Saguache Solar Energy Project

Preliminary 1041 Permit Application for Saguache County, Colorado

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Prepared for:

SOLARRESERVE

2425 Olympic Blvd., Suite 500 East, Santa Monica, CA 90404

Prepared by:

TETRA TECH EC, INC.

143 Union Blvd, Suite 1010, Lakewood, Colorado 80228

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13-304(1)(a)(ii) Description of Proposed Facility and Site

The proposed Saguache Solar Energy Project (hereafter, "the Project") is a 200-megawatt (MW) solar thermal facility site in Saguache County, Colorado, proposed by the Applicant, a project company to be formed by SolarReserve. For the purposes of this Preliminary 1041 Permit Application, references to SolarReserve or the Applicant shall mean the project company. SolarReserve plans to form the project company prior to submitting its final 1041 Permit Application. The Project will be developed within approximately 6,200 acres of privately owned land being optioned by SolarReserve in Saguache County, in south-central Colorado (Figure 1). This land that is in the process of being secured under option is designated as "property being optioned" on the figures in this application. The Project site boundary includes approximately 3,000 acres of this land area and would contain the Project facilities. The Project site is located in the San Luis Valley, where the state's best solar resources exist (see Figure 2). The San Luis Valley is identified as one of two solar power generation development areas (GDAs) in the state of Colorado (RRGDATF 2007).

Numerous other sites in the San Luis Valley were considered for the development of the Saguache Solar Energy Project. All were on private land; the exact locations or parcels cannot be revealed for purposes of maintaining privacy issues with the landowners. A significant component of the siting process included avoidance and minimization of environmental issues. Sites with wetlands, even arid wetlands, and sites with significant riparian areas, were screened out as unsuitable. Sites with disturbed agricultural land were deemed to be the most favorable from an environmental standpoint since they currently provide reduced opportunity for wildlife habitat. Disturbed agricultural sites also present little to no opportunity for cultural resource artifacts to be found.

The Project is based on concentrating solar power (CSP) generation technology. Figure 3 shows a generalized process diagram of the CSP technology. The proposed CSP technology uses heliostats (tracking mirrors) to direct sunlight onto a central receiver erected on a concrete tower in the center of the solar field. A heat transfer fluid (HTF) is heated as it passes through the receiver and then circulated through a series of heat exchangers to generate high-pressure superheated steam. The steam is then used to power a conventional Rankine-cycle steam turbine/generator to produce electricity. The exhaust steam from the turbine is condensed and returned via feedwater pumps to the heat exchangers, where the high-pressure superheated steam is generated again. The 200-MW Project facility will be constructed in two 100-MW phases.

Each of the two tower facilities within the Project will have the following components:

- A solar array, a circular field with a radius of approximately 4,300 feet where the heliostats are located.
- A power block, a circle with a radius of approximately 400 feet, that houses the central receiver tower, storage tanks, steam turbine, cooling tower, transformers, heat exchangers, power block buildings, and other ancillary equipment.

- An administration building, warehouse, and evaporation ponds that will be located along the outside perimeter of the solar array.
- Associated linear facilities including transmission line, access road, and, potentially, an on-site water pipeline, all of which would be located in the proposed Project boundary.
- An on-site switchyard (one that will be common to both Project facility phases) to connect the Project to the existing 230-kilovolt (kV) transmission line, which crosses the Project site. For the purposes of this Preliminary Application, this on-site facility is referred to as the "switchyard" and the existing San Luis Valley Substation, which is located approximately 6 miles south of the Project in Alamosa County, is referred to as the "substation").

The Project will generate power from sunlight by focusing energy from a field of sun tracking mirrors, called heliostats, onto a central receiver. The HTF will be liquid salt, which is circulated through tubes in the receiver, collecting the energy gathered from the sun. The heated salt is then routed to an insulated storage tank where it can be stored with minimal energy losses. When electricity is to be generated, the "hot" salt is routed to a heat exchanger (or steam generator) and used to produce steam, which generates electricity in a conventional steam turbine cycle. After exiting the steam generator, the salt is sent to the cold salt thermal storage tank and the cycle is repeated.

The salt is a combination of sodium nitrate and potassium nitrate with a melting temperature of 460°F. In the liquid state, the salt has the viscosity and an appearance similar to water. Salt is a heat storage medium that retains thermal energy very effectively over time. Once the salt is melted to a liquid form, it remains heated and in a liquid state throughout the plant's operating life, being reused again and again in the cycle. The salt that would be used is a technical-grade salt that is similar to commercial fertilizers.

It is anticipated that, the Project will be completed in two phases, with anticipated commercial operation dates of June 1, 2013, and June 1, 2014, respectively. The Project will deliver power to the grid at the existing 230-kilovolt (kV) transmission line that runs through the Project site.

Project Facility Description

A solar power tower/central receiver system generates electric power from sunlight by focusing concentrated solar radiation on a tower-mounted receiver. The system uses thousands of sun-tracking mirrors, called heliostats, that are arranged concentrically around the central receiver tower and reflect the sunlight onto the receiver (see Figures 4A and 4B). Each of the proposed Project's two phases will consist of up to approximately 17,500 heliostats occupying a total of approximately 1,400 acres. Each heliostat will be approximately 670 square feet in size, yielding a total reflecting surface of nearly 12,000,000 square feet. The heliostats are 28 feet wide and 24 feet tall. Each heliostat is mounted on a steel post at a height of about 13 feet, and each heliostat has two-directional rotation to allow the heliostat to track the suns path across the sky (see Figure 5). When the heliostat is in the vertical position, the bottom of the heliostat will be approximately 12 inches from the ground. For this reason, the vegetation around the heliostats will be cut, rolled, or removed to the ground surface. The spacing of the heliostats is such that there is access between the individual heliostats. The arrangement of the heliostats within the array is optimized to maximize the amount of solar energy that can be collected by the field and arranged to avoid interference among heliostats as they track the sun during the day.

Central Receiver/Tower

The tower is a concrete structure approximately 538 feet high that supports a cylindrical receiver consisting of tube panels through which the liquid salt flows. The receiver is approximately 105 feet tall and mounted on the top of the tower. The top of the receiver will therefore be at a height of approximately 643 feet. A 13-foot-tall maintenance crane will be mounted on top of the receiver, making the total structure height approximately 656 feet.

Power Block

The power block (shown in Figure 6) will include a steam turbine generator, the solar receiver tower, hot and cold salt tanks, a cooling tower, water treatment facilities and water storage tanks, and a step-up transformer. Steam is generated at a temperature and pressure of 1,030°F and 1,685 pound-force per square inch absolute before entering the high-pressure section of the turbine. Steam exiting the high-pressure section of the turbine is reheated to increase its temperature before entering the immediate-pressure section of the turbine. Exhaust steam from the turbine is directed to the condenser. The turbine drives a generator, which delivers electrical power via a main step-up transformer in the on-site switchyard to the utility grid. Extraction steam from the steam turbine is used to preheat the feedwater and for de-aerating the feedwater.

This high-efficiency turbine is designed for reliable operation under conditions of daily startup and shutdown over the life of the plant. The solar field and power generation equipment will typically be started each morning after sunrise and in association with the build-up of solar energy. The solar field will shut down in the evening as the sun sets, although the integral thermal energy storage system will allow the steam turbine to continue operating.

The primary components of the power block will include:

- One “hot” and one “cold” salt tank. The “cold” salt is pumped to the central solar receiver, where it flows though the receiver and is heated by the sun’s energy and is returned as “hot” salt to the hot salt tank.
- A central solar receiver, mounted on the tower. The central receiver is where the sun’s energy is concentrated to heat the liquid salt.
- Solar Steam Generator System—The steam generator (STG) is the core of the steam supply system for the power block and is located in the steam generation building. Through the use of heat exchangers, the heat energy from the liquid salt is used to produce steam.
- Steam turbine—Once the pressurized steam has reached the optimum temperature in the superheater, it flows to the steam turbine, which extracts thermal energy from the steam.

Cooling System

A wet cooling system will be employed at the site. The cooling system consists of a surface condenser, circulating water pipes, wet cooling tower, condensate tank, and condensate pumps. The system receives saturated turbine exhaust from the steam turbine, where it enters the surface condenser. Cool water is circulated from the cooling tower to the surface condenser, which cools and condenses steam. The

condensed steam is gathered in a condensate tank and provided to the feedwater circuit through a condensate pump.

Although the cooling system has the largest water demand, the plant requires water for a number of uses. Water will be required for both construction and operation of the plant. During construction, water will be used primarily for moisture conditioning of soil for earthwork operations and for dust control. Ancillary needs during construction include water for hydrostatic testing of tanks and pipes. The estimated total water need during construction is 750 acre-feet per facility. This total quantity will be used during the construction period, which is estimated to be 30 months. A larger percentage of the water will be used in the first year of construction during the earthmoving operations.

The major operational water needs include cooling water for the cooling tower, water for the steam system, and water for mirror washing. The total estimated operational water need of each facility is approximately 1,000 acre-feet to 1,200 acre-feet per year, an amount that was estimated as follows:

- Steam cycle makeup and miscellaneous plant uses such as domestic needs, wash down, and dust control—estimated at 130 acre-feet per year
- Mirror wash water—estimated at 70 acre-feet per year
- Cooling System—estimated to be as much as 1,000 acre-feet per year

Thermal Storage System

The thermal storage system will make use of “hot” and “cold” liquid salt tanks to store solar heat energy for later steam generation as well as associated pumps and piping. Thermal storage provides the Project facility with several operational enhancements. The solar field is nominally sized to provide excess solar energy to the system and such sizing intentionally results in collection of excess heat that cannot be utilized instantly by the power block. The thermal storage capability allows the excess heat to be stored until utilized for power generation. Thermal storage can also extend the generation day of SolarReserve power plants. The heated salt can be stored in insulated tanks to provide a steam heating source after the sun sets, allowing the Project facility to more closely satisfy the load demands of the electricity grid system, which may peak in the late afternoon and evening hours. While thermal losses in storage are low, the thermal storage system includes an auxiliary electric heat source to keep the salt in a molten state through protracted maintenance outages.

The thermal storage system contains two storage tanks: one cold tank storing liquid salt at 550°F and one hot tank storing liquid salt at 1,050°F. As the sun rises, cold liquid salt (or HTF) is pumped from the cold liquid salt tank through the tubes inside the receiver. After absorbing energy from the concentrated sunlight, the temperature of the HTF is increased to the design outlet temperature of 1,050°F. Part of the heated HTF is then pumped to a hot liquid salt tank for storage and part to a steam generating system that produces superheated steam for use in the conventional Rankine cycle turbine/generator system. After exiting the steam generator, the HTF is returned to the cold tank, where it is stored and eventually reheated in the receiver.

