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MAY 15 2006

PUBLIC SERVICE
COMMISSION

May 15, 2006

HAND DELIVERED

Ms. Elizabeth O'Donnell
Executive Director
Public Service Commission
211 Sower Boulevard
Frankfort, KY 40602

RE: PSC Case No. 2006-00132

Dear Ms. O'Donnell:

Please find enclosed for filing with the Commission in the above-referenced case, an original and seven copies of the responses of East Kentucky Power Cooperative, Inc., to the Commission Staff Data Requests dated May 5, 2006.

Very truly yours,



Charles A. Lile
Senior Corporate Counsel

Enclosures

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MAY 15 2006

PUBLIC SERVICE
COMMISSION

**COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION**

IN THE MATTER OF:

**THE APPLICATION OF EAST KENTUCKY POWER)
COOPERATIVE, INC FOR A CERTIFICATE OF)
PUBLIC CONVENIENCE AND NECESSITY FOR THE) CASE NO. 2006-
CONSTRUCTION OF A FLUE GAS DESULFURIZATION) 00132
SYSTEM ON SPURLOCK POWER STATION UNIT 1)**

**RESPONSES OF EAST KENTUCKY POWER COOPERATIVE, INC.
TO COMMISSION STAFF DATA REQUESTS DATED MAY 5, 2006**

EAST KENTUCKY POWER COOPERATIVE, INC.

PSC CASE NO. 2006-00132

INFORMATION REQUEST RESPONSE

PUBLIC SERVICE COMMISSION DATA REQUEST DATED

MAY 5, 2006

REQUEST NO. 1

RESPONDING PERSON: Frank Oliva

Request No. 1: Refer to Exhibit 1, page 2 of 3 of the March 28, 2006 Application, the second “Whereas” from the top of the page. Provide any and all workpapers associated with the expected average allowance cost for the 30-year period of over \$700.

Response No. 1: The expected average allowance cost for the period, which is referenced in Exhibit 1, was derived from projections prepared by Energy Ventures Analysis (“EVA”). The attached schedule shows EVA’s projected costs from 2009-2038, and the calculated average allowance cost.

Spurlock Unit #1 Scrubber Cost Analysis
Cost Assumptions
Projections were Provided by EVA

<u>Year</u>	<u>SO2 Allowances</u>
2009	\$1,203.00
2010	1,226.00
2011	1,020.00
2012	1,101.00
2013	1,107.00
2014	1,080.00
2015	1,188.00
2016	1,096.00
2017	892.00
2018	727.00
2019	592.00
2020	482.00
2021	392.00
2022	320.00
2023	342.00
2024	368.00
2025	398.00
2026	428.00
2027	460.00
2028	495.00
2029	532.00
2030	572.00
2031	615.00
2032	661.00
2033	711.00
2034	764.00
2035	821.00
2036	883.00
2037	949.00
2038	1,020.00

Average

\$748.17

EAST KENTUCKY POWER COOPERATIVE, INC.

PSC CASE NO. 2006-00132

INFORMATION REQUEST RESPONSE

PUBLIC SERVICE COMMISSION DATA REQUEST DATED

MAY 5, 2006

REQUEST NO. 2

RESPONDING PERSON: Frank Oliva

Request No. 2: Refer to Exhibit 5, page 3 of 5 of the March 28, 2006 Application.

In answering Question No. 9 at the top of the page, there is an explanation of what factors went into the economic evaluation of the viability of the Spurlock Unit No. 1 scrubber.

Provide any supporting documentation associated with the projected costs mentioned in the response.

Response No. 2: Attached is a summary of the economic evaluation of scrubbing the 75% Central Appalachian / 25% Northern Appalachian coal, compared to using Central Appalachian compliance coal. Also attached are detailed evaluation worksheets comparing the costs of using those coals, as well as Powder River Basin ("PRB") coal, from 2009-2038.

**East Kentucky Power Cooperative
Spurlock Unit #1 Limestone Scrubber Study
Annual Savings (Costs) Due to Scrubber Operation**

Year	Fuel		Emission Allowances		Opr. Labor & Benefits for Scrubber	
	CAPP - Pike 1.2 lb.	Coal Blend of 75% CAPP - Pike 4.5 lb. and 25% NAP-OH - OH Strip - 7.0 lb.	CAPP - Pike 1.2 lb.	Coal Blend of 75% CAPP - Pike 4.5 lb. and 25% NAP-OH - OH Strip - 7.0 lb.	CAPP - Pike 1.2 lb.	Coal Blend of 75% CAPP - Pike 4.5 lb. and 25% NAP-OH - OH Strip - 7.0 lb.
2009	\$58,204,871	\$37,174,917	\$17,385,071	\$1,443,431	\$0	\$1,364,000
2010	58,304,563	37,618,944	17,717,454	1,471,028	0	1,404,920
2011	58,328,748	39,345,715	14,740,459	1,223,856	0	1,447,068
2012	59,951,400	40,184,433	15,911,025	1,321,045	0	1,490,480
2013	60,922,132	41,343,836	15,997,733	1,328,244	0	1,535,194
2014	61,894,042	42,577,244	15,607,545	1,295,848	0	1,581,250
2015	62,438,985	43,909,325	17,168,299	1,425,433	0	1,628,687
2016	63,243,191	45,044,060	15,838,768	1,315,046	0	1,677,548
2017	64,257,236	46,178,796	12,890,676	1,070,274	0	1,727,874
2018	65,451,348	47,362,867	10,506,190	872,298	0	1,779,711
2019	66,788,238	47,954,903	8,555,247	710,317	0	1,833,102
2020	68,334,713	48,670,280	6,965,589	578,332	0	1,888,095
2021	70,074,165	49,410,324	5,664,961	470,345	0	1,944,738
2022	72,034,357	50,446,387	4,624,458	383,955	0	2,003,080
2023	74,098,222	51,803,136	4,942,389	410,352	0	2,063,172
2024	76,461,312	53,209,221	5,318,126	441,548	0	2,125,068
2025	79,001,794	54,639,974	5,751,669	477,544	0	2,188,820
2026	81,147,924	55,848,714	6,185,212	513,540	0	2,254,484
2027	83,294,054	57,057,454	6,647,658	551,935	0	2,322,119
2028	85,440,184	58,241,526	7,153,458	593,930	0	2,391,782
2029	87,586,314	59,450,266	7,688,161	638,325	0	2,463,536
2030	89,732,444	60,659,005	8,266,218	686,320	0	2,537,442
2031	91,878,574	61,867,745	8,887,630	737,913	0	2,613,565
2032	94,024,703	63,051,817	9,552,395	793,107	0	2,691,972
2033	96,170,833	64,260,557	10,274,967	853,100	0	2,772,731
2034	98,316,963	65,469,297	11,040,893	916,693	0	2,855,913
2035	100,463,093	66,678,036	11,864,624	985,084	0	2,941,590
2036	102,609,223	67,862,108	12,760,613	1,059,476	0	3,029,838
2037	104,755,353	69,070,848	13,714,407	1,138,666	0	3,120,733
2038	106,901,483	70,279,588	14,740,459	1,223,856	0	3,214,355
Net Present Value	\$1,454,952,188	\$994,285,318	\$222,055,771	\$18,436,630	\$0	\$39,728,156
Savings (Cost)		\$460,666,869		\$203,619,141		(\$39,728,156)

East Kentucky Power Cooperative
 Spurlock Unit #1 Limestone Scrubber Study
 Annual Savings (Costs) Due to Scrubber Operation

Year	Maintenance		Fixed Costs for Scrubber Capital Exp.		Limestone for Scrubber	
	CAPP - Pike 1.2 lb.	Coal Blend of 75% CAPP - Pike 4.5 lb. and 25% NAP-OH - OH Strip - 7.0 lb.	CAPP - Pike 1.2 lb.	Coal Blend of 75% CAPP - Pike 4.5 lb. and 25% NAP-OH - OH Strip - 7.0 lb.	CAPP - Pike 1.2 lb.	Coal Blend of 75% CAPP - Pike 4.5 lb. and 25% NAP-OH - OH Strip - 7.0 lb.
2009	\$1,628,099	\$3,332,236	\$0	\$15,776,000	\$0	\$1,432,632
2010	1,676,942	3,432,204	0	15,674,500	0	1,475,611
2011	1,727,250	3,535,169	0	15,558,500	0	1,519,879
2012	1,779,067	3,641,224	0	15,442,500	0	1,565,476
2013	1,832,439	3,750,461	0	15,312,000	0	1,612,440
2014	1,887,412	3,862,975	0	15,167,000	0	1,660,813
2015	1,944,035	3,978,864	0	15,022,000	0	1,710,638
2016	2,002,356	4,098,230	0	14,848,000	0	1,761,957
2017	2,062,427	4,221,177	0	14,674,000	0	1,814,815
2018	2,124,299	4,347,812	0	14,500,000	0	1,869,260
2019	2,188,028	4,478,247	0	14,297,000	0	1,925,338
2020	2,253,669	4,612,595	0	14,079,500	0	1,983,098
2021	2,321,279	4,750,973	0	13,847,500	0	2,042,591
2022	2,390,918	4,893,501	0	13,601,000	0	2,103,868
2023	2,462,645	5,040,307	0	13,340,000	0	2,166,984
2024	2,536,525	5,191,516	0	13,050,000	0	2,231,994
2025	2,612,620	5,347,262	0	12,745,500	0	2,298,954
2026	2,690,999	5,507,679	0	12,412,000	0	2,367,922
2027	2,771,729	5,672,910	0	12,064,000	0	2,438,960
2028	2,854,881	5,843,097	0	11,672,500	0	2,512,129
2029	2,940,527	6,018,390	0	11,266,500	0	2,587,493
2030	3,028,743	6,198,941	0	10,831,500	0	2,665,118
2031	3,119,605	6,384,909	0	10,367,500	0	2,745,071
2032	3,213,193	6,576,456	0	9,860,000	0	2,827,423
2033	3,309,589	6,773,751	0	9,323,500	0	2,912,246
2034	3,408,877	6,976,963	0	8,743,500	0	2,999,613
2035	3,511,143	7,186,272	0	8,120,000	0	3,089,602
2036	3,616,477	7,401,861	0	7,453,000	0	3,182,290
2037	3,724,972	7,623,916	0	6,728,000	0	3,277,758
2038	3,836,721	7,852,633	0	5,959,500	0	3,376,091
Net Present Value	\$47,420,347	\$97,055,428	\$0	\$256,139,152	\$0	\$41,727,146
Savings (Cost)		(\$49,635,081)		(\$256,139,152)		(\$41,727,146)

East Kentucky Power Cooperative
 Spurlock #1 Limestone Scrubber Study
 Annual Savings (Costs) Due to Scrubber Operation

Year	Landfill Cost Including Ash Disposal		Energy Replacement		Total	
	CAPP - Pike 1.2 lb.	Coal Blend of 75% CAPP - Pike 4.5 lb. and 25% NAP-OH - OH Strip - 7.0 lb.	CAPP - Pike 1.2 lb.	Coal Blend of 75% CAPP - Pike 4.5 lb. and 25% NAP-OH - OH Strip - 7.0 lb.	CAPP - Pike 1.2 lb.	Coal Blend of 75% CAPP - Pike 4.5 lb. and 25% NAP-OH - OH Strip - 7.0 lb.
2009	\$395,718	\$1,111,140	\$0	\$1,710,000	\$77,613,759	\$63,344,356
2010	407,590	1,144,474	0	1,761,300	78,106,549	63,982,981
2011	419,818	1,178,808	0	1,814,139	75,216,275	65,623,134
2012	432,412	1,214,173	0	1,868,563	78,073,904	66,727,894
2013	445,385	1,250,598	0	1,924,620	79,197,689	68,057,393
2014	458,746	1,288,116	0	1,982,359	79,847,745	69,415,605
2015	472,508	1,326,759	0	2,041,829	82,023,827	71,043,535
2016	486,684	1,366,562	0	2,103,084	81,570,999	72,214,487
2017	501,284	1,407,559	0	2,166,177	79,711,623	73,260,672
2018	516,323	1,449,786	0	2,231,162	78,598,160	74,412,896
2019	531,812	1,493,279	0	2,298,097	78,063,325	74,990,283
2020	547,767	1,538,078	0	2,367,040	78,101,738	75,717,018
2021	564,200	1,584,220	0	2,438,051	78,624,605	76,488,742
2022	581,126	1,631,747	0	2,511,193	79,630,859	77,574,731
2023	598,560	1,680,699	0	2,586,528	82,101,816	79,091,178
2024	616,516	1,731,120	0	2,664,124	84,932,479	80,644,591
2025	635,012	1,783,054	0	2,744,048	88,001,095	82,225,156
2026	654,062	1,836,545	0	2,826,369	90,678,197	83,567,253
2027	673,684	1,891,642	0	2,911,161	93,387,125	84,910,181
2028	693,895	1,948,391	0	2,998,495	96,142,418	86,201,850
2029	714,711	2,006,843	0	3,088,450	98,929,713	87,519,803
2030	736,153	2,067,048	0	3,181,104	101,763,558	88,826,478
2031	758,237	2,129,059	0	3,276,537	104,644,046	90,122,299
2032	780,984	2,192,931	0	3,374,833	107,571,275	91,368,539
2033	804,414	2,258,719	0	3,476,078	110,559,803	92,630,682
2034	828,546	2,326,481	0	3,580,360	113,595,279	93,868,820
2035	853,403	2,396,275	0	3,687,771	116,692,263	95,084,630
2036	879,005	2,468,163	0	3,798,404	119,865,318	96,255,140
2037	905,375	2,542,208	0	3,912,356	123,100,107	97,414,485
2038	932,536	2,618,474	0	4,029,727	126,411,199	98,554,224
Net Present Value	\$11,525,778	\$32,363,303	\$0	\$49,805,824	1,735,954,083	1,529,540,958
Savings (Cost)		(\$20,837,525)		(\$49,805,824)		\$206,413,126

2009

1. Average Heat Rate	10,000 Btu/kwH	
2. SO2 Removal Rate	98.00 %	
3. Lbs Reagent/Lb SO2 in gas	1.99 lbs. Limestone / lbs. SO2 Removed	
4. SO2 Produced	2.00 *(%S) / 100 = lbs. SO2 Produced / lb. Coal Fired	
5. Process Plant Lime Consumption	0 lbs. Process Lime Used / ton Dry Sludge	
6. Recycle Pumps Required per Absorber	3 per Absorber	
7. Number of Absorbers	1 Absorbers	
8. Average Spurlock Unit 1 Load	320 MW	
9. Process Plant Hours of Operation	24 Hrs.	
10. lbs of dry gypsum per lb SO2 (pure CaCO3)	2.675	
11. Coal Burned in Unit 1 is based on the heat rate and mw produced.		
12. FGD Energy Consumption	9000 KW	
13. Plant Factor	0.88	
14. Operational hours per year	8,760 hours	
15. Labor (16 people, \$55,000, Benefits 1.55)	\$1,364,000.00 per year	\$682,000.00 <<PRB<< Labor (8 people, \$55,000, Benefits 1.55)
16. Reagent Costs (Lime/Limestone)	\$12.00 per ton	
17. Current Price for SO2 Allowances	\$1,203.00 per ton SO2	
18. Process Lime Costs	\$0.00 per ton	
19. Scrubber Landfill Costs	\$3.50 per ton	
20. Maintenance	\$1,687,000.00 per year	\$500,000.00 <<PRB<< Maintenance
21. Capacity Cost for MW	\$509,646.29 per year	
22. CAAA Allowances Spurlock Unit 1	9,841 year 2009	
23. PRB Capital Expenditure	\$50,000,000	
24. Scrubber Capital Expenditure (per J. Brandt 11/14/05)	\$145,000,000	
25. Capacity Replacement Cost (Gilbert Unit based for Replacement Power)	\$190,000 /KWY	\$10,647,780.00 <<PRB<< Repl. Energy Differential Cost
26. Carrying Cost (20 years)	10.880 %	
27. Ash Penalty for Boiler Maintenance	\$0.144 / % Ash / ton of Coal	
28. Ash Landfill Cost	\$3.500 per ton of Ash	
29. Annual payment for PRB Capital Expenditure (30 year)	\$5,440,000	
30. Annual payment for Scrubber Capital Expenditure (30 year)	\$15,776,000	
31. Annual Btu requirements for Unit 1 based on Heat Rate and Output	24,668,160 mmBtu/Y	

Coal Suppliers	Coal Del. Price (\$/mmBtu)	Coal Del. Cost (\$/Y)	Coal (TY)	Coal (Btu/lb.)	Sulfur (%)	Ash (%)	Boiler Maint (\$/Y)	SO2 Produced (TY)	SO2 Not Scrubbed (TY)	Allowance (\$)	Limestone (TY)	Limestone (\$/Y)	Gypsum (TY)	Landfill Cost (\$/Y)	FGD Energy Cost (\$/Y)	Boiler Maint (\$/Y)	Cost (\$/mmBtu)	Total Cost Fuel + FGD (\$/Y)
CAPP Pike	2.360	\$58,204,871	1,027,840	12,000	0.74	11.00	\$1,628,099	14,451	14,451	\$17,385,071	0	\$0	0	\$395,718	\$0	\$19,408,888	\$0.787	\$77,613,759
PRB S Gil.	1.642	\$40,494,257	1,401,600	8,800	0.36	5.00	\$1,009,152	9,587	9,587	\$11,533,094	0	\$0	0	\$245,280	\$0	\$30,057,306	\$1.218	\$70,551,563
3/4 CAPP 1/4 NAP-OH	1.507	\$37,174,917	1,038,659	11,875	3.04	11.00	\$1,645,236	59,993	1,200	\$1,443,431	119,386	\$1,432,632	203,216	\$1,111,140	\$1,710,000	\$26,169,439	\$1.061	\$63,344,356

