



January 30, 2004

Utah Public Service Commission  
Heber M. Wells Building, 4<sup>th</sup> Floor  
160 East 300 South  
Salt Lake City, UT 84111

Attn: Julie P. Orchard  
Commission Secretary

RE: Docket No 03-035-T10  
Schedule 37 - Avoided Cost Purchases From Qualifying Facilities

PacifiCorp (d.b.a. Utah Power & Light Company) hereby submits for filing an original and ten copies of proposed changes to Schedule 37 of Tariff P.S.C.U. No. 44 of Utah Power & Light Company applicable to electric service in the State of Utah. Pursuant to the requirement of Rule R746-405D, PacifiCorp states that the proposed tariff sheets do not constitute a violation of state law or Commission rule. PacifiCorp will also provide an electronic version of this filing to [aflanders@utah.gov](mailto:aflanders@utah.gov). PacifiCorp respectfully requests an effective date of March 1, 2004.

Second Revision of Sheet No. 37.2	Schedule 37	Avoided Cost Purchases From Qualifying Facilities
Second Revision of Sheet No. 37.3	Schedule 37	Avoided Cost Purchases From Qualifying Facilities

On September 12, 2004, the Company filed updated avoided cost rates using the Commission avoided cost methodology developed in Docket No. 01-2035-01. On November 21, 2004, the Commission requested that the Company re-file updated avoided costs rates using the previously adopted method. This filing complies with the Commission adopted methodology used prior to Docket No. 01-2035-01.

Tariff Sheet No. 37.2 is being filed with the updated dates. Tariff Sheet No. 37.3 is being filed with the updated prices. All other Schedule 37 tariff pages are not affected by this filing and are not being updated.



36 USC 220506  
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PacifiCorp  
January 30, 2004  
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It is respectfully requested that all formal correspondence and staff requests regarding this matter be addressed to:


By E-mail (preferred):        datarequest@pacificorp.com

By Fax:                        (503) 813-6060

By regular Mail:            Data Request Response Center  
PacifiCorp  
825 NE Multnomah, Suite 800  
Portland, Or 97232

Informal inquiries may be directed to Laren Hale at (503) 813-6054 or Mark Widmer at (503) 813-5541.

Sincerely,

A handwritten signature in dark ink, appearing to read "D. Douglas Larson / WJ". The signature is written in a cursive, flowing style.

D. Douglas Larson  
Vice President, Regulation

Enclosures

**ELECTRIC SERVICE SCHEDULE NO. 37 - Continued**

**DEFINITIONS (continued)**

**Winter Season**

The months of November through April.

**Summer Season**

The months of May through October.

**Peak Hours**

On-peak hours are defined as 6:00 a.m. to 10:00 p.m. Monday through Saturday, excluding holidays.

Holidays include only New Year's Day, President's Day, Memorial Day, Independence Day, Pioneer Day, Labor Day, Thanksgiving Day and Christmas Day. When a holiday falls on a Saturday or Sunday, the Friday before the holiday (if the holiday falls on a Saturday) or the Monday following the holiday (if the holiday falls on a Sunday) will be the holiday and will be Off-peak.

**Off-Peak Hours**

All hours other than On-peak.

**MONTHLY PAYMENTS:** The Qualifying Facility shall have the option of either: a) taking the applicable capacity and average energy price payment, or b) taking the applicable winter and summer energy payment for Peak and Off-Peak hours. Once an option is selected the option will remain in effect for the duration of the Facility's contract. Capacity kW will be the maximum 15-minute generation during Peak Hours.

**RATES FOR PURCHASES:** The non-levelized and levelized prices shown below are subject to change from time to time to reflect changes in the Company's determination of Utah avoided costs. The prices applicable to a Utah Qualifying Facility shall be those in effect at the time a written contract is executed by the parties. The levelized prices shown are for a 20-year contract and assume a 2004 starting date. Levelized prices for contracts which start after 2004 and are for periods of 20 years or less are available upon request. (C)

(continued)



P.S.C.U. No. 44

Second Revision of Sheet No. 37.3  
Canceling First Revision of Sheet No. 37.3

**ELECTRIC SERVICE SCHEDULE NO. 37 - Continued**

**Non-Levelized Prices**

Deliveries During Calendar Year	Capacity Price \$/kW - month	Average Energy Price ¢/kWh	<u>Peak Energy Prices</u>		<u>Off-Peak Energy Prices</u>		
			<u>Winter</u> ¢/kWh	<u>Summer</u> ¢/kWh	<u>Winter</u> ¢/kWh	<u>Summer</u> ¢/kWh	
2004	\$1.34	3.12	3.68	3.31	3.31	2.93	R-R
2005	\$1.37	4.19	4.01	5.14	3.62	4.75	R,I,R,I,I
2006	\$1.41	3.96	3.94	4.78	3.55	4.38	R,I,R,I,I
2007	\$4.35	3.57	4.49	5.11	3.53	3.61	I-I
2008	\$7.43	3.39	5.49	5.49	3.39	3.39	
2009	\$7.62	3.37	5.52	5.52	3.37	3.37	
2010	\$7.81	3.23	5.44	5.44	3.23	3.23	
2011	\$8.00	3.24	5.50	5.50	3.24	3.24	
2012	\$8.20	3.30	5.62	5.62	3.30	3.30	
2013	\$8.41	3.37	5.75	5.75	3.37	3.37	
2014	\$8.62	3.44	5.87	5.87	3.44	3.44	
2015	\$8.83	3.52	6.02	6.02	3.52	3.52	
2016	\$9.05	3.63	6.19	6.19	3.63	3.63	
2017	\$9.28	3.72	6.35	6.35	3.72	3.72	
2018	\$9.51	3.83	6.52	6.52	3.83	3.83	
2019	\$9.75	3.93	6.69	6.69	3.93	3.93	
2020	\$9.99	4.05	6.88	6.88	4.05	4.05	
2021	\$10.24	4.17	7.07	7.07	4.17	4.17	
2022	\$10.50	4.29	7.26	7.26	4.29	4.29	
2023	\$10.76	4.41	7.45	7.45	4.41	4.41	I-I

