

## Appendix B

### Avoided Cost Prices \$/MWh Utah 2011.Q4 Compliance Filing - 100 MW and 85% Capacity Factor

Year	Avoided Cost at 85.0% CF (2)	2011.Q3 Compliance Filing (2)	Difference
2012	\$30.67	\$34.25	(\$3.58)
2013	\$35.18	\$36.54	(\$1.36)
2014	\$37.26	\$38.57	(\$1.31)
2015	\$38.24	\$39.44	(\$1.20)
2016	\$45.89	\$47.29	(\$1.40)
2017	\$56.50	\$55.89	\$0.61
2018	\$59.47	\$58.84	\$0.63
2019	\$62.11	\$61.75	\$0.36
2020	\$60.65	\$65.06	(\$4.41)
2021	\$67.30	\$68.50	(\$1.20)
2022	\$67.91	\$69.12	(\$1.21)
2023	\$69.14	\$70.48	(\$1.34)
2024	\$70.78	\$70.20	\$0.58
2025	\$72.28	\$72.21	\$0.07
2026	\$76.31	\$76.03	\$0.28
2027	\$79.17	\$80.30	(\$1.13)
2028	\$81.06	\$81.80	(\$0.74)
2029	\$83.29	\$83.62	(\$0.33)
2030	\$84.62	\$84.70	(\$0.08)
2031	\$85.97	\$86.85	(\$0.88)

20-Year Levelized Prices (Nominal) @ 7.17% Discount Rate (1)			
\$/MWh	\$56.53 (3)	\$57.60 (4)	(\$1.07)

Footnotes:

- (1) 2011 IRP Discount Rate
- (2) Total Avoided Costs with Capacity included at an 85.0% capacity factor
- (3) 20-Year NPC is 2012 - 2031

## Appendix B

**Table 1**  
**Avoided Cost Prices**  
**Utah 2011.Q4 Compliance Filing - 100 MW and 85% Capacity Factor**  
**Partial Displacement of East Side 597 MW CCCT (Dry "F" 2x1)**

Year	Capacity Price \$/kW-yr	Energy Only Price \$/MWh <sup>(2)</sup>	Total Price @ 85.0% Capacity Factor \$/MWh
2012	\$0.00	\$30.67	\$30.67
2013	\$0.00	\$35.18	\$35.18
2014	\$0.00	\$37.26	\$37.26
2015	\$0.00	\$38.24	\$38.24
2016	\$84.61	(4) \$34.55	\$45.89
2017	\$147.80	\$36.65	\$56.50
2018	\$150.60	\$39.25	\$59.47
2019	\$153.32	\$41.52	\$62.11
2020	\$155.93	\$39.77	\$60.65
2021	\$158.73	\$45.98	\$67.30
2022	\$161.60	\$46.21	\$67.91
2023	\$164.51	\$47.05	\$69.14
2024	\$167.47	\$48.35	\$70.78
2025	\$170.50	\$49.39	\$72.28
2026	\$173.58	\$52.99	\$76.31
2027	\$176.86	\$55.42	\$79.17
2028	\$180.24	\$56.92	\$81.06
2029	\$183.65	\$58.62	\$83.29
2030	\$187.13	\$59.48	\$84.62
2031	\$190.87	\$60.33	\$85.97

20-Year Levelized Prices (Nominal) @ 7.17% Discount Rate (1) (3)

\$/kW	\$105.91		
\$/MWh		\$42.32	\$56.53 (5)

Footnotes:

- (1) Discount Rate - Company Official Discount Rate
- (2) 'Energy Only' is the GRID calculated costs and includes some capacity costs.
- (3) 20 Year NPC is 2012 - 2031
- (4) Capacity payment for 2016 is 7/12 of annual. CCCT start 6/1/2016.
- (5) Avoided Costs calculated annually starting January 2012  
 Avoided Costs calculated monthly are \$56.51/MWH

## Appendix B

**Table 2**  
**Avoided Energy Costs - Scheduled Hours (\$/MWh)**  
**Utah 2011.Q4 Compliance Filing - 100 MW and 85% Capacity Factor**  
**Partial Displacement of East Side 597 MW CCCT (Dry "F" 2x1)**

