh
Energy Delivered	*[see rate schedule]*
14. ***Generation Imbalance Service***	*[see rate schedule]*
15. ***Variable Energy Resource Balancing Service***	
Variable Energy Resource Balancing Service For Wind Resources	
30/60 Committed Scheduling	
• Regulating Reserves	$0.10 /kW/mo
• Following Reserves	$0.40 /kW/mo
• Imbalance Reserves	$0.43 /kW/mo
• Total	$0.93 /kW/mo
40/15 Committed Scheduling	
• Regulating Reserves	N/A
• Following Reserves	N/A
• Imbalance Reserves	N/A
• Total	N/A
30/30 Committed Scheduling	
• Regulating Reserves	N/A
• Following Reserves	N/A
• Imbalance Reserves	N/A
• Total	N/A

30/15 Committed Scheduling	
• Regulating Reserves	$0.10 /kW/mo
• Following Reserves	$0.38 /kW/mo
• Imbalance Reserves	$0.15 /kW/mo
• Total	$0.63 /kW/mo
Uncommitted Scheduling	
• Regulating Reserves	$0.10 /kW/mo
• Following Reserves	$0.37 /kW/mo
• Imbalance Reserves	$0.62/kW/mo
• Total	$1.09 /kW/mo
Customer Supplied Generation Imbalance	N/A
Variable Energy Resource Balancing Service For Solar Resources	
30/60 Committed Scheduling	
• Regulating Reserves	$0.14 /kW/mo
• Following Reserves	$0.26 /kW/mo
• Imbalance Reserves	$0.29 /kW/mo
• Total	$0.69 /kW/mo
30/15 Committed Scheduling	$0.37 /kW/mo
Uncommitted Scheduling	
• Regulating Reserves	$0.14 /kW/mo
• Following Reserves	$0.26 /kW/mo
• Imbalance Reserves	$0.51 /kW/mo
• Total	$0.91 /kW/mo
Hourly Scheduling	N/A
Supplemental Service	*[see rate schedule]*
Full Service	*[see rate schedule]*
16. ***Dispatchable Energy Resource Balancing Service***	
Incremental Reserves	15.11/mills/kW max hrly deviation
Decremental Reserves	1.59/mills/kW max hrly deviation
General Rate Schedule Provisions	
17. **Utility Delivery Charge**	$1.324 /kW/mo

Note: Section II of the transmission rate schedules includes adjustments, charges, and special rate provisions for transmission rates.

[1/] FPT services/rates include the two required Ancillary Services--Scheduling, System Control and Dispatch (SCD) and Reactive Supply and Voltage Control from Generation Sources (GSR).

- The FPT-20.1 charges adjust quarterly for changes in the Reactive Supply and Voltage Control from Generation Sources (GSR) rate.

[2/] Transmission customers must purchase the two required ancillary services—SCD and GSR—from BPA in accordance with BPA's Open Access Transmission Tariff.

[3/] PTP Transmission Service (PTP, IS, and IM rate schedules)

- Long-Term Service is one year or greater, reserved in annual increments.
- Short-Term Service is less than one year. For any reservation of short-term service, the "Days 1 through 5" rate shown above will be applied to the first 5 days of the reservation, while the "Day 6 and beyond" rate will be applied to the remaining days of the reservation.
- Charges for the 2 required Ancillary Services are applied in the same manner.

Affordable Power Measure No. 8 :
Open Access Power Purchases

Technical Documentation

Available

In all territory served by the Company in the State of Oregon.

Applicable

To Consumers who have chosen to receive electricity from an ESS and desiring service for agricultural irrigation or agricultural soil drainage pumping installations only and whose loads have not registered 1,000 kW or more, more than once in the preceding 18-month period and who are not otherwise subject to service on Schedule 747 or 748. Service furnished under this Schedule will be metered and billed separately at each point of delivery.

Monthly Billing

Except for November, the Monthly Billing shall be the sum of the Distribution Energy Charge, Reactive Power Charge plus the applicable rate in Schedule 80 and applicable adjustments as specified in Schedule 90. For November, the billing shall be the sum of the Basic Charge, Load Size Charge, Distribution Energy Charge, Reactive Power Charge plus the applicable rate in Schedule 80 and applicable adjustments as specified in Schedule 90.

