

5. ADDITIONAL CEQA CONSIDERATIONS

This chapter includes additional topics that are required by CEQA. These topics include Growth-Inducing Effects (Section 5.1), Effects Considered but Eliminated from Detailed Analysis (Section 5.2), Significant Irreversible Environmental Changes (Section 5.3), and Cumulative Impacts (Section 5.4).

5.1 GROWTH-INDUCING EFFECTS

5.1.1 INTRODUCTION

A project may induce growth by directly or indirectly fostering economic or population growth, the construction of additional housing, or the removal of obstacles to population growth. In addition, characteristics of a project may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively (CEQA Section 15126.2[d]). This section addresses two specific potential growth-inducing effects: development of Project Lands and changes in consumptive water supply.

5.1.2 DEVELOPMENT OF PROJECT LANDS

Sale of the Project Lands could result in future development on those lands. Chapter 3 describes the potential for development of the Project Lands based upon factors such as topography, transportation, distance to urban centers, proximity to services, proximity to recreation attractors, and allowable land uses under local zoning and the applicable General Plans. In numerous instances, the development assumptions project that pertinent land use regulations could be altered to allow more intense development. The environmental effects that would result from the development of Project Lands, consistent with the land use development assumptions set forth in Chapter 3, are evaluated throughout Chapter 4 of this EIR. The following analysis discusses the potential for development of the Project Lands that will in turn induce development on adjacent or nearby lands, either directly or indirectly, and therefore contribute to the demand for public and commercial services, which could result in additional growth.

5.1.2.1 Impact to Entire Shasta Regional Bundle

In general, development of the Project Lands could include rural residential, resort, recreation and timber harvesting, which could directly increase the population of the area, increasing demand for commercial and retail services. Development of the Project Lands could improve access to adjacent lands, and involve extension of public services, including utilities. This could serve to facilitate additional residential and commercial development within the Shasta Regional Bundle. Table 5-1 provides information on the potential for growth inducement in the Shasta region, for each bundle and as appropriate, sub areas within each bundle.

5.1 Growth-Inducing Effects

Table 5-1 Potential Growth-Inducing Impacts from Project Land Development in Shasta Region

Bundle Land Area	Total Acreage	Potential Development on Project Lands		Surrounding Land Uses	Growth-Inducing Potential
		General Plan (EDUs) ^a	EIR Analysis (EDUs)		
Bundle 1: Hat Creek					
Hat Creek	2,969	19	594	Grazing, Recreation, Town uses	Development on Project Lands would increase demand for public and commercial services and could serve as an impetus to further growth.
Bundle 2: Pit River					
Pit 1	3,568	85	714	Open space, Grazing, Habitat Protection, Town uses, Rural Residential	Development on Project Lands would increase demand for public and commercial services and could serve as an impetus to further growth.
McArthur Swamp	6,135	17	17	Open space, Recreation, State park and grazing	Given the large land area and small number of EDUs, the growth-inducing potential is considered low.
Pit 3	3,681	23	736	Open Space, Recreation, Habitat Protection, Timber	Development on Project Lands would increase demand for public and commercial services and could serve as an impetus to further growth.
Lake Britton	2,636	16	264	Recreation, Timber, Rural Residential	Development on Project Lands would increase demand for public and commercial services and could serve as an impetus to further growth.
McCloud, Black, Pit	15,162	95	95	Timberland, Open Space, Rural Residential	Given the large land area, the growth-inducing potential is considered low.
Bundle 3: Kilarc-Cow Creek					
Kilarc-Cow Creek	2,603	20	20	Grazing, Rural Residential, Recreation (resort and dispersed)	Given the large land area and small number of EDUs, the growth-inducing potential is considered low.
Bundle 4: Battle Creek					
Shingletown	5,528	92	558	Town uses, Dispersed & Focused Recreation, Timber, Rural Residential	Development on Project Lands would increase demand for public and commercial services and could serve as an impetus to further growth.
Inskip (Tehama)	1,354	38	38	Grazing, Rural Residential, Habitat Protection	Given the large land area and small number of EDUs, the growth-inducing potential is considered low.

a. EDUs are Equivalent Dwelling Units.

5.1.2.2 Impact to Entire DeSabra Regional Bundle

The development potential of the Project Lands in the DeSabra Regional Bundle would be concentrated in the areas around Lake Almanor, the Hamilton Branch Powerhouse and the

Mountain Meadows Reservoir. Development of these lands could have growth-inducing impacts because development of Project Lands would lead to direct increases in the permanent and seasonal population, and could serve as a stimulus to growth in the surrounding area by increasing demand for commercial and retail services in those areas. In the remainder of the region, the development potential of Project Lands is generally lower density. That type of development would have a lower potential to generate growth-inducing impacts in those areas. Table 5-2 provides information on the potential for growth inducement in the DeSabra region.

Table 5-2 Potential Growth-inducing Impacts from Project Land Development in DeSabra Region

Land Area	Total Acreage	Potential Development on Project Lands, based on:		Surrounding Land Uses	Growth-Inducing Potential
		General Plan (EDUs) ^a	EIR Analysis (EDUs)		
Bundle 5: Hamilton Branch					
Mountain Meadows	1,912	19	19	Habitat Protection, Timber, Recreation, Town uses	Given the large land area and small number of EDUs, the growth-inducing potential is considered low.
Hamilton Branch	239	16	16	Rural Residential, Recreation, Timber	Given the large land area and small number of EDUs, the growth-inducing potential is considered low.
Bundle 6: North Fork Feather River					
North Lake Almanor	866	30	87	Timber, Recreation, Town Uses, Forest Service	Given the extent of development in this area, development on Project Lands would increase demand for public and commercial services.
West Lake Almanor/Prattville	276	28-92	276	Recreation, Resort Residential, Forest Service	Development on Project Lands would increase demand for public and commercial services and could serve as an impetus to further growth.
Southeast Lake Almanor	1,230	60	615	Timber, recreation, Resort Residential	Development on Project Lands would increase demand for public and commercial services and could serve as an impetus to further growth.
Butt Valley Reservoir	920	70	92	Recreation, Timber	Development would increase demand for public and commercial services.
Caribou to Belden	370	16	16	Timber, Forest lands	Given the small number of EDUs, the growth-inducing potential is considered low.
Humbug Valley	2,402	15	240	Recreation, Grazing, Timber, Rural Residential (Limited)	Development on Project Lands would increase demand for public and commercial services and could serve as an impetus to further growth.
Rock Creek-Cresta	1,175	19	19	Timber, Forest Service, Recreation	Given the large land area and small number of EDUs, the growth-inducing potential is considered low.
Poe	3,823	31	31	Timber, Rural Residential	Given the large land area and small number of EDUs, the growth-inducing potential is considered low.

Table 5-2 Potential Growth-inducing Impacts from Project Land Development in DeSabra Region

Land Area	Total Acreage	Potential Development on Project Lands, based on:		Surrounding Land Uses	Growth-Inducing Potential
		General Plan (EDUs) ^a	EIR Analysis (EDUs)		
Bundle 7: Bucks Creek					
Bucks Lake	1,222	61	244	Recreation, Resort Residential, Town uses, Timber, Grazing	Development on Project Lands would increase demand for public and commercial services and could serve as an impetus to further growth.
Bundle 8: Butte Creek					
DeSabra-Centerville	2,471	66	66	Rural Residential, Recreation, Timber	Given the large land area and small number of EDUs, the growth-inducing potential is considered low.
Coal Canyon	1,133	n/a	378	City uses, Recreation	Development on Project Lands would increase demand for public and commercial services and could serve as an impetus to further growth.

a. EDUs are Equivalent Dwelling Units

5.1.2.3 Impact to Entire Drum Regional Bundle

The potential development of the Project Lands, particularly adjacent to the City of Auburn and Folsom Lake, could have direct growth-inducing impacts because residential and commercial uses would lead to increases in the area population, and increased demand for commercial and retail services in these areas. In the remainder of the region's Project Lands, the growth-inducing potential is generally low, with rural residential, recreational, and timber harvesting the most likely uses on Project Lands. Table 5-3 provides information on the potential for growth inducement in the Drum region.

