SECTION 1.0

Executive Summary

1.1 Project Overview

Northern California Power Agency (NCPA) proposes to construct, own, and operate an electrical generating plant in the City of Lodi, San Joaquin County, California. The Lodi Energy Center (LEC) would be a natural gas-fired, combined-cycle electrical generating facility rated at a nominal generating capacity of 255 megawatts (MW)[1]. The LEC is proposed for a site parcel of approximately 4.4 acres adjacent to the City of Lodi's White Slough Water Pollution Control Facility (WPCF) to the east, treatment and holding ponds associated with the WPCF to the north, the existing 49-MW NCPA Combustion Turbine Project #2 (STIG plant[2]) to the west, and the San Joaquin County Mosquito and Vector Control facility to the south. The project site is on land owned and incorporated by the City of Lodi, and is approximately 6 miles west of the Lodi city center. The city of Stockton is approximately 2 miles to the south. The project site is currently undeveloped and is currently used for equipment storage during upgrades to the WPCF.

1.1.1 Project Objectives

The LEC would provide needed electric generation capacity with improved efficiency and operational flexibility to help meet the participants of NCPA's long-term electricity needs. The LEC's project objectives are consistent with this need as follows:

- Provide the most efficient power supply available by using natural gas-fired combustion turbine technology capable of supporting the growing power needs of NCPA participants
- Use state-of-the-art technology to provide the operational flexibility and rapid start and dispatch capability
- Locate project on industrial site, with ability to use existing power plant infrastructure
- Minimize environmental and air quality impacts

A title report for the LEC site is attached as Appendix 1A. A list of the property owners located within 1,000 feet of the power plant site is attached as Appendix 1B. The Assessor's Parcel Number is 055-130-16. The site is located in Township 3N, Range 5E, and southwest quarter of Section 24 (Mount Diablo Base and Meridian).

Figure 1.1-1 is an architectural rendering of the project. Figure 1.1-2 shows the location of the project within the San Joaquin County region. Figure 1.1-3 shows the site location. The main project features are as follows:

[1] Maximum peak generating capacity at 61 degrees Fahrenheit is 285 MW.

[2] "STIG plant" refers to the NCPA Combustion Turbine Project, which is a steam turbine injected gas turbine (STIG) plant

