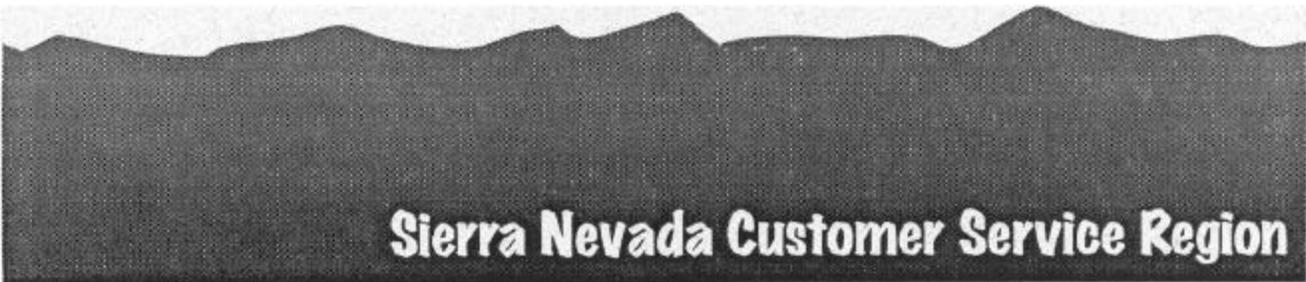


# Chapter 4

## Restatement of NEPA Analysis



Sierra Nevada Customer Service Region

# RESTATEMENT OF THE NEPA ANALYSIS

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## 4.1 INTRODUCTION

This chapter includes a restatement of the National Environmental Policy Act (NEPA) analysis of the *Draft Environmental Impact Statement (EIS)* including:

- Presentation of the Alternatives Analysis (Sec. 4.2)
- NEPA topics contained in the *Draft EIS* (Sec. 4.3)

## 4.2 ALTERNATIVE ANALYSIS

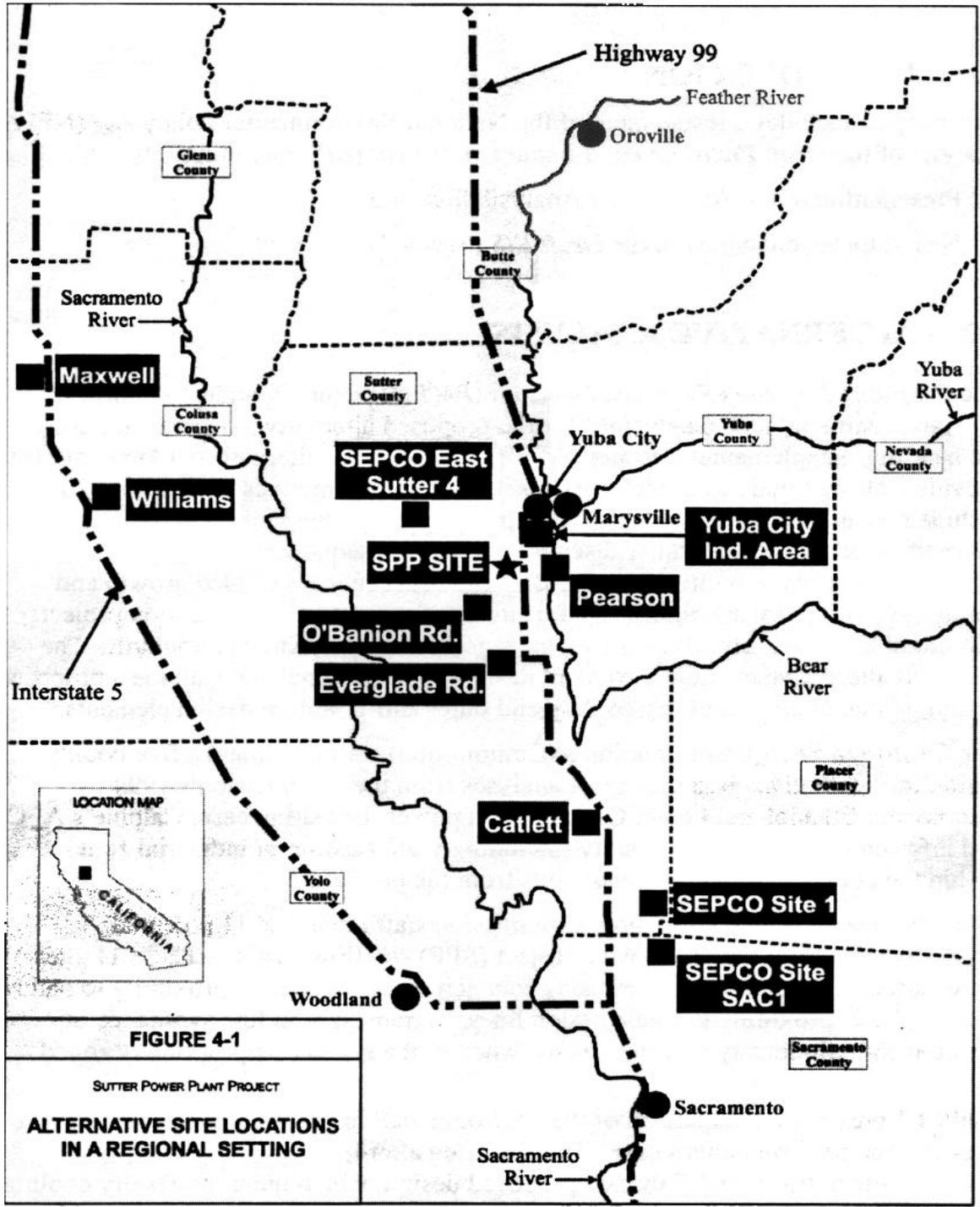
The *Presiding Members Proposed Decision (PMPD)* primarily addressed the analysis, testimony and conclusions for the proposed alternative. However, during the hearings, supplemental testimony was received on the alternatives (Appendix I) to provide a clearer analysis of the pros and cons of the alternatives considered. This included estimation of the lengths of the linear facilities that would serve these alternative locations and a fuller discussion of the consequences that might occur if the “no project” were built. It also includes the consequences of load growth and voltage support problems in the Sacramento region and other transmission projects that might become more likely if Calpine’s generation project were not built. The preferred alternative contains two plant designs, conventional and Calpine’s proposed design, which incorporates dry cooling and other anti-pollution design elements.

