

SECTION 6.0

Alternatives

The following section discusses alternatives to Turlock Irrigation District's (TID's) proposed Almond 2 Power Plant (A2PP). These include the "no project" alternative, power plant site alternatives, linear facility route alternatives, technology alternatives, water supply alternatives, and wastewater disposal alternatives. This discussion focuses on alternatives that could feasibly accomplish most of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects.

The Energy Facilities Siting Regulations (Title 20, California Code of Regulations [CCR], Appendix B) guidelines titled *Information Requirements for an Application* require:

A discussion of the range of reasonable alternatives to the project, including the no project alternative... which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and an evaluation of the comparative merits of the alternatives.

The data adequacy regulations also require:

A discussion of the applicant's site selection criteria, any alternative sites considered for the project and the reasons why the applicant chose the proposed site.

According to the Warren-Alquist Act, evaluation of alternative sites is not required when a natural gas-fired thermal power plant is: (1) proposed for development at an existing industrial site, and (2) the project has a strong relationship to the existing industrial site (Public Resource Code 25540.6(b)). The A2PP is a natural gas-fired power plant proposed for development at an existing industrial site; therefore, A2PP is the type of project that is addressed by this code section. The A2PP will be sited at an existing industrial site immediately adjacent to the existing Almond Power Plant. The A2PP has a strong relationship to the existing power plant because the A2PP will be sharing some infrastructure with the existing Almond Power Plant.

Because of these strong relationships, evaluation of alternative sites outside the boundaries of the A2PP is not legally required. However, in accordance with pre-filing guidance from the California Energy Commission staff, a description of alternative sites has been provided.

6.1 Project Objectives

The California Environmental Quality Act (CEQA) requires consideration of "a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives" (14 CCR 15126.6(a)). Thus, the focus of an alternatives analysis should be on alternatives that "could feasibly accomplish most of the basic objectives of the project and

could avoid or substantially lessen one or more of the significant effects” [14 CCR 15126.6(c)]. The CEQA Guidelines further provide that “[a]mong the factors that may be used to eliminate alternatives from detailed consideration in an EIR are: (i) failure to meet most of the basic project objectives, (ii) infeasibility, or (iii) inability to avoid significant environmental impacts.”

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 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 and Sacramento Municipal Utility District)
- Help provide firming sources for TID’s existing and future intermittent renewable resources in support of TID’s Renewable Portfolio Standard and greenhouse gas goals.
- 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 range of reasonable alternatives are identified and evaluated in this section including the “no project” alternative (that is, not developing a new power generation facility), alternative site locations for constructing and operating the A2PP, alternatives to the linear facilities (transmission lines and natural gas), alternative configurations to the internal combustion engine arrangement currently proposed for the A2PP, and alternative power generation technologies. This section also describes the site selection criteria used in determining the proposed location of the A2PP. Electric transmission connection alternatives are addressed in Section 6.5.2. Gas pipeline connection alternatives are addressed in Section 6.5.3.

6.2 The “No Project” Alternative

If the project were not constructed, TID’s basic project objectives would not be met. A new natural gas-fired generating facility would not be constructed within the TID service territory. Instead, to meet TID’s growing load, TID would need to obtain additional generation from other sources, which are potentially older, less efficient and release larger quantities of air pollutants than the A2PP. Additionally, if the A2PP is not constructed, TID will not be able to rely on its own generating resources to provide needed additional operating reserves and thus reliability for TID’s Balancing Authority requirements would not be met with local resources, and there would not be better economic dispatch of TID’s existing generation fleet system wide.

The no project alternative could result in greater fuel consumption, air pollution, and other environmental impacts 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. Also, the no project alternative would fail to meet the objective of assisting the state of California in reducing dependence on unreliable imported power. During limited availability of in-state generated electricity, such imported electrical energy has proven to be expensive and inconsistently available. Further, under the no project alternative, TID’s Balancing Authority requirements would require uneconomic dispatch of TID’s existing generation fleet, as well as reliance on imported energy. This alternative would fail to improve the County’s economic base because no new jobs would be created and the reliability of the regional power supply would not be increased.

6.3 Power Plant Site Alternatives

Several alternative site locations were assessed during initial screening for the A2PP project. This initial screening identified the A2PP site and three alternatives. The alternative sites are shown in Figure 6.3-1. Although each of the alternative sites could feasibly attain most of the project’s basic objectives, the A2PP site clearly became the preferred alternative for a variety of reasons, including the ability to use a previously disturbed site, the best and cost-effective use of existing facilities and infrastructure, and the least environmental impacts.

The key screening criteria used to select the A2PP site and alternative sites included:

- Location within TID’s service territory
- Ability to gain site control
- Availability of sufficient land area
- Ability to share facilities and infrastructure with existing generating facilities
- Proximity to existing transmission and distribution lines and close to a substation
- Location near a source of water supply of sufficient quantity and water quality
- Consistency with the City of Ceres and Stanislaus County General Plans, zoning ordinances, and existing land uses

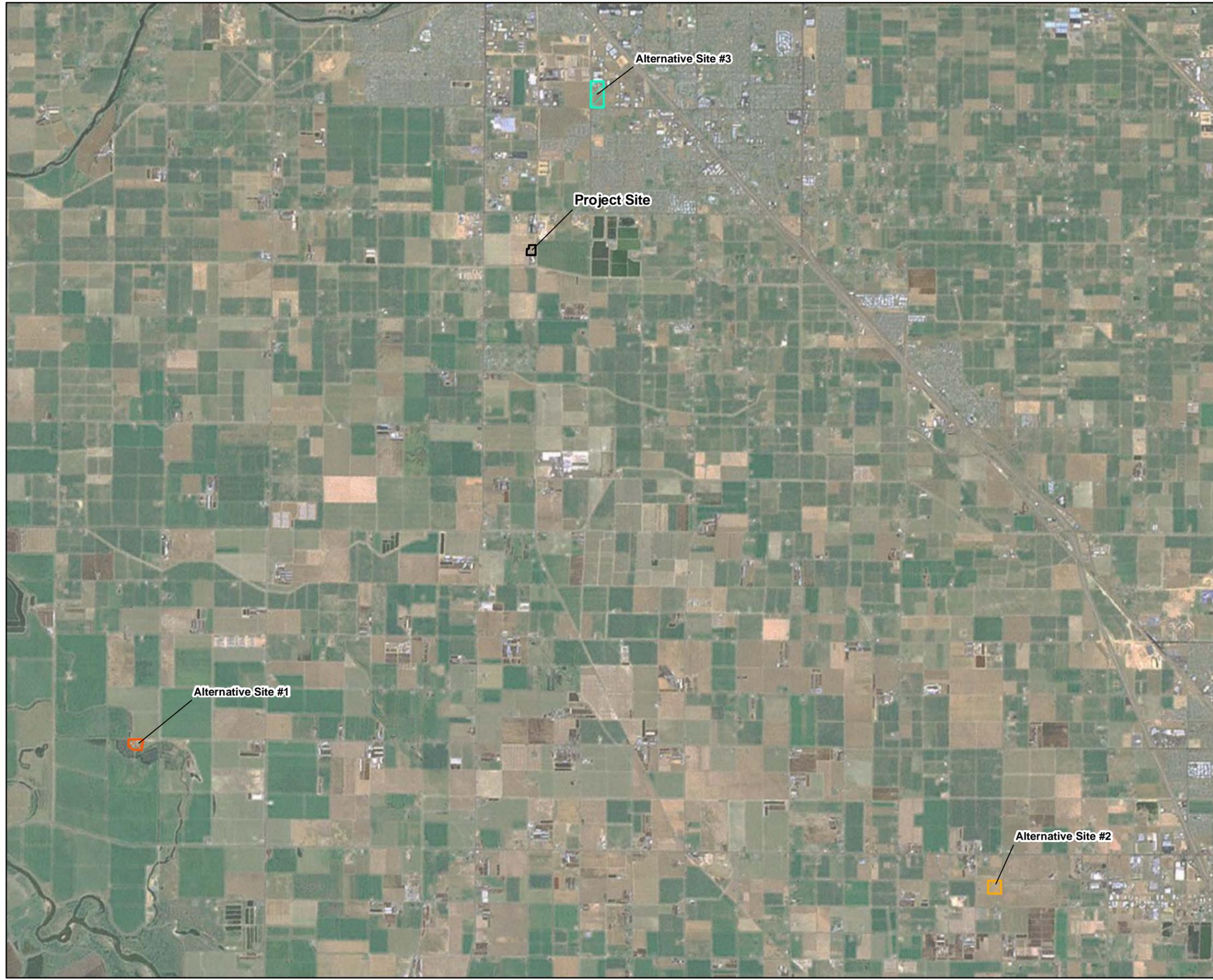
- The ability to avoid or minimize potentially significant impacts on the environment
- Location in an area appropriate for industrial development, preferably a previously disturbed site.

