SECTION 1.0

Executive Summary

1.1 Project Overview

Turlock Irrigation District (TID) proposes to construct, own, and operate an electrical generating plant in Ceres, Stanislaus County, California. The Almond 2 Power Plant (A2PP) would be a natural gas-fired, simple-cycle peaking facility rated at a gross generating capacity of 174 megawatts (MW). The A2PP is proposed to be located on an approximately 4.6-acre parcel adjacent to and north of the existing 48-MW TID Almond Power Plant. Surrounding land uses include a WinCo Foods (WinCo) distribution warehouse to the west, a farm supply facility to the north, and various industrial facilities (modular building distributor and drilling equipment storage laydown area) to the east. The project address is 4500 Crows Landing Road, Modesto, California. Although the site address identifies the site in Modesto, the project site is located within the city limits of Ceres, and is approximately 2 miles from the Ceres city center. Modesto is approximately 5 miles to the north. The project site was previously used by WinCo as a borrow pit during construction of the WinCo distribution warehouse before being filled and graded to the current site elevation. The approximately 1.85-acre construction laydown and parking area will be adjacent to the northern border of the proposed site within the WinCo property.

1.1.1 Project Objectives

The A2PP would provide needed electric generation capacity with improved efficiency and operational flexibility. Some of TID's basic project objectives for the A2PP include the following:

- Safely construct and operate a 174-MW, natural gas-fired, simple-cycle, peaking generating facility within the TID service territory.
- Provide operating reserves and thus reliability for TID's Balancing Authority requirements.
- Allow for better economic dispatch of TID's existing generation fleet system-wide.
- Provide fast-starting, load-following peaking generating units to help maintain TID's Balancing Authority tie line (interconnection) schedules with neighboring Balancing Authorities (the California Independent System Operator [CAISO] and Sacramento Municipal Utility District [SMUD])
- Help provide firming sources for TID's existing and future intermittent renewable resources in support of TID Renewable Portfolio Standard (RPS) and greenhouse gas (GHG) goals.[1]

[1] TID's Board has adopted a RPS goal of by 20% by 2017. TID will exceed this goal by the summer of 2009 with 28% of its resources being renewable resources.

- Provide additional generation to meet TID's growing load and meet the demands of customers within TID's service territory.
- Achieve economies of scale and maximize the use of TID assets by locating the project on an industrial site, with the ability to use existing TID assets and power plant infrastructure.
- Minimize environmental and air quality impacts.
- Assist the State of California in developing increased local generation projects, thus reducing dependence on imported power.
- Contribute to the diversification of the City of Ceres and Stanislaus County's economic base by providing increased employment opportunities and a reliable power supply.

A title report for the A2PP 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 041-006-039. The site is located in Township 4S, Range 9E, and northwest quarter of Section 21, Mount Diablo base and meridian.

Figure 1.1-1 is an artistic rendering of the project. Figure 1.1-2 shows the location of the project within the Stanislaus County region. Figure 1.1-3 shows the site location. The main project features include the following components:

- A nominal 174-MW, natural gas-fired, simple-cycle plant, which will consist of three 58-MW General Electric (GE) LM6000PG turbines with SPRINT (spray intercooling) natural gas-fired combustion turbine; and associated support equipment.
- A new 115-kilovolt (kV) switchyard
- Two 115-kV transmission line corridors. Corridor 1 is approximately 0.9 mile long, and Corridor 2 is approximately 1.2 miles long
- The reconductoring of approximately 2.9 miles of an existing 69-kV sub-transmission line to enhance system reliability
- A new natural gas supply that will be provided via one of two routes: an approximately 9.1-mile-long gas line that runs south along Crows Landing Road (Alternate A), or an approximately 11.1-mile-long gas line that runs south along Carpenter Road (Alternate B).[2]
- Onsite interconnection to the existing water treatment and discharge systems for the Almond Power Plant. Reclaimed water for these systems is provided by and discharged to the City of Ceres Wastewater Treatment Plant.

[2] Pacific Gas & Electric Company (PG&E) is currently examining the relative strengths of the two alignments. In order to allow the AFC to proceed, the two possible alternatives are presented in this AFC with same level of detail to allow complete evaluation of both alternatives. TID anticipates that PG&E will select a preferred route in late spring or early summer 2009. At that time, the route not selected will provide information for the California Energy Commission's Alternatives analysis.