2010

1. Average Heat Rate	10,000 Btu/kwh	
2. SO2 Removal Rate	98.00 %	
3. Lbs Reagent/Lb SO2 In gas	1.99 lbs. Limestone / lbs. SO2 Removed	
4. SO2 Produced	2.00 *(%S) / 100 = lbs. SO2 Produced / lb. Coal Fired	
5. Process Plant Lime Consumption	0 lbs. Process Lime Used / ton Dry Sludge	
6. Recycle Pumps Required per Absorber	3 per Absorber	
7. Number of Absorbers	1 Absorbers	
8. Average Spurlock Unit 1 Load	320 MW	
9. Process Plant Hours of Operation	24 Hrs.	
10. lbs of dry gypsum per lb SO2 (pure CaCO3)	2.675	
11. Coal Burned In Unit 1 is based on the heat rate and mw produced.		
12. FGD Energy Consumption	9000 KW	
13. Plant Factor	0.88	
14. Operational hours per year	8,760 hours	
15. Labor (16 people, \$55,000, Benefits 1.55)	\$1,404,920.00 per year	\$702,460.00 <<PRB<< Labor (8 people, \$55,000, Benefits 1.55)
16. Reagent Costs (Lime/Limestone)	\$12.36 per ton	
17. Current Price for SO2 Allowances	\$1,226.00 per ton SO2	
18. Process Lime Costs	\$0.00 per ton	
19. Scrubber Landfill Costs	\$3.61 per ton	
20. Maintenance	\$1,737,610.00 per year	\$515,000.00 <<PRB<< Maintenance
21. Capacity Cost for MW	\$524,935.68 per year	
22. CAAA Allowances Spurlock Unit 1	9,841 year 2009	
23. PRB Capital Expenditure	\$50,000,000	
24. Scrubber Capital Expenditure (per J. Brandt 11/14/05)	\$145,000,000	
25. Capacity Replacement Cost (Gilbert Unit based for Replacement Power)	\$195.700 /KWY	\$10,967,213.40 <<PRB<< Repl. Energy Differential Cost
26. Carrying Cost (20 years)	10.810 %	
27. Ash Penalty for Boiler Maintenance	\$0.148 / % Ash / ton of Coal	
28. Ash Landfill Cost	\$3.605 per ton of Ash	
29. Annual payment for PRB Capital Expenditure (30 year)	\$5,405,000	
30. Annual payment for Scrubber Capital Expenditure (20 year)	\$15,674,500	
31. Annual Btu requirements for Unit 1 based on Heat Rate and Output	24,668,160 mmBtu/Y	

Coal Suppliers	Coal Del. Price (\$/mmBtu)	Coal Del. Cost (\$/Y)	Coal (T/Y)	Coal (Btu/lb.)	Sulfur (%)	Ash (%)	Boiler Maint (\$/Y)	SO2 Produced (T/Y)	SO2 Not Scrubbed (T/Y)	Allowance (\$)	Limestone (T/Y)	Limestone (\$/Y)	Dry Product (T/Y)	Landfill Cost (\$/Y)	FGD Energy Cost (\$/Y)	Boiler Maint (\$/Y)	Cost (\$/mmBtu)	Total Cost Fuel + FGD (\$/Y)
CAPP Pike	2.364	\$58,304,563	1,027,840	12,000	0.74	11.00	\$1,676,942	14,451	14,451	\$17,717,454	0	\$0	0	\$407,590	\$0	\$19,801,985	\$0.803	\$78,106,548
PRB S Gil.	1.658	\$40,910,339	1,401,600	8,800	0.36	5.00	\$1,039,427	9,587	9,587	\$11,753,593	0	\$0	0	\$252,638	\$0	\$30,635,332	\$1.242	\$71,545,671
3/4 CAPP 1/4 NAP-OH	1.525	\$37,618,944	1,038,659	11,875	3.04	11.00	\$1,694,594	59,993	1,200	\$1,471,028	119,386	\$1,475,611	203,216	\$1,144,474	\$1,761,300	\$26,364,036	\$1.069	\$63,982,980

1. Average Heat Rate	10,000 Btu/kwH	
2. SO2 Removal Rate	98.00 %	
3. Lbs Reagent/Lb SO2 in gas	1.99 lbs. Limestone / lbs. SO2 Removed	
4. SO2 Produced	2.00 *(%S) / 100 = lbs. SO2 Produced / lb. Coal Fired	
5. Process Plant Lime Consumption	0 lbs. Process Lime Used / ton Dry Sludge	
6. Recycle Pumps Required per Absorber	3 per Absorber	
7. Number of Absorbers	1 Absorbers	
8. Average Spurlock Unit 1 Load	320 MW	
9. Process Plant Hours of Operation	24 Hrs.	
10. lbs of dry gypsum per lb SO2 (pure CaCO3)	2.675	
11. Coal Burned in Unit 1 is based on the heat rate and mw produced.		
12. FGD Energy Consumption	9000 KW	
13. Plant Factor	0.88	
14. Operational hours per year	8,760 hours	
15. Labor (16 people, \$55,000, Benefits 1.55)	\$1,447,067.60 per year	\$723,533.80 <<PRB<< Labor (8 people, \$55,000, Benefits 1.55)
16. Reagent Costs (Lime/Limestone)	\$12.73 per ton	
17. Current Price for SO2 Allowances	\$1,020.00 per ton SO2	
18. Process Lime Costs	\$0.00 per ton	
19. Scrubber Landfill Costs	\$3.71 per ton	
20. Maintenance	\$1,789,738.30 per year	\$530,450.00 <<PRB<< Maintenance
21. Capacity Cost for MW	\$540,683.75 per year	
22. CAAA Allowances Spurlock Unit 1	9,841 year 2009	
23. PRB Capital Expenditure	\$50,000,000	
24. Scrubber Capital Expenditure (per J. Brandt 11/14/05)	\$145,000,000	
25. Capacity Replacement Cost (Gilbert Unit based for Replacement Power)	\$201.571 /KWY	\$11,296,229.80 <<PRB<< Repl. Energy Differential Cost
26. Carrying Cost (20 years)	10.730 %	
27. Ash Penalty for Boiler Maintenance	\$0.153 / % Ash / ton of Coal	
28. Ash Landfill Cost	\$3.713 per ton of Ash	
29. Annual payment for PRB Capital Expenditure (30 year)	\$5,365,000	
30. Annual payment for Scrubber Capital Expenditure (20 year)	\$15,558,500	
31. Annual Btu requirements for Unit 1 based on Heat Rate and Output	24,668,160 mmBtu/Y	

Coal Suppliers	Coal Del. Price (\$/mmBtu)	Coal Del. Cost (\$/Y)	Coal (T/Y)	Coal (Btu/lb.)	Sulfur (%)	Ash (%)	Boiler Maint (\$/Y)	SO2 Produced (T/Y)	SO2 Not Scrubbed (T/Y)	Allowance (\$)	Limestone (T/Y)	Limestone (\$/Y)	Dry Product (T/Y)	Landfill Cost (\$/Y)	FGD Energy Cost (\$/Y)	O&M + Capital + Allowance + Landfill + Energy + Boiler Maint (\$/Y)	Cost (\$/mmBtu)	Total Cost Fuel + FGD (\$/Y)
CAPP Pike	2.365	\$58,328,748	1,027,840	12,000	0.74	11.00	\$1,727,250	14,451	14,451	\$14,740,459	0	\$0	0	\$419,818	\$0	\$16,887,526	\$0.685	\$75,216,275
PRB S Gil.	1.676	\$41,333,005	1,401,600	8,800	0.36	5.00	\$1,070,609	9,587	9,587	\$9,778,683	0	\$0	0	\$260,218	\$0	\$29,024,723	\$1.177	\$70,357,728
3/4 CAPP 1/4 NAP-OH	1.595	\$39,345,715	1,038,659	11,875	3.04	11.00	\$1,745,431	59,993	1,200	\$1,223,856	119,386	\$1,519,879	203,216	\$1,178,808	\$1,814,139	\$26,277,421	\$1.065	\$65,623,136

2012

1. Average Heat Rate	10,000 Btu/kWh	
2. SO2 Removal Rate	98.00 %	
3. Lbs Reagent/Lb SO2 in gas	1.99 lbs. Limestone / lbs. SO2 Removed	
4. SO2 Produced	2.00 *(%S) / 100 = lbs. SO2 Produced / lb. Coal Fired	
5. Process Plant Lime Consumption	0 lbs. Process Lime Used / ton Dry Sludge	
6. Recycle Pumps Required per Absorber	3 per Absorber	
7. Number of Absorbers	1 Absorbers	
8. Average Spurlock Unit 1 Load	320 MW	
9. Process Plant Hours of Operation	24 Hrs.	
10. lbs of dry gypsum per lb SO2 (pure CaCO3)	2.675	
11. Coal Burned in Unit 1 is based on the heat rate and mw produced.		
12. FGD Energy Consumption	9000 KW	
13. Plant Factor	0.88	
14. Operational hours per year	8,760 hours	
15. Labor (16 people, \$55,000, Benefits 1.55)	\$1,490,479.63 per year	\$745,239.81 <<PRB<< Labor (8 people, \$55,000, Benefits 1.55)
16. Reagent Costs (Lime/Limestone)	\$13.11 per ton	
17. Current Price for SO2 Allowances	\$1,101.00 per ton SO2	
18. Process Lime Costs	\$0.00 per ton	
19. Scrubber Landfill Costs	\$3.82 per ton	
20. Maintenance	\$1,843,430.45 per year	\$546,363.50 <<PRB<< Maintenance
21. Capacity Cost for MW	\$556,904.26 per year	
22. CAAA Allowances Spurlock Unit 1	9,841 year 2009	
23. PRB Capital Expenditure	\$50,000,000	
24. Scrubber Capital Expenditure (per J. Brandt 11/14/05)	\$145,000,000	
25. Capacity Replacement Cost (Gilbert Unit based for Replacement Power)	\$207.618 /KWY	\$11,635,116.70 <<PRB<< Repl. Energy Differential Cost
26. Carrying Cost (20 years)	10.650 %	
27. Ash Penalty for Boiler Maintenance	\$0.157 / % Ash / ton of Coal	
28. Ash Landfill Cost	\$3.825 per ton of Ash	
29. Annual payment for PRB Capital Expenditure (30 year)	\$5,325,000	
30. Annual payment for Scrubber Capital Expenditure (20 year)	\$15,442,500	
31. Annual Btu requirements for Unit 1 based on Heat Rate and Output	24,668,160 mmBtu/Y	

Coal Suppliers	Coal Del. Price (\$/mmBtu)	Coal Del. Cost (\$/Y)	Coal (T/Y)	Coal (Btu/lb.)	Sulfur (%)	Ash (%)	Boiler Maint (\$/Y)	SO2 Produced (T/Y)	SO2 Not Scrubbed (T/Y)	Allowance (\$)	Limestone (T/Y)	Limestone (\$/Y)	Dry Product (T/Y)	Landfill Cost (\$/Y)	FGD Energy Cost (\$/Y)	O&M + Capital + Allowance + Landfill + Energy + Boiler Maint (\$/Y)	Cost (\$/mmBtu)	Total Cost Fuel + FGD (\$/Y)
CAPP Pike	2.430	\$59,951,400	1,027,840	12,000	0.74	11.00	\$1,779,067	14,451	14,451	\$15,911,025	0	\$0	0	\$432,412	\$0	\$18,122,504	\$0.735	\$78,073,905
PRB S Gil.	1.694	\$41,792,803	1,401,600	8,800	0.36	5.00	\$1,102,728	9,587	9,587	\$10,555,225	0	\$0	0	\$268,024	\$0	\$30,177,697	\$1.223	\$71,970,500
3/4 CAPP 1/4 NAP-OH	1.629	\$40,184,433	1,038,659	11,875	3.04	11.00	\$1,797,794	59,993	1,200	\$1,321,045	119,386	\$1,565,476	203,216	\$1,214,173	\$1,868,563	\$26,543,461	\$1.076	\$66,727,894

2013

1. Average Heat Rate	10,000 Btu/kwh	
2. SO2 Removal Rate	98.00 %	
3. Lbs Reagent/Lb SO2 in gas	1.99 lbs. Limestone / lbs. SO2 Removed	
4. SO2 Produced	2.00 *(%S) / 100 = lbs. SO2 Produced / lb. Coal Fired	
5. Process Plant Lime Consumption	0 lbs. Process Lime Used / ton Dry Sludge	
6. Recycle Pumps Required per Absorber	3 per Absorber	
7. Number of Absorbers	1 Absorbers	
8. Average Spurlock Unit 1 Load	320 MW	
9. Process Plant Hours of Operation	24 Hrs.	
10. lbs of dry gypsum per lb SO2 (pure CaCO3)	2.675	
11. Coal Burned in Unit 1 is based on the heat rate and mw produced.		
12. FGD Energy Consumption	9000 KW	
13. Plant Factor	0.88	
14. Operational hours per year	8,760 hours	
15. Labor (16 people, \$55,000, Benefits 1.55)	\$1,535,194.02 per year	\$767,597.01 <<PRB<< Labor (8 people, \$55,000, Benefits 1.55)
16. Reagent Costs (Lime/Limestone)	\$13.51 per ton	
17. Current Price for SO2 Allowances	\$1,107.00 per ton SO2	
18. Process Lime Costs	\$0.00 per ton	
19. Scrubber Landfill Costs	\$3.94 per ton	
20. Maintenance	\$1,898,733.36 per year	\$562,754.41 <<PRB<< Maintenance
21. Capacity Cost for MW	\$573,611.39 per year	
22. CAAA Allowances Spurlock Unit 1	9,841 year 2009	
23. PRB Capital Expenditure	\$50,000,000	
24. Scrubber Capital Expenditure (per J. Brandt 11/14/05)	\$145,000,000	
25. Capacity Replacement Cost (Gilbert Unit based for Replacement Power)	\$213.847 /KWY	\$11,984,170.20 <<PRB<< Repl. Energy Differential Cost
26. Carrying Cost (20 years)	10.560 %	
27. Ash Penalty for Boiler Maintenance	\$0.162 / % Ash / ton of Coal	
28. Ash Landfill Cost	\$3.939 per ton of Ash	
29. Annual payment for PRB Capital Expenditure (30 year)	\$5,280,000	
30. Annual payment for Scrubber Capital Expenditure (20 year)	\$15,312,000	
31. Annual Btu requirements for Unit 1 based on Heat Rate and Output	24,668,160 mmBtu/Y	

Coal Suppliers	Coal Del. Price (\$/mmBtu)	Coal Del. Cost (\$/Y)	Coal (T/Y)	Coal (Btu/lb.)	Sulfur (%)	Ash (%)	Boiler Maint (\$/Y)	SO2 Produced (T/Y)	SO2 Not Scrubbed (T/Y)	Allowance (\$)	Limestone (T/Y)	Limestone (\$/Y)	Dry Product (T/Y)	Landfill Cost (\$/Y)	FGD Energy Cost (\$/Y)	Boiler Maint (\$/Y)	Cost (\$/mmBtu)	Total Cost Fuel + FGD (\$/Y)
CAPP Pike	2.470	\$60,922,132	1,027,840	12,000	0.74	11.00	\$1,832,439	14,451	14,451	\$15,997,733	0	\$0	0	\$445,385	\$0	\$18,275,557	\$0.741	\$79,197,689
PRB S Gil.	1.713	\$42,265,230	1,401,600	8,800	0.36	5.00	\$1,135,809	9,587	9,587	\$10,612,747	0	\$0	0	\$276,065	\$0	\$30,619,143	\$1.241	\$72,884,373
3/4 CAPP 1/4 NAP-OH	1.676	\$41,343,836	1,038,659	11,875	3.04	11.00	\$1,851,728	59,993	1,200	\$1,328,244	119,386	\$1,612,440	203,216	\$1,250,598	\$1,924,620	\$26,713,558	\$1.083	\$68,057,394

