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Project Title:	Lodi Energy Center Project
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Document Title:	CEC Staff Assessment for the Lodi Energy Center FX Turbine Upgrade Petition to Amend
Description:	California Energy Commission Staff Assessment for the Lodi Energy Center FX Turbine Efficiency Upgrade Petition to Amend Decision
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Organization:	California Energy Commission
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CALIFORNIA
ENERGY COMMISSION

DATE: February 12, 2025

TO: Interested Parties

FROM: Ashley Gutierrez, Compliance Project Manager

SUBJECT: **Lodi Energy Center (08-AFC-10C)**
CEC Staff Analysis of Petition to Amend the Final Commission Decision

On June 11, 2024, the Northern California Power Agency (NCPA) Lodi Energy Center (LEC) filed a Post-Certification Petition for Changes in Project Design, Operation or Performance and Amendments to the Commission Decision (Petition) (TN 256804) with the California Energy Commission (CEC) for the LEC, pursuant to California Code of Regulations, title 20, section 1769.

The LEC, a 296-megawatt (MW) combined-cycle natural gas facility, was certified by the CEC on April 21, 2010, and began commercial operation on November 1, 2013. The facility is located at 12745 Thorton Road in Lodi, San Joaquin County.

Description of Proposed Change

The NCPA seeks approval to upgrade the gas turbine at LEC. The upgrade would consist of the installation of new Siemens FX hot gas path components, including newly advanced design blades, seals, vanes, and vane carriers from Turbine Stages 1 through 4. The efficiency upgrade would improve the existing turbine's thermal energy conversion process resulting in a higher firing temperature and improved aerodynamic efficiency allowing LEC to increase its power output on hot summer days.

The installation of the turbine components would occur during a regularly planned maintenance outage and are internal to the combustion turbine hot section. Installation work will not require excavation, earth moving, facility foundation modification or construction.

CEC Staff Review and Conclusions

California Code of Regulations, title 20, section 1769 requires a project owner to petition the CEC for approval of any change the project owner proposes to the project, design, operation, or performance requirements of a certified facility. A change in ownership or operational responsibility also requires approval through the post-certification amendment process. Consistent with these regulations, the CEC staff (staff) has reviewed the petition, including the supplemental petition, for potential environmental effects and consistency with applicable laws, ordinances, regulations and standards (LORS) and LEC's conditions of certification (COCs).

Based on staff's analysis, contained below, staff has concluded that the proposed changes to the LEC would not have a significant effect on the environment, or cause the project to fail to comply with any applicable LORS, with the adoption of new and modified COCs in the areas of Air Quality. Consistent with California Code of Regulations, title 20, section 1769(a)(4), staff is bringing this petition to the Commission for approval.

Staff recommends new and revised COCs for consistency with the new Title V permit issued by San Joaquin Valley Air Pollution Control District (SJVAPCD). With the addition of the new and revised COCs, the facility would continue to comply with applicable LORS. The proposed project changes would not result in significant impacts to the ambient air quality.

Staff concludes the proposed modifications of Air Quality COCs do not meet any of the criteria requiring the preparation of subsequent or supplement review pursuant to Public Resources Code section 21166 pr California Code of Regulations, Title 14 sections 15162 and 15163. Staff also concludes that none of the findings specified in California Code of Regulations, title 20, section 1748(b) are applicable to the proposed change.

As explained in the Staff Analysis, consistent with California Code od Regulations, title 20, section 1769(a)(4), staff is bringing this petition to the Commission for approval. Staff intends to recommend approval of the petition at the March 17, 2025, Business Meeting of the CEC. If this petition, including the environmental assessment, are approved by the Commission at the March 17, 2025, the environmental assessment will serve as the basis for a separate and subsequent staff proposal that the Commission approve an agreement to NCPA under GFO-23-401 to provide $7,113,672 in funding for the upgrades described in this petition.

The CEC's project webpage, [https://www.energy.ca.gov/powerplant/combined-cycle/lodi-energy-center] has a link to the petition and the Staff Analysis on the right side of the webpage in the box labeled "Compliance Proceeding." Click on the "Docket Log (08-AFC-10C)" option. If approved, the CEC's Order approving this petition will also be available from the same webpage.

This letter has been mailed to the CEC's list of interested parties and property owners of all parcels within 500 feet of any affected project linears (e.g. transmission lines, etc.) and 1,000 feet of the project site. It has also been emailed to the LEC subscription list. The list is an automated email system by which information about this facility is emailed to parties who have subscribed. To subscribe, go to the CEC's project webpage, cited above, scroll down the right side of the project's webpage to the box labeled "Subscribe," and provide the requested contact information.

Any person may comment on the Staff Analysis. Those who wish to submit comments on the analysis prior to the March 17, 2025, CEC Business Meeting may do so by using the CEC's electronic commenting feature. Go to the CEC's project webpage and click on

either the "Comment on this Proceeding," or "Submit e-Comment" link. When your comments are filed, you will receive an email with a link to them.

Written comments may also be mailed or hand-delivered to:

California Energy Commission
Docket Unit, MS-4
Docket No. 08-AFC-10C
715 P Street
Sacramento, CA 95814-5512

Comments will also be accepted during the scheduled business meeting. All comments and materials filed with the Dockets Unit will be added to the facility Docket Log and become publicly accessible on the CEC's project webpage.

If you have questions about this notice, please contact Compliance Project Manager Ashley Gutierrez, Compliance Monitoring and Enforcement Unit, Safety and Reliability Branch, at (916) 839-0400 or via e-mail at Ashley.Gutierrez@energy.ca.gov.

For information on public participation, please contact the CEC's Office of Public Advisor, Energy Equity, and Tribal Affairs at (916) 957-7910 or email at publicadvisor@energy.ca.gov.

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

Mail List: 7327
Listserv: Lodi Energy Center

LODI ENERGY CENTER (08-AFC-10C)
Petition to Amend Commission Decision
EXECUTIVE SUMMARY
Ashley Gutierrez

INTRODUCTION

On June 11, 2024, Northern California Power Agency, LLC (NCPA) Lodi Energy Center (LEC) filed a post certification petition (TN 256804) with the California Energy Commission (CEC) requesting to amend the LEC CEC Final Decision (Decision) to install new Siemens FX hot gas path components to the existing gas turbine to improve its thermal energy conversion process. The CEC staff (staff) has completed its review of all materials received.

The LEC, a 296-megawatt (MW) combined-cycle, natural gas facility was certified by the CEC on April 21, 2010, and began commercial operation on November 1, 2013. The facility is located at 12745 Thorton Road in Lodi, San Joaquin County.

DESCRIPTION OF PROPOSED CHANGE(S)

The project owner seeks approval to upgrade the gas turbine at LEC. The upgrade would consist of the installation of Siemens FX new hot gas path components including newly advanced design blades, seals, vanes and vane carriers from Turbine Stages 1 through 4. The efficiency upgrade would improve the turbine's thermal energy conversion process resulting in a higher firing temperature and improved aerodynamic efficiency allowing LEC to increase its power output on hot summer days, up to 15 MW. The installation of the turbine components would occur during a regularly planned maintenance outage and are internal to the combustion turbine hot section. Installation work will not require excavation, earth moving, facility foundation modification or construction.

The purpose of the CEC's review process is to assess whether the project changes proposed in the petition would have a significant impact on the environment or cause the project to not comply with applicable laws, ordinances, regulations, and standards (LORS) (Cal. Code Regs., tit. 20, § 1769).

NECESSITY FOR THE PROPOSED CHANGE(S)

The primary purpose for this amendment is to safely improve LEC's thermal energy conversion process by utilizing advanced turbine hot gas path components. Currently, during normal turbine operations, there is a significant degradation in power capability due to high ambient temperatures. LEC can produce a total of 296 MW during the winter season and on the hottest days of summer, LEC may only produce 270 MW. The increase in firing temperature and the aerodynamic efficiency of the new components

will allow for a 15 MW increase in power output on hot days, allowing significant recovery of the ambient derates during summer weather conditions when power is needed the most.

Additionally, the proposed Gas Turbine FX Upgrade supports California's most recent Distributed Electricity Backup Assets Program Bulk Grid Asset Enhancements for Grid Reliability (GFO-23-401) solicitation. Certain costs for the upgrade described in the petition have been proposed for funding by the CEC under that solicitation.

CEC STAFF REVIEW AND CONCLUSION

Consistent with the California Code of Regulations, title 20, section 1769, the CEC staff (staff) has reviewed the petition for potential environmental effects and consistency with LORS. Based on staff's analysis, contained below, staff has concluded that the proposed changes to the LEC would not have a significant effect on the environment, or cause the project to fail to comply with any applicable LORS, with the adoption of new and modified conditions of certification (COCs) in the areas of Air Quality, Public Health and Greenhouse Gases. Consistent with California Code of Regulations, title 20, section 1769(a)(4), staff is bringing this petition to the Commission for approval.

Staff concludes that none of the findings specified in California Code of Regulations, title 20, section 1748(b) apply to the proposed change.

Lastly, staff concludes the proposed change does not meet any of the criteria requiring the production of subsequent or supplemental review pursuant to Public Resources Code section 21166.

