



Chapter 2

Summary of the Draft Environmental Impact Statement



Sierra Nevada Customer Service Region

CHAPTER 2

**SUMMARY OF THE DRAFT
ENVIRONMENTAL IMPACT STATEMENT**

2.1 INTRODUCTION

The *Draft Environmental Impacts Statement (EIS)* presents Western Area Power Administration's (Western) and California Energy Commission's (Commission) independent assessment of Calpine Corporation's (Calpine) Application for Certification (FAC) for the Sutter Power Project (SPP). This document was prepared and published jointly as a *Draft Environmental Impact Statement / Final Staff Assessment (Draft EIS/FAS)*, hereafter referred to as *Draft EIS*.

This summary of the *Draft EIS* provides a brief overview of the following:

- Purpose of and Need for Agency Action (Sec. 2.2)
- Project Description (Sec. 2.3)
- Summary of Alternatives, Including the Proposed Action (Sec. 2.4)
- Summary of *Draft EIS* Environmental Consequences (Sec. 2.5)
- Summary of *Draft EIS* Mitigation Measures (Sec. 2.6)

2.2 PURPOSE OF AND NEED FOR AGENCY ACTION

The purpose of and need for the proposed action is for Western to respond to Calpine's request for an interconnection with Western's transmission system. The project has the potential to improve area transmission reliability by increasing voltage support for the Sacramento region. The proposed project conforms to the requirements of the 1996 Electricity Report, the purpose of which is to ensure that California's electricity system is as economically efficient as possible and that the state's public policies are achieved. In addition, Western will address:

- the potential environmental impact associated with this proposed project;
- any adverse environmental impacts;
- the relationship between local short-term uses of the environment and the maintenance and enhancement of long-term productivity; and
- any irreversible and irretrievable commitment of resources.

2.3 PROJECT DESCRIPTION

Calpine proposes to construct and operate the SPP, a 500-megawatt (MW) natural gas-fueled, combined-cycle, electric generation facility. The proposed SPP site is located adjacent to Calpine's Greenleaf 1, a 49-MW natural gas-fueled cogeneration powerplant, approximately 7 miles southwest of Yuba City, on South Township Road near the intersection with Best Road. The land dedicated for the facility would consist of approximately 16 acres of Calpine's existing 77-acre parcel (Sutter County Assessor's Parcel Number 21-230-25).

Calpine's stated objective for developing the SPP would be to sell electric power to a mix of retail and wholesale customers in the newly deregulated electricity market.

The SPP would include construction and operation of the following facilities:

- The proposed 500-MW combined-cycle facility would use two 170-MW gas turbine/generators exhausting into two heat-recovery steam generators (HRSG). Steam generated in the two HRSGs would power a 160-MW steam turbine/generator.
- A new 5.7-mile, 230-kilovolt (kV) overhead electric transmission line is proposed to be built and routed south along South Township Road to O'Banion Road, west on O'Banion Road to a new switching station, which would interconnect to Western's 230-kV electric transmission system.
- A new 14.9-mile natural gas pipeline is proposed for construction to provide fuel for the SPP. The 16-inch gas pipeline would connect to Pacific Gas and Electric Company's (PG&E) Line 302, an interstate natural gas supply line located to the west of the SPP site in Sutter County.
- The Sacramento River drip station would be expanded by about 5,000 square feet to accommodate a new dehydrator. Across the Sacramento River in Colusa County, approximately 8,000 feet of 4-inch line would be added along with a new dehydrator that would be installed at the Poundstone drip station on Line 302.

Construction is expected to begin in early 1999 and be completed late in 2000. Full-scale commercial operation is expected by the end of 2000 or early 2001. There would be a peak work force of approximately 256 craft laborers, supervisory, support and construction management personnel on-site during construction with an average work force over the entire construction period estimated to be about 150 personnel. The total construction payroll would be approximately \$20 million. Calpine would employ 20 full-time plant operators and technicians once the plant is complete. The capital cost of the SPP would be about \$250 to \$285 million.

2.4 SUMMARY OF POWERPLANT SITING ALTERNATIVES, INCLUDING THE PROPOSED ACTION

The National Environmental Policy Act (NEPA) and its implementing regulations (40 Code of Federal Regulations [CFR] Sec. 1502.14 (a)¹) requires Western, as lead Federal agency, to consider a range of alternatives that could feasibly achieve the basic objectives of the proposed SPP. The Commission is also required to consider alternatives under Title 20, CCR Sec. 1765 of the Commission's siting regulations, and California Environmental Quality Act (CEQA Title 14, CCR Sec. 15126 (a)).