2014

1. Average Heat Rate	10,000 Btu/kwH		
2. SO2 Removal Rate	98.00 %		
3. Lbs Reagent/Lb SO2 in gas	1.99 lbs. Limestone / lbs. SO2 Removed		
4. SO2 Produced	2.00 *(%S) / 100 = lbs. SO2 Produced / lb. Coal Fired		
5. Process Plant Lime Consumption	0 lbs. Process Lime Used / ton Dry Sludge		
6. Recycle Pumps Required per Absorber	3 per Absorber		
7. Number of Absorbers	1 Absorbers		
8. Average Spurlock Unit 1 Load	320 MW		
9. Process Plant Hours of Operation	24 Hrs.		
10. lbs of dry gypsum per lb SO2 (pure CaCO3)	2.675		
11. Coal Burned in Unit 1 is based on the heat rate and mw produced.			
12. FGD Energy Consumption	9000 KW		
13. Plant Factor	0.88		
14. Operational hours per year	8,760 hours		
15. Labor (16 people, \$55,000, Benefits 1.55)	\$1,581,249.84 per year	\$790,624.92 <<PRB<<	Labor (8 people, \$55,000, Benefits 1.55)
16. Reagent Costs (Lime/Limestone)	\$13.91 per ton		
17. Current Price for SO2 Allowances	\$1,080.00 per ton SO2		
18. Process Lime Costs	\$0.00 per ton		
19. Scrubber Landfill Costs	\$4.06 per ton		
20. Maintenance	\$1,955,695.36 per year	\$579,637.04 <<PRB<<	Maintenance
21. Capacity Cost for MW	\$590,819.73 per year		
22. CAAA Allowances Spurlock Unit 1	8,841 year 2009		
23. PRB Capital Expenditure	\$50,000,000		
24. Scrubber Capital Expenditure (per J. Brandt 11/14/05)	\$145,000,000		
25. Capacity Replacement Cost (Gilbert Unit based for Replacement Power)	\$220.262 /KWY	\$12,343,695.30 <<PRB<<	Repl. Energy Differential Cost
26. Carrying Cost (20 years)	10.460 %		
27. Ash Penalty for Boiler Maintenance	\$0.167 / % Ash / ton of Coal		
28. Ash Landfill Cost	\$4.057 per ton of Ash		
29. Annual payment for PRB Capital Expenditure (30 year)	\$5,230,000		
30. Annual payment for Scrubber Capital Expenditure (20 year)	\$15,197,000		
31. Annual Btu requirements for Unit 1 based on Heat Rate and Output	24,668,160 mmBtu/Y		

Coal Suppliers	Coal	Coal	Coal	Coal	Sulfur	Ash	Boiler	SO2	SO2 Not	Allowance	Limestone	Limestone	Dry Product	Landfill Cost	FGD Energy Cost	Boiler Maint	Cost	Total Cost
	Del. Price	Del. Cost	(T/Y)	(Btu/lb.)	(%)	(%)	Maint	Produced	Scrubbed	(\$)	(T/Y)	(\$/Y)	(T/Y)	(\$/Y)	(\$/Y)	(\$/Y)	(\$/mmBtu)	Fuel + FGD
	(\$/mmBtu)	(\$/Y)					(\$/Y)	(T/Y)	(T/Y)									(\$/Y)
CAPP Pike	2.509	\$61,894,042	1,027,840	12,000	0.74	11.00	\$1,887,412	14,451	14,451	\$15,607,545	0	\$0	0	\$458,746	\$0	\$17,953,703	\$0.728	\$79,847,745
PRB S Gil.	1.733	\$42,745,014	1,401,600	8,800	0.36	5.00	\$1,169,884	9,587	9,587	\$10,353,900	0	\$0	0	\$284,347	\$0	\$30,752,087	\$1.247	\$73,497,101
3/4 CAPP 1/4 NAP-OH	1.726	\$42,577,244	1,038,659	11,875	3.04	11.00	\$1,907,280	59,993	1,200	\$1,295,848	119,386	\$1,660,813	203,216	\$1,288,116	\$1,982,359	\$26,838,361	\$1.088	\$69,415,605

2015

1. Average Heat Rate	10,000 Btu/kwH	
2. SO2 Removal Rate	98.00 %	
3. Lbs Reagent/Lb SO2 in gas	1.99 lbs. Limestone / lbs. SO2 Removed	
4. SO2 Produced	2.00 *(%S) / 100 = lbs. SO2 Produced / lb. Coal Fired	
5. Process Plant Lime Consumption	0 lbs. Process Lime Used / ton Dry Sludge	
6. Recycle Pumps Required per Absorber	3 per Absorber	
7. Number of Absorbers	1 Absorbers	
8. Average Spurlock Unit 1 Load	320 MW	
9. Process Plant Hours of Operation	24 Hrs.	
10. lbs of dry gypsum per lb SO2 (pure CaCO3)	2.675	
11. Coal Burned in Unit 1 is based on the heat rate and mw produced.		
12. FGD Energy Consumption	9000 KW	
13. Plant Factor	0.88	
14. Operational hours per year	8,760 hours	
15. Labor (16 people, \$55,000, Benefits 1.55)	\$1,628,687.33 per year	\$814,343.67 <<PRB<< Labor (8 people, \$55,000, Benefits 1.55)
16. Reagent Costs (Lime/Limestone)	\$14.33 per ton	
17. Current Price for SO2 Allowances	\$1,188.00 per ton SO2	
18. Process Lime Costs	\$0.00 per ton	
19. Scrubber Landfill Costs	\$4.18 per ton	
20. Maintenance	\$2,014,366.22 per year	\$597,026.15 <<PRB<< Maintenance
21. Capacity Cost for MW	\$608,544.32 per year	
22. CAAA Allowances Spurlock Unit 1	9,841 year 2009	
23. PRB Capital Expenditure	\$50,000,000	
24. Scrubber Capital Expenditure (per J. Brandt 11/14/05)	\$145,000,000	
25. Capacity Replacement Cost (Gilbert Unit based for Replacement Power)	\$226.870 /KWY	\$12,714,006.16 <<PRB<< Repl. Energy Differential Cost
26. Carrying Cost (20 years)	10.360 %	
27. Ash Penalty for Boiler Maintenance	\$0.172 / % Ash / ton of Coal	
28. Ash Landfill Cost	\$4.179 per ton of Ash	
29. Annual payment for PRB Capital Expenditure (30 year)	\$5,180,000	
30. Annual payment for Scrubber Capital Expenditure (20 year)	\$15,022,000	
31. Annual Btu requirements for Unit 1 based on Heat Rate and Output	24,668,160 mmBtu/Y	

Coal Suppliers	Coal Del. Price (\$/mmBtu)	Coal Del. Cost (\$/Y)	Coal (T/Y)	Coal (Btu/lb.)	Sulfur (%)	Ash (%)	Boiler Maint (\$/Y)	SO2 Produced (T/Y)	SO2 Not Scrubbed (T/Y)	Allowance (\$)	Limestone (T/Y)	Limestone (\$/Y)	Dry Product (T/Y)	Landfill Cost (\$/Y)	FGD Energy Cost (\$/Y)	Boiler Maint (\$/Y)	Cost (\$/mmBtu)	Total Cost Fuel + FGD (\$/Y)
CAPP Pike	2.531	\$62,438,985	1,027,840	12,000	0.74	11.00	\$1,944,035	14,451	14,451	\$17,168,299	0	\$0	0	\$472,508	\$0	\$19,584,843	\$0.794	\$82,023,828
PRB S Gil.	1.753	\$43,249,199	1,401,600	8,800	0.36	5.00	\$1,204,980	9,587	9,587	\$11,389,289	0	\$0	0	\$292,877	\$0	\$32,192,523	\$1.305	\$75,441,722
3/4 CAPP 1/4 NAP-OH	1.780	\$43,909,325	1,038,659	11,875	3.04	11.00	\$1,964,498	59,993	1,200	\$1,425,433	119,386	\$1,710,638	203,216	\$1,326,759	\$2,041,829	\$27,134,211	\$1.100	\$71,043,536

2016

1. Average Heat Rate	10,000 Btu/kwH	
2. SO2 Removal Rate	98.00 %	
3. Lbs Reagent/Lb SO2 in gas	1.99 lbs. Limestone / lbs. SO2 Removed	
4. SO2 Produced	2.00 *(%S) / 100 = lbs. SO2 Produced / lb. Coal Fired	
5. Process Plant Lime Consumption	0 lbs. Process Lime Used / ton Dry Sludge	
6. Recycle Pumps Required per Absorber	3 per Absorber	
7. Number of Absorbers	1 Absorbers	
8. Average Spurlock Unit 1 Load	320 MW	
9. Process Plant Hours of Operation	24 Hrs.	
10. lbs of dry gypsum per lb SO2 (pure CaCO3)	2.675	
11. Coal Burned in Unit 1 is based on the heat rate and mw produced.		
12. FGD Energy Consumption	9000 KW	
13. Plant Factor	0.88	
14. Operational hours per year	8,760 hours	
15. Labor (16 people, \$55,000, Benefits 1.55)	\$1,677,547.95 per year	\$838,773.98 <<PRB<< Labor (8 people, \$55,000, Benefits 1.55)
16. Reagent Costs (Lime/Limestone)	\$14.76 per ton	
17. Current Price for SO2 Allowances	\$1,096.00 per ton SO2	
18. Process Lime Costs	\$0.00 per ton	
19. Scrubber Landfill Costs	\$4.30 per ton	
20. Maintenance	\$2,074,797.21 per year	\$614,936.93 <<PRB<< Maintenance
21. Capacity Cost for MW	\$626,800.65 per year	
22. GAAA Allowances Spurlock Unit 1	9,841 year 2009	
23. PRB Capital Expenditure	\$50,000,000	
24. Scrubber Capital Expenditure (per J. Brandt 11/14/05)	\$145,000,000	
25. Capacity Replacement Cost (Gilbert Unit based for Replacement Power)	\$233.676 /KWY	\$13,095,426.35 <<PRB<< Repl. Energy Differential Cost
26. Carrying Cost (20 years)	10.240 %	
27. Ash Penalty for Boiler Maintenance	\$0.177 / % Ash / ton of Coal	
28. Ash Landfill Cost	\$4.305 per ton of Ash	
29. Annual payment for PRB Capital Expenditure (30 year)	\$5,120,000	
30. Annual payment for Scrubber Capital Expenditure (20 year)	\$14,848,000	
31. Annual Btu requirements for Unit 1 based on Heat Rate and Output	24,668,160 mmBtu/Y	

Coal Suppliers	Coal Del. Price (\$/mmBtu)	Coal Del. Cost (\$/Y)	Coal (T/Y)	Coal (Btu/lb.)	Sulfur (%)	Ash (%)	Boiler Maint (\$/Y)	SO2 Produced (T/Y)	SO2 Not Scrubbed (T/Y)	Allowance (\$)	Limestone (T/Y)	Limestone (\$/Y)	Dry Product (T/Y)	Landfill Cost (\$/Y)	FGD Energy Cost (\$/Y)	Boiler Maint (\$/Y)	Cost (\$/mmBtu)	Total Cost Fuel + FGD (\$/Y)
CAPP Pike	2.564	\$63,243,191	1,027,840	12,000	0.74	11.00	\$2,002,356	14,451	14,451	\$15,838,768	0	\$0	0	\$486,684	\$0	\$18,327,807	\$0.743	\$81,570,998
PRB S Gil.	1.774	\$43,764,731	1,401,600	8,800	0.36	5.00	\$1,241,130	9,587	9,587	\$10,507,291	0	\$0	0	\$301,663	\$0	\$31,719,221	\$1.286	\$75,483,952
3/4 CAPP 1/4 NAP-OH	1.826	\$45,044,060	1,038,659	11,875	3.04	11.00	\$2,023,433	59,993	1,200	\$1,315,046	119,386	\$1,761,957	203,216	\$1,366,562	\$2,103,084	\$27,170,427	\$1.101	\$72,214,488

1. Average Heat Rate	10,000 Btu/kwH	
2. SO2 Removal Rate	98.00 %	
3. Lbs Reagent/Lb SO2 in gas	1.99 lbs. Limestone / lbs. SO2 Removed	
4. SO2 Produced	2.00 *(%S) / 100 = lbs. SO2 Produced / lb. Coal Fired	
5. Process Plant Lime Consumption	0 lbs. Process Lime Used / ton Dry Sludge	
6. Recycle Pumps Required per Absorber	3 per Absorber	
7. Number of Absorbers	1 Absorbers	
8. Average Spurlock Unit 1 Load	320 MW	
9. Process Plant Hours of Operation	24 Hrs.	
10. lbs of dry gypsum per lb SO2 (pure CaCO3)	2.675	
11. Coal Burned in Unit 1 is based on the heat rate and mw produced.		
12. FGD Energy Consumption	9000 KW	
13. Plant Factor	0.88	
14. Operational hours per year	8,760 hours	
15. Labor (18 people, \$55,000, Benefits 1.55)	\$1,727,874.39 per year	\$863,937.20 <<PRB<< Labor (8 people, \$55,000, Benefits 1.55)
16. Reagent Costs (Lime/Limestone)	\$15.20 per ton	
17. Current Price for SO2 Allowances	\$892.00 per ton SO2	
18. Process Lime Costs	\$0.00 per ton	
19. Scrubber Landfill Costs	\$4.43 per ton	
20. Maintenance	\$2,137,041.13 per year	\$633,385.04 <<PRB<< Maintenance
21. Capacity Cost for MW	\$645,604.67 per year	
22. CAAA Allowances Spurlock Unit 1	9,841 year 2009	
23. PRB Capital Expenditure	\$50,000,000	
24. Scrubber Capital Expenditure (per J. Brandt 11/14/05)	\$145,000,000	
25. Capacity Replacement Cost (Gilbert Unit based for Replacement Power)	\$240.686 /KWY	\$13,488,289.14 <<PRB<< Repl. Energy Differential Cost
26. Carrying Cost (20 years)	10.120 %	
27. Ash Penalty for Boiler Maintenance	\$0.182 / % Ash / ton of Coal	
28. Ash Landfill Cost	\$4.434 per ton of Ash	
29. Annual payment for PRB Capital Expenditure (30 year)	\$5,060,000	
30. Annual payment for Scrubber Capital Expenditure (20 year)	\$14,674,000	
31. Annual Btu requirements for Unit 1 based on Heat Rate and Output	24,668,160 mmBtu/Y	

Coal Suppliers	Coal Del. Price (\$/mmBtu)	Coal Del. Cost (\$/Y)	Coal (T/Y)	Coal (Btu/lb.)	Sulfur (%)	Ash (%)	Boiler Maint (\$/Y)	SO2 Produced (T/Y)	SO2 Not Scrubbed (T/Y)	Allowance (\$)	Limestone (T/Y)	Limestone (\$/Y)	Dry Product (T/Y)	Landfill Cost (\$/Y)	FGD Energy Cost (\$/Y)	Boiler Maint (\$/Y)	Cost (\$/mmBtu)	Total Cost Fuel + FGD (\$/Y)
CAPP Pike	2.605	\$64,257,236	1,027,840	12,000	0.74	11.00	\$2,062,427	14,451	14,451	\$12,890,676	0	\$0	0	\$501,284	\$0	\$15,454,387	\$0.626	\$79,711,622
PRB S Gil.	1.796	\$44,291,874	1,401,600	8,800	0.36	5.00	\$1,278,364	9,587	9,587	\$8,551,554	0	\$0	0	\$310,713	\$0	\$30,186,242	\$1.224	\$74,478,116
3/4 CAPP 1/4 NAP-OH	1.872	\$46,178,796	1,038,659	11,875	3.04	11.00	\$2,084,136	59,993	1,200	\$1,070,274	119,366	\$1,814,815	203,216	\$1,407,559	\$2,166,177	\$27,081,878	\$1.098	\$73,260,673

2018

1. Average Heat Rate	10,000 Btu/kwh	
2. SO2 Removal Rate	98.00 %	
3. Lbs Reagent/Lb SO2 in gas	1.99 lbs. Limestone / lbs. SO2 Removed	
4. SO2 Produced	2.00 *(%S) / 100 = lbs. SO2 Produced / lb. Coal Fired	
5. Process Plant Lime Consumption	0 lbs. Process Lime Used / ton Dry Sludge	
6. Recycle Pumps Required per Absorber	3 per Absorber	
7. Number of Absorbers	1 Absorbers	
8. Average Spurlock Unit 1 Load	320 MW	
9. Process Plant Hours of Operation	24 Hrs.	
10. lbs of dry gypsum per lb SO2 (pure CaCO3)	2.675	
11. Coal Burned in Unit 1 is based on the heat rate and mw produced.		
12. FGD Energy Consumption	9000 KW	
13. Plant Factor	0.88	
14. Operational hours per year	8,760 hours	
15. Labor (16 people, \$55,000, Benefits 1.55)	\$1,779,710.62 per year	\$889,855.31 <<PRB<< Labor (8 people, \$55,000, Benefits 1.55)
16. Reagent Costs (Lime/Limestone)	\$15.66 per ton	
17. Current Price for SO2 Allowances	\$727.00 per ton SO2	
18. Process Lime Costs	\$0.00 per ton	
19. Scrubber Landfill Costs	\$4.57 per ton	
20. Maintenance	\$2,201,152.36 per year	\$652,386.59 <<PRB<< Maintenance
21. Capacity Cost for MW	\$664,972.81 per year	
22. CAAA Allowances Spurlock Unit 1	9.841 year 2009	
23. PRB Capital Expenditure	\$50,000,000	
24. Scrubber Capital Expenditure (per J. Brandt 11/14/05)	\$145,000,000	
25. Capacity Replacement Cost (Gilbert Unit based for Replacement Power)	\$247.907 /KWY	\$13,892,937.81 <<PRB<< Repl. Energy Differential Cost
26. Carrying Cost (20 years)	10.000 %	
27. Ash Penalty for Boiler Maintenance	\$0.188 / % Ash / ton of Coal	
28. Ash Landfill Cost	\$4.567 per ton of Ash	
29. Annual payment for PRB Capital Expenditure (30 year)	\$5,000,000	
30. Annual payment for Scrubber Capital Expenditure (20 year)	\$14,500,000	
31. Annual Btu requirements for Unit 1 based on Heat Rate and Output	24,668,160 mmBtu/Y	