6.3.1 The A2PP Site

The A2PP site is described in detail in Section 2.0, Project Description. To summarize briefly, the A2PP site is located at the southwestern edge of Ceres, approximately 2 miles from the Ceres city center. The city of Modesto is approximately 5 miles to the north. The site is approximately 4.6 acres and bordered by the existing 48-MW Almond Power Plant to the south, a 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 areas) to the east. Immediately south of the existing Almond Power Plant is the TID Lower Lateral 2, an irrigation canal, with adjacent transmission lines. The general plan designation and zoning of the site are “Industrial” and several tall industrial structures are within 0.2 mile of the site. The nearest residential uses to the project are located approximately 0.3 mile north of the project. The project site was previously used by WinCo as a borrow pit during construction of the WinCo distribution warehouse. The site was filled and graded to the current site elevation in 2008, using approximately 30,000 cubic yards of commercially available soil.

The proposed location of the A2PP site provides the opportunity to share the following facilities between the existing Almond Power Plant and the A2PP:

- The anhydrous ammonia system, including the 12,000-gallon storage tank and unloading facilities
- The fire protection system, including fire water storage tank and diesel-fired emergency fire pump
- The well water for service water and emergency shower / eyewash stations
- The water treatment system
- The recycled water supply and wastewater discharge systems
- The process water system (process water for the A2PP will be provided using the existing system in place between the Almond Power Plant and the City of Ceres Wastewater Treatment Plant [WWTP])
- The instrument and service air systems
- The oil/water separator
- The demineralized and reverse osmosis water storage tanks
- The administration building, including the control room and office space



- LEGEND
- Alternative Site #1
 - Alternative Site #2
 - Alternative Site #3
 - Project Site

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

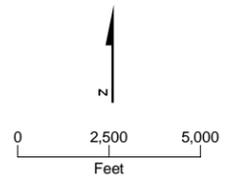


FIGURE 6.3-1
ALTERNATIVE SITE LOCATIONS
 ALMOND 2 POWER PLANT
 CERES, CALIFORNIA

The A2PP will be interconnected to the TID system via two 115-kilovolt (kV) lines (Corridor 1, 0.9 miles long, and Corridor 2, 1.2 miles long; see Figure 1.1-3) to the proposed Grayson Substation.¹ Load flow studies indicate that the existing Almond-Crows Landing 69-kV line will need to be reconducted to prevent possible thermal overload under certain contingencies, as described in more detail in Section 3.0, Electric Transmission.

Natural gas will be provided via one of two routes:² an approximately 9.1-mile-long gas pipeline that runs south along Crows Landing Road (Alternate A), or an approximately 11.1-mile-long gas pipeline that runs south along Carpenter Road (Alternate B). Both natural gas alternatives will connect to Pacific Gas and Electric Company (PG&E) Line #215 located in Bradbury Road to the south of the project. More information regarding the natural gas supply can be found in Section 4.0, Natural Gas Supply.

Process water will be obtained by tying into the existing water treatment system for the Almond Power Plant, which uses recycled water from the City of Ceres WWTP, 0.5 mile away. Wastewater will be returned to the City of Ceres WWTP via an existing pipeline connection at the Almond Power Plant. Service water for the facility will be provided by an existing well at the southeast corner of the Almond Power Plant property. Potable water will be delivered to the A2PP by a commercial vendor. The A2PP will generate no sanitary wastewater because the sanitary facilities at the existing Almond Power Plant will be used. Sanitary wastewater for the existing Almond Power Plant is currently discharged to an onsite septic tank and leachfield.

6.3.2 Alternative 1: Modesto WWTP Site

The Modesto WWTP site is located 100 yards southwest of the corner of Fulkerth and Vivian roads, 8.4 miles southwest of Ceres. The site is a greenfield site located on approximately 8 acres of “high ground” elevated above the surrounding area. To the south and west, the fields of alfalfa are irrigated with wastewater and drain to an unnamed meandering channel that is also south of the site. The soils on the elevated portion are whitish and are reported to be alkaline and salty, and therefore, undesirable for planting. The drainage canal immediately to the south is 20 feet wide in places, and supports a lush growth of dense bulrushes, and willow scrub. The site is in unincorporated Stanislaus County and currently zoned for agriculture. A power plant would be consistent with the zoning, but would be subject to meeting the requirements for a use permit. The nearest residences are located approximately 0.25 mile north of the site. Site control may be possible through negotiations with the Modesto WWTP staff and City Council. Water for this site would come from the Modesto WWTP located approximately one mile north of the site. Wastewater would be returned to the Modesto WWTP or treated through a zero-liquid discharge (ZLD) system.

¹ The proposed Grayson Substation is a component of the TID Hughson-Grayson 115-kV Transmission Line and Substation Project. In addition to the substation, the Hughson-Grayson project consists of an approximately 10-mile-long, 115-kV transmission line; a 0.5-mile-long, 69-kV transmission line from the existing TID Almond Power Plant; and a second 69-kV transmission line that extends 0.8 mile east from the proposed substation. An environmental impact report for the Hughson-Grayson project (State Clearinghouse Number 2009012075) is currently being prepared. The Notice of Preparation was issued on January 26, 2009, and reissued February 10, 2009. The Draft Environmental Impact Report is anticipated to be issued in July 2009.

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.

The site would require two new 9-mile-long, 115-kV transmission line interconnections for connection to the Walnut Substation. A new 6-mile-long natural gas pipeline would need to be constructed to PG&E's Line #215 located along Bradbury Road.