2.4.1 ANALYSIS OF ALTERNATIVE POWERPLANT SITES

The purpose of the alternatives analysis was to provide a reasonable range of feasible alternative sites that could substantially reduce or avoid any potentially significant adverse impacts of the proposed project. The Commission is required by CEQA to declare an environmentally preferred alternative. Western, under the NEPA, must wait until all information from the public and interested parties is received and analyzed prior to selecting the alternative. Western's "environmentally preferred alternative" will be identified in the Record of Decision (ROD).

Eleven potential alternative sites were identified from a prior local siting case, Sacramento Ethanol and Power Cogeneration Project (SEPCO) and from discussions with Sutter County staff, the public and the Commission². The "no project" (NEPA "no action") was also analyzed. The number of alternatives was reduced in the first step of the analysis by a comparison of all 11 sites to specific screening criteria. The second step addressed Calpine's feasibility to reasonably acquire, control or otherwise have access to the remaining sites. The third step was a comparison of the remaining sites to the proposed SPP (including related linear facilities).

2.4.1.1 "No Project" Alternative Analysis

This alternative assumes that the project would not be constructed. In the analysis, it was compared to the proposed project and determined to be superior, equivalent or inferior to it. In NEPA, the "no action" alternative is typically used as a benchmark

¹ The *Draft EIS* misstated this as Sec. 1502.12 (a).

² Technological alternatives that were reviewed but rejected were oil, coal, nuclear, solar, hydroelectric, ocean energy, biomass, fuel cells, municipal solid waste and geothermal (AFC Sec. 5, pp. 11-17). These were rejected because the alternatives were either incapable of reducing or avoiding potential impacts, or infeasible due to cost, location limitations or regulatory reasons. This analysis did not discuss issues related to energy conservation and efficiency since these issues had been addressed in other [Commission] documents and were not relevant to the SPP.

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of existing conditions by which the public and the decision makers can compare the environmental effects of the proposed action and the alternatives.

In the AFC, Calpine presented three arguments that state the “no-project” alternative was not feasible. First, the alternative did not meet Calpine’s business plans and the purpose of a merchant plant. Second, the SPP would displace production from older, less efficient, higher air emission utility-owned plants. Third, the SPP would add stability to the Sacramento area transmission network.

The *Draft EIS* analysis noted that, based on work done in previous analysis by the Commission, the SPP would likely displace fewer economic and dirtier facilities. The location and quantification of such benefits is unknown. Calpine’s air quality improvement argument would be insufficient because it ignores other potential environmental impacts. The SPP would delay the impacts created by additional transmission lines needed for stability in the Sacramento area, but the area would need additional support within six years.

From an environmental standpoint, not constructing and operating the proposed SPP would avoid the one environmental impact created by the project that does not seem to be mitigable, the visual impact. Therefore, the “no project” alternative would seem to be slightly superior to the (unmitigated) proposed project in terms of environmental effects.

2.4.1.2 Alternative Powerplant Sites Considered but Eliminated from Further Study

The following alternatives were analyzed and eliminated from further study because they failed to meet specific screening criteria. These criteria include:

- be within 20 miles (routing distance) of a natural gas supply (roughly equivalent to the proposed project's natural gas supply line routing distance);
- be within 5 miles (routing distance) of Western’s Keswick-Elverta/Olinda Elverta double-circuit 230-kV transmission line (roughly equivalent to the proposed project’s transmission line routing distance);
- have a transmission line route that avoids medium-to-high-density residential areas (density greater than five dwelling units per acre);
- either be zoned for powerplant use; or if not, then the site should have a reasonable possibility of being rezoned (e.g., not currently be under cultivation).

Maxwell (Colusa County), SEPCO site S7 (Sutter County), Williams (Colusa County), and Catlett (Sutter County)

The Maxwell, SEPCO S7, Williams and Catlett sites were selected as alternative sites because of their location within the Sutter County region and their proximity to

natural gas supplies and Western's Keswick-Elverta/Olinda-Elverta double-circuit 230-kV transmission line. Each site is located close to rail and agricultural-related industrial-type facilities (e.g., grain elevators) and has potential for industrial development. However, the Maxwell, SEPCO S7, Williams and Catlett sites are zoned for agricultural uses and are under cultivation. Therefore, these sites were removed from further consideration.

