

CALIFORNIA ENERGY COMMISSION

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DATE: March 4, 2013
TO: Interested Parties
FROM: Dale Rundquist, Compliance Project Manager

California Energy Commission

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01-AFC-24C

TN # 69779

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**SUBJECT: Palomar Energy Center Project (01-AFC-24C)
Staff Analysis of Proposed Modification to Amend Air Quality
Condition of Certification AQ-SC13.**

On December 28, 2012, San Diego Gas and Electric Company (SDG&E) filed a petition with the California Energy Commission (Energy Commission) to amend the Energy Commission Decision for the Palomar Energy Center (PEC) Project. A copy of the Energy Commission staff analysis of this proposed change is enclosed for your information and review.

The PEC project is a 500 MW combined cycle power plant located in the City of Escondido in San Diego County, California. The project was certified by the Energy Commission on August 6, 2003 and began commercial operation on April 1, 2006.

The proposed modification will allow SDG&E to remove the wording in Air Quality Condition of Certification **AQ-SC13** restricting the testing and maintenance of the critical services generator to one hour per week. SDG&E would still perform all of the maintenance and testing of the emergency engine within 52 hours per calendar year between the hours of 10:00 am and 3:00 pm as previously permitted.

Energy Commission staff reviewed the petition and assessed the impacts of this proposal on environmental quality and public health and safety, and proposes a revision to existing condition of certification **AQ-SC13**. It is staff's opinion that, with the implementation of the revised condition, the project will remain in compliance with applicable laws, ordinances, regulations, and standards and that the proposed modification will not result in a significant adverse direct or cumulative impact to the environment (Title 20, California Code of Regulations, Section 1769).

The amendment petition and staff analysis have been posted on the Energy Commission's webpage at www.energy.ca.gov/sitingcases/palomar. The Energy Commission's Order (if approved) will also be posted on the webpage. Energy Commission staff intends to recommend approval of the petition at the May 8, 2013, Business Meeting of the Energy Commission.

If you have any questions on this amendment, please contact Dale Rundquist, Compliance Project Manager, at (916) 651-2072 or e-mail at Dale.Rundquist@energy.ca.gov.

Agencies and members of the public who wish to provide written comments on the Amendment are asked to submit comments to the Energy Commission Dockets Unit prior to April 1, 2013. Please include the docket number **01-AFC-24C** in the subject line or first paragraph of your comments. Those submitting comments electronically should provide them in either Microsoft Word format or as a Portable Document Format (PDF) to docket@energy.ca.gov. Please include your name or organization's name in the file name. Those preparing non-electronic written comments should mail or hand deliver them to:

California Energy Commission
Dockets Unit, MS-4
Docket No. **01-AFC-24C**
1516 Ninth Street
Sacramento, CA 95814-5512

All written comments and materials filed with the Dockets Unit will become part of the public record of the proceeding. Additionally, comments may be posted on the website.

If you desire information on participating in the Energy Commission's amendment process, please contact the Energy Commission's Public Adviser's Office, at (916) 654-4489 or toll free in California, at (800) 822-6228. The Public Adviser's Office can also be contacted via email at publicadviser@energy.ca.gov.

News media inquiries should be directed to the Energy Commission Media Office at (916) 654-4989, or by e-mail at mediaoffice@energy.ca.gov.

Enclosure: Staff Analysis

PALOMAR ENERGY CENTER (01-AFC-24C)
**Petition for Change in the Hours Allowed for Maintenance and Testing of the
Critical Services Generator**

Introduction and Summary
Prepared by: Dale Rundquist, CPM

INTRODUCTION AND SUMMARY

On December 28, 2012, San Diego Gas and Electric (SDG&E), owner of the Palomar Energy Center (PEC), filed a petition with the California Energy Commission (Energy Commission) requesting to modify the Air Quality Condition of Certification **AQ-SC13**. The 500 megawatt combined cycle power plant was certified by the Energy Commission on August 6, 2003, and began commercial operation on April 1, 2006. The facility is located in the City of Escondido in San Diego County, California.

