

Jeb Bush
Governor

Department of Environmental Protection

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

David B. Struhs
Secretary

October 26, 2000

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Steven F. Gilliland, Sr. Vice President
Duke Energy North America
5400 Westheimer Court
Houston, TX 77056-5310

Re: Request for Additional Information
Project No. 1110100-001-AC (PSD-FL-302)
Duke Energy Fort Pierce, LLC

Dear Mr. Gilliland:

On October 5, 2000, the Department received an application with sufficient processing fee from Duke Energy for a PSD air permit to construct eight new 80 MW simple cycle combustion turbine/electrical generator sets. Completion of the project will create a new 640 MW electrical generating station located approximately ½ mile east of the Florida Turnpike and 1 mile north of Midway Road in St. Lucie County, Florida. The application is incomplete. To continue processing your application, the Department will need the additional information requested below. Should your response to any of these items require new calculations, please submit the new calculations, assumptions, reference material and appropriate revised pages of the application form.

1. Simple Cycle Operation: The application requests simple cycle operation only. Does Duke Energy plan to convert these units in the future to combined cycle operation? Do the engineering plans include any provisions for accommodating the future installation of heat recovery steam generators (HRSGs)? The Department intends to limit operation to simple cycle only. Any future request to add combined cycle operation will require a permit modification and PSD review for CO and NOx. Please plan accordingly.
2. Combustors and Control System: Please identify the model of dry low-NOx combustors that will be included with each unit. Please identify the model and describe the automated gas turbine control system that will be installed with each unit.
3. Inlet Air-Cooling System: Please describe and detail the "air-cooled" auxiliary inlet air cooling system (page 2-5). The application also mentions an inlet fogging system to enhance power output during the summer months. Is this a high-pressure, direct water spray system? Please describe the system and identify the manufacturer, model, designed cooling reduction (°F), operating pressure, and water consumption rate.
4. Fuel Tanks: What is the size (gallons) of each of the four fuel oil tanks to be installed?
5. CO Emissions Standards: Although the application requests a CO standard for gas firing of 25.0 ppmvd, the Department is aware of actual field data showing CO emissions to be less than 10 ppmvd, particularly at typical stack test conditions near 100% base load. The Department has recently permitted GE 7EA units with the following CO emissions standards for gas firing:
 - 25.0 ppmvd @ 15% oxygen based on a 3-hour test at 100% base load, first year of operation
 - 20.0 ppmvd @ 15% oxygen based on a 3-hour test at 100% base load, after first year of operation

"More Protection, Less Process"

Printed on recycled paper.

Table 3-3 indicates CO emissions of 42.0 ppmvd (58.0 lb/hour) at 60% of base load and an inlet temperature of 101° F. Is this correct? Please comment on these items.

6. NOx Emissions Standards: The application requests a NOx emission standard for gas firing of 12.0 ppmvd corrected to 15% oxygen for the General Electric 7EA gas turbine. The Department has emissions performance data from General Electric that indicates NOx emissions for this unit will be 9.0 ppmvd corrected to 15% oxygen. The Department has recently permitted GE 7EA units with the following NOx emissions standards:

- 9.0 ppmvd @ 15% oxygen based on a 3-hour test at 100% base load, and
9.0 ppmvd @ 15% oxygen based on a 24-hour block CEMS average of available operating hours
- 9.0 ppmvd @ 15% oxygen based on a 3-hour test at 100% base load, and
10.0 ppmvd @ 15% oxygen based on a 3-hour rolling CEMS average

Please comment.

7. SAM Emissions: Page 5-21 states that approximately 10% of the SO₂ emissions are oxidized to SO₃, eventually forming sulfuric acid mist (H₂SO₄, SAM). Based on the application, the project would result in 27.4 tons of SAM per year. Table 62-212.400-2, F.A.C. identifies “7.0 tons per year” as the PSD Significant Emission Rate for SAM. Please provide a BACT analysis for SAM emissions.
8. VOC Standard: Please correct the VOC emissions rate from “ppmvw” to “ppmvd corrected to 15% oxygen”.
9. SCR and CO Oxidation Catalyst Cost Analyses:

The application indicates an incremental cost effectiveness of \$50,602 per ton of NOx removed for the installation of SCR and an incremental cost effectiveness of \$21,832 per ton of CO removed for the installation of an oxidation catalyst. After reviewing information for similar projects, the Department believes these estimates are inaccurate. In fact, a similar Duke Energy project in Madison, Ohio involved the General Electric Model 7EA with annual operation of 2500 hour of gas firing and 500 hours of oil firing. The agency’s permit documentation (July 1999) indicates an incremental cost effectiveness of \$19,000 per ton of NOx removed for the installation of SCR and an incremental cost effectiveness of \$9000 per ton of CO removed for the installation of an oxidation catalyst. Other projects in the United States have estimated the cost effectiveness of each of these technologies to be much lower than presented in this application.