The HTF consists of sodium nitrate ($NaNO_3$) and potassium nitrate (KNO_3) in a “eutectic” mixture designed to remain liquid or molten over a wide temperature range. The HTF mixture has a melting point

of 460°F and must be preheated and maintained above this minimum temperature to be pumped through the system. This arrangement allows for excess heat to be stored for power generation outside the direct solar-heating period of the day. The system also includes piping, valves, pumps, expansion tanks, and heaters. Although SolarReserve does not anticipate using any fossil fuels to maintain the salt temperature during the operational life of the plant, liquid propane or liquid natural gas may be used as fuel to melt the salt during plant commissioning.

Major Electrical Systems and Equipment

The bulk of the electric power produced by the Project will be transmitted to the electric grid under the control of Public Service Company of Colorado (PSCo), a division of Minnesota-based Xcel Energy, and Tri-State Generation and Transmission Association (TSGT). During operation, a small amount of electric power will be used to power station auxiliary loads such as pumps and fans, control systems, and general Project facility loads including lighting, heating, and air conditioning, heliostat movement, and other uses. Additionally, electric power will be used to heat the HTF storage tanks, which will provide energy to maintain the salt in fluid state during protracted maintenance outages. Some power will be converted from alternating current (AC) to direct current (DC), which will be used as backup power for control systems.

A plant electrical building will house the 4,160-volt (V) switchgear, 4,160-V motor controllers, low voltage switchgear, low voltage motor control centers, control panels, power and lighting panels, uninterruptible power supply (UPS), DC station batteries, DC switchboard, and other miscellaneous equipment, steam turbine control equipment and the input/output control cabinets.

The emergency power for the plant switchyard and other plant critical loads will be supplied by the 125-volt DC (VDC) station battery system. Emergency power to move the heliostats to the “stow position” in the event of a loss of power to the Project facility will be provided by emergency diesel generators.

Lighting Systems

The Project facility’s lighting system will provide operation and maintenance personnel with illumination for both normal and emergency conditions. Project lighting will be designed to minimize light pollution through the use of sensor lights and directional lighting in cases where such minimal lighting will not compromise safety or security.

Lighting will not be provided for the heliostat field, but is expected to be provided in the following areas in compliance with all applicable local, state, and federal regulations:

- Building interior equipment, office, control, maintenance, and warehouse
- Tower lighting per Federal Aviation Administration (FAA) requirements
- Building exterior entrances
- Outdoor equipment within the power block and tank area
- Power transformers
- Power block roadway
- Parking areas within the power block area
- Tank area
- Entrance gate
- Water treatment area

Communication Systems

The major communication system on site will be the SCADA (Supervisory Control and Data Acquisition) system. The SCADA system is composed of industrial Programmable Logic Controllers hardware and software, field instrumentation, meteorological stations, and communications devices designed for site monitoring, control, and historical trending of the solar power plant.

All data collected from the Project facilities will be transmitted to the site control room via a fiber or copper communications infrastructure. The control room will also contain a router from the point of connection to a T1 (fiber optic) line or equivalent as well as phone lines for communication to the outside.

Access Roads

A paved access road will be constructed from County Road G. This road will be constructed along the western edge of the Project boundary to a location near County Road F. At this location, County Road F is a private road, and from this location, a paved road will be constructed to the perimeter of the heliostat field and to the power block location as shown on Figure 7. Deceleration and or acceleration lanes will be constructed, as required, to meet the Colorado Department of Transportation and County requirements where the improvements to the new access road connect to County Road G.

Buildings and Enclosures

The following buildings and enclosures are planned as part of the Project:

- Steam Generation Building—This structure is planned to be located between the HTF storage tanks within the power block (see Figure 6). The purpose of the building is to provide structural support and protection for the equipment associated with the heat exchange process.
- Steam Turbine Enclosure/Building—This structure will house the steam turbine generator and associated equipment and is located within the power block at the Steam Turbine/Generator Area (see Figure 6).
- Electrical Building—This structure will be located within the power block area and will house the switchgear, motor control centers, battery power supply, and other primary plant electrical components (see Figure 6).
- Control and Operations Building—This building is located within the power block and houses the plant control room and operations support (see Figure 6).
- Water Treatment Building—This building is located within the power block and houses the water treatment facilities (see Figure 6).
- Administration/Maintenance Building—This building will serve as the center for support staff for the project during operations. This facility is planned to be located outside the heliostat field, near the access road (see Figure 7).
- Heliostat Assembly Building/Warehouse—This building will be used as a protected environment for the assembly/construction of heliostats during construction of each 100 MW facility. This facility will be converted to other uses at the completion of the construction of the project (see Figure 7).

Wastewater Disposal—Evaporation Ponds

The evaporation ponds are used in the wastewater disposal process and act as the means to dispose of (evaporate) waste water from plant operations. Wastewater will be generated from cooling tower blow down, steam system blow down, stormwater that comes in contact with plant operations, and water treatment reject water. The water process will be designed to economically minimize water use of the project, and will be designed to recycle/reuse water as practical. Wastewater that must be disposed of will be sent to the evaporation ponds. These ponds will be constructed of two layers (a primary 60-mil layer and a secondary 40-mil layer) of HDPE (high-density polyethylene) with an interstitial drainage layer and leak detection system. The ponds will be sized to achieve sufficient evaporative capacity under annual average and peak discharge conditions, allow for storage of evaporative residue for the full 30-year operating life of the facility, maintain a minimum of 2 feet freeboard at all times, and to allow one pond to be taken out of service for one year for maintenance without affecting the operation of the plant. Until detailed water balance design is completed, the exact size of the ponds cannot be known. However, it is expected that each plant will require three ponds each, and each pond will be no larger than 10 acres (for a maximum total of 30 acres per facility).

Domestic Utilities (Potable Water and Sanitation)

Potable water needs for plant personnel will be supplied from an on-site small potable water treatment unit. This unit will supply plant potable water for plant uses including eye washes, sinks, and showers.

Sanitary waste streams will be generated at both the administration building near the entrance to the plant and at the operations building and maintenance areas within the power block. Each facility is proposed with two septic tanks and associated leach fields to capture and treat the sanitary waste streams. These systems will be sized based on the estimated "fixture units" within the buildings served by the septic systems, and it is currently estimated that the flow will be approximately 500 gallons per day for each system. If required, the septic tank (solids holding tank) will be cleaned out by a vacuum truck and the wastes will be trucked and disposed at a licensed facility.

13-304(1)(a)(iii) Present Use and Zoning

The proposed Project is located within approximately 6,200 acres of privately owned land in the southern portion of Saguache County near the Alamosa County Line and approximately 5 miles northeast of the town of Center. The Project site boundary that contains the energy facilities is a subset of the property and is approximately 3,000 acres. The current land use in the Project area is primarily irrigated crop land. The entire property is within unincorporated Saguache County and is zoned Agricultural Use according to the Land Use Code (see Section IV.1.3. Classification of Districts), which states that “all of the unincorporated area of Saguache County is included in an agricultural district, unless otherwise specifically designated.”

The Agricultural District (see Section IV.2.1. Agricultural District (A) of the Land Use Code) consists of areas that are primarily in a natural state or areas utilized for growing crops, raising livestock, preserving and producing timber resources and other similar farming, ranching, and resource-conservation activities.

A number of Conditional Uses are permitted in the Agricultural District in accordance with the review procedures set forth in Section IV.7 of the Land Use Code, including (see Section IV.2.1.2.8. of the Land Use Code) utility installations such as electric substations, electric generating stations, sewer lift stations, telephone exchanges, gas regulators, major transmission lines, and irrigation ditch right-of-way (not including utility offices, repair, storage and production facilities). The current draft of the Saguache County Master Plan recognizes that solar energy development is a priority in Saguache County.

13-304(1)(a)(iii)(1) Location Map

Figure 1 shows the local Project area and the Project site boundaries and Figure 2 is a map of the proposed site and the surrounding area within 50 miles of the site. Figure 2 also shows all existing transmission lines within the county. Figure 7 is a conceptual drawing of the Project facility features and site layout.

13-304(1)(b) Type of Facility

13-304(1)(b)(i) Approximate Floor Space of Office Building

The project will include up to four permanent buildings that may be considered office buildings. The final size of each of the buildings will be determined during further design of the Project. However, the approximate sizes are noted below:

- Administration/Maintenance Building—The Administration/Maintenance Building will serve as the center for support staff for the project during operations. This facility is planned to be located outside the heliostat field, near the access road as shown in Figure 7. This facility is proposed to be approximately 5,000 square feet.
- Heliostat Assembly Building/Warehouse—A Heliostat Assembly Building will be located outside the heliostat circle near the Administration/Maintenance building (see Figure 7). This building will be approximately 80,000 square feet and will he used as the on-site location for final heliostat assembly. Once the project has been constructed, this building will be converted to a storage warehouse.
- Control and Operations Building—A Control and Operations Building will be located within the power block and will serve as the center for control and operations of the plant. This facility is proposed to be approximately 5,000 square feet.
- Water Treatment Building—The power block will also contain a water treatment building. This facility will be approximately 11,000 square feet and will contain the various water treatment components required of the facility.

13-304(1)(b)(ii) Voltage and Length of Transmission Line

The Project will deliver power to the grid at the existing 230-kV transmission line that runs through the Project area and connects with the San Luis Valley substation located approximately 6 miles south, so a new off-site transmission line will not be necessary. The plant switchyard and the on-site transmission line between the plant switchyard and electrical system interconnection (to the 230-kV transmission line) will be engineered, procured, and constructed on the existing private property as part of this Project. The high

voltage interconnect from the plant to the electric utility will be made via a SF6-insulated, high-voltage breaker with a single-circuit overhead line from the plant switchyard to a new four-breaker ring bus on the 230-kV transmission line.

13-304(1)(b)(iii) Power Source and Generating Capacity

The proposed Project will be a 200-MW solar thermal energy generating facility constructed in two 100-MW phases.

The bulk of the electric power produced by the Project facility will be transmitted to the electric grid under the control of PSCo. During operation, a small amount of electric power will be used to power station auxiliary loads such as pumps and fans, control systems, and general Project facility loads including lighting, heating, and air conditioning, heliostat movement, and other uses. Additionally, electric power will be used to heat the salt in fluid state during protracted maintenance outages. Some power will be converted from AC to DC, which will be used as backup power for control systems.

13-304(1)(b)(iv) Function and Size of Substation

The proposed Project facility will include a switchyard to facilitate the connection to the existing on-site 230-kV transmission line. For the purposes of this Preliminary Application, this facility is referred to as the "switchyard" and the existing San Luis Valley substation is referred to as the "substation". The conceptual location of the switchyard facility and electrical transmission connection is shown on Figure 7 (see items 7 and 10). The switchyard serves to provide a point of interconnection to the electrical grid/transmission system operated by PSCo. Electricity generated by the steam turbine generator is "stepped up" to 230 kV within the power block so that it matches the voltage of the grid/transmission system into which it connects. The stepped-up electricity is transmitted to the switchyard location. The switchyard consists of large breakers that, when closed, allow electricity to flow from the power plant to the electric grid.