**Levelized Prices (Nominal)**

Deliveries During Calendar Year	Capacity Price \$/kW - month	Average Energy Price ¢/kWh	<u>Peak Energy Prices</u>		<u>Off-Peak Energy Prices</u>		
			<u>Winter</u> ¢/kWh	<u>Summer</u> ¢/kWh	<u>Winter</u> ¢/kWh	<u>Summer</u> ¢/kWh	
	\$6.49	3.61	5.36	5.53	3.55	3.68	I-I

Issued by authority of Report and Order of the Public Service Commission of Utah in Docket No. 03-035-T10

**FILED:** January 30, 2004

**EFFECTIVE:** March 1, 2004

## **PacifiCorp's Avoided Cost Calculation**

### **Utah – January 2004**

The starting point for the avoided cost calculation is the load and resource balances developed in conjunction with the Company's updated Integrated Resource Plan (IRP) filed in Oregon in October 2003. Due to the age of the input assumptions, some of the inputs have been updated for known changes.

#### **Loads and Resources**

The load forecast used by the Company in this study is consistent with the load forecast used in the updated IRP.

Long-term sales and purchase contracts were updated to include information available as of January 2004. These changes include the addition or revision of several long-term purchase contracts, including Powerex, Combine Hills and two APS purchases. The Company has added the Current Creek thermal unit with 280 MW of simple cycle combustion turbine capacity being added in June 2005 and with 245 MW of combined cycle and duct firing capacity being added in June 2006.

Table 1 shows the Company's loads and resource balance. Table 1 shows an energy surplus of 66 aMW in 2004 declining to an energy deficit of 289 aMW in 2008 and a summer capacity deficit of 305 MW in 2004 increasing to a capacity deficit of 2,490 MW in 2008. The winter peak has a capacity surplus of 397 MW in 2004 declining to a capacity deficit of 69 MW in 2008.

#### **Avoided Cost Calculation**

Based on the loads and resource balance shown in Table 1, the avoided cost calculation is separated into two distinct periods: (1) the Short Run – the period of energy sufficiency (2004- June 2007) in which the avoided costs are based on the marginal production cost of existing resources plus the cost of purchasing summer capacity; and (2) the Long Run – the period (July 2007 and beyond) in which new resources are required to provide both summer and winter capacity and energy to meet the Company's resource requirements. Avoided costs during the second period are based on the cost of a combined cycle combustion turbine (Current Creek), which the Company considers to be a reasonable proxy for the cost of future resources.

### ***1. Short Run Avoided Costs***

During periods of resource sufficiency, the Company's avoided energy costs are based on the displacement of purchased power and existing thermal resources as modeled by the Company's GRID model. The model input data includes the monthly load and resource data, which are the basis for the annual summary of loads and resources shown in Table 1.

To calculate short-run avoided costs, two production cost studies are prepared. The only difference between the two studies is an assumed ten (10) average megawatt increase, at zero running cost. The 10 average megawatt resource serves as a proxy for qualifying facility generation. The avoided energy cost could be viewed as the highest variable cost incurred to serve total system load from existing and non-deferrable resources. The outputs of the production cost model run are provided as Table 2.

Summer capacity costs in this period are based on three-month capacity purchases. Since the purchases would be for only one-fourth of the year, the annual value as shown in Table 3 is one-fourth of the capacity cost of a simple cycle combustion turbine (SCCT).

### ***2. Long Run Avoided Costs***

During periods of resource inadequacy, the avoided costs are based on the fixed and variable costs of the planned resource that could be avoided or deferred. For this purpose, the Company used a combined cycle combustion turbine (CCCT) as a proxy of future resource costs.

Since CCCTs are built as base load units that provide both capacity and energy, it is appropriate to split the fixed costs of this unit into capacity and energy components. The fixed cost of a SCCT, which is usually acquired as a capacity resource, defines the portion of the fixed cost of the CCCT that is assigned to capacity. Fixed costs associated with the construction of a CCCT which are in excess of SCCT costs are assigned to energy and are added to the variable production (fuel) cost of the CCCT to determine the total avoided energy costs. Table 3 shows this calculation.

Table 4 shows the CCCT fuel cost, the addition of capitalized energy costs at an assumed 85% capacity factor and the total avoided energy costs. The fuel cost of the CCCT defines the avoided variable energy costs. The gas price forecast used as the basis for the CCCT fuel cost is discussed later in this document.

Since energy generated by a qualifying facility may not exactly match the 85% capacity factor shown in Table 4, we have shown the calculation at 75%, 85% and 95% to illustrate the impact of differing generation levels. This calculation is shown in Table 5.

Avoided energy costs can be differentiated between on-peak and off-peak periods. To make this calculation, the Company assumed that all capacity costs are incurred to meet on-peak load requirements. On an annual basis, approximately 57% of all hours are on-

peak and 43% are off-peak. Table 6 shows the calculation of on-peak and off-peak avoided energy prices.

For informational purposes, Table 7 shows a comparison between the avoided costs currently in effect in Utah and the proposed avoided costs in this filing.

