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

Emerson Farrell
Chief Executive Officer and President
FGE Power, LLC
21 Waterway Ave, Suite 300
The Woodlands, TX 77380

DEC 2 3 2013

RE: Application Completeness Determination for FGE Power, LLC
Greenhouse Gas Prevention of Significant Deterioration Permit
FGE Texas Project: Westbrook, Mitchell County, Texas

Dear Mr. Farrell:

The EPA has reviewed your initial Greenhouse Gas (GHG) Prevention of Significant Deterioration (PSD) permit application, including supporting documentation, for FGE Power, LLC received by the EPA on May 6, 2013, 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 January 10, 2014.

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 there will be no effects on threatened or endangered species or their designated critical habitat, or 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 have received your biological assessment and cultural resource report for the project. If we identify issues with these submittals, we will contact you at a future date to request additional information or revisions as appropriate.

If you have any questions regarding the review of you permit application, please contact Aimee Wilson of my staff at (214) 665-7265 or wilson.aimee@epa.gov.

Sincerely,

Carl Young

for Thomas H. Diggs
Associate Director
Air Programs Branch

Enclosure

ENCLOSURE
EPA Comments for FGE Power LLC
Application for Greenhouse Gas Prevention of Significant Deterioration Permit
FGE Texas Project, Westbrook, Mitchell County, Texas

1. On page 1 of the permit application, it is stated that the FGE power plant will be designed to achieve 55% efficiency. On page 60 of the application it is stated that according to Alstom, the GT-24 combustion turbines operating in combined cycle configuration and under optimal conditions have a base load efficiency of up to 60% (HHV). On page 33 of the permit application, it is stated that for the purposes of this application "normal" operation is considered to be 50% to 100% base load for the operating load range. Please clarify what will be the design efficiency of the FGE power plant. Also, please provide supplemental information that includes production output, gross heat rate and percent efficiency for the proposed combustion turbines (this information may be represented graphically in load/efficiency curves).

2. On page 5 of the permit application, it is stated that according to Alstom, the next generation GT24 turbines are capable of delivering more than 55% efficiency (heat rate of 5690 Btu/kWh) while operating in combined cycle mode. This is comparable to other similar classes of natural gas-fired combined cycle combustion turbines in the market. Also, on page 60 of the permit application, the proposed BACT is the efficient turbine design, but the analysis does not appear to compare the selected turbine model to other combustion turbines for which permits have been previously issued. Since efficient turbine designs can vary among turbines, please provide supplemental data to the BACT analysis that explains if other turbines were evaluated for this project and why they were eliminated? Please provide any specific details that outline different design configurations such as a combination of engines and turbines or one large unit as opposed to several smaller units that might have been evaluated to determine the most efficient operation for the proposed project.

3. On page 33 of the permit application, it is stated that each power block (consisting of two combustion turbines and a single steam turbine generator) will generate approximately 728 MW (gross) of power at an ambient temperature of 5°F and 55% relative humidity during combined cycle operation (up to 810 MW gross power at 5°F and 55% relative humidity). It appears as though two different design power ratings are given for the proposed power block (i.e., two combustion turbines and a single steam turbine) at the same conditions. Please clarify.

4. Beginning on page 35 of the permit application, a list and brief summary is provided for the other equipment (i.e., condenser cooling tower, four diesel storage tanks, lube oil reservoirs and ammonia storage and unloading) proposed for the project. Although it is stated that this equipment is not a GHG emission source, it should be represented on the process flow diagram to depict what the project will entail to for a complete permit record. In addition to identifying the emission source with the associated EPN, please label as a non-GHG source for clarity. Also, please show on the process flow diagram the emission sources for fugitives (CH_4, CO_2, and SF_6, fire pump engine, emergency electrical generator engine.)

5. On page 70 of the permit application, it is stated that the design base load net heat rate for the Alstom GT24 combustion turbines is 6408 Btu/kWh (HHV, gross) without duct firing. The following margins were used to adjust the design base load heat rate the proposed combustion turbine being considered for this project: 3.3 % design margin, 6.0% performance margin, 3.0%

degradation margin, and 2.0% conversion of gross output to net. Please provide a basis and supplemental manufacturer's documentation to substantiate these assertions.

6. On page 75 of the permit application, Table 10 includes a summary of the proposed BACT limits for the GHG emission sources for this project. The proposed BACT limit for the combustion turbine is 832 lb CO_2/MWh (net, without duct firing) and 7325 BTU/kWh (net, without duct firing). Please provide the proposed BACT limit in gross values. Also, throughout the permit application it is indicated that duct burners will be utilized; however, the proposed BACT limit presented in Table 10 for the combustion turbines only appears to propose a BACT limit without duct firing. Please provide supplemental information that explains why an additional BACT limit was not proposed for the combustion turbines when in duct firing operating mode. Please provide the supporting calculations for the proposed BACT output-based limits for the combustion turbine and the basis to support the rationale used to derive the limit.

7. The application indicates a proposal for 365 startup and 365 shutdown events for each turbine. Please provide supplemental data to support the rationale for this number of proposed startups and shutdowns. The discussion should include a detailed explanation of the power plant's anticipated operating mode that justifies the proposed startup and shutdown events used to calculate the emission limits

8. Please provide the following additional technical and economic details for this project and its potential for installing a CCS system for recovering CO2 for both enhanced oil recovery (EOR) and non-EOR geologic sequestration:

    a. An itemized cost estimate for capture technology (amine units, cryogenic units, dehydration units and compression facilities) and transport (pipeline, compression) for capture technology that is mentioned on page 66 of the permit application.
    b. Adverse environmental impact(s)/air emission estimates associated with CCS scenarios for both non-GHGs and GHGs.
    c. Water utilization increases and any associated issues that should be considered for the specific site/location such as water availability.
    d. Please show and justify any capital cost recovery factors for the project and why appropriate for the project/company.

9. The global warming potentials (GWP) have been revised by EPA. The final rule published on November 29, 2013 in the Federal Register will be effective for all permits issued on or after January 1, 2014. The methane value was increased from 21 to 25 (times more potent than CO_2), the N_2O value was decreased from 310 to 298, and the N_2O value was decreased from 23,900 to 22,800. Due to the prospective changes in the emissions for methane in the FGE Power application, please provide an updated emission tables using the new GWPs so that EPA can cross-check its own calculations.