

CHAPTER 1 EXECUTIVE SUMMARY

1.1 INTRODUCTION

The Kings River Conservation District (KRCDD) is proposing to construct, own and operate an electrical generating plant near the City of Parlier, in Fresno County. The proposed Kings River Conservation District Community Power Plant (KRCDD CPP) is a nominal 565 megawatt (MW) natural gas-fired combined cycle base load power plant.

This Application for Certification (AFC) AFC has been prepared in accordance with the most current California Energy Commissions (CEC) Power Plant Site Certification Regulations (CEC, 2007). This AFC is being submitted to the CEC for its consideration of licensing. Under the Warren Alquist Act, Public Resources Code (PRC) Section 25000 et. seq., the CEC has the responsibility for licensing all thermal power plants in the State of California that are over 50 MW in capacity.

This AFC for the KRCDD CPP includes:

- A detailed description of the proposed project;
- A discussion and analysis of the environmental and energy resource impacts that may result from construction and operation of the project;
- An identification of measures that will be implemented to insure that environmental impacts are appropriately mitigated to less than significant levels;
- A discussion of alternatives considered to the proposed project; and
- A discussion of the project's compliance with all applicable federal, state and local laws, ordinances, regulations and standards (LORS).

1.2 PROJECT OVERVIEW

1.2.1 *Kings River Conservation District*

The KRCDD is a multi-county special district public agency that provides resource management for the Kings River region serving agriculture, business and residential communities within a 1.2 million acre service area in portions of Fresno, Kings and Tulare counties. The proposed KRCDD CPP is located within the service territory of KRCDD. The mission of the KRCDD is to provide flood protection, achieve a balanced and high quality water supply, and develop power resources in the Kings River region for the public good.

Over the past thirty years, KRCDD has been involved in finding solutions to regional energy issues. Past efforts have included construction of the Pine Flat Hydroelectric Power Plant in 1984. Recent efforts have included the permitting, construction and operation of the Malaga



Peaking Plant, a 97 MW peaking power plant located on East North Avenue in the Community of Malaga, Fresno County.

1.2.2 Key Benefits

1.2.2.1 Community Choice Aggregation Program

KRCD, on behalf of the San Joaquin Valley Power Authority (Authority), filed California's first Community Choice Aggregation (CCA) Implementation Plan (Plan) with the California Public Utilities Commission (CPUC) on January 29, 2007. The Plan was submitted in accordance with California Assembly Bill (AB) 117 (2002-Migden), which permits cities, counties, or joint power agencies (like the Authority) to aggregate and procure power for the electrical loads of the residents, businesses, and municipal facilities within their respective jurisdictions. The CPUC certified the Plan on April 30, 2007 thereby allowing the final planning and contractual requirements between KRCD and the Authority to commence the CCA Program.

The Authority¹ is a public agency current comprised of eleven member cities and two counties formed for the purposes of implementing a CCA Program serving the greater Fresno region of the San Joaquin Valley. The CCA Program will provide electricity customers the opportunity to join together to procure electricity from competitive suppliers, with such electricity being delivered over the transmission and distribution systems of Pacific Gas and Electric Company (PG&E) and Southern California Edison (SCE). All current PG&E and SCE customers within the Authority's service area will receive information describing the CCA Program. As provided by law, all the customers will be automatically enrolled in the CCA Program unless they affirmatively elect to opt-out and remain full requirement customers of PG&E or SCE. Thus, participation in the CCA Program is completely voluntary.

The Authority's primary objective in implementing this CCA Program is to enable customers within its service area to take advantage of the opportunities granted by AB 117. The benefits to consumers include the ability to reduce energy costs; stabilize electric rates; increase local electric generation reliability; influence which technologies are utilized to meet their electricity needs (including a potential increased utilization of local and regional renewable energy); ensure effective planning of sufficient resources and energy infrastructure to serve the Authority members' residents and businesses; and improve the local/regional economy.

The Authority intends to contract with KRCD, and KRCD will act as the exclusive agent on behalf of the Authority and will provide all power services to the Authority, utilizing KRCD staff as well as private sector contractors and qualified energy suppliers. The Authority and KRCD

¹ Current Authority Members include the cities of: Clovis, Corcoran, Dinuba, Hanford, Kerman, Kingsburg, Lemoore, Parlier, Reedley, Selma and Sanger; as well as Kings and Tulare Counties.



are currently in the final stages of negotiating a Power Services Agreement to formalize this relationship.

The KRCDD CPP will be a key element of the KRCDD power resource portfolio to serve the Authority. It will also serve to improve reliability and lower generation costs for electricity customers of the Authority. The economic viability of the KRCDD CPP will allow KRCDD and the Authority to take on additional energy related programs within their respective jurisdictions including the development of robust local renewable energy projects an increase in energy efficiency programs and effectiveness. Each of these are discussed in greater detail in the Plan.

KRCDD has recently issued a request for proposals (RFP) for renewable energy supply in support of the Authority's CCA Program. KRCDD received a significant response, both in response to the RFP and subsequently, from firms, local governmental agencies, and individuals for the development of several renewable energy projects within or near the KRCDD service territory.

