



August 28, 2012

**TRANSMITTAL VIA E-MAIL**

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Office of Permitting & Compliance  
Division of Air Resource Management  
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**RE:** Comments on Draft PSD/AC Permit – Anclote Power Plant  
DEP File No: 1010017-013-AC (PSD-FL-419)  
Anclote Gas Conversion Project  
Florida Power Corp. d/b/a Progress Energy Florida, Inc.  
Facility ID No: 1010017  
Pasco County

Dear Mr. Linero,

Please find below comments on the Draft Air Construction (AC) & Prevention of Significant Deterioration (PSD) Permit and Technical Evaluation & Preliminary Determination (TE & PD) for the gas conversion project for the Florida Power Corporation d/b/a Progress Energy Florida, Inc. ("PEF") Anclote Power Plant. Any requested changes are shown in red with ~~strikethrough~~ for deletion and double underline for insertion.

**I. FINAL DRAFT AIR CONSTRUCTION/PSD PERMIT: 1010017-013-AC/PSD-FL-419**

**Comment:** Section 1: Facility Description & Section 3, Subsection A, Specific Condition No. 1 - *Previous Permits*: In the Facility Description the date in which the limited natural gas firing capability was installed is incorrect. The year noted (1998) was the year in which the final permit authorizing the installation of the natural gas burners (i.e., Permit number 1010017-003-AC) was issued; specifically, this permit was issued on October 13, 1998. Therefore, please make the following changes:

*Units 1 and 2 are residual fuel oil and natural gas-fired steam electric generating units. Each boiler provides steam to a steam turbine-electric generator with a gross nameplate*

*rating of 556.2 megawatts (MW). Units 1 and 2 began commercial operation in 1974 and 1978, respectively as residual fuel oil units. ~~Limited natural gas firing capability of 2,300 million Btu per hour (MMBtu/hour) was installed on each in 1998. An Air Construction permit for installation of limited natural gas firing capability of 2,300 million Btu per hour (MMBtu/hour) was issued in October 1998.~~*

and

- 1. Previous Permits: The conditions of this section supplement all previously issued air construction permits affecting Units 1 and 2. These include the original construction permit issued in 1971, a permit issued in ~~1999~~ 1998 to install partial natural gas capability and a permit issued in 2007 affecting sulfur dioxide (SORR2RR) monitoring. Unless otherwise specified, these conditions are in addition to all other applicable permit conditions. However, this permit supersedes the approved fuels and authorized heat input authorizations and limitations contained in previous permits. Relevant provisions of these permits are incorporated in the Facility Title V Operation Permit.*

**Comment:** Section 3, Subsection A, Specific Condition No. 2 - *Natural Gas Conversion Project*: PEF is not requesting a change to Specific Condition 2.a; however, PEF would like to clarify that, although the project will result in the net addition of the three (3) levels of natural gas burners, specifically it consists of removing five (5) levels of both light oil-fired igniters and residual oil burners and two (2) levels of gas burners and the addition of five (5) levels of new gas burners will then be installed in each boiler.

Additionally, in order to maintain the gross generating capacity of the units the gas conversion project will require the addition of two (2) gas-fired natural gas heaters, modification to the natural gas delivery systems, replacement of the existing natural gas metering and regulating (M&R) station and the possible replacement/upgrade of the forced draft (FD) fans. Although PEF believes the addition and replacement/upgrade of this ancillary equipment falls under Condition 2.f, PEF would like to specifically call these items out. Therefore PEF requests the following additions to Condition 2:

- 2. Natural Gas Conversion Project: For Units 1 and 2, the permittee is authorized to perform the following work to convert Units 1 and 2 and associated equipment from present use of heavy fuel oil and natural gas to exclusive use of natural gas.*
  - a. Three additional levels of natural gas burners per furnace;*
  - b. Superheater surface area reductions;*
  - c. Disabling of residual fuel oil firing capability;*

- d. Upgrade of superheater metallurgy;
- e. Upgrade of the burner control and management system;
- f. Replacement/upgrade of the forced draft (FD) fan in each unit;
- g. Addition of two (2) fuel gas heaters;
- h. Modifications to the natural gas delivery systems;
- i. Replacement of the existing natural gas metering and regulating (M&R) station;
- fj. Other modifications to maintain the gross generating capacity or improve the net generating capacity of the units.

**Comment:** Section 1, Subsection A, Specific Condition 5 – *Authorized Fuels*: Remove of the “s” from Units 1 in the first sentence; therefore PEF requests the following change:

- 5. *Authorized Fuels*. After December 31, 2013 only natural gas may be fired in Units 1. After June 30, 2014 only natural gas may be fired in Unit 2.