6.3.3 Alternative 2: Washington Road Site

The Washington Road site is located on a 40-acre parcel on the west side of Washington Road and south of the Tidewater Southern Railroad tracks and the existing TID Walnut peaking plant. This site is located at the western edge of Turlock, in Stanislaus County, approximately 1.9 miles west of Highway 99, just south of West Main Avenue.

The site is zoned for agricultural use and is currently farmed. Agricultural uses are located south, east, and west of the site, with utility uses to the north. The site is adjacent to a major 115-kV transmission line that connects to the existing Walnut peaking plant and substation. A 115-kV interconnection would be less than 0.1 mile. Natural gas would be supplied via an approximately 3.7-mile-long gas pipeline that would tie into PG&E Line #215 on Bradbury Road. Water supply would be obtained from the Turlock WWTP, located about 2 miles east. Effluent from the plant would be treated using a ZLD system. It is unknown if site control would be possible at this site.

The site is near an industrial area of Turlock that has several tall industrial structures within the context of mixed residential and industrial uses. The nearest residences are two homes located on the 40-acre Washington Road site approximately 800 feet west of the project. Additional residences are located less than 950 feet south of the project. There are up to six other residences within 2,000 feet.

6.3.4 Alternative 3: Morgan Road

The Morgan Road site is located northeast of the junction of Morgan Road and East Whitmore Avenue in Ceres, approximately 0.75 mile west of Highway 99. The site is approximately 18.7 acres and currently vacant. Non-native grasses are the dominant vegetation onsite. Bordering the property are a residential subdivision to the south, vacant industrial-designated land to the east, a storage yard to the north, and unincorporated agricultural land to the west. The site is designated General Industrial and zoned M-2 General Industrial, except for the portion adjacent to Whitmore Avenue, which is addressed by a specific plan (PC-29). The General Industrial and M-2 zoning designations would support a power plant. It is unknown if site control would be possible at this site.

The site is located in a predominantly industrial area with several large industrial buildings to the east of the site. The nearest residences are located less than 0.1 mile to the south. An 11.5-mile-long natural gas pipeline connecting to PG&E's Line #215 would need to be constructed to this site along Crows Landing Road, as would two, 3.2-mile-long, 115-kV transmission lines that would connect to the proposed Grayson Substation located east of the intersection of Crows Landing Road and Grayson Road. A 1.5-mile-long recycled water line would be required to connect to the Ceres WWTP. Effluent from the plant would be sent back to the Ceres WWTP via a new approximately 1.5-mile-long pipeline.

6.4 Comparative Evaluation of Alternative Sites

In the discussion that follows, the sites are compared in terms of each of the 16 topic areas required in the AFC including the following:

- **Land Use Compatibility** – Is the parcel zoned appropriately for industrial use and compatible with local land use policies?
- **Routing and Length of Linear Facilities** – Can linear facilities be routed to the site along existing transmission lines, pipelines, and roads? Will linear facilities be significantly shorter for a given site?
- **Visual Resources** – Are there significant differences between the sites in their potential for impact on significant or protected viewsheds?
- **Biological Resources** – Would there be significant impacts to wetlands or threatened or endangered species?
- **Contamination** – Is there significant contamination onsite, such that cleanup expense would be high, cleanup would cause significant schedule delay and will the use of the site expose TID to potential liability for site cleanup?
- **Noise** – Is the site sufficiently near a sensitive receptor area such that it would be difficult to mitigate potential noise impacts below the level of significance?
- **Use of Previously Disturbed Areas** – Has the site been previously disturbed? Does the site minimize the need for clearing vegetation and otherwise present low potential for impact on biological and cultural resources?

6.4.1 Overview of the A2PP and Alternative Sites

As indicated in the descriptions of each of the alternative sites, the basic needs of a power plant project for land, access to electrical transmission, gas supply, and water, are met at each site. All of the alternatives would require construction of new transmission lines and a natural gas pipeline.

The site characteristics are summarized in Table 6.4-1 and described in the following subsections.

TABLE 6.4-1
Overview of Alternative Sites

Alternative Site	Site Size (acres)	Land Use Compatibility	Estimated Lengths of Linear Facilities
A2PP (proposed site)	4.6	Zoned: M-2 General Industrial, vacant land	W: 0.5 mi (existing) G: 9.1 mi/11.1 mile T: 115-kV: 0.9 mile 115-kV: 1.2 mile
Alternative 1: Modesto WWTP	8	Zoned: AG-2-40; currently fallow	W: 1 mile G: 6 miles T: 9 miles

TABLE 6.4-1
Overview of Alternative Sites

Alternative Site	Site Size (acres)	Land Use Compatibility	Estimated Lengths of Linear Facilities
Alternative 2: Washington Road	40	Zoned: AG-2-40; currently farmed, Prime Farmland	W: 2 miles G: 3.7 miles T: 115 kV <0.1 mile (300 ft)
Alternative 3: Morgan Road	18.73	Zoned: General Industrial and PC-29 vacant	W: 1.5 miles G: 11.5 miles T: 115 kV 3.2 miles

W: = recycled water; G: = natural gas; T= transmission.

6.4.2 Air Quality

The plant's configuration and operation would be essentially the same from an air quality perspective at every location. All of these sites are in the same air basin (San Joaquin Valley Air Basin) and offsets acquired by TID would be equally appropriate for every site. The type and quantity of air emissions from the alternative sites would be identical. The impacts on the human population and the environment may differ slightly because of the location of residences and other human uses in the project vicinity. The A2PP site is located the farthest from the nearest residence (1,580 feet). The alternative sites would be located 300, 800 or 1,300 feet from the nearest residence. Local terrain is similar at all sites and not likely to change air quality impacts.

6.4.3 Biological Resources

Special-status species that are recorded, or that potentially occur in the region, are the same for all sites.

The sites differ in their proximity and abundance of either onsite or adjacent habitat that is relatively natural or undeveloped. The A2PP site is located within a site that has been graded and has little to no biological value. 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 greatest impact on biological resources would be expected for development of the Modesto WWTP site because of the close proximity of abundant wetland and riparian habitat to the south and west. The wetlands and riparian habitats are several acres in size, and lead directly to the San Joaquin River. Species expected in this area would include cottonwoods, willows, sedges, reeds; water fowl such as great blue herons, great egrets; and songbirds such as red-winged blackbirds, flycatchers, and grosbeaks.

The Washington Road Site would have low impact to biological resources because it is actively farmed, and supports little natural biological habitat.

The Morgan Road site is located in close proximity to industrial, residential, and agricultural development. The site has experienced disturbance and biological value is considered low. However, based on a preliminary site assessment, California ground squirrels were observed, which can be an indicator of burrowing owl. Additional site

surveys in accordance with biological survey protocols would be essential if site development were to occur.

6.4.4 Cultural Resources

The A2PP site is located within an industrial area surrounded by industrial facilities. The site was recently used as a borrow pit during the construction of the WinCo distribution warehouse to the west, and was filled in 2008. There is an overall low density of previous finds in this general area, despite previous surveys.