The California Energy Commission’s (Commission) staff examined a five-county region for alternatives based on prior analyses from the Commission’s 1994 Sacramento Ethanol and Power Cogeneration powerplant siting case, Calpine’s AFC, and information from Sutter County (including identification of industrial zones within the county) and recommendations from the public.

From these sources of information, Commission staff identified 11 potential alternative sites to the Sutter Power Project (SPP) site (Figure 4-1). These 11 sites were further reduced to four sites using four screening criteria: 1) proximity to natural gas supply, 2) proximity to transmission lines, 3) transmission line avoidance of medium-to-high-density housing, and 4) whether the site was appropriately zoned.

Table 4.1 presents a comparison of the environmental impacts of the four alternative sites and the preferred alternative. The preferred alternative contains two plant designs, conventional and Calpine's proposed design, which incorporates dry cooling and other anti-pollution design elements.

# CHAPTER 4



### **4.3 NEPA REFERENCE**

Western Area Power Administration (Western) is required to assure that the elements of NEPA have been met and clearly presented to the public and decision-makers. This was done in the *Draft EIS*, however, it was presented in a format required by the Commission, and not in a “normal” NEPA format. Table 4.2, NEPA Topical Index, is a cross-reference of the major components of NEPA in the *Draft EIS*.

TABLE 4.1 ALTERNATIVES COMPARISON MATRIX

	Proposed Action		No Action	O'Banion	SAC I	SEPCO S1	Sutter Buttes
	Conventional Plant Operations	Plant With Proposed Environmental Considerations (dry cooling) <sup>1</sup>					
<b>Air Quality</b>	-increased ozone and PM <sub>10</sub> emissions during construction	-increased ozone and PM <sub>10</sub> emissions during construction	-emissions from dirtier generation facilities would not be displaced by the cleaner SPP	-same impacts as proposed action with conventional cooling	-same impacts as proposed action with conventional cooling	-same impacts as proposed action with conventional cooling	-same impacts as proposed action with conventional cooling
	-significant increased ozone, PM <sub>10</sub> during operations	-minor increase in PM <sub>10</sub> and ozone emissions during operations					
	-significant ozone, PM <sub>10</sub> emissions from cooling towers	-no PM <sub>10</sub> emissions from dry-cooling tower					
		-NO <sub>x</sub> controlled to 2.5 ppm					
	-use of standard techniques to lessen impacts of construction emissions of PM <sub>10</sub> ; remainder unavoidable	-use of standard techniques to lessen impacts of construction emissions of PM <sub>10</sub> ; remainder unavoidable					
	-subject to Prevention of Significant Deterioration review for NO <sub>2</sub> , SO <sub>2</sub> , CO	-subject to Prevention of Significant Deterioration review for NO <sub>2</sub> , SO <sub>2</sub> , CO					
<b>Land Use</b>	-77 acres	-77 acres	-No impact	-56 acres	-19 acres	-33 acres	-67 acres
	-zoned agricultural but uncultivated	-zoned agricultural but uncultivated		-zoned agricultural/ General Plan use agriculture; rezoning might not be possible; county has indicated it would not rezone; potentially inconsistent with uses of Sutter Wildlife Refuge; present use rice cultivation/duck club)	-zoned industrial	-zoned agricultural/ General Plan designation of Industrial/Commercial (current use grazing)	-zoned M-2/General Plan designation of Industrial/Commercial, prohibited height restriction (proposed for Sutter Buttes Industrial Area) might be limiting factor
	-owned by Calpine	-owned by Calpine		-66 percent of owners unwilling to sell	-ownership not determined	-property not for sale	-site currently for sale
	-9 residences within 1 mile	-9 residences within 1 mile		-1 residence within 1 mile	-200 residences within 1 mile, expected residential growth	-40 residences within 1 mile, expected residential growth	-40 residences within 1 mile
	-4-mile transmission line, passes 4 residences, 2-acre switching station (currently rice cultivation used by duck club) at end of O'Banion Road	-4-mile transmission line, passes 4 residences, 2-acre switching station (currently rice cultivation used by duck club) at end of O'Banion Road		-no transmission line needed, no switching station required	-4,000-foot transmission line on established corridor, no switching station required	-1-mile transmission line (would pass 30 residences), no switching station required	-5-mile transmission line (would pass 10 residences through agricultural land), no switching station required
	-natural gas line 14 miles long	-natural gas line 14 miles long		-natural gas line 16 miles	-natural gas line 16 miles	-natural gas line 20 miles long	-natural gas line 28 miles long
	-groundwater is water source		-groundwater is water source	-Sacramento River is water source	-groundwater is water source	-groundwater is water source	
				-significant public opposition for 148 MW previously proposed plant	-no public facilities (sewer, water, storm drainage) in area		
	-low earthquake hazard		-low earthquake hazard	-low earthquake hazard	-low earthquake hazard	-low earthquake hazard	

<sup>1</sup> In addition to using a dry-cooling tower, Calpine has proposed additional parameters for operation to further reduce emissions (*Draft EIS*, pp. 6, 109) and reduce impacts to wetlands.