The proposed modification will allow SDG&E to remove the wording in **AQ-SC13** restricting the testing and maintenance (including troubleshooting) of the critical services generator to one hour per week. Since the critical services generator was installed in March, 2011, the engine has not operated correctly. The manufacturer of this engine (Cummins) has attempted to repair the unit on multiple occasions. The current Energy Commission Condition of Certification **AQ-SC13** only allows for maintenance and testing of this engine to occur for up to one hour per week. SDG&E would still perform all of the maintenance and testing of the engine within 52 hours per calendar year between the hours of 10:00 am and 3:00 pm as previously permitted.

Energy Commission technical staff reviewed the petition to amend for potential environmental effects and consistency with applicable laws, ordinances, regulations and standards (LORS). Staff has determined that the technical or environmental areas of biological resources, cultural resources, facility design, hazardous materials management, land use, noise and vibration, public health, socioeconomics, soil and water resources, traffic and transportation, transmission line safety and nuisance, transmission system engineering, visual resources, waste management and worker safety are either not affected by the proposed changes or the changes have no significant environmental impact in these areas. Therefore, no revisions or new conditions of certification are needed to ensure the project remains in compliance with all applicable LORS in these areas. Table 1 summarizes staff's review.

Staff determined Air Quality Condition of Certification **AQ-SC13** would need to be modified to remove wording that restricts testing and maintenance of the critical services generator to one hour per week.

TABLE 1 - TECHNICAL AREAS REVIEWED

TECHNICAL AREAS REVIEWED	STAFF RESPONSE			New, Revised, or Removed Conditions of Certification Recommended
	Technical Area Not Affected	No Significant Environmental Impact*	Process As Amendment	
Air Quality			X	X
Biological Resources	X			
Cultural Resources	X			
Hazardous Materials Management	X			
Facility Design	X			
Land Use	X			
Noise and Vibration	X			
Public Health	X			
Socioeconomics	X			
Soil and Water Resources	X			
Traffic and Transportation	X			
Transmission Line Safety & Nuisance	X			
Transmission System Engineering	X			
Visual Resources	X			
Waste Management	X			
Worker Safety & Fire Protection	X			

*THERE IS NO POSSIBILITY THAT THE MODIFICATIONS MAY HAVE A SIGNIFICANT EFFECT ON THE ENVIRONMENT AND THE MODIFICATION WILL NOT RESULT IN A CHANGE OR DELETION OF A CONDITION ADOPTED BY THE COMMISSION IN THE FINAL DECISION OR MAKE CHANGES THAT WOULD CAUSE THE PROJECT NOT TO COMPLY WITH ANY APPLICABLE LAWS, ORDINANCES, REGULATIONS, OR STANDARDS (LORS) (20 CAL. CODE REGS., § 1769 (A)(2)).

PALOMAR ENERGY CENTER (01-AFC-24C)
Petition for Change in the Hours Allowed for Maintenance and Testing of the
Critical Services Generator
Wenjun Qian, Ph.D., P.E.

SUMMARY OF CONCLUSIONS

Staff finds that with the adoption of the modified Condition of Certification AQ-SC13, the Palomar Energy Center (PEC or project) would conform to applicable federal, state and San Diego Air Pollution Control District (SDAPCD or District) air quality laws, ordinances, regulations and standards (LORS), and that the modified PEC would not result in significant air quality-related impacts.

INTRODUCTION

On November 28, 2001, Palomar Energy, LLC filed an Application for Certification with the California Energy Commission seeking approval to construct and operate the PEC. The project was approved by the Energy Commission on August 6, 2003. On March 15, 2006, Palomar Energy, LLC transferred ownership of the 500 megawatt (MW) combined cycle plant to San Diego Gas & Electric Company (SDG&E). The project began commercial operation on April 1, 2006. On December 15, 2010, the Energy Commission approved the petition to allow SDG&E to install and operate one 1,945 brake horsepower (bhp) natural gas-fired emergency-use internal combustion engine (ICE) to drive a 1,400 kilowatt (kW) critical services generator at PEC.