Distribution Charge	**Delivery Voltage**	
Basic Charge (November billing only)	**Secondary**	**Primary**
Load Size ≤ 50 kW, or Single Phase Any Size	No Charge	No Charge
Three Phase Load Size 51 - 300 kW	$ 310.00	$ 300.00
Three Phase Load Size > 300 kW	$1,210.00	$1,180.00
Load Size Charge (November billing only)		
Single Phase Any Size, Three Phase ≤ 50 kW, per kW Load Size	$ 15.00	$ 15.00
Three Phase 51 - 300 kW, per kW Load Size	$ 10.00	$ 10.00
Three Phase > 300 kW, per kW Load Size	$ 6.00	$ 6.00
Single Phase, Minimum Charge	$ 55.00	$ 55.00
Three Phase, Minimum Charge	$ 90.00	$ 85.00
Distribution Energy Charge, per kWh	3.569¢	3.468¢
Reactive Power Charge, per kVar	$ 0.65	$ 0.60
System Usage Charge		
Schedule 200 Related, per kWh	0.074¢	0.072¢

kW Load Size

For determination of the Basic Charge and the Load Size Charge, the kW load size shall be the average of the two greatest non-zero monthly demands established during the 12-month period which includes and ends with the current billing month.

Monthly kW is the measured kW shown by or computed from the readings of Company's meter, or by appropriate test, for the 15-minute period of Consumer's greatest takings during the billing month; provided, however, that for motors 10 hp or less, the Monthly kW may, subject to confirmation by test, be determined from the nameplate hp rating and the following table:

If Motor Size Is:	**Monthly kW is:**
2 hp or less	2 kW
Over 2 through 3 hp	3 kW
Over 3 through 5 hp	5 kW
Over 5 through 7.5 hp	7 kW
Over 7.5 through 10 hp	9 kW

(continued)

kW Load Size (continued)

In no case shall the Monthly kW be less than the average kW determined as:

$$\text{Average kW} = \frac{\text{kWh for billing month}}{\text{hours in billing month}}$$

Reactive Power Charge

The maximum 15-minute reactive takings for the billing month in kilovolt-amperes in excess of 40% of the Monthly kW.

Metering Adjustment

For a Consumer receiving service at secondary delivery voltage where metering is at primary delivery shall have all billing quantities multiplied by an adjustment factor of 0.9718.

For a Consumer receiving service at primary delivery voltage where metering is at secondary delivery voltage shall have all billing quantities multiplied by an adjustment factor of 1.0290.

Base Supply Service

All Consumers taking Delivery Service under this schedule shall pay the applicable rates in Schedule 200, Base Supply Service.

Transmission & Ancillary Services

Consumers taking service under this schedule must also take service under the Company's FERC Open Access Transmission Tariff (OATT) or be served by an ESS or Scheduling ESS.

Franchise Fees

Franchise fees related to Schedule 200, Base Supply Service, are collected through the System Usage Charge - Schedule 200 Related rate. Franchise fees related to distribution charges are collected through distribution charges.

Special Conditions

1) For new or terminating service, the Basic Charge and the Load Size Charge shall be prorated based upon the length of time the account is active during the 12-month period December through November; provided, however, that proration of the Basic Charge and the Load Size Charge will be available on termination only if a full Basic Charge and Load Size Charge was paid for the delivery point for the preceding year.

2) For new service or for reestablishment of service, Company will require a written contract.

3) In the absence of a Consumer or Applicant willing to contract for service, Company may remove its facilities.

4) Energy use may be carried forward and be billed in a subsequent billing month; provided, however, that energy will not be carried forward and be charged for at a higher rate than was applicable for the billing months during which the energy was used.

Term of Contract

Not less than three years.

Rules and Regulations

Service under this Schedule is subject to the General Rules and Regulations contained in the tariff of which this Schedule is a part and to those prescribed by regulatory authorities.