	Proposed Action		No Action	O'Banion	SAC I	SEPCO S1	Sutter Buttes
	Conventional Plant Operations	Plant With Proposed Environmental Considerations (dry cooling) <sup>1</sup>					
<b>Health and Safety<sup>2</sup></b>	-fire protection and emergency services 5 miles, would require upgrade	-fire protection and emergency services 5 miles, would require upgrade	N/A	-fire protection and emergency services 9 miles, would require upgrade	-fire protection and emergency services 2 miles, adequate services	-fire protection and emergency services 20 miles, would require significant upgrade	-fire protection and emergency services 1 mile, would require upgrade, better response time
	-risk of exposure to hazardous materials would be limited (9 public receptors)	-risk of exposure to hazardous materials would be limited (9 public receptors)		-risk of exposure to hazardous materials would be minimal (1 public receptor)	-risk of exposure to hazardous materials would be great (200 public receptors)	-risk of exposure to hazardous materials would be moderate to great (40 public receptors with expected growth)	-risk of exposure to hazardous materials would be moderate (40 public receptors)
	-transmission line safety concerns would require relocation of two airstrips	-transmission line safety concerns would require relocation of two airstrips <sup>3</sup>		-no transmission line required	-minimal transmission line safety concerns; located on existing corridor, shorter lines, no aviation impacts	-line safety concerns; located on existing corridor, shorter lines, no aviation impacts; transmission line would cross railroad tracks	-transmission line safety concerns; transmission lines are longer, crosses a major highway, would be closer to residences and would have significant impact on agricultural aerial applications
<b>Transportation (Traffic and Transportation)</b>	-no change for regional and local roadways	-no change for regional and local roadways	N/A	-same as proposed action	-same as proposed action	-same as proposed action	-same as proposed action, closer to major highway to help traffic flow
	-localized adverse congestion impacts during construction	-localized adverse congestion impacts during construction					
	-truck traffic would need to be limited to certain routes	-truck traffic would need to be limited to certain routes					
	-hazardous material transportation would be in compliance with state and federal laws	-hazardous material transportation would be in compliance with state and federal laws					
<b>Noise</b>	-closest receptor ¼ mile	-closest receptor ¼ mile	N/A	-closest receptor ½ mile	-closest receptor ½ mile	-noise impact significant due to adjacent residence, noise standards could not be met; costs to attenuate noise might be prohibitive	-closest receptor ½ mile
	-45db nighttime noise level standard attainable	-45db nighttime noise level standard attainable		-45db nighttime noise level standard attainable at similar costs as the proposed project	-45db nighttime noise level standard attainable at similar costs as the proposed project	-45db nighttime noise level standard might not be attainable	-45db nighttime noise level standard attainable at similar costs as the proposed project
<b>Visual</b>	-impact to views of Sutter Buttes for some residences	-impact to views of Sutter Buttes for some residences	N/A	-impact to views of Sutter Buttes less due to lack of transmission lines	-impact to views of Sierra and Coast range for more people	-impact to views of Sierra and Coast ranges for more people	-impact of views of Sierra and Coast ranges for more people
				-impact to views of Sutter Bypass			
<b>Cultural and Paleontological Resources<sup>4</sup></b>	-surface disturbance: 5.7 miles of transmission line	-surface disturbance: 5.7 miles of transmission line	N/A	-surface disturbance: no transmission line	-surface disturbance: 4,000 feet of transmission line	-surface disturbance: no transmission line	-surface disturbance: 4 miles of transmission line

<sup>2</sup> Includes the Public Health, Industrial Safety and Fire Protection, Transmission Line Safety and Nuisance, Hazardous Materials Management, Waste Management sections of the *Draft EIS*.

<sup>3</sup> An alternative transmission line route was proposed by the Commission to reduce visual impacts to insignificant, but dismissed in the hearings due to impacts on the Sutter National Wildlife Refuge.