Table 8 shows the calculation of the total fixed costs and fuel costs that are used in Table 3 and Table 4.

### **Gas Price Forecast**

Gas prices used in this filing were developed by the Company's Market Price Steering Committee and represent the Company's "Official Market Price Projections." The Market Price Steering Committee developed three different scenarios that represent a reasonable range of future market prices. The medium future "Base Case" was used in this calculation.

The Official Forward Gas Curve consists of a blend of the December 31, 2003 market gas curve and the gas prices used in the Company's market price clearing model (Midas) to produce the power curve. (The Midas input gas prices, in turn, were a combination of the December 2003 market gas projections and PIRA long-term gas forecast dated December 8, 2003.) The proportions used in this blending are shown in the table below.

	<b>Market</b>	<b>Midas</b>
Through Jan 2007	100%	0%
Month 37 (Feb 2007)	97%	3%
Month 72 (Jan 2010)	3%	97%
Month 73 forward (Feb 2010)	0%	100%

Table 9 shows the natural gas price used in this avoided cost calculation.

**Table 1**  
**Load and Resources**  
**Avoided Cost Study January 2004**

	2004	2005	2006	2007 <sup>(1)</sup>	2008
<b>Peak (August)</b>					
Net Load	8,214	8,682	8,870	9,156	9,482
Special Sales	<u>2,308</u>	<u>1,112</u>	<u>983</u>	<u>546</u>	<u>511</u>
Total Requirements	10,522	9,794	9,853	9,702	9,993
Purchases	3,996	2,638	1,622	1,053	954
Thermal Generation	6,290	6,548	6,789	6,565	6,565
Other Generation	574	574	652	652	649
Reserves	<u>(643)</u>	<u>(661)</u>	<u>(681)</u>	<u>(666)</u>	<u>(666)</u>
Total Resources	10,217	9,100	8,381	7,605	7,503
Surplus / (Deficit)	(305)	(694)	(1,472)	(2,097)	(2,490)
Percent Surplus / (Deficit)	(2.9%)	(7.1%)	(14.9%)	(21.6%)	(24.9%)
<b>Peak (January)</b>					
Net Load	7,586	7,925	8,010	8,202	8,398
Special Sales	<u>2,469</u>	<u>1,087</u>	<u>859</u>	<u>486</u>	<u>459</u>
Total Requirements	10,055	9,012	8,869	8,688	8,857
Purchases	3,972	2,946	2,489	2,374	1,938
Thermal Generation	6,290	6,290	6,548	6,565	6,565
Other Generation	845	844	959	962	966
Reserves	<u>(656)</u>	<u>(655)</u>	<u>(679)</u>	<u>(681)</u>	<u>(681)</u>
Total Resources	10,452	9,424	9,317	9,221	8,787
Surplus / (Deficit)	397	412	448	533	(69)
Percent Surplus / (Deficit)	4.0%	4.6%	5.0%	6.1%	(0.8%)
<b>aMW</b>					
Net Load	6,131	6,369	6,491	6,645	6,803
Special Sales	<u>1,802</u>	<u>979</u>	<u>609</u>	<u>365</u>	<u>331</u>
Total Requirements	7,933	7,348	7,100	7,010	7,135
Purchases	2,120	1,521	1,311	1,053	710
Thermal Generation	5,912	5,983	6,229	6,187	6,188
Other Generation	585	586	586	586	585
Reserves	<u>(618)</u>	<u>(623)</u>	<u>(640)</u>	<u>(637)</u>	<u>(637)</u>
Total Resources	7,999	7,467	7,486	7,190	6,845
Surplus / (Deficit)	66	119	386	180	(289)
Percent Surplus / (Deficit)	0.8%	1.6%	5.4%	2.6%	(4.1%)

(1) The deficit period starts June 2007



**Table 2**  
**Avoided Energy Costs**  
**Avoided Resource (2004 through June 2007)**  
**Combined Cycle CT (July 2007 through 2008)**  
**\$/MWH**

Year	Winter Season				Summer Season						Winter Season	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

**On-Peak**

2004	\$39.80	\$37.26	\$35.45	\$30.66	\$26.45	\$25.24	\$43.07	\$42.32	\$30.18	\$31.52	\$37.31	\$40.61
2005	\$43.73	\$41.92	\$38.99	\$35.30	\$32.00	\$40.84	\$98.35	\$64.66	\$37.35	\$35.02	\$38.69	\$41.98
2006	\$44.11	\$43.10	\$40.27	\$36.79	\$33.83	\$32.93	\$85.51	\$68.48	\$36.50	\$29.34	\$33.14	\$39.25
2007 (1)	\$43.62	\$42.24	\$38.70	\$35.01	\$33.44	\$54.06	\$54.80	\$54.80	\$54.80	\$54.80	\$54.80	\$54.80
2008	\$54.89	\$54.89	\$54.89	\$54.89	\$54.89	\$54.89	\$54.89	\$54.89	\$54.89	\$54.89	\$54.89	\$54.89

**Off-Peak**

2004	\$36.01	\$33.47	\$31.66	\$26.87	\$22.67	\$21.45	\$39.29	\$38.53	\$26.39	\$27.74	\$33.52	\$36.83
2005	\$39.85	\$38.04	\$35.11	\$31.42	\$28.12	\$36.96	\$94.47	\$60.78	\$33.47	\$31.14	\$34.81	\$38.10
2006	\$40.14	\$39.13	\$36.29	\$32.82	\$29.85	\$28.95	\$81.54	\$64.50	\$32.53	\$25.36	\$29.16	\$35.27
2007 (1)	\$39.54	\$38.17	\$34.62	\$30.93	\$29.37	\$49.98	\$34.30	\$34.30	\$34.30	\$34.30	\$34.30	\$34.30
2008	\$33.88	\$33.88	\$33.88	\$33.88	\$33.88	\$33.88	\$33.88	\$33.88	\$33.88	\$33.88	\$33.88	\$33.88