Coal Suppliers		Coal Del. Price (\$/mmBtu)	Coal Del. Cost (\$/Y)	Coal (T/Y)	Coal (Btu/lb.)	Sulfur (%)	Ash (%)	Boiler Maint (\$/Y)	SO2 Produced (T/Y)	SO2 Not Scrubbed (T/Y)	Allowance (\$)	Limestone (T/Y)	Limestone (\$/Y)	Dry Product (T/Y)	Landfill Cost (\$/Y)	FGD Energy Cost (\$/Y)	O&M + Capital + Allowance + Landfill + Energy + Boiler Maint (\$/Y)	Cost (\$/mmBtu)	Total Cost Fuel + FGD (\$/Y)
CAPP	Pike	2.653	\$65,451,348	1,027,840	12,000	0.74	11.00	\$2,124,299	14,451	14,451	\$10,506,190	0	\$0	0	\$516,323	\$0	\$13,146,812	\$0.533	\$78,598,160
PRB	S Gil.	1.817	\$44,833,668	1,401,600	8,800	0.36	5.00	\$1,316,714	9,587	9,587	\$6,969,708	0	\$0	0	\$320,035	\$0	\$29,041,637	\$1.177	\$73,875,306
3/4 CAPP	1/4 NAP-OH	1.920	\$47,362,867	1,038,659	11,875	3.04	11.00	\$2,146,660	59,993	1,200	\$872,298	119,386	\$1,869,260	203,216	\$1,449,786	\$2,231,162	\$27,050,029	\$1.097	\$74,412,896

2019

1. Average Heat Rate	10,000 Btu/kWh	
2. SO2 Removal Rate	98.00 %	
3. Lbs Reagent/Lb SO2 in gas	1.99 lbs. Limestone / lbs. SO2 Removed	
4. SO2 Produced	2.00 *(%S) / 100 = lbs. SO2 Produced / lb. Coal Fired	
5. Process Plant Lime Consumption	0 lbs. Process Lime Used / ton Dry Sludge	
6. Recycle Pumps Required per Absorber	3 per Absorber	
7. Number of Absorbers	1 Absorbers	
8. Average Spurlock Unit 1 Load	320 MW	
9. Process Plant Hours of Operation	24 Hrs.	
10. lbs of dry gypsum per lb SO2 (pure CaCO3)	2.675	
11. Coal Burned In Unit 1 is based on the heat rate and mw produced.		
12. FGD Energy Consumption	9000 KW	
13. Plant Factor	0.88	
14. Operational hours per year	8,760 hours	
15. Labor (16 people, \$55,000, Benefits 1.55)	\$1,833,101.94 per year	\$916,550.97 <<PRB<< Labor (8 people, \$55,000, Benefits 1.55)
16. Reagent Costs (Lime/Limestone)	\$16.13 per ton	
17. Current Price for SO2 Allowances	\$592.00 per ton SO2	
18. Process Lime Costs	\$0.00 per ton	
19. Scrubber Landfill Costs	\$4.70 per ton	
20. Maintenance	\$2,267,186.93 per year	\$671,958.19 <<PRB<< Maintenance
21. Capacity Cost for MW	\$684,922.00 per year	
22. CAAA Allowances Spurlock Unit 1	9,841 year 2009	
23. PRB Capital Expenditure	\$50,000,000	
24. Scrubber Capital Expenditure (per J. Brandt 11/14/05)	\$145,000,000	
25. Capacity Replacement Cost (Gilbert Unit based for Replacement Power)	\$255.344 /KWY	\$14,309,725.95 <<PRB<< Repl. Energy Differential Cost
26. Carrying Cost (20 years)	9.860 %	
27. Ash Penalty for Boiler Maintenance	\$0.194 / % Ash / ton of Coal	
28. Ash Landfill Cost	\$4.704 per ton of Ash	
29. Annual payment for PRB Capital Expenditure (30 year)	\$4,930,000	
30. Annual payment for Scrubber Capital Expenditure (20 year)	\$14,297,000	
31. Annual Btu requirements for Unit 1 based on Heat Rate and Output	24,668,160 mmBtu/Y	

Coal Suppliers	Coal Def. Price (\$/mmBtu)	Coal Del. Cost (\$/Y)	Coal (T/Y)	Coal (Btu/lb.)	Sulfur (%)	Ash (%)	Boiler Maint (\$/Y)	SO2 Produced (T/Y)	SO2 Not Scrubbed (T/Y)	Allowance (\$)	Limestone (T/Y)	Limestone (\$/Y)	Dry Product (T/Y)	Landfill Cost (\$/Y)	FGD Energy Cost (\$/Y)	Boiler Maint (\$/Y)	Cost (\$/mmBtu)	Total Cost Fuel + FGD (\$/Y)
CAPP Pike	2.707	\$66,788,238	1,027,840	12,000	0.74	11.00	\$2,188,028	14,451	14,451	\$8,555,247	0	\$0	0	\$531,812	\$0	\$11,275,088	\$0.457	\$78,063,326
PRB S Gil.	1.840	\$45,385,292	1,401,600	8,800	0.36	5.00	\$1,356,216	9,587	9,587	\$5,675,471	0	\$0	0	\$329,636	\$0	\$28,189,558	\$1.143	\$73,574,850
3/4 CAPP 1/4 NAP-OH	1.944	\$47,954,903	1,038,659	11,875	3.04	11.00	\$2,211,060	59,993	1,200	\$710,317	119,386	\$1,925,338	203,216	\$1,493,279	\$2,298,097	\$27,035,360	\$1.096	\$74,990,283

2020

1. Average Heat Rate	10,000 Btu/kwH	
2. SO2 Removal Rate	98.00 %	
3. Lbs Reagent/Lb SO2 in gas	1.99 lbs. Limestone / lbs. SO2 Removed	
4. SO2 Produced	2.00 *(%S) / 100 = lbs. SO2 Produced / lb. Coal Fired	
5. Process Plant Lime Consumption	0 lbs. Process Lime Used / ton Dry Sludge	
6. Recycle Pumps Required per Absorber	3 per Absorber	
7. Number of Absorbers	1 Absorbers	
8. Average Spurlock Unit 1 Load	320 MW	
9. Process Plant Hours of Operation	24 Hrs.	
10. lbs of dry gypsum per lb SO2 (pure CaCO3)	2.675	
11. Coal Burned in Unit 1 is based on the heat rate and mw produced.		
12. FGD Energy Consumption	9000 KW	
13. Plant Factor	0.88	
14. Operational hours per year	8,760 hours	
15. Labor (16 people, \$55,000, Benefits 1.55)	\$1,888,095.00 per year	\$944,047.50 <<PRB<< Labor (8 people, \$55,000, Benefits 1.55)
16. Reagent Costs (Lime/Limestone)	\$16.61 per ton	
17. Current Price for SO2 Allowances	\$482.00 per ton SO2	
18. Process Lime Costs	\$0.00 per ton	
19. Scrubber Landfill Costs	\$4.84 per ton	
20. Maintenance	\$2,335,202.54 per year	\$692,116.94 <<PRB<< Maintenance
21. Capacity Cost for MW	\$705,469.66 per year	
22. CAAA Allowances Spurlock Unit 1	9,841 year 2009	
23. PRB Capital Expenditure	\$50,000,000	
24. Scrubber Capital Expenditure (per J. Brandt 11/14/05)	\$145,000,000	
25. Capacity Replacement Cost (Gilbert Unit based for Replacement Power)	\$263.004 /KWY	\$14,739,017.72 <<PRB<< Repl. Energy Differential Cost
26. Carrying Cost (20 years)	9.710 %	
27. Ash Penalty for Boiler Maintenance	\$0.199 / % Ash / ton of Coal	
28. Ash Landfill Cost	\$4.845 per ton of Ash	
29. Annual payment for PRB Capital Expenditure (30 year)	\$4,855,000	
30. Annual payment for Scrubber Capital Expenditure (20 year)	\$14,079,500	
31. Annual Btu requirements for Unit 1 based on Heat Rate and Output	24,668,160 mmBtu/Y	

Coal Suppliers	Coal	Coal	Coal	Coal	Sulfur	Ash	Boiler	SO2	SO2 Not	Allowance	Limestone	Limestone	Dry Product	Landfill Cost	FGD Energy Cost	Boiler Maint	Cost	Total Cost
	Del. Price	Del. Cost	(T/Y)	(Btu/lb.)	(%)	(%)	Maint	Produced	Scrubbed	(\$)	(T/Y)	(\$/Y)	(T/Y)	(\$/Y)	(\$/Y)	(\$/Y)	(\$/mmBtu)	(\$/Y)
CAPP Pike	2.770	\$68,334,713	1,027,840	12,000	0.74	11.00	\$2,253,669	14,451	14,451	\$6,965,589	0	\$0	0	\$547,767	\$0	\$9,767,025	\$0.396	\$78,101,739
PRB S Gil.	1.863	\$45,952,123	1,401,600	8,800	0.36	5.00	\$1,396,902	9,587	9,587	\$4,620,907	0	\$0	0	\$339,525	\$0	\$27,587,516	\$1.118	\$73,539,639
3/4 CAPP 1/4 NAP-OH	1.973	\$48,670,280	1,038,659	11,875	3.04	11.00	\$2,277,392	59,993	1,200	\$578,332	119,386	\$1,983,098	203,216	\$1,538,078	\$2,367,040	\$27,046,737	\$1.096	\$75,717,017

2021

1. Average Heat Rate	10,000 Btu/kwH	
2. SO2 Removal Rate	98.00 %	
3. Lbs Reagent/Lb SO2 in gas	1.99 lbs. Limestone / lbs. SO2 Removed	
4. SO2 Produced	2.00 *(%S) / 100 = lbs. SO2 Produced / lb. Coal Fired	
5. Process Plant Lime Consumption	0 lbs. Process Lime Used / ton Dry Sludge	
6. Recycle Pumps Required per Absorber	3 per Absorber	
7. Number of Absorbers	1 Absorbers	
8. Average Spurlock Unit 1 Load	320 MW	
9. Process Plant Hours of Operation	24 Hrs.	
10. lbs of dry gypsum per lb SO2 (pure CaCO3)	2.675	
11. Coal Burned in Unit 1 is based on the heat rate and mw produced.		
12. FGD Energy Consumption	9000 KW	
13. Plant Factor	0.88	
14. Operational hours per year	8,760 hours	
15. Labor (16 people, \$55,000, Benefits 1.55)	\$1,944,737.85 per year	\$972,368.92 <<PRB<< Labor (8 people, \$55,000, Benefits 1.55)
16. Reagent Costs (Lime/Limestone)	\$17.11 per ton	
17. Current Price for SO2 Allowances	\$392.00 per ton SO2	
18. Process Lime Costs	\$0.00 per ton	
19. Scrubber Landfill Costs	\$4.99 per ton	
20. Maintenance	\$2,405,258.62 per year	\$712,880.44 <<PRB<< Maintenance
21. Capacity Cost for MW	\$726,633.75 per year	
22. CAAA Allowances Spurlock Unit 1	9,841 year 2009	
23. PRB Capital Expenditure	\$50,000,000	
24. Scrubber Capital Expenditure (per J. Brandt 11/14/05)	\$145,000,000	
25. Capacity Replacement Cost (Gilbert Unit based for Replacement Power)	\$270.695 /KWY	\$15,161,168.26 <<PRB<< Repl. Energy Differential Cost
26. Carrying Cost (20 years)	9.550 %	
27. Ash Penalty for Boiler Maintenance	\$0.205 / % Ash / ton of Coal	
28. Ash Landfill Cost	\$4.990 per ton of Ash	
29. Annual payment for PRB Capital Expenditure (30 year)	\$4,775,000	
30. Annual payment for Scrubber Capital Expenditure (20 year)	\$13,847,500	
31. Annual Btu requirements for Unit 1 based on Heat Rate and Output	24,668,160 mmBtu/Y	

Coal Suppliers	Coal Del. Price (\$/mmBtu)	Coal Del. Cost (\$/Y)	Coal (T/Y)	Coal (Btu/lb.)	Sulfur (%)	Ash (%)	Boiler Maint (\$/Y)	SO2 Produced (T/Y)	SO2 Not Scrubbed (T/Y)	Allowance (\$)	Limestone (T/Y)	Limestone (\$/Y)	Dry Product (T/Y)	Landfill Cost (\$/Y)	FGD Energy Cost (\$/Y)	O&M + Capital + Allowance + Landfill + Energy + Boiler Maint (\$/Y)	Cost (\$/mmBtu)	Total Cost Fuel + FGD (\$/Y)
CAPP Pike	2.841	\$70,074,165	1,027,840	12,000	0.74	11.00	\$2,321,279	14,451	14,451	\$5,664,961	0	\$0	0	\$564,200	\$0	\$8,550,440	\$0.347	\$78,624,605
PRB S Gil.	1.884	\$46,472,938	1,401,600	8,800	0.36	5.00	\$1,438,809	9,587	9,587	\$3,758,082	0	\$0	0	\$349,711	\$0	\$27,188,040	\$1.102	\$73,660,978
3/4 CAPP 1/4 NAP-OH	2.003	\$49,410,324	1,038,659	11,875	3.04	11.00	\$2,345,714	59,993	1,200	\$470,345	119,386	\$2,042,591	203,216	\$1,584,220	\$2,438,051	\$27,078,417	\$1.098	\$76,488,741

2022

1. Average Heat Rate	10,000 Btu/kwh	
2. SO2 Removal Rate	98.00 %	
3. Lbs Reagent/Lb SO2 in gas	1.99 lbs. Limestone / lbs. SO2 Removed	
4. SO2 Produced	2.00 *(%S) / 100 = lbs. SO2 Produced / lb. Coal Fired	
5. Process Plant Lime Consumption	0 lbs. Process Lime Used / ton Dry Sludge	
6. Recycle Pumps Required per Absorber	3 per Absorber	
7. Number of Absorbers	1 Absorbers	
8. Average Spurlock Unit 1 Load	320 MW	
9. Process Plant Hours of Operation	24 Hrs.	
10. lbs of dry gypsum per lb SO2 (pure CaCO3)	2.675	
11. Coal Burned in Unit 1 is based on the heat rate and mw produced.		
12. FGD Energy Consumption	9000 KW	
13. Plant Factor	0.88	
14. Operational hours per year	8,760 hours	
15. Labor (16 people, \$55,000, Benefits 1.55)	\$2,003,079.99 per year	\$1,001,539.99 <<PRB<< Labor (8 people, \$55,000, Benefits 1.55)
16. Reagent Costs (Lime/Limestone)	\$17.62 per ton	
17. Current Price for SO2 Allowances	\$320.00 per ton SO2	
18. Process Lime Costs	\$0.00 per ton	
19. Scrubber Landfill Costs	\$5.14 per ton	
20. Maintenance	\$2,477,416.37 per year	\$734,266.86 <<PRB<< Maintenance
21. Capacity Cost for MW	\$748,432.76 per year	
22. CAAA Allowances Spurlock Unit 1	9,841 year 2009	
23. PRB Capital Expenditure	\$50,000,000	
24. Scrubber Capital Expenditure (per J. Brandt 11/14/05)	\$145,000,000	
25. Capacity Replacement Cost (Gilbert Unit based for Replacement Power)	\$279,021 /KWY	\$15,836,623.90 <<PRB<< Repl. Energy Differential Cost
26. Carrying Cost (20 years)	9.380 %	
27. Ash Penalty for Boiler Maintenance	\$0.211 / % Ash / ton of Coal	
28. Ash Landfill Cost	\$5.140 per ton of Ash	
29. Annual payment for PRB Capital Expenditure (30 year)	\$4,690,000	
30. Annual payment for Scrubber Capital Expenditure (20 year)	\$13,601,000	
31. Annual Btu requirements for Unit 1 based on Heat Rate and Output	24,668,160 mmBtu/Y	

Coal Suppliers	Coal Del. Price (\$/mmBtu)	Coal Del. Cost (\$/Y)	Coal (T/Y)	Coal (Btu/lb.)	Sulfur (%)	Ash (%)	Boiler Maint (\$/Y)	SO2 Produced (T/Y)	SO2 Not Scrubbed (T/Y)	Allowance (\$)	Limestone (T/Y)	Limestone (\$/Y)	Dry Product (T/Y)	Landfill Cost (\$/Y)	FGD Energy Cost (\$/Y)	Boiler Maint (\$/Y)	Cost (\$/mmBtu)	Total Cost Fuel + FGD (\$/Y)
CAPP Pike	2.920	\$72,034,357	1,027,840	12,000	0.74	11.00	\$2,390,918	14,451	14,451	\$4,624,458	0	\$0	0	\$581,126	\$0	\$7,596,501	\$0.308	\$79,630,858
PRB S Gil.	1.905	\$47,005,063	1,401,600	8,800	0.36	5.00	\$1,481,974	9,587	9,587	\$3,067,822	0	\$0	0	\$360,202	\$0	\$26,972,429	\$1.093	\$73,977,491
3/4 CAPP 1/4 NAP-OH	2.045	\$50,446,387	1,038,659	11,875	3.04	11.00	\$2,416,085	59,993	1,200	\$383,955	119,386	\$2,103,868	203,216	\$1,631,747	\$2,511,193	\$27,128,344	\$1.100	\$77,574,731

