

CALIFORNIA ENERGY COMMISSION

1516 NINTH STREET
SACRAMENTO, CA 95814-5512



DATE: December 12, 2003

TO: Interested Parties

FROM: Lance Shaw, Compliance Project Manager

SUBJECT: **Henrietta Peaker Power Project (01-AFC-18C)**
Staff Analysis of Proposed Modifications
To Air Quality Conditions of Certification

On September 26, 2003, the California Energy Commission (Energy Commission) received a request from GWF Energy LLC (GWF), to amend the Energy Commission Decision for the Henrietta Peaker Power Project.

The Henrietta Peaker Power Project is a 96 MW natural gas-fired power plant that began commercial operation in July 2002. The facility is located west of Lemoore, in an unincorporated part of Kings County, CA, within the boundaries of the San Joaquin Valley Air Pollution Control District.

The proposed modifications will allow GWF to substitute a slightly larger, 300 kilowatt (kW) lower-emitting emergency diesel engine for the 250 kW emergency diesel engine that was originally licensed. Other than being used for emergency operation, the engine will only be operated up to 200 hours per year for maintenance and testing purposes.

Although the maximum hourly emissions of oxides of nitrogen (NO_x) and sulfur dioxide (SO₂) will increase slightly, there will be no increase in maximum NO_x or SO₂ emissions on a daily or annual basis. The emissions of carbon monoxide (CO), volatile organic compounds (VOC) and particulate matter 10 microns in diameter or smaller (PM₁₀) will decrease, despite the larger-sized generator, because the larger engine is a "cleaner" Air Resources Board-Certified Clean Diesel engine.

San Joaquin Valley Air Pollution Control District issued its Notice of Final Action – Authority to Construct (ATC) on October 9, 2003 approving the use of the 471 hp diesel-fired emergency engine .

Energy Commission staff reviewed the proposed petition and assessed the impacts of this proposal on environmental quality, public health and safety. Staff proposes revisions to existing conditions of certification for air quality AQ-53, AQ-54, and the description of the diesel-fired emergency engine description immediately preceding AQ-47.

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It is Commission staff's opinion that, with the implementation of revised conditions, the project will remain in compliance with applicable laws, ordinances, regulations, and standards and that the proposed modifications will not result in a significant adverse direct or cumulative impact to the environment (Title 20, California Code of Regulations, Section 1769).

The air quality staff analysis is attached for your information and review. Energy Commission staff intends to recommend approval of the petition at the January 21, 2004 Business Meeting of the Energy Commission. If you have comments on this proposed project change, please submit them to me at the address above prior to January 21, 2004. If you have any questions, please call me at (916) 653-1227 or e-mail at lshaw@energy.state.ca.us.

Attachment

cc: Mail Lists: 7128, 7129, 7130 & POS

GWF Henrietta Peaker Project (01-AFC-18)
STAFF ANALYSIS: PETITION TO CHANGE SPECIFIED EMERGENCY DIESEL ENGINE

Prepared by: Gabriel D. Taylor

AMENDMENT REQUEST

GWF Energy, LLC (GWF) requests modifications of the air quality Conditions of Certification AQ-53 and AQ-54 for the Henrietta Peaker Project (HPP) to reflect the installation of a larger diesel-powered emergency generator (from 382 bhp (250 kW) to 471 bhp (300 kW)).

BACKGROUND

The Henrietta Peaker Project is a 91.4 MW natural gas-fired peaking power plant located in Kings County, California. The project received final approval from the Energy Commission on March 5, 2002, and began commercial operation on July 1, 2002.

PREVIOUSLY APPROVED AMENDMENTS

On July 23, 2003, the commission approved an amendment to allow GWF to reduce PM10 emission limits at HPP by 39 percent. This reduction subsequently lowered the amount of PM10 emission reduction credits that GWF was required to surrender to the District to mitigate the project's PM10 emission impacts. At the same time, the commission approved modifications to clarify and simplify the methodology for tracking and reporting emissions during startups and shutdowns and eliminate the restriction on the number of startups and shutdowns.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS)

The San Joaquin Valley Air Pollution Control District (SJVAPCD) issued a final Authority to Construct (ATC) for the new engine on October 8, 2003 (SJV 2003a). The ATC was accompanied by a full engineering analysis (SJV 2003b) which concluded that the change is in compliance with all district Rules.

All other applicable LORS are the same as those identified in the original GWF Henrietta Peaker Project analysis.

ANALYSIS

The proposed new generator uses a "cleaner" diesel engine, which produces fewer emissions on a grams-of-pollutant per horsepower-hour (g/hp-hr) basis. AIR QUALITY Table 1 presents the proposed emission limits changes. The district policy when the original permit was issued did not require emissions limits for CO, VOC or SO₂. The district policy has since changed and now requires a limit on all criteria pollutants. GWF thus proposes adding new emissions limits to condition AQ-53 as specified.

AIR QUALITY Table 1
Proposed Emission Limits Reductions
(grams per horsepower-hour, g/hp-hr)

Pollutant	CEC Condition of Certification	Original Limit (g/hp-hr)	Proposed Limit (g/hp-hr)	Decrease
NO_x	AQ-53	5.09	4.69	(0.4)
CO	AQ-53	-	0.12	-
VOC	AQ-53	-	0.04	-
SO₂	AQ-53	-	0.171	-
PM10	AQ-54	0.13	0.029	(0.101)

Source: GWF 2003, Table 1: Summary of Requested Changes to Air Quality Conditions

However, since the proposed engine has a larger capacity (greater horsepower), the potential to emit some pollutants calculated on a pounds per hour basis would increase due to the horsepower differential, while others would decrease. AIR QUALITY Table 2 presents the projected maximum short term potential to emit from both the originally permitted engine and the proposed new engine.