FIGURE 1.1-1
ARCHITECTURAL RENDERING
ALMOND 2 POWER PLANT
CERES, CALIFORNIA

CH2MHILL

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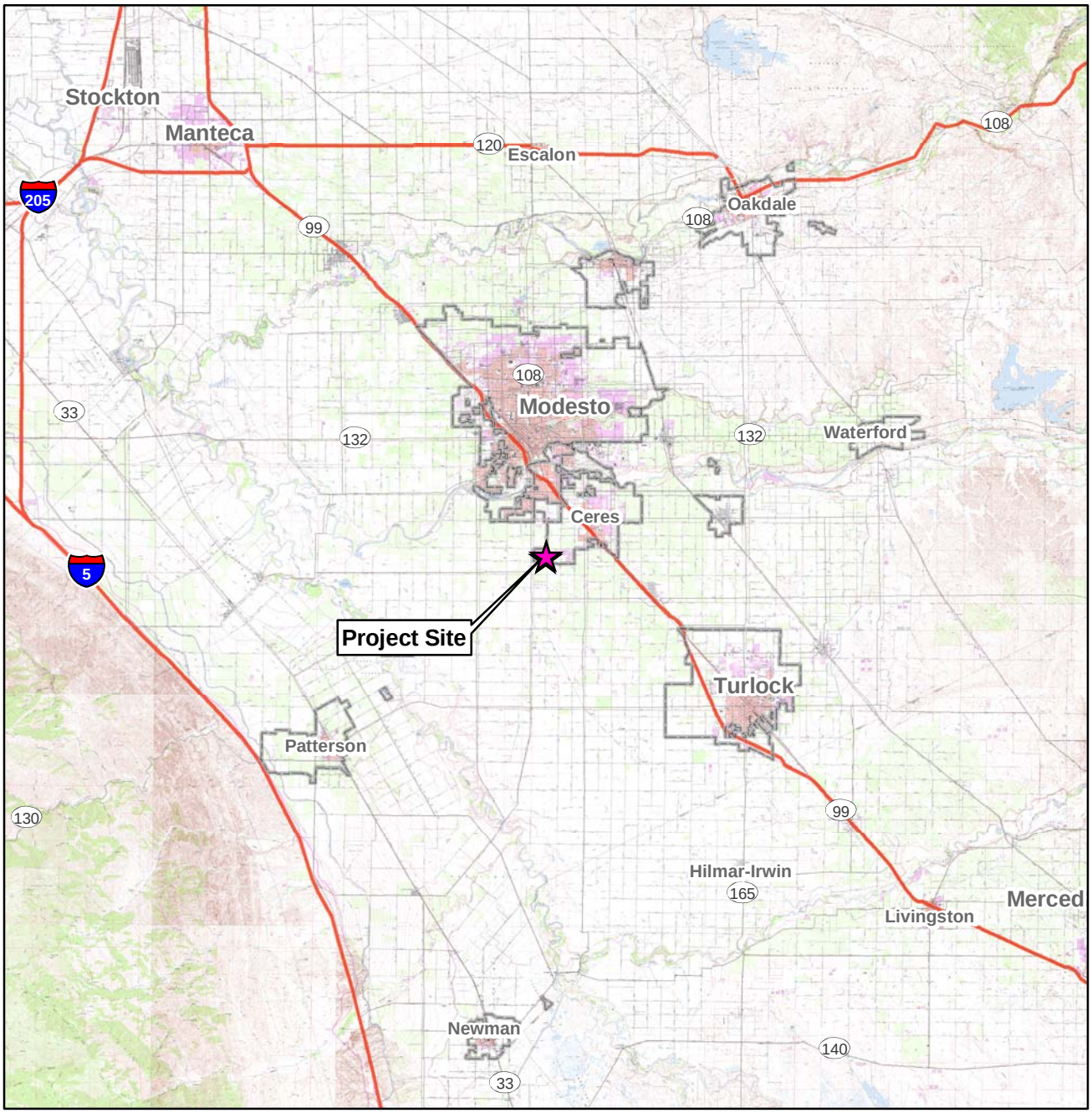
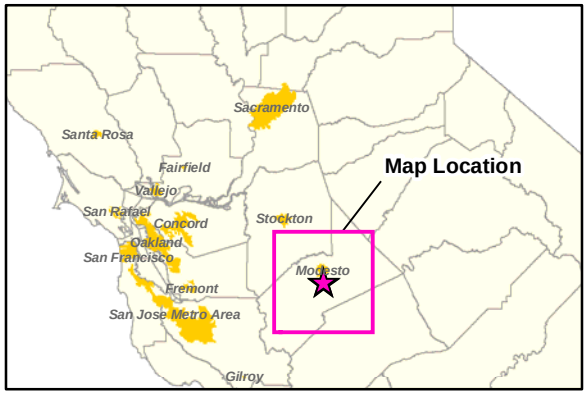