Everglade Road (Sutter County)

The Everglade Road site, which was suggested by a member of the general public during a public workshop, is located about 6 miles south of the proposed SPP site. It is adjacent to the Sutter Bypass and Western's transmission line. However, the land is actively farmed, which caused it to be removed from further consideration.

Pearson (Yuba County)

The Pearson site is located in Yuba County in an industrial area near the Marysville Airport and about 20 miles from Western's transmission line. The transmission line routing would require crossing the Feather River and would pass immediately adjacent to medium-to-high-density residential areas. The Pearson site was removed from further consideration because it did not meet the third criteria, avoidance of medium-to-high-density residential areas.

Yuba City (Sutter County)

The Yuba City site, an industrial site, is located in the incorporated city of Yuba City near a water reclamation plant. The distance to Western's transmission line was approximately 15 miles. As with the Pearson site, transmission lines would be immediately adjacent to medium-to-high-density residential areas. Interconnection with Western's Cottonwood-Elverta-Roseville 230-kV line, about 10 miles to the east of both sites, was considered infeasible due a lack of capacity. In addition, a 60-foot height restriction at the Yuba City industrial area would prohibit the two 185-foot-high stacks required for the SPP. The Yuba City site was removed from further consideration because it did not meet the third criteria, avoidance of medium- to-high-density residential areas. Height restrictions in the area would also preclude further analysis.

2.4.1.3 Alternative Powerplant Sites Studied in Detail

The alternatives to the project proposal that were studied in detail include the "no-project" (Sec. 2.4.1.1) and four project alternatives.

SEPCO SAC 1 (Sacramento County)

The SEPCO SAC1 (Sacramento County) site is approximately 12 miles north of the city of Sacramento, and about 1 mile east of Highway 99/70 between Elverta Road

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and Elkhorn Boulevard. The site is one of four parcels that comprised the entire 1992 SEPCO site. The parcel is zoned Heavy Industrial with a Flood combining zone applied to about half of the site (M-2F). Water would be supplied from the Sacramento River and discharged via canals to the Natomas East Main Drain, where it would flow back into the Sacramento River. PG&E would supply natural gas via a route from the Davis area. A short transmission line would be routed from the site north about 4,000 feet to Western's existing Elverta Substation. A separate switching station would not be required.

The SAC1 site was determined to be better than the proposed SPP site because it was zoned for powerplant usage, would have better and closer fire protection services, would avoid conflicts with aerial applicators, would have less impact on water resources, and would be much closer to Elverta Substation. Closer proximity to Elverta Substation would be beneficial from the standpoint of reliability, i.e., a short transmission line would reduce the likelihood that physical damage may occur.

Factors that made SAC1 worse in comparison were primarily due to its close proximity to a much greater number of residential areas (less than 1/2 mile). These areas created concerns that hazardous materials incident consequences, impacts on traffic and [biological] resources impacts would be worse than at the SPP site due to the routing of the natural gas supply line.

SEPCO S1

The SEPCO S1 (Sutter County) site is approximately 28 miles south of Yuba City, and about 2 miles east of Highway 99/70 on the south side of Sankey Road. The site is zoned General Agriculture, but is within the South Sutter County Industrial/Commercial Area that has an Industrial/Commercial General Plan designation. Water would be supplied by on-site wells and discharged via canals, as with the SAC1 site. Natural gas would be supplied as with the SAC1, but would require an extension of about 4 miles from the SAC1 site to S1. Neither a transmission line nor a separate switching station would be needed.

The disadvantages of this site included the close proximity of sensitive receptors relative to hazardous materials incidents and noise, fire protection concerns, potential land use conflicts, and impacts on visual and biological resources. Western's 230-kV Keswick-Elverta line is adjacent to the site and the requirement for a transmission line would be eliminated.

Sutter Buttes

The Sutter Buttes (Sutter County) site is approximately 6 miles west of Yuba City on the north side of Highway 20 and about 1 mile south of the unincorporated area of Sutter. This site is within the Sutter Buttes Industrial Area and is zoned Industrial (M-2). Water would be supplied by on-site wells and discharged to the Sutter Bypass

via Wadsworth Canal. Natural gas would be supplied from the same PG&E line at Grimes, the same as the proposed SPP site. However, the (approximately) 20-mile routing would be much different and would require three bores; the first under the Sacramento River, the second under the Sutter Bypass, and the third under state Highway 20. A transmission line, approximately 5 miles long, would be needed to interconnect with Western's Keswick-Elverta line at the Sutter Bypass at the end of Wadsworth Canal. A separate switching station would be needed.