Table 5-3 Potential Growth-Inducing Impacts from Project Land Development in Drum Region

Land Area	Total Acreage	Potential Development on Project Lands, based on:		Surrounding Land Uses	Growth-Inducing Potential
		General Plan (EDUs) ^a	EIR Analysis (EDUs)		
Bundle 9: North Yuba River					
Narrows/ Lake Englebright	64	3	3	Forest Land, Rangeland	Given the small number of EDUs, the growth-inducing potential is considered low.
Bundle 10: Potter Valley					
Van Arsdale Reservoir/ Potter Valley Powerhouse	2,057	13	13	Forest Land, Grazing, Agriculture, Urban	Given the large land area and small number of EDUs, the growth-inducing potential is considered low.

**Table 5-3 Potential Growth-Inducing Impacts from
Project Land Development in Drum Region**

Land Area	Total Acreage	Potential Development on Project Lands, based on:		Surrounding Land Uses	Growth-Inducing Potential
		General Plan (EDUs) ^a	EIR Analysis (EDUs)		
Lake Pillsbury	3,765	188	188	Forest, Grazing Timber, Recreation, Rural Residential,	Given the large land area, although the development would increase demand for public and commercial services, it would likely not serve as an impetus for additional growth.
Bundle 11: South Yuba River					
Kidd Lake/Cascade Lakes	192	2	38	Forest Land, Recreation, Timberlands, Water	Development on Project Lands would increase demand for public and commercial services and could serve as an impetus to further growth.
Meadow Lake/Fordyce Lake/Lake Sterling/White Rock Lake	1,167	7	7	Forest Land	Given the large land area and small number of EDUs, the growth-inducing potential is considered low.
Rock Lake/Lindsey Lakes	763	5	7	Forest Land	Given the large land area and small number of EDUs, the growth-inducing potential is considered low.
Lake Valley Reservoir	1,645	10	329	Forest Land, Rural Residential, Outdoor Recreation	Development on Project Lands would increase demand for public and commercial services and could serve as an impetus to further growth.
Lake Spaulding/Drum Penstock Forebay	9,585	1,917	2,396	Forest, Recreation, Residential, Commercial, Urban	Development on Project Lands would increase demand for public and commercial services and could serve as an impetus to further growth.
Dutch Flat - Bear River North of Rollins Reservoir	2,067	413	517	Forest Land, Recreation, Residential, Commercial, Urban, Mining	Development on Project Lands would increase demand for public and commercial services and could serve as an impetus to further growth.
Rollins Reservoir/Bear River	47	9	12	Residential, Commercial, Forest, Agriculture, Recreation	Given the small number of EDUs, the growth-inducing potential is considered low.
Halsey Forebay/Lake Arthur	713	143	357	Residential, Commercial, Forest Land, Agricultural, Industrial, Recreation	Development on Project Lands would increase demand for public and commercial services and could serve as an impetus to further growth.
Rock Creek Lake/Auburn	198	66	198	Residential, Commercial, Forest, Agriculture, Industrial, Recreation	Development on Project Lands would increase demand for public and commercial services and could serve as an impetus to further growth.

Table 5-3 Potential Growth-Inducing Impacts from Project Land Development in Drum Region

Land Area	Total Acreage	Potential Development on Project Lands, based on:		Surrounding Land Uses	Growth-Inducing Potential
		General Plan (EDUs) ^a	EIR Analysis (EDUs)		
Folsom Lake	19	4	4	Residential, Commercial, Forest, Agriculture	Given the small number of EDUs, the growth-inducing potential is considered low.
Kidd Lake/ Cascade Lakes	192	2	38	Timberlands, Recreation	Given the potential increase in EDUs, development could serve as an impetus to additional growth.
Bundle 12: Chili Bar					
American River-Chili Bar/Slab Creek Reservoirs	158	4	4	Forest Land, Recreation	Given the small number of EDUs, the growth-inducing potential is considered low.

a. EDUs are Equivalent Dwelling Units

5.1.2.4 Impact to Entire Motherlode Regional Bundle

Because of the proximity of the most of the Project Lands to forest lands or protected agricultural lands, for the most part, potential development of Project Lands is unlikely to serve as an impetus to additional development. Table 5-4 provides information on the potential for growth inducement in the Motherlode region.

Table 5-4 Potential Growth-Inducing Impacts from Project Land Development in Motherlode Region

Land Area	Total Acreage	Potential Development on Project Lands, based on:		Surrounding Land Uses	Growth-Inducing Potential
		General Plan (EDUs) ^a	EIR Analysis (EDUs)		
Bundle 13 : Mokelumne River					
Tiger Creek Reservoir	1,752	11	11	Forest land	Given the large land area and small number of EDUs, the growth-inducing potential is considered low.
Electra Tunnel/West Point Powerhouse	752	5	5	Forest land, Range land	Given the small number of EDUs, the growth-inducing potential is considered low.
Lake Tabeaud/Electra Powerhouse	752	150	150	Forest land, Range land	Development of Project Lands would increase the demand for public and commercial services.
Bear River Reservoir/ Lower Bear River Reservoir/Salt Springs	1,506	38	38	Forest land, Range land	Given the large land area and small number of EDUs, the growth-inducing potential is considered low.
Upper and Lower Blue Lakes/Meadow Lake/Twin Lake	1,338	67	67	Forest land, Range land	Given the large land area and small number of EDUs, the growth-inducing potential is considered low.

**Table 5-4 Potential Growth-Inducing Impacts from
Project Land Development in Motherlode Region**

Land Area	Total Acreage	Potential Development on Project Lands, based on:		Surrounding Land Uses	Growth-Inducing Potential
		General Plan (EDUs) ^a	EIR Analysis (EDUs)		
Bundle 14 : Stanislaus River					
Stanislaus River	1,362	37	37	Forest land, Range land	Given the large land area and the relatively low number of EDUs, the growth-inducing impact is considered low.
Lyons Reservoir/ Phoenix Reservoir	347	10	10	Forest land, Range land, Agriculture, Town	Given the low number of EDUs, the growth-inducing potential is considered low.
Bundle 15: Merced River					
Merced Falls	8	1	1	Forest land, Rangeland, Agriculture	Given the small EDU value, growth-inducing impacts would not result.

a. EDUs are Equivalent Dwelling Units

5.1.2.5 Impact to Entire Kings Crane-Helms Regional Bundle

Development of the Project Lands in the Kings Crane-Helms Regional Bundle would generally not result in growth-inducing impacts, except for land areas that are adjacent to reservoirs. However, due to the dispersed nature of existing development, development of Project Lands is unlikely to serve as an impetus to substantial additional development. Table 5-5 provides information on the potential for growth inducement in the Kings Crane-Helms region.

**Table 5-5 Potential Growth-inducing Impacts from
Project Land Development in Kings Crane-Helms Region**

Land Area	Total Acreage	Potential Development on Project Lands, based on:		Surrounding Land Uses	Growth-Inducing Potential
		General Plan (EDUs) ^a	EIR Analysis (EDUs)		
Bundle 16 : Crane Valley					
Bass Lake	208	80	104	Recreation, Retail, Commercial, Residential	Development on Project Lands would increase demand for public and commercial services and could serve as an impetus to further growth.
Manzanita Lake	492	126	246	Open space, Residential	Development on Project Lands would increase demand for public and commercial services and could serve as an impetus to further growth.
San Joaquin PH #2	243	10	24	Agriculture, Forest land	Given the relatively low number of EDUs, the growth-inducing potential is considered low.
A.G. Wishon Powerhouse	61	0	6	Forest land	Given the small number of EDUs, the growth-inducing potential is considered low.