**Comment:** Section 1, Subsection A, Specific Condition 7(c) - *Visible Emissions*: Because this conversion includes the retrofit of existing boilers with new burners and the inclusion of CCOFA for NO<sub>x</sub> control, the magnitude of opacity determined via COMS during specific periods of operation is unknown at this time. Therefore, in an effort to accommodate possible elevated opacity levels during these periods, PEF requests the following change:

- c. *Visible Emissions*: As determined by COMS data or EPA Method 9, after December 31, 2013 and after June 30, 2014 visible emissions from Unit 1 and Unit 2, respectively, with the exception of Condition 7.c.1 and 7.c.2 below, shall not exceed 15 percent (%) opacity based on a 6-minute block average, except for one 6-minute period per hour of not more than 20%. ~~For periods of startup, shutdown and malfunction, visible emissions shall not exceed 20% opacity except for one 6-minute period per hour of not more than 27% as determined by COMS data or EPA Method 9.~~
  - 1. Excess Emissions - Startup And Shutdown. Excess emissions resulting from startup or shutdown shall be permitted provided that best operational practices to minimize emissions are adhered to and the duration of excess emissions shall be minimized. [Rule 62-210.700(2), F.A.C.]
  - 2. Excess Emissions - Malfunctions. Excess emissions resulting from malfunction shall be permitted providing (1) best operational practices to minimize emissions are

*adhered to and (2) the duration of excess emissions shall be minimized but in no case exceed two hours in any 24 hour period unless specifically authorized by the Department for longer duration. [Rule 62-210.700(1), F.A.C.]*

**Comment:** Section 1, Subsection A, Specific Condition 13 – *Compliance by COMS and CEMS*: Because COMS data is the manner in which the units demonstrate compliance with the opacity standard please clarify if annual visible emissions (VE) test via EPA Method 9 is required on an annual basis. In addition, the term “reestablishing commercial operation” is confusing and PEF request the following change in condition language:

13. *Compliance by COMS and CEMS: Compliance with the standards for opacity and emissions of CO and NOX shall be demonstrated with data collected from the required continuous monitoring systems. Within 90 days of reaching 90% of the design heat input of 5,500 MBTU/hr/unit firing the new gas burners in reestablishing commercial operation of each unit, but not later than 180 days after firing the new gas burners, the permittee shall certify proper operation of each required monitor.*

**Comment:** Section 3, Subsection C, Specific Condition 1- *NESHAP Subpart DDDDD Applicability*: This condition indicates that Natural Gas Heaters are subject to NESHAP Subpart DDDDD because they are located at or part of a major source of HAP as defined in Sec. 40 CFR 63.2. However, the facility regulatory classification on Page 20 of 26, Paragraph 3 of the Technical Evaluation and the first bullet under “Facility Regulatory Classification” on Page 3 of 12 of the Draft Permit, which specifically states the facility will not be a major source (i.e., will be an area source) of HAP following the conversion to 100% natural gas-firing. As a result, the Natural Gas Heaters should not be subject to NESHAP Subpart DDDDD; therefore, PEF requests the deletion of this condition as follows:

~~*1. NESHAP Subpart DDDDD Applicability: These emissions units are subject to Subpart DDDDD, which applies to an industrial, commercial, or institutional boiler or process heater as defined in Sec. 63.7575 that is located at, or is part of, a major source of HAP as defined in Sec. 40 CFR 63.2.*~~

~~*The listed emission units shall comply with 40 CFR 63, NESHAP Subpart DDDDD only to the extent that the regulations apply to the emission unit and its operations (e.g. limited use gas fueled or small gas fueled categories.*~~

~~*[40 CFR 63, Subpart DDDDD – National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, or Institutional Boiler or Process Heater]*~~

**Comment:** Section 3, Subsection C, Specific Condition 3 – *Natural Gas Fired Process Heaters BACT Emissions Limits*: This condition indicates that the two (2) new natural gas-fired process heaters are subject to VOC, SO<sub>2</sub>, PM/PM<sub>10</sub> and NO<sub>x</sub> BACT emission limits; however, the facility was required to only assess BACT for CO. Therefore, please delete all pollutants other than CO this specific condition, which should now read as follows:

3. *Natural Gas Fired Process Heaters BACT Emissions Limits:*

<del><b>NOX</b></del>	<b>CO</b>	<del><b>VOC, SO<sub>2</sub>, PM/PM<sub>10</sub></b></del>
<del>0.095 lb/MMBtu</del>	0.08 lb/MMBtu	<del>2-gr S/100SCF natural gas spec and 10% Opacity</del>

**Comment:** Section 3, Subsection C, Specific Condition 4 – *Natural Gas Fired Process Heaters Testing Requirements*: This condition mentions combined-cycle units, but there are no combined-cycle units located at this site. Therefore, this condition should read as follows:

4. *Natural Gas Fired Process Heaters Testing Requirements:* *Each unit shall be stack tested to demonstrate initial compliance with the emission standards for CO, NOX and visible emissions. The tests shall be conducted within 60 days after achieving the maximum production rate at which the unit will be operated, but not later than 180 days after the initial startup of each ~~combined-cycle~~ unit. As an alternative, a Manufacturer certification of emissions characteristics of the purchased model that are at least as stringent as the BACT values can be used to fulfill this requirement.*

**Comment:** Section 3, Subsection C, Specific Condition 5 – *Equipment*: The process heaters heat the natural gas supply to the boilers and not to CTGs; therefore, this condition should read as follows:

5. *Equipment:* *The permittee is authorized to install, operate, and maintain two 16.5 MMBtu/hour (HHV) process heaters for the purpose of heating the natural gas supply to the ~~CTGs~~ boilers.*

**II. TECHNICAL EVALUATION & PRELIMINARY DETERMINATION**

**Comment:** Section 1.1: Facility Description and Location (Page 2 of 26) – There are two minor errors in this section that require correction. Firstly, the limited natural gas firing capability was not installed in 1998; however, the permit authorizing the capability was issued in October 1998. Secondly, the exhaust temperature for the combined stack provided in the application was 349 °F instead of 320 °F. Therefore, PEF requests the Department revise the narrative as follows:



*Units 1 and 2 are residual fuel oil and natural gas-fired steam electric generating units. Each boiler provides steam to a steam turbine-electric generator with a gross nameplate rating of 556.2 megawatts (MW). Units 1 and 2 began commercial operation in 1974 and 1978, respectively as residual fuel oil units. ~~Limited natural gas firing capability of 2,300 million Btu per hour (MMBtu/hour) was installed on each in 1998. An Air Construction (AC) permit for installation of limited natural gas firing capability of 2,300 million Btu per hour (MMBtu/hour) was issued in October 1998.~~*

*The two units exhaust through a single stack that is 499 feet in height, 24 feet in diameter and at a temperature of approximately ~~320-349~~ degrees Fahrenheit (°F).*

In addition, Table 2 lists the emission units from the current Anclote Facility Title V Air Operation Permit (10100017-012-AV); however, this E.U. is not yet installed on site as these units are to be installed as part of the gas conversion project. Therefore, Table 2 should exclude E.U. 009 as follows:

**Table 2. List of Emissions Units located at the Anclote Plant**

<b>E.U. ID No.</b>	<b>Brief Description</b>
Regulated Emissions Units	
001	Fossil Fuel Fired Steam Generator Unit No. 1
002	Fossil Fuel Fired Steam Generator Unit No. 2
007	Two, 12-cell Mechanical Draft Helper Cooling Towers
008	Relocatable Diesel Fired Engine Driven Generator(s)
<del>009</del>	<del>Two, 16.5 million Btu/hour Natural Gas Fuel Heaters</del>
Unregulated Emissions Units and/or Activities	
003	Surface Coating Operations
005	Emergency Diesel Generator
006	Diesel Air Compressor

**Comment:** Section 1.3: Project Description (Page 3 of 26) - PEF would like to clarify the first bullet; i.e., the type and number included in the pre-conversion and post-conversion burner configuration. The pre-conversion burner configuration consists of five (5) levels of both light oil-fired igniters and five (5) levels of residual oil burners and two (2) levels of gas burners. The gas conversion project will result in the complete removal of all five (5) levels of residual oil burners and light oil-fired igniters, and the two (2) levels of gas burners. Five (5) levels of new gas burners will then be installed each boiler.

**Comment:** Section 2.7: Historical Emissions and Generation Information for the Anclote Plant (Page 10, Paragraph 2) - Although there is another section that clearly discusses excludable emissions (Paragraph 7), the current wording in the following statement could be misconstrued that there is a cap on excludable emissions due to future demand growth/utilization.

*“Selection of the earlier 2-year period (i.e., 2006–2007 versus 2007–2008) simply reduces the amount of excludable emissions due to future demand growth/utilization when determining PSD applicability.”*

For clarification purposes, PEF requests the following language change in this sentence:

*Selection of the earlier 2-year period (i.e., 2006–2007 versus 2007–2008) simply reduces the amount of emissions which will be classified as excludable emissions ~~due to~~ if and when future demand growth/utilization results in the exceedance of the NOx SER when determining PSD applicability.*