Year	Annual	Winter Season					Summer Season				Winter Season			IRP Resource Energy Cost
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
<b>Energy Only</b>														
2012	\$30.67	\$30.20	\$30.10	\$28.21	\$26.07	\$24.31	\$23.22	\$36.23	\$38.64	\$37.03	\$29.37	\$32.58	\$31.90	\$0.00
2013	\$35.18	\$35.06	\$35.06	\$34.15	\$29.67	\$26.99	\$26.15	\$45.35	\$47.93	\$44.83	\$32.32	\$31.92	\$32.47	\$0.00
2014	\$37.26	\$38.23	\$38.88	\$37.33	\$33.19	\$30.16	\$27.05	\$48.79	\$50.14	\$48.67	\$31.23	\$30.19	\$33.11	\$0.00
2015	\$38.24	\$32.73	\$31.78	\$36.68	\$33.53	\$32.26	\$31.53	\$52.79	\$53.41	\$51.87	\$35.80	\$30.69	\$35.06	\$0.00
2016	\$34.55	\$34.97	\$33.57	\$37.72	\$32.39	\$35.55	\$30.69	\$34.28	\$34.93	\$33.53	\$36.17	\$34.58	\$35.96	\$37.93
2017	\$36.65	\$36.58	\$40.26	\$37.68	\$33.49	\$33.51	\$32.79	\$36.38	\$36.96	\$35.18	\$37.36	\$40.25	\$39.55	\$40.11
2018	\$39.25	\$40.37	\$41.07	\$40.04	\$37.16	\$37.57	\$36.36	\$38.99	\$39.19	\$38.57	\$39.94	\$39.86	\$41.88	\$42.58
2019	\$41.52	\$37.55	\$42.89	\$41.69	\$42.23	\$41.18	\$37.79	\$41.48	\$42.01	\$42.32	\$42.76	\$41.76	\$44.62	\$44.91
2020	\$39.77	\$35.91	\$30.93	\$19.41	\$42.74	\$43.42	\$43.16	\$43.54	\$43.00	\$45.19	\$45.39	\$41.33	\$43.05	\$46.81
2021	\$45.98	\$45.66	\$33.77	\$47.92	\$50.79	\$46.91	\$44.48	\$45.87	\$45.66	\$45.85	\$48.31	\$48.11	\$47.45	\$49.42
2022	\$46.21	\$50.25	\$28.04	\$48.67	\$51.55	\$47.58	\$45.65	\$46.64	\$46.70	\$46.19	\$47.61	\$47.26	\$46.77	\$49.98
2023	\$47.05	\$50.33	\$27.59	\$49.33	\$53.13	\$48.45	\$46.04	\$47.77	\$47.94	\$47.13	\$48.34	\$48.28	\$48.56	\$50.76
2024	\$48.35	\$49.59	\$50.76	\$47.02	\$52.34	\$46.84	\$45.82	\$46.65	\$47.07	\$46.90	\$48.99	\$48.48	\$49.88	\$50.55
2025	\$49.39	\$50.10	\$51.52	\$48.52	\$54.36	\$48.64	\$47.24	\$46.85	\$47.52	\$47.69	\$49.10	\$50.25	\$51.12	\$51.04
2026	\$52.99	\$52.84	\$53.85	\$51.96	\$57.98	\$52.16	\$50.48	\$51.23	\$51.80	\$51.87	\$53.90	\$52.12	\$55.83	\$54.92
2027	\$55.42	\$55.41	\$55.60	\$55.27	\$62.42	\$55.03	\$54.13	\$54.57	\$54.95	\$54.68	\$57.20	\$54.28	\$51.61	\$58.30
2028	\$56.92	\$56.72	\$50.00	\$58.16	\$65.17	\$56.87	\$56.26	\$56.77	\$56.59	\$54.89	\$57.60	\$55.15	\$58.53	\$60.42
2029	\$58.62	\$59.54	\$59.66	\$57.31	\$65.05	\$57.66	\$55.92	\$57.32	\$57.58	\$58.17	\$58.06	\$58.86	\$58.58	\$60.70
2030	\$59.48	\$61.30	\$62.29	\$57.58	\$66.10	\$57.95	\$55.65	\$57.52	\$57.55	\$56.90	\$59.64	\$61.06	\$60.62	\$61.12
2031	\$60.33	\$61.20	\$62.10	\$57.73	\$67.73	\$58.72	\$57.80	\$58.91	\$59.56	\$58.12	\$60.54	\$60.35	\$61.51	\$62.32

IRP Resource Energy Costs are provided for comparison purposes only.