A plant electrical building will house the 4,160-V switchgear, 4,160-V motor controllers, low voltage switchgear, low voltage motor control centers, control panels, power and lighting panels, UPS, DC station batteries, DC switchboard, other miscellaneous equipment, steam turbine control equipment, and the control I/O cabinets.

Electricity from the Project electrical control buildings will be delivered into the power system network using a new four-breaker ring bus switchyard on the existing 230-kV transmission line that bisects the site.

13-304(1)(b)(v) Diameter and Length of Pipeline

Water necessary for Project operations will be obtained from on-site wells, so an off-site water pipeline will probably not be necessary. An on-site water pipeline will be part of the Project facility design. The CSP technology proposed for the Project does not require a natural gas source, so no gas pipeline is planned.

SolarReserve is working to develop a water supply for this Project that will be secure over the anticipated 30- to 40-year life of the Project facility. Plant operational water supply will be from wells located within

the Project boundary. The well pumps will deliver water to a large raw water storage tank that have a capacity of approximately up to 1 million gallons (see service/fire raw water tank described in the next section). SolarReserve will work within the Colorado water court legal process to convert the existing water rights from agricultural to industrial use, as well as to possibly change the point(s) of diversion depending on the proximity of the wells to the power block(s).

13-304(1)(b)(vi) Capacity of Storage Tanks, and Type of Petroleum Derivative to Be Stored

The following storage tanks will be located on site:

- Demineralized Water Tank—One demineralized water storage tank will be constructed to store demineralized water for use as mirror wash water and steam cycle makeup. This tank will be designed to hold approximately 300,000 gallons.
- Service/Fire Water Tank—One service/fire water tank will be constructed to store water (pumped from the on site wells) for fire protection, service water needs (raw water for general plant use), and for raw water storage prior to treatment (for use in the cooling tower). This tank is estimated to hold approximately 1,000,000 gallons. The major portion of the raw water is for plant use, while a smaller portion of the raw water (approximately 360,000 gallons) will be reserved for fire water.
- HTF Storage Tanks (Cold Salt Storage Tank and Hot Salt Storage Tank) —These two tanks will be constructed to contain the HTF. One will house the hot HTF (1,050°F), and the other will house the cold HTF (550°F). Each tank will hold approximately 6 million gallons.
- A lube oil storage tank will be associated with the STG, will contain approximately 1,500 gallons of lubricating oil, and will be located in the Steam Turbine/Generator Area.
- A 10,000-gallon aboveground diesel tank will be used on site for wash water truck fueling.
- A second 10,000-gallon aboveground diesel tank will be used on site as a fuel source for the emergency generators that provide backup power for heliostat operation.
- Additional ancillary tanks will be on site for a variety of liquids within the Power Block Area.

13-304(1)(b)(vii) Service Area

The Project is currently in the process of evaluating alternatives for a power purchase agreement. The logical purchaser would be PSCo, a division of Minnesota-based Xcel Energy, although other potential buyers include TSGT or Power New Mexico (PNM). SolarReserve is also considering other potential power purchasers. The Project will interconnect with the existing 230-kV transmission line that runs through the site and connects with the San Luis Valley substation. Power from this substation is transmitted and distributed throughout Alamosa and Saguache counties for local use.

13-304(1)(b)(viii) Resource Area

The San Luis Valley has been designated as an Energy Resource Zone (ERZ) by Xcel Energy (Xcel 2008) and the Western Governors' Association/U.S. Department of Energy (WGA/DOE 2009). ERZs are identified to have the potential to support competition among renewable energy developers for development of renewable resource generation projects and are the most promising locations for large-scale transmission projects that will serve utility-scale solar across the region. The proposed Project will produce 200 MW of CSP generation in the designated ERZ within the San Luis Valley. The proposed

Project will take advantage of the solar ERZ and offer storage capacity benefits that photovoltaic and conventional thermal solar technologies cannot provide.

13-304(1)(c) Projected Development Schedule

13-304(1)(c)(i) Maximum Number of Employees

Table 1 lists the maximum number of employees per shift during the construction and operation and maintenance activities. Construction of each of the 100-MW generating facilities, from site preparation and grading to commercial operation, is expected to take up to 30 months. It will take about 100 person-years of construction workers' time to build the plant. The labor loading will follow a bell-shaped curve over the 30 months of construction and will peak at approximately 400 to 500 personnel of construction craft, supervisory, support, and construction management personnel on site during construction. SolarReserve expects that many of these jobs would be filled by local workers.

Typically, construction will be scheduled to occur between 5:00 am and 7:00 pm on weekdays and Saturdays. Additional hours may be necessary to make up schedule deficiencies or to complete critical construction activities (e.g., pouring concrete at night during hot weather, or working around time-critical shutdowns and constraints). During some construction periods and during the startup phase of the Project, some activities may continue 24 hours per day, seven days per week.

The construction workforce will consist of a total of approximately 400 to 500 personnel at peak for construction of each 100-MW phase of the Project facility, including supervisors and management personnel, with an average of approximately 250 crewmembers on site at any given time. Project construction will also require additional support staff, including construction inspectors, surveyors, project managers, and environmental inspectors.

Table 1:
Construction Activities and Employee Data

Activity	Number of Employees per Shift	Number of Shifts (approximate times)	Anticipated Start Date	Duration of Activity
Construction of 100-MW Phase	250 (average); 450 (peak)	Normal—1 shift (5 AM to 7 PM) 24-hour activities, 7 days/week periodically	2011	30 months
Operation and Maintenance of 100-MW Phase	Up to 50 full-time	7 days/week, 10 hours/day	June 2013	30 years

The operations workforce will consist of management, engineering, and administrative staff; skilled workers; and operators. Each 100-MW phase of the Project facility is expected to employ up to 50 full-time employees during operation, and each 100 MW facility may be operated up to 7 days a week, 24 hours per day. Security personnel will be present at the Project facility 7 days a week, 24 hours per day. SolarReserve expects that many of these jobs would be filled by local workers.

13-304(1)(c)(ii) Future Phases or Extensions of the Facility

As previously discussed, the Project will be constructed in two 100-MW phases. Each of the phases will include a tower, power block, and heliostat array. The first phase is proposed to be in the southwestern portion of the Project site, and the second phase is in the northeastern portion shown in Figure 7.

13-304(1)(c)(iii) Timetable for Planning

The Project will be completed in two phases, with anticipated commercial operation dates of June 1, 2013, and June 1, 2014, respectively. Project ground-breaking for the first phase is anticipated sometime in 2011. All permits and approvals are expected to be received prior to the start of any site work in 2011. Table 2 contains a preliminary list of required permits/consultation. SolarReserve will revise the list as the Project design and engineering are refined.

Table 2:
Preliminary List of Required Permits/Consultation

Agency	Permit/Consultation
Saguache County Land Use Office	1041 and/or Conditional Use Permit
Saguache County	Grading Permit
Saguache County	Building Permit/Certificate of Occupancy
Saguache County Road and Bridge Department	Driveway Permit, Right-of-Way Permit
Saguache County	Coordination regarding other requirements such as weed control plan, spill prevention plan, etc.
Colorado Department of Public Health and Environment, Water Quality Control Division	Stormwater Construction Permit and related Stormwater Management Plan (SWMP)
Colorado Department of Public Health and Environment, Water Quality Control Division	Operational Stormwater Permit (Stormwater Discharges Associated with Heavy Industrial Activity) and related SWMP.
Colorado Department of Public Health and Environment, Water Quality Control Division	Construction Dewatering Permit
Colorado Department of Public Health and Environment, Water Quality Control Division	Public Water System Requirements (Safe Drinking Water Act)
Colorado Department of Public Health and Environment, Water Quality Control Division	Domestic Wastewater Treatment Permit (individual sewage disposal systems of 2,000 gallons per day or larger)
Colorado Department of Public Health and Environment, Air Pollution Control Division	Land Development Permit GP-03 (Air Pollutant Emission Notice)
Colorado Department of Public Health and Environment, Air Pollution Control Division	Air permits for emergency generators (heliostat operation), backup generators (emergency fire pump), batch plant
Colorado Department of Public Health and Environment, Hazardous Materials and Waste Management Division	Section 9 Waste Impoundment Authorization (evaporation ponds)
Colorado Department of Public Health and Environment, Hazardous Materials and Waste Management Division	Colorado Hazardous Waste Notification (Generator ID number)
Colorado Department of Labor and Employment, Division of Oil and Public Safety	Aboveground Storage Tank Registration
Colorado Historical Society, Office of Archaeology and Historic Preservation	Informal consultation
Colorado Division of Wildlife	State Endangered Species Consultation; Colorado Public Utility Commission Regulations (4 CCR §723-3656(b))
Colorado Department of Transportation	Highway Access Permit

Table 2:
Preliminary List of Required Permits/Consultation

Agency	Permit/Consultation
Colorado Department of Transportation	Overweight/Oversize Permits
Colorado Department of Transportation	Road Improvements
Colorado Department of Transportation	Utility Permit
Colorado Water Court, Water Division 3	Approval of change of water rights from irrigation to industrial use, and plan for augmentation
Colorado Division of Water Resources, Office of the State Engineer	Approval of well permit applications and, possibly substitute water supply plan (for operation of wells during pending water court case)
Colorado Division of Water Resources, Office of the State Engineer	Dam Safety and Dam Construction Authorization, if necessary
Colorado State Electrical Board	Facilities Inspection
U.S. Fish and Wildlife Service	Consultation and due diligence under the Endangered Species Act, the Migratory Bird Treaty Act of 1918, the Bald and Golden Eagle Protection Act of 1940; Baca Wildlife Refuge; Colorado Public Utility Commission Regulations (4 CCR §723-3656(b))
National Park Service	Consultation and due diligence relating to Great Sand Dunes National Park and Preserve
Federal Aviation Administration	Notice of Proposed Construction or Alteration form (FAA 7460-1); Notice of Actual Construction or Alteration (FAA-7460-2)
U.S. Environmental Protection Agency	Class V Underground Injection Control Permit (septic system) for 20 or more users per day
U. S. Army Corps of Engineers	Section 404 Clearance/Approval
Federal Energy Regulatory Commission	Notice of Self-Certification of Environmental Working Group Status
Federal Energy Regulatory Commission	Request to make wholesale sales of electric energy and capacity at market-based rates

13-304(1)(c)(iv) Construction and Operation Schedules

Construction is scheduled to begin immediately following approval of the 1041 permit application and after obtaining all necessary construction permits. Commercial operation of the first 100-MW phase of the Project is anticipated in June 2013 following all permitting processes and the construction activities.

13-304(1)(c)(v) Support Facilities

Each of the 100-MW facilities within the Project will include an Administrative/Maintenance Building, a parking area, and a Heliostat Assembly Building/Warehouse that will house a workshop and spare components for the Project facility. The conceptual layout/location of these support facilities is provided in Figure 7.