The Sutter Buttes site was found to be the same as the proposed SPP for environmental impacts. Factors that made this site better were the faster fire service response time and its existing zoning for industrial use. Factors deemed worse were the proximity to the unincorporated community of Sutter (for hazardous materials impacts), impacts on the views of the Sutter Buttes range, and water resources impacts due to expected limitations on groundwater availability in the immediate area.

O'Banion Road³

The O'Banion Road site (Sutter County) is approximately 10 miles south-southwest of Yuba City, about 4 roadway-miles from the proposed SPP site and is located on the south side of O'Banion Road at the Sutter Bypass. Water would be supplied by on-site wells and discharged a short distance (about 500 feet or less) into the Sutter Bypass via drainage canals. Natural gas would be supplied as proposed for the SPP site, but the route would turn south along Boulton Road to the O'Banion Road site instead of going to the SPP site. Neither a transmission line nor a separate switching station would be needed as the plant would be adjacent to Western's line.

The O'Banion Road site appeared to be the better site among the alternatives. Due to fewer close residences, potential hazardous materials incidents would be reduced. Visual impacts due to the powerplant's buildings, stacks and steam plumes would be reduced by the physical location of the site away from residences and roads. Visual impacts posed by a transmission line would be avoided altogether. The FWS expressed concern that views from the Sutter National Wildlife Refuge would be impacted. The absence of a transmission line would also avoid impacts on agricultural land uses, would be better from a transmission system engineering aspect and would avoid impacts to migrating waterfowl.

This site would be the same for biological resources effects. Impacts on the Giant Garter Snake would either be reduced or avoided, and there are no wetlands associated with the O'Banion Road site. However, because effluent water temperatures would be higher, fish would be impacted.

³ Inconsistency with both the General Plan and Zoning Code, and the active rice cultivation occurring on this site, would have precluded further analysis past the first screening level. However, due to the significant public interest in the site, it was retained and carried forward.

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Although effects on local wells from pumping groundwater would be less, water quality would be worse due to effluent drainage into the main drain. Effluent temperature reduction and dilution would not be as great at the O'Banion Road site as at the proposed SPP site. In addition, detrimental effects upon the Gilsizer drain and Gilsizer Slough during flood events would be increased. Therefore, the overall effects on water resources would be worse than at the SPP site.

Although the O'Banion Road site is identified as environmentally preferable among the studied alternatives, there was not sufficient basis to conclude that the O'Banion Road site was environmentally preferable to the SPP site.

2.5 SUMMARY OF ENVIRONMENTAL CONSEQUENCES

The following topics were identified to have the potential for significant effects to the environment.

2.5.1 ALTERNATIVES ANALYSIS

The environmentally preferred siting alternative was determined by comparing each site with the proposed site by assigning numerical values of (1) to "Better" than the proposed SPP, (0) to those rated the "Same" and (-1) to ratings of "Worse." The numerical values for each technical area were added together and the one with the highest number became the leading candidate for the preferred environmental alternatives. Alternatives Table 2.1⁴ shows this comparison. The numerical aggregate values obtained were (1) for SAC1, (-4) for S1, (0) for Sutter Buttes, and (5) for the O'Banion Road site.

When comparison values were limited to the list of six potential significant adverse impacts identified with the proposed SPP (i.e., air quality, hazardous materials, land use, visual, biological and water resources), a slightly different result was obtained. The results, as shown in Alternatives Table 2.2, were O'Banion Road site with a value of (1), SAC1 with (-1), and both the S1 and Sutter Buttes at (-2). The O'Banion Road siting alternative was found to be the better of the alternative sites, both in terms of all technical areas and when compared to the six potential significant adverse impacts identified.

Of the alternatives studied, the O'Banion Road site appeared to be environmentally preferable, as indicated in Alternatives Analysis Table 2.1. However, Table 2.1 represents a very general evaluation. It indicates the environmental areas where each alternative is better, the same, or worse overall to the proposed SPP. The degree of superiority/inferiority, and its level of overall importance, is not evaluated. For

⁴ Table 2.1 and 2.2 of this *Final EIS* are equivalent to Alternatives Table 2 (p. 30) and Alternatives Table 3 (p. 33) in the *Draft EIS*.

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instance, Alternatives Table 2.1 does not indicate the relative importance of various impacts, such as visual impacts vs. biological impacts. The “weighting” of such impacts, while highly subjective, could be critical to determining which alternative were preferred, and how strong that preference might be.