	Proposed Action		No Action	O'Banion	SAC I	SEPCO S1	Sutter Buttes
	Conventional Plant Operations	Plant With Proposed Environmental Considerations (dry cooling) <sup>1</sup>					
	-trench excavation: 13.5 miles of water and gas pipeline	-trench excavation: 13.5 miles of water and gas pipeline		-trench excavation: 15 miles of water and gas pipeline	-trench excavation: 24 miles of water and gas pipeline	-trench excavation: 20 miles of water and gas pipeline	-trench excavation: 12 miles of water and gas pipeline
<b>Socioeconomics and Environmental Justice<sup>5</sup></b>	-Sutter County development impact fees required <sup>6</sup> (lower than Sacramento County)	-Sutter County development impact fees required <sup>6</sup> (lower than Sacramento County)	-to sustain reliability of the Sacramento Area electrical system, some action (generation) would be needed within 6 years	-Sutter County development impact fees required <sup>6</sup> (lower than Sacramento County)	-Sacramento County development fees required <sup>6</sup> (higher than Sutter County)	-Sutter County development impact fees required <sup>6</sup> (lower than Sacramento County)	-Sutter County development impact fees required <sup>6</sup> (lower than Sacramento County)
			-would not meet Calpine's business plans	-potential loss of duck club	-no impacts/no mitigation per 1992 evaluation		
	-no potential minority nor low-income populations that would be affected, therefore, environmental justice would not be an issue	-no potential minority nor low-income populations that would be affected, therefore, environmental justice would not be an issue	-does not meet requirements of electrical utility deregulation	-no potential minority nor low-income populations that would be affected, therefore, environmental justice would not be an issue	-no potential minority nor low-income populations that would be affected, therefore, environmental justice would not be an issue	-no potential minority nor low-income populations that would be affected, therefore, environmental justice would not be an issue	-no potential minority nor low-income populations that would be affected, therefore, environmental justice would not be an issue
<b>Plant Engineering<sup>7</sup></b>	-reliable sources of natural gas and water	-reliable sources of natural gas and water		-reliable sources of natural gas and water	-reliable sources of natural gas and water	-reliable sources of natural gas and water	-reliable sources of natural gas and water
	-substation and transmission line would be required	-substation and transmission link would be required		-on-site substation; no transmission facility costs	-no substation would be required due to proximity to Western's Elverta substation, requiring shorter transmission line	-on-site substation; no transmission facility costs	-substation and transmission would be required
<b>Biological Resources</b>	-loss of 12 acres of Swainson's hawk foraging habitat	-loss of 19 acres of Swainson's hawk foraging habitat		-loss of up to 56 acres of rice crops used as habitat for seasonal waterfowl; potential disturbance of Swainson's hawk nesting and foraging habitat the proximity (1/2 mile) to Sutter Buttes National Wildlife Refuge would result in a larger population of waterfowl being impacted	-loss of 12 to 16 acres of foraging habitat for Swainson's hawk and burrowing owl; adjacent to large nest trees that support heron, red-tailed hawk and barn owls.	-loss of up to 38 acres of foraging and/or nesting habitat for Swainson's hawk and burrowing owl; large trees on east boundary could provide nest sites for raptors	-loss of 12 to 16 acres of wheat foraging habitat for Swainson's hawk that are known to nest in the area.
	-loss of 4.9 acres of giant garter snake upland habitat	-loss of 4.9 acres of giant garter snake upland habitat		-loss of 12 to 16 acres of giant garter snake upland habitat from site footprint and indirect impacts to the Gilsizer Slough population	-potential impact to giant garter snake habitat near Natomas East Main	-potential impact to giant garter snake along gas pipeline	-potential for impacts to giant garter snakes along gas pipeline route
	-loss of duck club habitat	-loss of duck club habitat		-construction of gas pipeline route could result in direct harm to giant garter snakes	construction of gas pipeline route could result impact to 7 to 65 acres of Swainson's hawk and burrowing owl habitat, 5 rare plant species, wading bird rookery and habitat for the Valley elderberry longhorn beetle		-construction of 20 mile long gas pipeline route could result in significant impact to Swainson's hawk and burrowing owl habitat, nesting birds, giant garter snakes and rare plant species; large trees are also along the route and could be potential nest sites for Swainson's hawk and other raptors.

<sup>4</sup> The *Draft EIS* based the evaluation of potential impacts to these resources on the amount of ground surface disturbance anticipated for the construction of the plant, switchyard, transmission line, and gas pipelines. In each alternative, it was assumed that the amount of disturbance needed for the plant would be the same for each alternative.

<sup>5</sup> Includes the Socioeconomic, Reliability, Efficiency (natural hazards are reported under land use), Transmission System Engineering, and Facility Closure sections of the *Draft EIS*.

<sup>6</sup> Impact fees are a beneficial impact to local socioeconomics. They are used to pay for increased need for community services that arise as a result of development.

<sup>7</sup> Includes the Reliability, Efficiency (natural hazards are reported under land use), Transmission System Engineering, and Facility Closure sections of the *Draft EIS*.