1. Average Heat Rate	10,000 Btu/kwH	
2. SO2 Removal Rate	98.00 %	
3. Lbs Reagent/Lb SO2 in gas	1.99 lbs. Limestone / lbs. SO2 Removed	
4. SO2 Produced	2.00 *(%S) / 100 = lbs. SO2 Produced / lb. Coal Fired	
5. Process Plant Lime Consumption	0 lbs. Process Lime Used / ton Dry Sludge	
6. Recycle Pumps Required per Absorber	3 per Absorber	
7. Number of Absorbers	1 Absorbers	
8. Average Spurlock Unit 1 Load	320 MW	
9. Process Plant Hours of Operation	24 Hrs.	
10. lbs of dry gypsum per lb SO2 (pure CaCO3)	2.675	
11. Coal Burned in Unit 1 is based on the heat rate and mw produced.		
12. FGD Energy Consumption	9000 KW	
13. Plant Factor	0.88	
14. Operational hours per year	8,760 hours	
15. Labor (16 people, \$55,000, Benefits 1.55)	\$2,063,172.38 per year	\$1,031,586.19 <<PRB<< Labor (8 people, \$55,000, Benefits 1.55)
16. Reagent Costs (Lime/Limestone)	\$18.15 per ton	
17. Current Price for SO2 Allowances	\$342.00 per ton SO2	
18. Process Lime Costs	\$0.00 per ton	
19. Scrubber Landfill Costs	\$5.29 per ton	
20. Maintenance	\$2,551,738.87 per year	\$756,294.86 <<PRB<< Maintenance
21. Capacity Cost for MW	\$770,885.74 per year	
22. CAAA Allowances Spurlock Unit 1	9,841 year 2009	
23. PRB Capital Expenditure	\$50,000,000	
24. Scrubber Capital Expenditure (per J. Brandt 11/14/05)	\$145,000,000	
25. Capacity Replacement Cost (Gilbert Unit based for Replacement Power)	\$287.392 /KWY	\$16,105,722.62 <<PRB<< Repl. Energy Differential Cost
26. Carrying Cost (20 years)	9.200 %	
27. Ash Penalty for Boiler Maintenance	\$0.218 / % Ash / ton of Coal	
28. Ash Landfill Cost	\$5.294 per ton of Ash	
29. Annual payment for PRB Capital Expenditure (30 year)	\$4,600,000	
30. Annual payment for Scrubber Capital Expenditure (20 year)	\$13,340,000	
31. Annual Btu requirements for Unit 1 based on Heat Rate and Output	24,668,160 mmBtu/Y	

Coal Suppliers		Coal	Coal	Coal	Coal	Sulfur	Ash	Boiler	SO2	SO2 Not	Allowance	Limestone	Limestone	Dry Product	Landfill Cost	FGD Energy Cost	Boiler Maint	Cost	Total Cost
		Del. Price	Del. Cost	(T/Y)	(Btu/lb.)	(%)	(%)	Maint	Produced	Scrubbed	(\$)	(T/Y)	(\$/Y)	(T/Y)	(\$/Y)	(\$/Y)	(\$/Y)	(\$/mmBtu)	Fuel + FGD
		(\$/mmBtu)	(\$/Y)					(\$/Y)	(T/Y)	(T/Y)									(\$/Y)
CAPP	Pike	3.004	\$74,098,222	1,027,840	12,000	0.74	11.00	\$2,462,645	14,451	14,451	\$4,942,389	0	\$0	0	\$598,560	\$0	\$8,003,594	\$0.324	\$82,101,816
PRB	S Gil.	1.927	\$47,545,433	1,401,600	8,800	0.36	5.00	\$1,526,433	9,587	9,587	\$3,276,735	0	\$0	0	\$371,008	\$0	\$27,669,779	\$1.122	\$75,215,212
3/4 CAPP	1/4 NAP-OH	2.100	\$51,803,136	1,038,659	11,875	3.04	11.00	\$2,488,568	59,993	1,200	\$410,352	119,386	\$2,166,984	203,216	\$1,680,699	\$2,586,528	\$27,288,043	\$1.106	\$79,091,179

1. Average Heat Rate	10,000 Btu/kwH		
2. SO2 Removal Rate	98.00 %		
3. Lbs Reagent/Lb SO2 in gas	1.99 lbs. Limestone / lbs. SO2 Removed		
4. SO2 Produced	2.00 *(%S) / 100 = lbs. SO2 Produced / lb. Coal Fired		
5. Process Plant Lime Consumption	0 lbs. Process Lime Used / ton Dry Sludge		
6. Recycle Pumps Required per Absorber	3 per Absorber		
7. Number of Absorbers	1 Absorbers		
8. Average Spurlock Unit 1 Load	320 MW		
9. Process Plant Hours of Operation	24 Hrs.		
10. lbs of dry gypsum per lb SO2 (pure CaCO3)	2.675		
11. Coal Burned in Unit 1 is based on the heat rate and mw produced.			
12. FGD Energy Consumption	9000 KW		
13. Plant Factor	0.88		
14. Operational hours per year	8,760 hours		
15. Labor (16 people, \$55,000, Benefits 1.55)	\$2,125,067.56 per year	\$1,062,533.78	<<PRB<< Labor (8 people, \$55,000, Benefits 1.55)
16. Reagent Costs (Lime/Limestone)	\$18.70 per ton		
17. Current Price for SO2 Allowances	\$388.00 per ton SO2		
18. Process Lime Costs	\$0.00 per ton		
19. Scrubber Landfill Costs	\$5.45 per ton		
20. Maintenance	\$2,628,291.03 per year	\$778,983.71	<<PRB<< Maintenance
21. Capacity Cost for MW	\$794,012.32 per year		
22. CAAA Allowances Spurlock Unit 1	9,841 year 2009		
23. PRB Capital Expenditure	\$50,000,000		
24. Scrubber Capital Expenditure (per J. Brandt 11/14/05)	\$145,000,000		
25. Capacity Replacement Cost (Gilbert Unit based for Replacement Power)	\$296.014 /KWY	\$16,588,894.30	<<PRB<< Repl. Energy Differential Cost
26. Carrying Cost (20 years)	9.000 %		
27. Ash Penalty for Boiler Maintenance	\$0.224 / % Ash / ton of Coal		
28. Ash Landfill Cost	\$5.453 per ton of Ash		
29. Annual payment for PRB Capital Expenditure (30 year)	\$4,500,000		
30. Annual payment for Scrubber Capital Expenditure (20 year)	\$13,050,000		
31. Annual Btu requirements for Unit 1 based on Heat Rate and Output	24,668,160 mmBtu/Y		

Coal Suppliers	Coal Del. Price (\$/mmBtu)	Coal Del. Cost (\$/Y)	Coal (T/Y)	Coal (Btu/lb.)	Sulfur (%)	Ash (%)	Boiler Maint (\$/Y)	SO2 Produced (T/Y)	SO2 Not Scrubbed (T/Y)	Allowance (\$)	Limestone (T/Y)	Limestone (\$/Y)	Dry Product (T/Y)	Landfill Cost (\$/Y)	FGD Energy Cost (\$/Y)	Boiler Maint (\$/Y)	Cost (\$/mmBtu)	Total Cost Fuel + FGD (\$/Y)
CAPP Pike	3.100	\$76,461,312	1,027,840	12,000	0.74	11.00	\$2,536,525	14,451	14,451	\$5,318,126	0	\$0	0	\$616,516	\$0	\$8,471,167	\$0.343	\$84,932,479
PRB S Gil.	1.950	\$48,100,240	1,401,600	8,800	0.36	5.00	\$1,572,226	9,587	9,587	\$3,527,995	0	\$0	0	\$382,138	\$0	\$28,412,771	\$1.152	\$76,513,011
3/4 CAPP 1/4 NAP-OH	2.157	\$53,209,221	1,038,659	11,875	3.04	11.00	\$2,563,225	59,993	1,200	\$441,548	119,386	\$2,231,994	203,216	\$1,731,120	\$2,664,124	\$27,435,370	\$1.112	\$80,644,591

2025

1. Average Heat Rate	10,000 Btu/kwH		
2. SO2 Removal Rate	98.00 %		
3. Lbs Reagent/Lb SO2 in gas	1.99 lbs. Limestone / lbs. SO2 Removed		
4. SO2 Produced	2.00 *(%S) / 100 = lbs. SO2 Produced / lb. Coal Fired		
5. Process Plant Lime Consumption	0 lbs. Process Lime Used / ton Dry Sludge		
6. Recycle Pumps Required per Absorber	3 per Absorber		
7. Number of Absorbers	1 Absorbers		
8. Average Spurlock Unit 1 Load	320 MW		
9. Process Plant Hours of Operation	24 Hrs.		
10. lbs of dry gypsum per lb SO2 (pure CaCO3)	2.675		
11. Coal Burned in Unit 1 is based on the heat rate and mw produced.			
12. FGD Energy Consumption	9000 KW		
13. Plant Factor	0.88		
14. Operational hours per year	8,760 hours		
15. Labor (16 people, \$55,000, Benefits 1.55)	\$2,188,819.58 per year	\$1,094,409.79	<<PRB<< Labor (8 people, \$55,000, Benefits 1.55)
16. Reagent Costs (Lime/Limestone)	\$19.26 per ton		
17. Current Price for SO2 Allowances	\$398.00 per ton SO2		
18. Process Lime Costs	\$0.00 per ton		
19. Scrubber Landfill Costs	\$5.62 per ton		
20. Maintenance	\$2,707,139.76 per year	\$802,353.22	<<PRB<< Maintenance
21. Capacity Cost for MW	\$817,832.69 per year		
22. CAAA Allowances Spurlock Unit 1	9,841 year 2009		
23. PRB Capital Expenditure	\$50,000,000		
24. Scrubber Capital Expenditure (per J. Brandt 11/14/05)	\$145,000,000		
25. Capacity Replacement Cost (Gilbert Unit based for Replacement Power)	\$304.894 /KWY	\$17,086,561.13	<<PRB<< Repl. Energy Differential Cost
26. Carrying Cost (20 years)	8.790 %		
27. Ash Penalty for Boiler Maintenance	\$0.231 / % Ash / ton of Coal		
28. Ash Landfill Cost	\$5.616 per ton of Ash		
29. Annual payment for PRB Capital Expenditure (30 year)	\$4,395,000		
30. Annual payment for Scrubber Capital Expenditure (20 year)	\$12,745,500		
31. Annual Btu requirements for Unit 1 based on Heat Rate and Output	24,668,160 mmBtu/Y		

Coal Suppliers	Coal Del. Price (\$/mmBtu)	Coal Del. Cost (\$/Y)	Coal (T/Y)	Coal (Btu/lb.)	Sulfur (%)	Ash (%)	Boiler Maint (\$/Y)	SO2 Produced (T/Y)	SO2 Not Scrubbed (T/Y)	Allowance (\$)	Limestone (T/Y)	Limestone (\$/Y)	Dry Product (T/Y)	Landfill Cost (\$/Y)	FGD Energy Cost (\$/Y)	O&M + Capital + Allowance + Landfill + Energy + Boiler Maint (\$/Y)	Cost (\$/mmBtu)	Total Cost Fuel + FGD (\$/Y)
CAPP Pike	3.203	\$79,001,794	1,027,840	12,000	0.74	11.00	\$2,612,620	14,451	14,451	\$5,751,669	0	\$0	0	\$635,012	\$0	\$8,999,301	\$0.365	\$88,001,095
PRB S Gil.	1.973	\$48,662,340	1,401,600	8,800	0.36	5.00	\$1,619,393	9,587	9,587	\$3,815,604	0	\$0	0	\$393,602	\$0	\$29,206,923	\$1.184	\$77,869,263
3/4 CAPP 1/4 NAP-OH	2.215	\$54,639,974	1,038,659	11,875	3.04	11.00	\$2,640,122	59,993	1,200	\$477,544	119,386	\$2,298,954	203,216	\$1,783,054	\$2,744,048	\$27,585,180	\$1.118	\$82,225,155

1. Average Heat Rate	10,000 Btu/kwH		
2. SO2 Removal Rate	98.00 %		
3. Lbs Reagent/Lb SO2 in gas	1.99 lbs. Limestone / lbs. SO2 Removed		
4. SO2 Produced	2.00 *(%S) / 100 = lbs. SO2 Produced / lb. Coal Fired		
5. Process Plant Lime Consumption	0 lbs. Process Lime Used / ton Dry Sludge		
6. Recycle Pumps Required per Absorber	3 per Absorber		
7. Number of Absorbers	1 Absorbers		
8. Average Spurlock Unit 1 Load	320 MW		
9. Process Plant Hours of Operation	24 Hrs.		
10. lbs of dry gypsum per lb SO2 (pure CaCO3)	2.675		
11. Coal Burned in Unit 1 is based on the heat rate and mw produced.			
12. FGD Energy Consumption	9000 KW		
13. Plant Factor	0.88		
14. Operational hours per year	8,760 hours		
15. Labor (16 people, \$55,000, Benefits 1.55)	\$2,254,484.17 per year	\$1,127,242.09	<<PRB<< Labor (8 people, \$55,000, Benefits 1.55)
16. Reagent Costs (Lime/Limestone)	\$19.83 per ton		
17. Current Price for SO2 Allowances	\$428.00 per ton SO2		
18. Process Lime Costs	\$0.00 per ton		
19. Scrubber Landfill Costs	\$5.78 per ton		
20. Maintenance	\$2,788,353.96 per year	\$826,423.82	<<PRB<< Maintenance
21. Capacity Cost for MW	\$642,367.67 per year		
22. CAAA Allowances Spurlock Unit 1	9,841 year 2009		
23. PRB Capital Expenditure	\$50,000,000		
24. Scrubber Capital Expenditure (per J. Brandt 11/14/05)	\$145,000,000		
25. Capacity Replacement Cost (Gilbert Unit based for Replacement Power)	\$314.041 /KWY	\$17,599,157.96	<<PRB<< Repl. Energy Differential Cost
26. Carrying Cost (20 years)	8.560 %		
27. Ash Penalty for Boiler Maintenance	\$0.238 / % Ash / ton of Coal		
28. Ash Landfill Cost	\$5.785 per ton of Ash		
29. Annual payment for PRB Capital Expenditure (30 year)	\$4,280,000		
30. Annual payment for Scrubber Capital Expenditure (20 year)	\$12,412,000		
31. Annual Btu requirements for Unit 1 based on Heat Rate and Output	24,668,160 mmBtu/Y		

Coal Suppliers		Coal	Coal	Coal	Coal	Sulfur	Ash	Boiler	SO2	SO2 Not	Allowance	Limestone	Limestone	Dry Product	Landfill Cost	FGD Energy Cost	O&M + Capital + Allowance + Landfill + Energy +	Cost	Total Cost
		Del. Price	Del. Cost	(T/Y)	(Btu/lb.)	(%)	(%)	Maint	Produced	Scrubbed	(\$)	(T/Y)	(\$/Y)	(T/Y)	(\$/Y)	(\$/Y)	(\$/Y)	(\$/mmBtu)	(\$/Y)
CAPP	Pike	3.290	\$81,147,924	1,027,840	12,000	0.74	11.00	\$2,690,999	14,451	14,451	\$6,185,212	0	\$0	0	\$654,062	\$0	\$9,530,273	\$0.386	\$90,678,197
PRB	S Gil.	1.993	\$49,155,703	1,401,600	8,800	0.36	5.00	\$1,667,974	9,587	9,587	\$4,103,212	0	\$0	0	\$405,410	\$0	\$30,009,421	\$1.217	\$79,165,124
3/4 CAPP	1/4 NAP-OH	2.264	\$55,848,714	1,038,659	11,875	3.04	11.00	\$2,719,325	59,993	1,200	\$513,540	119,386	\$2,367,922	203,216	\$1,836,545	\$2,826,369	\$27,718,540	\$1.124	\$83,567,254

