

**Valuation Of Monsanto Interruptibility
Based on PacifiCorp's Methodology**

	<u>PacifiCorp Rebuttal Testimony Aug 23, 2002</u>	<u>Corrected by PacifiCorp In Surrebuttal Sep 5, 2002</u>	<u>Corrected and with Monsanto Adjustments</u>
	(1)	(2)	(3)
1	<u>A. ECONOMIC CURTAILMENT</u>		
2	1. Avoided Reservation Fee		
3	Capacity Charge (\$/kW-mo)	\$3.08	\$3.08
4	Capacity - kW	<u>46,000</u>	<u>67,000</u>
5	Amount	\$ 1,699,450	\$ 2,475,286
6	2. Avoided Energy Cost		
7	Curtailements per year (Hrs)	500	500
8	Times Capacity (MW)	46	67
9	MWH Curtailed	23,000	33,500
10	Market Price - SuperPeak (\$ per MWH)	<u>\$59.25</u>	<u>\$59.25</u>
11	Amount	\$ 1,362,750	\$ 1,984,875
12	3. Total Avoided Costs (In 5 + In 11)	\$ 3,062,200	\$ 4,460,161
13	4. Lost Retail Revenue		
14	MWH Curtailed	23,000	33,500
15	Retail Cost	<u>\$31.40</u>	<u>\$16.31</u>
16	Amount	\$ 722,200	\$ 546,385
17	5. Economic Curtailment (In 12 - In 16)	\$ 2,340,000 ✓	\$ 3,913,776 ✓
18	<u>B. OPERATING RESERVES CURTAILMENT</u>		
19	1. Avoided Reservation Fee		
20	Reservation Fee (\$/kW-mo)	\$2.73	\$3.44
21	Capacity - kW	<u>95,000</u>	<u>95,000</u>
22	Amount	\$ 3,112,200	\$ 3,922,193
23	2. Avoided Energy Cost		
24	Curtailements per year (Hrs)	288	288
25	Times Capacity (MW)	95	95
26	MWH Curtailed	27,360	27,360
27	Retail Price	<u>\$31.40</u>	<u>\$16.31</u>
28	Amount	\$ 859,104	\$ 446,242
29	3. "Market Opportunity" (In 22 + In 28)	3,971,304	4,368,435
30	4. Lost Retail Revenue		
31	MWH Curtailed	27,360	27,360
32	Retail Cost	<u>\$31.40</u>	<u>\$16.31</u>
33	Amount	\$ 859,104	\$ 446,242
34	5. Operating Reserves (In 29 - In 33)	\$ 3,112,200 ✓	\$ 3,922,193 ✓
35	<u>C. SYSTEM INTEGRITY</u>		
36	Capacity (MW)	162	162
37	System Interruption per year	12	12
38	MWH Interrupted	1,944	1,944
39	FERC Cap (\$ per MWH)	<u>\$250</u>	<u>\$1,000</u>
40	System Integrity	\$ 486,000 ✓	\$ 1,944,000 ✓
41	<u>TOTAL VALUATION</u>		
42	A. Economic Curtailment	\$ 2,340,000	\$ 4,460,161
43	B. Operating Reserves	\$ 3,112,200	\$ 3,922,193
44	C. System Integrity	\$ 486,000	\$ 1,944,000
45	Total	\$ 5,938,200	\$ 10,326,354
46	Divided by 1,354,000 MWH usage	\$4.39	\$7.63
47	<u>SUMMARY OF PRICING (\$ PER MWH)</u>		
48	A. Firm Price	\$31.39	\$28.30
49	B. Interruptible Valuation (In 46)	\$4.39	\$7.63
50	<u>C. Net Price</u>	<u>\$27.00</u>	<u>\$25.24</u>
			<u>\$20.67</u>

Explanation of Calculations:

Column (1): PacifiCorp Rebuttal Testimony August 23, 2002

PacifiCorp Rebuttal Testimony filed August 23, 2002, Exhibit Nos. 13, 14 and 15. Line 46 is the value of the interruptibility on a "per MWH" basis using Monsanto usage of 1,354,000 MWH as proposed by PacifiCorp in Exhibit No. 11.

Column (2): Corrected by PacifiCorp in Surrebuttal September 5, 2002

At the hearing, PacifiCorp updated its calculation by revising line 4 up to 67 MW, and revising the retail cost rate component for lost revenue from \$31.4 per MWH down to \$16.31 per MWH according to PacifiCorp's proposed rate design. PacifiCorp agreed that Monsanto would not need to sell 1,000 hours of interruptibility since the second 500 hours were shown to have a negative value.