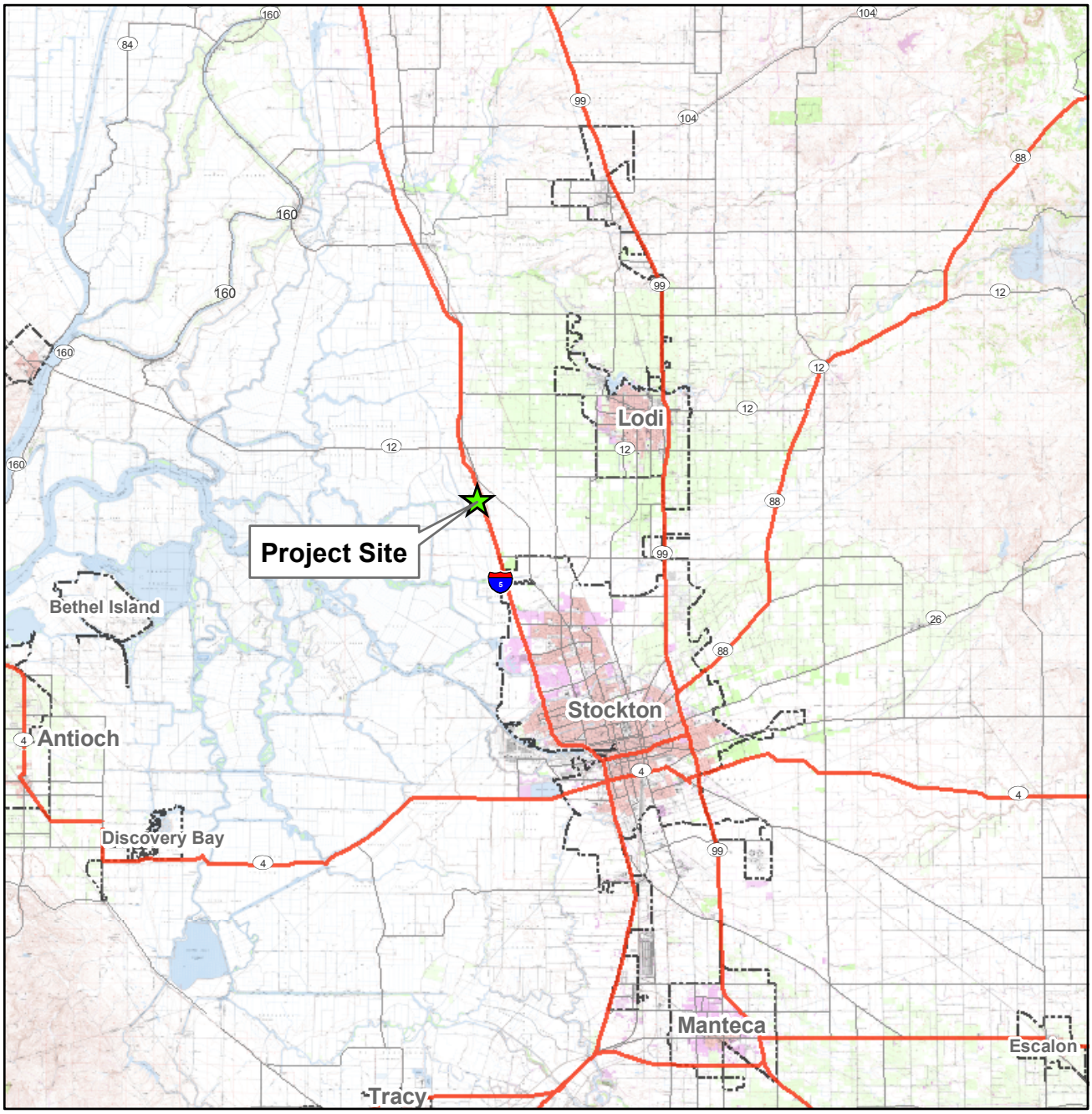
- The project is a 255 MW nominal, natural gas-fired, combined-cycle generating plant with a "Rapid Response" General Electric Frame 7FA combustion turbine-generator (CTG), a single condensing steam turbine generator (STG), a deaerating surface condenser; a 7-cell mechanical draft cooling tower; and associated support equipment.
- The CTG is equipped with an evaporative cooler on the inlet air system and dry low NO_x combustors.
- The heat recovery steam generator (HRSG) will be a horizontal, natural circulation type, equipped with duct burners. The emission reduction system includes a selective catalytic reduction (SCR) unit to control nitrogen oxide (NO_x) stack emissions and an oxidation catalyst to control carbon monoxide (CO) emissions.
- A small auxiliary boiler will provide steam needed to achieve reduced start times through the CTG "Rapid Response" system.
- Cooling tower blowdown water will be disposed of using a new Class I Underground Injection Well (UIW). As a result, no process wastewater will be discharged from the plant.
- A new approximately 520-foot, 230-kilovolt (kV) line will be constructed to transmit the plant output to the electrical grid via the existing 230-kV STIG switchyard adjacent to the plant.
- A new 2.5-mile-long gas line will be built parallel to the existing natural gas pipeline for the STIG plant, and will provide fuel gas to the site.
- A new onsite potable water well.
- Onsite interconnection to an existing recycled water pipeline and an existing sanitary sewer pipeline.

1.2 Project Owner

NCPA is a California Joint Action Agency headquartered in Roseville, California. NCPA is a not-for-profit joint powers agency that represents and provides support for 17 member communities and districts in northern and central California. NCPA was founded in 1968 as a forum through which community-owned utilities could make investments to ensure an affordable, reliable, and clean future energy supply for electric ratepayers.