Table 2.1 Draft EIS Alternative Analysis

Screening Level Two				
Technical Area	Site			
	SAC1	S1	S. B.	O'Banion
Air Quality	S (0)	S (0)	S (0)	S (0)
Public Health	S (0)	S (0)	S (0)	S (0)
Hazardous Materials	W (-1)	W (-1)	W (-1)	B (1)
Industrial Safety and Fire Protection	B (1)	W (-1)	B (1)	S (0)
Transmission Line Safety and Nuisance	B (1)	B (1)	W (-1)	B (1)
Land Use	B (1)	B (1)	B (1)	S (0)
Traffic and Transportation	S (0)	S (0)	S (0)	S (0)
Noise	S (0)	W (-1)	S (0)	S (0)
Visual Resources	W (-1)	W (-1)	W (-1)	B (1)
Cultural Resources	W (-1)	W (-1)	B (1)	B (1)
Socioeconomics	B (1)	S (0)	S (0)	S (0)
Waste Management	S (0)	S (0)	S (0)	S (0)
Biology	W (-1)	W (-1)	S (0)	S (0)
Water Resources	B (1)	S (0)	W (-1)	W (-1)
Soil Resources	S (0)	S (0)	S (0)	S (0)
Paleontological Resources	W (-1)	W (-1)	B (1)	B (1)
Facility Design and Geological Hazards	S (0)	S (0)	S (0)	S (0)
Reliability	S (0)	S (0)	S(0)	S (0)
Efficiency	S (0)	S (0)	S (0)	S (0)
Transmission System Engineering	B (1)	B (1)	S (0)	B (1)
Facility Closure	S (0)	S (0)	S (0)	S (0)
Aggregate	B (1)	W (-4)	S (0)	B (5)
S (0) = same as the proposed SPP; B (1) = better than; W (-1) = worse than.				

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TABLE 2.2 ALTERNATIVES ANALYSIS: COMPARISON VALUES FOR THE LIST OF SIX POTENTIAL SIGNIFICANT ENVIRONMENTAL IMPACTS

Technical Area	Site			
	SAC1	S1	S.B.	O'Banion
Air Quality	S (0)	S (0)	S (0)	S (0)
Hazardous Materials	W (-1)	W (-1)	W (-1)	B (1)
Land Use	B (1)	B (1)	B (1)	S (0)
Visual Resources	W (-1)	W (-1)	W (-1)	B (1)
Biological Resources	W (-1)	W (-1)	S (0)	S (0)
Water Resources	B (1)	S (0)	W (-1)	W (-1)
Aggregate	W (-1)	W (-2)	W (-2)	B (1)

S (0) = same as the proposed SPP; B (1) = better than; W (-1) = worse than.

With regard to the six impacts compared in Alternatives Table 2.2, the O'Banion Road site appears to be somewhat better than the SPP proposed site. Use of the O'Banion Road site would eliminate the significant visual impact caused by the use of the proposed site because it would require a minimal transmission line connection, and it was farther removed from residences and through roads. There were many uncertainties with regard to the feasibility and environmental impact of the O'Banion Road site, including water quality and supply, drainage/flooding, biological resource impacts, transmission interconnection and the ability of Calpine to acquire the site. However, it has not been determined that any unmitigable significant environmental impacts would result from use of the site.

Even if it should prove feasible as an alternative, a detailed environmental analysis could indicate that the O'Banion Road alternative had equal or greater overall environmental impacts as the proposed site. Therefore, although O'Banion Road site was identified as environmentally preferable among the studied alternatives, there was not sufficient basis to conclude that the O'Banion Road site was environmentally preferable to the SPP site.

2.5.2 NEED CONFORMANCE

The Commission must certify that proposed electric generating facilities conform to the Integrated Assessment of Need contained in the current Electricity Report (ER). ER 96 was adopted on November 5, 1997, and was used as the basis for evaluating the SPP.

The Commission finds that the Sutter Powerplant meets the need conformance criteria contained in ER 96. The certification of the SPP would not cause the number of megawatts permitted in this case, and any others previously approved by the Commission under ER 96, to exceed 6,737 MW. Therefore, the proposed powerplant is in conformance with the Integrated Assessment of Need.