	Proposed Action		No Action	O'Banion	SAC I	SEPCO S1	Sutter Buttes
	Conventional Plant Operations	Plant With Proposed Environmental Considerations (dry cooling) <sup>1</sup>					
	-potential for migratory bird collisions with electric transmission line and HRSG stacks; -original transmission line route, 5.2 miles south to Gilsizer Slough, potential for greater impacts to waterbirds and increased avian collisions	-potential for migratory bird collisions with electric transmission line and HRSG stacks		-potential for increased migratory bird collisions with HRSG stacks and more man-made objects in the air (bus work for connection with transmission line) near Sutter National Wildlife Refuge and duck clubs	-potential for increased migratory bird collisions with HRSG stacks, including Swainson's hawk and burrowing owl		-potential for migratory bird collisions with electric transmission line and HRSG stacks
<b>Wetlands</b>	-loss of 3 to 4 acres and indirect impacts to 5 acres of seasonal wetlands on the site	-loss of 3.0 acres and temporary impacts to 2.83 acres (out of a total of 8.67 acres) of man-made seasonal wetlands	N/A	-loss of up to 56 acres of seasonally flooded man-made wetland habitat (rice fields)	-impacts to approximately 5 acres of seasonal wetlands on site; potential loss of open water wetland habitat	-impacts to 5.5 acres of seasonal wetlands and pond on site; potential impact on vernal pool fairy shrimp and sensitive plant habitat	-no wetlands on site
	-gas pipeline route through Sutter Bypass flood control levees and Sutter National Wildlife Refuge would increase potential for sedimentation and adverse water quality				-impacts to 9 to 21 acres of wetlands and fairy shrimp habitat along gas pipeline	-impacts to 9 to 21 acres of wetlands, vernal pool fairy shrimp and sensitive plant habitat along gas pipeline	-the gas pipeline would be 20 miles in length and would require bores under the Sacramento River, the Sutter Bypass and state Highway 20; the lines would follow irrigation canals that contain significant wetland plant species and habitat
					-4 acres of vernal pool wetlands would be impacted from construction of transmission line		
	-potential for wastewater discharge impacts on sensitive aquatic biological resources (salmon, steelhead, western pond turtle, giant garter snake, splittail, waterbirds) in irrigation canals, Sutter Bypass, and Sutter National Wildlife Refuge	-no impacts to aquatic biota from wastewater discharge; all potential impacts to special-status fish, western pond turtle, and giant garter snake from wastewater discharge would be eliminated		-potential for significant wastewater discharge and temperature impacts on sensitive aquatic biological resources (salmon, steelhead, western pond turtle, giant garter snake, waterbirds) in irrigation canals and Sutter Bypass	-discharge of wastewater to Natomas East Main Drainage canal, American River, and Sacramento River with potential impacts to aquatic biota, including special-status fish, giant garter snake, and western pond turtle and vernal pools in the area	-discharge of wastewater to Natomas Main Drainage canal, American River, and Sacramento River with potential impacts to aquatic biota	-potential for wastewater discharge impacts on sensitive aquatic biological resources (salmon, steelhead, pond turtle, giant garter snake, waterbirds) in irrigation canals, Wadsworth Canal, and Sutter Bypass
<b>Soils and Water Resources</b>	-water usage (groundwater) 3,000 gallons per minute (gpm) for cooling; 4.856 acre-feet/year	-water usage 140gpm; 67 acre-feet/year	N/A	-water usage same as conventional cooling plant	-water usage same as conventional cooling plant	-water usage same as conventional cooling plant	-water usage same as conventional cooling plant
	-direct discharge to irrigation canals that are tributaries to the Sutter Bypass (Butte Creek watershed) could contribute to significant water quality issue	-zero effluent discharge/no discharge of process fluids to drainage canals, evaporator brine would be high in dissolved solids that would be disposed off site		-direct discharge to Sutter Bypass might increase temperatures over 58°F due to wastewater discharge; could impact temperature sensitive fish (salmon and steelhead) during migration periods			
	-stormwater run-off from 10 year or greater even would be retained on site	-stormwater run-off from 10 year or greater even would be retained on site		-risk of flooding	-within flood zone, site must be raised 10 feet		

TABLE 4.2 NEPA TOPICAL INDEX

NEPA Topic	Summary	DEIS/FSA Page No.	PMPD Page No.
<b><i>Purpose and Need</i></b>			
<b>Purpose and Need</b>	Calpine Corporation contacted Western and requested interconnection its proposed Sutter Power Project to Western's Keswick-Elverta/Olinda-Elverta double circuit 230-kV transmission line. The project would help to support and improve area transmission reliability by increasing voltage support for the Sacramento region. The purpose of this action would be to respond to Calpine's request for interconnection and to address the potential environmental consequences associated with this proposed project.	13	30-31
<b><i>Description of Alternatives and Proposed Action</i></b>			
<b>Proposed Action</b>	Calpine Corporation proposes to construct and operate the SPP, a 500-MW natural gas-fueled, combined-cycle, electric generation facility so that it could sell electric power in the newly deregulated electricity market. The SPP would interconnect to Western's electric transmission system.	5	11-13
<b>Reliability</b>	Reliability would be addressed through four areas: equipment availability, plant maintainability, fuel/water availability and reliability in relation to natural hazards. Equipment availability would be ensured through various QA/QC programs. Maintenance would be addressed through adequate equipment redundancy measures and a typical industry maintenance program. Fuel and water supplies would be adequate. Seismic shaking and flooding concerns have been addressed.	537-543	268-288
<b>Engineering</b>	The design and construction of the powerplant could comply with applicable LORS if the Conditions of Certification and a CBO review process were implemented. In terms of transmission line engineering, the substation, double-circuit outlet line, termination point and Sutter Bypass switching station have been deemed acceptable.	517, 565	258-285, 292-305
<b>Closure</b>	Unexpected (temporary) and planned (permanent) closure scenarios are discussed. The temporary closure plan consists of security coverage and a safety contingency plan submitted to the California Energy Commission (CEC). Permanent closure plans would be developed at time of closure. All plans would be carried out according to laws, orders, regulations and standards (LORS) applicable at that time.	574-575	315-321

NEPA Topic	Summary	DEIS/FSA Page No.	PMPD Page No.
<b><i>Description of Alternatives and Proposed Action (cont.)</i></b>			
<b>Alternatives</b>	<p>The alternatives discussed are the “no project” alternative and various siting alternatives. The selection of four alternatives was based on a set of screening criteria. These four alternatives were then analyzed with respect to feasibility for site control by Calpine; the results were inconclusive. Finally, the remaining sites were compared to the proposed project site based on various technical disciplines.</p> <p>Although the O'Banion Road site was selected as the environmentally preferred alternative, there was an insufficient basis to conclude that that site was environmentally preferable to the SPP site.</p>	15-74	245-257
<b>Alternatives Considered but Dismissed</b>	<p>Only 4 of 11 potential sites were analyzed. The selection of the four alternatives was based on distance to the natural gas supply and Western's transmission lines, the avoidance of residential areas and zoning restrictions.</p>	22-28	249-253
<b><i>Affected Environment</i></b>			
<b>Air Quality</b>	<p>The project would be located in the Sacramento Valley Air Basin and would fall under the jurisdiction of the Sacramento Air Quality Maintenance Area (SAQMA). Ozone and PM<sub>10</sub> would be the air pollutants of greatest concern in the project area.</p>	81, 87-91	32-70
<b>Land Use</b>	<p>The SPP parcel is located in an agricultural area designated as Farmland of Statewide Importance. It is currently designated AG-80 in the Sutter County General Plan and zoned AG (General Agriculture) in the Sutter County Zoning Ordinance. The parcel for the proposed project now contains Greenleaf 1, a 49.5-MW cogeneration plant.</p>	188-189	76-92
<b>Health and Safety</b>	<p><b>Public Health</b>—Addresses issues of public health associated with air pollution. Worse case assumptions were presented and significance criteria were discussed. Nearest sensitive receptors would be approximately 2,000 feet to the northeast. Federal and state attainment status varies with location within county and specific pollutant considered.</p> <p><b>Worker Safety</b>—The nearest fire fighting and response service providers would be equipped and staffed for rural emergency response only (Central Gathier and Oswald). Assistance would be available from the Sutter and city of Live Oaks Fire Departments. The Sutter and Oswald facilities could respond to HAZMAT incidents.</p>	111-116, 118-119  137	71-77  206-210