13-304(1)(c)(vi) Feasible Non-Structural Alternatives

There are no feasible "non-structural" alternatives that will meet the objectives of the proposed site selection, construction activities, and Project.

The purpose of the Project is to construct, operate and maintain an efficient, economic, reliable, safe, and environmentally sound solar-powered electricity generation facility with the ability to store solar energy.

The need for this Project is demonstrated by the state of Colorado's mandated renewable energy standard portfolio minimum of 30 percent by 2020 for investor-owned utilities. A majority of the energy consumed in Colorado is produced from fossil fuels. These energy sources are finite and their combustion has environmental consequences. The Project facility will help a major investor-owned utility such as PSCo meet Colorado's mandated renewable energy goals.

The Project will have a positive effect on the local economy, including the creation of new jobs both during construction and operation, as well as contributing substantially to the local tax base primarily via property taxes. Construction workers would contribute to the local economy via the service sector (sales tax and new jobs), including temporary housing, food, and other living expenses.

In addition, the need to develop renewable energy sources, especially solar resources, has been recognized by both federal and state policy-makers. Development of solar resources promotes national security, diversifies utility energy portfolios, reduces the long-term fossil fuel consumption rate, and contributes to the reduction of greenhouse gas emissions. Furthermore, as described in this application, development of this Project provides thermal energy storage capability, which allows an electric utility purchaser to generate power with more reliability than when using more traditional generation technologies that rely on intermittent renewable energy sources.

13-304(1)(d) Hazards and Emergency Procedures

13-304(1)(d)(i) Fire, Explosion, and Other Dangers

SolarReserve will implement programs to ensure compliance with the requirements of federal and state occupational safety and health programs. SolarReserve will also identify and implement Project-specific programs that effectively assess potential hazards and mitigate them on a routine basis. One fire water/service water tank will be constructed to store water for fire protection, service water needs, and for raw water storage prior to treatment. The Project site power block area (see Figure 6) will be cleared of vegetation, grubbed, and graded level to the extent necessary. Vegetation within the heliostat array fields will be cut or removed to the soil surface to reduce the risk of fire. As required by Saguache County, a *Noxious Weed and Introduced Species Prevention Plan* would be prepared for the management and prevention of noxious weeds and/or harmful introduced species. The plan would comply with all associated County and State requirements. SolarReserve will employ technologically feasible and economically reasonable practices for control of fugitive dust at the Project site. Such practices might generally include the use of vehicle speed restrictions, regular road maintenance, restriction of construction activity during high wind days, and soil treatment methods in areas of bare ground (such as beneath the heliostat arrays).

- Fire Protection Systems—The Project will rely on both on-site fire protection systems and local fire protection services. The nearest emergency responder is the Center Fire Department, which is located at 400 South Worth Street in Center, Colorado. SolarReserve will coordinate emergency procedures and programs with the Center Fire Department and other agencies as appropriate.

- Onsite Fire Protection Systems—The fire protection systems are designed to protect personnel and limit property loss and plant downtime from fire or explosion. The Project will have the following fire protection systems:
  - Steam Turbine Oil Areas Water Spray System—This system provides suppression for the steam turbine area lube oil and hydraulic oil piping and storage.
  - Fire Hydrants/Hose Stations—This system will supplement the plant's fixed fire suppression systems. Water will be supplied from the plant fire water system.
  - Fire Extinguishers—The Administration/Maintenance Building, Control and Operations Building, Water Treatment Building, and other structures will be equipped with fixed fire suppression systems and portable fire extinguishers as required by the local fire department.

The fire protection system will be designed to protect personnel and limit property loss and plant downtime in the event of a fire. The primary source of fire protection water will be the raw water storage tank. Up to two sets of diesel fire pumps will be used at the Project facility in accordance with relevant National Fire Protection Association (NFPA) guidelines (NFPA-22, 850 [Recommended Practice for Fire Protection for Electric Generating Plants and High Voltage Direct Current Converter Stations], etc.). Each set of fire pumps will be provided with an electric jockey pump and electric-motor-driven main fire pump to increase the water pressure in the plant fire main to the level required to serve all fire fighting systems. In addition, each will have a backup diesel-engine-driven fire pump to pressurize the fire loop if the power supply to the electric-motor-driven main fire pump fails. A fire pump controller will be provided for each fire pump.

Each set of fire pumps will discharge to a dedicated fire-water loop piping system consisting of both underground piping and aboveground hydrants, sprinklers, and risers. During normal service, the jockey pump will operate randomly to maintain normal pressure within the fire-water loop. Both the fire hydrants and the fixed suppression systems will be supplied from the main fire-water loop. Fixed fire-suppression systems will be installed at determined fire risk areas such as the steam turbine lube oil and hydraulic oil equipment. Sprinkler systems will also be installed in the Administration/Maintenance Building, Control and Operations Building, Water Treatment Building, and fire pump enclosures as required by the NFPA and local code requirements. Handheld fire extinguishers of the appropriate size and rating will be located throughout the Project facility in accordance with NFPA 10, and subject to detail design and requirements established by local authorities.

To the greatest extent possible, all plant facilities will be constructed with non-combustible material. A Project-specific Fire Risk Evaluation will be completed for each facility that identifies all potential fire risks and the fire suppression system for that particular area or piece of equipment within the plant. All fire protection systems will be designed and installed per NFPA 850.

Two emergency diesel generator sets of approximately 2.5 MW each will be employed to protect critical systems during loss-of-power emergencies.

13-304(1)(d)(ii) Environmental Damage and Contamination

Both non-hazardous and hazardous wastes will by generated by the Project during construction and operation. Potentially polluting substances will be managed in accordance with all applicable laws, ordinances, regulations, and standards to protect worker health, prevent leaks and spills, and protect stormwater quality. A written management plan for waste minimization through beneficial reuse and recycling of waste is required by the Saguache County Solar Energy Facilities Guidelines (2009). These wastes include liquids and solids from the wastewater system, replaceable parts, rags, and other waste materials and chemicals produced from the maintenance activities, including equipment and vehicle maintenance and waste management methods for each. Efforts will be made to bury, burn, or compost cut vegetation on site to limit waste disposal.

Spill Prevention, Control, and Countermeasure Plans will be prepared for construction and operation of the Project. The plans will include spill prevention and countermeasures procedures to be implemented including (but not limited to) a spill record (if applicable), analysis of potential spills, description of containment facilities, fill and overfill prevention facilities, spill response procedures, personnel training and spill prevention.

On-site storage for spare field and power block components will be required for maintenance uses. In addition, on-site storage facilities for water pretreatment chemicals, cooling water treatment chemicals, and boiler water treatment chemicals will be necessary. The solar Project facility will require the use of large amounts of HTF at the site. To ensure worker safety, the hot and cold HTF tank areas will be designed such that any release will be contained in a basin. The HTF will be delivered to the Project as dry, solid pellets. The pellets will be delivered in one-ton “super sacks” that can be stored on site until melted for use in the plant process. The salt must be heated until fluid for use in the system, and will be stored within the lay down area of the site until it is heated, liquefied, and sent to the storage tanks.

The Project will be subject to the Stormwater Management Plan (SWMP) requirements administered by the Colorado Department of Public Health and Environment Water Quality Control Division (CDPHE-WQCD). The purpose of a SWMP is to identify possible pollutant sources to stormwater and to set out best management practices that, when implemented, will reduce or eliminate any possible water quality impacts. The required construction SWMP will specify procedures to prevent contact between HTF and stormwater during processing of this material prior to plant startup. In addition, the processing area will be cleaned to ensure residual HTF is removed from surface soil after processing.

Industrial wastewater will consist of a relatively small amount of blowdown from the steam system and reverse osmosis treatment return flow. This wastewater will be disposed in evaporation ponds at the Project site (see area of ponds on Figure 7).

Domestic wastewater will be treated and disposed at the site using a septic disposal system consisting of septic tanks and leach field permitted with Saguache County.

The Project will produce maintenance and plant wastes typical of a power generation plant. These wastes will be managed in accordance with a Waste Management Plan. Wastes may include oily rags, broken and rusted metal and machine parts, defective or broken solar mirrors and electrical materials, empty

containers, and other miscellaneous solid wastes including the typical refuse generated by workers. These materials will be collected by a local waste disposal company and disposed at a landfill permitted to receive these wastes. Waste collection and disposal will be in accordance with applicable regulatory requirements to minimize health and safety effects, prevent leaks and spills, and prevent potential contact with stormwater.

Several methods will be used to properly manage and dispose of wastes generated by the Project. Waste lubricating oil will be recovered and recycled by a waste oil recycling contractor. Spent lubrication oil filters will be disposed of in a Class I landfill. Workers will be trained to handle hazardous wastes generated at the site.

Chemical cleaning wastes will consist of alkaline and acid cleaning solutions used during pre-operational chemical cleaning of heat exchangers after the units are put into service. These wastes, which can contain elevated concentrations of metals, will be temporarily stored on site in portable tanks and disposed of off-site by a chemical cleaning contractor in accordance with applicable regulatory requirements.

In general, non-hazardous solid waste generated at the Project site during both construction and operation phases will be taken off site for recycling or disposal to a permitted landfill. Hazardous waste generated at the Project facility will be taken off site for recycling or disposal by a licensed and permitted hazardous waste transporter to a permitted treatment, storage, and disposal facility (i.e., Class I landfill). Conformance with the procedures and requirements outlined in this section will prevent and minimize potential adverse environmental contamination effects from Project facility construction, materials, and operations.

13-304(1)(d)(iii) Emergency Procedures

A Hazardous Materials Risk Management Plan (HMMP) for the plant will be completed prior to the initiation of construction activities and will include all information necessary to allow fire-fighting and other emergency response agencies to plan and implement safe responses to fires, spills, and other emergencies. Emergency response and reporting will be performed per written procedures that follow applicable government and industry requirements and standards. The Project facility will operate in compliance with federal and state occupational safety and health program requirements. Compliance with these programs will minimize potential Project effects on employee safety.

Emergency procedures and treatment and prevention protocols will be included in the HMMP for most hazards, including materials, wastes, and fire. Four types of hazardous materials that pose a risk of accidental release will be used at the Project site during the operational phase: hydrogen gas, gasoline, diesel fuel, and transformer insulating oil. The most likely cause of an accidental release will be gasoline or diesel fuel leakage because of a collision or a spill while refueling a maintenance vehicle. A less likely possibility of tank leakage is aging tank material and/or oxidation of the tank structure. Protective measures to be adopted during spills will be specified in the HMMP.