1.2.2.2 Public Outreach

KRCDD, as a public agency, is keenly aware of the importance of public education and involvement and therefore has implemented a comprehensive public outreach program. Highlights of the activities performed to date include the following:

- In July 2006, an initial letter identifying the goals and attributes of the project was sent to landowners within a 1,000 foot radius of the project. One of the letters was translated to Spanish for a landowner.
- Between December 2006 and January 2007, KRCDD sent letters to and went "door-to-door" to landowners within a 200 foot buffer along the proposed natural gas, water and transmission line routes seeking permission to conduct environmental surveys.
- On March 20, 2007, KRCDD mailed a flyer to all landowners within a one mile radius of the project site and to all landowners within a 200 foot buffer along the proposed natural gas, water, and transmission lines and to all sensitive receptors identified in the AFC. The flyer invited the public to an Open House to introduce and discuss the proposed project.
- On April 17, 2007, KRCDD provided press releases to all media outlets regarding the Open House.
- The Selma Enterprise ran three news articles prior to the Open House discussing the project and the upcoming Open House.
- Flyers advertising the Open House were hand-delivered at various community meetings including the Selma City Council meeting, the Indianola Elementary School Parents Club



meeting, various KRCDD and San Joaquin Valley Power Authority (Authority) power-related meetings and speakers bureaus (including the Old Town Clovis Kiwanis, Kingsburg Rotary and the Greater Selma Kiwanis).

- The City of Parlier made two automated phone announcements to their residents in English and Spanish prior to the Open House.
- KRCDD e-mailed an Open House announcement to all recipients of their *KRCDD Power Connections* e-newsletter.
- On April 19, 2007, KRCDD conducted an Open House in the City of Parlier which was attended by over 125 local residents. At the Open House, Spanish translators were available and KRCDD made a presentation about the project and entertained questions from the audience. In addition to the Presentation and Question and Answer portion of the program, KRCDD set up informational tables with its respective environmental and engineering experts to provide additional one-on-one responses to questions from interested members of the public.
- KRCDD has had ongoing meetings and communications with elected officials, interested landowners and various Speaker's Bureaus since public outreach efforts were started in 2006.

1.2.2.3 Project Objectives

The KRCDD CPP is being proposed to support the CCA Program and improve the regional supply of reliable electricity. Primary objectives of the KRCDD CPP include:

- Construct and operate a 565 MW, natural gas-fired combined cycle generating facility that can provide base load generation to support the CCA program.
- Provide the greater Fresno area, a Local Capacity Area that is currently deficient for generating resources,² with additional reliable and inexpensive in-area gas-fired generation that will help meet the expected electrical demand growth in the greater Fresno area.
- Provide energy at reduced cost to local residents. Electricity from the project will be sold at prices lower than those that will be charged by an investor-owned utility or power producer because KRCDD is a local resource agency that can access low-cost, tax-exempt financing.
- Partner with current utility companies to allow them continue delivering electricity over their wires to CCA participants, and to provide traditional utility functions such as meter reading, billing and maintenance services.

² California Independent System Operator, 2007 Local Capacity Technical Analysis Report and Study Results, Corrected Version April 28, 2006



- Provide an economic benefit of local municipal ownership of a portion of the power supply.
- Develop a site consistent with community planning at a location that is supported by the local community.
- Safely produce electricity without creating significant environmental impacts.
- Continue KRCDD's role as a developer and operator of electric generation.
- Promote the development of local energy efficiency programs and renewable resources that cannot be accomplished without the CCA Program, which is only viable with the economic advantages made available by the development of the KRCDD CPP.
- Provide for overall economic expansion of the region by providing electricity at rates below those currently provided by PG&E and SCE.
- Provide water supply and quality benefits to the local area. The KRCDD CPP will utilize discharge water from the City of Parlier and the City of Sanger wastewater treatment plants (WWTPs), thereby lessening the need for the cities to expand their wastewater disposal facilities as their communities grow. The project will also improve the quality of groundwater in the local area by reducing the amount of salts introduced into the groundwater basin from percolated WWTP effluent.

1.3 PROJECT DESCRIPTION

The proposed KRCDD CPP is a nominal 565 MW combined cycle natural gas fired plant that will be arranged with two trains of combustion turbine generators (CTGs) and heat recovery steam generators (HRSGs) connected to one steam turbine generator (STG) (two-on-one configuration). The two (2) advanced natural gas-fired turbines will be "F" class units supplied by either General Electric (GE) or Siemens. The KRCDD CPP will also include a tertiary treatment plant and a zero liquid discharge (ZLD) system that will purify and recycle process water, minimize water consumption and eliminate process wastewater discharge. The plant will also include water storage tanks for makeup water supply and fire protection.

Figure 1-1 shows the regional area. Figure 1-2 shows the general project area in relation to the KRCDD service territory. Figure 1-3 shows the project site, offsite construction staging and laydown areas and associated linear facilities. Figures 1-4 and 1-5, respectively, provide a photographic reproduction of the site prior to construction and a simulation/artist's rendering of the site after project construction.

1.3.1 Project Site and Construction Staging Area

The KRCDD CPP is proposed to be located on an approximately 32-acre site located on South Bethel Avenue between East Dinuba and East Manning avenues, near the City of Parlier, in Fresno County. The site is located in an area currently zoned for agriculture and currently being



used predominately for agricultural purposes (vineyards). Existing structures on the project site include a vacant rural dwelling, detached garage and barn. KRCD has purchased the proposed project site. Approximately 15-acres on the western side of a 40-acre parcel to the immediate south of the project site will be used for temporary staging and parking during construction. Table 1-1 provides some land use information for the project site.