**Comment:** Section 4.3: CO BACT Determination for Natural gas Conversion of Units 1 and 2 - Applicant’s CO BACT Proposal (Page 17 of 26) – PEF would like to clarify the first paragraph. In the Anclote gas conversion project PEF will be removing five (5) levels of both light oil-fired igniters and residual oil burners and two (2) levels of gas burners from both boilers. In their place five (5) levels of new gas burners will then be installed on each boiler. Therefore, PEF requests the following language change:

*~~The applicant will remove four levels of residual fuel oil burners and an igniter level while adding three levels of natural gas burners in combination with the existing natural gas burners to provide full output on 100 percent natural gas. The applicant will remove five (5) levels of residual fuel oil burners and five (5) light oil-fired igniter levels and two (2) levels of gas burners. In their place five (5) levels of new gas burners will be installed in each boiler to provide full output on 100 percent natural gas. BACT is not required for NOX. The project will be designed to minimize NOX emissions by CCOFA as clarified by electronic communication from Golder Associates on July 25, 2012.~~*

**Comment:** Section 4.3: CO BACT Determination for Natural Gas Conversion of Units 1 and 2 - Applicant's CO BACT Proposal (Page 17, Paragraphs 4 & 5, and Page 18 of 26, Paragraph 2): The discussion of the applicant's proposed CO emission limit (i.e., 990 lb/hour) should indicate that this limit is per unit. Therefore PEF requests the following changes:

*The applicant proposes a CO BACT limit of 0.18 lb/MMBtu and claims the value is within the range of emission rates recently established as BACT for new units. According to the application, the value is equal based on vendor data that specifies 200 parts per million, by volume, dry at 3% oxygen (ppmvd @ 3% O<sub>2</sub>). According to the applicant, lower furnace temperatures at low loads can result in elevated CO emissions in terms of lb/MMBtu (and ppmvd). However, the applicant believes that overall mass emission rate is relatively constant over the entire boiler operating range from initial ignition at startup to full load and proposes a mass CO emission limit of 990 lb/hour/unit applicable at all loads.*

*In summary the applicant proposes the following as CO BACT:*

- *CO emissions shall be controlled using GCP; and*
- *CO emissions shall be limited to the higher of 0.18 lb/MMBtu or 990 lb/hour/unit, based on a three-hour test average, whichever is greater.*

*As proposed, the technology-based emission standard 0.18 lb CO/MMBtu citation as BACT is superfluous because the alternative 990 lb/hour/unit limit will always be the "higher of" the two except at full load - in which case they are equal.*

**Comment:** Section 4.3: Department's Assessment of Applicant's CO BACT Proposal (Page 17, Paragraph 1) FDEP indicates that it disagrees with the rationale provided in support of the claim that the Ox-Cat is not technically feasible. FDEP also states, "Clearly all of the reasons provided by the applicant (other than economic) refer to coal-fired boilers and are irrelevant to gas-fired boilers." As part of the permit application package, PEF contractor (Golder Associates) researched recent BACT determinations for natural gas-fired utility boilers, as demonstrated in Table 15 of the application package. The BACT analysis looked specifically at natural-gas fired boilers to support the rationale provided and conclusions reached. Therefore, PEF requests that the statement referenced above be removed as gas-fired boilers were considered in the BACT analysis and the paragraph should read as follows:

*For reference, Süd-Chemie supplies catalyst for more difficult application such as biomass-fueled power projects. Johnson-Matthey tends to avoid biomass application, but clearly offers Ox-cat for use in natural gas-fired boilers. [Link to Johnson-Matthey Catalyst Presentation](#). According to Johnson-Matthey, "CO oxidation catalyst is suitable*



*for gas-firing and low/no sulfur fuels". ~~Clearly all of the reasons provided by the applicant (other than economic) refer to coal-fired boilers and are irrelevant to gas-fired boilers.~~*

**Comment:** Section 4.4: Draft BACT Determination for the Natural Gas Process Gas Heater, first bullet (Page 19 of 26) - The number of hours of usage for the gas heaters is incorrect. Consistent with the permit application, the usage should be 3,980 hours; therefore, PEF requests the following change:

*The Project will also require the addition of two fuel gas heaters, one for each of the units. The natural gas heaters will utilize a heat transfer fluid for heating the natural gas and be fired with only natural gas. The application described the specifications for the gas heaters as follows:*

- Usage of ~~3,390~~ 3,980 hour/year/unit;
- Heat input rate of 16.5 MMBtu/hour/unit;
- CO emissions of 0.081 lb/MMBtu; and
- Annual CO emissions of 2.7 tons/year/unit

If you have any questions, please contact Mr. Chris Bradley by telephone at (727) 820-5962 or via e-mail at [Chris.Bradley@pgnmail.com](mailto:Chris.Bradley@pgnmail.com).

Sincerely,



William Luke  
Plant Manager

cc: Suzanne Hamilton, AF39  
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