LEGEND

Project Site

City Boundaries

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
ALMOND 2 POWER PLANT
CERES, CALIFORNIA

CH2MHILL

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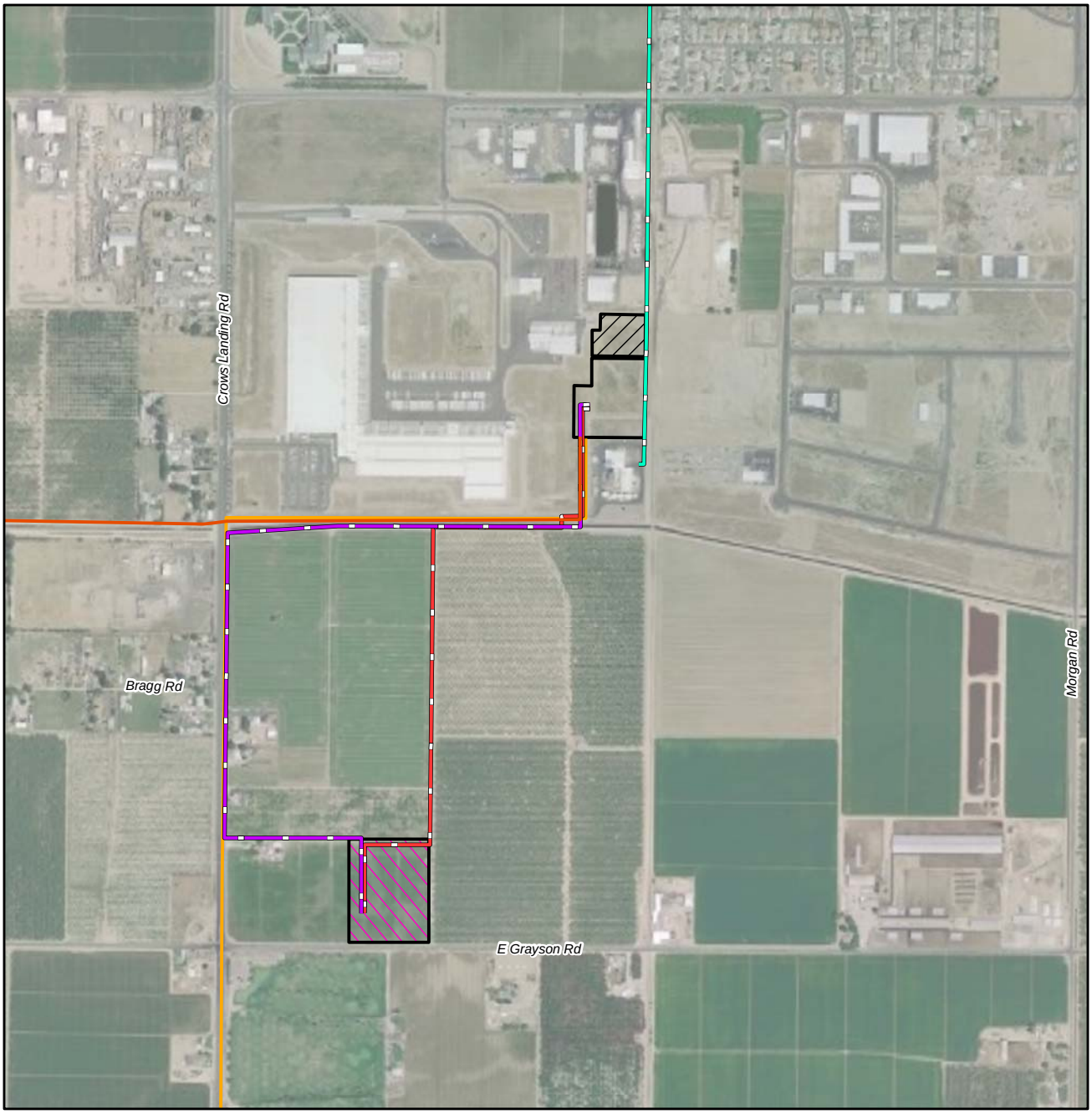