Table 5-5 Potential Growth-inducing Impacts from Project Land Development in Kings Crane-Helms Region

Land Area	Total Acreage	Potential Development on Project Lands, based on:		Surrounding Land Uses	Growth-Inducing Potential
		General Plan (EDUs) ^a	EIR Analysis (EDUs)		
Bundle 17 : Kerckhoff					
Kerckhoff Reservoir	182	2	91	Forest land, Rural residential	Given the potential increase in EDUs, development could serve as an impetus to additional growth.
Auberry Service Center	18	2	2	Rural residential	Given the small number of EDUs, the growth-inducing potential is considered low.
Bundle 18: Kings River					
Wishon Reservoir	750	7	150	Forest land, Recreation	Development on Project Lands would increase demand for public and commercial services and could serve as impetus to further growth.
Keller Ranch	121	3	3	Forest land	Given the small number of EDUs, the growth-inducing potential is considered low.
Bundle 19: Tule River					
Tule River	45	42	45	Residential, Forest land	Development could increase demand for commercial and public services.
Bundle 20: Kern Canyon					
Kern Canyon	664	30	30	Forest land, Residential	Given the low number of EDUs, the growth-inducing potential is considered low.

a. EDUs are Equivalent Dwelling Units

5.1.2.6 Evaluation of Impacts to the Entire System

Development of Project Lands would have the greatest potential to result in growth-inducing impacts on lands adjacent to Hat Creek, Pit 1 and 3, and Shingletown (in the Shasta Regional Bundle), Lake Almanor, Bucks Lake, and Coal Canyon (in the DeSabra Regional Bundle), Lake Spaulding, Dutch Flat and the Halsey Forebay (in the Drum Regional Bundle). Development of the Project Lands could include residential, commercial, recreational, and resort uses, which would directly increase population in the area, and result in increased demand for commercial and retail services in the vicinity. Development of the Project Lands could improve access to adjacent lands and cause the extension of utilities and other public services. These infrastructure improvements could serve as an impetus to further residential and commercial development within those areas.

Development in other areas would increase demand for commercial and retail services, and could have more limited growth-inducing impacts. These areas include Lake Britton (in the Shasta Regional Bundle), Butt Valley and Humbug Valley (in the DeSabra Regional Bundle), Lake Pillsbury and the Lake Valley Reservoir (in the Drum Regional Bundle), Lake Tabeaud (in the

Motherlode Regional Bundle), and Bass Lake, Manzanita Lake, and Wishon Reservoir (in the Kings Crane-Helms Regional Bundle).

Development of the remaining Project Lands would have a low potential for growth-inducing impacts.

5.1.3 CHANGES IN CONSUMPTIVE WATER SUPPLY

As Pacific Gas and Electric Company acquired and developed its hydroelectric assets over the years, it acquired both consumptive and non-consumptive water rights. Most of these are non-consumptive water rights, under which the water is used to produce electricity and then flows down stream. Consumptive water rights provide the opportunity for Pacific Gas and Electric Company to sell the water to users, including agricultural interests, municipal water or utility districts, and individuals. As a result of the project, the total amount of consumptive water that is available, or the distribution of this water, could change, because of:

- Legal conversion of non-consumptive water rights to consumptive water rights;
- Changes in the operation of the hydroelectric facilities (e.g., reservoirs);
- The termination or expiration of existing water agreements and the negotiation of new agreements; and
- Operation of facilities to more fully exercise existing consumptive rights and increase safe yield.

Each of these conditions is described below.

A new owner of the hydroelectric facilities could apply to the State Water Resources Control Board (SWRCB) for new consumptive water rights. These rights would allow the owner to use Pacific Gas and Electric Company storage reservoirs to generate new water supplies. The owner could divert water to storage in the reservoirs during periods of high run off, and hold that water for consumptive uses later in the year. Control over Pacific Gas and Electric Company reservoirs would provide the owner with an advantage in the appropriate water rights process insofar as they could bypass flows subject to the prior rights of a downstream claimant, and store water only in times of excess flows.

There is no indication of whether any of the future owners of the hydroelectric facilities might apply for consumptive water rights. Since it is not possible to predict whether a future owner would seek new consumptive rights or whether such application would even be successful, the potential for changes in consumptive water rights from any such proceeding to have growth-inducing impacts is considered remote and speculative for purposes of this EIR. Moreover, if such an application were to be filed with the SWRCB, it would be subject to a complete analysis under CEQA, and the impacts of the application would be analyzed at that time.

As evaluated in Section 4.8 (Agriculture) and Section 4.11 (Public Services and Utilities), changes in the operation of the hydroelectric facilities (as relates to the timing of the generation of electricity) could result in changes in the timing and delivery of consumptive water. Consumptive water rights do not guarantee the amount of water delivered nor do they ensure its delivery on a

timely basis. Delivery of water to a water purveyor during times of high reservoir levels or low demand (e.g., spring months) can result in a need to spill stored water that would otherwise be valuable later in the season. Operation of the hydroelectric system's reservoirs could be modified to meet consumptive water needs (e.g., related to timing of the delivery) rather than power generation needs (water that would be released as needed to produce electricity). This scenario was described in Chapter 3 as the WaterMax Scenario, which was evaluated throughout Chapter 4 of this EIR.

Reservoir operations could also be modified to increase the potential supply of consumptive water. For example, if water levels are held higher in reservoirs during the spring, or if reservoir levels are drawn down lower in the summer, additional water could be made available for consumptive water uses. These potential increases in consumptive water over existing levels are estimated at 15,000 acre-feet per year from the Pit River project and up to 18,000 acre-feet per year for the Crane Valley project. Additional water supplies may result from operational changes at Feather River (FERC 2105), Mokelumne River (FERC 0137), Stanislaus (FERC 2130), and Kings River (FERC 2735), determination of specific volumes that could result is not feasible given existing supply and reservoir data. Operational changes are not expected to result in additional consumptive water supplies at any other facilities. The potential for this additional water to result in growth-inducing impacts is addressed below.

As described in Chapter 3, Pacific Gas and Electric Company has various consumptive water rights, and has entered into numerous contracts and agreements to deliver consumptive water to users. Many of these contracts and agreements are a condition of FERC licenses or are terminable only upon mutual consent of both parties. However, approximately 200,000 acre-feet of water are currently contracted by Pacific Gas and Electric Company to users under agreements that: 1) have expired (although Pacific Gas and Electric Company still provides water under the terms of the expired contract); 2) will expire within about 20 years; or 3) have a clause that allows unilateral termination by Pacific Gas and Electric Company upon less than six months notice. The distribution of this water among the bundles is shown in Table 5-6.

Table 5-6 Consumptive Water Supply Delivered Under Expired, Six-Month or Less Terminable, or 15-Year or Less Expiring Agreements^a

Regional Bundle Local Bundle	FERC License No.	Potential Volume of Water Available (Acre-feet per year)
Shasta		
1. Hat Creek	2661	
2. Pit River	2687	15,016
3. Kilarc-Hat Creek	0233	
4. Battle Creek	1121	
Region Total		15,016
DeSabra		
5. Hamilton Branch	N/A	

Table 5-6 Consumptive Water Supply Delivered Under Expired, Six-Month or Less Terminable, or 15-Year or Less Expiring Agreements^a

Regional Bundle Local Bundle	FERC License No.	Potential Volume of Water Available (Acre-feet per year)
6. Feather River	2105, 1962, 2107	
7. Bucks Creek	0619	
8. Butte Creek	0803	87
Lime Saddle	N/A	55
Coal Canyon	N/A	1084
<i>Region Total</i>		<i>1,226</i>
Drum		
9. North Yuba	1403	
10. Potter Valley	0077	19,000
11. South Yuba/Bear River	2310	165,341
12. Chili Bar	2155	
<i>Region Total</i>		<i>184,341</i>
Motherlode		
13. Mokelumne	0137	
14. Stanislaus	2130, 1061	
15. Merced Falls	2467	
<i>Region Total</i>		<i>0</i>
Kings Crane – Helms		
16. Crane Valley	1354	
17. Kerckhoff	0096	
18. Kings River	2735, 1988, 0175	
19. Tule River	1333	
20. Kern Canyon	0178	
<i>Region Total</i>		<i>0</i>
Total All Regions		200,583

Source: Aspen Environmental Group, EIP Associates, M. Cubed, August, 2000

- a. Does not include 15,000 af at Potter Valley and 18,000 af at Crane Valley potentially available under changed operations.

Consumptive water rights and delivery agreements would transfer to the new owners of the hydroelectric facilities who would enter into new contractual agreements to satisfy those obligations. This could result in no substantive changes in the delivery of consumptive water. The new owners could choose to terminate consumptive water contracts, and then sell the water to other parties. (The environmental effects that would result from the loss of the consumptive water was evaluated in this EIR in Chapter 4.11, Public Services and Utilities.) This could shift water from a relatively low-value, low-density user (e.g., agriculture) to a high-value, high-density user (e.g., urban water supply), or shift water from one urban area to another urban area. Therefore, because

of the potential for changes in the delivery of water, or reallocation of water, the potential for changes to result in indirect population growth is also considered.¹

5.1.3.1 Shasta Region

Bundle 1: Hat Creek

No changes in consumptive water rights or delivery of water supplies within this bundle are anticipated to occur as a result of reallocation of existing water supply agreements, or changes in the operation of the hydroelectric facilities.