**Combined**

2004	\$38.17	\$35.63	\$33.82	\$29.03	\$24.83	\$23.61	\$41.44	\$40.69	\$28.55	\$29.89	\$35.68	\$38.98
2005	\$42.06	\$40.25	\$37.32	\$33.63	\$30.33	\$39.17	\$96.68	\$62.99	\$35.68	\$33.35	\$37.02	\$40.32
2006	\$42.40	\$41.39	\$38.56	\$35.08	\$32.12	\$31.22	\$83.80	\$66.77	\$34.79	\$27.63	\$31.43	\$37.53
2007 (1)	\$41.86	\$40.49	\$36.95	\$33.25	\$31.69	\$52.31	\$45.99	\$45.99	\$45.99	\$45.99	\$45.99	\$45.99
2008	\$45.86	\$45.86	\$45.86	\$45.86	\$45.86	\$45.86	\$45.86	\$45.86	\$45.86	\$45.86	\$45.86	\$45.86

**Annual Seasonal Average**

	Winter Season			Summer Season		
	On-Peak	Off-Peak	Combined	On-Peak	Off-Peak	Combined
2004	\$36.85	\$33.06	\$35.22	\$33.13	\$29.34	\$31.50
2005	\$40.10	\$36.22	\$38.43	\$51.37	\$47.49	\$49.70
2006	\$39.44	\$35.47	\$37.73	\$47.77	\$43.79	\$46.06
2007 (1)	\$44.86	\$35.31	\$40.75	\$51.12	\$36.09	\$44.66
2008	\$54.89	\$33.88	\$45.86	\$54.89	\$33.88	\$45.86

**Annual Average**

	On-Peak	Off-Peak	Combined
2004	\$34.99	\$31.20	\$33.36
2005	\$45.74	\$41.85	\$44.07
2006	\$43.61	\$39.63	\$41.89
2007 (1)	\$47.99	\$35.70	\$42.71
2008	\$54.89	\$33.88	\$45.86

Source Official Price Forecast - Quoted December 31, 2003  
 CCCT Avoided Costs: Table 6 - Combined costs are 57% On-Peak 43% Off-Peak

(1) 2007 costs are based on 6 months of an Avoided Resource (January - June)  
 and 6 months of a CCCT (July - December)

**Table 3**  
**Capitalized Energy Costs**

Year	Combined Cycle CT Fixed Costs	Simple Cycle CT Fixed Costs	Capitalized Energy Costs	Capitalized Energy Costs 85% CF
	(\$/kW-yr)	(\$/kW-yr)	(\$/kW-yr)	(\$/MWH)
	(a)	(b)	(c)	(d)
			(a) - (b)	(c)/(8.76*0.85)

**Avoided Resource**

2004	\$16.07 (2)
2005	\$16.47
2006	\$16.88
2007 (1)	\$17.30

**Combined Cycle**

2007 (1)	\$94.90	\$86.99	\$7.91	\$1.06
2008	\$97.27	\$89.17	\$8.10	\$1.09
2009	\$99.70	\$91.40	\$8.31	\$1.12
2010	\$102.20	\$93.68	\$8.51	\$1.14
2011	\$104.75	\$96.02	\$8.73	\$1.17
2012	\$107.37	\$98.42	\$8.95	\$1.20
2013	\$110.05	\$100.89	\$9.17	\$1.23
2014	\$112.81	\$103.41	\$9.40	\$1.26
2015	\$115.63	\$105.99	\$9.63	\$1.29
2016	\$118.52	\$108.64	\$9.87	\$1.33
2017	\$121.48	\$111.36	\$10.12	\$1.36
2018	\$124.52	\$114.14	\$10.37	\$1.39
2019	\$127.63	\$117.00	\$10.63	\$1.43
2020	\$130.82	\$119.92	\$10.90	\$1.46
2021	\$134.09	\$122.92	\$11.17	\$1.50
2022	\$137.44	\$125.99	\$11.45	\$1.54
2023	\$140.88	\$129.14	\$11.74	\$1.58
2024	\$144.40	\$132.37	\$12.03	\$1.62
2025	\$148.01	\$135.68	\$12.33	\$1.66
2026	\$151.71	\$139.07	\$12.64	\$1.70
2027	\$155.50	\$142.55	\$12.96	\$1.74
2028	\$159.39	\$146.11	\$13.28	\$1.78

**Columns**

- (a) Table 8 Column (f)
- (b) Table 8 Column (f)

- (1) 2007 costs are based on 6 months of an Avoided Resource (January - June) and 6 months of a CCCT (July - December)
- (2) Capacity payments are for a three month summer capacity purchase June through August (Table 8 Column (f) / (3/12) ). Capacity Payments are based on the fixed costs of a SCCT excluding transmission upgrades

**Table 4**  
**Total Avoided Energy Cost**

Year	Combined Cycle		Capitalized	Total
	Gas Price	Energy Cost	Energy Costs	Avoided
	(\$/MMBtu)	(\$/MWH)	85% CF (\$/MWH)	Energy Cost (\$/MWH)
	(a)	(b)	(c)	(d) (b) + (c)

