



Competitive  
Power Ventures, Inc.

January 26, 2001

Mr. Alvaro Linero  
Administrator,  
New Source Review Section  
Bureau of Air Regulation  
Department of Environmental Protection  
111 South Magnolia Drive, Suite 4  
Tallahassee, FL 32301

Re: CPV Gulfcoast, Ltd. Response to EPA Region IV comments dated  
December 27, 2000  
File No. 0810194-001-AC (PSD-FL-300),  
CPV Gulfcoast Power Generating Facility

Dear Mr. Linero:

Following are CPV Gulfcoast, Ltd.'s response to EPA Region IV comments filed in a letter to DEP dated December 27, 2000.

CPV has revised the BACT calculations to incorporate the concerns raised by EPA Region IV. The revisions include four cases based on the EPA comments. The cases are attached.

Case 1: All comments of EPA Region IV are incorporated into the calculations of oxidation catalyst cost effectiveness. The revised calculations result in an oxidation catalyst cost estimate of \$3,050 per ton of CO removed.

Case 2: All comments of EPA region IV are incorporated into the calculations of oxidation catalyst cost effectiveness with the exception of the change in interest rate. The interest rate is maintained at 8% in this case. CPV believes this interest rate is an appropriate representation of the rates available to merchant generating facilities. The

Additionally, since the PSD permit contains a separate CO emission limit (15 ppmvd) when the CT is operating in power augmentation mode, the PSD permit should also include a definition of power augmentation mode.

2. As previously discussed with FDEP staff, in lieu of PM/PM<sub>10</sub> emission limits in the PSD permit, compliance with the CO emission limits will serve as an indicator that good combustion practices are being maintained. Since Condition 16 (PM/PM<sub>10</sub> and Visible Emissions) does not include PM/PM<sub>10</sub> emission limits, Condition 16 should be modified to include language that clarifies the relationship between CO and PM/PM<sub>10</sub> emissions.
3. Our comments concerning the CO catalytic oxidation and SCONOx<sup>TM</sup> cost analyses are as follows:
  - a. The SCONOx<sup>TM</sup> cost analysis was performed using a controlled NO<sub>x</sub> emission level of 3.5 ppmvd. The SCONOx<sup>TM</sup> cost analysis should be redone using the lower emission level achievable by the SCONOx<sup>TM</sup> pollution control system (about 2 ppmvd).
  - b. The capital recovery costs in Table E-2 (SCONOx<sup>TM</sup>) and Table E-3 (catalytic oxidation) are too high because they contain a double-counting of catalyst costs. Catalyst cost is already included in the annualized "Replacement Catalyst" cost and should be deducted from the "Total Capital Investment" when calculating capital recovery. This concept is explained in the following excerpt from the U.S. Environmental Protection Agency's *OAQPS Control Cost Manual*: "However, whenever there are parts in the control system that must be replaced before the end of its useful life, Equation 2.2 [the capital recovery cost calculation equation] must be adjusted, to avoid double-counting."
  - c. The "Total Capital Investments" sections of Table E-2 and Table E-3 include a 20 percent contingency fee. This is inconsistent with the *OAQPS Control Cost Manual*, which includes a 3 percent contingency fee. CPV-Atlantic's 20 percent contingency fee is much higher than what is normally used in SCONOx<sup>TM</sup> or CO catalytic oxidation cost analyses and should be reduced unless the need for such a high contingency fee can be well documented.
  - d. In addition to the "Fuel Penalty" costs, Table E-3 also includes a cost figure which accounts for the lost revenue from a "Pressure Drop Derate." Although it is appropriate to calculate the cost of using additional natural gas to compensate for the power consumption resulting from pressure drops across the catalyst bed, lost revenue should not be included in the cost analysis and should be omitted.
  - e. An interest rate of 8 percent may be appropriate for the CPV-Atlantic facility; however, it should be noted that the current version of the *OAQPS Control Cost Manual* uses an interest rate of 7 percent. If there is justification for CPV-Atlantic to use a higher interest rate, documentation should be provided.

revised calculations result in an oxidation cost estimate of \$3,088 per ton of CO removed.

Case 3: All comments of EPA Region IV are incorporated into the calculations of oxidation catalyst cost effectiveness with the exception of the reduction in contingency costs. The contingency cost is maintained at 20% in this case. CPV believes this level of contingency is appropriate given the level of activity and uncertainty in the generating industry at this time. The revised calculations result in an oxidation cost estimate of \$3,290 per ton of CO removed.

