

1.1 INTRODUCTION

In this Application for Certification (AFC), Pio Pico Energy Center, LLC (PPEC LLC or “Applicant”) is seeking approval from the California Energy Commission (CEC) to construct and operate a power generation facility, the Pio Pico Energy Center (PPEC), within the County of San Diego. PPEC LLC seeks CEC approval in order to satisfy an obligation to supply electrical capacity and energy to San Diego Gas & Electric (SDG&E) under a 20-year Power Purchase Agreement (PPA).

PPEC is a proposed simple-cycle power generation project that consists of three General Electric (GE) LMS100 natural gas-fired combustion turbine generators (CTGs). The total net generating capacity would be 300 megawatts (MW), with each CTG capable of generating 100MW. The proposed plant will be owned and operated by Pio Pico Energy Center, LLC (PPEC LLC). The electricity generated by this project would be in support of a contract with SDG&E. Section 2.0, Project Objectives, describes the contract in more detail.

The GE LMS100 is the first intercooled gas turbine system developed especially for the peaking electrical needs of the power generation industry. The LMS100 is designed for cyclic applications with 10-minute starts that provide flexible power generation for peaking and intermediate solutions vital to support variable demand and variable renewable energy sources that SDG&E is increasingly contracting for.

The project site consists of previously disturbed and prepared land within an industrial park, the Otay Mesa Business Park, in the County of San Diego, adjacent to the existing Otay Mesa Generating Project. The site is served by prepared, paved streets, water and other utilities. Besides short connections in the streets for water and sewer, PPEC will require only a natural gas transmission pipeline and an electrical transmission connection line. Surrounding uses are highly compatible with PPEC. For these reasons, PPEC will have minimal adverse environmental impacts while providing a valuable peaking and load shaping needs for the San Diego area.

PPEC is designed to directly satisfy the San Diego area demand for peaking and load-shaping generation, near and long term. Power would come from three GE LMS100 natural gas-fired CTGs. Each CTG would be equipped with water injection for reducing oxides of nitrogen (NO_x) emissions, a selective catalytic reduction (SCR) system with 19 percent aqueous ammonia (NH₃) injection to further reduce NO_x emissions, and an oxidation catalyst to reduce carbon monoxide (CO) and volatile organic compound (VOC) emissions. Auxiliary equipment would include inlet air filters with evaporative coolers, a turbine compressor section intercooler, a partial dry-cooling system, circulating water pumps, water treatment equipment, natural gas compressors, generator step-up and auxiliary transformers, and water storage tanks.

This AFC has been prepared in accordance with the requirements of the Warren Alquist Act (Public Resources Code section 25000 et. seq) and regulations adopted pursuant to that law. The AFC provides:

- A detailed description of the proposed PPEC project.

- An assessment of the anticipated project impacts on the existing environment.
- A discussion of compliance with applicable laws, ordinances, regulations, and standards (LORS).

The remainder of this Executive Summary summarizes the more detailed information presented in the balance of the AFC.

1.2 FACILITY LOCATION AND DESCRIPTION

1.2.1 Facility Location

The project site is located in an unincorporated area of San Diego County known as Otay Mesa. It is comprised of a 9.99 acre parcel located in the southeast quadrant of the Alta Road and Calzada de la Fuente intersection in an industrial park entitled the Otay Mesa Business Park. The proposed project site comprises the entire parcel Assessor's Parcel Number (APN) 648-040-45, and the laydown area is 6.00 acres of APN 648-040-46 (Figure 3.3-2, Project Location). A natural gas supply pipeline will be constructed along one of two routes to connect the project to an existing natural gas supply pipeline. A 230 kV transmission line will be constructed on one of two routes to connect the project to an existing 230 kV switchyard. Existing site and surrounding land uses include two correctional facilities (State and County) and an existing natural gas-fired electrical generating station.

1.2.2 Facility Description

PPEC is designed to directly satisfy the San Diego area's current and long-term requirements or peaking and load-shaping generation. As previously stated, the generating facility would consist of three GE LMS100 natural gas-fired CTGs. Each CTG is equipped with water injection for reducing NO_x emissions, a SCR system with 19 percent NH₃ injection to further reduce NO_x, and an oxidation catalyst to reduce CO and VOC emissions. The total net generating capacity would be approximately 300MW.

Each CTG would generate approximately 100MW at summer design ambient conditions. The project would have a maximum annual capacity factor of approximately 46 percent (4,000 hours per year). Associated equipment would include emission control systems necessary to meet the proposed emission limits. Stack emission NO_x in normal operation would be controlled to 2.5 parts per million, volumetric dry (ppmvd) corrected to 15 percent oxygen through a combination of water injection in the combustors and operation of the SCR system. The oxidation catalyst would limit normal operation CO stack emissions to 4 ppmvd adjusted to 15 percent oxygen.

Refer to Appendix A through F for the engineering design criteria for the project.

1.2.3 Fuel Gas Supply

The CTGs would fire natural gas exclusively. At full load, each CTG would require up to 825 million British thermal units per hour (MMBtu/hr) low heating value (LHV) of natural gas, for a total plant demand of 2,475 MMBtu/hr LHV. SDG&E would build, own, and operate a

gas pipeline from SDG&E's existing gas pipeline to the south and west. The AFC proposes two alternate routes for the gas supply line.

1.2.4 Water Supply and Discharge

PPEC is designed and intended to use recycled water. Process water uses include plant service water, cooling system makeup, combustion turbine NO_x injection (after treatment), and combustion turbine inlet air evaporative cooler makeup. The CTG injection water would be treated using an ultra filtration (UF) system, a reverse osmosis (RO) system, and skid-mounted ion exchange vessels. Process water would also serve as a secondary source of fire protection water. A connection to the Otay Water District potable water would supply facility drinking water, showers, sinks, toilets, eye wash stations, and safety showers in hazardous chemical areas. It would also serve as the facility's primary source of fire protection water. In the event that recycled water is not available upon start up of the project, the project would temporarily use potable water for all plant needs until such time as recycled water is available.

1.2.5 Transmission Facilities

PPEC will be connected to the nearby existing 230kv Otay Mesa Switchyard via one of two proposed new transmission lines.

1.3 PROJECT SCHEDULE

Construction for PPEC is expected to begin in 2013 following the CEC approval of this AFC. Startup, testing and commercial operation would begin in 2014.

1.4 PROJECT OWNERSHIP

- Owner: Pio Pico Energy Center, LLC
- Operator: Pio Pico Energy Center, LLC

1.5 SUMMARY OF ENVIRONMENTAL IMPACTS

Like all major power plants, the proposed project has the potential to adversely impact the existing environment. The Applicant, however, has carefully chosen the project location and incorporated innovative design measures to ensure that any potential project impacts will be at or below a level of significance. Section 5 of this AFC assesses environmental impacts according to the standard CEC structure of topics. Transmission Safety Line and Nuisance, Power Plant Reliability and Power Plant Efficiency, however, are located in Section 3. The AFC demonstrates that the project will have no unmitigated significant adverse environmental impacts.