Due to its location adjacent to the San Joaquin River and above the flood plain, the Modesto WWTP site is the most likely to have cultural resources present. The Washington Road site is located in fields that are actively farmed; and the surface soils have been graded, harrowed, and planted. The Morgan Road site is in a predominantly industrial area with residential development occurring in the area within the past 20 years.

A record search of the area was performed by staff of the Central California Information Center, California Historical Resources Information System (Department of Anthropology, California State University, Stanislaus – CCIC File # 4620N). The records search shows no known/recorded cultural resources within a 0.5 mile radius of the A2PP or alternative sites. Table 6.4-2 provides a compilation of known cultural resources and surveys for each alternative site

TABLE 6.4-2
Cultural Surveys and Known Cultural Resources at Alternative Sites

Power Plant Site	Previously Surveyed	Known/Recorded Cultural Resources within 0.5-mile radius
A2PP	Surveyed in 2009	None
Alternate 1: Modesto WWTP	Unsurveyed	None
Alternate 2: Washington Road	Nearby area was partially surveyed in 1995 with negative findings	None
Alternate 3: Morgan Road	Unsurveyed	None

6.4.5 Geological Resources and Hazards

There are no significant differences in the geological resources present at each site. Thus, there is no significant difference in the effects of the proposed A2PP site and the three alternatives on geologic resources.

6.4.6 Hazardous Materials Handling

There would be no significant difference between the site locations in terms of hazardous materials handling. The uses of hazardous materials would be the same for any of the sites.

6.4.7 Land Use and Agriculture

The A2PP and the Morgan Road site are located in Ceres. The Washington Road site and the Modesto WWTP site are located in Stanislaus County. A summary of the land use status of the sites issues is provided in Table 6.4-3.

TABLE 6.4-3
Land Use Status of Sites

Site Location	FMMP Designation	Zoning	General Plan	Entitlements Required
A2PP	Urban Built Up	M-2, General Industrial	General Industrial	None
Alternate 1: Modesto WWTP	N/A	AG-2-40	Agriculture	Use Permit
Alternate 2: Washington Road	Prime Farmland	AG-2-40	Agriculture	Rezone
Alternate 3: Morgan Road	Urban Built Up	M-2, General Industrial	Industrial	Potentially change to PC-29 if development occurs within boundaries of PC-29 (along Whitmore Ave.)

The A2PP site is designated General Industrial and has been heavily disturbed due to surrounding land uses, including the construction of the WinCo distribution warehouse to the west. The Modesto WWTP site is located on an outcrop of alkaline soils that is unsuitable to support prime agriculture, but is surrounded by soils classified as Prime. The site is also designated and zoned for agriculture. The Washington Road and Modesto WWTP sites are zoned for agriculture (AG-2-40), but neither has a Williamson Act contract. The Modesto WWTP is an outcrop of alkaline soils that is unsuitable to support prime agriculture, but is surrounded by soils classified as Prime. The Washington Road site is designated as Prime Farmland. Per Stanislaus County zoning code section 21.20.030, "Uses requiring use permit," power plants are permitted in the A-2 zoning, and require a use permit if the site is not on Williamson Act land and if it does not affect prime agricultural uses (located within a city sphere of influence and/or the agricultural use will not be taken out of use for long-term) (Doud, 2009). Hence, the Washington Road site would require rezoning, whereas the Modesto WWTP site would only require a use permit.

Since the Modesto WWTP site does not have either a Williamson Act contract, and is not on prime agricultural land, a power plant at this site would be a permitted use, but would require a use permit.

Although the Washington Road site does not have a Williamson Act contract, it is located on Prime Farmland. Therefore, a power plant at the Washington Road site would not be a permitted use based on the zoning of the parcel, and the site may need to be rezoned.

The Morgan Road site is zoned for general industrial development and includes a specific plan for the portion of the site adjacent to Whitmore Avenue. It has been heavily disturbed due to surrounding land uses and is essentially a weedy, fallow field.

6.4.8 Noise

The A2PP is located approximately 0.3 mile (1,580 feet) from the nearest residences to the northeast. However, the residents are separated from the A2PP by several industrial facilities including the Stanislaus Farm Supply, Inc.

There is one residence within 1,300 feet of the Modesto WWTP site. Due to the lack of development in the area, the ambient noise level is relatively low. The power plant would add a dominant noise source to a predominantly rural agricultural area.

At the Washington Road site, assuming that only approximately 5 acres on the western boundary of this property would be needed to site the proposed plant, the two residences located on the eastern border of the parcel would be the nearest residents at approximately 800 feet. In addition, several other houses are located approximately 950 feet to the north and south of this site. A 20-acre area to the south of the plant would act as a buffer between the plant and residential/agricultural uses to the south. The rail spur would not affect ambient nighttime noise levels because of its sporadic use.

The Morgan Road site is located approximately 300 feet north of a residential subdivision in a predominantly industrial area; however, no sound walls or other barriers (warehouses, industrial buildings) are present between the subdivision and this alternate site. Ambient noise levels at this location would also be affected by local traffic on Morgan Road and East Whitmore Avenue. Therefore, the power plant would add another dominant noise source to this industrial area. Further detailed noise analysis could result in options for mitigating noise, such as acoustical enclosures around equipment.

6.4.9 Paleontology

The A2PP site is a former borrow pit for the adjacent WinCo distribution warehouse that was filled in 2008. As a result of this fill, there is little to no potential for paleontological resources at the project site. The remaining alternate sites, are considered to have an equally low potential for paleontological impacts.

6.4.10 Public Health

The A2PP, Modesto WWTP, and Washington Road sites are remote from large residential areas, schools, hospitals, churches, or other facilities that would potentially be considered sensitive receptors for public health. The Morgan Road site is located about 300 feet from the nearest residence and would require additional evaluation to determine potential impacts on residents at this proximity. Public health impacts are generally related to air quality. If a power plant were located at any of the three alternative sites, it would require an emergency diesel fire pump, which could create a new emissions source having substantial public health impacts. Hence, all three alternative sites are less desirable than the A2PP.

6.4.11 Socioeconomics

The A2PP and three alternative sites are located in Stanislaus County. The closest large urban area to all of these sites is the greater Modesto/Turlock area. Therefore, it is likely that most purchases for construction and operation equipment and supplies would be made in the greater Modesto/Turlock area. Since the point of sale and the county of sale receive

the greater portion of sales taxes that are not retained by the state, the local impacts would be similar among the alternatives. Both the A2PP and the Morgan Road site are located in Ceres, so purchases made within the City of Ceres would result in a small increase of sales tax to the City.

Workforce would likely come from Stanislaus, Ceres, Merced, San Joaquin, Fresno, and possibly the San Francisco Bay Area. However, due to the proximity of these sites to one another, the origin of the workforce would not change among the alternative sites.

Because TID is a public agency, it does not pay property taxes. Therefore, no jurisdiction would receive property taxes from this plant and there would be no difference among the alternate sites.

6.4.12 Soils

The A2PP and three alternative sites would manage stormwater at all locations by onsite retention ponds and implementation of best management practices to minimize soil erosion. Therefore, impacts to soil resources are expected to be comparable among all of these sites.