To protect the health and safety of workers during construction, the Applicant (and construction contractor) will ensure compliance with a Project Construction Health and Safety Program and all federal,

state, and local health standards that pertain to worker health and safety. Topics generally integrated into such programs include:

- A written Code of Safe Practices that relates to construction activities
- Identification of the person or persons responsible for implementing the Health and Safety Program
- Posting of the Code of Safe Practices at a conspicuous location at each job site office or providing it to each supervisor, who shall have it readily available
- A system for identifying workplace hazards, including inspections
- A system of ensuring employee and subcontractor compliance
- "Toolbox" or "tailgate" meetings conducted by supervisors with employees to discuss job hazards and mitigation measures
- Methods of communicating with employees that encourage employees to expose unsafe activities
- Procedures for correcting unsafe conditions

When workers are first employed, they will be given instruction regarding the hazards and safety precautions applicable to the type of work in question; workers will also be directed to read the Code of Safe Practices. When employees are required to work near known job site hazards, they will be instructed how they can recognize a hazard, the procedures for protecting themselves from injury, and the first aid procedures in the event of injury.

13-304(1)(d)(iv) Prevalent Natural Hazards

No prevalent natural hazards that will affect or would be affected by the proposed Project are identified; therefore, no mitigating measures are proposed.

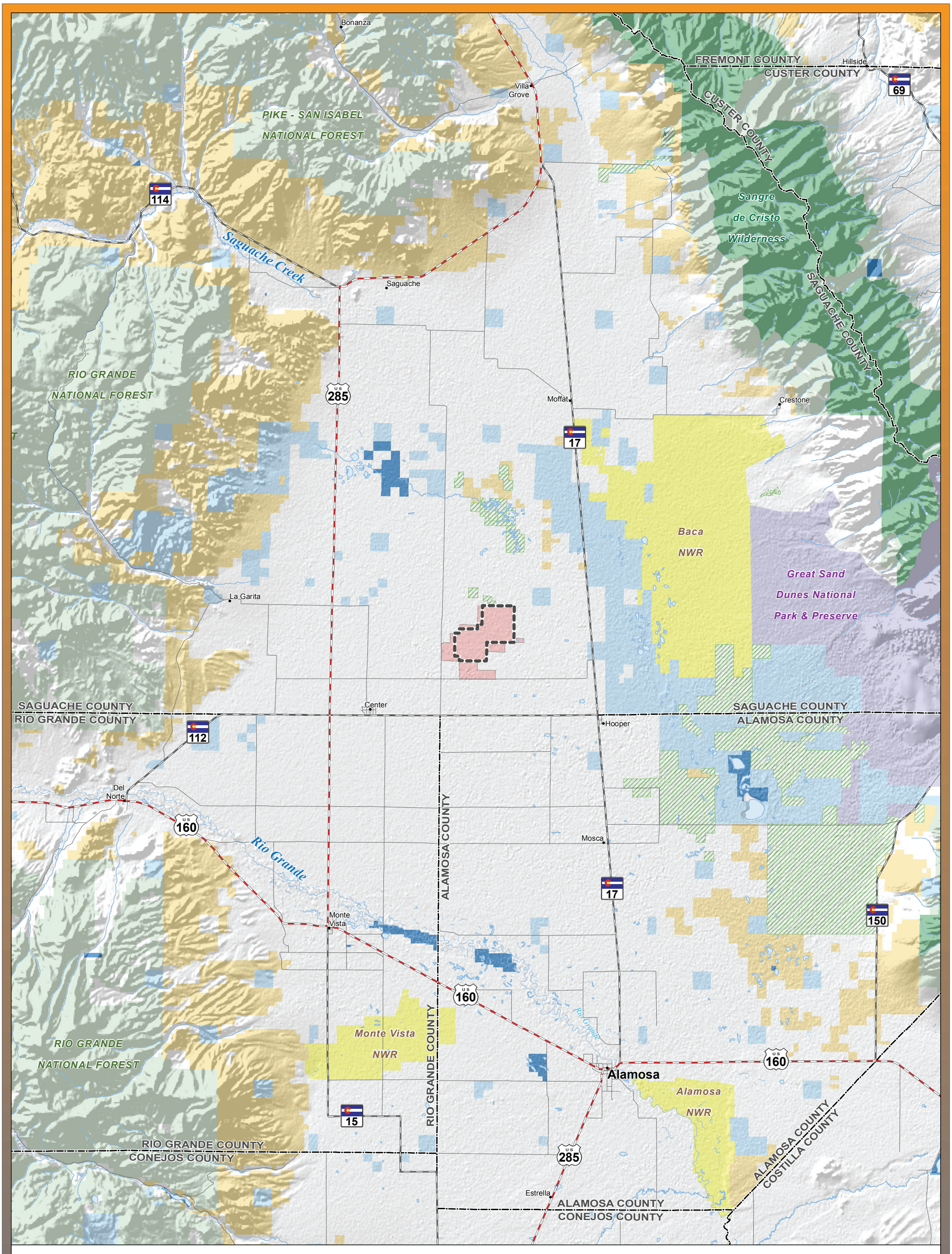
References

RRGDATF (Renewable Resource Generation Development Areas Task Force). 2007. An Overview of the SB07-91 Task Force on Renewable Resource Generation, Colorado Governor's Energy Office. November 1, 2007.

Saguache County Solar Energy Facilities Guidelines. 2009. Saguache County Land Development Code. approved by the Board of County Commissioners on June 16, 2009

WGA/DOE (Western Governors' Association/U.S. Department of Energy). 2009. Western Renewable Energy Zones—Phase 1 Report: Mapping Concentrated, High Quality Resources to meet Demand in the Western Interconnection's Distant Markets. Available online at: http://www.westgov.org/wga/publicat/WREZ09.pdf. June 2009.

Xcel (Xcel Energy). 2008. Public Service Company of Colorado Senate Bill 07-100 Designation of Energy Resource Zones and Transmission Planning Informational Report. Available online at: http://www.rmao.com/wtpp/Sb100/SB-100%20Informational%20Report%20Final.pdf. November 24, 2008.



Project Vicinity Map

Project Features

- Proposed Project Boundary
- Property Being Optioned

Land Status

- Bureau of Land Management
- National Land Trust Land
- National Park Service
- State
- State Wildlife Area
- U.S. Forest Service
- U.S. Fish & Wildlife Service
- U.S. Forest Service Wilderness Area

0 5 10 Miles

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Source: BTS, ESRI, USGS, CDOT, SLB, National Atlas, CSU
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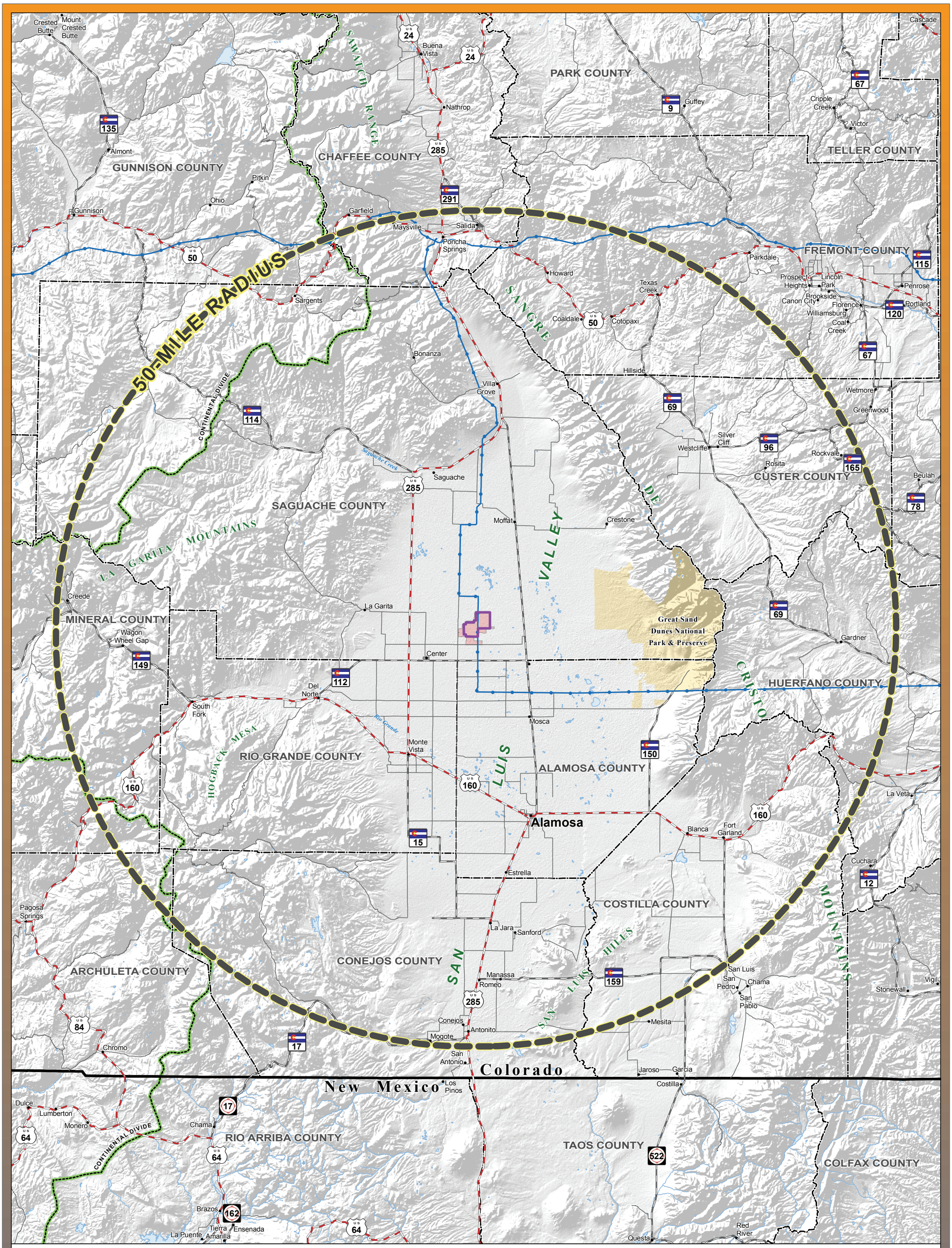
SOLARRESERVE