STAFF'S ASSESSMENT OF THE PROPOSED PETITION

Staff's assessment of the proposed changes considered the potential impacts to the population within the disadvantaged community, including the environmental justice population within a six-mile radius of LEC.

Staff reviewed the petition for potential environmental effects and consistency with applicable LORS. Staff's conclusions for all technical and environmental areas are summarized in **Executive Summary Table 1.**

Executive Summary Table 1
Summary of Conclusions for all Technical and Environmental Areas

Technical Areas Reviewed	CEQA				Conforms with applicable LORS
	Potentially Significant Impact	Less Than Significant Impact with Mitigation (with Revised or New COCs)	Less Than Significant Impact (with or without Existing COCs)	No Impact	
Air Quality		X			X
Biological Resources				X	X
Cultural Resources				X	X
Efficiency				X	
Facility Design					
Geological and Paleontological Resources				X	X
Hazardous Materials Management			X		X
Land Use				X	X
Noise and Vibration			X		X
Public Health			X		X
Reliability					
Socioeconomics				X	
Soil and Water Resources				X	X
Traffic and Transportation				X	X
Transmission Line Safety and Nuisance				X	X
Transmission System Engineering					X
Visual Resources				X	X
Waste Management			X		X
Worker Safety and Fire Protection			X		X

Areas shown in gray are not subject to CEQA consideration or have no applicable LORS the project must comply with.

For the technical area of Air Quality, staff has proposed modifications to existing COCs and proposed new COCs. With the modification and addition of COCs, the project would continue to comply with all applicable LORS. The proposed project change would not

result in significant impacts to ambient air quality, public health, or greenhouse gas emissions.

For the remaining environmental and technical areas, staff has determined that the modified project would continue to comply with applicable LORS, and the project change would not result in any significant adverse environmental impacts or require a change to any COCs.

The basis for each of staff's conclusions are provided below:

AIR QUALITY

With the proposed modifications to COCs **AQ-25**, **AQ-29**, **AQ-30**, **AQ-32**, **AQ-33**, **AQ-46**, **AQ-47** and application of new COCs **AQ-104**, **AQ-105**, **AQ-106**, **AQ-107**, **AQ-108** and **AQ-109**, the project would continue to comply with all applicable LORS. The proposed project change would not result in significant impacts to ambient air quality, nor would it result in greenhouse gas emissions that would have a significant impact on the environment. The details of the proposed modifications and additional conditions of certification can be found under the Air Quality section in this Staff Analysis.

BIOLOGICAL RESOURCES

The proposed change does not affect biological resources. The proposed change would occur completely within the already-disturbed project site; requiring no excavations, earth moving, or foundation installation. Therefore, no impacts to biological resources are expected. The project would remain in compliance with all applicable LORS related to biological resources.

CULTURAL RESOURCES

The proposed change does not affect the cultural and tribal cultural resources described in the Decision. The proposed change would occur completely within the project site and would require no excavations, earth moving, or foundation installation. Therefore, no impacts to cultural or tribal cultural resources are expected. The proposed change would not create a significant cultural or tribal cultural resource impact and would not require additional mitigation measures. The proposed upgrade does not require changes to the COCs for cultural and tribal cultural resources. The project would remain in compliance with all applicable LORS related to cultural and tribal cultural resources.

EFFICENCY

The hot gas path upgrade would slightly increase the nominal turbine rating, capacity output, and efficiency. The increase in thermal efficiency would increase the power plant's maximum net output at the interconnection point. No LORS apply to power plant efficiency. There would be no adverse impact to power plant efficiency.

FACILITY DESIGN

The upgrade proposed in this petition would not involve construction. Therefore, the proposed project upgrade would not affect the facility design or require any changes to the existing facility design COCs.

GEOLOGICAL AND PALEONTOLOGICAL RESOURCES

The proposed project change would not result in any ground disturbance and therefore paleontological resources would not be impacted. The upgrade would conform to applicable LORS related to geological and paleontological resources and no modifications to the existing COCs would be required.

HAZARDOUS MATERIALS MANAGEMENT

The proposed turbine upgrade would not involve extremely hazardous materials. Hazardous materials such as gasoline, solvents, lubricants, paints, and welding gases would be used in minimal quantities during parts installation, posing no significant risk to workers or the offsite public. Hazardous materials would be stored, handled, and used in accordance with applicable LORS. Therefore, the proposed turbine upgrade would not significantly impact the project's hazardous materials management and conforms with applicable LORS.

LAND USE

The proposed change does not affect land use. The FX gas turbine upgrade would occur within the existing power block, during normal planned maintenance, when these components are upgraded and installed. The work would not require excavation, earth moving, facility foundation modifications or construction. The FX parts are internal to the combustion turbine hot section. Therefore, no impacts to land use are expected. The proposed upgrade does not require changes to the COCs for land use. The project would remain in conformance with all applicable LORS related to land use.

NOISE AND VIBRATION

Installation activities associated with this project upgrade would be similar to those that take place during normal maintenance activities and outages. Any noise generated during these activities would be temporary, intermittent, and consistent with the local noise ordinance (San Joaquin County Title 9, Section 9-1025.9 Noise) and would result in a less-than-significant impact with implementation of the existing noise COCs.

The installation of the hot gas path would not increase noise at nearby residences. Additionally, the operational noise of the LEC would not be affected as a result of this project change. Furthermore, the LEC would continue to meet operational noise requirements established in the Decision. Therefore, the turbine efficiency upgrade proposed in this petition would create a less-than-significant impact due to operational noise.

PUBLIC HEALTH

The proposed turbine equipment upgrades and modifications to the Air Quality COCs would result in an increase in maximum hourly emissions of toxic air contaminants (TACs). To quantify the impact on public health, a health risk prioritization analysis of the proposed changes was performed. The prioritization analysis of the upgraded LEC showed that the proposed changes would be below the San Joaquin Valley Air Pollution Control District's public health thresholds of significance and therefore have a less than significant impact on public health.

RELIABILITY

The upgrades proposed in this petition would not adversely affect the power plant's overall reliability. The additional MW output would increase grid reliability by serving the transmission grid the project is connected to.

SOCIOECONOMICS

The proposed change does not affect socioeconomics. The FX turbine upgrade would be installed during LEC's regularly scheduled maintenance outage intervals as directed by the original equipment manufacturer. The upgrade would not require new operations workers or result in impacts on public services. The proposed modification does not require changes to the COCs for socioeconomics. The project would remain in conformance with all applicable LORS related to socioeconomics.

SOIL AND WATER

The proposed project change would not result in any ground disturbance and therefore soil and water resources would not be impacted. The efficiency upgrade would conform to applicable LORS related to soil and water resources and no changes to the existing COCs would be required.

TRAFFIC AND TRANSPORTATION

The proposed change does not affect traffic and transportation. The FX gas turbine upgrade work would not cause any new traffic or transportation impacts because the work would be accomplished during a normal maintenance cycle for the facility. The proposed project change does not require revisions to the COCs for traffic and transportation. The project would remain in conformance with all applicable LORS related to traffic and transportation.

TRANSMISSION LINE SAFETY AND NUISANCE

The proposed project change would improve turbine efficiency and allow the facility to improve the hot weather ratings by 15 MW. This would help the facility makeup lost MWs due to derates during hotter times of the year. Although the facility could potentially achieve maximum ratings beyond its 304 MW California Independent System Operator (California ISO) interconnection threshold with the installation of these upgrades, the maximum rated capacity will stay at or below 304 MW to maintain

compliance with the facility's interconnection agreement. The Siemens controls system have setpoints that do not allow the plant to go above the 304 MW interconnection agreement. Therefore, there will be no additional impacts to Transmission Line Safety and Nuisance beyond what was previously analyzed and approved.

TRANSMISSION SYSTEM ENGINEERING

The proposed project change would improve turbine efficiency and allow the facility to improve the hot weather ratings by 15 MW. This would help the facility makeup lost MWs due to derates during hotter times of the year. Although the facility could potentially achieve maximum ratings beyond its 304 MW California ISO interconnection threshold with the installation of these upgrades, the maximum rated capacity will stay at or below 304 MW to maintain compliance with the facility's interconnection agreement. The Siemens controls system have setpoints that do not allow the plant to go above the 304 MW interconnection agreement. Therefore, there will be no additional impacts to Transmission System Engineering beyond what was previously analyzed and approved.

VISUAL RESOURCES

The proposed change does not affect visual resources. The FX gas turbine upgrade would occur within the existing power block during normal planned maintenance. The work would not require construction. The FX parts are internal to the combustion turbine hot section. Therefore, no impacts to visual resources are expected. The proposed modification does not require changes to the COCs for visual resources. The project would remain in conformance with all applicable LORS related to visual resources.

WASTE MANAGEMENT

The proposed project change is expected to produce minimal waste and would adhere to the operation waste management plan developed per COC **WASTE-6**. The turbine upgrade would conform to applicable LORS related to waste management and no changes to the existing COCs would be required.

WORKER SAFETY AND FIRE PROTECTION

During the proposed turbine upgrade, continued compliance with COC **WORKER SAFETY-1** would ensure the project's adherence to applicable LORS. Therefore, the proposed turbine upgrade would not significantly impact worker safety and health or the offsite public.