Bundle 2: Pit River

Reallocation of existing water supply agreements (after termination terms or expiration date) could result in 15,016 acre-feet per year of water becoming available for other uses, including sale to other individuals, agencies or irrigation districts. Approximately 15,000 acre-feet per year of additional water could be made available through changes in reservoir operation. In comments received during the public scoping process, the Westlands Water District, private water companies, and the Central Valley Project contractors have been identified as having a potential interest in purchase of additional consumptive water.

The availability of approximately 30,000 acre-feet of water per year from the Pit River bundle would provide the purchaser with the ability to “firm-up” existing water rights (which may currently be constrained during periods of drought), augment existing water supplies (which could be used to expand agricultural uses or supply local urban water needs), or sell the water on the open water market, and thereby supplement urban water needs in other areas. An additional 30,000 acre-feet per year could support a residential population of approximately 200,000 persons. Since several entities have been identified as potential purchasers (and there could be others), it is not possible to indicate which geographic area could be the recipient of any additional water (e.g., in the event that the Central Valley Project contractors purchase the water, it could be transferred throughout the Central Valley, or transferred to more distant urban regions). However, population growth of approximately 200,000 persons would be growth induced by the project and could have the potential for substantial indirect growth-inducing impacts, as additional population would result in additional demand for housing, public services (including utilities, schools, fire and police services, telecommunications, and parks), and retail and commercial services (such as grocery stores).

¹ Given the Statewide average residential use of 134 gallons per day, approximately 48,910 gallons of water is consumed per person per year in California (for residential uses only). With 325,851 gallons of water per acre-foot, each acre-foot of water could accommodate the residential water needs of approximately 6.66 persons for one year.

Bundle 3: Kilarc-Cow Creek

No changes in consumptive water rights or delivery of water supplies within this bundle are anticipated to occur as a result of reallocation of existing water supply agreements, or changes in the operation of the hydroelectric facilities.

Bundle 4: Battle Creek

No changes in consumptive water rights or delivery of water supplies within this bundle are anticipated to occur as a result of reallocation of existing water supply agreements, or changes in the operation of the hydroelectric facilities.

Impact to Entire Shasta Region

Up to 30,000 acre-feet of water per year from the Pit River bundle could be used to expand agriculture in the area, supply local urban water needs, or be sold into the open water market, and thereby be used to supplement urban water needs in other areas. Since several entities have been identified as potential purchasers (and there could be more), it is not possible to indicate which area would be the recipient of any additional water (e.g., in the event that the Central Valley Project contractors purchase the water, it could be transferred throughout the Central Valley). However, an additional 30,000 acre-feet per year could support a residential population of approximately 200,000 persons, which would be growth induced by the project and could have a potential for substantial indirect growth-inducing impacts, including demand for housing, public services (including utilities, schools, fire and police services, telecommunications, and parks), and retail and commercial services (such as grocery stores).

5.1.3.2 DeSabra Region

Bundle 5: Hamilton Branch

No changes in consumptive water rights or delivery of water supplies within this bundle are anticipated to occur as a result of reallocation of existing water supply agreements, or changes in the operation of the hydroelectric facilities.

Bundle 6: Feather River

No changes in consumptive water rights or delivery of water supplies within this bundle are anticipated to occur as a result of reallocation of existing water supply agreements. Changes in the operation of the system, to improve coordination of water releases from reservoirs, could be used to supplement storage at Lake Oroville, however no specific estimate of any potential increased could be calculated. Assuming that additional water could be made available due to changes in reservoir operations, based on comments received during the public scoping process, the Central Valley Project contractors were identified as having a potential interest in the purchase of additional consumptive water.

Bundle 7: Bucks Creek

No changes in consumptive water rights or delivery of water supplies within this bundle are anticipated to occur as a result of reallocation of existing water supply agreements, or changes in the operation of the hydroelectric facilities.

Bundle 8: Butte Creek, Lime Saddle, & Coal Canyon

Reallocation of water after termination or expiration of existing water supply agreements could result in 1,226 acre-feet per year of water becoming available for other uses, including sale to other individuals, agencies, or irrigation districts. In comments received during the public scoping process, Central Valley Project contractors were identified as having a potential interest in purchase of additional consumptive water.

Reallocation of in excess of 1,226 acre-feet of water per year from the Butte Creek, Lime Saddle and Coal Canyon Projects would provide the purchaser with the ability to “firm-up” existing water rights (which may currently be constrained during periods of drought), augment existing water supplies (which could be used to expand agricultural uses or supply local urban water needs), or into the open water market, and thereby used to supplement urban water needs in other areas, including the Central Valley or other more distant urban areas. An additional 1,226 acre-feet per year could support a residential population of approximately 8,000 persons.

Impact to Entire DeSabra Region

Reallocation in excess of 1,226 acre-feet of water per year from the Butte Creek, Lime Saddle, and Coal Canyon projects could be used to expand agricultural uses or supply local urban water needs, or could be sold into the open water market, and thereby used to supplement urban water needs in other areas. Additional water supply could be derived from changes in operation of the Feather River Project. An additional 1,226 acre-feet per year could support a residential population of approximately 8,000 persons. Since Central Valley Project contractors were identified as potential purchasers, it is not possible to indicate which specific area(s) could be the beneficiary of any additional water, but such water resulting from the project could induce population growth and services to accommodate and serve such growth.

5.1.3.3 Drum Region

Bundle 9: North Yuba

No changes in consumptive water rights or delivery of water supplies within this bundle are anticipated to occur as a result of reallocation of existing water supply agreements.

Bundle 10: Potter Valley

Reallocation of the existing water supplies (the existing agreement has expired) could result in 19,000 acre-feet per year of water becoming available for other uses, including sale to other individuals, agencies, or irrigation districts. In comments received during the public scoping process, the Sonoma County Water Agency and cities in Sonoma County were identified as having a potential interest in purchase of the consumptive water to preserve existing water supplies.

Purchasing 19,000 acre-feet of water per year from the Potter Valley Project would provide the purchaser with the ability to “firm-up” existing water rights (which could be lost due to termination of the current agreement), augment existing water supplies (which could be used to expand agricultural uses or supply local urban water needs), or sell water into the open water market to supplement water needs in other areas. Although purchase of this water supply could most likely be used to continue the current supply level (which would be lost if the existing agreement were ended), an additional 19,000 acre-feet per year could support a residential population of approximately 125,000 persons, which could induce growth and result in indirect growth-inducing impacts related to the demand for additional housing, public services, retail and commercial services. This growth would primarily be expected to occur in areas that are proximate to the source, or that have some method to convey this water. Since no significant mechanism to convey water out of the region exists, it is assumed that the transfer of water rights would primarily affect local growth, either within the area that currently benefits from the water (e.g., Sonoma County), or the area where the water historically flowed (e.g., the Eel River valley).

Bundle 11: South Yuba/Bear River

Reallocation of existing water supply agreements (which expire in the year 2013) could result in 165,341 acre-feet per year of water becoming available for other uses, including sale to other individuals, agencies or irrigation districts. In comments received during the public scoping process, the Placer County Water Agency and the Nevada Irrigation District were identified as having continuing interest in purchase of the consumptive water, in order to preserve existing supplies (which would be lost as a result of the termination of the agreements).

Reallocation of 165,341 acre-feet of water per year from the South Yuba and Bear Rivers would provide the new user with the ability to “firm-up” existing water rights (which could be lost due to expiration of the agreement), to augment existing water supplies (which could be used to expand agricultural uses or supply local urban water needs), or to sell water into the open water market to be used to supplement urban water needs in other areas. Although purchase of this water supply would most likely be used to replace the current supply (which would be lost if the existing agreements were not renewed), an additional 165,341 acre-feet per year could support a residential population of approximately 1,100,000 persons.

This water supply could be transferred to other areas and be used to support urban and suburban residential growth. Although legal and other issues (such as reluctance of irrigation districts to allow transfers to occur via their own conveyance facilities) remain potential impediments, transfers of water from one agency to another, and in some instances, from one region to another may become more prevalent in the future. Nonetheless, given the large volume of water, and the potential value of this water for urban uses, it is possible that water purveyors could seek to make this water available to urban areas, such as the Sacramento, San Joaquin and Livermore Valleys, the greater San Francisco Bay Area, and portions of Southern California. Water purveyors may place particular emphasis on providing water to areas where growth is currently constrained by a lack of water, for instance, where plans for large residential developments would require a substantial water supply. The transfer of large amounts of water could induce growth and substantial indirect growth-inducing impacts, such as demand for housing, public services (including utilities, schools, fire and police services, telecommunications, and parks), and retail and commercial services (such as grocery stores).