NCPA has a longstanding commitment to the generation of electricity from environmentally responsible sources. NCPA owns and operate several power plants that together comprise a 95 percent emission-free generation portfolio. NCPA's members collectively reflect a 50 percent carbon-free resource portfolio thanks in part to the contribution of NCPA's own resource mix of geothermal, hydroelectric, and natural gas facilities. NCPA continues to advance its ethic of environmental leadership with the recent addition of geothermal and solar resources to its resource mix to power northern California communities. NCPA currently manages over 546 MW of operational power generation. NCPA's power plant development program encompasses both clean, high efficiency natural gas-fired projects as well as hydroelectric and geothermal projects.

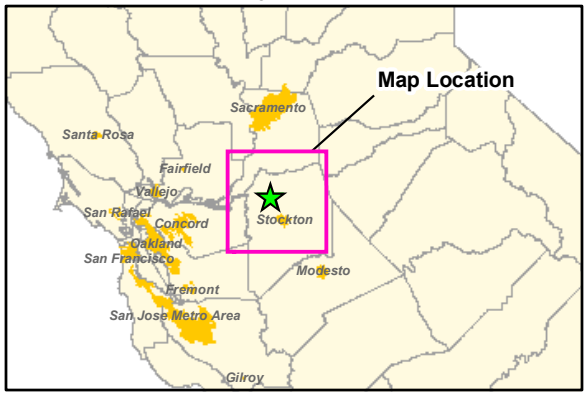
FIGURE 1.1-1
ARCHITECTURAL RENDERING
LODI ENERGY CENTER
LODI, CALIFORNIA



LEGEND

Project Site

VICINITY MAP



N

0 3 6
Miles

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

FIGURE 1.1-2
PROJECT VICINITY MAP
LODI ENERGY CENTER
LODI, CALIFORNIA

CH2MHILL

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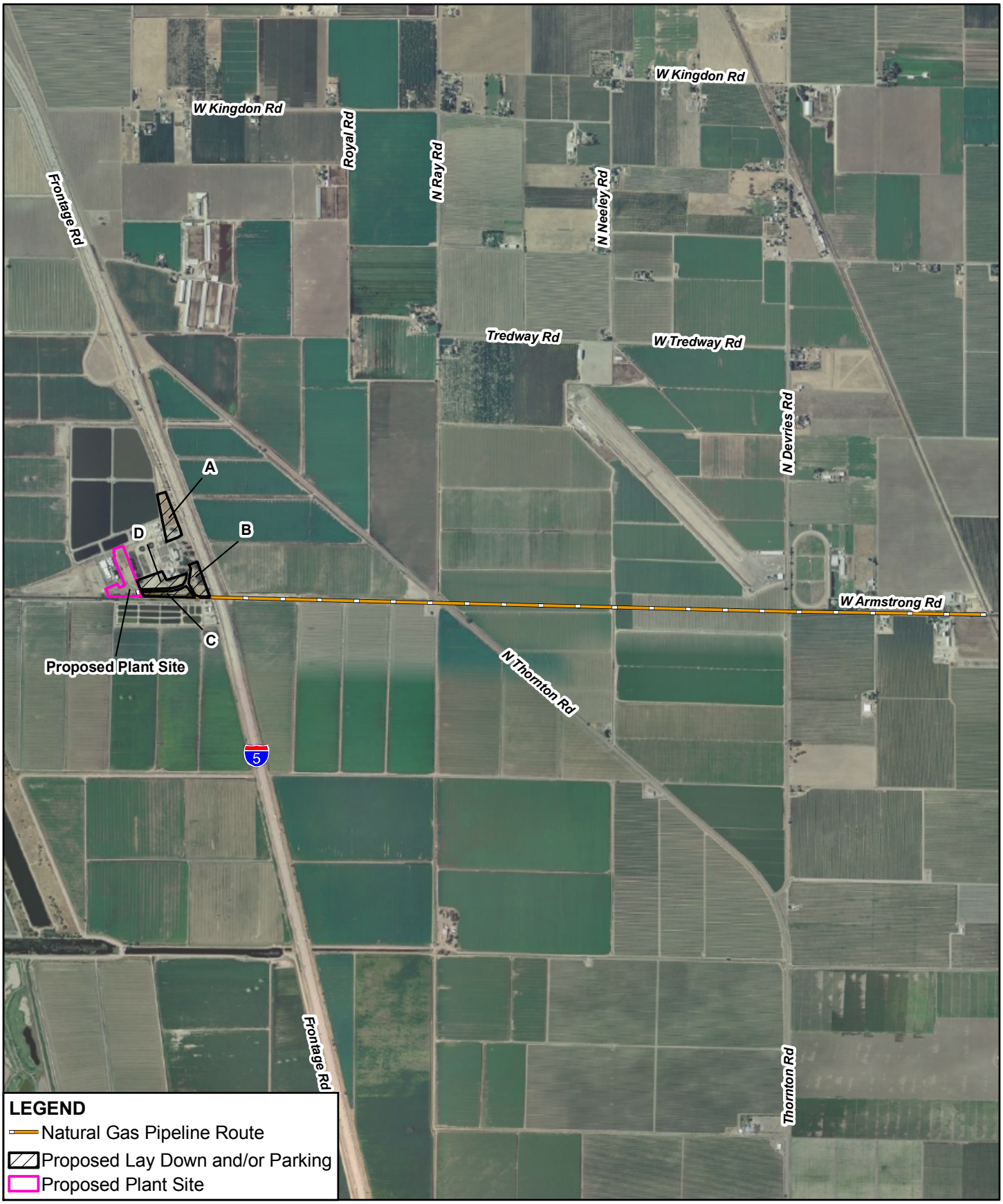