ENVIRONMENTAL JUSTICE

CALENVIROSCREEN

Staff reviewed CalEnviroScreen 4.0 data to determine whether the United States census tract where the LEC is located (06077004001) is identified as a disadvantaged

community. This science-based mapping tool is used by the California Environmental Protection Agency (CalEPA) to identify disadvantaged communities based on geographic, socioeconomic, public health, and environmental hazard criteria pursuant to Health and Safety Code section 39711 as enacted by Senate Bill 535 (De León, Chapter 830, Statutes of 2012). The CalEnviroScreen 4.0 overall percentile score for this census tract is 81.1 and, thus, is identified as a disadvantaged community[1].

ENVIROMENTAL JUSTICE

Environmental Justice Figure 1 shows 2020 census blocks in the six-mile radius of the Lodi Energy Center with a minority population greater than or equal to 50 percent. The population in these census blocks represents an environmental justice (EJ) population based on race and ethnicity as defined in the United States Environmental Protection Agency's *Guidance on Considering Environmental Justice During the Development of Regulatory Actions (May 2015, viewed February 10, 2025, at https://www.epa.gov/sites/default/files/2015-06/documents/considering-ej-in-rulemaking-guide-final.pdf.)*. Staff conservatively obtains demographic data within a six-mile radius around a project site based on the parameters for dispersion modeling used in staff's air quality analysis. Air quality impacts are generally the type of project impacts that extend the furthest from a project site. Beyond a six-mile radius, air emissions have either settled out of the air column or mixed with surrounding air to the extent the potential impacts are less than significant. The area of potential impacts would not extend this far from the project site for most other technical areas included in staff's EJ analysis.

Based on California Department of Education data in the **Environmental Justice Table 1**, staff concluded that the percentage of those living in the Lincoln Unified and Lodi Unified school districts (in a six-mile radius of the project site) and enrolled in the free or reduced-price meal program is greater than those in the reference geography. Thus, it is considered an EJ population based on low income as defined in *Guidance on Considering Environmental Justice During the Development of Regulatory Actions*. **Environmental Justice – Figure 2** shows where the boundaries of the school district are in relation to the six-mile radius around the Lodi Energy Center site.

[1] The four categories of geographic areas identified by CalEPA as disadvantaged are: 1) Census tracts receiving the highest 25 percent of overall scores in CalEnviroScreen 4.0, 2) Census tracts lacking overall scores in CalEnviroScreen 4.0 due to data gaps, but receiving the highest 5 percent of CalEnviroScreen 4.0 cumulative pollution burden scores, 3) Census tracts identified in the 2017 DAC designation, regardless of their scores in CalEnviroScreen 4.0, and 4) Lands under the control of federally recognized Tribes. Source: CalEPA Final Designation of Disadvantaged Communities: May 2022 https://calepa.ca.gov/envjustice/ghginvest/

Environmental Justice – Table 1
Low Income Data within the Project Area

SCHOOL DISTRICTS IN SIX-MILE RADIUS	Enrollment Used for Meals	Free or Reduced Price Meals	
Lincoln Unified	8,773	6,019	68.6%
Lodi Unified	30,068	22,154	73.7%
REFERENCE GEOGRAPHY			
San Joaquin County	154,523	120,112	66.1%

Source: CDE 2024. California Department of Education, DataQuest, Free or Reduced Price Meals, District level data for the year 2023-2024, http://dq.cde.ca.gov/dataquest/.

Figure 1 Environmental Justice
Minority Population

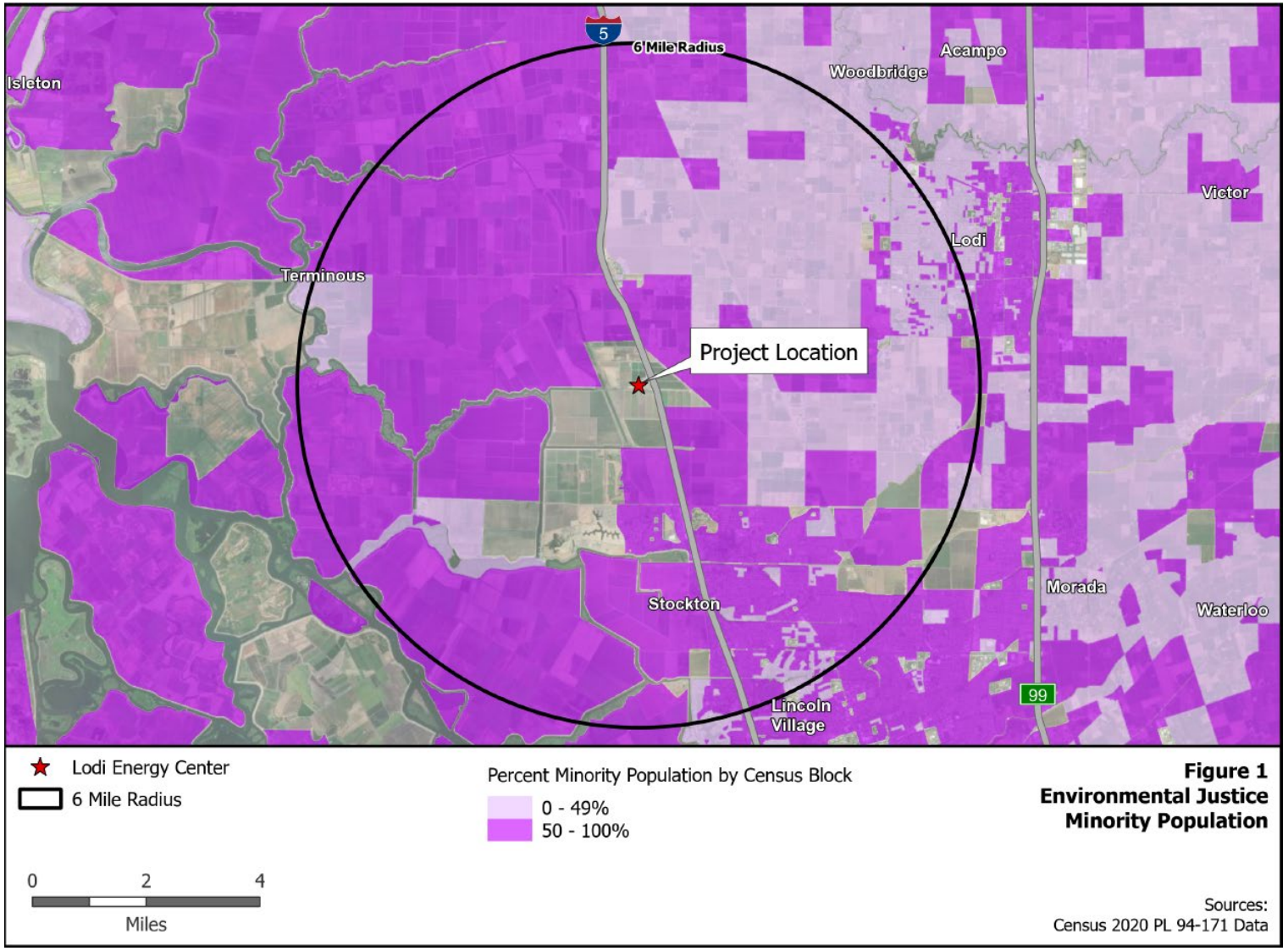
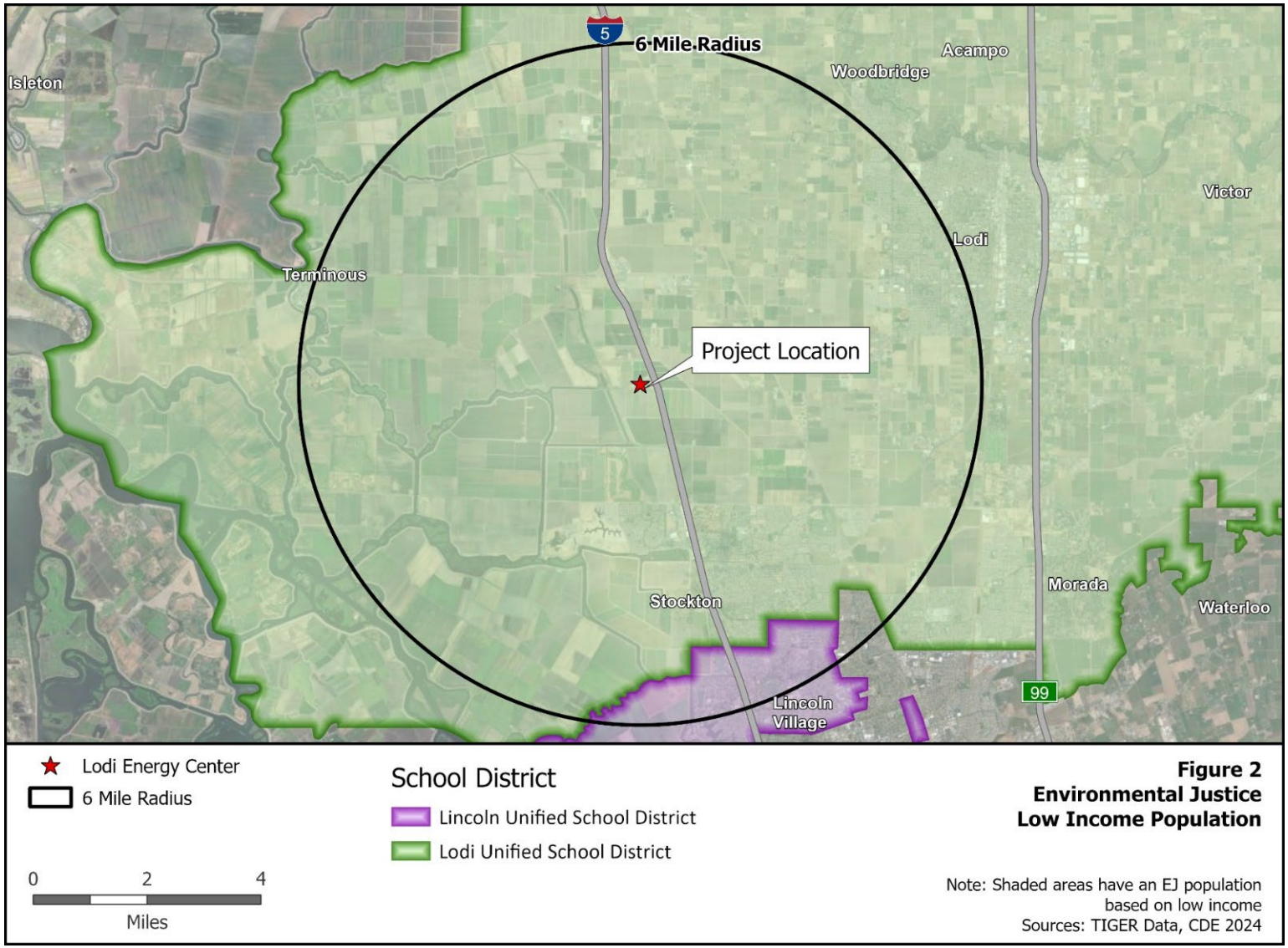


