

US EPA ARCHIVE DOCUMENT



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS TX 75202-2733

Mr. Craig R. Eckberg
Senior Manager, Air Resources
NRG Texas Power LLC
1201 Fannin, Suite 8802
Houston, TX 77002

FEB 11 2013

RE Completeness Determination for NRG Texas Power LLC
Greenhouse Gas Prevention of Significant Deterioration (PSD) Permit Application
Unit 5, S.R. Bertron Generating Station – Harris County, Texas

Dear Mr. Eckberg,

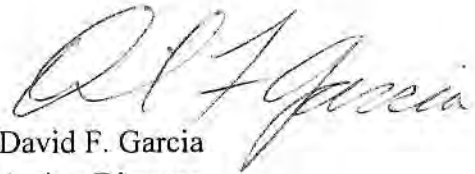
The EPA has reviewed your Greenhouse Gas (GHG) Prevention of Significant Deterioration (PSD) permit application for NRG Texas Power LLC that was received by the EPA on November 26, 2012, including supporting documentation, and determined that your application is incomplete at this time. A list of the information needed from you so that the EPA can continue its completeness review is enclosed (see Enclosure). Please notify us if a complete response is not possible by March 1, 2013.

The requested information is necessary for EPA to develop a Statement of Basis and Rationale for the terms and conditions for any proposed permit. As we develop our preliminary determination, it may be necessary for EPA to request additional clarifying or supporting information. If the supporting information substantially changes the original scope of the permit application, an amendment or new application may be required.

The EPA may not issue a final permit without determining that: 1) there will be no effects on threatened or endangered species or their designated critical habitat, or 2) until it has completed consultation under Section 7(a)(2) of the Endangered Species Act (16 USC § 1536). In addition, the EPA must undergo consultation pursuant to Section 106 of the National Historic Preservation Act (NHPA) (16 USC § 470f). As a reminder, NHPA implementing regulations require that EPA provide information to the public with an opportunity for participation in the Section 106 process. 36 CFR § 800.2(d). We look forward to receiving the Biological Assessment and Cultural Resources Reports that you have agreed to prepare for EPA for our use in complying with these statutes.

If you have any questions regarding the review of your permit application, please contact Melanie Magee of my staff at (214) 665-7161 or magee.melanie@epa.gov.

Sincerely yours,

A handwritten signature in black ink, appearing to read "D. F. Garcia". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

David F. Garcia
Acting Director
Multimedia Planning and
Permitting Division

ENCLOSURE

EPA Information Request

NRG Texas Power LLC – Unit 5, S.R. Bertron Generating Station

Application for Greenhouse Gas Prevention of Significant Deterioration Permit

1. On page 1-1 of the permit application, it states that the proposed project will consist of two combustion turbines, two heat recovery steam generators (HRSGs) equipped with duct burners, and either one or two steam turbines facility. A list of the three combined cycle combustion turbines that are currently being evaluated for this project was provided in the application. In addition to three combined cycle combustion turbines models that are being considered as options for this project, NRG is proposing two phases of construction and operation. The initial operation of the unit (Phase 1) will be in a simple cycle mode until the construction of the HRSG and steam turbine(s) is completed (Phase 2). Following the startup of the HRSG and steam turbine(s), NRG is proposing to retain the option of operating in simple cycle mode. Also on page 5-1 of the application, NRG is proposing to operate the combined cycle combustion turbines with or without duct burners.
 - A. Since your application indicates you are currently evaluating three different manufacturers for this turbine, please supplement with additional data that includes production output, gross heat rate and percent efficiency of each model currently being considered (this information may be represented graphically in load/efficiency curves). Please provide a top down 5-step BACT analysis for the three turbines currently under evaluation for this project.
 - B. Since your application indicates several modes of operation (i.e., combined cycle mode, with and without duct burner operation, and simple cycle mode), please propose a BACT limit for each mode of operation. In addition to the tons per year emission limit, please propose output based or efficiency based limits for each combustion turbine train to be constructed using each turbine model that is being evaluated for this project. Please provide an analysis that substantiates any reasons for infeasibility of a numerical emission limitation, if applicable. For the emission sources where numerical emission limitations are infeasible, please propose an operating work practice standard that can be practically enforceable.
2. On page 4-2 of the permit application, it states that inlet air to each combustion turbine will be cooled during high ambient conditions. What will initiate the coolers startup when needed? Is it automated or manual? How will the heat transfer efficiency be determined and monitored for the evaporative coolers used to cool the inlet air to the combustion turbine? What will alert personnel to possible operating problems? Will continuous monitoring be utilized? What is the proposed compliance monitoring for these coolers?
3. On page 4-3 of the permit application, the process description includes a description of an Auxiliary Boiler and Appendix A on page A-4 contains the Auxiliary Boiler GHG Emission