On December 28, 2012, SDG&E filed a petition for a proposed amendment of the time allowed for testing and maintenance of the critical services generator (SDG&E 2012). The amendment would allow more than the current one hour per week limit for maintenance and testing, including troubleshooting, of the critical services generator. SDG&E would still perform all of the maintenance and testing of the engine within 52 hours per calendar year between the hours of 10:00 am and 3:00 pm as previously permitted.

LAWS, ORDINANCES, REGULATION, AND STANDARDS (LORS) COMPLIANCE

The 2003 Decision (CEC 2003) and 2010 Amended Decision (CEC 2010b) certifying the PEC concluded that the project complied with all applicable LORS. Continued operation of the critical services generator would continue to be subject to 40 CFR Part 60 Subpart JJJJ – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines and SDAPCD Rule 69.4.1 – Stationary Reciprocating Internal Combustion Engines – Best Available Retrofit Control Technology (BARCT). The project owner's request to eliminate the 1-hour per week limit for testing and maintenance would increase the maximum potential daily emissions from the critical services generator and trigger the District's Best Available Control Technology (BACT) threshold for NO_x – District Rule 20.3(d)(1)(i).

SETTING

Since the 2010 Amended Decision (CEC 2010b) approving the installation and operation of the critical services generator, the area's attainment status for federal short-term NO₂ Ambient Air Quality Standard (AAQS) has changed. On February 17, 2012, US EPA designated all of California as "unclassifiable/attainment" for the federal short-term NO₂ standard. **Air Quality Table 1** summarizes the current attainment status of the SDAPCD. These changes do not affect the analysis and conclusions herein but are provided to depict the current setting.

Air Quality Table 1
Area Designation for San Diego Air Pollution Control District

Pollutant	Attainment Status ^a	
	Federal	State
Ozone	Nonattainment	Nonattainment
CO	Attainment	Attainment
NO ₂	Unclassifiable/Attainment	Attainment
SO ₂	Attainment	Attainment
PM10	Attainment	Nonattainment
PM2.5	Attainment	Nonattainment

Source: ARB 2011, US EPA 2012

^a Attainment = Attainment or Unclassified, where Unclassified is treated the same as Attainment for regulatory purposes.

ANALYSIS

The critical services generator was installed in March 2011, and SDG&E has been unable to get the generator's natural gas-fired engine to operate correctly. SDG&E has had the manufacturer of this engine (Cummins) attempt to repair the unit on multiple occasions. However, the current Energy Commission Condition of Certification **AQ-SC13** only allows maintenance and testing of this engine to occur for up to one hour per week. This amount of time (one hour) is too restrictive to allow for adequate troubleshooting to occur. SDG&E requests a minor change in this condition of certification be made to allow for more than one hour per week of maintenance and testing, including troubleshooting. SDG&E expects that operating the engine between 10:00 am and 3:00 pm as permitted would be sufficient to trouble shoot and repair this engine. SDG&E would also keep the maintenance and testing of the engine within 52 hours per calendar year as limited by Condition of Certification **AQ-56**.

Eliminating the limitation of one hour per week of maintenance and testing of the engine would allow a maximum of 5 hours (from 10:00 am to 3:00 pm) of maintenance and testing. **Air Quality Table 2** shows the maximum potential daily emission rates from the emergency engine would increase, probably only until the engine is diagnosed and repaired. In **Air Quality Table 2**, ~~strike through~~ is used to indicate emissions from the 2010 staff analysis (CEC 2010a) of the emergency engine, **underline and bold** is used to represent emissions from the proposed changes. The maximum potential daily emission of NO_x would be 22.95 lb/day, which would be higher than the BACT

threshold of 10 lb/day. Staff contacted SDAPCD staff and concluded that the SDAPCD considers natural gas engines as BACT for emergency engine generators. Thus, the natural gas fired emergency engine at PEC would comply with the SDAPCD BACT requirements.

The annual emission rates would not change because SDG&E would keep the maintenance and testing of the engine within the permitted level of 52 hours per calendar year.