Pacific Power - Oregon Direct Access Price Summary
In Effect as of January 1, 2020

	Delivery Service										Supply Service														
	Distribution	Sys Usg	GIA							Total	Base Supply	Adj. Schedules					Total	**Delivery & Supply**	Fed. Tax Act Adj.	**Combined Effective**	Transition Adj.	Public Purpose	Energy Conserv.	BPA Credit
Tariff Schedules[1]	Charge	S200	80	93	95	96	97	196	299	Delivery	200	202	203	204	205	207	Supply	**Subtotal**	195	**Rate[2]**	294/295	290	297[3]	98[4]
Schedule 741 Secondary																								
Basic Charge - Annually (billed in November)																								
1 Phase Any Size, 3 Phase <= 50kW	No Charge									$0.00								**$0.00**		**$0.00**		3%		
3 Phase Load Size 51-300 kW	$310.00									$310.00								**$310.00**		**$310.00**		3%		
3 Phase Load Size > 300 kW	$1,210.00									$1,210.00								**$1,210.00**		**$1,210.00**		3%		
Load Size Charge - Annually (billed in November)																								
1 Phase Any Size, 3 Phase <= 50kW	$15.00									$15.00								**$15.00**		**$15.00** /kW		3%		
3 Phase Load Size 51-300 kW	$10.00									$10.00								**$10.00**		**$10.00** /kW		3%		
3 Phase Load Size > 300 kW	$6.00									$6.00								**$6.00**		**$6.00** /kW		3%		
Minimum Charge - Annually (billed in November)																								
1 Phase	$55.00									$55.00								**$55.00**		**$55.00**		3%		
3 Phase	$90.00									$90.00								**$90.00**		**$90.00**		3%		
Energy Charge[5]																								
Winter 1st 100 kWh/kW	3.569	0.074	0.166	0.000	0.001	0.000	0.000	-0.021	-0.595	3.194	4.629	0.154	0.005	0.037	0.030	0.003	4.858	**8.052**	-0.456	**7.596** ¢/kWh	See	3%	0.332	-0.691
Winter All Add'l kWh	3.569	0.074	0.166	0.000	0.001	0.000	0.000	-0.021	-0.595	3.194	3.156	0.154	0.005	0.037	0.021	0.003	3.376	**6.570**	-0.456	**6.114** ¢/kWh	Page 7	3%	0.332	-0.691
Summer All kWh	3.569	0.074	0.166	0.000	0.001	0.000	0.000	-0.021	-0.595	3.194	3.156	0.154	0.005	0.037	0.021	0.003	3.376	**6.570**	-0.456	**6.114** ¢/kWh	Below	3%	0.332	-0.691
Reactive Power	$0.65									$0.65								**$0.65**		**$0.65** /kVar		3%		
Schedule 741 Primary																								
Basic Charge - Annually (billed in November)																								
1 Phase Any Size, 3 Phase <= 50kW	No Charge									$0.00								**$0.00**		**$0.00**		3%		
3 Phase Load Size 51-300 kW	$300.00									$300.00								**$300.00**		**$300.00**		3%		
3 Phase Load Size > 300 kW	$1,180.00									$1,180.00								**$1,180.00**		**$1,180.00**		3%		
Load Size Charge - Annually (billed in November)																								
1 Phase Any Size, 3 Phase <= 50kW	$15.00									$15.00								**$15.00**		**$15.00** /kW		3%		
3 Phase Load Size 51-300 kW	$10.00									$10.00								**$10.00**		**$10.00** /kW		3%		
3 Phase Load Size > 300 kW	$6.00									$6.00								**$6.00**		**$6.00** /kW		3%		
Minimum Charge - Annually (billed in November)																								
1 Phase	$55.00									$55.00								**$55.00**		**$55.00**		3%		
3 Phase	$85.00									$85.00								**$85.00**		**$85.00**		3%		
Energy Charge[5]																								
Winter 1st 100 kWh/kW	3.468	0.072	0.161	0.000	0.001	0.000	0.000	-0.021	-0.595	3.086	4.497	0.154	0.005	0.037	0.029	0.003	4.725	**7.811**	-0.456	**7.355** ¢/kWh	See	3%	0.332	-0.691
Winter All Add'l kWh	3.468	0.072	0.161	0.000	0.001	0.000	0.000	-0.021	-0.595	3.086	3.066	0.154	0.005	0.037	0.020	0.003	3.285	**6.371**	-0.456	**5.915** ¢/kWh	Page 7	3%	0.332	-0.691
Summer All kWh	3.468	0.072	0.161	0.000	0.001	0.000	0.000	-0.021	-0.595	3.086	3.066	0.154	0.005	0.037	0.020	0.003	3.285	**6.371**	-0.456	**5.915** ¢/kWh	Below	3%	0.332	-0.691
Reactive Power	$0.60									$0.60								**$0.60**		**$0.60** /kVar		3%		

[1] See Tariff for application and special conditions.