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

0 1,000 2,000
Feet

N

FIGURE 1.1-3
SITE LOCATION
LODI ENERGY CENTER
LODI, CALIFORNIA

CH2MHILL

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There are fourteen project participants for the LEC project, each with a varying participant share as identified in Table 1.2-1. The fourteen participants range from municipalities, rural electric cooperatives, irrigation districts, BART, the Port of Oakland and other publicly-owned entities.

TABLE 1.2-1
Project Participants for the LEC

Project Participant	Participant Share
City of Azusa	2.7%
Bay Area Rapid Transit District	5.9%
City of Biggs	0.4%
California Department of Water Resources	23.5%
City of Gridley	2.0%
City of Healdsburg	1.6%
City of Lodi	11.8%
City of Lompoc	2.0%
Modesto Irrigation District	23.5%
Plumas-Sierra Rural Electric Cooperative	0.8%
Port of Oakland	1.2%
Power and Water Resources Pooling Authority	2.0%
Silicon Valley Power	19.6%
City of Ukiah	3.1%

1.3 Project Schedule

NCPA is filing this Application for Certification (AFC) under the California Energy Commission's (CEC) certification process. Assuming the project receives a certification by fall of 2009, construction of the LEC will begin in the first quarter 2010 and will last approximately 24 months. Pre-operational testing of the power plant will begin in the fourth quarter 2011, and full-scale commercial operation is expected to commence by first quarter 2012.

1.4 Project Alternatives

A "no project" alternative was considered and rejected. The no project alternative fails to meet the basic project objectives of the LEC as described in this AFC. For example, the no project alternative is inconsistent with one of the primary objectives of NCPA's program to provide electrical power to support reliable supply and operational flexibility for the NCPA project participants. In addition, the no project alternative could result in greater fuel consumption and air pollution in the state; because older, less efficient plants with higher air

emissions would continue to generate power instead of being replaced with cleaner, more efficient plants, such as the LEC. Also, during limited availability of in-state generated electricity, imported electrical energy has proven to be expensive and is not always available.