Table 1-1 Location Information KRCD CPP			
Assessor's Parcel Number	Site Address	Site Location Information	Current Zoning/Land Use
358-032-41	9664 South Bethel Avenue Selma, CA 93662-9755	On the eastern side of Bethel Avenue between Manning and East Dinuba Avenues	Agriculture – Vineyards

1.3.2 Natural Gas

Natural gas for the KRCD CPP will be provided by a new approximately 26-mile long 20-inch underground pipeline interconnection to the Southern California Gas Company (SCG) Line 7000 near the City of Visalia, California. The new gas pipeline will primarily follow existing roads and be primarily located in public right-of-way. Five construction staging areas have also been identified for use during construction of the gas pipeline, each with an approximate size of 200 feet by 200 feet.

1.3.3 Electric Transmission

The KRCD CPP will deliver electric power to the PG&E transmission grid through a new approximately five mile-long 230 kilovolt (kV) radial transmission line between the on-site 230 kV switchyard site and PG&E’s McCall substation. The transmission line will be primarily located on private property.

1.3.4 Process Water Supply

The primary source of process makeup water for the KRCD CPP will be recycled water delivered by a new underground pipeline interconnection to the Parlier WWTP and the Sanger WWTP effluent percolation and evaporation ponds located on Lincoln Avenue (i.e., Lincoln Ponds). The Parlier WWTP is located adjacent to the north of the plant site, and the interconnection will be located at the northern project site boundary. The proposed interconnection to the Lincoln Ponds is approximately five miles north and will be located primarily along existing roadways. Currently two options are being considered for the water pipeline interconnection to Lincoln Ponds (i.e. Water Supply Pipeline Option 1 and Option 2).

Up to four new shallow wells recovering percolated effluent will provide a back-up cooling water supply.

1.3.5 Potable Water and Sewer Interconnections

Potable water for domestic use will be supplied by a new groundwater well to be installed on the project site. There is no offsite linear associated with the potable water supply. Domestic wastewater will be discharged to the Parlier WWTP. The sewer interconnection is located on the northern boundary of the project site.

Property owners within 1000 feet of the project site and construction staging area boundaries and within 500 feet of the electric transmission line, natural gas and water supply pipelines (Option 1 and Option 2) are listed in Appendix 1-1. Other interested property owners in the local area are listed in Appendix 1-2. These property owners include those located within an approximately one-mile radius of the project site as well as other landowners who have made specific requests for additional information regarding the project.

1.4 PROJECT OWNERSHIP

KRCD will construct, own and operate the KRCD CPP. The natural gas pipeline will be constructed to serve the plant and either constructed and owned by SCG or by KRCD. The electric transmission interconnection will be constructed, owned and operated by KRCD. The cooling and potable water interconnections and sewer interconnection will be constructed, owned and operated by KRCD.

1.5 PROJECT SCHEDULE

Construction of the KRCD CPP, from site preparation and grading to commercial operation, is expected to take place from the second quarter of 2009 to the second quarter of 2011. Major milestones are listed in Table 1-2.

Table 1-2 Major Milestones KRCD CPP	
Activity	Date
Begin Construction	Second Quarter 2009
Startup and Test	First Quarter 2011
Commercial Operation	Second Quarter 2011

1.6 PROJECT ALTERNATIVES

In accordance with Warren-Alquist Act and to comply with the requirements of the CEC regulations, a review of feasible alternatives was conducted. Chapter 9, Alternatives, contains an



analysis of the reasonable range of alternatives considered that would meet the basic objectives of the KRCDD CPP, while reducing the potential for significant impacts. Alternatives that were considered and evaluated by KRCDD include:

- No Project Alternative - If the KRCDD CPP is not constructed the objectives of the CCA program, including the goal of providing low cost power to CCA participants, will likely not be met.
- Purchase of a permitted power plant - To support CCA program objectives, KRCDD initially considered the purchase of already licensed or partially licensed but not constructed power plant sites.
- Alternative Sites – KRCDD conducted an extensive evaluation of alternative sites within their service territory. Sites were identified and then evaluated.
- Alternative linear facility interconnections for transmission, natural gas and water supply.
- Alternative water supplies for both power plant cooling and potable water supplies.
- Alternative water treatment options for cooling water supply.
- Alternative wastewater discharge options.
- Alternative project configurations, including alternative cooling systems.
- Alternative technologies.

1.7 ENVIRONMENTAL CONSIDERATIONS

Sixteen environmental resource areas were analyzed for potentially significant impacts associated with the development, construction, operation and maintenance of the KRCDD CPP. Detailed descriptions and analyses are included in Chapter 8, Environmental Considerations. Based on the analysis in this AFC it has been determined that with the implementation of mitigation measures proposed herein, that the KRCDD CPP will not result in any significant environmental impacts and will comply with all applicable federal, state and local LORS.