**Avoided Resource**

2004	\$31.20
2005	\$41.85
2006	\$39.63
2007 (1)	\$37.10

**Combined Cycle**

(a) x 7.623

2007 (1)	\$4.36	\$33.24	\$1.06	\$34.30
2008	\$4.30	\$32.79	\$1.09	\$33.88
2009	\$4.27	\$32.58	\$1.12	\$33.69
2010	\$4.09	\$31.18	\$1.14	\$32.32
2011	\$4.09	\$31.18	\$1.17	\$32.35
2012	\$4.17	\$31.81	\$1.20	\$33.01
2013	\$4.26	\$32.47	\$1.23	\$33.70
2014	\$4.34	\$33.10	\$1.26	\$34.36
2015	\$4.45	\$33.91	\$1.29	\$35.20
2016	\$4.58	\$34.94	\$1.33	\$36.26
2017	\$4.71	\$35.88	\$1.36	\$37.24
2018	\$4.84	\$36.88	\$1.39	\$38.28
2019	\$4.97	\$37.91	\$1.43	\$39.34
2020	\$5.12	\$39.06	\$1.46	\$40.53
2021	\$5.27	\$40.20	\$1.50	\$41.71
2022	\$5.43	\$41.35	\$1.54	\$42.89
2023	\$5.57	\$42.49	\$1.58	\$44.07
2024	\$5.74	\$43.73	\$1.62	\$45.35
2025	\$5.91	\$45.05	\$1.66	\$46.71
2026	\$6.08	\$46.32	\$1.70	\$48.01
2027	\$6.25	\$47.61	\$1.74	\$49.35
2028	\$6.45	\$49.17	\$1.78	\$50.95

**Columns**

- (a) Table 9 Column (d)
- (c) Table 3 Column (d)
- (d) For 2004-2007 Table 2
  
- (1) 2007 costs are based on 6 months of an Avoided Resource (January - June)  
and 6 months of a CCCT (July - December)

**Table 5**  
**Total Avoided Cost**

Year	Avoided Firm Capacity Costs	Total Avoided Energy Cost	Total Avoided Costs At Stated Capacity Factor		
			75%	85%	95%
	(\$/kW-yr)	(\$/MWH)	(\$/MWH)	(\$/MWH)	(\$/MWH)
	(a)	(b)	(c)	(d)	(e)
			(b)+((a)/8.76 x 0.75)	(b)+((a)/8.76 x 0.85)	(b)+((a)/8.76 x 0.95)

**Avoided Resource**

2004	\$16.07	\$31.20	\$33.65	\$33.36	\$33.13
2005	\$16.47	\$41.85	\$44.36	\$44.07	\$43.83
2006	\$16.88	\$39.63	\$42.20	\$41.89	\$41.66
2007 (1)	\$17.30	\$37.10	\$39.74	\$39.43	\$39.18

**Combined Cycle**

2007 (1)	\$86.99	\$34.30	\$47.54	\$45.99	\$44.76
2008	\$89.17	\$33.88	\$47.45	\$45.86	\$44.60
2009	\$91.40	\$33.69	\$47.61	\$45.97	\$44.68
2010	\$93.68	\$32.32	\$46.58	\$44.90	\$43.58
2011	\$96.02	\$32.35	\$46.97	\$45.25	\$43.89
2012	\$98.42	\$33.01	\$48.00	\$46.23	\$44.84
2013	\$100.89	\$33.70	\$49.05	\$47.25	\$45.82
2014	\$103.41	\$34.36	\$50.10	\$48.25	\$46.78
2015	\$105.99	\$35.20	\$51.34	\$49.44	\$47.94
2016	\$108.64	\$36.26	\$52.80	\$50.86	\$49.32
2017	\$111.36	\$37.24	\$54.19	\$52.19	\$50.62
2018	\$114.14	\$38.28	\$55.65	\$53.61	\$51.99
2019	\$117.00	\$39.34	\$57.15	\$55.05	\$53.40
2020	\$119.92	\$40.53	\$58.78	\$56.63	\$54.94
2021	\$122.92	\$41.71	\$60.41	\$58.21	\$56.48
2022	\$125.99	\$42.89	\$62.07	\$59.81	\$58.03
2023	\$129.14	\$44.07	\$63.72	\$61.41	\$59.59
2024	\$132.37	\$45.35	\$65.49	\$63.12	\$61.25
2025	\$135.68	\$46.71	\$67.36	\$64.93	\$63.01
2026	\$139.07	\$48.01	\$69.18	\$66.69	\$64.72
2027	\$142.55	\$49.35	\$71.05	\$68.50	\$66.48
2028	\$146.11	\$50.95	\$73.19	\$70.57	\$68.51

**Columns**

- (a) Table 3 Column (b)
- (b) Table 4 Column (d)

- (1) 2007 costs are based on 6 months of an Avoided Resource (January - June)  
and 6 months of a CCCT (July - December)

**Table 6**  
**On- & Off- Peak Energy Prices**

Year	Avoided Firm Capacity Costs	Total Avoided Energy Cost	Capacity Cost Allocated to On-Peak Hours	On-Peak 4,993 Hours	Off-Peak 3,767 Hours
	(\$/kW-yr)	(\$/MWH)	(\$/MWH)	(\$/MWH)	(\$/MWH)
	(a)	(b)	(c)	(d)	(e)
			(a) / (8.76 x 85% x 57%)	(b) + (c)	(b)

**Avoided Resource**

2004	\$16.07	\$31.20	\$3.79	\$34.99	\$31.20
2005	\$16.47	\$41.85	\$3.88	\$45.74	\$41.85
2006	\$16.88	\$39.63	\$3.98	\$43.61	\$39.63
2007 (1)	\$17.30	\$37.10	\$4.08	\$41.18	\$37.10