SAGUACHE SOLAR ENERGY PROJECT

Figure 1 - Vicinity Map



50-Mile Radius

- Proposed Project Boundary
- Property Being Optioned
- 230kV Transmission Line

0 5 10 15 Miles

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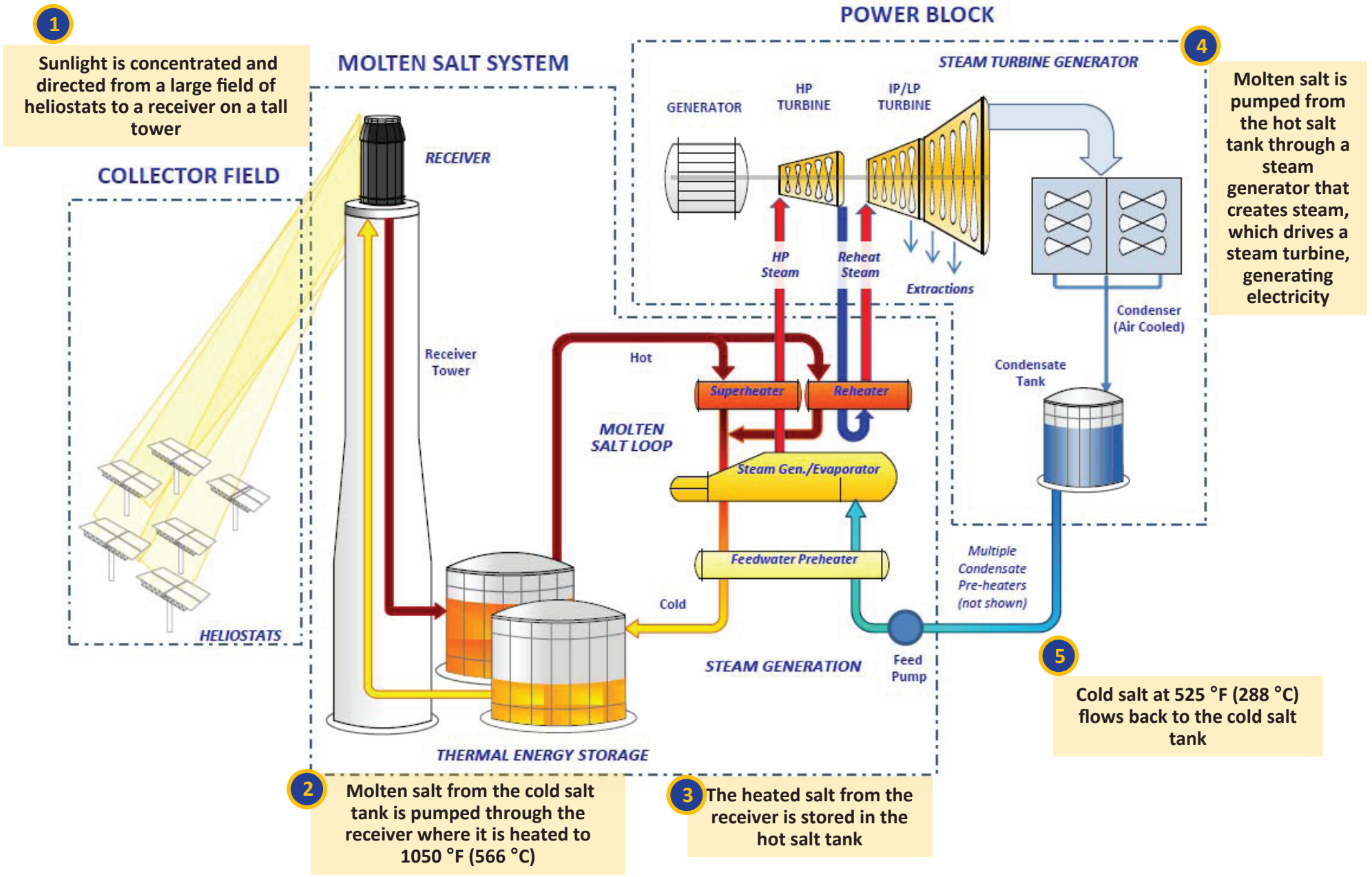
SOLARRESERVE

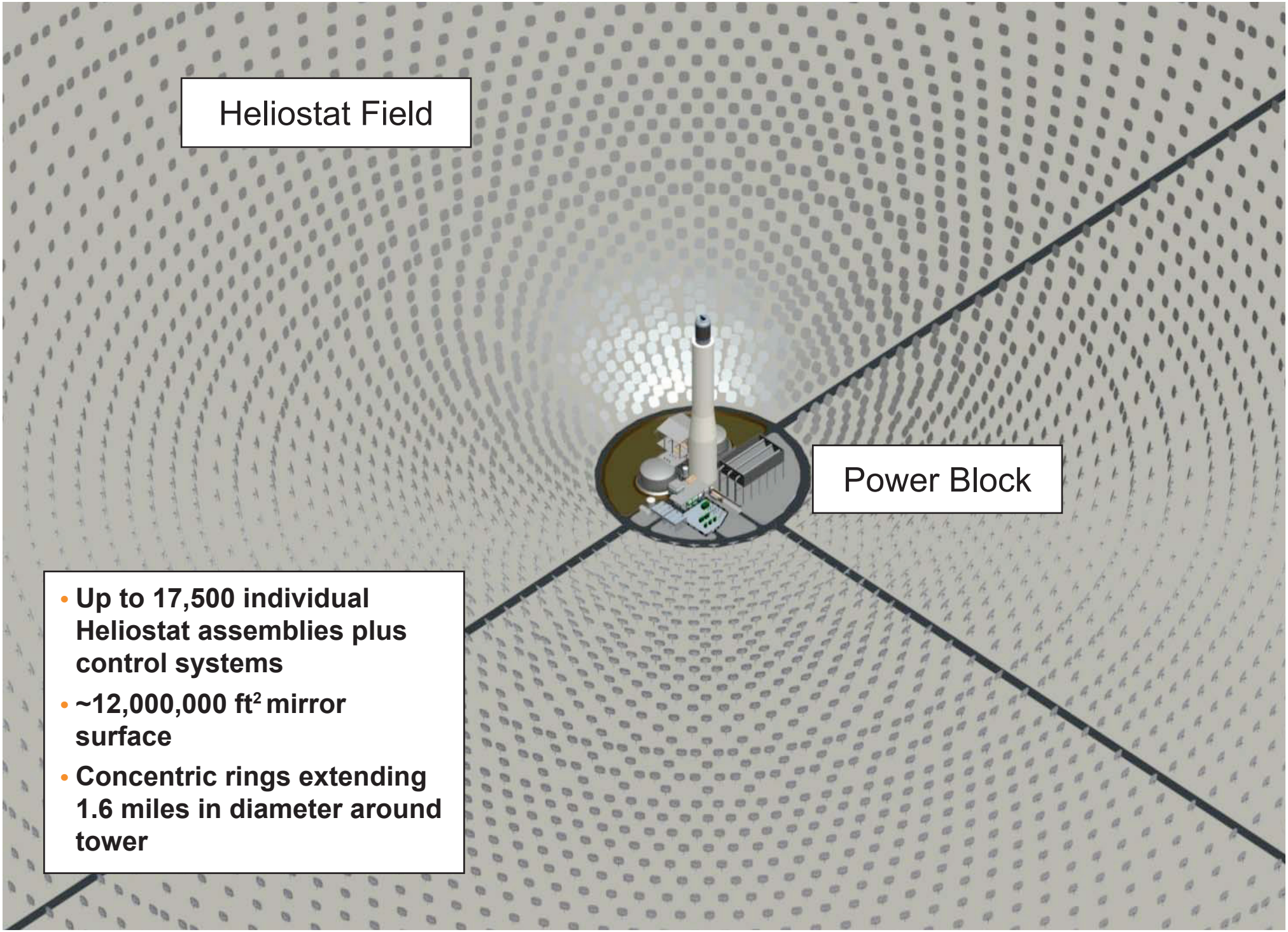
SAGUACHE SOLAR ENERGY PROJECT

Figure 2 - 50-Mile Setback from Project Site



SOLARRESERVE

Figure 3 - Process Diagram of CPS Technology



SOLARRESERVE

Figure 4A - Conceptual Heliostat Arrangement

- Tower acts as the base for the molten salt receiver
- A 656 foot tall tower structure with receiver and crane
- Base diameter of 115 feet
- Top diameter of 85 feet
- Tower is constructed with slip form concrete

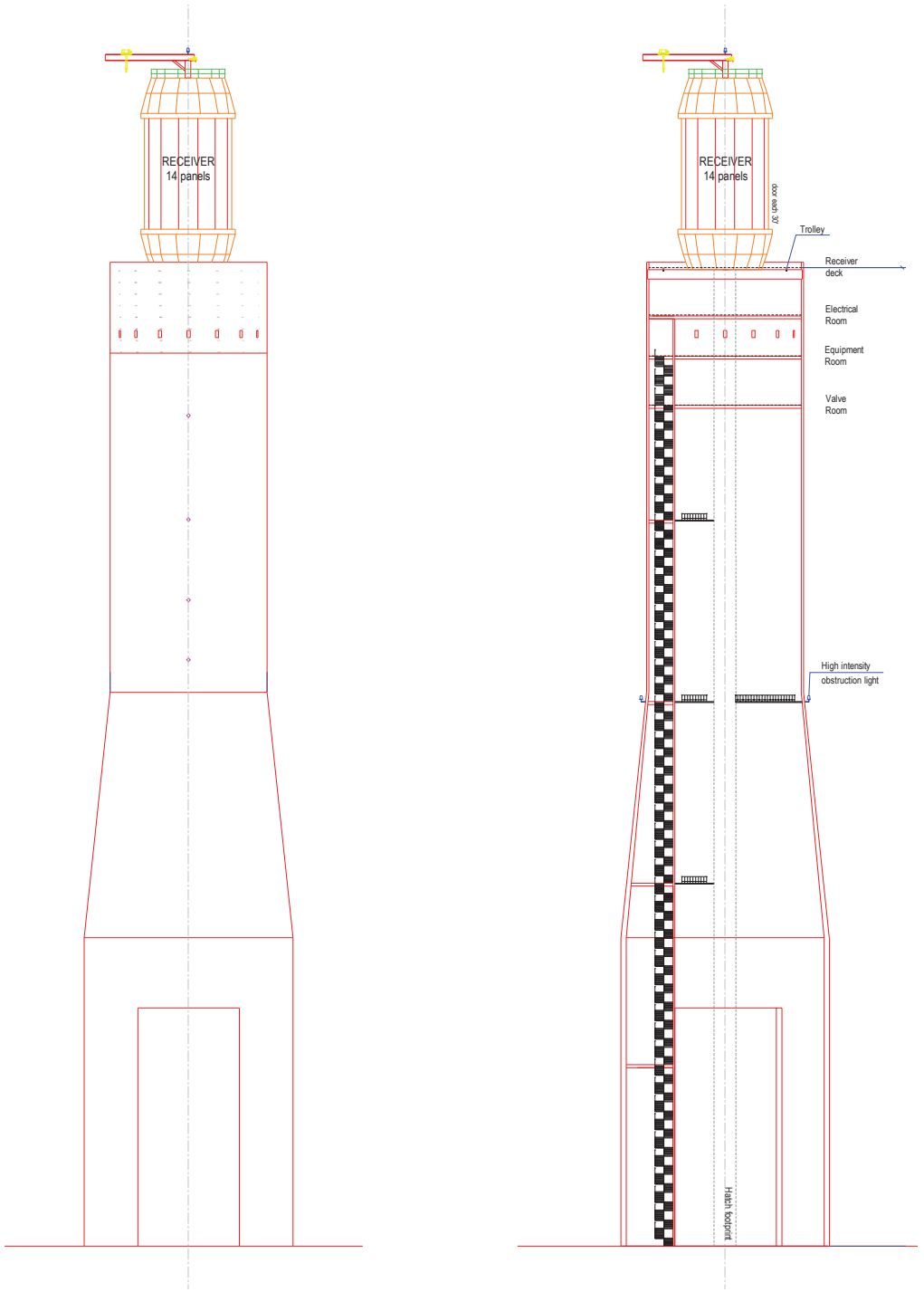
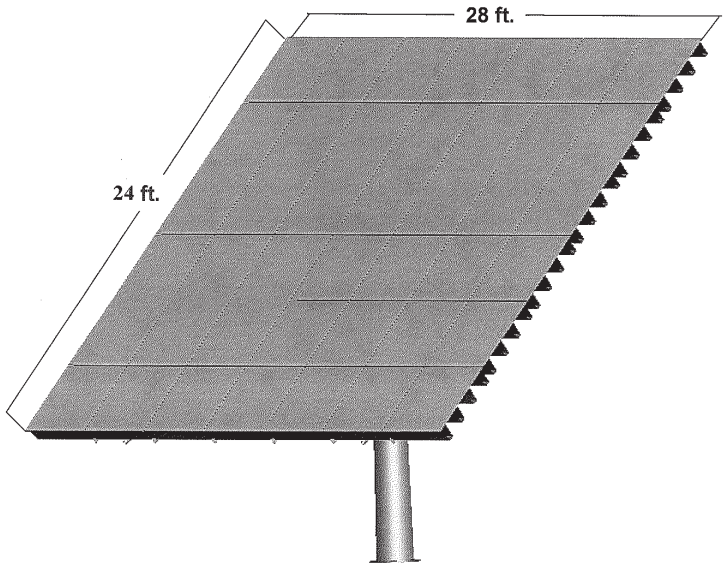
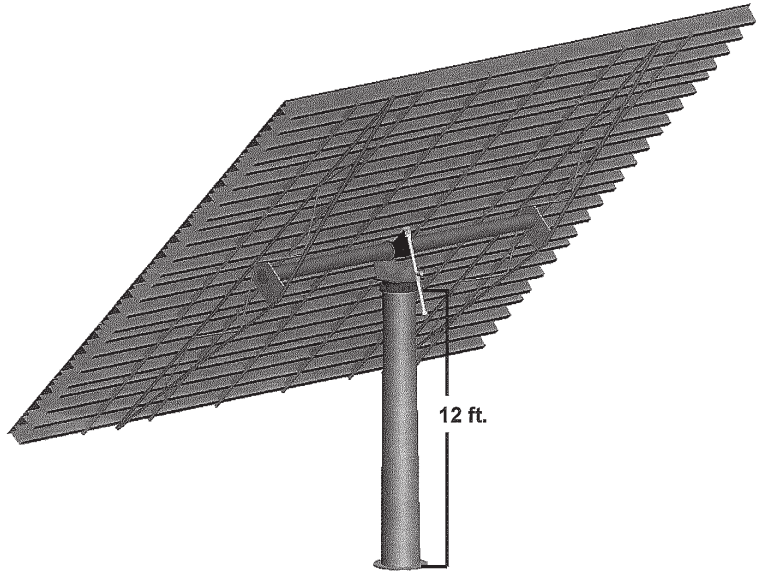