1.7.1 Air Quality

The proposed KRCDD CPP will not have significant impacts on air quality. The impacts of KRCDD CPP emissions on air quality concentrations were calculated using the U.S. Environmental Protection Agency (USEPA) Industrial Source Complex (ISCST3 version 02035) air dispersion model. The modeling included emissions from the two CTGs, one auxiliary boiler, an 8-cell cooling tower, a natural-gas-fired emergency generator, and a diesel fire pump. Since the CTGs may be supplied by either Siemens or GE, air quality modeling analyzed both options. Fumigation occurs when a stable layer of air is above the stack release height and unstable air is below. Under these circumstances, the plume can be mixed downward and potentially cause a high ground-level concentration. The USEPA SCREEN3 model was used to calculate fumigation impacts. The Prevention of Significant Deterioration (PSD) Class I analysis



addressed impacts to national parks, national wilderness areas, national monuments, national seashores, and other areas of special national or regional natural, recreational, scenic, or historic value that have been specifically identified as Class I areas. Several of these Class I areas are located near the KRCDD CPP project site. The USEPA-approved CALPUFF long-range transport model was used to calculate increment consumption, visibility, and deposition impacts for applicable Class I areas. The results of modeling analyses shows that KRCDD CPP impacts will be below applicable USEPA significance levels for all pollutants and thus will not be expected to cause or contribute to any violations of any ambient air quality standards (AAQS).

During KRCDD CPP operations the emissions of criteria pollutants will be mitigated through the imposition of Best Available Control Technology (BACT), which will minimize emissions at their source. These minimized emissions will be mitigated further, as required by applicable regulatory requirements, through the acquisition of emission reduction credits (ERCs) for nitrous oxide (NO_x), volatile organic compounds (VOC), particulate matter 10 microns diameter and smaller (PM₁₀) and sulfur dioxide (SO₂). Also, a portion of the ERCs obtained to offset the KRCDD CPP's PM₁₀ emissions will serve as indirect offsets for PM_{2.5}, since PM_{2.5} is a subset of PM₁₀. The KRCDD CPP emissions of non-criteria pollutants will be minimized through the use of natural gas as the only fuel for the CTGs. The KRCDD CPP will also reduce its greenhouse gas emissions through the application of combined cycle technology, which maximizes the use of CTG exhaust waste heat by producing steam for additional power generation.

1.7.2 Noise

To quantify existing background noise levels, continuous hourly noise measurements were conducted at the four nearest residential areas to the project site for a period of 25 hours. In addition, short-term noise level measurements were conducted during the daytime and nighttime periods at four locations in the vicinity of the project site. During the construction phases of the KRCDD CPP, noise from construction activities will dominate the noise environment in the immediate area. Construction activities will be temporary in nature, typically occurring during normal working hours. For long-term operations, the KRCDD CPP equipment will be designed to minimize potential noise impacts such that noise attributable to the project will not be greater than 45 A-weighted sound levels (dBA) at residences in accordance with the requirements of Fresno County. The primary noise sources include the gas metering station, gas compressor station, transformers, CTG, HRSGs, and cooling towers. Noise mitigation that is being considered in the design of the KRCDD CPP may include some or all of the following: berms or walls, sound attenuating enclosures around equipment; silencers in stacks; air inlets/outlets of the CTGs, sound attenuating treatment of heat recovery steam generator units and cooling tower stacks, and variable frequency drives for the cooling tower fan motors. With the implementation



of proposed mitigation measures, there will be no significant noise impacts as a result of operation of the KRCDD CPP.

1.7.3 Visual Resources

Land uses in the area of the KRCDD CPP are dominated by vineyards with some field crops and orchards. The landscape generally reflects a high level of human modification associated with agricultural activities. To varying degrees, the proposed KRCDD CPP will be visible from scattered individual residences and points along local and regional public roads. In general, the project will not be particularly visible from more distant locations at the edge of the cities of Parlier and Selma due to intervening vegetation and development. As part of this visual resources analysis, computer-generated visual simulations were prepared to illustrate "before" and "after" visual conditions in the project area. The simulations illustrate the location, scale and conceptual appearance of the proposed KRCDD CPP as seen from key public viewpoints or key observation points (KOPs). Three KOPs were chosen to depict the visual effects associated with the proposed KRCDD CPP and one was selected for the proposed transmission line.

At times when temperatures are low and humidity is high, the KRCDD CPP cooling towers and HRSGs will create visible water vapor plumes. An analysis of water vapor plumes for the cooling towers was therefore conducted using the Seasonal/Annual Cooling Tower Impact Program (SACTIP). Based on the visible plume analysis, the probability of formation of long visible plumes during visible hours and in excess of 250 meters is less than 10 percent of the time during visible hours. The average height of the cooling tower plumes is predicted to be between 30 to 40 meters, the average plume length is predicted to be between 50 and 75 meters, and the average plume radius is predicted to be between 20 and 30 meters. Visible plume formation from the HRSG stacks is expected to occur less frequently than from the cooling tower because the temperature of the water vapor in the HRSG stacks is higher than the temperature of the water vapor in the cooling tower exhaust. Similarly, the size of any visible plume from the HRSG stacks will be smaller than a cooling tower plume because the amount of water in the HRSG exhaust is less than the amount of water in the cooling tower exhaust. The results of the SACTIP analysis indicate that the occasional cooling tower plumes will not substantially alter existing visual conditions. Visible plume formation from the HRSG stacks is expected to occur less frequently and in less intensity than from the cooling towers and will not result in a significant visual impact. The SACTIP analysis also concluded that there will be up to three hours of year of ground fogging within 500 meters of the project site created by the cooling towers. The nearest major roadway, East Manning Avenue, is a kilometer away, traffic on South Bethel is relatively light, and there are no schools within 500 meters of the project. "Tule fog" or radiation fog is common in the area during the winter months and may be present at the same time as ground fogging occurs. Therefore, this is not expected to be a significant impact.