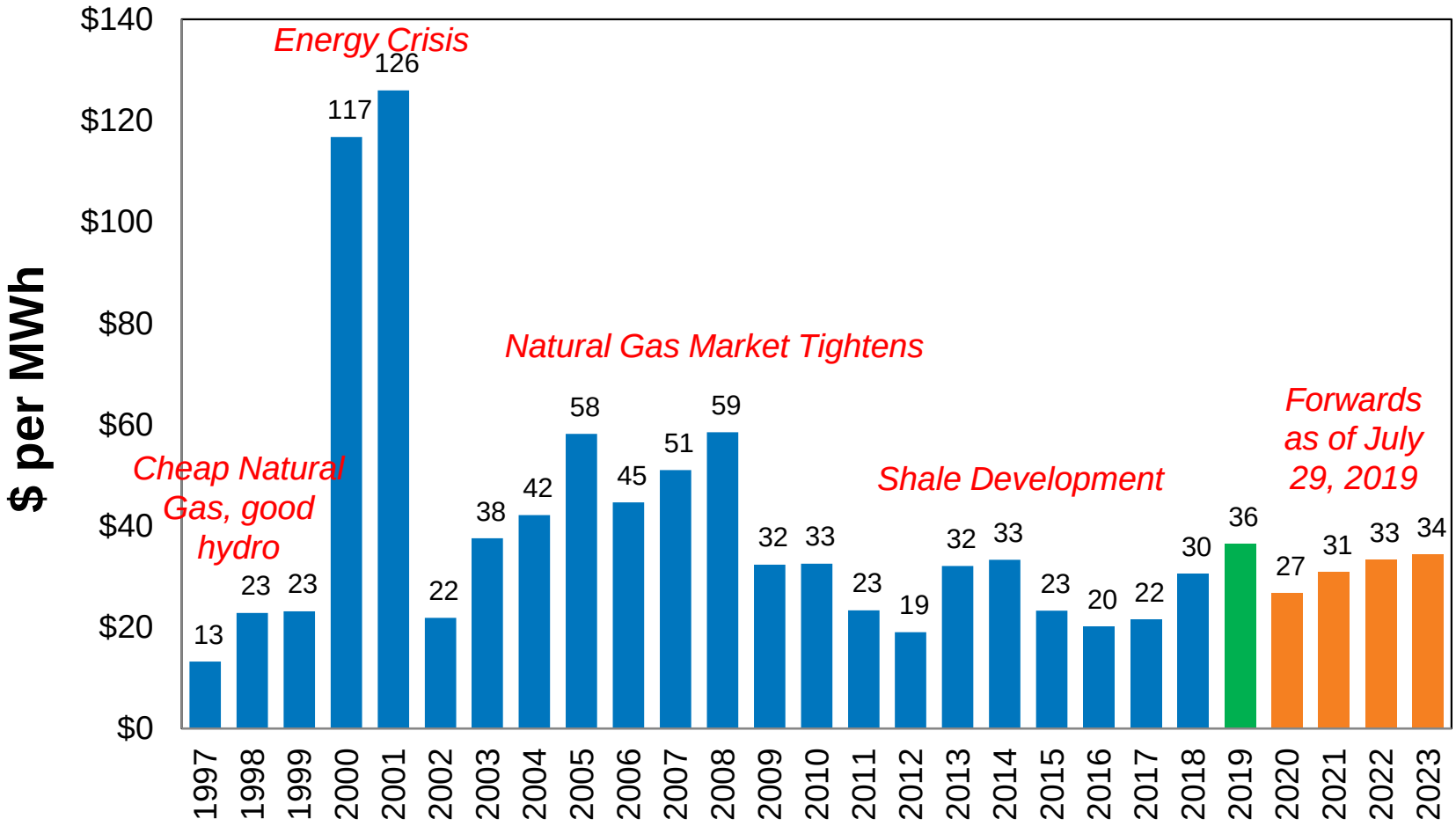
[2] Delivery Service plus Supply Service. Prior to Public Purpose Charge, Energy Conservation Charge and BPA Credit. Does not include Transition Adjustments (see Page 7 below). Also, does not include the effect of Low-Income Assistance Schedule 91; Non-residential schedules add 0.069 cents per kWh per meter which is capped at $500 or a maximum usage of 724,638 kWh per month.

[3] Consumers over 1aMW (8,760 MWh annually) and consumers certified for public purpose Self Direction by the Oregon Office of Energy are exempted from the Schedule 297, Energy Conservation Charge.