NEPA Topic	Summary	DEIS/FSA Page No.	PMPD Page No.
<b>Transportation</b>	State Routes 20, 99, and 113 provide regional access to the site. All local roadways are operating at least at a level of service C. For regional highways, only State Route 99, between the Garden Highway and Lincoln Road, is experiencing a less than Level of Service C	218	177-185
<b>Noise</b>	Sensitive noise receptors included a number of rural residences. No schools, hospitals, churches, libraries or other sensitive receptors would be located within a mile of the proposed site. Based on results of a survey, current background noise is 41 to 45 dBA.	229-230	167-176
<b><i>Affected Environment (cont.)</i></b>			
<b>Visual</b>	Visual quality in the project area ranged from low-to-moderate for views of agricultural areas that included the existing Greenleaf 1 powerplant in the foreground with no view of the Sutter Buttes, to high for views of agricultural areas dominated by the Sutter Buttes with no view of the existing powerplant. Also, several electrical distribution lines on wood poles and steel lattice transmission lines were found in the area.	252	106-139
<b>Cultural and Paleontologic Resources</b>	<b>Cultural</b> —The SPP consists of three distinct geomorphic zones: the natural levee zone, the Sutter overflow basin and the low terrace zone. The natural levee zone had the greatest potential to contain evidence of prehistoric occupation. Archaeological surveys located one historic archaeological site, a recent farmstead.	367	211-228
	<b>Paleontology</b> —The Sacramento Valley is filled with marine and nonmarine sediment that range in age from the Jurassic period to recent periods (10,000 years). Quaternary alluvium primarily underlies the project site. The older sediments are known to have produced fossil materials in recent times. More specifically, two fossil localities were indicated by a record search.	489-493	229-244
<b>Socioeconomic</b>	The regional area was defined as the Yuba Metropolitan Statistical Area, which is composed of Sutter and Yuba counties. Yuba County's recent population growth has been less than, and Sutter County's has been greater than, California's average annual growth rate. Unemployment in the MSA in 1996 was 15.0 percent. Housing availability varies across Yuba and Sutter counties. Law enforcement and fire protection are present. Sutter County is served by 12 school districts. The nearest hospital is Yuba City. Utilities are provided by Pacific Gas and Electric Company (PG&E).	403-409	93-105
<b>Environmental Justice</b>	CEC deemed 1990 U.S. Census Data was the most reliable source for environmental justice screening. A minority/low-income population exists if the minority/low-income population percentage of the affected area is 50 percent or greater of the affected area's general population. A demographic profile for Yuba City showed that there were no such populations.	401-403	Not discussed

NEPA Topic	Summary	DEIS/FSA Page No.	PMPD Page No.
<b>Biological Resources</b>	<b>Vegetation</b> —Many of the irrigation canals support vegetation similar to that found along natural waterways. Some 52.8 acres of the 77-acre site are annual grassland, 1.2 acres consist of blackberry bramble and 8.67 acres consist of seasonal wetlands. The plant site is surrounded by agricultural land, predominantly rice fields.	428-435	140-166
	<b>Wildlife</b> —Threatened or endangered wildlife in the region include the Aleutian Canada goose, bald eagle, Swainson’s hawk, American peregrine falcon, greater sandhill crane, giant garter snake and the winter-run chinook salmon.	428-435	140-166
<b>Geologic Hazard</b>	The SPP is located in the Great Valley Geomorphic Province of California. For the most part, Sutter County is a sedimentary basin with marine and nonmarine sediments. The site overlies natural gas fields and has flat topography. In addition, no known or potentially active faults cross the site. The site is located in CBC Zone 3.	367, 468, 515	Not discussed
<b><i>Affected Environment (cont.)</i></b>			
<b>Soils and Water Resources</b>	<b>Soils</b> —The SPP site is characterized by alluvial plain soils. For the most part, Sutter County is a sedimentary basin with marine and nonmarine sediments. Clay and clay loams are the predominant surface texture. Water erosion hazards are slight to moderate. Wind erosion hazard is slight. Natural drainage at the site is to the southwest.	428, 468-470	186-194
	<b>Water Resources</b> —The major surface water features in the region are the Sacramento, Yuba, Bear and Feather rivers. Both surface and groundwater are used to meet the agricultural and domestic water needs within the county. The project area is designated Flood Zone X. The upper most aquifer is encountered at a depth of 100-200 feet.	467-470	186-194
<b><i>Environmental Consequences</i></b>			
<b>Air Quality</b>	<b>Impacts:</b> The air pollution impacts from the project added to the ambient background levels of pollutants would be much lower than the most stringent standards for NO <sub>2</sub> , CO and SO <sub>2</sub> . As for PM <sub>10</sub> , project emissions would violate both the 24-hour and annual PM <sub>10</sub> standards.	101-104	32-46
	<b>Mitigation:</b> Construction mitigation measures would include: covered or treated excavated/disturbed soils, covered hauling trucks, limited construction area, tire rinsing, speed limits, discontinued construction when windy and equipment maintenance. Operations mitigation would consist of emission reduction offsets or ERCs, the use of natural gas and air pollution control equipment.	105-108	48-70