For projects requesting operating limits on “groups” of gas turbines instead of individual units, EPA requires calculating the “cost effectiveness” based on the maximum operation for a given unit. For example, based on the application provided, this would be 7760 hours per year of gas firing and 1000 hours per year of oil firing. This would result in annual NOx emissions of 239 tons per year and a potential NOx reduction from SCR of 167 tons per year based on 71% control efficiency. Please base the NOx and CO cost effectiveness calculations (\$/ton pollutant removed) on the worst case requested. If the worst case is for oil firing, then include emissions from oil firing based on the same control efficiency. The worst case may be different for the SCR analysis and oxidation catalyst analysis. Note: In addition to the caps requested on total operation of the 8 gas turbines, the Department is considering an operating limit of 5000 hours per year for each turbine.

- a. Please provide the actual vendor’s quotes (with equipment listed) for the SCR system and for the oxidation catalyst system.
- b. Please describe the “instrumentation” that would be provided for the SCR system (\$203,700) and for the oxidation catalyst system (\$124,200). Is this instrumentation already included in the vendor quotes? If no instrumentation is proposed, please remove these costs.

- c. Please revise the SCR cost analysis and the oxidation catalyst cost analysis for the following items:

Capital Cost Items

- Revise the state sales tax from 7% to 6% (Florida); verify that there will actually be a sales tax for the purchased equipment;
- Revise the “contingency” factor under indirect capital costs for hot SCR from 0.20 to 0.10; and
- Remove the cost for “simple interest during construction”;

Annual Cost Items

- Revise the cost for “power loss due to pressure drop across the catalyst” based on \$0.04 / kWh or provide supporting documentation for \$0.065 / kWh;
- Revise the cost for “operating labor” based on 625 hours of labor per year (2500 hr/yr* / 12 hr/shift x 3 hr labor/shift);
- Revise cost for “supervisory labor” accordingly;
- Revise the cost for “maintenance labor” based on 833 hours of labor per year (2500 hr/yr* / 12 hr/shift x 4 hr labor/shift);
- Revise the cost for “maintenance materials” accordingly;
- Remove the cost for “revenue loss during catalyst replacement” (can be scheduled during normal down time);
- Remove the costs for “catalyst cleaning” and “catalyst replacement labor”;
- Revise the state sales tax from 7% to 6% (Florida); verify that there will actually be a sales tax for the purchased catalyst;
- Revise the “overhead” costs based on previous changes; and
- Remove the cost for “property tax” for the control equipment.

Emissions Reduction

- If the costs are estimated at 8760 hours per year, then the emissions reductions should be based on the same. * If a limit is requested for each simple cycle gas turbine of 5000 hours per year, substitute 5000 for 2500.
- Revise the oxidation catalyst control efficiency from 80% to 90% or provide a reference for the assumed 80% control efficiency.

10. PSD Class I Impact Analysis: In July of 2000, representatives for Duke Energy met with representatives of the Department in a pre-application meeting to discuss various issues. During this meeting, Duke Energy questioned whether or not a PSD Class I Ambient Air Quality Impact Analysis for the Everglades National Park was necessary for a combustion turbine project fired completely with natural gas. The Department relayed a response to Duke Energy from the National Park Service that a PSD Class I Ambient Air Quality Impact Analysis was not necessary for the project, as described, fired solely with natural gas. The following table lists the annual emissions given to the Department at that time of the meeting as well as the annual potential emissions as submitted in the application:

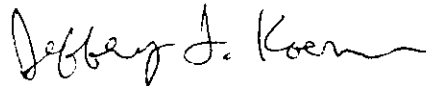
Pollutant	Pre-Application TPY	Application TPY
CO	400	580
NOx	225	1010
PM10	120	170
SO2	100	274

Obviously, Duke Energy now intends to fire low sulfur distillate oil as a backup fuel based on an interruptible gas supply contract (page 2-7) and has requested up to 1000 hours of oil firing per gas turbine. Please submit the required PSD Class I Ambient Air Quality Impact Analysis for this project.

11. Class II Building Downwash Analysis: The modeling files that were submitted with the application modeled all six combustion turbines as a single stack and building. The results were then multiplied by six to obtain the modeled concentration. This configuration does not adequately address all building downwash concerns. Please resubmit a modeling analysis that models each of the six combustion turbines and their associated buildings explicitly. Also, please submit the input file for the BPIP program.
12. Modeled Annual NOx Concentrations: Please submit some example calculations that show how the modeled annual NOx concentrations for the oil scenario were derived from the conversion factors presented in Appendix B.
13. NSPS Monitoring: Is Duke Energy proposing an Alternate Monitoring Plan to demonstrate compliance with the NSPS Subpart GG monitoring requirements for NOx and SO2? Which proposed emission units would be subject to 40 CFR 60 Subpart Dc requirements as indicated on page 4-6?
14. Acid Rain: The application does not indicate whether or not the application for an Acid Rain permit has been submitted. The new gas turbines will be subject to the Acid Rain (Title IV) provisions. You are notified that an application for a Title IV Acid Rain Permit must be submitted at least 24 months before the date on which a new unit begins serving an electrical generator greater than 25 MW. The application must be submitted to the Region 4 office of the U.S. Environmental Protection Agency in Atlanta, Georgia with a copy to the Department's Bureau of Air Regulation in Tallahassee.