Figure 2 Environmental Justice
Low Income Population



Environmental Justice Conclusions

For this petition, the following technical areas consider impacts to EJ populations: Air Quality, Cultural Resources (indigenous people), Hazardous Materials Management, Land Use, Noise and Vibration, Public Health, Socioeconomics, Soil and Water resources, Traffic and Transportation, Transmission Line Safety and Nuisance, Visual Resources, Waste Management, and Worker Safety and Fire Protection. For these technical areas, staff concludes that impacts would be less than significant, and thus would be less than significant on the EJ population represented in **Environmental Justice Figure 1**, **Figure 2**, and **Table 1**.

In the Air Quality analysis, staff proposes modifications to existing COCs and the incorporation of new COCs, to mitigate potentially significant impacts on the environment. Staff has determined that by adopting the modifications to the existing COCs and the application of new COCs, the proposed project change would not cause significant impacts for any population in the project's six-mile radius, including the EJ population. Impacts to the EJ population are less than significant.

CEC STAFF RECOMMENDATIONS AND CONCLUSIONS

Staff has reviewed the petition, and all the information provided to staff related to the petition pursuant to California Code of Regulations, title 20, section 1769 for potential environmental effects and consistency with applicable LORS. Consistent with these regulations, the CEC staff has reviewed the petition for potential environmental effects, consistency with applicable LORS, and LEC's COCs.

Staff concludes that none of the findings specified in California Code of Regulations, title 20, section 1748(b) are applicable to the proposed change. Staff also concludes the proposed modifications of Air Quality COCs do not meet any of the criteria requiring the preparation of subsequent or supplement review pursuant to Public Resources Code section 21166 or California Code of Regulations, title 14, sections 15162 and 15163.

Consistent with California Code of Regulations, title 20, section 1769(a)(4), staff is bringing this petition to the Commission for approval.

Staff has recommended new and modified COCs for consistency with the new draft Authority to Construct permit issued by San Joaquin Valley Air Pollution Control District (District) on January 29, 2025, which reflects the same proposed changes to the LEC. Staff concludes with regard to the proposed changes to the LEC (1) there is no possibility that the changes may have a significant effect on the environment, (2) the changes would not cause the project to fail to comply with any applicable LORS, and (3) the changes would not require a change to, or deletion of, any COCs as adopted in the Decision or previous amendments to that decision, except for those related to Air Quality.

For the modifications to the Air Quality COCs in the Decision and consistent with California Code of Regulations, title 20, section 1769(a)(3)(B), in addition to the conclusions made above, staff concludes the upgraded LEC would increase a daily, quarterly, annual, or other emission limit, but with the proposed modification of existing COCs **AQ-25**, **AQ-29**, **AQ-30**, **AQ-32**, **AQ-33**, **AQ-46**, **AQ-47** and the incorporation of new COCs **AQ-104**, **AQ-105**, **AQ-106**, **AQ-107**, **AQ-108** and **AQ-109**, to conform with the new Authority to Construct permit issued by the District, the effect on the environment would be less than significant.

Lodi Energy Center (08-AFC-10C)
Petition to Amend – Gas Turbine Upgrade
Air Quality, Public Health, and Greenhouse Gases

Andres Perez

INTRODUCTION AND SUMMARY

On June 11, 2024, the Northern California Power Agency (NCPA), filed a post certification petition with the California Energy Commission (CEC) for the Lodi Energy Center (LEC). The petition requests to implement turbine upgrades for the facility's combustion turbine and increase the input heat rate from 2,109 million British thermal units per hour (MMBtu/hr) to 2,166 MMBtu/hr (LEC 2024), resulting in a fuel input increase on an hourly basis. These changes would result in an increased plant power output from 296 MW to 311 MW[2].

The LEC was certified by the CEC on April 21, 2010, and began commercial operation on November 1, 2013. The facility is located at 12745 Thorton Road in Lodi, San Joaquin County and is within the San Joaquin Valley Air Basin.

The facility uses one Siemens STG6-5000F natural gas combustion turbine generator (CTG), an associated heat recovery steam generator (HRSG), and one steam turbine generator (STG).

Since the project was approved, the CEC has approved one air quality-related amendment: the modification of air quality Condition of Certifications (COCs) to increase CO emission limits during startup and include combustion tuning (CEC 2013).

Staff reviewed the petition and the associated San Joaquin Valley Air Pollution Control District (District) Preliminary Determination of Compliance (PDOC), dated December 12, 2024 (SJVAPCD 2024), which was issued to permit the same efficiency upgrades proposed in the petition pending before the CEC. The District received no comments during either the U.S. EPA or public comment period, and issued the Final Determination of Compliance on January 29, 2025.

CEC staff proposes to incorporate the proposed revisions to the District permit into Conditions of Certification **AQ-25**, **AQ-29**, **AQ-30**, **AQ-32**, **AQ-33**, **AQ-46**, and **AQ-47**. These modifications would increase hourly and daily emission limits for nitrogen oxides (NOx), carbon monoxide (CO), volatile organic compounds (VOC), sulfur oxides (SOx), and ammonia (NH_3) and add a requirement to source test the CTG within 60

[2] Although the facility would be capable of producing up to 311 MW with the turbine efficiency upgrades, the facility is limited to 304 MW output through its California Independent System Operator Interconnection Agreement (TN 261692).

days of initial startup of the project. Staff also proposes to incorporate permit conditions from the District permit that are not present in the current COCs, through new COCs **AQ-104** through **AQ-109**.

The following summarizes all the proposed changes to the Air Quality conditions of certification:

- Modification of the CTG equipment description to reflect the increase in maximum CTG power output;
- Modification of emission limits in existing Conditions of Certification **AQ-25** (increase in hourly CTG PM10 and NH_3 startup, shutdown, and combustor tuning emission limits), **AQ-29** (increase in hourly CTG NOx, CO, VOC, and SOx normal operation emission limits), **AQ-30** (increase in hourly CTG NH_3 startup, shutdown, and combustor tuning emission limits), **AQ-32** (increase in daily CTG PM10 and NH_3 startup, shutdown, and combustor tuning emission limits), **AQ-33** (increase in daily CTG NOx, CO, VOC, and SOx normal operation emission limits);
- Modification of existing Conditions of Certification **AQ-46** and **AQ-47** to reflect the District requirement to source test the CTG within 60 days of initial startup after project implementation;
- Addition of new Conditions of Certification **AQ-104** (exhaust stack requirements), **AQ-105** (startup time duration limits), **AQ-106** (continuous temperature monitoring of oxidation catalyst requirement), **AQ-107** (oxidation catalyst allowable normal operation temperature range), **AQ-108** (oxidation catalyst temperature measurement during VOC source test), and **AQ-109** (reporting of any projected actual emission exceedances).

The modified project would comply with all laws, ordinances, regulations, and standards (LORS). Air quality, public health, and greenhouse gas impacts from the evaluated changes would be less than significant, including impacts to environmental justice populations. Therefore, there are no air quality, public health, or greenhouse gas environmental justice issues related to the evaluated facility modifications and no minority or low-income populations would be significantly or adversely impacted.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS COMPLIANCE

CEC staff reviewed the petition and the District evaluation for consistency with all federal, state, and District LORS. **Air Quality Table 1** includes a summary of the air quality LORS relevant to the proposed changes. **Air Quality Table 1** in this analysis is not intended to be comprehensive of all LORS applicable to the facility. The conditions of certification in the Final Commission Decision and amendments thereafter ensure that the facility would remain in compliance with all LORS.