NEPA Topic	Summary	DEIS/FSA Page No.	PMPD Page No.
<b>Land Use</b>	<b>Impacts:</b> The project site would be inconsistent with the General Plan and zoning. It would require a General Plan Amendment from AG-80 to Industrial and a rezone from AG to M-2 PD. The transmission line route would remove small amounts of agricultural lands and could present a safety hazard to aerial applicators.	194-203	76-88
	<b>Mitigation:</b> On-site and off-site mitigation would be necessary for compliance with the General Plan, and was discussed in the various technical sections. In terms of the transmission line route, a new route was adopted to lessen impacts.	205-208	90-92
<b>Health and Safety</b>	<b>Impacts:</b> No evidence of site contamination; therefore, no impacts associated with earth moving. Impacts from criteria pollutants were discussed in Air Quality. Noncriteria or toxic pollutants would be emitted from the combustion turbine generators, duct burners, and natural gas dehydrators. Acute and chronic inhalation noncancer hazards would be insignificant. Cancer risks would also be well below significant levels.	120-123	71-74
	Additional demand would be placed on fire protection resources, which would cause them to be inadequate. Workers at industrial facilities may be exposed to chemical spills, hazardous waste, fires, confined space ingress/egress problems and dangers from moving equipment.	137-138	206-208
	<b>Mitigation:</b> See Air Quality for mitigation measures associated with public health.  Calpine and Sutter County have an agreement for emergency services improvements. On-site fire protection would be present at SPP site. A Construction Safety and Health Program, Operation Safety and Health Program and a Safety and Health Program (including an Injury and Illness Prevention Programs (IIPPs) and Emergency Action Plan) would be prepared. In addition, measures associated with lighting, smoking, lock-out/tag-out, confined space entry and hot work will be implemented.	125 138-143	75 208
<b>Environmental Consequences (cont.)</b>			
<b>Transportation</b>	<b>Impacts:</b> Increased traffic due to construction or operation worker commute would not produce a decline in the level of service past the threshold level. Truck traffic due to product deliveries could create a noticeable impact on local roadways.	218-221	177-182
	<b>Mitigation:</b> Potential impacts due to hazardous substance transportation would be mitigated by complying with all federal/state standards. Specific, predesignated, routes would be used for product deliveries. Typical signs/warnings would be used for linear facility construction. All roadways would be repaired to original condition.	219-221	183-185

NEPA Topic	Summary	DEIS/FSA Page No.	PMPD Page No.
Noise	<b>Impacts:</b> Project would likely not present significant adverse impacts, individually or cumulatively. The project would present an unobtrusive, nearly undetectable addition to the existing noise levels.	230-234	167-171
	<b>Mitigation:</b> Resident notification prior to grading and steam blow activities; resolution of project complaints; development of noise control program; 25-hour community noise survey upon reaching 80 percent output and occupation noise survey would be used to mitigate noise impact.	230-239	172-176
Visual	<b>Impacts:</b> Out of the seven Key Observation Points, five would have significant visual impacts and two have less than significant impacts, before mitigation. The project also would have the potential to increase the amount of visible light. The cooling tower plume would have significant visual impacts. On the contrary, the PMPD concluded that visual impacts would <i>not</i> be significant.	264, 268, 270	106-128
	<b>Mitigation:</b> Facilities would be painted in with shades that blend with the surrounding landscape, all fencing and plant equipment would be nonreflective. Other mitigation step would include: limited and shielded lighting areas, directional lighting, compliance with all Federal Aviations Administration guidelines, shorter stacks, a Visual Screening Mitigation Plantings Plan, revegetating construction areas, directional drilling, facility fencing, transmission pole siting away from residence fronts and lighting sensors.	272-275	129-139
Cultural and Paleontological	<b>Impacts:</b> Since there were five prehistoric sites recorded within 1 mile of the project site and linear facility routes, there is a possibility that buried cultural resource materials could be encountered during construction. However, only the natural gas pipeline route could cross the natural levee zone, which would offer the greatest potential for impact. Excavation and drilling for plant and linear facility construction would have the potential to impact paleontological resources.	377-379 495-498	211-214 229-231
	<b>Mitigation:</b> Mitigation would involve the selection of qualified professional cultural resources specialist; implementation of Secretary of the Interior, SHPO, CEC, and county guidelines and implementation of a six-point cultural resource monitoring program.  Full-time monitoring by a qualified paleontological resource specialist, a five-point paleontological resource monitoring program, contingency measures, and plans for specimen preparation, curation and reporting, would all be implemented.	381-385 498-504	214-228, 232-244