The Department will resume processing your application after receipt of the requested information. Rule 62-4.050(3), F.A.C. requires that all applications for a Department permit must be certified by a professional engineer registered in the State of Florida. This requirement also applies to responses to Department requests for additional information of an engineering nature. For material changes to the application, please submit a new certification statement by the authorized representative or responsible official. Rule 62-4.055(1), F.A.C. now requires permit applicants to respond to requests for information within 90 days. If there are any questions, please contact me at 850/414-7268. Questions regarding the air quality analysis should be directed to the project meteorologist, Chris Carlson, at 850/921-9537.

Sincerely,



Jeffery F. Koerner, P.E.
New Source Review Section

AAL/jfk

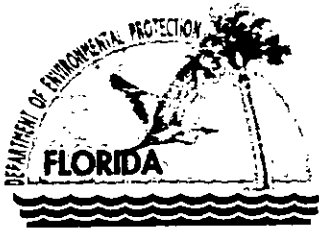
cc:

Mr. Nathan L. Plagens, Duke Energy North America
Ms. Pamela A. Lehr, CH2M HILL
Mr. Isidore Goldman, SED
Mr. John Bunyak, NPS
Mr. Gregg Worley, EPA Region 4

SENDER: COMPLETE THIS SECTION	COMPLETE THIS SECTION ON DELIVERY	
<ul style="list-style-type: none">Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.Print your name and address on the reverse so that we can return the card to you.Attach this card to the back of the mailpiece, or on the front if space permits.	A. Received by (Please Print Clearly)	B. Date of Delivery 10-30-00
	C. Signature X <i>H. Herrick</i> <input type="checkbox"/> Agent <input type="checkbox"/> Addressee	
D. Is delivery address different from item 1? <input type="checkbox"/> Yes If YES, enter delivery address below: <input type="checkbox"/> No		
1. Article Addressed to: Mr. Steven F. Gilliland Sr. Vice President Duke Energy North America 5400 Westheimer Ct Houston; TX 77056-5310	3. Service Type <input type="checkbox"/> Certified Mail <input type="checkbox"/> Express Mail <input type="checkbox"/> Registered <input type="checkbox"/> Return Receipt for Merchandise <input type="checkbox"/> Insured Mail <input type="checkbox"/> C.O.D.	
4. Restricted Delivery? (Extra Fee) <input type="checkbox"/> Yes		
2. Article Number (Copy from service label) 7099 3400 0000 1453 1552		
PS Form 3811, July 1999	Domestic Return Receipt	102595-99-M-1789

255T 144T ES4T 0000 001E 960?

U.S. Postal Service CERTIFIED MAIL RECEIPT (Domestic Mail Only; No Insurance Coverage Provided)		
Article Sent To: Mr. Steven F. Gilliland, Sr. VP		
Postage \$	Duke Energy No. America	Postmark Here
Certified Fee		
Return Receipt Fee (Endorsement Required)		
Restricted Delivery Fee (Endorsement Required)		
Total Postage & Fees \$		
Name (Please Print Clearly) (To be completed by mailer) Mr. Steven F. Gilliland, SR. VP		
Street, Apt. No., or PO Box No. 5400 Westheimer Ct		
City, State, ZIP+4 Houston, TX 77056-5310		
PS Form 3800, July 1999	See Reverse for Instructions	



Jeb Bush
Governor

Department of Environmental Protection

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

David B. Struhs
Secretary

October 11, 2000

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

RE: Duke Energy Fort Pierce, LLC
Duke Energy Fort Pierce Generating Station
PSD-FL-302
Facility ID No. 1110100-001-AC

Dear Mr. Bunyak:

Enclosed for your review and comment is an application for construction of a PSD source. The applicant, Duke Energy Fort Pierce, LLC, proposes to construct and operate a power generating 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 the project engineer, Jeff Koerner at 850/414-7268.

Sincerely,

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

AAL/jka

Enclosures

cc: Jeff Koerner



Jeb Bush
Governor

Department of Environmental Protection

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

David B. Struhs
Secretary

October 11, 2000

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


RE: Duke Energy Fort Pierce, LLC
Duke Energy Fort Pierce Generating Station
PSD-FL-302
Facility ID No. 1110100-001-AC

Dear Mr. Worley:

Enclosed for your review and comment is an application for construction of a PSD source. The applicant, Duke Energy Fort Pierce, LLC, proposes to construct and operate a power generating 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 the project engineer, Jeff Koerner at 850/414-7268.

Sincerely,


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

AAL/jka

Enclosures

cc: Jeff Koerner

"More Protection, Less Process"

Printed on recycled paper.