1. Average Heat Rate	10,000 Btu/kwH	
2. SO2 Removal Rate	98.00 %	
3. Lbs Reagent/Lb SO2 in gas	1.99 lbs. Limestone / lbs. SO2 Removed	
4. SO2 Produced	2.00 *(%S) / 100 = lbs. SO2 Produced / lb. Coal Fired	
5. Process Plant Lime Consumption	0 lbs. Process Lime Used / ton Dry Sludge	
6. Recycle Pumps Required per Absorber	3 per Absorber	
7. Number of Absorbers	1 Absorbers	
8. Average Spurlock Unit 1 Load	320 MW	
9. Process Plant Hours of Operation	24 Hrs.	
10. lbs of dry gypsum per lb SO2 (pure CaCO3)	2.675	
11. Coal Burned in Unit 1 is based on the heat rate and mw produced.		
12. FGD Energy Consumption	9000 KW	
13. Plant Factor	0.88	
14. Operational hours per year	8,760 hours	
15. Labor (16 people, \$55,000, Benefits 1.55)	\$2,322,118.70 per year	\$1,161,059.35 <<PRB<< Labor (8 people, \$55,000, Benefits 1.55)
16. Reagent Costs (Lime/Limestone)	\$20.43 per ton	
17. Current Price for SO2 Allowances	\$460.00 per ton SO2	
18. Process Lime Costs	\$0.00 per ton	
19. Scrubber Landfill Costs	\$5.96 per ton	
20. Maintenance	\$2,872,004.57 per year	\$851,216.53 <<PRB<< Maintenance
21. Capacity Cost for MW	\$867,638.70 per year	
22. CAAA Allowances Spurlock Unit 1	9,841 year 2009	
23. PRB Capital Expenditure	\$50,000,000	
24. Scrubber Capital Expenditure (per J. Brandt 11/14/05)	\$145,000,000	
25. Capacity Replacement Cost (Gilbert Unit based for Replacement Power)	\$323.462 /KWY	\$18,127,132.70 <<PRB<< Repl. Energy Differential Cost
26. Carrying Cost (20 years)	8.320 %	
27. Ash Penalty for Boiler Maintenance	\$0.245 / % Ash / ton of Coal	
28. Ash Landfill Cost	\$5.959 per ton of Ash	
29. Annual payment for PRB Capital Expenditure (30 year)	\$4,160,000	
30. Annual payment for Scrubber Capital Expenditure (20 year)	\$12,064,000	
31. Annual Btu requirements for Unit 1 based on Heat Rate and Output	24,668,160 mmBtu/Y	

Coal Suppliers		Coal	Coal	Coal	Coal	Sulfur	Ash	Boiler	SO2	SO2 Not	Allowance	Limestone	Limestone	Dry Product	Landfill Cost	FGD Energy Cost	Boiler Maint	Cost	Total Cost
		Del. Price	Del. Cost	(T/Y)	(Btu/lb.)	(%)	(%)	Maint	Produced	Scrubbed	(\$)	(T/Y)	(\$/Y)	(T/Y)	(\$/Y)	(\$/Y)	(\$/Y)	(\$/mmBtu)	Fuel + FGD
		(\$/mmBtu)	(\$/Y)					(\$/Y)	(T/Y)	(T/Y)									(\$/Y)
CAPP	Pike	3.377	\$83,294,054	1,027,840	12,000	0.74	11.00	\$2,771,729	14,451	14,451	\$6,647,658	0	\$0	0	\$673,684	\$0	\$10,093,071	\$0.409	\$93,387,125
PRB	S Gil.	2.013	\$49,649,066	1,401,600	8,800	0.36	5.00	\$1,718,014	9,587	9,587	\$4,409,994	0	\$0	0	\$417,573	\$0	\$30,844,989	\$1.250	\$80,494,055
3/4 CAPP	1/4 NAP-OH	2.313	\$57,057,454	1,038,659	11,875	3.04	11.00	\$2,800,905	59,993	1,200	\$551,935	119,386	\$2,438,960	203,216	\$1,891,642	\$2,911,161	\$27,852,726	\$1.129	\$84,910,180

2030

1. Average Heat Rate	10,000 Btu/kwh		
2. SO2 Removal Rate	98.00 %		
3. Lbs Reagent/Lb SO2 in gas	1.99 lbs. Limestone / lbs. SO2 Removed		
4. SO2 Produced	2.00 *(%S) / 100 = lbs. SO2 Produced / lb. Coal Fired		
5. Process Plant Lime Consumption	0 lbs. Process Lime Used / ton Dry Sludge		
6. Recycle Pumps Required per Absorber	3 per Absorber		
7. Number of Absorbers	1 Absorbers		
8. Average Spurlock Unit 1 Load	320 MW		
9. Process Plant Hours of Operation	24 Hrs.		
10. lbs of dry gypsum per lb SO2 (pure CaCO3)	2.675		
11. Coal Burned In Unit 1 is based on the heat rate and mw produced.			
12. FGD Energy Consumption	9000 KW		
13. Plant Factor	0.88		
14. Operational hours per year	8,760 hours		
15. Labor (16 people, \$55,000, Benefits 1.55)	\$2,537,441.80 per year	\$1,268,720.90	<<PRB<< Labor (8 people, \$55,000, Benefits 1.55)
16. Reagent Costs (Lime/Limestone)	\$22.32 per ton		
17. Current Price for SO2 Allowances	\$572.00 per ton SO2		
18. Process Lime Costs	\$0.00 per ton		
19. Scrubber Landfill Costs	\$6.51 per ton		
20. Maintenance	\$3,138,316.94 per year	\$930,147.29	<<PRB<< Maintenance
21. Capacity Cost for MW	\$948,092.23 per year		
22. CAAA Allowances Spurlock Unit 1	9,841 year 2009		
23. PRB Capital Expenditure	\$50,000,000		
24. Scrubber Capital Expenditure (per J. Brandt 11/14/05)	\$145,000,000		
25. Capacity Replacement Cost (Gilbert Unit based for Replacement Power)	\$353.456 /KWY	\$19,808,007.33	<<PRB<< Repl. Energy Differential Cost
26. Carrying Cost (20 years)	7.470 %		
27. Ash Penalty for Boiler Maintenance	\$0.268 / % Ash / ton of Coal		
28. Ash Landfill Cost	\$6.511 per ton of Ash		
29. Annual payment for PRB Capital Expenditure (30 year)	\$3,735,000		
30. Annual payment for Scrubber Capital Expenditure (20 year)	\$10,831,500		
31. Annual Btu requirements for Unit 1 based on Heat Rate and Output	24,668,160 mmBtu/Y		

Coal Suppliers	Coal Del. Price (\$/mmBtu)	Coal Del. Cost (\$/Y)	Coal (T/Y)	Coal (Btu/lb.)	Sulfur (%)	Ash (%)	Boiler Maint (\$/Y)	SO2 Produced (T/Y)	SO2 Not Scrubbed (T/Y)	Allowance (\$)	Limestone (T/Y)	Limestone (\$/Y)	Dry Product (T/Y)	Landfill Cost (\$/Y)	FGD Energy Cost (\$/Y)	O&M + Capital + Allowance + Landfill + Energy + Boiler Maint (\$/Y)	Cost (\$/mmBtu)	Total Cost Fuel + FGD (\$/Y)
CAPP Pike	3.638	\$89,732,444	1,027,840	12,000	0.74	11.00	\$3,028,743	14,451	14,451	\$8,266,218	0	\$0	0	\$736,153	\$0	\$12,031,114	\$0.488	\$101,763,558
PRB S Gil.	2.073	\$51,129,156	1,401,600	8,800	0.36	5.00	\$1,877,320	9,587	9,587	\$5,483,732	0	\$0	0	\$456,293	\$0	\$33,559,221	\$1.360	\$84,688,376
3/4 CAPP 1/4 NAP-OH	2.459	\$60,659,005	1,038,659	11,875	3.04	11.00	\$3,060,624	59,993	1,200	\$686,320	119,386	\$2,665,118	203,216	\$2,067,048	\$3,181,104	\$28,167,472	\$1.142	\$88,826,477

1. Average Heat Rate	10,000 Btu/kwH		
2. SO2 Removal Rate	98.00 %		
3. Lbs Reagent/Lb SO2 in gas	1.99 lbs. Limestone / lbs. SO2 Removed		
4. SO2 Produced	2.00 *(%S) / 100 = lbs. SO2 Produced / lb. Coal Fired		
5. Process Plant Lime Consumption	0 lbs. Process Lime Used / ton Dry Sludge		
6. Recycle Pumps Required per Absorber	3 per Absorber		
7. Number of Absorbers	1 Absorbers		
8. Average Spurlock Unit 1 Load	320 MW		
9. Process Plant Hours of Operation	24 Hrs.		
10. lbs of dry gypsum per lb SO2 (pure CaCO3)	2.675		
11. Coal Burned in Unit 1 is based on the heat rate and mw produced.			
12. FGD Energy Consumption	9000 KW		
13. Plant Factor	0.88		
14. Operational hours per year	8,760 hours		
15. Labor (16 people, \$55,000, Benefits 1.55)	\$2,613,565.05 per year	\$1,306,782.52	<<PRB<< Labor (8 people, \$55,000, Benefits 1.55)
16. Reagent Costs (Lime/Limestone)	\$22.99 per ton		
17. Current Price for SO2 Allowances	\$615.00 per ton SO2		
18. Process Lime Costs	\$0.00 per ton		
19. Scrubber Landfill Costs	\$6.71 per ton		
20. Maintenance	\$3,232,466.45 per year	\$958,051.70	<<PRB<< Maintenance
21. Capacity Cost for MW	\$976,535.00 per year		
22. CAAA Allowances Spurlock Unit 1	9,841 year 2009		
23. PRB Capital Expenditure	\$50,000,000		
24. Scrubber Capital Expenditure (per J. Brandt 11/14/05)	\$145,000,000		
25. Capacity Replacement Cost (Gilbert Unit based for Replacement Power)	\$364.060 /KWY	\$20,402,247.55	<<PRB<< Repl. Energy Differential Cost
26. Carrying Cost (20 years)	7.150 %		
27. Ash Penalty for Boiler Maintenance	\$0.276 / % Ash / ton of Coal		
28. Ash Landfill Cost	\$6.706 per ton of Ash		
29. Annual payment for PRB Capital Expenditure (30 year)	\$3,575,000		
30. Annual payment for Scrubber Capital Expenditure (20 year)	\$10,367,500		
31. Annual Btu requirements for Unit 1 based on Heat Rate and Output	24,668,160 mmBtu/Y		

Coal Suppliers	Coal Del. Price (\$/mmBtu)	Coal Del. Cost (\$/Y)	Coal (T/Y)	Coal (Btu/lb.)	Sulfur (%)	Ash (%)	Boiler Maint (\$/Y)	SO2 Produced (T/Y)	SO2 Not Scrubbed (T/Y)	Allowance (\$)	Limestone (T/Y)	Limestone (\$/Y)	Dry Product (T/Y)	Landfill Cost (\$/Y)	FGD Energy Cost (\$/Y)	O&M + Capital + Allowance + Landfill + Energy + Boiler Maint (\$/Y)	Cost (\$/mmBtu)	Total Cost Fuel + FGD (\$/Y)
CAPP Pike	3.725	\$91,878,574	1,027,840	12,000	0.74	11.00	\$3,119,605	14,451	14,451	\$8,887,630	0	\$0	0	\$758,237	\$0	\$12,765,472	\$0.517	\$104,644,046
PRB S Gil.	2.093	\$51,622,519	1,401,600	8,800	0.36	5.00	\$1,933,640	9,587	9,587	\$5,895,971	0	\$0	0	\$469,982	\$0	\$34,541,674	\$1.400	\$86,164,193
3/4 CAPP 1/4 NAP-OH	2.508	\$61,867,745	1,038,659	11,875	3.04	11.00	\$3,152,443	59,993	1,200	\$737,913	119,386	\$2,745,071	203,216	\$2,129,059	\$3,276,537	\$28,254,555	\$1.145	\$90,122,301

1. Average Heat Rate	10,000 Btu/kwh	
2. SO2 Removal Rate	98.00 %	
3. Lbs Reagent/Lb SO2 in gas	1.99 lbs. Limestone / lbs. SO2 Removed	
4. SO2 Produced	2.00 *(%S) / 100 = lbs. SO2 Produced / lb. Coal Fired	
5. Process Plant Lime Consumption	0 lbs. Process Lime Used / ton Dry Sludge	
6. Recycle Pumps Required per Absorber	3 per Absorber	
7. Number of Absorbers	1 Absorbers	
8. Average Spurlcock Unit 1 Load	320 MW	
9. Process Plant Hours of Operation	24 Hrs.	
10. lbs of dry gypsum per lb SO2 (pure CaCO3)	2.675	
11. Coal Burned in Unit 1 is based on the heat rate and mw produced.		
12. FGD Energy Consumption	9000 KW	
13. Plant Factor	0.88	
14. Operational hours per year	8,760 hours	
15. Labor (16 people, \$55,000, Benefits 1.55)	\$2,691,972.00 per year	\$1,345,986.00 <<PRB<< Labor (8 people, \$55,000, Benefits 1.55)
16. Reagent Costs (Lime/Limestone)	\$23.68 per ton	
17. Current Price for SO2 Allowances	\$661.00 per ton SO2	
18. Process Lime Costs	\$0.00 per ton	
19. Scrubber Landfill Costs	\$6.91 per ton	
20. Maintenance	\$3,329,440.44 per year	\$986,793.26 <<PRB<< Maintenance
21. Capacity Cost for MW	\$1,005,831.05 per year	
22. CAAA Allowances Spurlcock Unit 1	9,841 year 2009	
23. PRB Capital Expenditure	\$50,000,000	
24. Scrubber Capital Expenditure (per J. Brandt 11/14/05)	\$145,000,000	
25. Capacity Replacement Cost (Gilbert Unit based for Replacement Power)	\$374.981 /KWY	\$21,014,314.98 <<PRB<< Repl. Energy Differential Cost
26. Carrying Cost (20 years)	6.800 %	
27. Ash Penalty for Boiler Maintenance	\$0.284 / % Ash / ton of Coal	
28. Ash Landfill Cost	\$6.908 per ton of Ash	
29. Annual payment for PRB Capital Expenditure (30 year)	\$3,400,000	
30. Annual payment for Scrubber Capital Expenditure (20 year)	\$9,860,000	
31. Annual Btu requirements for Unit 1 based on Heat Rate and Output	24,668,160 mmBtu/Y	

Coal Suppliers		Coal	Coal	Coal	Coal	Sulfur	Ash	Boiler	SO2	SO2 Not	Allowance	Limestone	Limestone	Dry Product	Landfill Cost	FGD Energy Cost	O&M + Capital + Allowance + Landfill + Energy + Boiler Maint	Cost	Total Cost
		Del. Price (\$/mmBtu)	Del. Cost (\$/Y)	(T/Y)	(Btu/lb.)	(%)	(%)	Maint (\$/Y)	Produced (T/Y)	Scrubbed (T/Y)	(\$)	(T/Y)	(\$/Y)	(T/Y)	(\$/Y)	(\$/Y)	(\$/Y)	(\$/mmBtu)	Fuel + FGD (\$/Y)
CAPP	Pike	3.812	\$94,024,703	1,027,840	12,000	0.74	11.00	\$3,213,193	14,451	14,451	\$9,552,395	0	\$0	0	\$780,984	\$0	\$13,546,573	\$0.549	\$107,571,277
PRB	S Gil.	2.113	\$52,115,882	1,401,600	8,800	0.36	5.00	\$1,991,649	9,587	9,587	\$6,336,970	0	\$0	0	\$484,081	\$0	\$35,559,794	\$1.442	\$87,675,676
3/4 CAPP	1/4 NAP-OH	2.556	\$63,051,817	1,038,659	11,875	3.04	11.00	\$3,247,016	59,993	1,200	\$793,107	119,386	\$2,827,423	203,216	\$2,192,931	\$3,374,833	\$28,316,723	\$1.148	\$91,368,540

1. Average Heat Rate	10,000 Btu/kwH	
2. SO2 Removal Rate	98.00 %	
3. Lbs Reagent/Lb SO2 in gas	1.99 lbs. Limestone / lbs. SO2 Removed	
4. SO2 Produced	2.00 *(%S) / 100 = lbs. SO2 Produced / lb. Coal Fired	
5. Process Plant Lime Consumption	0 lbs. Process Lime Used / ton Dry Sludge	
6. Recycle Pumps Required per Absorber	3 per Absorber	
7. Number of Absorbers	1 Absorbers	
8. Average Spurlock Unit 1 Load	320 MW	
9. Process Plant Hours of Operation	24 Hrs.	
10. lbs of dry gypsum per lb SO2 (pure CaCO3)	2.675	
11. Coal Burned In Unit 1 is based on the heat rate and mw produced.		
12. FGD Energy Consumption	9000 KW	
13. Plant Factor	0.88	
14. Operational hours per year	8,760 hours	
15. Labor (16 people, \$55,000, Benefits 1.55)	\$2,772,731.16 per year	\$1,386,365.58 <<PRB<< Labor (8 people, \$55,000, Benefits 1.55)
16. Reagent Costs (Lime/Limestone)	\$24.39 per ton	
17. Current Price for SO2 Allowances	\$711.00 per ton SO2	
18. Process Lime Costs	\$0.00 per ton	
19. Scrubber Landfill Costs	\$7.11 per ton	
20. Maintenance	\$3,429,323.66 per year	\$1,016,397.05 <<PRB<< Maintenance
21. Capacity Cost for MW	\$1,036,005.98 per year	
22. CAAA Allowances Spurlock Unit 1	9.841 year 2009	
23. PRB Capital Expenditure	\$50,000,000	
24. Scrubber Capital Expenditure (per J. Brandt 11/14/05)	\$145,000,000	
25. Capacity Replacement Cost (Gilbert Unit based for Replacement Power)	\$386.231 /KWY	\$21,644,744.43 <<PRB<< Repl. Energy Differential Cost
26. Carrying Cost (20 years)	6.430 %	
27. Ash Penalty for Boiler Maintenance	\$0.293 / % Ash / ton of Coal	
28. Ash Landfill Cost	\$7.115 per ton of Ash	
29. Annual payment for PRB Capital Expenditure (30 year)	\$3,215,000	
30. Annual payment for Scrubber Capital Expenditure (20 year)	\$9,323,500	
31. Annual Btu requirements for Unit 1 based on Heat Rate and Output	24,668,160 mmBtu/Y	