Column (3): Corrected and With Monsanto Adjustments

Column (3) starts with the corrected Column (2) and represents three adjustments made by Monsanto to arrive at the net price of \$20.67 per MWH. These adjustments include eliminating lost revenues from the valuation, increasing the FERC Rate Cap to \$1,000 per MWH, and starting with a firm price of \$28.3 per MWH.

**Valuation Of Monsanto Interruptibility
Based on the Avoided Peaker Resource**

	OR WA Simple Cycle CT (1)	UTAH Simple Cycle CT (2)	OR WA CT 3 Furnaces 800 Hrs (3)
1	<u>A. AVOIDED CAPACITY</u>		
2	Total Fixed Cost (\$/kW-year)	\$73.48	\$73.48
3	kW Curtailed	116,500	162,500
4	kW Adjusted for Reserve Margin of 10%	<u>128,150</u>	<u>178,750</u>
5	Value of Avoided Capacity	\$ 9,416,462	\$ 13,134,550
6	<u>B. AVOIDED ENERGY</u>		
7	Total Variable Costs (\$/MWH)	\$22.52	\$22.52
8	MWH Curtailed:		
9	500 hours/year of 67 MW	33,500	
10	300 hours/year of 116.5 MW	34,950	
11	800 hours/year of 162.5 MW	<u>-</u>	<u>130,000</u>
12	Total MWH per year	68,450	130,000
13	Value of Avoided Energy	\$ 1,541,494	\$ 2,927,600
14	<u>TOTAL AVOIDED PEAKER COSTS</u>		
15	A. Avoided Capacity	\$ 9,416,462	\$ 13,134,550
16	B. Avoided Energy	<u>\$ 1,541,494</u>	<u>\$ 2,927,600</u>
17	Subtotal	\$ 10,957,956	\$ 16,062,150
18	Adjusted for losses of 5.19%	\$ 11,526,674 ✓	\$ 16,895,776 ✓
19	<u>TOTAL VALUATION</u>	\$ 11,526,674	\$ 16,895,776
20	Divided by 1,354,000 MWH usage	\$8.51	\$12.48
21	<u>SUMMARY OF PRICING (\$ PER MWH)</u>		
22	A. Firm Price	\$28.30	\$28.30
23	B. Interruptible Valuation (ln 20)	\$8.51	\$12.48
24	<u>C. Net Price</u>	<u>\$19.79</u>	<u>\$15.82</u>

Valuation Of Monsanto Interruptibility Based on the Avoided Peaker Resource

Explanation of Calculations:

Column (1): OR WA Simple Cycle CT

Avoided costs based on the resource cost of a simple cycle CT built in Oregon or Washington according to PacifiCorp's RAMPP-6 planning documents. Both Mr. Schunke and Dr. Rosenberg use the avoidance of this resource in their valuation of Monsanto's interruptibility. Curtailed capacity and energy amounts are from Monsanto's original proposal. The curtailed energy of 68,450 MWH was detailed by Mr. Schunke in his Exhibit 101. Line 20 is the value of the interruptibility on a "per MWH" basis using Monsanto usage of 1,354,000 MWH as proposed by PacifiCorp in Exhibit No. 11.

Column (2): UTAH Simple Cycle CT

The costs for a simple cycle CT built in Utah are also presented in the RAMPP-6 planning documents, and result in a higher valuation. This resource was used by Mr. Yankel in his testimony, and referenced by Dr. Rosenberg in his rebuttal. The curtailed capacity and energy amounts are the same as those shown in Column (1), and are based on Monsanto's original proposal.

Column (3): OR WA CT, 3 Furnances, 500 Hours Only

Column (3) uses the avoided costs of a CT built in Oregon or Washington, similar to that used in Column (1). The curtailed capacity and energy amounts reflect Monsanto's updated proposal for interrupting all three furnaces. The avoided capacity is 162.5 MW before reserves or losses. The energy curtailed is equal to 800 hours x 162.5 MW, or 130,000 MWH.