2.5.3 AIR QUALITY

Impacts associated with the project on air resources would be from construction-related and operation-related activities. Construction activities would have an impact on the amount of particulate matter released in the air (PM₁₀) and on the amount of NO₂ released. The impacts associated with the linear features were thought to be of short duration and unavoidable. The project site excavation might have the greatest impact. Operational activities would have PM₁₀ impacts, though the amount of overall pollutants entering an air system that is in non-attainment might cause a worsening of the air quality. The addition of the dry-cooling alternative removed much of the concern over the PM₁₀ impacts. The necessary certification⁵ and recommendations by the local air district were not available when the *Draft EIS* was released, and much of the recommendations on mitigation would be based on that report.

2.5.4 PUBLIC HEALTH

Public health issues were concerned with the release of potentially harmful substances from the construction and operation of the project. These substances could be criteria pollutants (those with established standards), and noncriteria pollutants (those with no set standards), including cancer and noncancer health effects. The *Draft EIS* could not reach a conclusion on the criteria pollutants because the final recommendations of the local air district were not available. However, the dry-cooling alternative would eliminate most of the air impacts associated with the operation of the plant. There were no impacts associated with the noncriteria pollutants, or with cancer and noncancer health effects.

2.5.5 WORKER SAFETY AND FIRE PROTECTION

To provide a safe working environment, Calpine would be required to operate under a Construction Safety and Health Plan and an Operation Safety and Health Plan. Calpine would also enter into an agreement with Sutter County to pay for needed

⁵ Permits and certifications, such as those required for air emissions, hazardous waste management, effluent discharge, etc. are not required for NEPA purposes, rather the regulations that must be adhered to must be included in the *EIS*. The Commission, however, must be assured that the applicant can acquire such permits and certifications, and thus, is part of the certification process.

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improvements in fire protection and emergency service capabilities. There would be no additional impacts to fire protection services created with the change to the dry-cooling alternative. The fire/service water storage tank at the SPP site would have 350,000 gallons of water dedicated to the fire protection system.

2.5.6 TRANSMISSION LINE SAFETY AND NUISANCE

The project proposal by Calpine was for a single circuit line with electrical fields found to be acceptable for a line of the proposed voltage and current-carrying capacity. The concern over crop-dusting-related impacts and the option for future operation as a double circuit line prompted Calpine to propose the present double circuit design. Since no health effects have been reliably associated with magnetic or electric field exposure, there would not be a public health basis for recommending one route over another for the line as proposed. The new design would lead to lower electromagnetic field (EMF) strengths than initially proposed; field strength exposure in this line would also be at acceptable levels.

2.5.7 HAZARDOUS MATERIAL MANAGEMENT

The analysis of proposed hazardous materials use in the SPP indicated that there would be minimal risk for potential significant impacts on the public. One concern was the storage of a large amount of anhydrous ammonia. While a catastrophic failure of the ammonia storage tank could result in serious exposures, the probability of such an occurrence would be too small to be considered plausible. The proposed dry-cooling alternative would not affect findings regarding the hazardous materials management analysis.

Calpine would submit a Business Plan and Resource Management Plan to the Environmental Protection Agency, the Sutter County Fire Department and the Commission. The hazardous materials storage and handling systems, as well as a risk assessment, would be reviewed for adequacy prior to delivery of any hazardous materials to the facility.

2.5.8 WASTE MANAGEMENT

A certain amount of wastes, both hazardous and nonhazardous, would be generated during the construction and operation of the SPP. Calpine would manage all wastes generated according to all applicable laws, ordinances, regulations and standards. The project would not result in any significant adverse impacts. A condition of certification is for Calpine to identify the specific mitigation measure that would be used to manage SPP-related wastewater.

2.5.9 LAND USE AND RECREATION

Land use impacts associated with the SPP would include conversion of agricultural land to nonagricultural uses, the potential for conflicts with existing and future land uses on adjacent parcels and the potential for further industrial development in a designated agricultural use area. These impacts would be due to both the plant and the placement of the proposed transmission line route. The construction of the SPP would not result in a significant loss of farmland and the transmission line would not be incompatible with current or future agricultural uses. However, the SPP would cause conversion of agricultural land to nonagricultural uses. To mitigate such impacts, the Sutter County comprehensive general plan includes policies and implementation measures to address agricultural land conversion and siting of industrial/commercial uses. The SPP would require an amendment to the Sutter County General Plan.

In addition, other local approvals and discretionary actions would be required, including:

- a use permit and a grading permit for 5 acres or more from Colusa County for the natural gas dehydrator and that portion of the natural gas pipeline within its jurisdiction;
- a use permit from Sutter County for the proposed utility transmission lines and switchyard switching station.