Coal Suppliers	Coal	Coal	Coal	Coal	Sulfur	Ash	Boiler	SO2	SO2 Not	Allowance	Limestone	Limestone	Dry Product	Landfill Cost	FGD Energy Cost	O&M + Capital + Allowance + Landfill + Energy + Boiler Maint	Cost	Total Cost
	Del. Price (\$/mmBtu)	Del. Cost (\$/Y)	(T/Y)	(Btu/lb.)	(%)	(%)	Maint (\$/Y)	Produced (T/Y)	Scrubbed (T/Y)	(\$)	(T/Y)	(\$/Y)	(T/Y)	(\$/Y)	(\$/Y)	(\$/Y)	(\$/mmBtu)	(\$/Y)
CAPP Pike	3.899	\$96,170,833	1,027,840	12,000	0.74	11.00	\$3,309,589	14,451	14,451	\$10,274,967	0	\$0	0	\$804,414	\$0	\$14,388,970	\$0.583	\$110,559,804
PRB S Gil.	2.133	\$52,609,245	1,401,600	8,800	0.36	5.00	\$2,051,398	9,587	9,587	\$6,816,317	0	\$0	0	\$498,604	\$0	\$36,628,826	\$1.485	\$89,238,072
3/4 CAPP 1/4 NAP-OH	2.605	\$64,260,557	1,038,659	11,875	3.04	11.00	\$3,344,427	59,993	1,200	\$853,100	119,386	\$2,912,246	203,216	\$2,258,719	\$3,476,078	\$28,370,125	\$1.150	\$92,630,681

1. Average Heat Rate	10,000 Btu/kwh		
2. SO2 Removal Rate	98.00 %		
3. Lbs Reagent/Lb SO2 in gas	1.99 lbs. Limestone / lbs. SO2 Removed		
4. SO2 Produced	2.00 *(%S) / 100 = lbs. SO2 Produced / lb. Coal Fired		
5. Process Plant Lime Consumption	0 lbs. Process Lime Used / ton Dry Sludge		
6. Recycle Pumps Required per Absorber	3 per Absorber		
7. Number of Absorbers	1 Absorbers		
8. Average Spurlock Unit 1 Load	320 MW		
9. Process Plant Hours of Operation	24 Hrs.		
10. lbs of dry gypsum per lb SO2 (pure CaCO3)	2.675		
11. Coal Burned in Unit 1 is based on the heat rate and mw produced.			
12. FGD Energy Consumption	9000 KW		
13. Plant Factor	0.88		
14. Operational hours per year	8,760 hours		
15. Labor (16 people, \$55,000, Benefits 1.55)	\$2,855,913.10 per year	\$1,427,956.55	<<PRB<< Labor (8 people, \$55,000, Benefits 1.55)
16. Reagent Costs (Lime/Limestone)	\$25.13 per ton		
17. Current Price for SO2 Allowances	\$764.00 per ton SO2		
18. Process Lime Costs	\$0.00 per ton		
19. Scrubber Landfill Costs	\$7.33 per ton		
20. Maintenance	\$3,532,203.37 per year	\$1,046,888.96	<<PRB<< Maintenance
21. Capacity Cost for MW	\$1,067,086.16 per year		
22. CAAA Allowances Spurlock Unit 1	9.841 year 2009		
23. PRB Capital Expenditure	\$50,000,000		
24. Scrubber Capital Expenditure (per J. Brandt 11/14/05)	\$145,000,000		
25. Capacity Replacement Cost (Gilbert Unit based for Replacement Power)	\$397.818 /KWY	\$22,294,086.76	<<PRB<< Repl. Energy Differential Cost
26. Carrying Cost (20 years)	6.030 %		
27. Ash Penalty for Boiler Maintenance	\$0.302 / % Ash / ton of Coal		
28. Ash Landfill Cost	\$7.328 per ton of Ash		
29. Annual payment for PRB Capital Expenditure (30 year)	\$3,015,000		
30. Annual payment for Scrubber Capital Expenditure (20 year)	\$8,743,500		
31. Annual Btu requirements for Unit 1 based on Heat Rate and Output	24,668,160 mmBtu/Y		

Coal Suppliers	Coal Del. Price (\$/mmBtu)	Coal Del. Cost (\$/Y)	Coal (T/Y)	Coal (Btu/lb.)	Sulfur (%)	Ash (%)	Boiler Maint (\$/Y)	SO2 Produced (T/Y)	SO2 Not Scrubbed (T/Y)	Allowance (\$)	Limestone (T/Y)	Limestone (\$/Y)	Dry Product (T/Y)	Landfill Cost (\$/Y)	FGD Energy Cost (\$/Y)	Boiler Maint (\$/Y)	Cost (\$/mmBtu)	Total Cost Fuel + FGD (\$/Y)	
CAPP	Pike	3.986	\$98,316,963	1,027,840	12,000	0.74	11.00	\$3,408,877	14,451	14,451	\$11,040,893	0	\$0	0	\$828,546	\$0	\$15,278,316	\$0.619	\$113,595,279
PRB	S Gil.	2.153	\$53,102,609	1,401,600	8,800	0.36	5.00	\$2,112,940	9,587	9,587	\$7,324,425	0	\$0	0	\$513,562	\$0	\$37,734,860	\$1.530	\$90,837,468
3/4 CAPP	1/4 NAP-OH	2.654	\$65,469,297	1,038,659	11,875	3.04	11.00	\$3,444,760	59,993	1,200	\$916,693	119,386	\$2,999,613	203,216	\$2,326,481	\$3,580,360	\$28,399,523	\$1.151	\$93,868,819

1. Average Heat Rate	10,000 Btu/kwH
2. SO2 Removal Rate	98.00 %
3. Lbs Reagent/Lb SO2 in gas	1.99 lbs. Limestone / lbs. SO2 Removed
4. SO2 Produced	2.00 *(%S) / 100 = lbs. SO2 Produced / lb. Coal Fired
5. Process Plant Lime Consumption	0 lbs. Process Lime Used / ton Dry Sludge
6. Recycle Pumps Required per Absorber	3 per Absorber
7. Number of Absorbers	1 Absorbers
8. Average Spurlock Unit 1 Load	320 MW
9. Process Plant Hours of Operation	24 Hrs.
10. lbs of dry gypsum per lb SO2 (pure CaCO3)	2.675
11. Coal Burned in Unit 1 is based on the heat rate and mw produced.	
12. FGD Energy Consumption	9000 KW
13. Plant Factor	0.88
14. Operational hours per year	8,760 hours
15. Labor (16 people, \$55,000, Benefits 1.55)	\$2,941,590.49 per year \$1,470,795.24 <<PRB<< Labor (8 people, \$55,000, Benefits 1.55)
16. Reagent Costs (Lime/Limestone)	\$25.88 per ton
17. Current Price for SO2 Allowances	\$821.00 per ton SO2
18. Process Lime Costs	\$0.00 per ton
19. Scrubber Landfill Costs	\$7.55 per ton
20. Maintenance	\$3,638,169.47 per year \$1,078,295.63 <<PRB<< Maintenance
21. Capacity Cost for MW	\$1,099,098.74 per year
22. CAAA Allowances Spurlock Unit 1	9,841 year 2009
23. PRB Capital Expenditure	\$50,000,000
24. Scrubber Capital Expenditure (per J. Brandt 11/14/05)	\$145,000,000
25. Capacity Replacement Cost (Gilbert Unit based for Replacement Power)	\$409,752 /KWY \$22,962,909.37 <<PRB<< Repl. Energy Differential Cost
26. Carrying Cost (20 years)	5.600 %
27. Ash Penalty for Boiler Maintenance	\$0.311 / % Ash / ton of Coal
28. Ash Landfill Cost	\$7.548 per ton of Ash
29. Annual payment for PRB Capital Expenditure (30 year)	\$2,800,000
30. Annual payment for Scrubber Capital Expenditure (20 year)	\$8,120,000
31. Annual Btu requirements for Unit 1 based on Heat Rate and Output	24,668,160 mmBtu/Y

Coal Suppliers	Coal	Coal	Coal	Coal	Sulfur	Ash	Boiler Maint	SO2 Produced	SO2 Not Scrubbed	Allowance	Limestone	Limestone	Dry Product	Landfill Cost	FGD Energy Cost	O&M + Capital + Allowance + Landfill + Energy + Boiler Maint	Cost	Total Cost	
	Del. Price (\$/mmBtu)	Del. Cost (\$/Y)	(T/Y)	(Btu/lb.)	(%)	(%)	(\$/Y)	(T/Y)	(T/Y)	(\$)	(T/Y)	(\$/Y)	(T/Y)	(\$/Y)	(\$/Y)	(\$/Y)	(\$/mmBtu)	(\$/Y)	
CAPP	Pike	4.073	\$100,463,093	1,027,840	12,000	0.74	11.00	\$3,511,143	14,451	14,451	\$11,864,624	0	\$0	0	\$853,403	\$0	\$16,229,170	\$0.658	\$116,692,264
PRB	S Gil.	2.173	\$53,595,972	1,401,600	8,800	0.36	5.00	\$2,176,328	9,587	9,587	\$7,870,881	0	\$0	0	\$528,969	\$0	\$38,888,178	\$1.576	\$92,484,150
3/4 CAPP	1/4 NAP-OH	2.703	\$66,678,036	1,038,659	11,875	3.04	11.00	\$3,548,103	59,993	1,200	\$985,084	119,386	\$3,089,602	203,216	\$2,396,275	\$3,687,771	\$28,406,595	\$1.152	\$95,084,631

1. Average Heat Rate	10,000 Btu/kWh	
2. SO2 Removal Rate	98.00 %	
3. Lbs Reagent/Lb SO2 in gas	1.99 lbs. Limestone / lbs. SO2 Removed	
4. SO2 Produced	2.00 *(%S) / 100 = lbs. SO2 Produced / lb. Coal Fired	
5. Process Plant Lime Consumption	0 lbs. Process Lime Used / ton Dry Sludge	
6. Recycle Pumps Required per Absorber	3 per Absorber	
7. Number of Absorbers	1 Absorbers	
8. Average Spurlock Unit 1 Load	320 MW	
9. Process Plant Hours of Operation	24 Hrs.	
10. lbs of dry gypsum per lb SO2 (pure CaCO3)	2.675	
11. Coal Burned in Unit 1 lbs based on the heat rate and mw produced.		
12. FGD Energy Consumption	9000 KW	
13. Plant Factor	0.88	
14. Operational hours per year	8,760 hours	
15. Labor (16 people, \$55,000, Benefits 1.55)	\$3,120,733.35 per year	\$1,560,366.67 <<PRB<< Labor (8 people, \$55,000, Benefits 1.55)
16. Reagent Costs (Lime/Limestone)	\$27.46 per ton	
17. Current Price for SO2 Allowances	\$949.00 per ton SO2	
18. Process Lime Costs	\$0.00 per ton	
19. Scrubber Landfill Costs	\$8.01 per ton	
20. Maintenance	\$3,859,733.99 per year	\$1,143,983.84 <<PRB<< Maintenance
21. Capacity Cost for MW	\$1,166,033.85 per year	
22. CAAA Allowances Spurlock Unit 1	9,841 year 2009	
23. PRB Capital Expenditure	\$50,000,000	
24. Scrubber Capital Expenditure (per J. Brandt 11/14/05)	\$145,000,000	
25. Capacity Replacement Cost (Gilbert Unit based for Replacement Power)	\$434.706 /KWY	\$24,361,350.55 <<PRB<< Repl. Energy Differential Cost
26. Carrying Cost (20 years)	4.640 %	
27. Ash Penalty for Boiler Maintenance	\$0.329 / % Ash / ton of Coal	
28. Ash Landfill Cost	\$8.008 per ton of Ash	
29. Annual payment for PRB Capital Expenditure (30 year)	\$2,320,000	
30. Annual payment for Scrubber Capital Expenditure (20 year)	\$6,728,000	
31. Annual Btu requirements for Unit 1 based on Heat Rate and Output	24,668,160 mmBtu/Y	

Coal Suppliers	Coal	Coal	Coal	Coal	Sulfur	Ash	Boiler	SO2	SO2 Not	Allowance	Limestone	Limestone	Dry Product	Landfill Cost	FGD Energy Cost	O&M + Capital + Allowance + Landfill + Energy + Boiler Maint	Cost	Total Cost
	Del. Price (\$/mmBtu)	Del. Cost (\$/Y)	(T/Y)	(Btu/lb.)	(%)	(%)	Maint (\$/Y)	Produced (T/Y)	Scrubbed (T/Y)	(\$)	(T/Y)	(\$/Y)	(T/Y)	(\$/Y)	(\$/Y)	(\$/Y)	(\$/mmBtu)	(\$/Y)
CAPP Pike	4.247	\$104,755,353	1,027,840	12,000	0.74	11.00	\$3,724,972	14,451	14,451	\$13,714,407	0	\$0	0	\$905,375	\$0	\$18,344,754	\$0.744	\$123,100,107
PRB S Gil.	2.213	\$54,582,698	1,401,600	8,800	0.36	5.00	\$2,308,867	9,587	9,587	\$9,098,010	0	\$0	0	\$561,183	\$0	\$41,353,741	\$1.676	\$95,936,439
3/4 CAPP 1/4 NAP-OH	2.800	\$69,070,848	1,038,659	11,875	3.04	11.00	\$3,764,182	59,993	1,200	\$1,138,666	119,386	\$3,277,758	203,216	\$2,542,208	\$3,912,356	\$28,343,639	\$1.149	\$97,414,487

1. Average Heat Rate 10,000 Btu/kwH
2. SO2 Removal Rate 98.00 %
3. Lbs Reagen/Lb SO2 in gas 1.99 lbs. Limestone / lbs. SO2 Removed
4. SO2 Produced 2.00 *(%S) / 100 = lbs. SO2 Produced / lb. Coal Fired
5. Process Plant Lime Consumption 0 lbs. Process Lime Used / ton Dry Sludge
6. Recycle Pumps Required per Absorber 3 per Absorber
7. Number of Absorbers 1 Absorbers
8. Average Spurlock Unit 1 Load 320 MW
9. Process Plant Hours of Operation 24 Hrs.
10. lbs of dry gypsum per lb SO2 (pure CaCO3) 2.675
11. Coal Burned in Unit 1 is based on the heat rate and mw produced.
12. FGD Energy Consumption 9000 KW
13. Plant Factor 0.88
14. Operational hours per year 8,760 hours
15. Labor (16 people, \$55,000, Benefits 1.55) \$3,214,355.35 per year \$1,607,177.68 <<PRB<< Labor (8 people, \$55,000, Benefits 1.55)
16. Reagent Costs (Lime/Limestone) \$28.28 per ton
17. Current Price for SO2 Allowances \$1,020.00 per ton SO2
18. Process Lime Costs \$0.00 per ton
19. Scrubber Landfill Costs \$8.25 per ton
20. Maintenance \$3,975,526.01 per year \$1,178,282.75 <<PRB<< Maintenance
21. Capacity Cost for MW \$1,201,014.87 per year
22. CAAA Allowances Spurlock Unit 1 9,841 year 2009
23. PRB Capital Expenditure \$50,000,000
24. Scrubber Capital Expenditure (per J. Brandt 11/14/05) \$145,000,000
25. Capacity Replacement Cost (Gilbert Unit based for Replacement Power) \$447,747 /KWY \$25,092,191.06 <<PRB<< Repl. Energy Differential Cost
26. Carrying Cost (20 years) 4.110 %
27. Ash Penalty for Boiler Maintenance \$0.339 / % Ash / ton of Coal
28. Ash Landfill Cost \$8.248 per ton of Ash
29. Annual payment for PRB Capital Expenditure (30 year) \$2,055,000
30. Annual payment for Scrubber Capital Expenditure (20 year) \$5,959,500
31. Annual Btu requirements for Unit 1 based on Heat Rate and Output 24,668,160 mmBtu/Y

Coal Suppliers	Coal	Coal	Coal	Coal	Sulfur	Ash	Boiler	SO2	SO2 Not	Allowance	Limestone	Limestone	Dry Product	Landfill Cost	FGD Energy Cost	Boiler Maint	Cost	Total Cost
	Del. Price	Del. Cost	(T/Y)	(Btu/lb.)	(%)	(%)	Maint	Produced	Scrubbed	(\$)	(T/Y)	(\$/Y)	(T/Y)	(\$/Y)	(\$/Y)	(\$/Y)	(\$/mmBtu)	Fuel + FGD
	(\$/mmBtu)	(\$/Y)					(\$/Y)	(T/Y)	(T/Y)									(\$/Y)
CAPP Pike	4.334	\$106,901,483	1,027,840	12,000	0.74	11.00	\$3,836,721	14,451	14,451	\$14,740,459	0	\$0	0	\$932,536	\$0	\$19,509,716	\$0.791	\$126,411,199
PRB S Gil.	2.233	\$55,076,061	1,401,600	8,800	0.36	5.00	\$2,378,133	9,587	9,587	\$9,778,683	0	\$0	0	\$578,018	\$0	\$42,667,486	\$1.730	\$97,743,547
3/4 CAPP 1/4 NAP-OH	2.849	\$70,279,588	1,038,659	11,875	3.04	11.00	\$3,877,107	59,993	1,200	\$1,223,856	119,386	\$3,376,091	203,216	\$2,618,474	\$4,029,727	\$28,274,638	\$1.146	\$98,554,226

EAST KENTUCKY POWER COOPERATIVE, INC.