[4] Cents per qualifying kWh. Applicable to residential and small farm consumers only. Consumer eligibility for this credit is as provided by the Pacific Northwest Electric Power Planning and Conservation Act, Public Law 96-501.

[5] Winter is defined as service rendered from December 1 through March 31; Summer is defined as service rendered from April 1 through November 30.

Mid-Columbia Flat Firm Price Index History



Affordable Power Measure No. 9: PacifiCorp Irrigation Customer Cost-of-Service Evaluation

Technical Documentation

Available

In all territory served by the Company in the State of Oregon.

Applicable

To Consumers desiring service for agricultural irrigation or agricultural soil drainage pumping installations only and whose loads have not registered 1,000 kW or more, more than once in the preceding 18-month period and who are not otherwise subject to service on Schedule 47 or 48. Service furnished under this Schedule will be metered and billed separately at each point of delivery.

Monthly Billing

Except for November, the monthly billing shall be the sum of the Distribution Energy Charge, Reactive Power Charge, Transmission & Ancillary Services Charge plus the applicable rate in Schedule 80 and applicable adjustments as specified in Schedule 90. For November, the billing shall be the sum of the Basic Charge, Load Size Charge, Distribution Energy Charge, Reactive Power Charge, Transmission & Ancillary Services Charge plus the applicable rate in Schedule 80 and applicable adjustments as specified in Schedule 90.

Distribution Charge	**Delivery Voltage**	
	Secondary	**Primary**
Basic Charge (November billing only)		
Load Size ≤ 50 kW, or Single Phase Any Size	No Charge	No Charge
Three Phase Load Size 51 - 300 kW	$310.00	$300.00
Three Phase Load Size > 300 kW	$1,210.00	$1,180.00
Load Size Charge (November billing only)		
Single Phase Any Size, Three Phase ≤ 50 kW, per kW Load Size	$15.00	$15.00
Three Phase 51 - 300 kW, per kW Load Size	$10.00	$10.00
Three Phase > 300 kW, per kW Load Size	$6.00	$6.00
Single Phase, Minimum Charge	$55.00	$55.00
Three Phase, Minimum Charge	$90.00	$85.00
Distribution Energy Charge, per kWh	3.569¢	3.468¢
Reactive Power Charge, per kVar	$0.65	$0.60
Transmission & Ancillary Services Charge		
Per kWh	0.366¢	0.356¢
System Usage Charge		
Schedule 200 Related, per kWh	0.074¢	0.072¢
T&A and Schedule 201 Related, per kWh	0.076¢	0.074¢

kW Load Size

For determination of the Basic Charge and the Load Size Charge, the kW load size shall be the average of the two greatest non-zero monthly demands established during the 12-month period which includes and ends with the current billing month.

Monthly kW is the measured kW shown by or computed from the readings of the Company's meter, or by appropriate test, for the 15-minute period of the Consumer's greatest takings during the billing month; provided, however, that for motors 10 hp or less, the Monthly kW may, subject to confirmation by test, be determined from the nameplate hp rating and the following table:

(continued)

kW Load Size *(continued)*

If Motor Size Is:	Monthly kW is:
2 hp or less	2 kW
Over 2 through 3 hp	3 kW
Over 3 through 5 hp	5 kW
Over 5 through 7.5 hp	7 kW
Over 7.5 through 10 hp	9 kW

In no case shall the Monthly kW be less than the average kW determined as:

$$\text{Average kW} = \frac{\text{kWh for billing month}}{\text{hours in billing month}}$$

Reactive Power Charge

The maximum 15-minute reactive takings for the billing month in kilovolt-amperes in excess of 40% of the Monthly kW.

Metering Adjustment

For a Consumer receiving service at secondary delivery voltage where metering is at primary delivery shall have all billing quantities multiplied by an adjustment factor of 0.9718.

For a Consumer receiving service at primary delivery voltage where metering is at secondary delivery voltage shall have all billing quantities multiplied by an adjustment factor of 1.0290.

Supply Service Options

All Consumers taking Delivery Service under this schedule shall pay the applicable rates in Schedule 200, Base Supply Service. A Small Nonresidential Consumer taking Delivery Service under this schedule shall additionally specify Supply Service Schedule 201, Schedule 210, Schedule 211, Schedule 212, Schedule 213, or Schedule 220, as appropriate and in accordance with the Applicable section of the specified rate schedule. A Large Nonresidential Consumer taking Delivery Service under this Schedule shall additionally specify Supply Service Schedule 201 or Schedule 220, as appropriate and in accordance with the Applicable section of the specified rate schedule. If Consumer elects to receive Supply Service from an ESS, Delivery Service shall be provided under Schedule 741, Direct Access Delivery Service.