**Combined Cycle**

2007 (1)	\$86.99	\$34.30	\$20.50	\$54.80	\$34.30
2008	\$89.17	\$33.88	\$21.01	\$54.89	\$33.88
2009	\$91.40	\$33.69	\$21.53	\$55.23	\$33.69
2010	\$93.68	\$32.32	\$22.07	\$54.40	\$32.32
2011	\$96.02	\$32.35	\$22.62	\$54.97	\$32.35
2012	\$98.42	\$33.01	\$23.19	\$56.21	\$33.01
2013	\$100.89	\$33.70	\$23.77	\$57.47	\$33.70
2014	\$103.41	\$34.36	\$24.36	\$58.72	\$34.36
2015	\$105.99	\$35.20	\$24.97	\$60.18	\$35.20
2016	\$108.64	\$36.26	\$25.60	\$61.86	\$36.26
2017	\$111.36	\$37.24	\$26.24	\$63.48	\$37.24
2018	\$114.14	\$38.28	\$26.89	\$65.17	\$38.28
2019	\$117.00	\$39.34	\$27.57	\$66.91	\$39.34
2020	\$119.92	\$40.53	\$28.26	\$68.78	\$40.53
2021	\$122.92	\$41.71	\$28.96	\$70.67	\$41.71
2022	\$125.99	\$42.89	\$29.69	\$72.58	\$42.89
2023	\$129.14	\$44.07	\$30.43	\$74.50	\$44.07
2024	\$132.37	\$45.35	\$31.19	\$76.53	\$45.35
2025	\$135.68	\$46.71	\$31.97	\$78.68	\$46.71
2026	\$139.07	\$48.01	\$32.77	\$80.78	\$48.01
2027	\$142.55	\$49.35	\$33.59	\$82.94	\$49.35
2028	\$146.11	\$50.95	\$34.43	\$85.38	\$50.95

**Columns**

- (a) Table 3 Column (b)
- (b) Table 4 Column (d)

- (1) 2007 costs are based on 6 months of an Avoided Resource (January - June) and 6 months of a CCCT (July - December)

**Table 7**  
**Comparison between Proposed and Current Avoided Costs**

Year	Total Avoided Costs at 85% CF		
	Proposed Avoided Costs (\$/MWH)	Current Avoided Costs (\$/MWH)	Difference (\$/MWH)
	(a)	(b)	(c) (a) - (b)
2004	\$33.36	\$44.10	-\$10.74
2005	\$44.07	\$38.77	\$5.30
2006	\$41.89	\$39.66	\$2.24
2007 (1)	\$42.71	\$39.89	\$2.81
2008	\$45.86	\$40.66	\$5.20
2009	\$45.97	\$40.88	\$5.09
2010	\$44.90	\$41.17	\$3.74
2011	\$45.25	\$41.86	\$3.39
2012	\$46.23	\$42.76	\$3.48
2013	\$47.25	\$43.79	\$3.45
2014	\$48.25	\$44.42	\$3.82
2015	\$49.44	\$45.18	\$4.26
2016	\$50.86	\$45.78	\$5.08
2017	\$52.19	\$46.33	\$5.86
2018	\$53.61	\$47.07	\$6.54
2019	\$55.05	\$47.75	\$7.30
2020	\$56.63	\$48.66	\$7.97
2021	\$58.21		
2022	\$59.81		
2023	\$61.41		
2024	\$63.12		
2025	\$64.93		
2026	\$66.69		
2027	\$68.50		
2028	\$70.57		

**Columns**

- (a) Table 5 Column (d)
- (b) Avoided Costs Approved by the Commission February 2002
- (1) 2007 costs are based on 6 months of an Avoided Resource (January - June)  
and 6 months of a CCCT (July - December)

**Table 8**  
**Total Cost of Gas Turbine Resources**

Page 1 of 3

Year	Estimated Capital Cost \$/kW	Fixed 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	Fuel Cost \$/MWH	Total Avoided Costs \$/MWH
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)

**Simple Cycle Excluding System Transmission**

2004	\$532	\$51.58	\$10.07	\$2.00	\$12.70	\$64.28
2005		\$52.87	\$10.32	\$2.05	\$13.02	\$65.88
2006		\$54.19	\$10.58	\$2.10	\$13.34	\$67.53
2007		\$55.54	\$10.84	\$2.15	\$13.67	\$69.22

**Simple Cycle**

2004	\$595	\$57.69	\$10.39	\$9.67	\$23.10	\$80.78
2005		\$59.13	\$10.65	\$9.91	\$23.67	\$82.80
2006		\$60.61	\$10.92	\$10.16	\$24.27	\$84.87
2007		\$62.12	\$11.19	\$10.41	\$24.87	\$86.99
2008		\$63.67	\$11.47	\$10.67	\$25.49	\$89.17
2009		\$65.27	\$11.76	\$10.94	\$26.13	\$91.40
2010		\$66.90	\$12.05	\$11.21	\$26.78	\$93.68
2011		\$68.57	\$12.35	\$11.49	\$27.45	\$96.02
2012		\$70.28	\$12.66	\$11.78	\$28.14	\$98.42
2013		\$72.04	\$12.98	\$12.08	\$28.84	\$100.89
2014		\$73.84	\$13.30	\$12.38	\$29.57	\$103.41
2015		\$75.69	\$13.63	\$12.69	\$30.30	\$105.99
2016		\$77.58	\$13.97	\$13.01	\$31.06	\$108.64
2017		\$79.52	\$14.32	\$13.33	\$31.84	\$111.36
2018		\$81.51	\$14.68	\$13.66	\$32.63	\$114.14
2019		\$83.55	\$15.05	\$14.01	\$33.45	\$117.00
2020		\$85.63	\$15.42	\$14.36	\$34.29	\$119.92
2021		\$87.77	\$15.81	\$14.71	\$35.14	\$122.92
2022		\$89.97	\$16.20	\$15.08	\$36.02	\$125.99
2023		\$92.22	\$16.61	\$15.46	\$36.92	\$129.14
2024		\$94.52	\$17.03	\$15.85	\$37.85	\$132.37
2025		\$96.89	\$17.45	\$16.24	\$38.79	\$135.68
2026		\$99.31	\$17.89	\$16.65	\$39.76	\$139.07
2027		\$101.79	\$18.33	\$17.06	\$40.76	\$142.55
2028		\$104.34	\$18.79	\$17.49	\$41.78	\$146.11