**Summary of Economic Curtailment Valuations
From PacifiCorp Exhibit No. 36**

Capacity Curtailed: 67 MW
Strike Price: \$31.40 per MWH

Ln	Price Curve Date	First 500	Next 500	Total 1,000
		Hours	Hours	Hours
		(1)	(2)	(3)
1	26-Sep-02	\$3,144,068	(\$704,097)	\$2,439,971
2	19-Sep-02	3,312,340	(676,646)	2,635,693
3	03-Sep-02	3,015,000	(390,948)	2,624,052
4	29-Aug-02	3,197,002	(695,000)	2,502,002
5	22-Aug-02	3,283,309	(483,309)	2,800,000
6	25-Jul-02	2,523,277	(724,237)	1,799,040
7	18-Jul-02	2,244,193	(713,592)	1,530,601
8	27-Jun-02	2,019,659	(740,194)	1,279,465
9	20-Jun-02	1,485,791	(761,161)	724,630
10	30-May-02	1,462,843	(772,429)	690,414
11	23-May-02	1,899,241	(757,271)	1,141,971
12	25-Apr-02	2,216,764	(752,967)	1,463,797
13	18-Apr-02	1,913,095	(750,668)	1,162,427
14	28-Mar-02	2,226,134	(782,676)	1,443,459
15	21-Mar-02	2,306,547	(768,874)	1,537,672
16	28-Feb-02	3,197,271	(807,574)	2,389,697
17	21-Feb-02	2,908,109	(817,119)	2,090,990
18	31-Jan-02	1,992,492	(853,143)	1,139,349
19	24-Jan-02	1,454,368	(870,279)	584,089
20	27-Dec-01	1,897,649	(845,942)	1,051,706
21	20-Dec-01	2,215,053	(842,411)	1,372,642
22	28-Nov-01	2,686,315	(736,100)	1,950,214
23	21-Nov-01	3,056,172	(720,337)	2,335,835
24	29-Oct-01	4,416,284	(692,890)	3,723,394
25	18-Oct-01	3,929,740	(740,542)	3,189,198
26	Minimum	\$1,454,368	(\$870,279)	\$584,089
27	Maximum	4,416,284	(390,948)	3,723,394
28	Average	2,560,109	(736,016)	1,824,092
29	Number of Times Value is Negative		25	
30	% Reduction in going from maximum down to minimum			84.3%

Column (1): Econ. Curtail. from *even* pages of Exhibit No. 36 (500 hours).
Column (2): Column (3) - Column (1)
Column (3): Econ. Curtail. from *odd* pages of Exhibit No. 36 (1,000 hours)
Note: This page uses the first box of each page of Exhibit No. 36.

**Summary of Economic Curtailment Valuations
From PacifiCorp Exhibit No. 36**

Capacity Curtailed: 46 MW
Strike Price: \$31.40 per MWH

Ln	Price Curve Date	First 500	Next 500	Total 1,000
		Hours	Hours	Hours
		(1)	(2)	(3)
1	26-Sep-02	\$2,205,529	(\$511,791)	\$1,693,737
2	19-Sep-02	2,341,048	(495,174)	1,845,874
3	03-Sep-02	1,875,000	243,967	2,118,967
4	29-Aug-02	2,245,218	(506,293)	1,738,925
5	22-Aug-02	2,340,000	210,000	2,550,000
6	25-Jul-02	1,670,341	(524,020)	1,146,321
7	18-Jul-02	1,419,108	(517,574)	901,534
8	27-Jun-02	1,227,228	(533,672)	693,556
9	20-Jun-02	765,485	(546,379)	219,106
10	30-May-02	751,025	(553,191)	197,834
11	23-May-02	1,122,584	(544,006)	578,578
12	25-Apr-02	1,401,041	(541,397)	859,644
13	18-Apr-02	1,139,081	(540,022)	599,059
14	28-Mar-02	1,390,959	(559,398)	831,561
15	21-Mar-02	1,459,515	(551,024)	908,491
16	28-Feb-02	2,382,470	(574,483)	1,807,987
17	21-Feb-02	2,135,167	(580,278)	1,554,889
18	31-Jan-02	1,346,810	(602,101)	744,709
19	24-Jan-02	881,736	(612,474)	269,262
20	27-Dec-01	1,256,773	(597,726)	659,047
21	20-Dec-01	1,526,593	(595,582)	931,011
22	28-Nov-01	1,752,551	(531,199)	1,221,352
23	21-Nov-01	2,071,191	(521,627)	1,549,564
24	29-Oct-01	3,248,644	(504,979)	2,743,665
25	18-Oct-01	2,855,316	(533,876)	2,321,439
26	Minimum	\$751,025	(\$612,474)	\$197,834
27	Maximum	3,248,644	243,967	2,743,665
28	Average	1,712,416	(484,972)	1,227,444
29	Number of Times Value is Negative		23	
30	% Reduction in going from maximum down to minimum			92.8%

Column (1): Econ. Curtail. from *even* pages of Exhibit No. 36 (500 hours).
Column (2): Column (3) - Column (1)
Column (3): Econ. Curtail. from *odd* pages of Exhibit No. 36 (1,000 hours)
Note: This page uses the second box of each page of Exhibit No. 36.