Franchise Fees

Franchise fees related to Schedule 200, Base Supply Service, are collected through the System Usage Charge - Schedule 200 Related rate. Franchise fees related to Transmission & Ancillary Services and franchise fees related to Schedule 201, Net Power Costs, are collected through the System Usage Charge - T&A and Schedule 201 Related rate. Franchise fees related to distribution charges are collected through distribution charges.

Special Conditions

1) For new or terminating service, the Basic Charge and the Load Size Charge shall be prorated based upon the length of time the account is active during the 12-month period December through November; provided, however, that proration of the Basic Charge and the Load Size Charge will be available on termination only if a full Basic Charge and Load Size Charge was paid for the delivery point for the preceding year.
2) For new service or for reestablishment of service, the Company will require a written contract.

(continued)

Special Conditions *(continued)*

3) In the absence of a Consumer or Applicant willing to contract for service, the Company may remove its facilities.
4) Energy use may be carried forward and be billed in a subsequent billing month; provided, however, that energy will not be carried forward and be charged for at a higher rate than was applicable for the billing months during which the energy was used.

Term of Contract

Not less than three years.

Rules and Regulations

Service under this Schedule is subject to the General Rules and Regulations contained in the tariff of which this Schedule is a part and to those prescribed by regulatory authorities.

Pacific Power - Oregon Price Summary
In Effect as of January 1, 2020

	Delivery Service												Supply Service											
	Distribution	Transm. &	Sys Usg	Sys Usg	GIA							Total	Base Supply	Cost-Based	Adj. Schedules					Total	Delivery & Supply	Fed. Tax Act Adj.	Combined Effective	Public Purpose	Energy Conserv.	BPA Credit
Tariff Schedules[1]	Charge	Ancillary	S200	T&A&S201	80	93	95	96	97	196	299	Delivery	200	201[2]	202	203	204	205	207	Supply	**Subtotal**	195	**Rate**[3]	290	297[4]	98[5]
Schedule 41 Secondary																										
Basic Charge - Annually (billed in November)																										
1 Phase Any Size, 3 Phase <= 50kW	No Charge											$0.00									$0.00		**$0.00**	3%		
3 Phase Load Size 51-300 kW	$310.00											$310.00									$310.00		**$310.00**	3%		
3 Phase Load Size > 300 kW	$1,210.00											$1,210.00									$1,210.00		**$1,210.00**	3%		
Load Size Charge - Annually (billed in November)																										
1 Phase Any Size, 3 Phase <= 50kW	$15.00											$15.00									$15.00		**$15.00** /kW	3%		
3 Phase Load Size 51-300 kW	$10.00											$10.00									$10.00		**$10.00** /kW	3%		
3 Phase Load Size > 300 kW	$6.00											$6.00									$6.00		**$6.00** /kW	3%		
Minimum Charge - Annually (billed in November)																										
1 Phase	$55.00											$55.00									$55.00		**$55.00**	3%		
3 Phase	$90.00											$90.00									$90.00		**$90.00**	3%		
Energy Charge[6]																										
Winter 1st 100 kWh/kW	3.569	0.366	0.074	0.076	0.166	0.000	0.001	0.000	0.000	-0.021	-0.595	3.636	4.629	3.781	0.154	0.005	0.037	0.030	0.003	8.639	12.275	-0.456	**11.819** ¢/kWh	3%	0.332	-0.691
Winter All Add'l kWh	3.569	0.366	0.074	0.076	0.166	0.000	0.001	0.000	0.000	-0.021	-0.595	3.636	3.156	2.575	0.154	0.005	0.037	0.021	0.003	5.951	9.587	-0.456	**9.131** ¢/kWh	3%	0.332	-0.691
Summer All kWh	3.569	0.366	0.074	0.076	0.166	0.000	0.001	0.000	0.000	-0.021	-0.595	3.636	3.156	2.575	0.154	0.005	0.037	0.021	0.003	5.951	9.587	-0.456	**9.131** ¢/kWh	3%	0.332	-0.691
Reactive Power	$0.65											$0.65									$0.65		**$0.65** /kVar	3%		
Schedule 41 Primary																										
Basic Charge - Annually (billed in November)																										
1 Phase Any Size, 3 Phase <= 50kW	No Charge											$0.00									$0.00		**$0.00**	3%		
3 Phase Load Size 51-300 kW	$300.00											$300.00									$300.00		**$300.00**	3%		
3 Phase Load Size > 300 kW	$1,180.00											$1,180.00									$1,180.00		**$1,180.00**	3%		
Load Size Charge - Annually (billed in November)																										
1 Phase Any Size, 3 Phase <= 50kW	$15.00											$15.00									$15.00		**$15.00** /kW	3%		
3 Phase Load Size 51-300 kW	$10.00											$10.00									$10.00		**$10.00** /kW	3%		
3 Phase Load Size > 300 kW	$6.00											$6.00									$6.00		**$6.00** /kW	3%		
Minimum Charge - Annually (billed in November)																										
1 Phase	$55.00											$55.00									$55.00		**$55.00**	3%		
3 Phase	$85.00											$85.00									$85.00		**$85.00**	3%		
Energy Charge[6]																										
Winter 1st 100 kWh/kW	3.468	0.356	0.072	0.074	0.161	0.000	0.001	0.000	0.000	-0.021	-0.595	3.516	4.497	3.653	0.154	0.005	0.037	0.029	0.003	8.378	11.894	-0.456	**11.438** ¢/kWh	3%	0.332	-0.691
Winter All Add'l kWh	3.468	0.356	0.072	0.074	0.161	0.000	0.001	0.000	0.000	-0.021	-0.595	3.516	3.066	2.495	0.154	0.005	0.037	0.020	0.003	5.780	9.296	-0.456	**8.840** ¢/kWh	3%	0.332	-0.691
Summer All kWh	3.468	0.356	0.072	0.074	0.161	0.000	0.001	0.000	0.000	-0.021	-0.595	3.516	3.066	2.495	0.154	0.005	0.037	0.020	0.003	5.780	9.296	-0.456	**8.840** ¢/kWh	3%	0.332	-0.691
Reactive Power	$0.60											$0.60									$0.60		**$0.60** /kVar	3%		