Air Quality Table 1
Laws, Ordinances, Regulations, and Standards (LORS)

Applicable LORS	Description	Compliance
Federal	**U.S. Environmental Protection Agency**	
40 CFR 60, Subpart KKKK (Standards of Performance for Stationary Combustion Turbines)	This subpart establishes emission standards and compliance schedules for the control of emissions from stationary combustion turbines with a heat input at peak load equal to or greater than 10 MMBtu per hour, based on the higher heating value of the fuel, that commenced construction, modification, or reconstruction after February 18, 2005. The pollutants regulated by this subpart are NOx and SO_2.	Continued compliance with the NOx and SO_2 limits is expected with the use of the CTG's selective catalytic reduction (SCR) system to control NOx emissions and the use of PUC-quality pipeline natural gas. The units also use Continuous Emission Monitoring Systems (CEMS) for NOx and CO.
40 CFR Part 63 Subpart YYYY (National Emissions Standards for Hazardous Air Pollutants for Stationary Combustion Turbines)	This regulation applies to gas turbines located at major sources of hazardous air pollutants (HAP) emissions. A major source is defined as a facility with emissions of 10 tons per year or more of a single HAP or 25 tons per year or more of a combination of HAPs.	The largest single HAP emission from the facility is formaldehyde which emits from the turbine at a potential to emit of 4.7 tons per year. The total combined HAPs from the facility is less than 10 tons per year which is below the 25 tons per year threshold. Therefore, the facility is not a major source, and the requirements of this regulation do not apply.
40 CFR Part 64 (Compliance Assurance Monitoring)	The Compliance Assurance Monitoring (CAM) regulation applies to emission units at major stationary sources, required to obtain a Title V Permit, which use control equipment to achieve a specified emission limit.	The facility uses CEMS to monitor, report and record both NOx and CO emissions continuously downstream of the control equipment. VOC emissions are also subject to an emission limit and are partially controlled by the oxidation catalyst. The VOC emission limit is verified through source test required once every 12 months and the oxidation catalyst is continuously monitored by the CO CEMS, which can be used as a surrogate monitor for the reliable operation of the oxidation catalyst for VOC control. Continued compliance is expected.
40 CFR Part 72 (Acid Rain Provisions)	The Acid Rain Program requires the monitoring and reporting of emissions of acidic compounds and their precursors from combustion equipment owned by a utility. Under the Acid Rain Provisions, SO_2 emissions from the unit are required to be offset with SO_2 allowances. SO_2 allowances are, however, not required in any year when the unit emits less than 1,000 lbs of SO_2.	In order to determine the amount of SO_2 emitted from the turbine, the SO_2 emissions are required to be monitored through the use of fuel gas meters and gas constituent analyses, or, if fired with pipeline quality natural gas, as in the case of this facility, a default emission factor of 0.060 lb/MMBtu is allowed. SO_2 mass emissions are to be recorded every hour. NOx and O_2 must be monitored with CEMS in accordance

Applicable LORS	Description	Compliance
		with the specifications of Part 75. Under this program, NOx and SOx emissions will be reported directly to the U.S. EPA. Continued compliance is expected.
40 CFR Part 60 Subpart TTTT	Establishes standards of performance for carbon dioxide (CO_2). Non-base load electric generating units (EGUs) are subject to a CO_2 emission standard of 120 lbs CO_2/MMBtu and base load EGUs are subject to a CO_2 emission standard of 1,030 lbs CO_2/MMBtu based on gross energy output.	The facility's combustion turbine is exempt from Subpart TTTT as it is neither a new source nor would the proposed modification be considered a "reconstruction", as the fixed capital cost of the new components would be less than 50% of the fixed capitol cost of constructing a comparable, entirely new facility (as described in 40 CFR 60.15(b)).
Local	**San Joaquin Valley Air Pollution Control District**	
Regulation I – General Provisions Rule 1080 Stack Monitoring	This rule grants the Air Pollution Control Officer (APCO) the authority to request the installation, use maintenance, and inspection of continuous monitoring equipment, and specifies performance standards for the equipment and administrative requirements for record keeping, reporting, and notification.	The turbine has CEMS for CO and NOx. The facility is required to calibrate, maintain, and operate the CEMS according to the requirements of 40 CFR 60.45. The facility is required to submit quarterly reports summarizing CEMS performance. Continued compliance is expected.
Regulation I – General Provisions Rule 1081 Source Sampling	This rule requires adequate and safe facilities for using in sampling to determine compliance with emissions limits and specifies methods and procedures for source testing and sample collection, and compliance determination.	The current permit conditions are consistent with the requirements of this rule. Ongoing compliance with this rule is expected.
Regulation II – Permits Rule 2201 New and Modified Stationary Source Review Rule	This rule applies to all new stationary sources and all modifications to existing stationary sources which are subject to the District permit requirements and after construction emit or may emit one or more affected pollutant.	The proposed modifications constitute a SB 288 Major Modification for NOx; therefore, Best Available Control Technology (BACT) is triggered for NOx. District offsets are triggered as well. Best Available Control Technology (BACT): The proposed modification would result in an adjusted increase in permitted emissions (AIPE) that would trigger BACT for NOx, SOx, CO, and VOC. NCPA provided a Top-Down BACT analysis that showed that the project modification would continue to comply with BACT requirements. Offsets: The project would trigger offset thresholds for NOx, SOx, CO, and VOC.

Applicable LORS	Description	Compliance
		However, because the project qualifies as a clean emission unit and the project would not result in an increase in annual emissions, no offsets would be required. The proposed modifications do not trigger a Federal Major Modification or New Major Source requirement and federal offsets are not required for the proposed modifications. Public noticing is required for the proposed modifications for SB 288 Major Modification purposes. Ambient Air Quality Analysis (AAQA) is required for the purpose of determining whether a new or modified Stationary Source will cause or make worse violation of an air quality standard. The District conducted the required analysis and CEC staff agreed with the inputs. The analysis found that the air quality impacts of the proposed modifications would be less than significant (as discussed in more detail below).
Regulation II – Permits Rule 2410 – Prevention of Significant Deterioration (PSD)	This rule applies to any pollutant regulated under the Clean Air Act, except those for which the District has been classified nonattainment.	The proposed modifications would not result in a significant net emissions increase of an air contaminant for which the area is designated attainment. Therefore, Rule 2410 is not applicable, and no further analysis is required.
Regulation II – Permits Rule 2520 Federally Mandated Operating Permits	This rule provides administrative mechanism for permit issuance as well as compliance requirements associated with the Federally Mandated Operating Permits.	This facility is subject to this rule and has received their Title V Operating Permit. The proposed modifications are considered a minor permit modification under Rule 2520. The owner has applied for a Certificate of Conformity and the District has forwarded to U.S. EPA, for a 45-day review period, the application review which includes the proposed modified Title V permit and the compliance certification form which demonstrates compliance with the minor permit modification requirements. The facility must apply to modify their Title V permit with an administrative amendment, prior to operating with the proposed modifications. Continued compliance with this rule is expected.

Applicable LORS	Description	Compliance
Regulation II – Permits Rule 2540 Acid Rain Program	This rule incorporates the Acid Rain Standards from Part 72, Title 40, Code of Federal Regulations (CFR).	The CTG is subject to the acid rain program that is implemented through the Title V operating permit. The facility currently complies with the requirements of the rule. Continued compliance with this rule is expected.
Regulation IV – Prohibitions Rule 4001 New Source Performance Standards (NSPS)	This rule incorporates NSPS from Part 60, Chapter 1, Title 40, CFR; and applies to all new sources of air pollution and modifications of existing sources of air pollution listed in 40 CFR Part 60.	The CTG is regulated under 40 CFR Subpart KKKK and is therefore exempt from the requirements of 40 CFR Subpart GG. 40 CFR Subpart KKKK contains standards of performance for CTGs and limits NOx and SOx emissions as well as requiring CEMS monitoring. The NOx emissions of the CTG would continue to be no more than 2.0 parts per million by volume on a dry basis (ppmvd) at 15 percent oxygen (O_2). The CTG will continue to meet the SOx emissions standard by only combusting pipeline quality natural gas. Continued compliance with the NSPS NOx and SOx limits is expected. Continued compliance with NSPS continuous monitoring requirement is also expected.
Regulation IV – Prohibitions Rule 4101 Visible Emissions	This rule states that no person shall discharge into the atmosphere emissions of any air contaminant aggregating more than 3 minutes in any hour which is as dark as or darker than Ringelmann 1 (or 20% opacity).	As the CTG is fired solely on natural gas, visible emissions are not expected to exceed Ringelmann 1 or 20% opacity and, based on past inspections of the facility, continued compliance is expected.
Regulation IV – Prohibitions Rule 4102 Nuisance	This rule prohibits discharge of air contaminants which could cause injury, detriment, nuisance or annoyance to the public.	Nuisance complaints are not expected from properly operated combustion equipment fired exclusively on low-sulfur natural gas; therefore, operation of the CTG is not expected to result in nuisance complaints.
Regulation IV – Prohibitions Rule 4201 Particulate Matter Concentration	Rule 4201 Section 3.1 prohibits discharge of dust, fumes, or total particulate matter into the atmosphere from any single source operation in excess of 0.1 grain per dry standard cubic foot (gr/dscf).	Particulate matter (PM) emissions for the CTG are less than 0.1 gr/dscf. Continued compliance is expected.
Regulation IV – Prohibitions Rule 4703 Stationary Gas Turbines	The provisions of this rule apply to all stationary gas turbine systems, which are subject to District permitting requirements, and with ratings equal to or greater than 0.3 megawatt (MW) or a maximum heat input rating of more than 3,000,000 Btu per hour, except as provided in Section 4.0.	The modified project would continue to meet the 2.0 ppmvd NOx at 15 percent O_2 and 2 ppmv CO at 15 percent O_2, which are well below the limits set in Rule 4703. Continued compliance is expected.