calculation, however the process flow diagram does not include a representation of the Auxiliary Boiler with the associated GHG emission point number. Please supplement the process flow diagram with this information. Also, verify that the process flow diagram depicts the process description that is contained the application. This includes, but is not limited to, all GHG sources and associated emission point numbers such as fugitive emissions, maintenance, startup and shutdown emissions, etc.

4. On page 6-3 of the permit application, it is stated that periodic tune-up of the turbines helps to maintain optimal thermal efficiency and that the manufacturer of the proposed turbines has an extensive inspection and maintenance program that NRG Texas can implement. The BACT analysis on page 6-10 states that NRG will be implementing this program. Please provide any details you may currently have for this maintenance program which includes the proposed schedule and the proposed monitoring and recordkeeping.
5. On page 6-4 of the permit application, it states that the efficient design of the HRSG improves overall thermal efficiency. If available, please provide any supplemental benchmark data that compares the design of the proposed HRSG to existing or similar sources in the industry. Also, it is stated that thermal efficiency of the turbines is increased by pre-heating the fuel prior to combustion. The BACT analysis on page 6-10 states that pre-heating will be utilized. Please provide any supplemental data that discusses improved percent increase of operating efficiency for the proposed combustion turbine compared to combustion turbines that do not utilize fuel preheating. How will heat transfer efficiency to the fuel be ascertained and assured for the fuel pre-heater?
6. On page 6-7 of the permit application, it states that the instrumentation and control package that will be utilized on the turbines will provide continuous monitoring to ensure the turbines are operating efficiently (e.g., gas flow rate, fuel gas flow and usage, air/fuel monitoring, temperature and pressure monitoring, etc.). Will there be manual overrides and alarms to alert on-site personnel to operating abnormalities? What type of analyzers will be utilized? Will these analyzers provide continuous monitoring?
7. On page 4-3 of the permit application, it states that the Auxiliary Boiler will provide fast start steam requirements during periods when the combustion turbines are out of service. The operation of the boiler will be limited to the equivalent of 4,000 hours per year at the maximum firing rate. Also, on page 6-13, it is stated that due to the very low energy consumption of the small intermittently used boiler, only basic boiler efficiency features are practical for consideration in the boiler design. What is meant by "basic boiler efficiency features?" Please provide supplemental benchmark data that compares the proposed Auxiliary Boiler design efficiency to a similar or existing source in the industry. On page 6-12 in the BACT analysis, automated air/fuel controls was rejected as viable control option because it would not result in any appreciable increase in boiler efficiency or resulting GHG emission reduction due to the intermittent operation. Please provide supplemental information that includes the details to the manual air/fuel controls that will be utilized on the Auxiliary Boiler. How will proper ratios be

assured? Will an O2 analyzer be used? Will there be alarms to alert personnel to operating abnormalities? What operating parameters will be monitored during operation to ensure efficiency and proper fuel combustion? On page 6-13, the BACT analysis states that boiler burner tips will be clean and inspected and tune-ups will be performed as needed and per vendor recommendations. Please provide any details you currently have on the maintenance program and schedule to be implemented for the burner tips. Please provide supplemental information that includes the proposed compliance monitoring strategy for the operational requirements.

8. On page 6-15 of the permit application, it is stated that BACT is determined to be normal plant maintenance practices as needed for safety and reliability purposes for process fugitives. Please provide supplemental information to the 5-step BACT analysis to include the specific maintenance practices that will be utilized for fugitive emissions. What is the proposed compliance strategy? (i.e., frequencies of inspections, maintenance repair strategy, recordkeeping, etc.)