[1] See Tariff for application and special conditions.

[2] Customers electing to take service under Standard Offer pay rates described in Schedule 220 rather than Schedule 201, Cost Based Supply Service. See Schedule 220 for more information.

[3] Delivery Service plus Supply Service. Prior to Public Purpose Charge, Energy Conservation Charge and BPA Credit. Also, does not include the effect of Low-Income Assistance Schedule 91; for Schedule 4 customers add $0.69 per meter per month; all other schedules add 0.069 cents per kWh per meter which is capped at $500 or a maximum usage of 724,638 kWh per month.

[4] Consumers over 1aMW (8,760 MWh annually) and consumers certified for public purpose Self Direction by the Oregon Office of Energy are exempted from the Schedule 297, Energy Conservation Charge.

[5] Cents per qualifying kWh. Applicable to residential and small farm consumers only. Consumer eligibility for this credit is as provided by the Pacific Northwest Electric Power Planning and Conservation Act, Public Law 96-501.

[6] Winter is defined as service rendered from December 1 through March 31; Summer is defined as service rendered from April 1 through November 30.

Schedule No. PA-20

AGRICULTURAL PUMPING SERVICE

APPLICABILITY

This Schedule is applicable to customers desiring seasonal service for irrigation and soil drainage pumping installations only. Service furnished under this Schedule will be metered and billed separately at each point of delivery.

TERRITORY

In all territory served by the Utility in the State of California.

MONTHLY CHARGE

The Monthly Billing shall be the sum of the applicable Generation and Transmission Demand, Energy Charges and Reactive Power Charges. The Annual Charge will be included in the bill for the November billing month.

Direct Access Customers shall have their Monthly Billing modified in accordance with Schedule No. EC-1 and Schedule No. TC-1. All Monthly Billings shall be adjusted in accordance with Schedule ECAC-94 and Schedule GHG-92. Qualified billings shall be adjusted in accordance with Schedule GHG-93.