2.5.10 TRAFFIC AND TRANSPORTATION

Powerplant

During the construction phase, roadway traffic resulting from the daily movement of workers and materials would increase. While noticeable, this increase would not exceed the thresholds established by local and regional authorities, and the increase would be of short duration. During the operation of the SPP, the increased roadway traffic from the daily movement of workers and materials would be minimal. The transportation and handling of hazardous substances would be insignificant by compliance with Federal and state standards established to regulate the transportation of these materials.

Linear Facilities

Construction of the transmission lines would have minimal impacts on the area roadways. Routine construction safety measures should be sufficient to ensure no impacts. The construction requirements for the natural gas pipeline would include trenching within public road rights-of-way, which could impact both roadway function and level of service. However, these impacts would be short term and not

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result in significant impacts. Calpine would agree to appropriate traffic control measures, and all development would take place in compliance with California Department of Transportation and Sutter County limitations for encroachment into public rights-of-way.

2.5.11 NOISE

The SPP would likely create some noise, or unwanted sound, during its construction and operation. The project would be built and operated in compliance with all applicable noise laws, ordinances, regulations and standards. The SPP would present no significant adverse noise impacts, individually or cumulatively, and represent an unobtrusive, nearly undetectable, addition to existing noise levels. The dry-cooling alternative would have a negligible impact and would be designed and built to produce noise levels no greater than those from the proposal in the AFC.

2.5.12 VISUAL RESOURCES

The SPP as proposed has the potential to cause significant adverse impacts on visual resources. Specifically, the transmission line would have a significant visual impact on the view of the Sutter Buttes, a prominent natural landmark north of the project area. The alternative transmission line routing, along O'Banion Road, would reduce to some degree the adverse impact, but a significant impact from the transmission line would remain. An additional alternative transmission line route, which would leave the plant and head directly west to the PG&E 500-kV transmission line, would avoid any significant adverse impact to visual resources.

In addition to the transmission line, the plant would cause a significant visual impact on the view of the Sutter Buttes itself. As seen from south of the proposed site, the plant would contribute substantially to significant cumulative visual impacts because it would add to the visual impacts of the existing Greenleaf 1 project.

Proposed mitigation measures would achieve compliance with applicable laws, ordinances, regulations and standards, and would reduce all other impacts to visual resources to less than significant levels. However, the proposed mitigation measures would not reduce the visual impacts of the powerplant to less than significant levels.

2.5.13 CULTURAL RESOURCES

The SPP site is located on the eastern side of the midsection of the Sacramento central valley, which has been inhabited by humans for more than 10,000 years. Five prehistoric sites have been recorded within 1 mile of the SPP site and its associated linear facilities, but none would be impacted by the project. Where surface disturbance and excavation were required, cultural resources could be encountered during SPP-related construction activities. Thus, the SPP has the potential to cause

an adverse impact to previously unknown unique or eligible resources. If such resources were encountered during construction, work would be halted until they were evaluated and any necessary mitigation implemented.

To address the potential for adverse effects to previously unknown resources, and to mitigate SPP-related impacts to an acceptable level, standard mitigation and conditions would apply. These actions would address detection of cultural resources during SPP construction, including what the SPP owner or its consultants must do if cultural resources were uncovered (i.e., assessment of significance, mitigation by avoidance or recordation). Monitoring and mitigation for the presence of significant cultural resources would reduce the potential for SPP impacts to previously unknown cultural resources. Under the National Historic Preservation Act (NHPA), Western would consult with the State Historic Preservation Officer, the Advisory Council on Historic Preservation and any land managers on the eligibility, effect and mitigation measures for any discovery.

2.5.14 SOCIOECONOMIC RESOURCES

Socioeconomic resource impacts include environmental justice issues and other project-induced population change issues such as housing, property values, utilities, local economy and schools. There would be the potential of the project to induce population and economic growth. An outreach program to train and hire local people for operation of the plant would be implemented to offset the impacts.

2.5.15 BIOLOGICAL RESOURCES

Biological resources are concerned with impacts to state and Federally listed species, species of special concern, wetlands and other habitat loss. The construction at the plant site would impact wetlands and habitat for five bird species. In addition, the SPP would impact Giant Garter Snake upland habitat, and discharge from the plant would have a potential for impact on anadromous fish species in the adjacent waterways and avian species in the Sutter Bypass. The transmission line would potentially impact the avian species using the Sutter National Wildlife Refuge. The dry-cooling alternative would eliminate most of the impacts to the Sutter Bypass since the plant would not discharge water to the Bypass. Other mitigation measures, such as compensatory habitat for grasslands and wetlands, would reduce the impacts on biological resources to less than significant levels. Additional mitigation measures might be necessary once the consultations with appropriate agencies were completed.