**Summary of Economic Curtailment Valuations
From PacifiCorp Exhibit No. 36**

Capacity Curtailed: 67 MW
Strike Price: \$16.31 per MWH

Ln	Price Curve Date	First 500	Next 500	Total 1,000
		Hours	Hours	Hours
		(1)	(2)	(3)
1	26-Sep-02	\$3,988,831	\$89,678	\$4,078,509
2	19-Sep-02	4,160,393	123,491	4,283,884
3	03-Sep-02	4,025,469	618,481	4,643,950
4	29-Aug-02	4,039,832	95,772	4,135,604
5	22-Aug-02	4,006,187	375,699	4,381,886
6	25-Jul-02	3,352,638	50,735	3,403,373
7	18-Jul-02	3,074,840	63,612	3,138,452
8	27-Jun-02	2,845,120	25,234	2,870,354
9	20-Jun-02	2,306,666	(4,424)	2,302,243
10	30-May-02	2,278,160	(23,377)	2,254,783
11	23-May-02	2,719,428	(4,269)	2,715,159
12	25-Apr-02	3,033,652	(2,737)	3,030,915
13	18-Apr-02	2,726,336	(693)	2,725,643
14	28-Mar-02	3,045,955	(54,063)	2,991,892
15	21-Mar-02	3,126,240	(37,131)	3,089,109
16	28-Feb-02	4,013,202	(91,685)	3,921,516
17	21-Feb-02	3,720,278	(106,502)	3,613,776
18	31-Jan-02	2,793,957	(160,595)	2,633,362
19	24-Jan-02	2,250,605	(186,506)	2,064,100
20	27-Dec-01	2,697,497	(154,714)	2,542,783
21	20-Dec-01	3,018,358	(149,796)	2,868,562
22	28-Nov-01	3,506,751	(7,046)	3,499,705
23	21-Nov-01	3,877,966	13,304	3,891,270
24	29-Oct-01	5,242,137	46,283	5,288,419
25	18-Oct-01	4,743,467	(17,427)	4,726,040
26	Minimum	\$2,250,605	(\$186,506)	\$2,064,100
27	Maximum	5,242,137	618,481	5,288,419
28	Average	3,383,759	20,053	3,403,812
29	Number of Times Value is Negative		15	
30	% Reduction in going from maximum down to minimum			61.0%

Column (1): Econ. Curtail. from *even* pages of Exhibit No. 36 (500 hours).
Column (2): Column (3) - Column (1)
Column (3): Econ. Curtail. from *odd* pages of Exhibit No. 36 (1,000 hours)
Note: This page uses the third box of each page of Exhibit No. 36.

**Summary of Economic Curtailment Valuations
From PacifiCorp Exhibit No. 36**

Capacity Curtailed: 46 MW
Strike Price: \$16.31 per MWH

Ln	Price Curve Date	First 500	Next 500	Total 1,000
		Hours	Hours	Hours
		(1)	(2)	(3)
1	26-Sep-02	\$2,757,667	\$10,022	\$2,767,690
2	19-Sep-02	2,895,165	30,517	2,925,681
3	03-Sep-02	3,312,000	104,441	3,416,441
4	29-Aug-02	2,796,188	13,708	2,809,896
5	22-Aug-02	3,384,329	615,671	4,000,000
6	25-Jul-02	2,213,115	(13,547)	2,199,568
7	18-Jul-02	1,962,674	(5,747)	1,956,927
8	27-Jun-02	1,767,656	(28,997)	1,738,659
9	20-Jun-02	1,303,123	(46,959)	1,256,164
10	30-May-02	1,285,318	(58,454)	1,226,864
11	23-May-02	1,659,831	(46,883)	1,612,948
12	25-Apr-02	1,936,304	(45,963)	1,890,341
13	18-Apr-02	1,672,103	(44,694)	1,627,409
14	28-Mar-02	1,927,978	(77,047)	1,850,931
15	21-Mar-02	1,996,474	(66,778)	1,929,696
16	28-Feb-02	2,917,131	(99,811)	2,817,320
17	21-Feb-02	2,667,539	(108,783)	2,558,757
18	31-Jan-02	1,872,703	(141,571)	1,731,132
19	24-Jan-02	1,404,453	(157,261)	1,247,192
20	27-Dec-01	1,781,702	(138,025)	1,643,678
21	20-Dec-01	2,053,615	(135,025)	1,918,590
22	28-Nov-01	2,289,937	(48,549)	2,241,388
23	21-Nov-01	2,609,422	(36,235)	2,573,186
24	29-Oct-01	3,789,350	(16,250)	3,773,100
25	18-Oct-01	3,388,631	(54,824)	3,333,807
26	Minimum	\$1,285,318	(\$157,261)	\$1,226,864
27	Maximum	3,789,350	615,671	4,000,000
28	Average	2,305,776	(23,882)	2,281,895
29	Number of Times Value is Negative		20	
30	% Reduction in going from maximum down to minimum			69.3%

Column (1): Econ. Curtail. from *even* pages of Exhibit No. 36 (500 hours).
Column (2): Column (3) - Column (1)
Column (3): Econ. Curtail. from *odd* pages of Exhibit No. 36 (1,000 hours)
Note: This page uses the fourth box of each page of Exhibit No. 36.