6.4.13 Traffic and Transportation

The A2PP and three alternative sites are accessible from Highway 99 and Interstate 5. The A2PP site is accessible from both Highway 99 and Interstate 5 from the Crows Landing Road on- and off-ramps. The Modesto WWTP site, is not directly off collector boulevards requiring more travel on 2-lane roads. The Washington Road site, is located off main roads (Crows Landing and West Main), which both have exit ramps on Highway 99. The Morgan Road site is accessible from Highway 99 from the El Camino Avenue on- and off-ramps. However, the entire area is served through a north/south, east/west grid of roads making construction traffic easily dispersed throughout the road network.

A spur of the Tidewater Southern Railroad lines serves the Washington Road site. The rail line provides service to the Foster Farms granary and other industrial facilities to the east. Access to the Washington Road site from West Main Avenue would require crossing this spur. However, the spur is infrequently used and has crossing arms. The other alternative locations and the A2PP site do not have easily accessible rail lines.

Because the A2PP will share staffing resources with the Almond Power Plant, this site will require fewer vehicle trips once the plant is operational. The three alternative sites, which will not share staffing resources, will require additional vehicle trips during operations.

6.4.14 Visual Resources

The potential for visual resource impacts associated with each of the sites varies depending on the relative visibility of the sites from roads and residences and the length and potential visibility of any new transmission lines that the power plant would require. Visual impacts are also a function of the surrounding facilities.

The A2PP would be located within an industrial area, and is screened by the WinCo distribution warehouse to the west, the Almond Power Plant to the south, and the Stanislaus Farm Supply to the north. Several smaller industrial facilities (a modular building facility and a drilling equipment laydown storage area) are located to the east, as well as the

Ceres WWTP. Two transmission lines would be needed at this site, at 0.9 mile and 1.2 miles, and would be located near existing transmission lines tying into the Almond Power Plant.

The Modesto WWTP site is slightly elevated and can be seen in the distant views by those traveling east on West Main Avenue. In addition, this location would require the construction of an 8-mile-long transmission line adjacent to predominantly agricultural fields. There are limited sensitive receptors in the vicinity.

The Washington Road site would be adjacent to the existing Walnut peaking plant. It would be in an area that has already been converted to utility uses and is adjacent to the City of Turlock's industrial area. Transmission lines for this site would be short, as this site could tie directly into the substation adjacent to the Walnut peaking plant, less than 200 feet to the north.

The Morgan Road site is very visible from the residential neighborhood to the south. It is bordered to the east and north by larger industrial buildings. Open agricultural land is located immediately to the west. Less than a half-mile to the east (past the agricultural property) is a cluster of large industrial buildings. At this location, the project would be similar with the size and scale of the adjacent industrial buildings; however, it would increase the industrial character of the area. In addition, this site would be located less than 300 feet from the nearest residence, with no screening available from warehouses or other industrial buildings.

6.4.15 Water Resources

Process water would be supplied to the A2PP using a tie-in to the existing water system between the Almond Power Plant and the Ceres WWTP. The three alternative sites would require water from the Modesto WWTP (Alternative 1), the Turlock WWTP (Alternative 2, Washington Road), or the Ceres WWTP (Alternative 3, Morgan Road). Therefore, all sites are generally equivalent with respect to availability of recycled water; although, the A2PP has the added benefit of tying into an existing water line rather than having to construct a new line. For disposal of process wastewater, the A2PP and Alternative 3 would be able to send the water back to the Ceres WWTP. Alternatives 1 and 2 could require the use of a ZLD system, which would result in reduced efficiency and increased solid waste production. In the event that the concentrations of total dissolved solids (TDS) or nitrate in process wastewater from the Modesto WWTP site are too high, it would have to be treated onsite using ZLD. Due to high levels of nitrates, the respective wastewater treatment providers for Alternatives 1 and 2 may not be willing to accept wastewater for treatment, requiring the use of other water-treatment technology.

6.4.16 Waste Management

The same quantity of waste will be generated at the proposed site as at all alternative sites. The environmental impact of waste disposal would not differ significantly between the alternative sites.

6.4.17 Summary and Comparison

Although each of the alternative sites is feasible and could meet some, if not all, of the basic project objectives, the A2PP site is clearly the preferred alternative for a variety of reasons.

The Modesto WWTP site was rejected because this site has the potential for the greatest impact on biological resources due to its close proximity to abundant wetland and riparian habitat to the south and west. These wetlands and riparian habitats are several acres in size, and lead directly to the San Joaquin River. In addition, due to the proximity of the site to the San Joaquin River, this site had the greatest potential for impact to cultural resources. It is also in the most rural location, which would be a significant change to the character of the area. The Modesto WWTP site would require a much longer transmission line for interconnection (approximately 8 miles long, compared to 0.9 or 1.2 miles for the A2PP transmission line). This site would also require the installation of the diesel-fired fire pump, increasing the diesel particulates in the area and potential public health impacts. Finally, the Modesto WWTP site offers no opportunity to share staff and infrastructure with existing TID generating facilities.

The Washington Road site was rejected because the site is zoned agricultural and is designated as prime farmland. Therefore, a power plant is not consistent with the zoning. Another factor weighing against the Washington Road site is its proximity to residences. Assuming that only approximately 5 acres on the western boundary of this property would be needed to site the proposed plant, the two residences located on the eastern border of the parcel would be the nearest residents at approximately 800 feet. Additionally, several other houses are located approximately 950 feet to the north and south of this site. At these close distances, significant additional noise mitigation would likely be required. While the Washington Road site would allow the sharing of the substation and switchyard with the Walnut peaking plant, because the power plants would be separated by a street and railroad tracks, sharing of some facilities (ammonia tank, fire system) would not be possible. This site would also require the installation of the diesel-fired fire pump, increasing the diesel particulates in the area and potential public health impacts. It would also not be possible to share staff because the new power plant will require staff 24 hours a day, while the Walnut Peaking Plant does not have onsite staff 24 hours a day/7 days a week.

The Morgan Road site was rejected because of its close proximity (just 300 feet) from an existing residential subdivision. While it is possible that the potential noise and visual impacts on these nearby receptors could be mitigated to a level of insignificance, this mitigation would add significant costs to the project in comparison to the A2PP site. This site would also require the installation of the diesel-fired fire pump, increasing the diesel particulates in the area and potential public health impacts. Additionally, the Morgan Road site does not offer the opportunity for sharing infrastructure and staff with existing TID generating facilities.

All three alternative sites would require the installation of new fire pumps, while the A2PP will be able to utilize the existing fire pump and fire protection system at the A2PP. Additionally, none of the three alternatives will satisfy the basic project objective of having the ability to share facilities and infrastructure with existing generating facilities: the anhydrous ammonia system, the 12,000-gallon storage tank and unloading facilities, the well water for service water and emergency shower/eyewash stations, the recycled water supply and wastewater discharge system, the process water system, the instrument and service air systems, the oil/water separator, the demineralized and reverse osmosis water storage tanks, and the administration building, including the control room and office space.