Bundle 12: Chili Bar

No changes in consumptive water rights or delivery of water supplies within this bundle are anticipated to occur as a result of reallocation of existing water supply agreements.

Impact to Entire Drum Region

Reallocation of in excess of 184,341 acre-feet of water per year from the Potter Valley and the South Yuba-Bear River projects could be used to expand agricultural uses or supply local urban water needs, or could be sold on the open water market, and thereby used to supplement urban water needs in other areas. Although local water agencies have been identified as potential purchasers, it is probable that such purchasers would be intended to restore existing supplies, which would be lost as a result of the termination of existing agreements. However, an additional 184,341 acre-feet per year could support a residential population of approximately 1,225,000 persons. Although there may be logistical and practical limitations that may limit the ability to transfer in excess of 184,000 acre-feet of water from the South Yuba River and the Potter Valley to other portions of the State, including the reluctance of the existing owners of conveyance systems such as canals, if such transfers could be accomplished, the transfer of such a large amount of water from rural to urban areas would result in substantial direct and indirect growth-inducing impacts, resulting in residential and commercial development that would increase demand for public services (including utilities, schools, fire and police services, telecommunications, and parks), and retail and commercial services (such as grocery stores).

5.1.3.4 Motherlode Region

No changes in consumptive water rights or delivery of water supplies within Bundles 13 (Motherlode), 14 (Stanislaus), or 15 (Merced Falls), are anticipated to occur as a result of reallocation of existing water supply agreements or changes in reservoir operations.

5.1.3.5 Kings Crane-Helms Region

Bundle 16: Crane Valley

No changes in consumptive water rights or delivery of water supplies within this bundle are anticipated to occur as a result of termination or expiration of existing water supply agreements. Changes in operation of the Crane Valley project could result in the release of an additional 18,000 acre-feet per year into Millerton Lake. The Friant Water Users Association has been identified as a potential purchaser of this bundle, which could be used to firm-up existing water rights and augment supplies. This could include the potential for water transfer of “excess” water to other agencies or water purveyors.

Up to 18,000 acre-feet of water per year from the Crane Valley project could be sold into the open water market, and thereby used to supplement urban water needs in other areas. Although purchase of this water supply could supplement local supplies, an additional 18,000 acre-feet per year could support a residential population of approximately 120,000 persons. This water could remain in the area and support additional population growth in the Central Valley, or could potentially be transferred to more distant urban areas such as Southern California, and could induce growth and result in indirect growth-inducing impacts including demand for housing, public services, and retail and commercial services in those locations that receive the additional water.

Bundle 17: Kerckhoff

No changes in consumptive water rights or delivery of water supplies within this bundle are anticipated to occur as a result of reallocation of existing water supply agreements, or changes in the operation of the hydroelectric facilities.

Bundle 18: Kings River

No changes in consumptive water rights or delivery of water supplies within this bundle are anticipated to occur as a result of reallocation of existing water supply agreements. Additional storage from Lake Wishon could supplement storage at Pine Lake, which would increase the availability of consumptive water, however no specific estimate of the additional water has been developed. The Kings River Water Association has been identified as a potential purchaser of this bundle, which would “firm-up” its existing water rights.

Bundle 19: Tule River

No changes in consumptive water rights or delivery of water supplies within this bundle are anticipated to occur as a result of reallocation of existing water supply agreements, or changes in the operation of the hydroelectric facilities.

Bundle 20: Kern Canyon

No changes in consumptive water rights or delivery of water supplies within this bundle are anticipated to occur as a result of reallocation of existing water supply agreements, or changes in the operation of the hydroelectric facilities.

Impact to Entire Kings Crane-Helms Region

Up to 18,000 acre-feet of water per year from the Crane Valley project could be sold into the open water market, and thereby used to supplement urban water needs in other areas. Although reallocation of this water supply could supplement local supplies, the additional 18,000 acre-feet per year could support a residential population of approximately 120,000 persons. Additional storage from Lake Wishon could supplement storage at Pine Lake, which would increase the availability of consumptive water. The Kings River Water Association has been identified as a potential purchaser of this bundle, which would “firm-up” their existing water rights, or augment local supplies, which could support population growth in the southern portion of the San Joaquin Valley. This could result in direct and indirect growth-inducing impacts, including increased demand for housing, public services, and retail and commercial services.

5.1.3.6 Evaluation of Impacts to the Entire System

Reallocation of existing water supplies and changes in operation of hydroelectric facilities could result in more than approximately 233,500 acre-feet per year of water becoming available for other uses, including sale to other individuals, agencies or irrigation districts. Although in some instances, purchase of water could be used to replace or firm up current supplies (which are supplied under existing agreements), water purveyors could choose to sell water on the open market, and thus some or all of the additional water supply could be transferred to other areas and be used to support urban and suburban residential growth. (Although legal and other issues remain potential impediments, transfers of water from one agency to another, and in some instances, from one region to another may become more prevalent in the future. The State of California and local water agencies recognize the need to resolve these issues and provide a viable framework for future transfers.) Therefore, under a "worst case" scenario, if all of the additional water supply that would result from the termination or expiration of existing supply agreements and changes in operation were combined, that amount would exceed approximately 233,500 acre-feet per year of water. This could accommodate the residential water needs of a population of approximately 1,600,000 persons. The largest portion (85 percent) of the consumptive water identified as being potentially available is in the Drum Regional Bundle, where the Placer County Water Agency, the Nevada Irrigation District, the Sonoma County Water Agency, and cities in Sonoma County have been identified as having a potential interest in purchase of the consumptive water in their respective areas to preserve and/or augment their existing water supplies. This represents 199,341 acre-feet of water (with a potential of supporting 1,300,000 people). Transfers of such a large amount of water would result in substantial direct and indirect growth-inducing impacts, resulting in

residential and commercial development that would increase demand for public services (including utilities, schools, fire and police services, telecommunications, and parks), and retail and commercial services (such as grocery stores).

5.2 EFFECTS CONSIDERED BUT ELIMINATED FROM DETAILED ANALYSIS

All the environmental factors enumerated in the CEQA guidelines have been evaluated in this EIR. No effects were considered but eliminated from detailed analysis, except as described within the topical impact sections in Chapter 4.

Following publication of the Notice of Preparation, a number of organizations and individuals identified issues of concern to them. To the degree that they were germane to the project (i.e., the divestiture of hydroelectric assets and ownership of these assets by others), these concerns have been addressed within the appropriate resource sections in Chapter 4 of this EIR. A number of topics were identified that were beyond the scope of the project and of this EIR. Examples include evaluation of past environmental degradation; evaluation of decommissioning of specific facilities; documentation of fishery restoration potential for each river; making the EIR adequate to cover future applications to change water rights; evaluation of effects on agency staff due to increased permit requests; evaluation of effects of FERC flow requirements on channel maintenance; and so forth. This EIR was not the appropriate vehicle for such evaluations, as they did not relate to the specific project at hand and/or were not a consequence of the project.

5.3 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

There are a number of significant irreversible environmental changes that could occur if the project is implemented. On a statewide basis, the project could result in an irreversible sale of Pacific Gas and Electric Company's hydroelectric system (3,900 MW of generation and approximately 140,000 acres of land) from Shasta County to Bakersfield. The system could be owned by non-utility entities who would not be regulated by the CPUC. Section 367(a)(6)(b) of the Public Utilities Code notes the irreversible nature of the decision regarding the Application: ". . . the valuations used for the calculation of the uneconomic portion of the net book value shall be determined not later than December 31, 2001, and shall be based on appraisal, sale, or other divestiture. The commission's determination of the costs eligible for recovery and of the valuation of those assets at the time the assets are exposed to market risk or retired, in a proceeding under Section 455.5, 851, or otherwise, shall be final, and notwithstanding Section 1708 or any other provision of law, *may not be rescinded, altered or amended.*" (Emphasis added)

5.3.1 WATER

Water is a renewable but finite resource. Hydroelectric power generation is a non-consumptive use of water. Patterns of water management and use may change. On a yearly basis, irreversible uses of the water could occur, depending on how, when, and where water is stored, released, and used. For example, Pacific Gas and Electric Company currently owns some consumptive water rights. New owners might elect to use these rights for their own consumptive needs, rather than release the water through the hydroelectric power generation facilities and on to downstream water users. Water would continue to be available to downstream users with appropriate rights in the water. But, water provided under informal agreements, at-will contracts, or under short-term contracts could become available to the current user if non-binding agreements are suspended or contracts are cancelled or not renewed. The current users would have to find or purchase a new source of water, or cease activities that required water. Hydroelectric power generation output could be reduced if a water-maximizing owner elected to retain or release water based largely on its water supply needs, thereby making the water unavailable for hydroelectric hydrogeneration.