The proposed KRCDD CPP includes a plan for new landscaping which will partially screen views of the proposed structures. Fast-growing, tall deciduous and evergreen trees will be planted along the entire perimeter of the plant site in order to provide a degree of visual screening. The project also includes a landscaping berm along the street frontage which will provide a measure of visual screening and aesthetic enhancement. As it matures, the landscaping will help integrate the project with its landscape setting. Nonetheless, when seen from close range locations, the KRCDD CPP could appear visually prominent in relationship to the scale of existing landscape features that are currently seen in the immediate visual setting. Visual mitigation measures including recommendations for tree planting at key off-site locations will provide more extensive visual screening which will minimize the project's overall visibility and visual impact. With project landscaping and additional landscape mitigation it is expected that the project's visual effect will be less than significant.

1.7.4 Land Use and Agriculture

The KRCDD CPP project site is located in an area currently zoned for agriculture and being used predominately for agricultural purposes (vineyards). Other land and agricultural uses in the project area include primarily orchards and vineyards with smaller amounts of lacustrine/open water, cropland and pastures, field crops, industrial and transportation, and ruderal or vacant land. Primary zoning in the KRCDD CPP project area is agriculture. The primary General Plan designation in the KRCDD CPP project area is agriculture/rural residential.

The project site is subject to a Williamson Act Contract. KRCDD will file a Notice of Nonrenewal and will apply for cancellation of the Williamson Act Contract with the County of Fresno. The construction of the KRCDD CPP will result in the conversion of approximately 32 acres of agricultural land, which is under a Williamson Act contract, to a non-agricultural use. Depending on the placement of the proposed transmission poles along the proposed transmission line route, minor areas of agricultural land could also be taken out of production. In order to mitigate the removal of farmland, KRCDD will implement a farmland preservation program intended to result in the permanent preservation of sustainable farmland in an amount equal to or greater than the current vineyards at the site and including any permanent acreage lost due to transmission pole placement. The farmland preservation program will either establish a permanent farmland conservation easement on an equivalent number of farmland acres to be designated by the County of Fresno or will consist of farmland mitigation fees payable to a farmland trust such as the American Farmland Trust. KRCDD is currently working with the County of Fresno and communities surrounding the proposed project to establish lands that may be preserved pursuant to the farmland conservation easement. With the implementation of proposed mitigation measures, there will be no significant impacts to land use or agriculture associated with the KRCDD CPP.



1.7.5 Water Resources

The proposed KRCD CPP will provide a base load power supply; therefore it will need a constant and reliable water source. Water demands for the KRCD CPP include 3,485 acre-feet per year (AFY) for power plant process water (cooling, boiler makeup, and maintenance) and minor demands for potable use, landscaping, and construction. The KRCD CPP will also include a zero liquid discharge (ZLD) system that will purify and recycle process water, minimize water consumption, and eliminate process wastewater discharge. The preferred source for cooling water supply for the KRCD CPP is the use of domestic effluent from the Sanger and Parlier WWTPs to be supplemented by (up to four) on-site shallow extraction wells for backup supply. The shallow extraction wells will supplement the direct effluent deliveries. This will provide redundancy in the early years of the project when effluent flows are close to power plant demands. The extraction wells will also be a backup supply in case a pipeline, pump station, or the tertiary treatment plants are down. Both the cities of Parlier and Sanger have provided will-serve letters to the KRCD.

The construction and operation of the KRCD CPP will result in both positive and negative impacts to the local water resources. The KRCD CPP will cause a reduction in existing groundwater recharge efforts by about 3,500 AFY. At the same time, the approximately 100 AFY of crop demands on the project site will be eliminated, so the net impact on groundwater recharge will be about 3,400 AFY. The KRCD CPP project site is located in the 145,000-acre Consolidated Irrigation District (CID). The CID presently pumps an estimated 300,000 AF of groundwater each year. Therefore, the reduced recharge of 3,400 AF will be minor compared to CID's total groundwater usage. The use of the reclaimed water also promotes the public's interest in putting recycled water to the maximum reasonable and beneficial use, pursuant to Water Code Section 13500 et seq.

A Groundwater Impact Analysis was also conducted to estimate groundwater level impacts from the proposed power plant. The results of the model show that the reduced groundwater recharge at the percolation ponds and groundwater pumping at the power plant site will cause a reduction in groundwater levels up to five feet in localized areas at the power plant site and WWTP properties, with lesser declines on neighboring properties. Reduced groundwater recharge at the percolation ponds and minor groundwater pumping at the power plant site are not expected to cause significant impacts to the local groundwater levels.

As with most valley communities, the effluent from the Parlier and Sanger WWTPs also has elevated levels of dissolved salts. These salts are presently dispersed in the groundwater when effluent is percolated. By diverting effluent to the power plant, these salts will no longer be added to the groundwater, but will instead be removed and disposed at permitted landfills. The



KRCDD CPP ZLD will also continuously remove dilute salt from the cooling water circulation system, and will further concentrate and dewater those salts for disposal as a solid. This will result in the direct and permanent removal of salts from the groundwater basin and provide a tremendous benefit to the local groundwater quality. The KRCDD CPP will not cause erosion or degrade water resources due to releases of stormwater, the project will operated under an approved SWPPP and will use appropriate Best Management Practices (BMPs) during construction and operation. The KRCDD CPP will comply with all applicable LORS and would not result in a significant impact to local water supplies or water resources.