**Table 8**  
**Total Cost of Gas Turbine Resources**

Page 2 of 3

Year	Estimated Capital Cost \$/kW	Fixed 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	Fuel Cost \$/MWH	Total Avoided Costs \$/MWH
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)

**Combined Cycle**

2004	\$726	\$63.16	\$10.07	\$2.00	\$24.96	\$88.12	\$ 5.07	\$ 38.65	50.48
2005		\$64.74	\$10.32	\$2.05	\$25.59	\$90.33	\$ 4.63	\$ 35.30	47.44
2006		\$66.36	\$10.58	\$2.10	\$26.23	\$92.59	\$ 4.44	\$ 33.83	46.27
2007		\$68.02	\$10.84	\$2.15	\$26.88	\$94.90	\$ 4.36	\$ 33.24	45.99
2008		\$69.72	\$11.12	\$2.21	\$27.55	\$97.27	\$ 4.30	\$ 32.79	45.86
2009		\$71.46	\$11.39	\$2.26	\$28.24	\$99.70	\$ 4.27	\$ 32.58	45.97
2010		\$73.25	\$11.68	\$2.32	\$28.95	\$102.20	\$ 4.09	\$ 31.18	44.90
2011		\$75.08	\$11.97	\$2.38	\$29.67	\$104.75	\$ 4.09	\$ 31.18	45.25
2012		\$76.96	\$12.27	\$2.44	\$30.41	\$107.37	\$ 4.17	\$ 31.81	46.23
2013		\$78.88	\$12.58	\$2.50	\$31.17	\$110.05	\$ 4.26	\$ 32.47	47.25
2014		\$80.85	\$12.89	\$2.56	\$31.95	\$112.81	\$ 4.34	\$ 33.10	48.25
2015		\$82.87	\$13.21	\$2.62	\$32.75	\$115.63	\$ 4.45	\$ 33.91	49.44
2016		\$84.95	\$13.54	\$2.69	\$33.57	\$118.52	\$ 4.58	\$ 34.94	50.86
2017		\$87.07	\$13.88	\$2.76	\$34.41	\$121.48	\$ 4.71	\$ 35.88	52.19
2018		\$89.25	\$14.23	\$2.83	\$35.27	\$124.52	\$ 4.84	\$ 36.88	53.61
2019		\$91.48	\$14.58	\$2.90	\$36.15	\$127.63	\$ 4.97	\$ 37.91	55.05
2020		\$93.76	\$14.95	\$2.97	\$37.06	\$130.82	\$ 5.12	\$ 39.06	56.63
2021		\$96.11	\$15.32	\$3.04	\$37.98	\$134.09	\$ 5.27	\$ 40.20	58.21
2022		\$98.51	\$15.71	\$3.12	\$38.93	\$137.44	\$ 5.43	\$ 41.35	59.81
2023		\$100.97	\$16.10	\$3.20	\$39.91	\$140.88	\$ 5.57	\$ 42.49	61.41
2024		\$103.50	\$16.50	\$3.28	\$40.90	\$144.40	\$ 5.74	\$ 43.73	63.12
2025		\$106.09	\$16.91	\$3.36	\$41.93	\$148.01	\$ 5.91	\$ 45.05	64.93
2026		\$108.74	\$17.34	\$3.44	\$42.97	\$151.71	\$ 6.08	\$ 46.32	66.69
2027		\$111.46	\$17.77	\$3.53	\$44.05	\$155.50	\$ 6.25	\$ 47.61	68.50
2028		\$114.24	\$18.21	\$3.62	\$45.15	\$159.39	\$ 6.45	\$ 49.17	70.57



**Table 8**  
**Total Cost of Gas Turbine Resources**

Page 3 of 3

**Sources, Inputs and Assumptions**

Source: (a)(c)(d) Plant Costs - Page 32, Table C.18 IRP Update (October 2003)

(b) = (a) x Payment Factor - IRP Update (October 2003)

(e) = (d) x (8.76 x 'Capacity Factor' ) + (c)

(f) = (b) + (e)

(g) Natural Gas Price Forecast ( \$/MMBtu )

(h) = 7623 x (g) / 1000

(i) = (f) / (8.76 x 'Capacity Factor' ) + (h)

SCCT Statistics	MW	Cap Cost	Fixed	Var	Heat Rate
Greenfield SCCT Frame (2 7FA)	280	532	10.39	9.67	10,467
System Transmission Upgrades		<u>63</u>			
Total Capital Cost \$/kW		595			