In addition to the no project alternative, LEC has analyzed two possible alternative power plant sites. Each of these sites was rejected as infeasible because each fails to meet most of the LEC's basic objectives, fails to avoid or minimize potentially significant environmental effects, and/or includes the potential for the alternative itself to result in one or more significant environmental impacts. A complete discussion of project alternatives, including the no project alternative is presented in Section 6.0.

Alternative routings for natural gas was not considered because it is the most direct and shortest possible within an existing natural gas utility corridor. Sanitary sewer, process water and the transmission system are all on site.

Several alternative generating technologies were reviewed in a process that resulted in the selection of a state-of-the-art, natural gas-fired combustion turbine power plant for the LEC. The alternative technologies included conventional oil and natural gas-fired plants, simple-cycle combustion turbines, biomass-fired plants, waste-to-energy plants, solar plants, wind generation plants, and others. None of these technologies was considered better than or equal to the "F-Class" combined-cycle turbine technology selected for the LEC in meeting the project goals.

1.5 Environmental Considerations

Pursuant to the requirements set forth in existing environmental laws and the CEC's regulations, sixteen areas of possible environmental impact from the proposed project were investigated. Detailed descriptions and analyses of these areas are presented in Sections 5.1 through 5.16 of the AFC. As discussed in detail in this AFC, with the implementation of the proposed mitigation measures and the anticipated Conditions of Certification, there will be no significant unmitigated environmental impacts associated with the construction and operation of the LEC. This Executive Summary highlights findings related to five subject areas that have historically been of interest in CEC proceedings: air quality, biological resources, noise, visual resources, and water resources.

1.5.1 Air Quality

The LEC site is located in an area that has been designated non-attainment for both the State of California and federal ambient air quality standards for ozone, particulate matter with a diameter less than 10 microns (PM_{10}), and particulate matter with a diameter less than 2.5 microns ($PM_{2.5}$). The area is designated as attainment for carbon monoxide, NO_x, and sulfur dioxide. An assessment of the project impacts on air quality was performed using air dispersion modeling, and these impacts were all determined to be either below the ambient air quality standards or contributing a less than significant impact where the ambient air quality standard was already being exceeded. The potential air quality impacts from the LEC will be mitigated by providing emissions offsets and implementing best available control technology (BACT) for the combustion turbine and support equipment. The project

will have no significant adverse impact on air quality or public health. See Section 5.1 of this AFC for a detailed analysis of air quality and Section 5.9 for public health.

In August 2006, the California legislature passed Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006. AB 32 requires California resource agencies to establish a comprehensive program of regulatory and market mechanisms to achieve reductions in greenhouse gas emissions. The LEC helps to meet the goal of minimizing greenhouse gas emissions by providing efficient combined-cycle power and electrical reliability for project participants, thereby reducing the need for participants to build smaller, less efficient projects. By locating power plants near the load, total emissions of carbon dioxide are reduced, thereby decreasing the global warming impacts of electric generation. Improved efficiency means reduced emissions per unit of electricity generated. In addition, the project meets or exceeds the SB1368 CO_2 performance standard.

1.5.2 Biological Resources

The LEC will be located between the WPCF and existing STIG plant in an area currently used as equipment storage for the WPCF. The project site does not contain any wetlands or suitable habitat for sensitive plant or wildlife species and would not cause an adverse impact to sensitive biological resources. The California-threatened Swainson's hawk and a nesting white-tailed kite were observed in the vicinity of the project site during field surveys, and native and non-native trees located in the laydown areas could provide suitable nesting habitat for raptors and other migratory bird species. No aquatic habitat is present in the project area; however, a large irrigation canal just south of the property could provide suitable habitat for species such as the western and northwestern pond turtle and the giant garter snake. The Applicant will mitigate these effects in accordance with the California Department of Fish and Game policies and guidelines by conducting preconstruction surveys to determine the presence/absence of any of these species on the project site or laydown areas. In addition, the project site does not contain wetlands or federally listed species and will not require federal permits for wetlands or endangered species. Section 5.2 discusses biological resources.