5.3.2 LANDS

The transfer of Project Lands could result in different land uses than occurred historically. The public trust values that have accrued on Pacific Gas and Electric Company's lands could be lost through the transfer of the watershed lands. Changes could include intensification of existing uses, introduction of new uses, and maximum development of the land. Development of the land could lead to irreversible environmental changes.

5.3.3 TIMBER

Timber is a renewable resource and can be regenerated by planting or through natural reseedling. However, a change in ownership could lead to new forms of silviculture (e.g., even-aged stand

versus uneven-aged stand management) and more intense cutting. Timber harvest plans have been established for some of the lands associated with Pacific Gas and Electric Company's hydroelectric facilities. Timber harvesting could continue in the future at recent levels, be accelerated, or be reduced. Analysis of timber resources on the lands to be sold indicate there is opportunity for increased timber harvest activity if the lands were management with a greater emphasis on economic return than has occurred in the past.

5.3.4 MINERALS

Mineral extraction is a potential activity on some of the lands associated with Pacific Gas and Electric Company's hydroelectric facilities. As described in this EIR, however, mineral extraction opportunities are limited to specific areas within the Shasta and Motherlode Regions. There are substantial deposits of diatomaceous earth in the vicinity of Lake Britton, and there is a potential for quartz mining in Tuolumne County. Should mining occur, the extracted minerals would be consumed by end users, and would be unavailable for alternative future uses. The land area mined would be unavailable for other productive uses.

5.4 CUMULATIVE IMPACTS

In accordance with California Environmental Quality Act (CEQA) Guidelines Sections 15130(a) and (b), the purpose of this section is to provide a discussion of significant cumulative impacts that reflects “the severity of the impacts and their likelihood of occurrence.” The discussion of cumulative impacts should include:

- (1) Either: (a) a list of “past, present, and reasonably anticipated future projects producing related or cumulative impacts, including those projects outside the control of the agency,” or (b) a summary of projections contained in an adopted General Plan or related planning document which is designed to evaluate regional or area wide conditions.
- (2) A summary of expected environmental effects to be produced by these projects together with the project evaluated in the EIR; and
- (3) A reasonable analysis of the cumulative impacts of the projects, and examination of options for mitigating or avoiding the project’s contribution to any significant cumulative effects.

The cumulative impacts analysis in this Environmental Impact Report (EIR) uses a list-based approach to identify cumulative projects. In addition to the project proposed by Pacific Gas and Electric Company and addressed in this document, this analysis addresses five categories of projects that are reasonably foreseeable and may impact the environment cumulatively with the Pacific Gas and Electric Company project. They are (1) statewide water programs and projects; (2) reasonably foreseeable future power generating plants throughout California; (3) regional and local water projects; and (4) local land use projects.

Each of these categories of projects, and the individual cumulative projects within them, are described in Sections 5.4.1 to 5.4.3. Following the description of these projects, the potential cumulative impacts of Pacific Gas and Electric Company’s proposed divestiture plus the local and regional water and land cumulative projects are analyzed, using the same topical sections analyzed in Chapter 4 of this EIR for the project-specific impacts (Section 5.4.4). For the most part, the cumulative impacts are assumed to occur in, and are evaluated as of, the year 2005, unless a longer time horizon was considered for project impacts, in which case such further date is considered. Though the likelihood and timing of development of the myriad cumulative projects is unknown, and most of such projects lie outside the CPUC’s approval authority, this analysis assumes that all of the proposed cumulative projects are approved and fully implemented. Because environmental impacts associated with operation of the hydroelectric plants are primarily local in nature, the cumulative impacts are addressed for each Regional Bundle, and then by Local Bundle where appropriate or system wide where such analysis is sufficient to capture the potential effects. The potential cumulative effects of the statewide water projects, future power generating plants and additional hydroelectric divestiture projects are discussed in Sections 5.4.1 and 5.4.2, respectively.

The topic-by-topic cumulative impact analysis in Section 5.4.4 is conducted in a conservative manner. In order to avoid underestimating the localized effects of the project together with cumulative projects, those foreseeable future projects that would be expected to decrease the

likelihood that the powerhouses proposed for divestiture will operate at higher levels in the future are described, but are not carried forward into the detailed cumulative impacts analysis in Section 5.4.4. The exception to this premise is that all future projects deemed necessary to support demand for electricity by 2005 are carried forward in the analysis. Not only is this realistic, but it also enables statewide modeling of the electrical generation and distribution system to be done. Within the descriptions of the foreseeable projects, below, it is explained whether each project is carried forward into the subsequent detailed analysis, and the basis of that determination.

5.4.1 STATEWIDE PROGRAMS AND PROJECTS

A number of statewide programs and projects either recently approved or currently undergoing environmental review and permitting processes involve water resource planning in California. As the population of the state continues to grow, pressure is increasing to develop comprehensive solutions to water resource allocations and uses by competing economic, ecological, urban, and agricultural interests. Programs such as CALFED (see Section 5.4.1.1) seek to restore ecological health and improve water management for beneficial uses through primarily restoration and enhancement projects, while others such as the Central Valley Project Improvement Act (see Section 5.4.1.2) focus primarily on operational changes of existing water conveyance facilities to achieve similar improvements in ecological health and water management strategies. The California 4.4 Plan (see Section 5.4.1.3), designed to bring California into compliance with the "Law of the River", will result in less water available from the Colorado River for California to meet the needs of the southern portion of the state. This would likely result in increased support for statewide water conservation and may result in increased pressure to move water from north to south through transfers to make up for the supply reduction as California learns to live within their 4.4 MAF/YR entitlement. The Clean Water Act's Total Maximum Daily Load (TMDL) process (see Section 5.4.1.4) may result in further restrictions within the upper watersheds as regional boards implement standards and water quality objectives to address, among other things, non-point and point source pollution.

The following section describes the major regional or statewide programs and projects that may contribute to cumulative impacts when considered in concert with the Hydrodivestiture Project. This section discusses the potential that a cumulative impact could occur along with the implementation of statewide projects.

5.4.1.1 CALFED

The CALFED Bay-Delta Program, begun in May 1995 to address the complex issues that surround the Bay-Delta, is the largest, most comprehensive water management program in the world. It is also one of the most intensive water conservation efforts ever attempted and the most complex and extensive ecosystem restoration project ever proposed. CALFED is a cooperative, interagency effort by 18 State and Federal agencies with management or regulatory responsibilities for the Bay-Delta. The collaborative program includes representatives from agricultural, urban, environmental,

fishery, and business interests, as well as Indian tribes and rural counties who have contributed to the process.

The CALFED Bay-Delta Program was established to develop a long-term comprehensive plan that will restore ecological health and improve water management for beneficial uses of the Bay-Delta system. CALFED developed the following objectives for a solution:

- Provide good water quality for all beneficial uses,
- Improve and increase aquatic and terrestrial habitats and improve ecological functions in the Bay-Delta to support sustainable populations of diverse and valuable plant and animal species,
- Reduce the mismatch between Bay-Delta water supplies and current and projected beneficial uses dependent on the Bay-Delta system,
- Reduce the risk to land use and associated economic activities, water supply, infrastructure and the ecosystem from catastrophic breaching of Delta levees.

From these objectives, CALFED drafted twelve alternatives that were evaluated in the Draft Programmatic EIS/EIR. These twelve were narrowed to four that were included in the Final Programmatic EIS/EIR. The Preferred Program Alternative presented in the Record of Decision (ROD) published August 28, 2000, consists of a set of broadly described programmatic actions that set the long-term overall direction of the 30-year CALFED Program. The Preferred Program Alternative includes the Levee System Integrity Program, Water Quality Program, Ecosystem Restoration Program, Water Use Efficiency Program, Water Transfer Program, Watershed Program, Storage and Conveyance.