Applicable LORS	Description	Compliance
Regulation IV – Prohibitions Rule 4801 Sulfur Compounds	Rule 4801 limits sulfur compound emissions to 0.2 percent (2,000 ppm) dry volume.	The SOx emission concentration of the CTG are calculated to be 17 ppmvd at 15 percent O_2 with the fuel sulfur content of 1.0 gr/100 scf. Therefore, SOx emissions are not expected to exceed 2,000 ppmvd, and continued compliance with this rule is expected.
District Policy APR 1905 – Risk Management Policy for Permitting New and Modified Sources	This policy specifies that for an increase in emissions associated with a proposed new source or modification, the District perform an analysis to determine the possible impact to the nearest resident or worksite.	The District performed an analysis pursuant to the policy to determine the possible cancer and non-cancer health impact to the nearest resident or worksite. The District analysis shows that the public health impacts of the modified project would be less than significant.

ANALYSIS

Air Quality

Construction

Installation of the equipment would take no longer than a maintenance outage and would require minimal construction equipment for assembly. Staff expects the emissions and impacts during construction would be less than significant with existing Conditions of Certification **AQ-SC1** through **AQ-SC5**.

Commissioning

The upgraded CTG will require a period of commissioning. The commissioning period is expected to be about 90 days. It is expected that emissions during commissioning of the upgraded CTG would be less than the emissions during the commissioning of the original units. The original commissioning would have been with new SCR systems that require tuning and break-in and likely operation without control devices in place. The new units will have control devices in place and the commissioning time will thus be shorter. The owner may request a short-term variance for the commissioning period from the District as needed.

Operation

The proposed project will improve the facility's thermal efficiency during high ambient temperatures and would allow for an increase in the maximum hourly heat input rating for the CTG from 2,109 MMBtu/hr to 2,166 MMBtu/hr. The increase in hourly heat input rate would result in an increase to the facility's hourly emissions, and NCPA has proposed to increase the permitted hourly limits for NOx, CO, VOC, and ammonia.

Normal operating NOx, CO, VOC, and SOx emission concentrations are each limited to 2.0 ppmvd at 15 percent O_2, 2.0 ppmvd at 15 percent O_2, and 1.4 ppmvd at 15 percent, respectively, in Condition of Certification **AQ-29**, currently meet BACT, and are not

proposed to be changed. Due to the increase in maximum hourly heat input, NCPA has proposed to increase the normal operating NOx, CO, VOC, and SOx hourly emission rate limits present in Condition of Certification **AQ-29**. Normal operating NH_3 emission concentrations are limited to 1 ppmvd at 15 percent O_2 in Condition of Certification **AQ-30**, which also limits hourly NH3 emissions. NCPA has similarly proposed to increase the hourly NH3 emission limits in COC **AQ-30** due to the increase in maximum hourly heat input. Daily normal operating emission limits of NOx, CO, VOC, SOx, and NH_3 in **AQ-33** are also proposed to be increased due to the increased hourly heat input. **Air Quality Tables 2** and **3** show the proposed changes to the normal operation hourly and daily emission limits. The District analyzed the proposed changes and agreed to revise the permit conditions. CEC staff proposes to amend COCs **AQ-29**, **AQ-30**, and **AQ-33** to reflect the changes implemented into the District permit conditions.

NCPA has proposed to modify the hourly and daily startup, shutdown, and combustor tuning emission limits for SOx and NH_3 to be equal to the modified normal operating emission limits for those two pollutants. Worst-case daily and hourly emissions for SOx and NH_3 will not increase beyond the proposed increases to COCs **AQ-25** and **AQ-32**, which currently limit hourly and daily startup, shutdown, and combustor tuning emission limits. The District analyzed the proposed changes and agreed to revise the permit conditions. CEC staff proposes to amend COCs **AQ-25** and **AQ-32** to reflect the changes in the District permit conditions. **Air Quality Tables 4** and **5** show the proposed changes to hourly and daily startup, shutdown, and combustor tuning emission limits. Additionally, CEC staff proposes to add the startup and shutdown duration limits currently present in the District permit. This modification would add duration limits for cold startups, warm startups, hot startups, and shutdowns. CEC staff proposes to add Condition of Certification **AQ-105** to reflect these changes.

Air Quality Table 2 shows the comparison of the normal operation hourly emissions limits for the CTG before and after the proposed modifications, while **Air Quality Table 3** shows the change in normal operation daily emissions limits for the CTG before and after the modifications.

Air Quality Table 2
Normal Operation CTG Hourly Emissions Limits
(pounds per hour)

Pollutant	Pre-Modification Limits	Post-Modification Limits	Change in Emission Limits
NOx	15.54	15.96	0.42
CO	9.46	9.72	0.26
VOC	3.79	3.89	0.10
PM10	9.0	9.0	No change
SOx	6.10	6.26	0.16
NH_3	28.56	29.54	0.78

Source: SJVAPCD 2024

Air Quality Table 3
Normal Operation CTG Daily Emissions Limits
(pounds per day)

Pollutant	Pre-Modification Limits	Post-Modification Limits	Change in Emission Limits
NOx	373.0	383.0	10.0
CO	227.0	233.3	6.3
VOC	91.0	93.4	2.4
PM10	216.0	216.0	No change
SOx	146.4	150.4	4.0
NH_3	690.3	709.0	18.7

Source: SJVAPCD 2024

As seen in **Air Quality Tables 2** and **3**, the proposed project would result in increased hourly and daily normal operation emission limits for NOx, CO, VOC, SOx and NH_3. However, maximum daily and hourly emissions for NOx, CO, VOC, SOx, and NH_3 would continue to occur during startup, shutdown, and combustor tuning as seen in **Air Quality Table 4** and **5**. Because NCPA has proposed to change the daily SOx startup, shutdown, and combustor tuning emission limits to match the daily SOx normal operation limits and to also increase the daily SOx normal operation emission limits, maximum daily SOx emissions would increase, as shown in **Air Quality Table 5**.

Air Quality Table 4
Startup, Shutdown, and Combustor Tuning
CTG Hourly Emission Limits (pounds per hour)

Pollutant	Pre-Modification Limits	Post-Modification Limits	Change in Emission Limits
NOx	160.0	160.0	No change
CO	1,500.0	1,500.0	No change
VOC	16.0	16.0	No change
PM10	9.0	9.0	No change
SOx	6.1	6.26	0.16
NH_3	28.76	29.54	0.78

Source: SJVAPCD 2024; post-modification startup, shutdown, and combustor tuning hourly emission limits represent the maximum hourly emissions for the CTG.

Air Quality Table 5
Startup, Shutdown, and Combustor Tuning
CTG Daily Emission Limits (pounds per day)

Pollutant	Pre-Modification Limits	Post-Modification Limits	Change in Emission Limits
NOx	879.7	879.7	No change
CO	5,570.3	5,570.3	No change
VOC	164.2	164.2	No change
PM10	216.0	216.0	No change
SOx	146.4	150.4	4.0
NH_3	690.3	709.0	18.7

Source: SJVAPCD 2024; post-modification startup, shutdown, and combustor tuning daily emission limits represent the maximum daily emissions for the CTG.

CEC staff reviewed the modeling memo and files provided by the District and agree with the inputs. According to District Policy APR 1925, District staff performed a Level 1 ambient air quality analysis (AAQA), where the background concentrations for each pollutant and averaging period are added to the maximum modeled concentrations for each corresponding pollutant and averaging period. This represents the worst-case scenario for ambient air quality impacts. Since the proposed project would not result in any increased maximum PM10 emissions, no analysis beyond that included in the 2010 Final Commission Decision is required (CEC 2010). Additionally, because the proposed project would only result in an increase of hourly maximum emission limits for NOx and CO, only compliance with the 1-hour federal and state standards for these pollutants were reanalyzed. However, because daily and hourly maximum emissions for SOx would increase, both the 1-hour federal and state standards and 24-hour state standard were reanalyzed.

Air Quality Table 6 shows that the project with the proposed modifications would not cause a violation of 1-hour NO_2, 1-hour CO, or 1-hour and 24-hour SO_2 ambient air quality standards. Therefore, the air quality impacts of the project with proposed modifications would be less than significant.

