

## CALIFORNIA ENERGY COMMISSION

1516 NINTH STREET  
SACRAMENTO, CA 95814-5512



**DATE:** September 3, 2002

**TO:** Interested Parties

**FROM:** Nancy Tronaas, Compliance Project Manager

**SUBJECT:** Public Review of Staff Analysis for Proposed Modifications to the La Paloma Generating Project (98-AFC-2C): Ignition Fuel Modification

The La Paloma Generating Project is a nominal 1048 MW natural gas-fired power plant that is under construction near the town of McKittrick in Kern County, California. On August 6, 2002, the La Paloma Generating Company filed a petition in accordance with Section 1769(a) of the California Code of Regulations to modify the Energy Commission Decision for the following:

**Description of Proposed Changes:** Modification of air quality Condition of Certification AQ-7 to allow either propane or natural gas to be used in the gas turbine igniters. This project change is requested due to recent technical difficulties with the use of natural gas to ignite the main gas turbine fuel flow during cold startups. Propane will produce a hotter flame, which will be more effective during cold start ignition. The propane will be stored within the turbine buildings in two 100 lb. cylinders for each of the four combustion gas turbines, and a fuel gas manifold system will be used for precise metering.

Energy Commission staff reviewed the petition and prepared the enclosed analysis of the proposed change. This analysis provides staff recommendations for revisions to one project condition of certification that will ensure that the proposed modification will not cause any new or additional significant environmental impacts, and that the project will remain in compliance with all applicable laws, ordinances, regulations, and standards. Based on the results of this analysis, Energy Commission staff intends to recommend approval of the petition at the September 25, 2002 Business Meeting of the Energy Commission.

If you have technical questions concerning the enclosed staff analysis, please contact Gabriel Behymer at (916) 654-4482 or by e-mail at [gbehlymer@energy.state.ca.us](mailto:gbehlymer@energy.state.ca.us). If you have questions concerning the amendment process, please call me at (916) 654-3864 or by e-mail at [ntronaas@energy.state.ca.us](mailto:ntronaas@energy.state.ca.us).

**If you wish to submit written comments concerning the enclosed staff analysis, your comments must be received no later than September 24, 2002.**

Enclosure

**La Paloma Generating Project (98-AFC-2C)**  
**Modification of Ignition Fuel Specifications for the La Paloma Generating Project**  
**Staff Analysis prepared by Gabriel D. Behymer**  
**August 30, 2002**

### **Amendment Request**

The La Paloma Generating Company (La Paloma) has submitted a petition to amend the Conditions of Certification for the La Paloma Generating Project (LPGP) to allow the option to burn pure propane, instead of only pipeline-quality natural gas, in the igniters of the four Combustion Gas Turbines (CTG) at the LPGP during cold start sequences. This is proposed because La Paloma has had difficulty starting the turbines under cold conditions using only natural gas. Propane will provide a hotter flame, thus more dependably igniting the main combustion flame and starting the CTGs. The petition requests to modify air quality Condition of Certification AQ-7.

### **Background**

The LPGP is currently under construction approximately 1.5 miles east of the town of McKittrick, in western Kern County. The LPGP will be a 1,048 MW natural gas fired, combined cycle facility. The project is approximately 95% complete, and projected to go into full commercial operation in the fall of 2002.

### **Laws, Ordinances, Regulations and Standards (LORS)**

The applicable LORS are the same as those identified in the October 1999 Commission Decision for the La Paloma Generating Project .

### **Air Quality Analysis**

#### **Ignition Fuel Specification (Propane)**

On April 17, 2002, La Paloma's Engineering, Procurement and Construction (EPC) contractor, Alstom Power, attempted to start La Paloma's Unit 1 CTG several times unsuccessfully. This was the first time La Paloma or their EPC contractor became aware of this issue. The EPC contractor determined that the pilot igniters were not producing a hot enough flame to successfully start the main combustion flame when the CTG itself was cold, and proposed that the use of pure propane in the igniters could resolve the issue. La Paloma received temporary concurrence from the Energy Commission and the San Joaquin Valley Air Pollution Control District (SJVAPCD). The EPC contractor successfully started La Paloma's Unit 1 CTG on April 19, 2002 using propane as the ignition fuel.

The ignition sequence through the pilot igniters of the La Paloma CTG lasts a maximum of 30 seconds, which amounts to a maximum of approximately 180 grams of propane per start up if pure propane were used instead of natural gas. However, the pipeline-quality natural gas normally burned in the CTGs contains a small amount of propane (about 2.1%). At full load, each CTG thus burns about 50 grams of propane per second.

Thus the air quality analysis originally performed when the project was licensed already includes the consideration of the use of propane as a constituent of the fuel. It is thus staff's determination that using this small amount of pure propane in the pilot igniters of the La Paloma CTGs will have no significant impact on ambient air quality. Further, staff believes this change will not significantly alter the proposed maximum startup emissions, as defined in Condition of Certification AQ-10.

Staff proposes the following modifications of the Conditions of Certification for LPGP.

#### REVISIONS TO CONDITIONS OF CERTIFICATION:

(deleted text is shown in ~~strikethrough~~, and new text is underlined):

AQ-7 Except during startup ignition, as described in Condition AQ-8, ~~g~~Gas turbine engine shall be fired exclusively on natural gas, consisting primarily of methane and ethane, with a sulfur content no greater than 0.75 grains of sulfur compounds (as S) per 100 dry standard cubic feet of natural gas. [District Rule 2201]

Gas turbine igniters may be fueled with propane or natural gas during the startup sequence defined in Condition AQ-8. Use of propane during the startup ignition process is limited to 6 grams per second.