The Water Quality Program is committed to achieving continuous improvement in the quality of the waters of the Bay-Delta system by minimizing ecological, drinking water, and other water quality problems. The program includes a number of actions within the upper watersheds of the Sacramento and San Joaquin rivers, including reduction of trace metals such as copper, cadmium and zinc and reduction in mercury levels in upper watershed areas near abandoned mine sites, and reduction in turbidity and sedimentation. These upper watersheds are included within the Shasta, DeSabra, Drum, and Motherlode regional bundles.

The goal of the Ecosystem Restoration Program is to improve and increase aquatic and terrestrial habitats and to improve ecological functions in the Bay-Delta system to support sustainable populations of diverse and valuable plant and animal species. This program identifies programmatic actions designed to restore, rehabilitate, or maintain important ecological management zones. Implementation will be guided by six goals presented in the Strategic Plan for Ecosystem Restoration. Nearly 100 restoration objectives have been developed which are directly linked to one of the six goals. Representative Ecosystem Restoration Program actions relevant to the Divestiture Project include:

5.4 Cumulative Impacts

- Acquiring water from sources throughout the Bay-Delta's watershed to provide flows and habitat conditions for fishery protection and recovery;
- Restoring critical in-stream and channel-forming flows in Bay-Delta tributaries;
- Implementing large-scale restoration projects on selected streams and rivers including Clear Creek, Deer Creek, Cosumnes River, San Joaquin River and Tuolumne River;
- Restoring aspects of the sediment regime by relocating in-stream and floodplain gravel mining, and by artificially introducing gravel to compensate for sediment trapped by dams; and
- Modifying or eliminating fish passage barriers, including the removal of some dams (Battle Creek Project), construction of fish ladders, and construction of fish screens that use the best available technology.

The Watershed Program goal is to promote locally led watershed management activities and protections that contribute to the achievement of CALFED goals for ecosystem restoration, water quality improvement, and water supply reliability. This Program will accomplish these tasks by providing financial and technical assistance to local community watershed programs. A few of these projects are well into planning or permitting stages and as such, have been included within the discussion of cumulative impacts expected under individual resource topics (Section 5.4.2).

The Record of Decision was published August 28, 2000. Because of the size and complexity of the CALFED Program, implementation is likely to take place over a period of decades. Stage 1 implementation covers the first seven years of a 30-year program and builds the foundation for long-term actions. These actions depend upon subsequent project-specific environmental analyses as well as on subsequent review of financial and legislative proposals in the Record of Decision by the State and Federal executive branches, Congress and the State Legislature.

A program-level environmental analysis was conducted for CALFED. Specific CALFED projects in the planning stages and those being implemented have been addressed with the appropriate regional bundle's cumulative impact discussion. Because of the enormity of the CALFED Project, it is difficult to speculate about the cumulative impacts that may be associated with the Hydrodivestiture Project. Generally, it can be assumed that beneficial effects will result from the habitat protection and enhancement actions of CALFED. One major facet of CALFED is to improve water supply reliability. In this respect, the impact of the Hydrodivestiture Project could be to diminish the effectiveness of CALFED if the project results in a loss of a reliable water source for consumptive use in some areas. This could be considered cumulatively significant. However, Mitigation Measure 11-3 would reduce the contribution of the project to a level that will be less than cumulatively considerable and de minimus because the project's effect in this regard would be eliminated.

5.4.1.2 Central Valley Project Improvement Act (CVPIA)

The CVPIA mandates changes in management of the Central Valley Project (CVP), particularly operation of the CVP to dedicate and manage 800 TAF per year of CVP water for the protection,

restoration, and enhancement of fish and wildlife. The CVP is the system of reservoirs, power plants, pumping plants, and canals managed by the Bureau of Reclamation in California. The combined storage capacity is about 12 MAF, which accounts for approximately 25% of California's developed surface water supply. The Department of Interior developed policies and programs to: (1) modify the operations, management, and physical facilities of the CVP; and (2) renew existing CVP water services and repayment contracts to comply with the purposes and goals of the CVPIA, which reduces deliveries to CVP water service contractors, and the revised purposes of the CVP.

Physical measures to restore fish and habitat include:

- Establishment of fish screening programs,
- Development and implementation of measures at the Red Bluff Diversion Dam to minimize fish passage problems,
- Expansion of the USFWS's existing hatchery facility,
- Modification of the Keswick Dam fish trap and spillway to prevent trapping of fish,
- Development and implementation of a continuing program to restore and replenish lost spawning gravel in the upper Sacramento River,
- Development and implementation of a program that provides for modified operations or new and improved control structures at the DCC and Georgiana Slough, and
- Design and construction of a new fish protection structure at the Glenn County Irrigation District pumping facility near Hamilton City.

Although the CVP has a significant beneficial impact to California's system of waterways, the contribution of the Hydrodivestiture Project to any cumulative impact with the CVP will be de minimus. The CVP is located downstream from Project Lands. The rivers in the Shasta, DeSabra, and Drum Watershed Regions empty into the Sacramento River and Rivers in the Motherlode and Kings Crane-Helms Watershed Regions empty into the San Joaquin River System, but none of the hydroelectric dams in the Hydrodivestiture Project are located on the Sacramento River or San Joaquin River. Therefore, there is no cumulative impact with the CVP caused by the divestiture of Pacific Gas and Electric Company's hydroelectric facilities.

5.4.1.3 California 4.4 Plan

The rights of the Colorado River seven states (including California) and Mexico to use Colorado River water is governed by a body of permits, agreements, contracts, court decrees, acts, laws, and treaties collectively referred to as the "Law of the River" or "Colorado River Law". California's entitlement to divert and consumptively use Colorado River water under the Law of the River is 4.4 MAF/YR and 50 percent of any surplus water in any one year. The use of the water has been allocated by Supreme Court decrees, the California Seven-Party Agreement, contracts with the Secretary of the Interior, and agreements among water entitlement holders.

5.4 Cumulative Impacts

Both Arizona's and Nevada's water uses are increasing and they will likely be fully using their entitlements in a few years, which will reduce the amount of water available to California. The Secretary of the Interior has requested that the Colorado River water users in California develop a plan to reduce their use of Colorado River water to within California's basic entitlement.

Under the California 4.4 Plan framework, the Colorado River Board of California, the water users, and other interested parties will establish and agree on strategies by which California's consumptive use of Colorado River water would be reduced over time to its basic apportionment of 4.4 MAF/YR and 50 percent surplus water. This would be accomplished in phases, by water conservation, conveyance system improvements, water transfers, banking water, and the establishment of water budgets among those users who share an entitlement. The objective is to allow California time to reduce its use of Colorado River water as the states of Arizona and Nevada grow into their full use of their water apportionment.

The primary impact associated with the 4.4 Plan is a reduction of available water for consumptive and non-consumptive uses. With a decrease in the total amount of available water, demands for alternative sources to replace losses become critical. The northern part of the state can be expected to experience competition for any supplies available for transfer and the cost of water statewide could increase as a result of demand exceeding supply. This impact may be buffered somewhat by the development of additional storage facilities under the CALFED Program.

Appendix D lists Pacific Gas and Electric Company's water-related contracts and binding and non-binding agreements. Although Pacific Gas and Electric Company's water rights are generally for non-consumptive water rights, there are several agreements and contracts for consumptive water rights. Impact 11-3 states that the implementation of the proposed project could result in the eventual loss of consumptive water to existing water users.

In the Potter Valley Project, FERC 0077, Pacific Gas and Electric Company has a water contract with the Potter Valley Irrigation District (PVID) that runs until 2022. The loss of this contract would reduce consumptive water to the Sonoma County Water Agency and PVID. In Bundle 11, Drum-Spaulling FERC 2310, the Placer County Water Agency (PCWA) has water contracts with Pacific Gas and Electric Company and if the water contracts are not renewed, there would be an inadequate water supply for PCWA's consumers. Since the California 4.4 Plan would increase competition for consumptive water in California and the current water supply for PVID and PCWA is not guaranteed, the cumulative impact with the California 4.4 Plan will be significant. The impact of the project's contribution with the California 4.4 Plan would be significant. However, Mitigation Measure 11-3 would reduce the contribution of the project to a level that will be less than cumulatively considerable and de minimus.