Case 4: All comments of EPA Region IV are incorporated into the calculations of oxidation catalyst cost effectiveness with the exception of the change in derate. CPV has maintained the original derate as it represents a true cost to the facility. The revised calculations result in an oxidation catalyst cost estimate of \$3,870 per ton of CO removed.

CPV does not believe an oxidation catalyst is cost effective for this project in any of the four cases presented.

If DEP has any questions regarding these revisions, please do not hesitate to contact me at 781-848-0253. We appreciate the opportunity to work with you to resolve these issues and we look forward to expeditious issuance of the permit.

Sincerely,

Sean Finnerty  
Director, Project Development

Attachments.

CC: Gary Lambert  
Cathy Sellers

Table E-3. CPV Gulf Coast CO Catalyst	
COST COMPONENT	PER COST
<b>DIRECT COSTS</b>	
Purchased Equipment Costs	
CO Catalyst (Engelhard Budgetary Quote)	\$560,000
Sales Tax (6% of purchased equipment costs)	\$33,600
Freight (4% of purchased equipment costs)	\$22,400
Subtotal-Purchased Equipment Costs (PEC)	\$616,000
Direct Installation Costs	
Installation/Foundation (35% of Catalyst Capital Cost)	\$196,000
Subtotal-Direct Installation Costs	\$196,000
<b>TOTAL DIRECT COSTS (TDC)</b>	<b>\$812,000</b>
<b>INDIRECT INSTALLATION COSTS</b>	
Engineering Costs (5% of PEC)	\$30,800
Contingency (3% per pg 3-50 of EPA 453/B-96-001, reduced from 20% item 2e of EPA letter dated 12-27-00)	\$24,360
<b>TOTAL INDIRECT COSTS</b>	<b>\$55,160</b>
<b>TOTAL CAPITAL INVESTMENT (TCI)</b>	<b>\$867,160</b>
<b>DIRECT ANNUAL COSTS</b>	
100% Capacity factor	
8,760 Equivalent Operating Hours per Year (per CTG)	
720 Oil-Fired operating hours/year	
Maintenance Materials and Labor (2% of TCI)	\$17,343
Replacement Catalyst (3 Year Service Life)	\$160,000
\$ 480,000 * Capital Recovery Factor (0.3880 for n = 3 & i = 8%)	
3 Guaranteed catalyst life	
Pressure Drop Derate (Lost Revenue From Sale Of Power)	\$101,178
0.7 Pressure drop across catalyst, inches H2O	
206,300 Full load CTG output (annual average), KW	
275 Output reduction for pressure drop, kW/inch H2O	
193 kW derate	
1,686,300 kW-hr output lost per year	
6 cents per kW-hr	
1	
Fuel Penalty (Increase Fuel Consumption due to back pressure heat rate impact)	\$36,596
1.807E+09 Annual CTG output, kW-hr	
9 Btu/kW-hr	
16,265 mmBtu/yr natural gas	
2.25 \$/mmBtu natural gas	
Catalyst Disposal	\$16,667
\$ 50,000 at the end of catalyst guaranteed life	
<b>TOTAL DIRECT ANNUAL COSTS</b>	<b>\$331,783</b>
<b>INDIRECT ANNUAL COSTS</b>	
Overhead (60% of labor and maintenance materials)	\$10,406
Property Tax (1% of TCI)	\$8,672
Insurance (1% of TCI)	\$8,672
Administration (2% of TCI)	\$17,343
<b>TOTAL INDIRECT ANNUAL COSTS</b>	<b>\$45,092</b>
<b>TOTAL ANNUAL COSTS</b>	<b>\$376,876</b>
<b>CAPITAL RECOVERY FACTOR, CFR = <math>i * (1+i)^n / ((1+i)^n - 1)</math></b>	
10 Equipment Life (years)	
7 Interest Rate (%) (Changed from 8% per Item 2c of EPA letter dated 12-27-00)	
Capital Recovery Factor	0.1424
<b>CAPITAL RECOVERY COSTS (Catalyst replaced cost subtracted per Item 2d of EPA letter dated 12-27-00)</b>	
<b>TOTAL CAPITAL REQUIREMENT</b>	<b>\$867,160</b>
<b>CATALYST REPLACEMENT COST</b>	<b>-\$160,000</b>
<b>TOTAL CAPITAL REQUIREMENT MINUS CATALYST REPLACEMENT COST</b>	<b>\$707,160</b>
<b>TOTAL ANNUALIZED CAPITAL REQUIREMENT</b>	<b>\$100,684</b>
<b>TOTAL ANNUALIZED COST</b> (Total annual O&M cost and annualized capital cost)	<b>\$477,559</b>
<b>BASELINE POTENTIAL CO EMISSIONS (TPY) FROM TURBINE</b>	
Uncontrolled General Electric 7FA Turbine Emissions = 9 ppm on gas for 6,040 hr/yr (no power augmentation)/ 15 ppm on gas for 2,000 hr/yr (power augmentation)/20 ppm on oil for 720 hr/yr	164
<b>TONS OF CO REMOVED PER YEAR</b>	
Controlled General Electric 7FA Turbine Emissions = assume 80% control efficiency	123
<b>COST-EFFECTIVENESS</b>	
<b>ENVIRONMENTAL BASIS</b> (\$ per ton of CO removed)	<b>\$3,870</b>