AIR QUALITY Table 2
Projected Maximum Potential to Emit Changes
(pounds per hour, lb/hr)

Pollutant	Original Potential to Emit	Proposed Potential to Emit	Change
NO_x	4.287	4.870	0.583
PM10	0.109	0.030	(0.079)

Source: GWF 2003, Table 1: Summary of Requested Changes to Air Quality Conditions

It should be noted that the emergency generator's connected electrical load of 250 kW will remain unchanged. While AIR QUALITY Table 2 indicates a small increase in the theoretical potential to emit, the actual short-term emissions will likely decrease because the emission factors in g/bhp-hr are lower (AIR QUALITY Table 1) and the connected load of 250 kW remains unchanged. However, since there is no condition limiting GWF's connected emergency electrical load to 250 kW, the above potential to emit is the theoretical maximum.

In addition, though HPP has not requested a modification of the annual hours of operations limit specified in Energy Commission condition AQ-55, the new emissions rates yield a minor change to the theoretical maximum annual emissions from the facility as a whole. AIR QUALITY Table 3 presents the project's overall theoretical change in potential to emit with the installation of the larger proposed engine, on an annual basis. These values are presented as theoretical worst case emissions only, because under normal circumstances the generator will actually operate for less than an hour each week for testing purposes only.

AIR QUALITY Table 3
Projected Change in Project Annual Potential to Emit (pounds)

Pollutant	Original Project Potential to Emit	Annual Change	Total Proposed Potential to Emit	Percent Change
NO_x	99,911	116.67	100,028	+ 0.12%
PM10	32,023	-15.87	32,007	- 0.05%

Source: CEC 2001, Air Quality Table 8: HPP Maximum Annual Emissions (lb/year)

Source: CEC 2003, Table 1 – Proposed Changes to the HPP PM10 Emission Limits

A review of the original air quality analysis in the Staff Assessment (CEC 2001) indicates that the modeled maximum 1-hour and annual NO_x impacts were both well below the state standards, even when added to the maximum recorded background levels (CEC 2001, Air Quality Table 12). The 0.12% increase in NO_x emissions from the new generator will thus not cause a new violation or contribute to an existing violation of the state standards. However, as a precursor to the nonattainment pollutants PM10 and ozone, any increase of NO_x emissions must be mitigated.

Based on district trading ratios, GWF surrendered a total of 59.265 tons of NO_x Emission Reduction Credits (ERCs) to mitigate the facility potential to emit of 49.956 tons (CEC 2001), per AQ-2 and the district permit. Thus, the originally provided mitigation package fully mitigates this small increase of NO_x emissions, particularly considering that the generator will likely operate for less than the permitted 200 hours per year.

CONCLUSIONS

Staff has analyzed the requested changes to the Henrietta Peaker Power Project Conditions of Certification and concludes that there will be no significant air quality impacts associated with approving the requested changes to the conditions. Staff concludes that the proposed changes are based on new information that was not available during the original licensing proceedings and that the proposed changes retain the intent of the original Commission Decision.

Staff supports the modifications to the Conditions of Certification listed below.

PROPOSED CHANGES TO THE CONDITIONS OF CERTIFICATION

Changes are proposed to Conditions of Certification AQ-53, AQ-54 and to the equipment description immediately preceding condition AQ-47. ~~Strikethrough~~ indicates deleted text and **bold underline** indicates replacement or new text. No changes are proposed to any condition verification. Proposed changes are as follows:

SJVAPCD Permit No. UNIT ~~C-3929-4-0~~ - **471 HP CATERPILLAR MODEL 3456 G-3929-3-0** — 382 HP CATAPILLER MODEL 3306-DIESEL-FIRED EMERGENCY IC ENGINE POWERING A ~~300~~ **250** kW **ELECTRICAL** GENERATOR.

AQ-53 NO_x, CO, VOC and SO₂ emissions shall not exceed ~~4.69~~ 5.09 g/hp-hr, **0.12 g/hp-hr, 0.04 g/hp-hr and 0.171 g/hp-hr, respectively**. [District Rule 2201]

AQ-54 PM10 emissions shall not exceed ~~0.029~~ 0.13 g/hp-hr **based on U.S EPA certification using ISO 8178 test procedure**. [District Rule ~~2201~~4402]

REFERENCES

California Energy Commission (CEC 2001). Staff Assessment for the Henrietta Peaker Project, December 2001.

California Energy Commission (CEC 2002). Commission Decision on the Henrietta Peaker Project, March 2002.

California Energy Commission (CEC 2003). Henrietta Peaker Project (01-AFC-18C) Staff Analysis of Proposed Modifications To Air Quality Conditions of Certification, June 24, 2003.

GWF Energy, LLC (GWF 2003). Henrietta Peaker Project (01-AFC-18), Petition for Minor Air Quality Amendment. September 2003.

San Joaquin Valley Air Pollution Control District (SJV 2003a). Authority to Construct (Permit No. C-3929-4-0). October 8, 2003.

San Joaquin Valley Air Pollution Control District (SJV 2003b). Application Review, GWF Energy LLC - Henrietta Peaker (Application No. C-3929-4-0). August 18, 2003.