1.7.6 Traffic and Transportation

The KRCDD CPP construction workforce will be drawn from the surrounding local and regional area. Traffic coming from the south will take South Bethel Avenue and travel north to the project site. Traffic coming from the north will exit United States Highway 99 (U.S. 99) at the Manning Avenue exit and head east on South Bethel Avenue to the project site. Construction of the proposed KRCDD CPP will be completed over an approximately 24-month period. The peak construction work force will have approximately 700 people per day during month 13. The overall average for the 24 month period will be approximately 288 people. The intersection of South Bethel Avenue and Manning Avenues is currently controlled with stop signs on the north and southbound approaches of South Bethel Avenue. Both of these approaches currently operate at a level of service (LOS) C during the morning and evening peak periods, due to the high volume of through traffic east and westbound on Manning Avenue. The intersection of Bethel and Manning is forecasted to deteriorate to a LOS F with peak levels of construction traffic if construction traffic oriented to the north on U.S. 99 is directed north on South Bethel Avenue and attempts to make a left turn onto westbound Manning. To mitigate the potential impact, traffic departing the site to northbound U.S. 99 will be directed southerly on Bethel Avenue to Mountain View Avenue and then west on Mountain View Avenue to U.S. 99. If outbound construction related traffic oriented north on U.S. 99 is diverted south to Mountain View Avenue and then west to the highway, the limited volume of project construction traffic oriented east on Manning Avenue will not impact the intersection because it will all be turning right during the evening peak hour. Other roadways in the project area operated at acceptable LOS and will not significantly deteriorate with the implementation of the KRCDD CPP. Future KRCDD CPP operations are also forecast to generate a negligible amount of vehicular traffic on a daily and peak hour basis and will not change the existing LOS of applicable roadways. With the implementation of proposed mitigation measures, there will be no significant impacts to local roadways as a result of traffic associated with the KRCDD CPP.



1.7.7 Public Health

Emissions of non-criteria pollutants, also known as toxic or hazardous air pollutants, from normal operation of a power generating facility can pose a potentially significant risk to public health, if these emissions are generated in sufficient quantities. For the KRCDD CPP CTGs, emissions of relatively small amounts of these substances result from the combustion of natural gas. For the cooling tower, emissions, which are based on the composition of the water being used, are due to trace amounts being carried away in the tower's drift. Relatively small amounts of non-criteria pollutant emissions from the auxiliary boiler and emergency (standby) generator also result from their use of natural gas fuel. Similarly, small amounts of non-criteria pollutant emissions are emitted by the diesel fire pump's combustion of diesel fuel. Impacts from pollutants from these sources were analyzed and modeled. Generally, lifetime cancer risk below 10 in a million and hazard indices of less than 1 are considered acceptable levels of health risk. The maximum excess lifetime cancer risk for the KRCDD CPP was projected to be 2.28 in a million if the Siemens CTGs are used or 3.37 in a million if the GE CTGs are used. The maximum impacts were predicted to occur approximately 95 meters (310 feet) south of the project site fence and 130 meters (425 feet) west of the eastern project site fence line. The maximum acute hazard index for both the Siemens and GE options was predicted to be approximately 0.28 and located near the southwest corner of the project site fence line. The maximum chronic hazard index, which was calculated to be 0.00483 for the Siemens CTG option and 0.00747 for the GE CTG option, was predicted to occur at the same location as the maximum cancer risk. Therefore, the KRCDD CPP projected health risks are well within acceptable levels.

1.7.8 Hazardous Materials

Certain hazardous materials will be used and stored onsite during construction, operation and maintenance of the KRCDD CPP including substances such as cleaners, sealers, adhesives, and solvents, and hydraulic and lubricating oils and motor vehicle fuels. Aqueous ammonia will also be used onsite to control NO_x emissions through selective catalytic reduction (SCR). The KRCDD CPP will include a number of design features to reduce the likelihood and minimize the impacts of inadvertent release of hazardous materials. The construction contractor will also incorporate procedures into its work rules that ensure that hazardous materials are stored and applied in accordance with their specified uses and stored in a way that prevents their migration into the environment.

To assess the potential for impacts associated with the use of aqueous ammonia, an offsite consequence analysis was conducted to assess the risk to humans from the accidental release of aqueous ammonia from the project site. Two emergency release scenarios were evaluated to predict the downwind concentrations of ammonia and to assess the extent of the toxicity of the



release. The complete failure of the main storage tank into the secondary containment (diked) area was designated as the worst-case scenario. The alternate, more-likely scenario will be leakage from the delivery truck hose into a catch basin. Results of the offsite consequence analysis for both the worst-case and alternative release scenarios showed the ammonia concentration will fall within the project fence line, which is located approximately 202 feet (61.7 meters) to the north of the ammonia source center. Based on the modeling results, it is reasonable to conclude that there will be no significant off-site impacts from an accidental release of aqueous ammonia for both the worst-case and alternative release scenarios.