Figure 4B - Conceptual Receiver and Tower Elevation

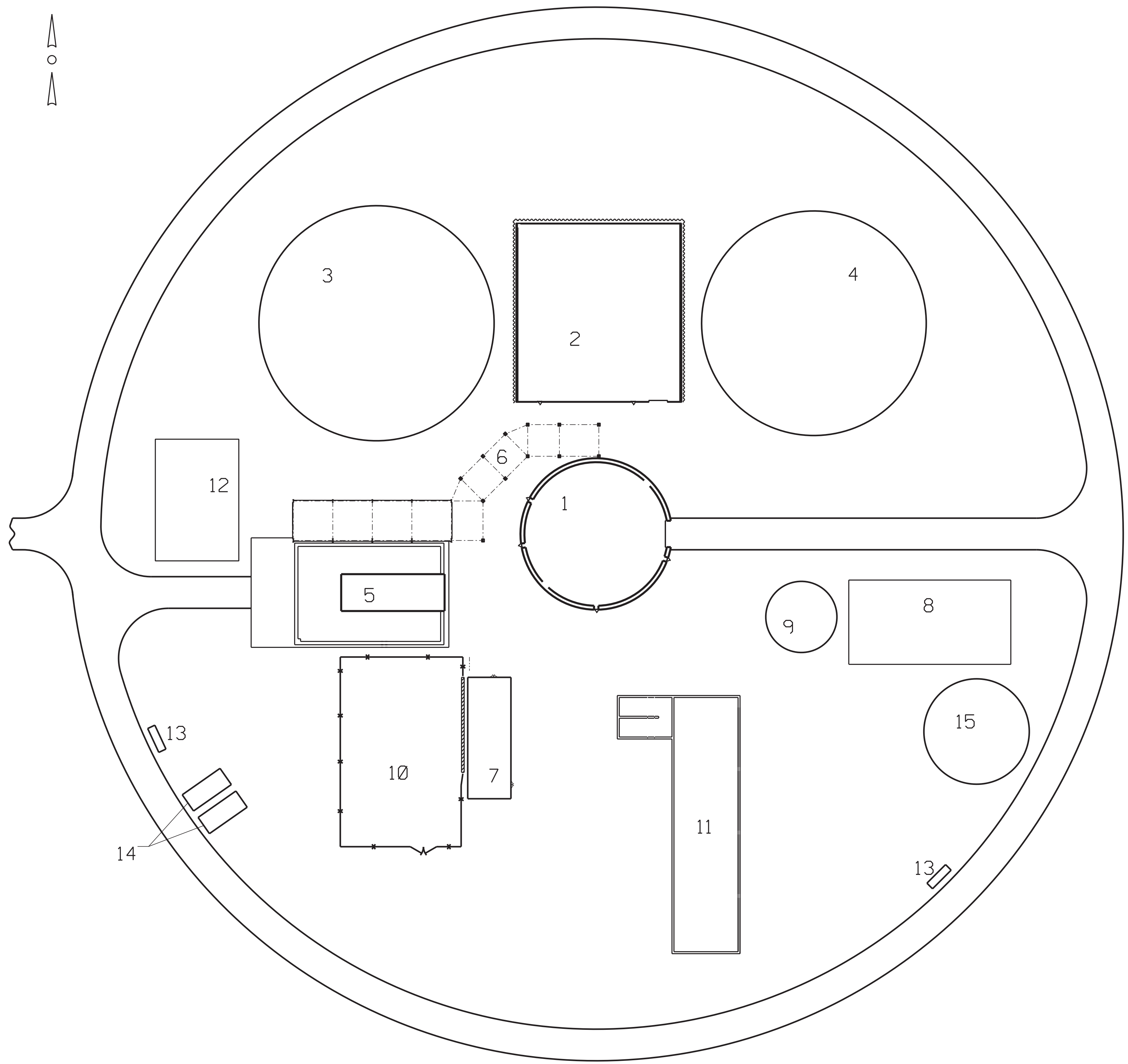


Front View



Back View

Figure 5 - Heliostat - Front and Back Views



LEGEND

1	SOLAR RECEIVER TOWER
2	STEAM GENERATION BUILDING
3	HOT SALT STORAGE TANK
4	COLD SALT STORAGE TANK
5	STEAM TURBINE/GENERATOR AREA
6	PIPE RACK
7	ELECTRICAL BUILDING/PDC
8	WATER TREATMENT BUILDING
9	DEMINERALIZED WATER TANK
10	ELECTRICAL TRANSMISSION AND STEP UP TRANSFORMER
11	COOLING TOWER
12	CONTROL & OPERATIONS BUILDING
13	ABOVE GROUND DIESEL TANK
14	EMERGENCY GENERATORS
15	SERVICE/FIRE WATER TANK

REV	DATE	DESCRIPTION	DRAWN	CHECKED	LEAD DESIGNER	ENGINEER/TECH. SPEC.	LEAD DISC ENGINEER	PROJ ENGR MANAGER	PROJECT MANAGER
	07 09 10	PROGRESS PRINT	RWG		RWG			BA	BA

PRELIMINARY STATUS DATE LDE — REPRESENTS GENERAL DESIGN CONCEPTS BASED ON ASSUMPTIONS. REVIEWED NOT CHECKED.

APPROVED STATUS DATE LDE — REPRESENTS REVIEWED AND APPROVED DESIGN. ANY PORTION MARKED "HOLD" RETAINS PRELIMINARY STATUS.

ORIGINATING PERSONNEL

DRAWN BY R. GRANT

CHECKED BY

LEAD DESIGNER R. GRANT

ENGINEER/TECH SPECIALIST

PROJECT ENGINEERING MANAGER B. ANDERS

PROJECT MANAGER B. ANDERS

PROFESSIONAL ENGINEER'S SEAL

ORIGINALLY PREPARED UNDER THE RESPONSIBLE SUPERVISION OF PE: STATE: LIC. NO.: DATE:

Zero Harm Leadership No Incidents Safe Behavior

WorleyParsons resources & energy

SOLARRESERVE

CLIENT/PROJECT TITLE
SUNRISE SOLAR ENERGY, LLC
SUNRISE SOLAR SITE
SOLAR RESERVE SOLAR ENERGY PROJECT

GENERAL ARRANGEMENT
SOLAR POWER PLANT
POWER BLOCK PLAN

SCALE 1" = 40'-0" DRAWING SIZE ARCH D (36" x 24")

WORLEYPARSONS DWG. NO. SRSU-1-SK-111-002-002 REV

40 0 40 80 120
SCALE: 1" = 40'