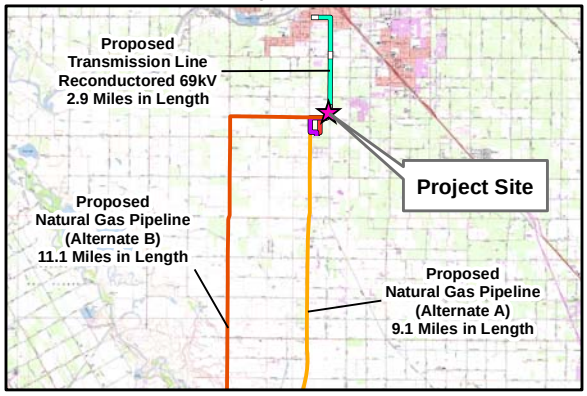
LEGEND

- Natural Gas Pipeline (Alternate A)
- Natural Gas Pipeline (Alternate B)
- 115-kV Circuit 1 Line (Corridor 1)
- 115-kV Circuit 2 Line (Corridor 2)
- Reconductored 69kV Sub-Transmission Line
- Proposed Grayson Substation
- Laydown Area
- Project Site

N

0 500 1,000
Feet

VICINITY MAP



Note:
The Grayson Substation is being developed as a separate Project

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 1.1-3
SITE LOCATION
ALMOND 2 POWER PLANT
CERES, CALIFORNIA

CH2MHILL

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1.2 Project Owner

TID is a public agency operated under the State Water Code. It is governed by a Board of Directors, elected by its ratepayer-owners. The power plant and transmission lines will be owned by TID. Consistent with PG&E practice and California Public Utilities Commission (CPUC) law and regulation, the natural gas pipeline will be owned by PG&E. The existing reclaimed water supply and discharge lines are owned by TID.

1.3 Project Schedule

TID is filing this Application for Certification (AFC) under the California Energy Commission's (CEC) certification process. Assuming the project receives certification by the second quarter of 2010, construction of the A2PP would begin in the third quarter of 2010 and would last approximately 12 months. Pre-operational testing of the power plant would begin in the third quarter of 2011, and full-scale commercial operation would be expected to commence by the fourth quarter of 2011.

1.4 Project Alternatives

Under the "no project" alternative, TID would not construct and operate a 174-MW, natural gas-fired, simple-cycle, peaking generating facility within the TID service territory and thus would not be able to provide operating reserves and reliability for TID's Balancing Authority requirements. TID would not be able to provide fast-starting, load-following generating units to help maintain TID's Balancing Authority tie line (interconnection) schedules with neighboring Balancing Authorities (CAISO and SMUD). TID would not have additional fast-starting resources to help provide firming sources for TID's existing and future intermittent renewable resources in support of TID's RPS and GHG goals. The "no project" alternative would also fail to provide additional generation to meet TID's growing load and the demands of customers within TID's service territory. The "no project" alternative would prevent TID from achieving economies of scale and maximizing the use of TID assets by locating the project on an industrial site, with ability to use existing TID assets and power plant infrastructure. Additionally, 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 A2PP. By making it more difficult, if not impossible, to integrate intermittent renewable resources into the TID system, the "no project" alternative would not assist the State of California in developing increased local generation projects, maintaining and potentially increasing dependence on imported power. In terms of local benefits, the "no project" alternative would not contribute to the diversification of the City of Ceres and Stanislaus County's economic base by providing increased employment opportunities and a reliable power supply. The "no project" alternative would also forgo the economic and social benefits associated with average employment of approximately 96 construction jobs over a 12-month period and the permanent employment four new employees. Accordingly, the "no project" alternative was considered and rejected because it fails to meet the basic project objectives of the A2PP.

In addition to the "no project" alternative, A2PP has analyzed three possible alternatives to the project site. Each of these alternative sites was rejected as infeasible because each fails to meet most of the A2PP's basic objectives, fails to avoid or minimize potentially significant environmental effects, and/or includes the potential to result in one or more significant environmental impacts.