The A2PP site will result in the least potential environmental impacts compared to the Morgan Road, Washington Road, and Modesto WWTP sites. When compared to these alternatives, the A2PP site provides the best cost and least impact opportunity to fulfill the project objectives because the A2PP site is adjacent to an existing process water supply source from the Ceres WWTP, is located in an industrial area with large buildings that screen the site, and will be adjacent to an existing power plant, which offers the ability to share staff and facilities between the two plants including the existing emergency diesel fire pump.

Taken all together, the A2PP site best meets the project objectives without resulting in any adverse environmental impacts as compared to the Morgan Road, Washington Road, and Modesto WWTP sites. As a result, the Morgan Road, Washington Road, and Modesto WWTP sites were rejected in favor of the A2PP site. Table 6.4-4 provides a summary comparison of the A2PP and alternative sites, in light of the key project objectives and environmental factors.

TABLE 6.4-4
Comparison of the Proposed Site and Alternative Site Locations

Characteristic	A2PP	Alternative 1 Modesto WWTP	Alternative 2 Washington Road	Alternative 3 Morgan Road
Location within TID's service territory	Yes	Yes	Yes	Yes
Ability to gain site control	Yes	Unknown	Unknown	Unknown
Availability of sufficient land area	Yes	Yes	Yes	Yes
Shared facilities and infrastructure with existing facilities	Yes	No	Partial	No
Proximity to existing transmission, distribution lines and an existing substation	0.9 or 1.2 miles	9 miles	Less than 0.1 mile (300 ft)	3.2 miles
Distance to water supply source of appropriate quality and quantity	0.5 mile	1 mile	2 miles	1.5 miles
Land use consistent with City and County General Plans	Yes	With conditional use permit	With Rezone	With General Plan Amendment/Rezone
Proximity to nearest residence (ft)	1,580	1,300	800	300
Potential Presence of T&E Species & Habitat	Low	Moderate	Low	Low

TABLE 6.4-4
Comparison of the Proposed Site and Alternative Site Locations

Characteristic	A2PP	Alternative 1 Modesto WWTP	Alternative 2 Washington Road	Alternative 3 Morgan Road
Cultural/ Archaeological Sensitivity	Low	Moderate	Low	Low
Potential noise impacts	Low	Low	Moderate	High
Potential visual impacts	Low	Moderate	Low	Moderate
Potential soils impacts	Low (previously disturbed)	Moderate (lower quality farmland)	High (prime farmland)	Low (disturbed)

6.5 Alternative Project Design Features

6.5.1 Alternative Linear Facilities

Linear facilities required for the A2PP include an electric transmission line and a natural gas supply line (Figure 1.1-3). A new water supply line is not needed as the A2PP will tie into the existing water treatment system at the existing Almond Power Plant. The A2PP will also not require any new sanitary sewer connection because there are no sanitary sewer facilities at the site. The proposed linear facilities are presented in Section 1.0, Executive Summary; Section 2.0, Project Description; Section 3.0, Electric Transmission; and Section 4.0, Natural Gas Supply. This section compares the alternative routes. The comparison is made among the following categories:

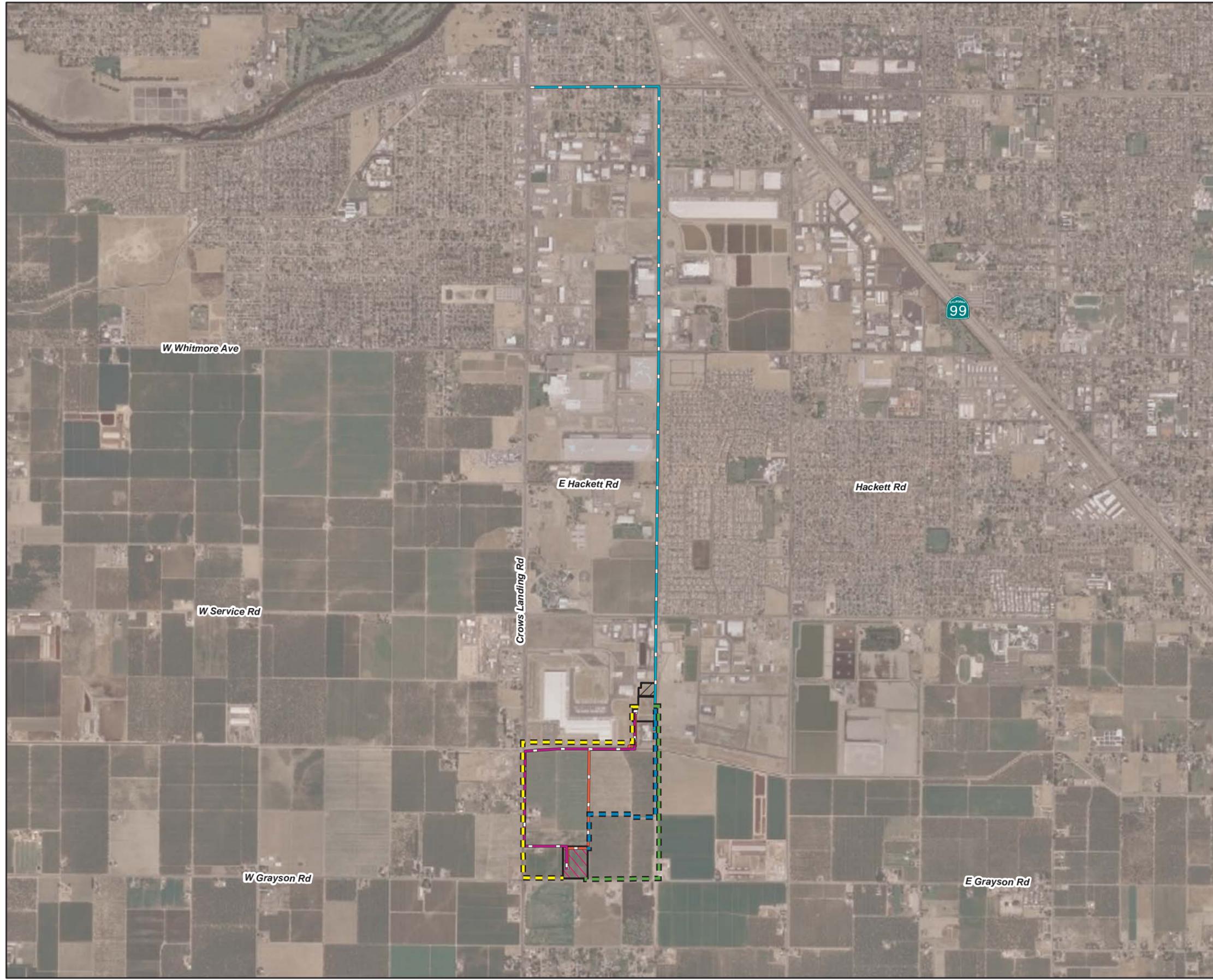
Institutional Factors. Institutional factors are an assessment of the ease of obtaining rights-of-way, public agency support, required permits, etc.

Engineering/Construction Feasibility. Engineering/construction feasibility is an assessment of how the linear facility can be physically placed along a given route.

Environmental Factors. Environmental factors are an initial assessment of which routes would have the least impact on the environment. Environmental impacts must be either not significant or less than significant with mitigation.