NEPA Topic	Summary	DEIS/FSA Page No.	PMPD Page No.
<b>Socioeconomic</b>	<b>Impacts:</b> There would be an average and peak construction workforce of approximately 150 and 200, respectively, and 20 workers needed for operations. Housing availability in the project area would be sufficient. Current public services couldn't meet project demands. Even though school district enrollments are at or near capacity, there would be no foreseen impacts to schools. Construction would have the potential to affect area utilities. SPP should generate \$2.5 to \$2.85 million in local property taxes. Sales tax due to construction would be approximately \$6 million-10 million. Impacts to property values are difficult to ascertain.	409-418	93-103
	<b>Mitigation:</b> Project will attempt to recruit employees from the local area. Impact fees and taxes will be used to compensate the local fire department.	419	104-105
<b>Environmental Justice</b>	<b>Impacts:</b> The minority and low-income populations of the affected area would not be greater than 50 percent of the general population, therefore, there appears there would be no environmental justice issues in the SPP area.	401-403	Not discussed
	<b>Mitigation:</b> No mitigation necessary.	402-403	Not discussed
<b>Environmental Consequences (cont.)</b>			
<b>Wildlife</b>	<b>Impacts:</b> Habitat for several special status species would be eliminated, including various bird habitat and 2.7 acres of giant garter snake upland habitat. Plant stacks and transmission line poles would increase the risk of avian collisions. Swainson's hawk nesting sites could be disturbed. Possible direct take of garter snake during T-line construction.	435-442	140-152
	<b>Mitigation:</b> Mitigation would include: dry-cooling, avoid trenching near sensitive habitat, provide replacement habitat, preconstruction surveys, worker awareness training, hire qualified biologist, habitat creation, avoid nesting sites, implement monitoring programs, T-line route placement and spacing, install bird flight diverters, construction timing, pipeline boring and payment for lost habitat.	443-445	153-166
<b>Vegetation</b>	<b>Impacts:</b> 16.73 acres of grasslands that serve as Swainson's hawk habitat would be removed. Loss of two mature walnut and native valley oak trees would occur.	435-441	143
	<b>Mitigation:</b> Dry cooling would eliminate potential impacts to vegetation from cooling tower drift. Native oaks would be included in the Landscape Plan.	446-447	153-166
<b>Floodplains and Wetlands</b>	<b>Impacts:</b> Approximately 5.83 acres of jurisdictional wetlands would be filled.	472, 435-436	143
	<b>Mitigation:</b> Project would be designed to avoid wetlands. Other mitigation would include: obtaining a 404 permit and 401 fill permit; replacing of wetlands lost due to construction; providing wetland protection; marking wetland boundaries; proper placement of gas pipelines; avoiding vehicle access to SNWR wetlands, using construction cloth and replacing disking with mowing.	446	148-150
<b>Geologic Hazard</b>	<b>Impacts:</b> Erosion impacts were considered in Soils and Water Resources. The project area would not be subject to significant seismic activity, thus no impacts were discussed. The potential for liquefaction, hydroconsolidation and subsidence would also be negligible.	471-479, 515-516	186-187

NEPA Topic	Summary	DEIS/FSA Page No.	PMPD Page No.
	<i>Mitigation:</i> See Soils and Water Resources for Mitigation measures associated with erosion. Quality assurance / quality control procedures would be followed throughout construction.	516	191-194
<b>Soils and Water Resources</b>	<i>Impacts:</i> Construction, dewatering and operation activities leave area vulnerable to erosion. Negligible impact to groundwater levels would occur. No wastewater impacts would occur, except for evaporator brine.	471-479	186-190
	<i>Mitigation:</i> The following mitigative steps would take place: implement an Erosion Control and Revegetation Plan; implement a stormwater pollution prevention plan; used fill to raise site; use sediment barriers to help prevent runoff; use secondary containment berms around chemical storage facilities; implement a groundwater monitoring plan; use a dry-cooling design instead of original wet-cooling tower system; maintain zero effluent discharge facility including wastewater recycling; construct a retention pond and identify and implement any improvements to drainage system.	480-481	191-194
<b>Cumulative Impacts</b>	A discussion of cumulative impacts is presented in each of the issue areas in the <i>Draft EIS</i> . Cumulative impacts are described for air quality, public health, worker safety and fire protection, hazardous materials, waste management, land use, traffic and transportation, noise, visual resources, cultural resources, socioeconomics, biological resources, soil and water, and paleontological resources. With the original wet-cooling alternative, there was the potential for cumulative impacts on biological resources associated with water quality issues. However, the dry-cooling alternative removes the impacts associated with wet-cooling and eliminates any cumulative impacts associated with the project.	104, 123-124, 143, 165, 178, 205, 221, 234, 271, 379-380, 418-419, 441-442, 479, 498	Not discussed
<b><i>Environmental Consequences (cont.)</i></b>			
<b>Short-Term vs. Long-Term and Irreversible or Irretrievable Commitment of Resources</b>	The Draft EIS discusses the permanent loss of productive land in the section on Land Use. There would be no loss of prime agricultural land because the land at the plant site was converted from agricultural use in 1986. The potential loss of agricultural land from the electrical transmission line is seen as negligible. This would not affect long-term productivity for this impacted area. A discussion on the efficient use of resources can also be found in the <i>Draft EIS</i> under Powerplant Efficiency. A plant of this size would consume a large amount of energy (natural gas) but it would not have an impact on the source or supply of that energy source. This project would not cause a depletion of the natural gas supply nor would it cause the development of new sources of gas. The use of these resources in the short-term should have no impact on long-term productivity. None of the project alternatives would result in more or less consumption of any natural resources, other than the "no project alternative." The use of 100 percent dry-cooling results in a significant saving of ground water, though the water use in the original project alternative is neither irreversible nor irretrievable. There would be no other irreversible/irretrievable commitment of resources.	195-199, 545-551	Not discussed

<i>Miscellaneous</i>			
<b>List of Preparers</b>		599-600, 601+	Not discussed
<b>Distribution</b>		Not discussed (see Appendix C)	Not discussed