CCCT Statistics (Currant Creek)	MW	Cap Cost	Fixed	Var	Heat Rate
Greenfield CCCT 2x1	420	767	11.87	2.47	7,192
Greenfield CCCT Duct Firing	<u>105</u>	<u>203</u>	<u>2.87</u>	<u>0.10</u>	<u>9,345</u>
Combined	525	654	10.07	2.00	7,623
System Transmission Upgrades		<u>72</u>			
Total Capital Cost \$/kW		726			

SCCT	CCCT	
9.70%	8.70%	Payment Factor - IRP Update (October 2003)
15%	85%	Assumed Capacity Factor
10,467	7,623	Heat Rate in btu/kWh - Page 32, Table C.18 IRP Update (October 2003)
2.50%	2.50%	Inflation Rate - page 358 IRP 2003

**Table 9**  
**Natural Gas Price Forecast ( \$/MMBtu )**

Year	Raw Fuel	Transport Cost	Distribution Cost	Combined Cycle CT Fuel Cost
	(a)	(b)	(c)	(d)
		(a) x .016 + 0.13	((a)+(b))x.015+0.09	(a) + (b) + (c)
2004	\$4.70	\$0.21	\$0.16	\$5.07
2005	\$4.27	\$0.20	\$0.16	\$4.63
2006	\$4.09	\$0.20	\$0.15	\$4.44
2007	\$4.02	\$0.19	\$0.15	\$4.36
2008	\$3.96	\$0.19	\$0.15	\$4.30
2009	\$3.93	\$0.19	\$0.15	\$4.27
2010	\$3.75	\$0.19	\$0.15	\$4.09
2011	\$3.75	\$0.19	\$0.15	\$4.09
2012	\$3.83	\$0.19	\$0.15	\$4.17
2013	\$3.92	\$0.19	\$0.15	\$4.26
2014	\$4.00	\$0.19	\$0.15	\$4.34
2015	\$4.10	\$0.20	\$0.15	\$4.45
2016	\$4.22	\$0.20	\$0.16	\$4.58
2017	\$4.35	\$0.20	\$0.16	\$4.71
2018	\$4.48	\$0.20	\$0.16	\$4.84
2019	\$4.61	\$0.20	\$0.16	\$4.97
2020	\$4.75	\$0.21	\$0.16	\$5.12
2021	\$4.89	\$0.21	\$0.17	\$5.27
2022	\$5.05	\$0.21	\$0.17	\$5.43
2023	\$5.19	\$0.21	\$0.17	\$5.57
2024	\$5.35	\$0.22	\$0.17	\$5.74
2025	\$5.51	\$0.22	\$0.18	\$5.91
2026	\$5.68	\$0.22	\$0.18	\$6.08
2027	\$5.85	\$0.22	\$0.18	\$6.25
2028	\$6.04	\$0.23	\$0.18	\$6.45

Columns

(a) Official Price Forecast December 2003 - Opal Index

		<u>Shrinkage</u>	<u>Fees</u>
(b)	Transport Cost	0.016	0.13
(c)	Distribution Cost	0.015	0.09

## Tariff Utah Schedule 37 Prices

Year	Capacity Price \$/kW-mo	Energy Only Price ¢/kWh <sup>2,3</sup>	<u>Peak Energy Prices</u>		<u>Off-Peak Energy Prices</u>		Total Price @ 85% Capacity Factor ¢/kWh
			Winter ¢/kWh	Summer ¢/kWh	Winter ¢/kWh	Summer ¢/kWh	
2004	\$1.34	3.12	3.68	3.31	3.31	2.93	3.34
2005	\$1.37	4.19	4.01	5.14	3.62	4.75	4.41
2006	\$1.41	3.96	3.94	4.78	3.55	4.38	4.19
2007 <sup>1</sup>	\$4.35	3.57	4.49	5.11	3.53	3.61	4.27
2008	\$7.43	3.39	5.49	5.49	3.39	3.39	4.59
2009	\$7.62	3.37	5.52	5.52	3.37	3.37	4.60
2010	\$7.81	3.23	5.44	5.44	3.23	3.23	4.49
2011	\$8.00	3.24	5.50	5.50	3.24	3.24	4.52
2012	\$8.20	3.30	5.62	5.62	3.30	3.30	4.62
2013	\$8.41	3.37	5.75	5.75	3.37	3.37	4.72
2014	\$8.62	3.44	5.87	5.87	3.44	3.44	4.82
2015	\$8.83	3.52	6.02	6.02	3.52	3.52	4.94
2016	\$9.05	3.63	6.19	6.19	3.63	3.63	5.09
2017	\$9.28	3.72	6.35	6.35	3.72	3.72	5.22
2018	\$9.51	3.83	6.52	6.52	3.83	3.83	5.36
2019	\$9.75	3.93	6.69	6.69	3.93	3.93	5.51
2020	\$9.99	4.05	6.88	6.88	4.05	4.05	5.66
2021	\$10.24	4.17	7.07	7.07	4.17	4.17	5.82
2022	\$10.50	4.29	7.26	7.26	4.29	4.29	5.98
2023	\$10.76	4.41	7.45	7.45	4.41	4.41	6.14
20 Year Levelized Prices (Nominal) @ Discount Rate <sup>1</sup>							
	6.49	3.61	7.52%	5.36	3.55	3.68	4.66
\$/MWH		36.12	53.59	55.33	35.45	36.78	46.57

**Footnotes:**

- 1 Discount Rate IRP 2003, Page 352
- 2 Energy Only is the average of off-peak energy prices and does not include capacity costs.
- 3 2007 costs are based on 6 months of an Avoided Resource (January - June) and 6 months of a CCCT (July - December)