## Appendix B

**Table 3**  
**Avoided Energy Costs - Unscheduled or Non-dispatch hours(\$/MWh)**  
**Utah 2011.Q4 Compliance Filing - 100 MW and 85% Capacity Factor**  
**Partial Displacement of East Side 597 MW CCCT (Dry "F" 2x1)**

Year	Annual	Winter Season					Summer Season				Winter Season			IRP Resource Energy Cost
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
<b>Energy Only</b>														
2012	\$30.67	\$30.20	\$30.10	\$28.21	\$26.07	\$24.31	\$23.22	\$36.23	\$38.64	\$37.03	\$29.37	\$32.58	\$31.90	\$0.00
2013	\$35.18	\$35.06	\$35.06	\$34.15	\$29.67	\$26.99	\$26.15	\$45.35	\$47.93	\$44.83	\$32.32	\$31.92	\$32.47	\$0.00
2014	\$37.26	\$38.23	\$38.88	\$37.33	\$33.19	\$30.16	\$27.05	\$48.79	\$50.14	\$48.67	\$31.23	\$30.19	\$33.11	\$0.00
2015	\$38.24	\$32.73	\$31.78	\$36.68	\$33.53	\$32.26	\$31.53	\$52.79	\$53.41	\$51.87	\$35.80	\$30.69	\$35.06	\$0.00
2016	\$34.55	\$34.97	\$33.57	\$37.72	\$32.39	\$35.55	\$30.69	\$34.28	\$34.93	\$33.53	\$36.17	\$34.58	\$35.96	\$37.93
2017	\$36.65	\$36.58	\$40.26	\$37.68	\$33.49	\$33.51	\$32.79	\$36.38	\$36.96	\$35.18	\$37.36	\$40.11	\$39.55	\$40.11
2018	\$39.25	\$40.37	\$41.07	\$40.04	\$37.16	\$37.57	\$36.36	\$38.99	\$39.19	\$38.57	\$39.94	\$39.86	\$41.88	\$42.58
2019	\$41.52	\$37.55	\$42.89	\$41.69	\$42.23	\$41.18	\$37.79	\$41.48	\$42.01	\$42.32	\$42.76	\$41.76	\$44.62	\$44.91
2020	\$39.77	\$35.91	\$30.93	\$19.41	\$42.74	\$43.42	\$43.16	\$43.54	\$43.00	\$45.19	\$45.39	\$41.33	\$43.05	\$46.81
2021	\$45.78	\$45.66	\$33.77	\$47.92	\$49.42	\$46.91	\$44.48	\$45.87	\$45.66	\$45.85	\$48.31	\$48.11	\$47.45	\$49.42
2022	\$45.92	\$49.98	\$28.04	\$48.67	\$49.98	\$47.58	\$45.65	\$46.64	\$46.70	\$46.19	\$47.61	\$47.26	\$46.77	\$49.98
2023	\$46.71	\$50.33	\$27.59	\$49.33	\$50.76	\$48.45	\$46.04	\$47.77	\$47.94	\$47.13	\$48.34	\$48.28	\$48.56	\$50.76
2024	\$48.19	\$49.59	\$50.55	\$47.02	\$50.55	\$46.84	\$45.82	\$46.65	\$47.07	\$46.90	\$48.99	\$48.48	\$49.88	\$50.55
2025	\$49.08	\$50.10	\$51.04	\$48.52	\$51.04	\$48.64	\$47.24	\$46.85	\$47.52	\$47.69	\$49.10	\$50.25	\$51.04	\$51.04
2026	\$52.67	\$52.84	\$53.85	\$51.96	\$54.92	\$52.16	\$50.48	\$51.23	\$51.80	\$51.87	\$53.90	\$52.12	\$54.92	\$54.92
2027	\$55.09	\$55.41	\$55.60	\$55.27	\$58.30	\$55.03	\$54.13	\$54.57	\$54.95	\$54.68	\$57.20	\$54.28	\$51.61	\$58.30
2028	\$56.50	\$56.72	\$50.00	\$58.16	\$60.42	\$56.87	\$56.26	\$56.77	\$56.59	\$54.89	\$57.60	\$55.15	\$58.53	\$60.42
2029	\$58.28	\$59.54	\$59.66	\$57.31	\$60.70	\$57.66	\$55.92	\$57.32	\$57.58	\$58.17	\$58.06	\$58.86	\$58.58	\$60.70
2030	\$58.98	\$61.12	\$61.12	\$57.58	\$61.12	\$57.95	\$55.65	\$57.52	\$57.55	\$56.90	\$59.64	\$61.06	\$60.62	\$61.12
2031	\$59.90	\$61.20	\$62.10	\$57.73	\$62.32	\$58.72	\$57.80	\$58.91	\$59.56	\$58.12	\$60.54	\$60.35	\$61.51	\$62.32