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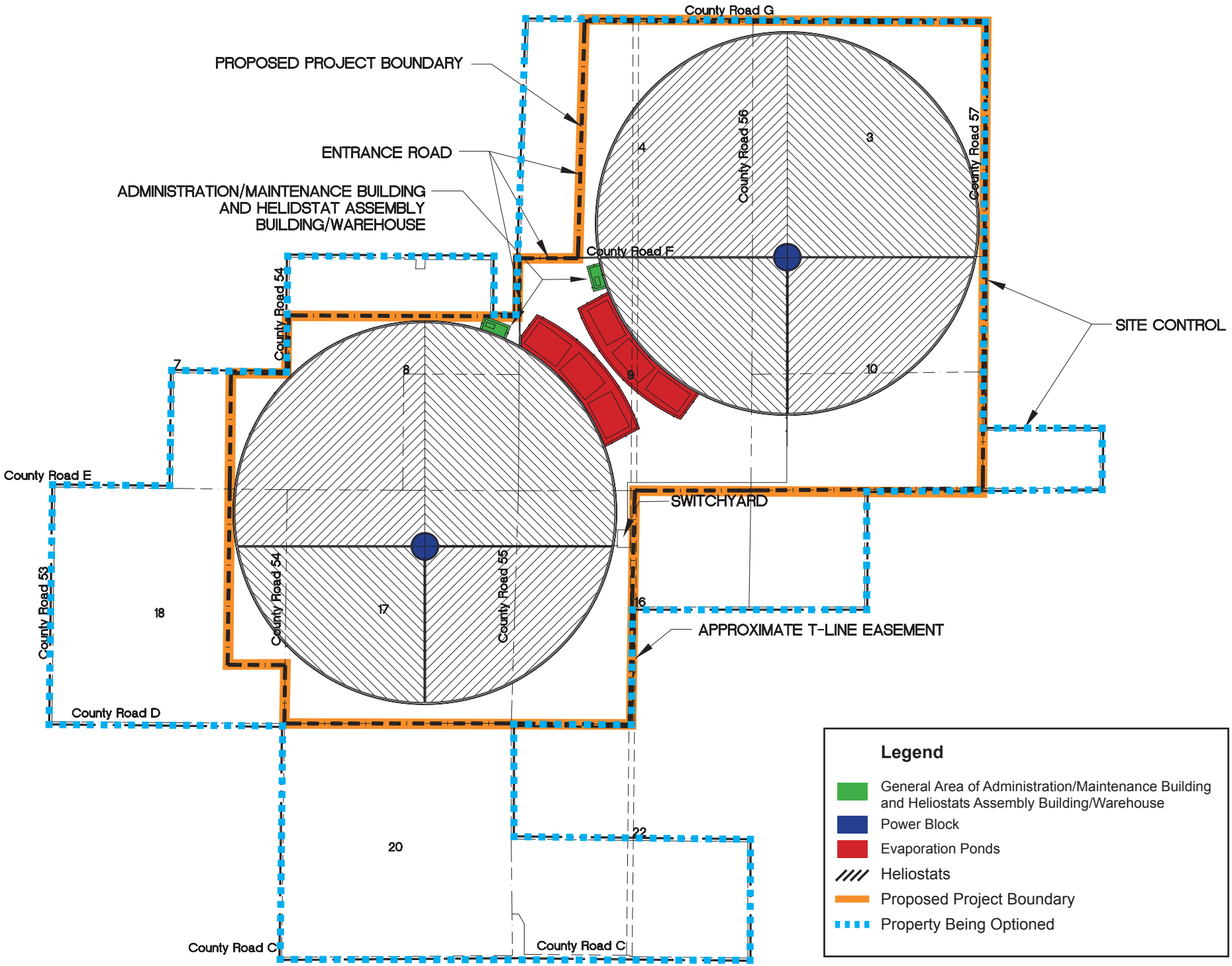
Figure 6 - Preliminary Power Block Design



SOLARRESERVE

Figure 7 - Preliminary Site Layout (Conceptual Site Layout)

Attachment A:
Preliminary Application Form

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APPLICATION FOR A PERMIT TO CONDUCT A DESIGNATED ACTIVITY OF STATE INTEREST OR TO ENGAGE IN DEVELOPMENT IN A DESIGNATED AREA OF STATE INTEREST

To: Permit Authority, Saguache County
Re: Saguache Solar Energy Project, as a matter of state interest.
From:

SolarReserve, LLC
Andrew Wang
Director, Development
(310) 315-2225
Andrew.Wang@SolarReserve.com

Date Submitted: July 20, 2010
Date Received: _____

1. Matter of State Interest
The applicant requests that a permit be issued for each of the items checked below:

A permit to engage in development in one or more of the following areas of state interest:
( ) Mineral Resource Areas
( ) Geologic Hazard Areas
( ) Significant Wildlife Habitat Areas
A permit to conduct one or more of the following activities of state interest:
( ) Site Selection and Construction of Major New Domestic Water and Sewage Treatment Systems
( ) Major Extensions of Existing Domestic Water and Sewage Treatment Systems
(X) Site Selection and Construction of Major Facilities of a Public Utility
( ) Efficient Utilization of Municipal and Industrial Water Projects

2. Proposed Activity or Development
General description of the specific activity or development proposed (attach additional sheets if necessary):

The proposed Saguache Solar Energy Project (hereafter, "the Project") is a 200-megawatt (MW) solar thermal facility site in Saguache County, Colorado, proposed by the Applicant, SolarReserve, a project company to be formed by SolarReserve. For the purposes of this Preliminary 1041 Permit Application, references to SolarReserve or the Applicant shall mean the project company. SolarReserve plans to form the project company prior to submitting its final 1041 Permit Application. The Project will be developed on approximately 6,200 acres of privately owned land in south-central Colorado, in Saguache County. This land that is in the process of being secured under option is designated as "property being optioned" on the figures in this application. The Project site boundary includes approximately 3,000 acres of this land area and would contain the Project facilities. The Project will be developed in two 100-MW phases. Additional information on the Project and facility are provided in Section 13-304(1)(a)(ii) of the application text.

3. General Description
A general, nonlegal description and the popular name, if any, of the tract of land upon which the activity or development is to be conducted (attach additional sheets if necessary):

The Project site is located on approximately 6,200 acres of privately owned land. The Project area is a subset of this property and consists of approximately 3,000 acres. The existing land use is irrigated cropland located approximately 4 miles west of highway 17 and approximately 2 miles north of Highway 112 (northeast of the town of Center and northwest of the town of Hooper).

4. Legal Description
The legal description, including the acreage, of the tract of land upon which the development or the activity is to be conducted, by metes and bounds or by government survey description: (attach additional sheets if necessary):

The group holding legal title to the property described in Section 1.4 includes five private landowner companies working together in a team:

- Parcel 1
  Township 41 North, Range 9 East, N.M.P.M.
  - Section 3, 17, 20: All
  - Section 10: N-1/2
  - Section 11: S-1/2 of SW-1/4

- Parcel 2
  - SE-1/4 of Section 8, Township 41 North, Range 9 East, N.M.P.M.
  - All of Section 4, Township 41 North, Range 9 East, N.M.P.M.,
  - All of Section 9, Township 41 North, Range 9 East, N.M.P.M.,
  - All of Section 18, Township 41 North, Range 9 East, N.M.P.M., save and except two parcels of five acres each located in the northwest corner and the southwest corner of the NW-1/4 along with a strip of land along the West side of the NW-1/4 connecting the two five acre parcels as shown on the Myers Division of Land.
  - With respect to the property excluded from the NE1/4 of Section 8, the SW-1/4 and SE-1/4 (being the South Half) of Section 21, and Section 18, referred to in the descriptions above, the Parties agree to modify the descriptions of the excluded parcels prior to Settlement based upon a survey to be performed by the Sellers or as otherwise mutually agreed by the Parties.

- Parcel 3
  - SE-1/4 of Section 7, Township 41 North, Range 9 East, N.M.P.M.
  - W-1/2 of Section 8, Township 41 North, Range 9 East, N.M.P.M., save and except approximately 5 acres located in the NE corner of the NW ¼ of said Section.
  - Tract 1 of the Division of the NE-1/4 of Section 8, Township 41 North, Range 9 East, N.M.P.M., less the E-1/2 of the NE-1/4 of the NE-1/4 of Section 8, Township 41 North, Range 9 East, N.M.P.M., the plat of which was filed June 6, 2001, under Reception No. 333581 in the office of the Clerk and Recorder of Saguache County, Colorado, containing 135.44 acres, more or less;

further save and except an additional parcel of approximately 5 acres located in the NW corner of Tract 1 and approximately 0.347 acres burdened by the life estate of Albert Garcia, all of which is shown on the Vacation Plat/Division of Land, all in the NE-1/4 of Section 8, Township 41 North, Range 9 East, N.M.P.M.

- Parcel 4
  S-1/2 of Section 10, all in Township 41 North, Range 9 East, N.M.P.M.

- Parcel 5
  NW-1/4 of Section 15, N-1/2 and SW-1/4 of Section 16, all in Township 41 North, Range 9 East, N.M.P.M.

5. Owners and Interests
Set out below the names of those persons holding recorded legal, equitable, contractual and option interests and any other person known to the applicant having an interest in the property described in paragraph 4, above, as well as the nature and extent of those interests for each person, provided that such recorded interests shall be limited to those which are recorded in the County Recorder's Office of this jurisdiction, the land office of the State Board of Land Management for this State, the Office of the State Board of Land Commissioners of the Department of Natural Resources, or the Secretary of State's Office of this State (Attach additional sheets if necessary):

The group holding legal title to the property described in Section 1.4 includes five private landowner companies working together in a team:

- Skyline Land Company, LLC
- Sam Investments, Inc.
- Ernest & Virginia Myers
- Mountain Coast Enterprises, LLC
- Wijaya Colorado, LLC

6. Submission Requirements
Submission requirements described in the regulations which have been adopted by this jurisdiction for each of the activities or areas checked in paragraph 1 above, are attached to this application. Those attachments are identified, by letter or number, and described by title below:

All submission requirements are provided by the Saguache County Land Use Code designation as a part of this application package.

7. Design and Performance Standards

The attached analyses show that each of the design and performance standards set forth in the regulations for each of the activities or areas checked in paragraph 1 above will be met. The individual analyses are identified by reference to the appropriate paragraph or section numbers corresponding to each standard in the appropriate regulations adopted by this jurisdiction.

8. Master Plan
a. Does the activity or development comply with the master plan of this jurisdiction?

Yes___X____ No_____ Not Applicable_____

The proposed Project would directly support Goal G1-2 of the *Draft Final Saguache County Master Plan* (to be presented to the public on June 24, 2010), which states: "Encourage renewable energy resource development in a manner that provides maximum benefits to local residents." The proposed Project would also comply with Goal #2 of the *Draft Final Master Plan* which states: "Protect the quality of the County's rural character, community, and many unique environmental features and natural resources through good stewardship and mitigation planning practices."

b. If it does not comply, please explain how it does not comply.

Not applicable.

9. Additional Information Required by Local Government

Attach any additional information required by this jurisdiction

SolarReserve has not identified any other required additional information by local governments.

10. Duration of Permits

The applicant requests a permit for a period of Perpetual Use (30+ years).

11. Application Fee

The required application fee will be calculated by the Saguache County Planning Department following the application completeness review, and will be submitted by the applicant at a later date (when notified by the County of the dollar amount).

APPLICANT:
By

Andrew Wang
Director, Development
SolarReserve, LLC
(310) 315-2225
Andrew.Wang@SolarReserve.com

Note: Within ten (10) days following receipt of a completed application for a permit, the Permit Authority shall determine and set a fee in an amount necessary to cover the costs incurred in the review and approval of the permit application, including all hearings conducted therefore, and shall notify the applicant in writing of said fee and its amount. Not later than ten (10) days following his receipt of such notice, the applicant shall present to the Permit Authority non-refundable certified funds in the amount as set. Until the fee is paid to the Permit Authority, the application for a permit shall not be further processed.

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