Two alternative routes for the natural gas line (Alternate A and Alternate B) were reviewed and both satisfy most of the basic project objectives and/or avoid or minimize potentially significant impacts. In contrast, three alternative routes for the transmission line were also reviewed, but were rejected because they did not satisfy most of the basic project objectives, did not avoid or minimize potentially significant impacts better than the proposed routes, and/or had the potential to result in one or more significant environmental impacts.

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 A2PP. The alternative technologies included conventional oil and natural gas-fired plants, combined-cycle combustion turbines, reciprocating internal combustion natural gas-fired turbines, biomass-fired plants, waste-to-energy plants, solar plants, wind generation plants, and others. None of these technologies was considered equal or superior to the simple-cycle turbine technology selected for the A2PP in meeting the project goals.

Comprehensive review of alternatives to the project, the project location, and the "no project" alternative are presented in Section 6.0.

1.5 Environmental Considerations

Pursuant to the requirements set forth in existing environmental laws and the CEC's regulations, sixteen environmental disciplines with 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 A2PP. 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 A2PP site is located in an area designated as nonattainment for state and federal ozone air quality standards, and for state particulate matter (PM_{10}) and federal fine particulate matter ($PM_{2.5}$) standards. An assessment of project impacts to air quality was performed using detailed air dispersion modeling. The air impacts from the project will be mitigated by the use of state-of-the-art combustion turbine emission control technology. TID has acquired sufficient emission reduction credits (ERCs) to meet the offset requirements for the project. See Section 5.1, Air Quality, for a detailed analysis of the air quality impacts from the project.

1.5.2 Biological Resources

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. A pair of loggerhead shrikes was observed along one of the transmission line corridors during field surveys, and native and non-native trees located in the vicinity of the project and transmission line corridors could provide suitable nesting habitat for raptors and other migratory bird species. Although no threatened or endangered plants or wildlife were observed along the natural gas pipeline and transmission lines, potential habitat for burrowing owl, Swainson's hawk, San Joaquin kit fox, and vernal pool crustaceans may be present. TID will mitigate these effects in accordance with the U.S. Fish and Wildlife Service and 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, laydown area, and linear routes. If any of the species are present, they would be avoided or appropriate mitigation would be implemented.

Although there is no aquatic habitat present in the project area, there is a large cement-lined irrigation canal just south of the property that is devoid of vegetation or other features. Irrigation canals that could provide suitable habitat for species such as the western and northwestern pond turtle and the giant garter snake would be crossed by the natural gas pipeline using the dry auger jack and bore construction method and, therefore, would avoid impacts to these habitats. Additionally, the project site does not contain wetlands and will not require federal permits for wetlands. Section 5.2 provides details on biological resources.

1.5.3 Noise

TID conducted 25-hour ambient noise monitoring at the project site, and also prepared a noise-generation model for the A2PP. Operational noise from the A2PP, with noise control incorporated in the design, is not anticipated to exceed 49 A-weighted decibels (dBA) at the closest residential receptor located approximately 0.3 mile from the plant, and will be less than 49 dBA at more distant receptors. At the closest residential receptor, the potential increase is generally less than 5 dBA above existing daytime background levels (L_{90}) and is less than 10 dBA above the quietest average nighttime L_{90} and thus would be a less-than-significant impact. Section 5.7, Noise, contains a discussion of the noise assessment.

1.5.4 Visual Resources

The most prominent visual features of the A2PP will be the 80-foot-tall exhaust stacks. Analysis of simulated views of the project from key observation points shows that the visual impacts would be less than significant. Ratings of existing visual or scenic quality from key observation points range from low to moderate. Although the viewer sensitivity at the main residential key 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 Ceres to the north, these areas are at least 0.3 mile away, and the A2PP 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 process water will be reclaimed water supplied by the City of Ceres. The facility will have limited industrial process water discharge. Total water use would be about 319 gallons per minute, at average annual temperature, or about 514.5 acre-feet per year, assuming, as a maximum case, full-time operation (8,760 hours per year). Of course, the project will be out of operation for maintenance and for other reasons and will not operate all hours. At 5,000 operating hours per year, at average annual temperature, total water usage would be about 293 acre-feet per year, significantly less than the assumptions above. The majority of the plant process wastewater will be collected in a sump and pumped to the existing wastewater tank, where it will be returned to the City of Ceres Wastewater Treatment Plant.

