

**Energy Commission Staff Analysis of the
Request for Modification of Permit Conditions
for the King City Energy Center
01-EP-6C**

Modification Request

Calpine, the owner and operator of the King City Energy Center (KCEC) project, requested in December 2002, of the Monterey Bay Unified Air Pollution Control District (MBUAPCD), that certain permit conditions of the KCEC be modified. Calpine requested that the quarterly and annual oxides of nitrogen (NOx) limit specified in Permit to Operate Condition 19 be increased. The MBUAPCD issued a revised Preliminary Determination of Compliance (PDOC) on December 30, 2002 (MBUAPCD 2002) that reflected this increase in quarterly and annual NOx limits. After the close of public comment (30 days from the issuance date, December 30), the MBUAPCD issued an Authority to Construct that approved the requested change (MBUAPCD 2003). The Commission Decision that approved the construction and operation of the KCEC requires that "All conditions and any modifications thereto contained in the ATC permit shall be incorporated herein by reference on the effective date of the ATC permit." (CEC 2001). Therefore the CEC staff must perform an evaluation of this ATC permit change and provide a recommendation to the Commission.

Background

In March 2001, Calpine proposed to build and operate a single LM6000 combustion turbine project (KCEC) in simple cycle configuration at the site adjacent to their existing Frame 7E cogeneration power plant at King City in Monterey County. The combustion turbine is capable of producing 50 MW of electrical energy. In April 2001, the California Energy Commission certified the project under the Commission's 21-day emergency permitting process where peaker projects such as KCEC qualify. As a part of the emergency permitting process, the MBUAPCD issued an Authority to Construct (ATC) for the facility. The project came on-line in January 2002.

Laws, Ordinances, Regulations and Standards

MBUAPCD Rule 200, Part 3.1 requires that a project such as KCEC obtain an Authority to Construct in order to operate. Since the applicant is requesting a change in their original ATC permit conditions, that change requires a re-issuance of a revised ATC and subsequent Permit to Operate (PTO).

Emissions Analysis

The Applicant is requesting that the quarterly and annual NOx limits be increased to the following amounts:

	Pounds of Emissions				
	1 st quarter	2 nd quarter	3 rd quarter	4 th quarter	annual
Original Limit	65,392	66,118	66,845	66,845	265,200
Revised Limit	72,452	73,178	73,905	73,905	293,344

When the KCEC project was originally permitted (MBUAPCD 2001), a quarterly and annual NOx emissions caps were applied that included not only the KCEC but also the King City Cogeneration (KCC) project. The original limits, shown above, were actually the quarterly and annual limits for only the KCC project. At the time of the permitting of the KCEC, the applicant agreed to limit the NOx emissions for both projects to the original cap for KCC. This was accomplished by reducing the NOx emissions at the KCC by injecting additional ammonia to the SCR system and thus reducing NOx. By reducing the KCC emissions, this allowed for the new emissions from KCEC. Now, two years later, the applicant wants to be able to operate the KCEC project without NOx constraints on KCC. In order to do this, an increase in quarterly and annual NOx emissions will be necessary. It should be pointed out that short term, that is hourly and daily emission rates specified in the ATC conditions 4 and 5 are not being increased. By allowing the longer term quarterly and annual NOx emissions increase, either or both the KCC and KCEC will be allowed to operate more hours per calendar quarter than originally permitted.

Impacts

By increasing the quarterly and annual NOx limits, the only ambient air quality standard that can potentially be impacted is the federal annual average NO2 standard. In the MBUAPCD's December 30, 2002 engineering evaluation (MBUAPCD 2002), an air dispersion modeling analysis was provided that showed that the project's impacts ($0.75 \mu\text{g}/\text{m}^3$), plus the highest recently recorded background NO2 levels ($21 \mu\text{g}/\text{m}^3$), result in an overall impact of $21.8 \mu\text{g}/\text{m}^3$ which is less than the $100 \mu\text{g}/\text{m}^3$ national standard. Thus, the increase in quarterly and annual NOx limits will not cause a significant impact to the federal annual average NO2 standard.

Mitigation

The 28,240 lbs/year or 14.12 tons/year NOx increase will be offset, per the requirements of MBUAPCD Rule 207, Section 4.2, at a ratio of 2:1, because of the distance of the project to feasible offset sources. Thus, the applicant is required to surrender 28.24 tons of NOx offsets prior to operating the project. The applicant has not surrendered the offsets yet, and since the KCEC is currently operating, the project cannot operate at the higher quarterly and annual limits until the offsets are surrendered. To enforce this restriction, the MBUAPCD has included the following permit condition in the February 5, 2003 Authority to Construct (MBUAPCD 2003):

- 1) The NOx quarterly and annual limits identified in Permit to Operate 10738 will remain in effect until the King City Energy Center, LLC provides 28.24 tons of approvable NOx offsets to the District.

The February 5, 2003 PTO reflects the higher quarterly and annual limits (Condition 19), but Condition 1 only allows operation to those limits once the offsets are surrendered.

Conclusions and Recommendations

Staff finds that with the ATC Condition 1 limiting the implementation of the revised long term NOx limits until after the surrender of the offsets, that the revised NOx caps are in compliance with all LORS and will not cause a significant air quality impact. Staff therefore recommends approval to the Commission of the permit change reflected in the recent February 5, 2003 MBUAPCD Permit to Operate.

References:

(CEC 2001). California Energy Commission. Commission Decision, King City LM6000 Project. May 2, 2001.

(MBUAPCD 2003). Monterey Bay Unified Air Pollution Control District. Revised Authority to Construct, King City Energy Center, LLC. February 5, 2003.

(MBUAPCD 2002). Monterey Bay Unified Air Pollution Control District. Evaluation Report, Preliminary Determination of Compliance for King City Energy Center, LLC. December 30, 2002.

(MBUAPCD 2001). Monterey Bay Unified Air Pollution Control District. Permit to Operate, King City Energy Center, LLC. May, 2002.