1.5.3 Noise

The City of Lodi maintains a nighttime noise standard of 5 A-weighted decibels (dBA) or less above the nighttime ambient (L_{eq}) levels. The Applicant conducted 25-hour ambient noise monitoring at the project site and also prepared a noise generation model for the LEC. The predicted plant noise level is less than 45 dBA at all receptors. The resulting increase is 5 dBA or less above the existing L_{90}. This is within the CEC Staff's guideline that a 0 to 5 dBA increase in an area's background noise, measured as the average L_{90} of the four quietest nighttime hours and would not represent a significant adverse impact. Section 5.7, Noise, contains a discussion of the noise assessment.

1.5.4 Visual Resources

The LEC project will be sited in an existing industrial development including the STIG plant and the WPCF. The most prominent visual features of the LEC will be the stack, at 150 feet. Analysis of simulated views of the project from sensitive viewing positions (key observation points) shows that the project would not cause adverse visual impacts. Ratings of existing

visual or scenic quality from key observation points range from low to moderately low. Although the, viewer sensitivity at the key residential observation point is rated as high, the project is not located in a scenic or protected viewshed. Although the project will be seen by viewers leaving or entering suburban residential areas in Stockton to the south, these areas are 2 miles away, and the LEC will not significantly degrade the scenic quality of the existing viewshed, and will be located in an existing industrial area. Section 5.13 contains a detailed discussion of the visual resources assessment.

1.5.5 Water Resources

The water to be used for power plant cooling and process water will be tertiary-treated reclaimed water supplied by the WPCF. The facility will have limited industrial process water discharge. Total water use would be about 856 gallons per minute, or about 450 million gallons per year (1,380 acre-feet), assuming, as a maximum case, full-time operation (8,760 hours per year). In actuality, the project will be out of operation for maintenance and for other reasons and will not operate all hours. At 4,500 operating hours per year, total water usage would be about 231 million gallons (709 acre-feet per year). The majority of the plant process wastewater will be disposed of in a Class I UIW. The remaining small portion (e.g., CTG compressor water wash) will be captured in underground tanks and disposed of appropriately.)

Stormwater runoff from the project site during construction and operation will be carefully controlled in accordance with an engineered drainage system, an oil-water separator, and standard best management practices. The project would not have an adverse effect on the availability or quality of water resources. Section 5.15 contains a detailed analysis of water resources.

1.6 Key Benefits

1.6.1 Environmental

The LEC will use advanced, high-efficiency, combined-cycle combustion turbine technology and SCR to minimize emissions from the facility. NO_x emissions (a precursor to ozone formation) produced by the LEC will be at least 90 percent less per megawatt than the emissions produced by many older, existing power plants. In addition to the significant reduction of emissions, the LEC operating efficiency will be such that the plant will consume less fuel than older plants of similar size.

The use of tertiary-treated water as primary cooling and process water for the LEC will prevent an additional continuous demand on the local potable water system and will allow effective use of the area's recycled water supply.

1.6.2 Employment and Economic Benefits

The project will provide for a peak of approximately a maximum of 305 construction jobs over a 24-month period. The average number of workers during the construction period will be 168. The facility will permanently employ 21 to 23 persons (16 existing staff from the NCPA Combustion Turbine Projects, and 5 to 7 new employees), including power plant

technicians, an engineer, a plant manager, health and safety specialist, and administrative personnel.

In addition to the direct employment benefit, the LEC plant will require and use the services of local or regional firms for major maintenance and overhauls, plant supplies, and other support services throughout the life of the facility.

Finally, the LEC project will provide low cost, non-profit power to the participating members identified in Section 1.2.

1.7 Persons Who Prepared the AFC

Persons with primary responsibility for the preparation of each section of this AFC are listed in Appendix 1C.