6.5.2 Electric Transmission Lines

Three alternative electrical transmission routes were evaluated in addition to the proposed route. Two of these routes appear feasible. The proposed and alternative routes that were considered are presented in Figure 6.5-1 and described below.



- LEGEND**
- 115-kV Circuit 1 Line (Corridor 1)
 - 115-kV Circuit 2 Line (Corridor 2)
 - Reconductored 69kV Sub-Transmission Line
 - Alternate Route A
 - Alternate Route B
 - Alternate Route C
 - ▨ Proposed Grayson Substation
 - ▨ Laydown Area
 - Project Site

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.

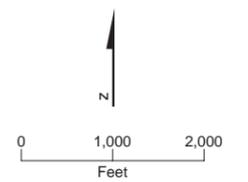


FIGURE 6.5-1
ALTERNATIVE LINEAR LOCATIONS
ALMOND 2 POWER PLANT
CERES, CALIFORNIA

6.5.2.1 Description of Routes

Proposed Transmission Route – When operational, the plant will have the capability of generating 174 megawatts with three LM6000PG combustion turbine generators. The proposed route includes the following two corridors and reconductoring of the 69-kV sub-transmission line.

- **Corridor 1** - The proposed 115-kV route will exit the project site at the southwest corner, head south to the TID Lateral 2, cross over TID Lateral 2 then jog west briefly before continuing south along the shared property line of several private agricultural properties (Assessor Parcels 041-007-010, -005, -003) before terminating in to the proposed Grayson Substation. The total distance is approximately 0.9 mile.
- **Corridor 2** - The proposed 115-kV route will exit the project site at the southwest corner and will extend south to the TID Lateral 2 then west to Crow's Landing Road then south to a private agricultural road and east into the proposed Grayson Substation. The total distance is approximately 1.2 miles.

Alternative Transmission Routes. Three separate alternative transmission line corridors Alternate Route A, B, and C were analyzed as alternatives to the proposed transmission routes.

- **Alternate Route A** - The proposed 115-kV route would exit the project on the southeast corner, and head south for 0.35 mile along the railroad tracks. The transmission line would then turn west along an agricultural road for 0.25 mile, and then south along a second agricultural road for 0.15 mile to the proposed Grayson Substation. The total route would be approximately 0.8 mile.
- **Alternate Route B** - The proposed 115-kV route would exit the project on the southeast corner, and head south for 0.6 mile, and turning west on Grayson Road for 0.3 mile to the proposed Grayson Substation. The total route would be approximately 0.9 mile.
- **Alternate Route C** - The proposed 115-kV route will exit the project site at the southwest corner for 0.2 mile, head west along the northern boundary of the TID Lateral 2 for 0.4 mile, and then head south on Crows Landing Road for 0.5 mile. At Grayson Road, the line would turn east for 0.5 mile to the proposed Grayson Substation. The total route would be approximately 1.6 miles.

6.5.2.2 Institutional Factors

Alternate Routes B and C follow the alignment of railroads and public roads, where waterlines and other utility easements are relatively common and do not interfere with local uses. Corridor 1 and Alternate Route A, however, follow the alignment of non-public use agricultural roads, and would impact property owners and their farming activities. For Corridor 2, and Routes B and C, there are no indications of any institutional factors, rights-of-way, or land uses that would favor the routes.

6.5.2.3 Engineering/Construction Feasibility

Alternate Route A - Alternate Route A is sited along a railroad track and non-public agricultural roads. Construction along the railroad track would be within an existing TID

easement. Construction along the agricultural fields would be similar to those anticipated for the proposed Corridor 1.

Alternate Route B - Alternate Route B is sited along the railroad tracks and Grayson Road. Grayson Road from the railroad tracks heading east to the proposed Grayson Substation is impacted by existing easements and does not have adequate space for an additional 115-kV transmission line.

Alternate Route C - Alternate Route C is located along the TID Lateral 2, Crows Landing Road, and Grayson Road. There is potential during the short-term construction phase for traffic to be impacted, however these impacts are comparable to those for the proposed Corridor 2. Any construction-related impacts, such as ground disturbance or pavement damage, would be mitigated through restoration of the disturbed areas. Traffic control would be required for those portions of the alternative that follow roadways similar to the proposed Corridor 2. Traffic on most roads is light and limited to local travel.

6.5.2.4 Environmental Factors

Alternate Route A - Alternate Route A is sited along a railroad track and non-public agricultural roads. Similar to Corridor 1, the portion of the line within the agricultural roads would impact land owners dependant on those roads to access their farmed fields. In addition, transmission poles located along these roads have the potential to remove small amounts of land from active farming (approximately 4 feet by 4 feet). Since there are orchards along this route, trees also need to be pruned regularly to avoid impacting the transmission lines.

Alternate Route B - Alternate Route B would be sited within a TID easement along the railroad tracks, and along a TID easement along Grayson Road. However, as discussed earlier, Grayson Road is impacted from the railroad tracks east to the proposed Grayson Substation and adequate space is not available for an additional 115-kV transmission line and associated transmission poles.

Alternate Route C - Alternate Route C is located along the TID irrigation canal and Crows Landing Road, and Grayson Road. The northeast intersection of Crows Landing Road and Grayson Road is currently an agricultural field; however, there are plans to develop this as a strip mall and gas station. The addition of a transmission line along this corridor could have undesirable visual impacts, and would not necessarily be conducive to the proposed activities on this corner.

6.5.3 Natural Gas Supply Lines

PG&E is currently determining the final alignment of the natural gas pipeline. Two possible alternatives have been evaluated for this AFC. Both routes appear feasible. A final determination on the alignment will be available in mid-2009. The two alternative routes are presented in Figure 6.5-2 and described below.



LEGEND
 — Natural Gas Pipeline (Alternate A)
 — Natural Gas Pipeline (Alternate B)
 □ Project Site

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

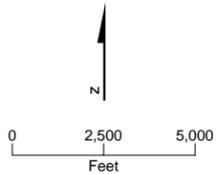


FIGURE 6.5-2
ALTERNATIVE GAS PIPELINE
LOCATIONS
 ALMOND 2 POWER PLANT
 CERES, CALIFORNIA

6.5.3.1 Description of Routes

Alternate A - The proposed gas pipeline route is approximately 9.1 miles long. The pipeline would run west along the TID Lateral 2 and south on Crows Landing Road to Bradbury Road where it would connect with PG&E's Line #215.

Construction of the pipeline would require a 50-foot-wide temporary construction corridor. The specific location of the pipeline would be determined based on the avoidance of any sensitive environmental resources, ability to obtain ROW, and the location of existing pipelines. Open trench construction would be used for pipeline installation.

Alternate B - The alignment would extend west from the A2PP along the TID Lateral 2 to Carpenter Road. The route would then turn south and run along an easement on Carpenter Road to Bradbury Road where it would connect with PG&E's Line #215. The overall alignment length is approximately 11.1 miles.

6.5.3.2 Environmental Factors

Each of the proposed natural gas pipeline routes would have similar impacts in most of the environmental areas because they will be buried, constructed using similar methods, are located near each other, cross similar habitat, and cross the same number of irrigation channels. The differences between routes, although minor, would likely exist in the areas described below. It should be noted that these differences are slight and construction of either alternative route would not likely result in significant adverse impacts.