PSC CASE NO. 2006-00132

INFORMATION REQUEST RESPONSE

PUBLIC SERVICE COMMISSION DATA REQUEST DATED

MAY 5, 2006

REQUEST NO. 3

RESPONDING PERSON: Jerry Bordes

Request No. 3: Refer to Exhibit 5, page 3 of 5 of the March 28, 2006 Application.

Provide the documentation associated with the production of the base fuel forecast performed by Energy Ventures Analysis (“EVA”).

Response No. 3: The EVA forecast of base fuel prices from 2009-2038 is attached.

Spurlock Station - Unit #1
Delivered Coal Forecast
\$ / MMBtu

Region:	CAPP Pike	3/4 CAPP 1/4 NAP-OH	PRB S Gil.
Btu / lb:	12,000	11,875	8,800
#SO2 / MMBtu:	1.2	5.0	0.8
% Sulfur:	0.74	3.04	0.36
% Ash:	11%	11%	5%
Transportation:	<u>TK/BG</u>	<u>Barge</u>	<u>RR/BG</u>
2009	2.360	1.507	1.642
2010	2.364	1.525	1.658
2011	2.365	1.595	1.676
2012	2.430	1.629	1.694
2013	2.470	1.676	1.713
2014	2.509	1.726	1.733
2015	2.531	1.780	1.753
2016	2.564	1.826	1.774
2017	2.605	1.872	1.796
2018	2.653	1.920	1.817
2019	2.707	1.944	1.840
2020	2.770	1.973	1.863
2021	2.841	2.003	1.884
2022	2.920	2.045	1.905
2023	3.004	2.100	1.927
2024	3.100	2.157	1.950
2025	3.203	2.215	1.973
2026	3.290	2.264	1.993
2027	3.377	2.313	2.013
2028	3.464	2.361	2.033
2029	3.551	2.410	2.053
2030	3.638	2.459	2.073
2031	3.725	2.508	2.093
2032	3.812	2.556	2.113
2033	3.899	2.605	2.133
2034	3.986	2.654	2.153
2035	4.073	2.703	2.173
2036	4.160	2.751	2.193
2037	4.247	2.800	2.213
2038	4.334	2.849	2.233

EAST KENTUCKY POWER COOPERATIVE, INC.

PSC CASE NO. 2006-00132

INFORMATION REQUEST RESPONSE

PUBLIC SERVICE COMMISSION DATA REQUEST DATED

MAY 5, 2006

REQUEST NO. 4

RESPONDING PERSON: Jeff Brandt

Request No. 4: Refer to Exhibit 7, page 3 of 9 of the March 28, 2006 Application. Provide documentation associated with EVA's average allowance cost estimate as stated within response A9.

Response No. 4: The response to Q9 in Mr. Brandt's testimony refers to the average allowance cost calculated from the SO2 Allowance cost schedule presented in Oliva Prepared Testimony Exhibit A Page 4 of 4, which reflects the EVA projections. (See response to Request No. 1, hereinabove). The average SO2 Allowance price over the 30-year evaluation period is approximately \$750.

EAST KENTUCKY POWER COOPERATIVE, INC.

PSC CASE NO. 2006-00132

INFORMATION REQUEST RESPONSE

PUBLIC SERVICE COMMISSION DATA REQUEST DATED

MAY 5, 2006

REQUEST NO. 5

RESPONDING PERSON: Jeff Brandt

Request No. 5 (a): Refer to Exhibit 7. On page 4, Jeff Brandt states, “The 30-year net present value savings due to the use of Powder River Basin coal was \$205 million, virtually the same as the \$206 million savings for the high sulfur coal scrubbed option.”

a. To what is each option being compared?

Response No 5 (a): The 30-year net present value savings of \$205 million for Powder River Basin coal and the \$206 million for the 75% Central Appalachian/25% Northern Appalachian coal blend is compared to burning a Central Appalachian compliance low-sulfur coal. This 30-year net present value is calculated using a 3% discount rate. The Powder River Basin coal would be utilized without a scrubber, while the Central Appalachian/Northern Appalachian blend would be scrubbed. All operating costs, including unit de-rate costs for using Powder River Basin coal, are included in the comparison. The unit de-rate costs associated with using Powder River Basin coal are addressed in Response 5b, below.

Request No. 5 (b): Explain in detail how the \$205 million and \$206 million were derived. Provide all supporting calculations.

Response No. 5 (b): As stated in Mr. Oliva's testimony "the economic evaluation of the viability of the Spurlock Unit No. 1 scrubber focused on a comparison of the all-in cost of operating a scrubber burning high-sulfur compliance coal versus burning low-sulfur compliance coal in the non-scrubbed unit." Operating & Maintenance costs for each coal option include labor, energy consumption, allowances, landfill, reagent, "boiler ash penalty". Capital costs for the scrubber were included for the scrubbed coal option. The Powder River Basin option included a capital expenditure of \$50 million. This amount is the expected cost to upgrade material handling systems to handle the hazardous nature of Powder River Basin coal. Another factor that was included in the comparison was the de-rate value associated with use of Powder River Basin coal. This unit de-rate is based on decreased pulverizer capacity when grinding Powder River Basin coal. The manufacturer estimates this de-rate to be 20% of the unit rating.

A summary schedule is attached which shows the evaluation of PRB coal to Central Appalachian compliance coal. See Response to Request No. 2 for more detailed supporting calculations for these evaluations.

**East Kentucky Power Cooperative
 Spurlock Unit #1 Limestone Scrubber Study
 Total Cost Analysis Including Net Present Value**

<u>Year</u>	<u>CAPP - Pike 1.2</u>	<u>Powder River Basin</u>
2009	\$77,613,759	\$70,551,563
2010	78,106,548	71,545,671
2011	75,216,275	70,357,728
2012	78,073,905	71,970,500
2013	79,197,689	72,884,373
2014	79,847,745	73,497,101
2015	82,023,828	75,441,722
2016	81,570,998	75,483,952
2017	79,711,622	74,478,116
2018	78,598,160	73,875,306
2019	78,063,326	73,574,850
2020	78,101,739	73,539,639
2021	78,624,605	73,660,978
2022	79,630,858	73,977,491
2023	82,101,816	75,215,212
2024	84,932,479	76,513,011
2025	88,001,095	77,869,263
2026	90,678,197	79,165,124
2027	93,387,125	80,494,055
2028	96,142,417	81,856,212
2029	98,929,713	83,252,589
2030	101,763,558	84,688,376
2031	104,644,046	86,164,193
2032	107,571,277	87,675,676
2033	110,559,804	89,238,072
2034	113,595,279	90,837,468
2035	116,692,264	92,484,150
2036	119,865,319	94,188,423
2037	123,100,107	95,936,439
2038	126,411,199	97,743,547
Net Present Value =	\$1,735,954,084	\$1,530,531,218
Savings in NPV =		\$205,422,866

East Kentucky Power Cooperative
 Spurlock Unit #1 Limestone Scrubber Study
 Annual Savings (Costs) Due to Scrubber Operation

Year	Fuel		Emission Allowances		Opr. Labor & Benefits	
	CAPP - Pike 1.2 lb.	Powder River Basin	CAPP - Pike 1.2 lb.	Powder River Basin	CAPP - Pike 1.2 lb.	Powder River Basin
2009	\$58,204,871	\$40,494,257	\$17,385,071	\$11,533,094	\$0	\$682,000
2010	58,304,563	40,910,339	17,717,454	11,753,593	0	702,460
2011	58,328,748	41,333,005	14,740,459	9,778,683	0	723,534
2012	59,951,400	41,792,803	15,911,025	10,555,225	0	745,240
2013	60,922,132	42,265,230	15,997,733	10,612,747	0	767,597
2014	61,894,042	42,745,014	15,607,545	10,353,900	0	790,625
2015	62,438,985	43,249,199	17,168,299	11,389,289	0	814,344
2016	63,243,191	43,764,731	15,838,768	10,507,291	0	838,774
2017	64,257,236	44,291,874	12,890,676	8,551,554	0	863,937
2018	65,451,348	44,833,668	10,506,190	6,969,708	0	889,855
2019	66,788,238	45,385,292	8,555,247	5,675,471	0	916,551
2020	68,334,713	45,952,123	6,965,589	4,620,907	0	944,047
2021	70,074,165	46,472,938	5,664,961	3,758,082	0	972,369
2022	72,034,357	47,005,063	4,624,458	3,067,822	0	1,001,540
2023	74,098,222	47,545,433	4,942,389	3,278,735	0	1,031,586
2024	76,461,312	48,100,240	5,318,126	3,527,995	0	1,062,534
2025	79,001,794	48,662,340	5,751,669	3,815,604	0	1,094,410
2026	81,147,924	49,155,703	6,185,212	4,103,212	0	1,127,242
2027	83,294,054	49,649,066	6,647,658	4,409,994	0	1,161,059
2028	85,440,184	50,142,429	7,153,458	4,745,537	0	1,195,891
2029	87,586,314	50,635,793	7,688,161	5,100,254	0	1,231,768
2030	89,732,444	51,129,156	8,266,218	5,483,732	0	1,268,721
2031	91,878,574	51,622,519	8,887,630	5,895,971	0	1,306,783
2032	94,024,703	52,115,882	9,552,395	6,336,970	0	1,345,986
2033	96,170,833	52,609,245	10,274,967	6,816,317	0	1,386,366
2034	98,316,963	53,102,609	11,040,893	7,324,425	0	1,427,957
2035	100,463,093	53,595,972	11,864,624	7,870,881	0	1,470,795
2036	102,609,223	54,089,335	12,760,613	8,465,272	0	1,514,919
2037	104,755,353	54,582,698	13,714,407	9,098,010	0	1,560,367
2038	106,901,483	55,076,061	14,740,459	9,778,683	0	1,607,178
Net Present Value	\$1,454,952,188	\$913,804,094	\$222,055,771	\$147,309,725	\$0	\$19,864,078
Savings (Cost)		\$541,148,094		\$74,746,045		(\$19,864,078)

East Kentucky Power Cooperative
 Spurlock Unit #1 Limestone Scrubber Study
 Annual Savings (Costs) Due to Scrubber Operation

Year	Maintenance		Fixed Costs for Capital Exp.		Limestone for Scrubber	
	CAPP - Pike 1.2 lb.	Powder River Basin	CAPP - Pike 1.2 lb.	Powder River Basin	CAPP - Pike 1.2 lb.	Powder River Basin
2009	\$1,628,099	\$1,509,152	\$0	\$5,440,000	\$0	\$0
2010	1,676,942	1,554,427	0	5,405,000	0	0
2011	1,727,250	1,601,059	0	5,365,000	0	0
2012	1,779,067	1,649,092	0	5,325,000	0	0
2013	1,832,439	1,698,563	0	5,280,000	0	0
2014	1,887,412	1,749,521	0	5,230,000	0	0
2015	1,944,035	1,802,006	0	5,180,000	0	0
2016	2,002,356	1,856,067	0	5,120,000	0	0
2017	2,062,427	1,911,749	0	5,060,000	0	0
2018	2,124,299	1,969,101	0	5,000,000	0	0
2019	2,188,028	2,028,174	0	4,930,000	0	0
2020	2,253,669	2,089,019	0	4,855,000	0	0
2021	2,321,279	2,151,689	0	4,775,000	0	0
2022	2,390,918	2,216,241	0	4,690,000	0	0
2023	2,462,645	2,282,728	0	4,600,000	0	0
2024	2,536,525	2,351,210	0	4,500,000	0	0
2025	2,612,620	2,421,746	0	4,395,000	0	0
2026	2,690,999	2,494,398	0	4,280,000	0	0
2027	2,771,729	2,569,231	0	4,160,000	0	0
2028	2,854,881	2,646,307	0	4,025,000	0	0
2029	2,940,527	2,725,697	0	3,885,000	0	0
2030	3,028,743	2,807,467	0	3,735,000	0	0
2031	3,119,605	2,891,692	0	3,575,000	0	0
2032	3,213,193	2,978,442	0	3,400,000	0	0
2033	3,309,589	3,067,795	0	3,215,000	0	0
2034	3,408,877	3,159,829	0	3,015,000	0	0
2035	3,511,143	3,254,624	0	2,800,000	0	0
2036	3,616,477	3,352,263	0	2,570,000	0	0
2037	3,724,972	3,452,831	0	2,320,000	0	0
2038	3,836,721	3,556,416	0	2,055,000	0	0
Net Present Value	\$47,420,347	\$43,955,884	\$0	\$88,323,846	\$0	\$0
Savings (Cost)		\$3,464,463		(\$88,323,846)		\$0

East Kentucky Power Cooperative
 Spurlock #1 Limestone Scrubber Study
 Annual Savings (Costs) Due to Scrubber Operation

Year	Landfill Cost Including Ash Disposal		Energy Replacement for Scrubber		Replacement Energy Differential		Total	
	CAPP - Pike 1.2 lb.	Powder River Basin	CAPP - Pike 1.2 lb.	Powder River Basin	CAPP - Pike 1.2 lb.	Powder River Basin	CAPP - Pike 1.2 lb.	Powder River Basin
2009	\$395,718	\$245,280	\$0	\$0	\$0	\$10,647,780	\$77,613,759	\$70,551,563
2010	407,590	252,638	0	0	0	10,967,213	78,106,549	71,545,670
2011	419,818	260,218	0	0	0	11,296,230	75,216,275	70,357,729
2012	432,412	268,024	0	0	0	11,635,117	78,073,904	71,970,500
2013	445,385	276,065	0	0	0	11,984,170	79,197,689	72,884,373
2014	458,746	284,347	0	0	0	12,343,695	79,847,745	73,497,102
2015	472,508	292,877	0	0	0	12,714,006	82,023,827	75,441,721
2016	486,684	301,663	0	0	0	13,095,426	81,570,999	75,483,952
2017	501,284	310,713	0	0	0	13,488,289	79,711,623	74,478,116
2018	516,323	320,035	0	0	0	13,892,938	78,598,160	73,875,305
2019	531,812	329,636	0	0	0	14,309,726	78,063,325	73,574,850
2020	547,767	339,525	0	0	0	14,739,018	78,101,738	73,539,639
2021	564,200	349,711	0	0	0	15,181,188	78,624,605	73,660,978
2022	581,126	360,202	0	0	0	15,636,624	79,630,859	73,977,492
2023	598,560	371,008	0	0	0	16,105,723	82,101,816	75,215,213
2024	616,516	382,138	0	0	0	16,588,894	84,932,479	76,513,011
2025	635,012	393,602	0	0	0	17,086,561	88,001,095	77,869,263
2026	654,062	405,410	0	0	0	17,599,158	90,678,197	79,165,123
2027	673,684	417,573	0	0	0	18,127,133	93,387,125	80,494,056
2028	693,895	430,100	0	0	0	18,670,947	96,142,418	81,856,211
2029	714,711	443,003	0	0	0	19,231,075	98,929,713	83,252,590
2030	736,153	456,293	0	0	0	19,808,007	101,763,558	84,688,377
2031	758,237	469,982	0	0	0	20,402,248	104,644,046	86,164,194
2032	780,984	484,081	0	0	0	21,014,315	107,571,275	87,675,676
2033	804,414	498,604	0	0	0	21,644,744	110,559,803	89,238,071
2034	828,546	513,562	0	0	0	22,294,087	113,595,279	90,837,468
2035	853,403	528,969	0	0	0	22,962,909	116,692,263	92,484,150
2036	879,005	544,838	0	0	0	23,651,797	119,865,318	94,188,423
2037	905,375	561,183	0	0	0	24,361,351	123,100,107	95,936,439
2038	932,536	578,018	0	0	0	25,092,191	126,411,199	97,743,546
Net Present Value	\$11,525,778	\$7,144,078	\$0	\$0	\$0	\$310,129,515	1,735,954,083	1,530,531,218
Savings (Cost)		\$4,381,700		\$0		(\$310,129,515)		\$205,422,865

EAST KENTUCKY POWER COOPERATIVE, INC.

PSC CASE NO. 2006-00132

INFORMATION REQUEST RESPONSE

PUBLIC SERVICE COMMISSION DATA REQUEST DATED

MAY 5, 2006

REQUEST NO. 6

RESPONDING PERSON: Jerry Bordes

Request No. 6: Refer to the Table titled, “Brandt Prepared Testimony Exhibit 1.”

Provide an explanation of why sulfur dioxide emission allowance costs drop sharply between 2018 and 2035.

Response No. 6: That exhibit is based on the allowance cost forecast prepared by EVA. EVA has informed EKPC that the forecast assumes that SO₂ allowance costs will decrease between 2018 and 2035, due to continuing improvements in the technology for upgrading scrubber performance. It assumes that such scrubber upgrades will involve relatively minimal costs, but will result in increases in SO₂ removal rates, which will lower the marginal cost of SO₂ removal. Such increased scrubber efficiency, and the retirement of older, unscrubbed generating units, are assumed to reduce the demand for SO₂ allowances, thereby reducing the market price in the subject time period.