Energy Only costs are calculated by GRID and are capped at the IRP Resource Energy Cost

*Denotes months with capped energy prices*

**Appendix B**

**Table 4  
2011 IRP Resource Cost  
CCCT (Dry "F" 2x1) - East Side Resource (4500')**

Year	Estimated Capital Cost \$/kW	Capital Cost at Real Levelized Rate \$/kW-yr	Fixed O&M \$/kW-yr	Variable O&M \$/MWh	Total O&M at Expected CF \$/kW-yr	Total Resource Fixed Costs \$/kW-yr	Fuel Cost \$/MMBtu	Total Resource Energy Cost \$/MWh	Total Resource Costs \$/MWh
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)

**CCCT (Dry "F" 2x1) - East Side Resource (4500')**

2010	\$1,024	\$85.71	\$8.82	\$7.95	\$43.85	\$129.56			
2011		\$87.68	\$9.02	\$8.13	\$44.84	\$132.52			
2012		\$89.00	\$9.16	\$8.25	\$45.51	\$134.51			
2013		\$90.60	\$9.32	\$8.40	\$46.33	\$136.93			
2014		\$92.32	\$9.50	\$8.56	\$47.22	\$139.54			
2015		\$94.17	\$9.69	\$8.73	\$48.16	\$142.33			
2016		\$95.96	\$9.87	\$8.90	\$49.09	\$145.05	\$5.38	\$37.93	\$70.85
2017		\$97.78	\$10.06	\$9.07	\$50.02	\$147.80	\$5.69	\$40.11	\$73.65
2018		\$99.64	\$10.25	\$9.24	\$50.96	\$150.60	\$6.04	\$42.58	\$76.76
2019		\$101.43	\$10.43	\$9.41	\$51.89	\$153.32	\$6.37	\$44.91	\$79.71
2020		\$103.15	\$10.61	\$9.57	\$52.78	\$155.93	\$6.64	\$46.81	\$82.20
2021		\$105.01	\$10.80	\$9.74	\$53.72	\$158.73	\$7.01	\$49.42	\$85.44
2022		\$106.90	\$10.99	\$9.92	\$54.70	\$161.60	\$7.09	\$49.98	\$86.65
2023		\$108.82	\$11.19	\$10.10	\$55.69	\$164.51	\$7.20	\$50.76	\$88.10
2024		\$110.78	\$11.39	\$10.28	\$56.69	\$167.47	\$7.17	\$50.55	\$88.56
2025		\$112.77	\$11.60	\$10.47	\$57.73	\$170.50	\$7.24	\$51.04	\$89.73
2026		\$114.80	\$11.81	\$10.66	\$58.78	\$173.58	\$7.79	\$54.92	\$94.31
2027		\$116.98	\$12.03	\$10.86	\$59.88	\$176.86	\$8.27	\$58.30	\$98.44
2028		\$119.20	\$12.26	\$11.07	\$61.04	\$180.24	\$8.57	\$60.42	\$101.33
2029		\$121.46	\$12.49	\$11.28	\$62.19	\$183.65	\$8.61	\$60.70	\$102.38
2030		\$123.77	\$12.73	\$11.49	\$63.36	\$187.13	\$8.67	\$61.12	\$103.59
2031		\$126.25	\$12.98	\$11.72	\$64.62	\$190.87	\$8.84	\$62.32	\$105.64
2032		\$128.65	\$13.23	\$11.94	\$65.84	\$194.49	\$9.01	\$63.52	\$107.66
2033		\$131.09	\$13.48	\$12.17	\$67.10	\$198.19	\$9.18	\$64.72	\$109.70
2034		\$133.71	\$13.75	\$12.41	\$68.43	\$202.14	\$9.37	\$66.06	\$111.94
2035		\$136.25	\$14.01	\$12.65	\$69.75	\$206.00	\$9.54	\$67.26	\$114.01
2036		\$138.84	\$14.28	\$12.89	\$71.08	\$209.92	\$9.72	\$68.53	\$116.17