Air Quality. Impacts would occur as a result of emissions from construction equipment. Since construction techniques would be similar, there would be a slight benefit from construction of Alternate A, which is shorter. Because Alternate B is longer, additional soil would be disturbed resulting in additional fugitive dust impacts and vehicle emissions.

Biological Resources. Gas pipelines would generally follow roads and rights-of-way (ROW) that are partly disturbed and would be buried upon completion of construction. No significant site-specific natural habitats or resources have been identified at this time. Small sites can be avoided if discovered through small changes within the 50-foot corridor.

Cultural Resources. Cultural resource sensitivity, which is low, would not differ throughout the area covered by the alternative routes.

Public Health. Public health is a largely a function of air quality and, therefore, would indicate the same preferences as air quality.

Traffic and Transportation. Traffic impacts are anticipated to be minor because traffic is similar along all of these roads. However, impacts on traffic would occur from construction along the edge or within the roadway because one lane would need to be closed in either case. Therefore, because impacts on traffic and transportation are greater the longer the corridor, Alternate A would have the lower impacts.

6.5.3.2.1 Institutional Factors

Each of the gas pipeline alternatives follows the alignment of rural public roads where waterlines and other utility easements are relatively common and do not interfere with local

uses. There are no indications of any institutional factors, rights-of-way, or land uses that would favor the routes. Therefore, the least-cost alternative, the proposed route, is favored.

6.5.3.2 Engineering/Construction Feasibility

Each alternative would involve open-cut trenching techniques. The pipeline would cross rural roads, and there could be temporary interference with local transport; but the duration of construction and relatively low-level of traffic would not cause significant adverse environmental impacts. Restoration will likely be required for both routes because both follow county roadways; however, every effort will be made to locate the pipeline outside of the paved road section where existing road ROW is available. Traffic control will also be required for both routes. Alternative routes are available to all regional traffic. The least-cost alternative would favor the Alternate A route because it is shorter.

6.5.3.3 Conclusion

Since there are no substantial differences in environmental impacts, institutional factors, and engineering/construction feasibility, either route is feasible and all impacts would be mitigated below the level of significance.

6.6 Technology Alternatives

6.6.1 Generation Technology Alternatives

Selection of the power generation technology focused on those technologies that can use the natural gas readily available from the existing gas transmission system. Because a primary purpose is to use the plant to provide operating reserves and thus reliability for TID's Balancing Authority requirements, renewable energy sources were not considered. The following is a discussion of the suitability of non-renewable energy technologies for application to the A2PP.

6.6.1.1 Conventional Boiler and Steam Turbine

This technology burns fuel in the furnace of a conventional boiler to create steam. The steam is used to drive a steam turbine-generator, and the steam is then condensed and returned to the boiler. This is a dated technology that is able to achieve thermal efficiencies up to approximately 36 percent when utilizing natural gas, although efficiencies are somewhat higher when utilizing oil or coal. Because of this low efficiency and large space requirement, the conventional boiler and steam turbine technology was eliminated from consideration.

6.6.1.2 Conventional Combined-cycle Combustion Turbine

This technology integrates combustion turbines and steam turbines to achieve higher efficiencies. The combustion turbine's hot exhaust is passed through a heat recovery system generator to create steam used to drive a steam turbine-generator. This technology is able to achieve high thermal efficiencies. The combined-cycle alternative, however, requires very large capital cost more appropriate for a baseload facility, a large site, and very large quantities of water for cooling. In addition, conventional combined-cycle technology cannot match the GE Energy LM 6000PG technology for rapid startup, efficient cycling, and high part-power efficiency and load following capability. These are essential characteristics for a peaking facility.

6.6.1.3 Kalina Combined-cycle

This technology is similar to the conventional combined-cycle, except a mixture of ammonia and water is used in place of pure water in the steam cycle. The Kalina cycle could potentially increase combined-cycle thermal efficiencies by several percentage points. This technology is still in the development phase and has not been commercially demonstrated; therefore, it was eliminated from consideration.

6.6.1.4 Internal Combustion Engines

Reciprocating internal combustion engine designs are also available for small peaking power plant configurations. These are based on the design for large marine diesel engines, fitted to burn natural gas. Advantages of internal combustion engines are that they: (1) use very little water for cooling, because they use a closed-loop coolant system with radiators and fans; (2) provide quick-start capability (on-line at full power in 10 minutes); and (3) are responsive to load-following needs because they are deployed in small units (for example, 10 to 14 engines in one power plant), that can be started up and shut down at will. Disadvantages of this design include higher emissions than comparable combustion turbine technology and potentially higher cost as numerous smaller-sized engines would be needed in larger capacity plants.

6.6.2 Fuel Technology Alternatives

Technologies based on fuels other than natural gas were eliminated from consideration because they do not meet the project objective of utilizing natural gas available from the existing transmission system. Some of these alternative fuels have potential for additional air quality and public health impacts. Others, like certain biofuels, are not available in commercial quantities or are not available via pipeline or other reliable delivery system. Additional factors rendering alternative fuel technologies unsuitable for the proposed project are as follows:

- No geothermal or no new hydroelectric resources of sufficient size and sufficient operational profile exist in the TID service territory or adjacent territories.
- Biomass fuels such as wood waste are not locally available in sufficient quantities to make them a practical alternative fuel and A2PP site space is limited.
- Solar and wind technologies are generally not dispatchable and are, therefore, not capable of providing fast-starting, flexible generating capacity and are not capable of producing ancillary services other than reactive power.
- Coal, fuel oil and similar technologies emit more air pollutants than technologies utilizing natural gas.
- The availability of the natural gas resource provided by PG&E, as well as the environmental and operational advantages of natural gas technologies, makes natural gas the logical choice for the proposed project.

6.6.3 NO_x Control Alternatives

To minimize NO_x emissions from the A2PP, the combustion turbine generators will be equipped with water injection combustors and selective catalytic reduction (SCR) using

anhydrous ammonia as the reducing agent. The following combustion turbine NO_x control alternatives were considered:

- Steam injection (capable of 25 to 42 parts per million [ppm] NO_x)
- Water injection (capable of 25 to 42 ppm NO_x)
- Dry low NO_x combustors (capable of 15 to 25 ppm NO_x)

Water injection or dry low NO_x were selected because these allow for lower acceptable NO_x emissions while being able to achieve an output turndown rate of 30 percent. This turndown is necessary to meet variable load demand.

The following reducing agent alternatives were considered for use with the SCR system as alternatives to the existing anhydrous ammonia systems:

- Aqueous ammonia
- Urea

Anhydrous ammonia is used in many facilities for NO_x control, but is more hazardous than diluted forms of ammonia; however, because the anhydrous ammonia tank will be shared between the A2PP and Almond Power Plant facility, aqueous ammonia use is not feasible. Urea has not been commercially demonstrated for long-term use with SCR and was eliminated from consideration.

6.7 References

Doud, Kristin. 2009. Personal communication between Kristin Doud, Planner for Stanislaus County, and Aarty Joshi of CH2M HILL. February.