1.7.9 Waste Management

The construction, operation and maintenance of the KRCDD CPP will generate wastes typical for the construction of natural gas-fired power plants including both nonhazardous and hazardous materials. It is estimated that the KRCDD CPP will generate approximately 200 tons of solid waste during construction, 10 tons during demolition/removal of onsite structures and about 1525 tons a year from ongoing operations and maintenance (including approximately three tons of hazardous waste). The first priority to handling and management of wastes generated by the KRCDD CPP will be to reduce the quantity of waste generated by implementing appropriate pollution prevention methods (i.e., high-efficiency cleaning). The next level of waste management will involve the reuse or recycling of wastes (i.e., used oil recycling). For wastes that cannot be recycled, treatment will be used, if possible, to make the waste non-hazardous (i.e., neutralization). Finally, offsite disposal will be used to dispose of residual wastes that cannot be reused, recycled or treated. The KRCDD CPP facility will generate nonhazardous solid waste that will add to the total waste generated in both Fresno County and in California. However, there is adequate recycling and landfill capacity in California to recycle and dispose of the waste generated by the project. To avoid the potential effects on human health and the environment from the handling and disposal of hazardous wastes, procedures will also be developed to ensure proper labeling, storage, packaging, recordkeeping, and disposal of all hazardous wastes.

1.7.10 Worker Health and Safety

Certain construction, operations and maintenance activities associated with the proposed KRCDD CPP have the potential to expose workers to a wide variety of physical and chemical hazards. Worker exposure to these hazards will be minimized through adherence to appropriate engineering design criteria, implementation of appropriate administrative procedures and through compliance with the applicable health and safety LORS. Workers participating in the construction, operations and maintenance of the proposed KRCDD CPP will also be required to participate in applicable safety training programs designed to protect themselves and others from



injuries. No significant unavoidable adverse impacts to worker health and safety are anticipated as result of the proposed KRCDD CPP.

1.7.11 Geological Resources and Hazards

The KRCDD CPP project site is located in central Fresno County at an elevation of approximately 330 feet above mean sea level and the topography surrounding the site is relatively flat and slopes gently to the southeast. The closest potentially active fault is about 13.6 miles from the project site; therefore the potential for seismic shaking is moderate to high. However, because there are no earthquake faults within 40 miles of the project area the potential for ground rupture is low. The KRCDD CPP project area is not located near the coast or any significant bodies of water; therefore, tsunamis, tsunami run-up and seiches are not considered to be a potential hazard. Because the KRCDD CCP project area is in relatively flat areas, (a slope of less than 0.002 feet/feet) and no significant excavations are planned during site construction, the potential for mass wasting at the site or along the pipeline alignments is considered low to negligible. The potential for landslides in the KRCDD CPP project area is low to negligible based on the relatively flat topography. The potential for expansive soils affecting the KRCDD CPP is low. No other areas of volcanism are known within 100 miles of the site. Based on the distance to these sites, the potential for lava flows or accumulation of ash deposits in the KRCDD CPP project area is low. Potential seismic settlement of dry soils should also be anticipated. Ground-shaking and the potential for excessive collapse settlement of soils in the upper five feet due to dry unconsolidated soils or hydrocompaction are the most significant potential geologic hazards in the KRCDD CPP project area. Considering the potential for soil collapse by seismic consolidation and hydrocompaction, the near surface soils on the project site will not provide adequate support for foundation and interior slab-on-grade. Appropriate geotechnical recommendations including grading, compaction and foundations, will be implemented as appropriate to mitigate these potential impacts. There is also a moderate potential for liquefaction along the off-site linear facilities; and the potential for hydrocompaction along the southern reaches of the natural gas pipeline where it crosses the dune sands is also moderate to high. Prior to project design and construction, a geotechnical investigation will be performed along the pipelines alignment where loose soil conditions are expected, especially where the proposed natural gas pipeline route crosses the sand dunes. Based on the results of the geotechnical investigations, mitigation measures will be developed and will include proper engineering design to obtain adequate structural support. With the implementation of proposed mitigation measures, the KRCDD CPP will not cause any significant impacts to geologic resources nor will expose persons or property to geologic hazards.



1.7.12 Soils

Potentially affected soil resources in the KRCDD CPP project area have been described using information from the Eastern Fresno Soil Survey and the Soil Survey of Tulare County, CA-Western Part. A total of 17 soils series, represented by 32 soil map units occur within the KRCDD CPP project area. A corridor study of the KRCDD CPP project area was also conducted to identify potential hazardous materials sites and related hazards to soils, the public, and the environment. The greatest potential direct impacts to soil resources are associated with wind and water erosion during stripping, excavation, cutting, and filling activities at the proposed power plant site. Additional, localized wind and water erosion impacts may be associated with construction activities at the 15-acre construction staging area and the five additional 0.92-acre laydown areas along the proposed natural gas pipeline. BMPs will be imposed during and after construction to minimize the potential for soil erosion and sedimentation associated with construction of the KRCDD CPP. These BMPs will be implemented to prevent erosion and sedimentation from exposed soil areas during precipitation and high-wind events to minimize the potential for significant offsite soil movement. With the implementation of proposed mitigation measures, the KRCDD CPP will result in no significant impacts to soil resources.

1.7.13 Socioeconomics

Construction of the KRCDD CPP, including associated linear facilities, will have no impact with respect to inducing substantial population growth. The peak number of management and skilled and unskilled laborers traveling to or from the various construction sites (power plant, electric transmission line, water pipeline and natural gas pipeline) at any one time during construction is approximately 700 workers, with an average of 287 workers a month over the 24 month construction schedule. These temporary workers would likely be substantially drawn from Fresno and Tulare counties. The KRCDD CPP will not require the construction of additional housing to support the temporary worker population, nor will it impact the local housing inventory. Construction, operations and maintenance of the KRCDD CPP will have no significant impact on existing public services.