	Distrib.	FERC Trans.	Calif. Trans.	Gener-ation	Public Purpose	Total Rate
Generation & Transmission Demand Charge/kW		$1.45	$1.36	($0.85)		$1.96
Reactive Power Charge/kVar				60.000¢		60.000¢
Energy Charge/per kWh for all kWh	3.768¢			3.827¢	0.976¢	8.571¢

Adjustments

The above Total Rate includes adjustments for Schedule S-99, Schedule S-100, Schedule S-191, and Schedule S-192.

REACTIVE POWER CHARGE:

The maximum 15-minute integrated reactive demand in kilovolt-amperes occurring during the month in excess of 40% of the maximum measured 15-minute integrated demand in kilowatts occurring during the month will be billed, in addition to the above charges, at 60 cents per kvar of such excess reactive demand.

(Continued)

Schedule No. PA-20

AGRICULTURAL PUMPING SERVICE
(Continued)

ANNUAL CHARGE (collected in November Billing Period)*

If Load Size is: — Annual Charge is:

	Distrib.	FERC Trans.	Calif. Trans.	Gener-ation	Public Purpose	Total Rate
Annual Load Size:						
Single Phase Customers	$75.27					$75.27
plus Distribution Demand/kW	$16.27					$16.27
Three Phase Customers:						
50 kW or less demand	$75.27					$75.27
plus Distribution Demand/kW	$16.27					$16.27
51-300 kW of demand	$155.48					$155.48
plus Distribution Demand/kW	$16.27					$16.27
over 300 kW of demand	$155.48					$155.48
plus Distribution Demand/kW	$16.27					$16.27

*Note: Customer may pay monthly installments on their annual charge based on the estimate shown on their monthly bill.

DISTRIBUTION DEMAND

The Distribution Demand shall be the average of the two greatest non-zero monthly demands established during the 12-month period which includes and ends with the current billing month.

GENERATION AND TRANSMISSION DEMAND

The measured kW shown by or computed from the readings of Utility's demand meter, or by appropriate test, for the 15-minute period of Customer's greatest use during the billing month, but not less than two kW; provided, however, that for motors not over 10 hp, the demand may, subject to confirmation by test, be determined from the nameplate hp rating and the following table:

2 HP or less		2 kW
From 2.1 through 3	HP	3 kW
From 3.1 through 5	HP	5 kW
From 5.1 through 7.5	HP	7 kW
From 7.6 through 10	HP	9 kW

SPECIAL CONDITIONS

When a monthly billing computes at less than $3.00, the consumption will instead be carried forward to the succeeding month.

Pacific Power - California Price Summary
In Effect as of January 1, 2020

Tariff Schedules[1]	Base Rate	Public Purpose Charges S-99	S-100	S-191	S-192	Gen FRN	Total Tariff Rates	ECAC-94	GHG-92	CEMA S-96	Combined Effective Rate		GHG-93	Klam. Dam Rem. S-199
Schedule PA-20 Agricultural Pumping Service - Small Business[2]														
Basic Charge - Annually (billed in November)														
1 Phase Any Size, 3 Phase <= 50kW	$75.27						$75.27				$75.27			
3 Phase Load Size > 50 kW	$155.48						$155.48				$155.48			
Distribution Demand Charge - Annually (billed in November)	$16.27						$16.27				$16.27	/kW		
Generation & Transmission Demand Charge	$1.96						$1.96	$1.86			$3.82	/kW		
Energy Charge	7.595	0.058	0.674	0.110	0.029	0.022	8.488	2.564	1.124	0.187	12.363	¢/kWh	(0.674)	0.216
Reactive Power	$0.60						$0.60				$0.60	/kVar		
Schedule PA-20 Agricultural Pumping Service - Large														
Basic Charge - Annually (billed in November)														
1 Phase Any Size, 3 Phase <= 50kW	$75.27						$75.27				$75.27			
3 Phase Load Size > 50 kW	$155.48						$155.48				$155.48			
Distribution Demand Charge - Annually (billed in November)	$16.27						$16.27				$16.27	/kW		
Generation & Transmission Demand Charge	$1.96						$1.96	$1.86			$3.82	/kW		
Energy Charge	7.595	0.058	0.674	0.110	0.029	0.022	8.488	2.564	1.124	0.187	12.363	¢/kWh		0.216
Reactive Power	$0.60						$0.60				$0.60	/kVar		

[1] See Tariff for application and special conditions.

[2] Small Business under 20 kW as defined in Schedule GHG-93. Large Schedule PA-20 customers (over 20 kW) are not eligible for the California Climate Credit. See Tariff Schedule GHG-93 for details.