Calpine has provided a final design. Calculations for compensatory habitat required is based on best estimates from the information provided to date and may need to be adjusted. From the information provided to date, a total of 19.2 acres would be permanently lost. Some of these acres support more than one sensitive resource; for example, the wetlands are Swainson's hawk foraging habitat during the dry months

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and the uplands located within 200 feet of a drainage canal are also Swainson's hawk habitat. It might be possible to compensate for these habitat types simultaneously. If not, the total acres for each habitat type lost would need to be individually compensated.

2.5.16 SOIL AND WATER RESOURCES

The SPP would not cause significant impacts to soil resources through erosion and sedimentation. The wet-cooling alternative originally proposed would have a significant impact on groundwater quantity, and on the quality of the discharge water. The dry-cooling alternative would reduce the impact on groundwater quantity by 95 percent and eliminate the impact on groundwater and surface water quality. Under this alternative, the SPP would become a zero-discharge facility.

2.5.17 PALEONTOLOGICAL RESOURCES

The SPP site is located on the eastern side of the midsection of the Sacramento central valley where a sequence of Quaternary age sedimentary rock units are intermingled with, and are overlain by, layers of recent alluvial deposits. The underlying Pleistocene-age sediments in the remnant terraces of the Modesto Formation have been found to contain fossil materials. Monitoring and mitigation for the presence of significant fossil materials and implementation of full data and fossil recovery would be essential to reduce the potential for SPP impacts to paleontological resources to a less than significant level.

2.5.18 FACILITY DESIGN

The design and construction of the SPP would comply with all applicable laws, ordinances, regulations and standards, including those relating to engineering design and modifications, mechanical systems, control systems, chemical engineering and geotechnical issues. There would be no impacts associated with the facility design standards in full compliance.

2.5.19 POWERPLANT RELIABILITY

Calpine predicts an equivalent availability factor of 92 to 98 percent for the plant, which would slightly exceed the industry norm of 90 percent for this type of plant. While this might be optimistic, the plant would be built and operated in a manner consistent with industry norms for reliable operation.

2.5.20 POWERPLANT EFFICIENCY

Powerplant efficiency deals with whether the energy use by this facility would result in a significant adverse impact on the environment. While the SPP would consume substantial amounts of energy, it would do so in the most efficient manner practicable. Using the wet-cooling alternative would yield a minor improvement in efficiency. While wet-cooling is slightly more efficient, the benefits of the dry-cooling alternative, in terms of water supply and wastewater disposal, would outweigh any such advantage. In addition, the SPP could potentially displace power generated by other less efficient plants in the interconnect transmission system. The end result would be a potential beneficial impact on energy resources.

The SPP, if operated as proposed, would generate 500 MW of electric power at an annual average thermal efficiency of approximately 52 percent. Representing the most fuel-efficient powerplant configuration feasible for the intended service, the SPP would present no significant adverse impacts upon energy resources.

2.5.21 TRANSMISSION SYSTEM ENGINEERING

The powerplant switchyard substation, double circuit outlet line, termination point and switching station meet system-engineering requirements. The SPP would provide significant power to the Sacramento Valley area, would help mitigate local system voltage problems and would provide moderate power for load growth.

2.5.22 FACILITY CLOSURE

The Commission is required to assure that the closure of the SPP would have no significant impacts on public health and safety or the environment. Calpine would be required to ensure compliance with all applicable laws, ordinances, regulation and standards in effect when the closure occurs.

2.6 SUMMARY OF MITIGATION MEASURES AS DEFINED BY THE COMMISSION'S CONDITIONS OF CERTIFICATION

The *Draft EIS* provides mitigation measures for each technical area in the form of the Commission's Conditions of Certification¹. A total of 108 conditions were defined. In the event that the SPP would be licensed, the Commission would appoint a Compliance Project Manager (CPM) who would review the project during its construction and operation, and verify that the conditions are met.

¹ Table 3.1 in Chapter 3, Section 3.2.17, provides a summary of the Conditions of Certification found in the *Draft EIS* and modifications made in the Presiding Members Proposed Decision. The final Conditions of Certification can be read in Appendix O.