

**PALOMAR ENERGY PROJECT (01-AFC-24)  
CEC STAFF DATA REQUEST NUMBER 6**

**Technical Area: Air Quality**

**Response Date: April 8, 2002**

**REQUEST:**

Please summarize the range of stack conditions that may occur during commissioning operations so that the commissioning activities that cause the most severe impacts can be identified.

**RESPONSE:**

Although the commissioning of the plant will be conducted over loads varying from zero to 100%, stack parameters at loads less than 50% will be transient and highly variable. Commissioning impacts were previously modeled using stack parameters at 50% load, since these data were available for this project, and were considered a reasonable representation of a range of conditions that could occur.

As stated in the response to Data Request 5, worst case emissions during commissioning could be on the order of 450 lb/hour of NO<sub>x</sub> and 2000 lb/hour of CO. As indicated by manufacturers data, the worst case emissions for NO<sub>x</sub> would most likely occur at about 49% load when the combustors are switching pre-mix modes to add another stage of combustors. Therefore, the stack parameters at 50% load correspond well to the likely worst case NO<sub>x</sub>. However, worst case CO emissions will occur at very low loads. Since GE only provides performance data for the turbines down to about 20% load, this load is used in the analysis below.

In order to estimate stack parameters for a 20% load case, other similar projects were reviewed. The Colusa Power Plant Project (01-AFC-10) contained a similar analysis and appeared to be representative of the Palomar stack conditions. Therefore, stack parameters (temperature and flow rate) from the Colusa project were used for Palomar.

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The modeling analyses for the Palomar commissioning period were updated to reflect revised worst case emission rates for NO<sub>x</sub> and CO, and incorporated the appropriate stack parameters for each pollutant. The modeling is very conservative, as it assumes both gas turbines are running, when in reality only one gas turbine will most likely be commissioned at a time. Nitrogen dioxide modeling employed the ozone limiting method (OLM) consistent with the modeling analyses in the AFC. The updated peak 1-hour NO<sub>2</sub> impact, including background, was 270.4 µg/m<sup>3</sup> compared to the California Ambient Air Quality Standard (AAQS) of 470 µg/m<sup>3</sup>.

The updated peak 1-hour CO impact, including background, was 17,819 µg/m<sup>3</sup> compared to the California AAQS of 23,000 µg/m<sup>3</sup>. The updated peak 8-hour CO impact, including background, was 8,392 µg/m<sup>3</sup> compared to the federal and California AAQS of 10,000 µg/m<sup>3</sup>.

Based on this updated analysis, emissions during the commissioning of the Palomar Energy Project are not expected to produce an exceedance of either the California or federal AAQS for NO<sub>2</sub> or CO. Three CDs containing the electronic copies of the supplemental modeling data have been provided along with this submittal.