Stormwater runoff from the project site during construction and operation will be carefully controlled in accordance with an engineered drainage system and standard best management practices. The stormwater will drain to a new onsite retention pond. No stormwater will be disposed of offsite. 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 A2PP will use advanced, high-efficiency, simple-cycle combustion turbine technology with water injection, selective catalytic reduction and oxidation catalysts to minimize emissions from the facility. In addition, the A2PP operating efficiency will be such that the plant will consume less fuel than older plants of similar size.

The use of reclaimed water as primary process water for the A2PP will prevent an additional continuous demand on the local potable water system and will allow effective use of the area's recycled water supply.

The A2PP will help provide firming sources for TID's existing and future intermittent renewable resources in support of TID's RPS and GHG goals. California law requires significant reductions in GHG emissions statewide. The Global Warming Solutions Act of 2006 (also known as AB 32) calls for statewide GHG emissions to be equivalent to 1990 GHG levels by the year 2020.[3] To achieve these reductions, the AB 32 Scoping Plan developed by the California Air Resources Board (CARB) calls on the electricity sector to provide at least 40 percent of the total statewide GHG emissions reductions, notwithstanding the fact that the electric sector accounts for only 25 percent of GHG emissions.[4]

CPUC and CEC joint recommendations to CARB state that renewable integration will be a "cornerstone" of emission reductions. Similarly, the CARB AB 32 scoping plan anticipates the implementation of a 33 percent RPS and includes the RPS as an emission-reduction

[3] Health and Safety Code § 38550.

[4] See: CPUC and CEC, D.06-04-009, CEC-100-2008-007-F, *Final Opinion and Recommendations on Greenhouse Gas Regulatory Strategies* Joint Recommendations to CARB (October 2008) p.1, available at: http://www.energy.ca.gov/2008publications/CEC-100-2008-007/CEC-100-2008-007-F.PDF

measure. TID has elected to procure 20 percent of its power from eligible renewable resources by 2017. In addition, Governor Schwarzenegger recently issued Executive Order S.14-08, which directs California State agencies to implement a 33 percent RPS by 2020. TID's Board has adopted an RPS goal of by 20 percent by 2017. TID will exceed this goal by the summer of 2009 with 28 percent of its resources being renewable resources.

The A2PP will help provide "firming" sources for TID's existing and future intermittent renewable resources in support of TID's RPS and GHG goals. Firming involves the use of fast-starting, flexible generation that is always available under all operating conditions to ramp-up or ramp-down, as necessary, to balance load and generation. Firming power is the cornerstone of system reliability.

Most renewable energy facilities such as wind and solar are "intermittent resources," meaning these resources are not available to generate at all hours, and thus have limited operating capacity. For example, intermittent resources can be limited by meteorological conditions on an hourly, daily, and seasonal basis. Further, most renewable resources have no ability to provide regulation, the ability to ramp up and down quickly at the system operator's direction to ensure electric system reliability. Additionally, the availability of intermittent resources is often unrelated to the load profile they serve. For example, some photovoltaic resources reach peak production around 12:00 p.m. while the electric system typically peaks between 5:00 p.m. and 7:00 p.m.

The A2PP can be operated without the limitations affecting intermittent renewable resources. The A2PP will provide fast-starting, flexible generating resources that will allow TID to firm intermittent renewable resources and thus integrate renewable resources into TID's generation portfolio without affecting electric system reliability. The A2PP will allow TID to take advantage of renewable resources that are on the market, but are volatile, from a system operations perspective, and require significant, flexible resources to firm their power for system reliability. Accordingly, as a fast-starting, flexible, generating resource, the A2PP will enhance the reliability of existing and future intermittent renewable resources and thus further TID's RPS and GHG goals.

1.6.2 Employment and Economic Benefits

The project will provide for a peak of approximately 149 construction jobs. The average number of workers during the construction period will be 96. The facility will permanently employ a total of 16 persons (12 staff from the existing Almond Power Plant, and 4 new employees), including power plant technicians, instrument and control technicians, and a plant manager.

In addition to the direct employment benefit, the A2PP 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.

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.