Air Quality Table 2
Comparison of Maximum Potential Emissions for the Emergency Engine from 2010 Staff Analysis and the Proposed Changes

Pollutant	Maximum Hourly Emission Rate (lb/hr)	Maximum Daily Emission Rate (lb/day) ^a	Maximum Annual Emission Rate (lb/year)
NMHC + NOx	4.59	4.59 <u>22.95</u>	238.6
CO	7.03	7.03 <u>35.15</u>	365.7
VOC	1.46	1.46 <u>7.3</u>	75.8
SOx	0.008	0.008 <u>0.04</u>	0.4
PM10	0.13	0.13 <u>0.65</u>	6.7

Source: CEC 2010a

Note: ^a Staff calculated the maximum daily emission rate based on worst case of 5 hours of operation (from 10:00 am to 3:00 pm) per day.

In the 2010 staff analysis (CEC 2010a), the primary concern at that time was compliance with the new federal 1-hour NO₂ standard, which is based on three year average of 98th percentile of the annual distribution of daily maximum 1-hour concentrations. Due to lack of guidance at that time, staff used a very conservative analysis by assuming 100% conversion of NOx to NO₂ and adding 8th highest three year average project impact to the maximum background concentration over the three years to show compliance with the federal 1-hour NO₂ standard. Additionally, to minimize air quality impacts, PEC had agreed to a Condition of Certification that would limit generator testing to the hours between 10:00 am and 3:00 pm on any given day to prevent potentially high impact during the early morning and late evening hours.

The prior modeling showed that testing and maintenance of the engine would not lead to exceedances of the federal or California 1-hour NO₂ standards if the engine is operated during any or all of the hours from 10:00 am to 3:00 pm during each day of the year. Thus, the analysis showed that the engine could be tested during multiple hours on the same day as long as it is done between 10:00 am and 3:00 pm. Eliminating the limitation of one hour per week of maintenance and testing would not affect the modeled impacts of the emergency engine. Since the new 1-hour federal NO₂ standard is based upon the 8th highest daily maximum 1-hour value, as long as the highest 1-hour value of the day is used, the other operating hours need not be considered and the engine can operate without affecting the federal 1-hour standard.

CONCLUSIONS AND RECOMMENDATIONS

The requested project changes would conform to applicable Federal, State, and SDAPCD air quality laws, ordinances, regulations, and standards. The amended project would not cause significant air quality impacts, provided that the following modified Condition of Certification (COC) is included. Staff recommends that the revised COC be approved as shown below.

PROPOSED MODIFICATIONS TO CONDITIONS OF CERTIFICATION

The following Condition of Certification would be revised from that in effect as of the 2010 Amended Decision (CEC 2010b) to ensure compliance with all applicable LORS. ~~Strikethrough~~ is used to indicate deleted language.

AQ-SC13 Testing and maintenance of the emergency engine shall be performed between the hours of 10:00 am and 3:00 pm, ~~and shall not exceed one hour per week.~~

Verification: The project owner shall make the site available for inspection of equipment and records by representatives of the District, ARB, and the Energy Commission.

REFERENCES

ARB 2011, California Air Resources Board, Air Designation Maps available on ARB website. <http://www.arb.ca.gov/design/adm/adm.htm>. Accessed 2013.

CEC 2003, California Energy Commission, Final Commission Decision, Palomar Energy Project (01-AFC-24), August 2003.

CEC 2010a, California Energy Commission, Palomar Energy Center Project (01-AFC-24C) Staff Analysis of Proposed Modifications to Install and Operate Emergency Engine, October 2010.

CEC 2010b, California Energy Commission, Order Approving a Petition to Install and Operate an Emergency Engine, Palomar Energy Center Project (01-AFC-24C), December 2010.

SDG&E 2012, San Diego Gas & Electric Company, Petition for Change in the Hours Allowed for Maintenance and Testing of the Critical Services Generator, December 28, 2012.

U.S.EPA 2012, Environmental Protection Agency, The Green Book Nonattainment Areas for Criteria Pollutants. <http://www.epa.gov/oar/oaqps/greenbk/index.html>. Accessed 2013.