Air Quality Table 6
Ambient Air Quality Analysis Results

Pollutant	Averaging Period	Project Impact (µg/m³)[a]	Background (µg/m³)[b]	Total Impact (µg/m³)	Limiting Standard (µg/m³)	Percent of Standard
CO	State 1-hour	0.06	2,405.48	2,405.54	23,000	10%
	Federal 1-hour	0.06	2,432.95	2,433.01	40,000	11%
NO_2	State 1-hour	0.10	83.12	83.22	339	25%
	Federal 1-hour[c]	0.10	75.97	76.07	188	40%
SO_2	State 1-hour	0.04	6.02	6.06	655	1%
	Federal 1-hour[d]	0.04	6.02	6.06	196	3%
	24-hour	0.28	2.88	3.16	105	3%

Source: SJVAPCD 2024, Appendix H

[a] Project impacts were calculated by multiplying the normalized emission rate for the CTG by the corresponding pollutant emission increases for each averaging period due to the proposed turbine upgrades. The impacts of the existing emission rates are assumed to be part of baseline conditions.

[b] NO_2 and CO background data are from the Stockton-University Park monitoring station, while SO_2 background data is from the Fresno-Garland monitoring station.

[c] The federal 1-hour NO_2 standard is based on the 3-year average of the 98th percentile of the yearly distribution of 1-hour daily maximum concentrations.

[d] The federal 1-hour SO_2 standard is based on the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations.

PSD Applicability Analysis

Pursuant to 40 CFR Section 52.21(a)(2)(ii), a Prevention of Significant Deterioration (PSD) review is required only when a proposed modification would result in a significant emission increase of an attainment (PSD) pollutant. For electric utility steam generating units, such as the subject turbine, the emissions increase would be calculated as the difference between the unit's baseline actual emissions (BAE), defined as the average annual emission rate during any consecutive two-year period within the last five years, and the unit's projected actual emissions (PAE), defined as the maximum annual rate the unit is projected to emit in any one of the five years following project implementation. 40 CFR Section 52.21(b)(41)(ii)(c) also allows for the exclusion of a unit's emissions that could have been accommodated in the two-year period used to establish the unit's BAE, noted in the PDOC as the unused baseline capacity (UBC).

Air Quality Table 7 shows the project's PSD pollutant emission increases and demonstrates that all emission increases would be below their associated significance thresholds.

Air Quality Table 7
PSD Pollutant Emission Increases for the Project (tons per year)

Pollutant	Baseline Actual Emissions	Projected Actual Emissions	Unused Baseline Capacity	Significance Threshold	Emission Increases (PAE-BAE -UBC)[a]
NOx	29.7	75.7	46.0	**40**	0
VOC	6.1	16.5	10.4	**100**	0
SOX	0.7	22.8	26.1	**40**	0
PM10	17.4	33.7	22.1	**15**	0
CO	28.3	99.0	70.7	**100**	0

[a] Emissions increases lower than 0 tons per year are set equal to 0

Source: SJVAPCD 2024, Appendix E

Public Health

Since the facility has the potential to emit toxic air contaminants (TACs) and the proposed increase in hourly heat input rate would result in an increase in maximum hourly emissions of TACs, the District performed a preliminary prioritization analysis pursuant to District Policy APR 1905 (Risk Management Policy for Permitting New and Modified Sources). If the facility cumulative increase in prioritization score for the project is equal to or less than the District's significance threshold of one (1), the project is approvable with no further assessment. **Air Quality Table 8** shows the District-calculated prioritization scores. Because the project's cumulative increase in prioritization score was less than 1, no further analysis was needed. Therefore, the public health impacts of the proposed modifications would be less than significant.

Air Quality Table 8
Summary of Prioritization Scores

Unit	Prioritization Score	Significance Threshold
Modified Turbine	0.43	**1**
Project Totals	0.43	**1**

Source: SJVAPCD 2024, Appendix H

Greenhouse Gas Emissions

District Rule 2410 references the applicable version of 40 CFR Part 52.21 – Prevention of Significant Deterioration (PSD). Beginning January 2, 2011, the greenhouse gas (GHG) emissions shall be subject to regulation if the stationary source is an existing major stationary source for a regulated criteria pollutant that is not GHGs and will also have an emissions increase of a regulated criteria pollutant, and an emissions increase of 75,000 tons of carbon dioxide equivalent (CO_2e) per year or more. Using the methods described in 40 CFR 98.33(a)(2) for carbon dioxide (CO_2) emissions and 40 CFR 98.33(c)(1)(ii) for methane (CH_4) and nitrous oxide (N_2O) emissions, staff calculated that the increase in maximum GHG emissions from the modification would be

29,235 tons of CO_2e per year (assuming the worst-case scenario of 8,760 hours of turbine operation as the turbine has no annual operation limits).

Because the proposed modification would not result in an emissions increase of a regulated NSR pollutant, as shown in **Air Quality Table 7**, the GHG emissions from the combustion turbine are not subject to regulation under PSD. In addition, the proposed modifications would improve the thermal efficiency of the existing combustion turbine, and this is considered a GHG BACT. The improved project would provide better baseload level support to the grid and may be dispatched more often for shorter durations to support changing renewable output.

To address GHG emissions impacts for stationary source projects, the District established policies APR 2005 – Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency and APR 2025 – CEQA Determinations of Significance for Projects Subject to ARB's GHG Cap-and-Trade Regulation. Under District policy APR 2005, the District's determination of significance of project-specific GHG emissions is founded on the principal that projects with GHG emission reductions consistent with AB 32 emission reduction targets are considered to have a less than significant impact on global climate change. Under District policy APR 2025, the District determined that GHG emissions increases that are covered under Cap-and-Trade regulation cannot constitute significant increases under CEQA. The existing Lodi Energy Center is subject to Cap-and-Trade as an electricity generating facility under California Code of Regulation, Title 17, Section 95811. Under District policy APR 2025, all GHG emission increases resulting from the combustion of fuel are mitigated under Cap-and-Trade and are determined to be less than significant. Therefore, the GHG emission increases due to the proposed modifications would be less than significant.

CONCLUSIONS AND RECOMMENDATIONS

Staff recommends approval of the proposed upgrade of the LEC's combustion gas turbine unit with accompanying changes to the air quality conditions of certification. All proposed changes would conform with the applicable LORS related to air quality and would not result in significant impacts to ambient air quality and public health, nor would it result in greenhouse gas emissions that would have a significant impact on the environment.

AMENDED CONDITIONS OF CERTIFICATION

The modifications to the Air Quality conditions of certification are included below. **Bold underline** indicates new language. ~~Strikethrough~~ indicates deleted language. **Air Quality Table 7** includes a summary of the proposed modifications and justification.

Air Quality Table 7
Air Quality Conditions of Certification (COCs)
with Proposed Modifications and Justification

CEC Conditions of Certification	District Permit Conditions	Proposed Modifications and Justification
AQ-25	12	Staff proposes to modify the hourly CTG PM10 and NH_3 startup, shutdown, and combustor tuning emission limits to match the changes made to District permit condition 12. The changes would increase the hourly PM10 and NH_3 startup emissions rate limits to match the normal operation hourly emission rate limits. The District and CEC staff have demonstrated that the air quality impacts of the project with the proposed modifications would be less than significant.
AQ-29	17	Staff proposes to increase the hourly normal operation NOx, CO, VOC, and SOx emission limits to match the changes made to District permit condition 17. As discussed in more detail in the text above, the proposed modifications would result in a small increase in hourly emissions of NOx, CO, VOC, and SOx during normal operations. The District and CEC staff have demonstrated that the air quality impacts of the project with the proposed modifications would be less than significant.
AQ-30	18	Staff proposes to increase the hourly normal operation NH_3 emission limits to match the changes made to District permit condition 18. As discussed in more detail in the text above, the proposed modifications would result in a small increase in hourly emissions of NH_3 during normal operations. The District and CEC staff have demonstrated that the air quality impacts of the project with the proposed modifications would be less than significant.
AQ-32	20	Staff proposes to modify the daily CTG PM10 and NH_3 startup, shutdown, and combustor tuning emission limits to match the changes made to District permit condition 12. The changes would increase the daily PM10 and NH_3 startup emissions rate limits to match the normal operation daily emission rate limits. The District and CEC staff have demonstrated that the air quality impacts of the project with the proposed modifications would be less than significant.
AQ-33	21	Staff proposes to increase the daily normal operation NOx, CO, VOC, SOx, and NH_3 emission limits to match the changes made to District permit condition 21. As discussed in more detail in the text above, the proposed modifications would result in a small increase in daily emissions of NOx, CO, VOC, and SOx during normal operations. The District and CEC staff have demonstrated that the air quality impacts of the project with the proposed modifications would be less than significant.
AQ-46	34	Staff proposes to update the condition to match the startup and shutdown source testing requirements in District permit condition 34. The proposed update would require that the project owner source test within 60 days of initial startup.
AQ-47	35	Staff proposes to update the condition to match the hourly NOx, CO, VOC, and NH_3 emission rate source testing requirements in District

CEC Conditions of Certification	District Permit Conditions	Proposed Modifications and Justification
		permit condition 34. The proposed update would require that the project owner source test within 60 days of initial startup.
AQ-104	4	Staff proposes to add the exhaust stack requirements present in District Condition 4 to improve consistency with the District permit.
AQ-105	6	Staff proposes to add the startup and shutdown duration limits present in District Condition 6 to match the limits in the District permit.
AQ-106	9	Staff proposes to add the oxidation catalyst continuous temperature monitoring requirement present in District Condition 9 to mirror the District permit and align with 40 CFR 64 requirements.
AQ-107	10	Staff proposes to add the oxidation catalyst allowable temperature range present in District Condition 10 to mirror the District permit and align with 40 CFR 64 requirements.
AQ-108	11	Staff proposes to add the oxidation catalyst VOC source test temperature monitoring requirement present in District Condition 11 to mirror the District permit and align with 40 CFR 64 requirements.
AQ-109	73	Staff proposes to add the excess projected actual emission reporting requirements present in District Condition 73 to improve consistency with the District permit.