## Holladay, Cleve

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**From:** Dee Morse [Dee\_Morse@nps.gov]  
**Sent:** Tuesday, January 23, 2001 1:51 PM  
**To:** Holladay, Cleve  
**Subject:** Re: PSD Class I Analysis for CPV Atlantic

cc:Mail note part

cc:Mail note part

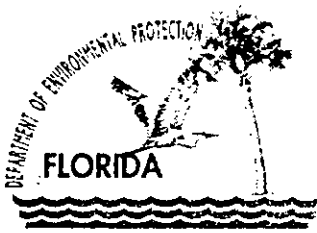
Cleve,

Thanks for the information on this CPV Atlantic Power Generating Facility. Given the emissions (126 TPY of NOx, 76 TPY of SO2, and 103 TPY of PM10) and the distance (180 km) from Everglades to the source location we do not have any concerns that this source will have potential significant impacts on AQRVs at Everglades NP.

Thanks for keeping us informed.

Dee Morse  
Air Resources Division  
National Park Service  
Phone: 303 969-2817  
Fax: 303 969-2822  
e-mail: dee\_morse@nps.gov

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| To: Dee Morse/DENVER/NPS |
| cc: |
| Subject: PSD Class I Analysis for CPV Atlantic |
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Jeb Bush  
Governor

# Department of Environmental Protection

Twin Towers Office Building  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

David B. Struhs  
Secretary

January 11, 2001

Mr. Gregg Worley, Chief  
Air, Radiation Technology Branch  
Preconstruction/HAP Section  
U.S. EPA, Region 4  
61 Forsyth Street  
Atlanta, Georgia 30303

RE: CPV Atlantic, Ltd.  
CPV Atlantic Power Generating Facility  
Facility ID No. 1110101-001-AC, PSD-FL-312

Dear Mr. Worley:

Enclosed for your review and comment is an application for CPV Atlantic, Ltd. to construct a 250 MW combined-cycle power generation facility in St. Lucie County, Florida.

Your comments may be forwarded to my attention at the letterhead address or faxed to the Bureau of Air Regulation at 850/922-6979. If you have any questions, please contact me at 850/921-9523.

Sincerely,

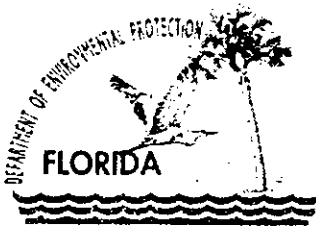
*AL*  
Al Linero, P.E.  
Administrator  
New Source Review Section

AAL/pa

Enclosure

"More Protection, Less Process"

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Jeb Bush  
Governor

# Department of Environmental Protection

Twin Towers Office Building  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

David B. Struhs  
Secretary

January 11, 2001

Mr. John Bunyak, Chief  
Policy, Planning & Permit Review Branch  
NPS – Air Quality Division  
Post Office Box 25287  
Denver, Colorado 80225

RE: CPV Atlantic, Ltd.  
CPV Atlantic Power Generating Facility  
Facility ID No. 1110101-001-AC, PSD-FL-312

Dear Mr. Bunyak:

Enclosed for your review and comment is an application for CPV Atlantic, Ltd. to construct a 250 MW combined-cycle power generation facility in St. Lucie County, Florida.

Your comments may be forwarded to my attention at the letterhead address or faxed to the Bureau of Air Regulation at 850/922-6979. If you have any questions, please contact me at 850/921-9523.

Sincerely,

*for* Al Linero, P.E.  
Administrator  
New Source Review Section

AAL/pa

Enclosure

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