Construction activity will result in secondary economic impacts (indirect and induced impacts) within Fresno and Tulare counties. Secondary employment effects would include indirect and induced employment due to the purchase of goods and services by firms involved with construction, and induced employment due to construction workers spending their income within the area. In addition to these secondary employment impacts, there are indirect and induced income effects arising from construction. The estimated indirect and induced employment within Fresno County would be 62 and 99 jobs, respectively. The estimated indirect and induced employment within Tulare County would be 57 and 82 jobs, respectively. The KRCDD CPP initial capital cost is estimated to be \$438 million. The estimated value of materials and supplies



that will be purchased locally (within Fresno and Tulare counties) during construction is between \$13 million and \$22 million.

Executive Order 12898, “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,” signed on February 11, 1994, requires all federal agencies to develop environmental justice strategies. Federal agencies are required to identify and address disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations. The KRCDD CPP will not result in disproportionate effects to minority or low income populations.

1.7.14 Cultural Resources

Cultural resources, which could be present in the KRCDD CPP project area, include historic and prehistoric archaeological sites, historic architectural and engineering features and structures, and sites and resources of traditional cultural significance to Native Americans and other groups. The results of the records search indicate that there have been 13 cultural resource studies within the project area and 25 cultural resource studies within the one-mile radius of the project area. A total of 22 resources were identified and recorded during field surveys of the project area. No prehistoric resources, traditional cultural properties, or cultural resources listed on the National Register of Historic Places or the California Register of Historical Properties were identified within or near the project area based on record search results and Native American correspondence. A study is also underway to assess whether any existing buildings, structures and objects within the area are eligible for listing in the California Register of Historical Resources, and thus qualify as historical resources under the California Environmental Quality Act. Results of this study are pending. Twenty-two historic archaeological resources were identified in the project area. None of these resources will be impacted as the various utility routes will avoid impacting the resources. With the mitigation measures proposed, construction of the KRCDD CPP will not result in significant impacts to cultural or archaeological resources and will comply with all applicable LORS.

1.7.15 Paleontological Resources

Paleontological resources, or fossils, are the remains, imprints or traces of once-living organisms preserved in rocks and sediments. Prior to the field survey, published and available unpublished geological and paleontological literature was reviewed and evaluated, and museum locality and specimen database searches were conducted to develop a baseline paleontological resource inventory for the geologic units present within the project site, the surrounding area, and similar types of deposits elsewhere in the Great Valley and within California. No fossils were observed on the surface during the paleontological reconnaissance survey; however, the combined results of the museum records search and literature review indicate that geologic units underlying the



project area have a paleontological sensitivity ranging from low to high. With the mitigation measures proposed, construction of the KRCDD CPP will not result in significant impacts to paleontological resources and will comply with all applicable LORS.

1.7.16 Biological Resources

Information pertaining to threatened, endangered and other special-status wildlife and plant species that may occur in the project area was collected from several sources. Though the record searches showed a variety of special-status plant and animal species in the region, none were observed during reconnaissance surveys. Three potential wetland and waters areas were identified in the KRCDD CPP project area. These three areas include:

- Proposed natural gas pipeline crossings of the Kings River near the City of Kingsburg.
- Proposed natural gas pipeline crossing of Cross Creek near the City of Traver.
- Proposed transmission line route crossing of the area north of Manning Avenue between McCall and Indianola avenues, where a small groundwater recharge basin exists.

A wetland and waters evaluation of these areas was conducted and the project has been designed to avoid and/or lessen impacts to these wetlands and waters. Examples of such actions include the locating and constructing of the gas pipeline and the water pipeline in the right-of-ways of existing roads and using of Jack and Bore and Horizontal Directional Drill techniques to install the gas pipeline underneath the Kings River and the intermittent drainages in the Cross Creek. Through the use of several mitigation measures potential impacts to wetlands and waters in and adjacent to the Cross Creek area and in and along the Kings River will be avoided. The KRCDD CPP will result in a permanent loss of 0.003 acres of wetlands habitat in the bed of the Manning recharge basin where two H-framed transmission line towers will be installed. Construction and erection of the towers will also result in temporary impacts to approximately one acre of wetland habitat in the basin. The area of disturbance is estimated at approximately one acre. Measures are incorporated into the project to minimize and reduce impacts to wetland habitat in the basin during the construction and erection activities. KRCDD will also coordinate with applicable regulatory agencies to determine permitting requirements. Overall, the project will not have a significant negative impact or effect on wetlands, waters, riparian habitat, or endangered species due to the implementation of mitigation measures. No significant impacts to biological resources are anticipated associated with construction of the KRCDD CPP.

1.8 LIST OF PREPARERS

Appendix 1-3 includes a list of those persons responsible for the preparation of this AFC.



1.9 APPLICABLE LAWS, ORDINANCES, REGULATIONS AND STANDARDS AND PERMITS

Each environmental resource section analyzed in Chapter 8, Environmental Considerations, contains a list of federal, state and local LORS that are applicable to that particular resource section. Each resource section also contained a list of applicable permits that need to be obtained for the project.

1.10 REFERENCES

CEC, 2007. Rules of Practice and Procedure and Power Plant Site Certification Regulations. August 2000 and revisions.