EQUIPMENT DESCRIPTION, UNIT N-2697-5-~~0~~9

~~296~~**311** MW (NOMINAL) COMBINED-CYCLE ELECTRIC GENERATION PLANT CONSISTING OF A SIEMENS INDUSTRIAL FRAME "FLEX PLANT 30" STG6-5000F NATURAL GAS-FIRED TURBINE ENGINE WITH DRY LOW-NOX COMBUSTORS, AN UNFIRED HEAT RECOVERY STEAM GENERATOR SERVED BY A SELECTIVE CATALYTIC REDUCTION WITH AMMONIA INJECTION AND AN OXIDIZATION CATALYST AND A STEAM TURBINE GENERATOR

AQ-25 During start-up and shutdown and combustor tuning periods, the emissions shall not exceed any of the following limits:

NOx (as NO2) – 160.00 lb/hr; CO – 1,500.00 lb/hr;
VOC (as methane) – 16.00 lb/hr;
PM10 - 9.00 lb/hr; SOx (as SO2) – 6.**26**~~10~~ lb/hr; or
Ammonia (NH3) – ~~28.76~~**29.54** lb/hr. [District Rule 2201]

Verification: A summary of significant operation and maintenance events and monitoring records required shall be included in the quarterly operation report (**AQ-SC8**).

AQ-29 Except during startup, shutdown and combustor tuning periods, emissions from the gas turbine system shall not exceed any of the following limits:

NOx (as NO2) – 15.**96**~~54~~ lb/hr and 2.0 ppmvd @ 15% O2;
CO – 9.**72**~~46~~ lb/hr and 2.0 ppmvd @ 15% O2;
VOC (as methane) – 3.**89**~~79~~ lb/hr and 1.4 ppmvd @ 15% O2;

PM10 - 9.0 lb/hr; or SOx (as SO2) – 6.**26**~~10~~ lb/hr.
NOx (as NO2) emission limits are based on 1-hour rolling average period. All other emission limits are based on 3-hour rolling average period. [District Rules 2201, 4001 and 4703]

Verification: A summary of significant operation and maintenance events and monitoring records required shall be included in the quarterly operation report (**AQ-SC8**).

AQ-30 NH3 emissions shall not exceed any of the following limits:

10.0 ppmvd @ 15% O2 over a 24-hour rolling average period, and ~~28.76~~**29.54** lb/hr. [District Rule 2201]

Verification: A summary of significant operation and maintenance events and monitoring records required shall be included in the quarterly operation report (**AQ-SC8**).

AQ-32 Emissions from the gas turbine system, on days when a startup, shutdown and/or combustor tuning activities occurs, shall not exceed the following limits:

NOx (as NO2) – 879.7 lb/day;
CO – 5,570.3 lb/day;
VOC – 164.2 lb/day;
PM10 – 216.0 lb/day;
SOx (as SO2) – ~~146.4~~**150.4** lb/day, or
NH3 – ~~690.3~~**709.0** lb/day.

Daily emissions shall be compiled for a twenty-four-hour period starting and ending at twelve-midnight. [District Rule 2201]

Verification: A summary of significant operation and maintenance events and monitoring records required shall be included in the quarterly operation report (**AQ-SC8**).

AQ-33 Emissions from the gas turbine system, on days when a startup, shutdown and/or combustor tuning activities do not occur, shall not exceed the following:

NOX (as NO2) – ~~373.0~~**383.0** lb/day;
CO – ~~227.0~~**233.3** lb/day;
VOC – ~~91.0~~**93.4** lb/day;
PM10 – 216.0 lb/day;
SOX (as SO2) – ~~146.4~~**150.4** lb/day, or
NH3 – ~~690.3~~**709.0** lb/day.

Daily emissions shall be compiled for a twenty-four-hour period starting and ending at twelve-midnight. [District Rule 2201]

Verification: A summary of significant operation and maintenance events and monitoring records required shall be included in the quarterly operation report (**AQ-SC8**).

AQ-46 Source testing to measure startup and shutdown of NOx, CO, and VOC mass emission rates shall be conducted **within 60 days of initial startup under this permit** and at least once every seven years thereafter. CEM relative accuracy for NOx and CO shall be determined during startup and shutdown source testing in accordance with 40 CFR 60, Appendix F (Relative Accuracy Audit). If CEM data is not certifiable to determine compliance with NOX and CO startup emission limits, then startup and shutdown NOx and CO testing shall be conducted every 12 months. If an annual startup and shutdown NOx and CO relative accuracy audit demonstrates that the CEM data is certifiable, the startup and shutdown NOx and CO testing frequency shall return to the once every seven years schedule. [District Rule 1081]

Verification: The results and field data collected during source tests shall be submitted to the District and CPM within 60 days of testing and according to a pre-approved protocol (**AQ-44**).

Testing for startup and shutdown emissions shall be conducted upon **within 60 days of initial startup under this permit** and at least once every seven years.

AQ-47 Source testing to determine compliance with the NOx, CO, VOC, and NH3 emission rates (lb/hr and ppmvd @ 15% O2) and PM10 emission rate (lb/hr) shall be conducted **within 60 days of initial startup under this permit** and at least once every 12 months thereafter. [District Rules 2201 and 4703, 40 CFR 60.4400(a)]

Verification: The results and field data collected during source tests shall be submitted to the District and CPM within 60 days of testing and according to a pre-approved protocol (**AQ-44**).

Testing for steady-state emissions shall be conducted upon **within 60 days of initial startup under this permit** and at least once every 12 months.

AQ-104 The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper OK), roof overhang, or other obstruction. [District Rule 4102]

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

AQ-105 **The start-up time shall not exceed 100 minutes for each event during any startup mode (i.e., hot start < 16 hour downtime, warm start - 16 to 64 hour downtime, or cold start > 64 hour downtime). The shutdown time shall not exceed 100 minutes for each event. [District Rules 2201, 4.0 and 4703, 5.3]**

Verification: The project owner shall submit to the District and CPM the startup and shutdown duration data demonstrating compliance with this condition as part of the quarterly operation report (AQ-SC8).

AQ-106 **The oxidation catalyst shall be equipped with a continuous temperature monitoring system to measure and record the temperature at the inlet face of the oxidation catalyst. [40 CFR Part 64]**

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

AQ-107 **The oxidation catalyst shall be maintained between 450°F and 1,350°F except during startup, shutdown, and combustor tuning periods. Upon detecting any excursion, the permittee shall investigate the excursion and take corrective action to minimize excessive emissions and prevent recurrence of the excursion as expeditiously as practicable. The District may administratively re-establish temperature range as necessary following any replacement of the oxidation catalyst material. [40 CFR Part 64]**

Verification: The project owner shall certify compliance with this condition as part of the quarterly operation report (AQ-SC8).

AQ-108 **The owner or operator shall measure and record temperature at the inlet face of the oxidation catalyst during each source test while measuring VOC emissions. [40 CFR Part 64]**

Verification: The project owner shall certify compliance with this condition as part of the quarterly operation report (AQ-SC8).

AQ-109 **If the emission unit's actual NOx, SOx, CO, PM, PM10 (all PM can be assumed to be equal to PM10), or VOC emissions exceed the actual emissions projected under project N-1243995 on a calendar year basis, the permittee must report to the District the annual emissions as calculated pursuant to paragraph 40 CFR 51.165(a)(6)(iii) or 40 CFR 52.21(r)(6)(iii) and any other information that the owner or operator wishes to include in the report (e.g., an explanation as to why the emissions differ from the preconstruction projection). Such information must be submitted to the District for a period of 10**

calendar years beginning the year of operation under ATC N-2697-5-9 and shall be submitted within 60 days of the end of each calendar year. [District Rules 2201 and 2410]

Verification: The project owner shall certify compliance with this condition as part of the Annual Compliance Report (COMPLIANCE-7).

REFERENCES

CEC 2010 – California Energy Commission (CEC). (TN 56447) Lodi Energy Center Project (08-AFC-10) Final Commission Decision, dated August 28, 2010.

CEC 2013 – California Energy Commission (CEC). (TN 200368) Lodi Energy Center Project (08-AFC-10C) Order Approving a Petition to Allow Increased Emissions During Startup or Other Ancillary Modifications, dated August 28, 2013.

LEC 2024 – Lodi Energy Center Project (LEC). (TN 256804) NCPA Lodi Energy Center Gas Turbine FX Upgrade Petition, dated June 11, 2024.

SJVAPCD 2024 – San Joaquin Valley Air Pollution Control District (SJVAPCD). (TN 261323) Preliminary Determination of Compliance (Lodi Energy Center), dated December 12, 2024.