**Sources, Inputs and Assumptions**

- Source: (a)(c)(d) Plant Costs - 2011 IRP - [Table 6.1 & 6.3]
- (b) = (a) x 0.0837
  - (e) = (d) x (8.76 x 50.3%) + (c)
  - (f) = (b) + (e)
  - (g) Table 5 - Burnertip Natural Gas Price Forecast
  - (h) = 7050 x (g) / 1000
  - (i) = (f) / (8.76 x 'Capacity Factor') + (h)

**Appendix B**

**Table 4  
2011 IRP Resource Cost  
CCCT (Dry "F" 2x1) - East Side Resource (4500')**

<b>CCCT (Dry "F" 2x1) - East Side Resource (4500')</b>
--

CCCT Statistics	MW	Percent	Cap Cost	Fixed
CCCT (Dry "F" 2x1) *	512	85.8%	\$1,104	\$10.19
CCCT Duct Firing (Dry "F" 2x1)	<u>85</u>	<u>14.2%</u>	<u>\$538</u>	<u>\$0.50</u>
Capacity Weighted	597	100.0%	\$1,024	\$8.82

CCCT Statistics	MW	CF	aMW	Percent	Variable	Heat Rate
CCCT (Dry "F" 2x1) *	512	56.0%	287	95.5%	\$8.02	6,963
CCCT Duct Firing (Dry "F" 2x1)	<u>85</u>	<u>16.0%</u>	<u>14</u>	<u>4.5%</u>	<u>6.54</u>	<u>8,934</u>
Energy Weighted	597	50.3%	300	100.0%	\$7.95	7,050

Rounded

CCCT	Duct Firing	Plant Costs - 2011 IRP - [Table 6.1 & 6.3]
512	85	MW Plant capacity
\$1,104	\$538	Plant capacity cost
\$10.19	\$0.50	Fixed O&M plus on-going capital cost
\$8.02	\$6.54	Total Variable O&M Costs in \$/MWh includes Fixed Pipeline Costs (See Below)
\$3.35	\$0.55	Variable O&M Costs in \$/MWh
\$4.67	\$5.99	Fixed Pipeline Costs in \$/MWh
6,963	8,934	Heat Rate in btu/kWh
8.37%	8.37%	Payment Factor
56%	16%	Capacity Factor
	50.3%	Energy Weighted Capacity Factor
	88.2%	Capacity Factor - On-peak 50.3% / 57% (percent of hours on-peak)

<b>Company Official Inflation Forecast Dated 2011 September</b>
---

2010	1.3%	2019	1.8%	2028	1.9%
2011	2.3%	2020	1.7%	2029	1.9%
2012	1.5%	2021	1.8%	2030	1.9%
2013	1.8%	2022	1.8%	2031	2.0%
2014	1.9%	2023	1.8%	2032	1.9%
2015	2.0%	2024	1.8%	2033	1.9%
2016	1.9%	2025	1.8%	2034	2.0%
2017	1.9%	2026	1.8%	2035	1.9%
2018	1.9%	2027	1.9%	2036	1.9%

## Appendix B

**Table 5**  
**Burnertip Natural Gas Price Forecast**  
**Utah 2011.Q4 Compliance Filing - 100 MW and 85% Capacity Factor**

Year	PacifiCorp
	Delivered East Side Natural Gas Fuel Cost

2016	\$5.38
2017	\$5.69
2018	\$6.04
2019	\$6.37
2020	\$6.64
2021	\$7.01
2022	\$7.09
2023	\$7.20
2024	\$7.17
2025	\$7.24
2026	\$7.79
2027	\$8.27
2028	\$8.57
2029	\$8.61
2030	\$8.67
2031	\$8.84
2032	\$9.01
2033	\$9.18
2034	\$9.37
2035	\$9.54
2036	\$9.72

**OFPC Forecast dated Sep 30, 2011**