5.4.1.4 Clean Water Act – Total Maximum Daily Load (TMDL) Program

Congress, through the Clean Water Act, established the legal requirement that States list and rank impaired water bodies, and that TMDLs be established for those water bodies, in accordance with the priority ranking. Pursuant to the requirement of CWA §303 (d) and 40 CFR 130.7, the regional water quality control boards in California are tasked with identifying and establishing criteria within their jurisdictional boundaries.

The process provides a flexible assessment and planning framework for identifying load reductions or other actions needed to attain water quality standards (e.g., water quality goals to protect aquatic life, drinking water, and other water uses). TMDLs should address all significant stressors which cause or threaten to cause water body use impairment, including:

- Point sources (e.g., sewage treatment plant discharges),
- Nonpoint sources (e.g., runoff from fields, streets, range, or forest lands), and
- Naturally occurring sources (e.g., runoff from undisturbed lands).

TMDLs are developed to provide an analytical basis for planning and implementing pollution controls, land management practices, and restoration projects needed to protect water quality.

Upon approval of the TMDLs by EPA, the State is required to incorporate the TMDLs along with appropriate implementation measures in the State Water Quality Management Plan. This is equivalent to a Basin Plan Amendment. CWA 13242 requires that a program of implementation for achieving water quality objectives be included in any Basin Plan Amendment. Pursuant to these requirements, the Regional Board will develop and adopt Implementation Plans for each TMDL for each listed water body/pollutant combination. Implementation Plans must include a description of actions necessary to achieve water quality objectives, a time schedule for actions to be taken, and a description of monitoring and surveillance activities to determine compliance with the objectives. The Regional Board will likely consider technical and economic feasibility when adopting the TMDL Implementation Plans. The Implementation Plans will utilize an adaptive management approach. The long-term goal of the TMDL process is to improve water quality.

Since any owner of hydroelectric facilities, either Pacific Gas and Electric Company or a new owner, would have to follow the same constraints and conditions that the TMDL Program imposes, the project's contribution to any cumulative impact will be de minimus and thus not significant.

5.4.2 FUTURE POWER PLANT DEVELOPMENT

5.4.2.1 Introduction

Peak electricity demands in California are expected to continue to increase between now and 2005. The forecasted increase in demand is not a result of, or directly related to, the proposed sale of Pacific Gas and Electric Company's hydroelectric generation assets; it is expected to occur whether or not these plants are sold. As discussed in Chapter 2, the increasing peak demand in California in

combination with unusually high temperatures and the shrinking availability of imports from the rest of the Western region (due to similar demand, temperature and other factors, such as Northwest hydro constraints) is seriously challenging California's supply of electric generation.

The precise manner in which the current electricity needs, in conjunction with the California's anticipated load growth, will be accommodated in the future cannot reasonably be specified. The response to this energy demand/supply challenge will continue to be the focus of the CPUC and other agencies and organizations responsible for California's energy infrastructure. As was cited frequently in reports, public statements and legislation during the Summer of 2000, additional power plants and related transmission lines are needed, and several have been approved by the California Energy Commission (CEC), with more far along in the permitting process. The exact size, mix and location of facilities that will ultimately be approved to meet California's growing energy needs is speculative. However, in order to portray and consider generally the potential for cumulative impacts with this project, it is assumed that new generation facilities to serve the State's electricity needs would be constructed by 2005.

Many of the proposed thermal power plants would use the "combined cycle" process, in which electricity is created from combustion turbines and steam turbines. Natural gas is burned to fire the combustion turbines. Exhaust heat from the combustion turbines is then used to generate steam in heat recovery steam generators (HRSGs), which in turn drives the steam turbine electricity generator. The combined cycle process is considered to be "state of the art" in that it creates electricity more efficiently and creates less pollution than conventional thermal power systems, which is a factor in considering the "trade-off" between thermal and hydroelectric power generation, which is different than in past decades.

Another "block" of electric generating capacity is the hydroelectric generating system owned and operated by Southern California Edison (SCE), which is also undergoing a market valuation proceeding at the CPUC (see Section 5.4.2.3).

5.4.2.2 Thermal Power Plants with Approved, Pending or Expected Applications

Information provided by the CEC indicates that there are currently five power plants with the necessary certification to construct pending final siting and issuance of local building permits. If constructed, the combined potential output of these five plants represents approximately 3,600 MW of additional power that will be available to the statewide grid within the next five years.

- The **Sutter Power Project** is proposed by the Calpine Corporation, and was approved by the CEC on April 14, 1999. The facility would be a 500 MW, natural gas-fired merchant power plant located on a ten to 12-acre site adjacent to Calpine's existing Greenleaf Unit No.1 cogeneration plant, approximately seven miles southwest of Yuba City in Sutter County. The project would require construction of ancillary facilities, including a new natural gas pipeline and a 230 kV transmission line. Potable water and cooling water would be provided by an on-site well system.

- The **Los Medanos Power Plant** (formerly Pittsburg District Energy Facility) is proposed by Pittsburg District Energy, LLC (a joint venture between the City of Pittsburg, Enron, and USS-Posco Industries), and was approved by the CEC on August 17, 1999. The power plant would include a combined-cycle combustion turbine generator with a nominal capacity of 500 MW. The plant would be located on a 12-acre site on East 3rd Street, west of the intersection of East 3rd Street and Columbia Street in the City of Pittsburg, Contra Costa County. The site is located on the northwest corner of the property owned by USS-Posco Industries. The project would require construction of ancillary facilities, including a new electric transmission line, natural gas pipeline, sewer line, and a reclaimed water line. Reclaimed water for turbine cooling would be supplied by the Delta Diablo Wastewater Treatment Facility located in the City of Antioch. The combined-cycle unit would be fueled by natural gas. It is expected that ten percent of the generating capacity of the plant would be dedicated to USS-Posco Industries, while the remaining 90 percent would go to the power grid for distribution.
- The **La Paloma Generating Plant** is proposed by La Paloma Generating Company, LLC, and was approved by the CEC on October 6, 1999. The plant would be a 1,048 MW, natural gas-fired, combined-cycle facility located on a 24-acre site near McKittrick in Kern County, approximately 35 miles west of Bakersfield. The project would require construction of ancillary facilities, including a new natural gas pipeline, a new 230 kV transmission line, and a water supply pipeline.
- The **Delta Energy Center** is proposed by the joint partnership of Calpine Corporation and San Francisco-based Bechtel Enterprises Inc., an affiliate of Bechtel Group Inc., and was approved by the CEC on February 9, 2000. The project is an 880 MW, natural gas-fired, combined cycle electric generation facility. The Delta Energy Center is proposed to be located on an undeveloped 20-acre parcel lot, the Dow Chemical Company facility located generally north and west of the Delta Diablo Sanitation District treatment facility. A new 3.3-mile, 230 kilovolt (kV) electric transmission line is proposed. This line will interconnect to the electric transmission system at the existing Pacific Gas and Electric Company substation near the Pittsburg Power Plant. The line will be above ground as it runs in front of the USS-Posco, then will transition to underground along 8th Street. Water for the cooling towers will be secondary-treated wastewater from the Delta Diablo Sanitation District, which will receive additional treatment on the project site to comply with the requirements of the Department of Health Services. Water for steam production and domestic uses will be supplied by the Contra Costa Water District and transported in Dow's existing 20-inch pipeline. All plant discharges will be sent back to the Delta Diablo Sanitation District for disposal in its existing discharge pipe. Approximately 200,000 lb/hr of saturated steam will be supplied to Dow Chemical in a 0.7-mile above-ground insulated carbon steel pipeline. Condensate will be returned in an uninsulated pipe carried on the same structures.
- The **High Desert Power Plant** is proposed by Inland Energy and Constellation Power Development, and was approved by the CEC on May 3, 2000. It would be a 680 to 720 MW natural gas-fired merchant power plant located on a 25-acre site on a portion of Southern California International Airport, formerly known as George Air Force Base, near Victorville in San Bernardino County. The project may be a peaking plant, or a baseload combined-cycle plant, or a combination of both. The project would require construction of ancillary facilities, including an electric transmission line, natural gas pipeline, and water and wastewater pipelines.

The CEC currently lists 14 pending power plant siting cases in California. These power plants are in various stages of application review. On average, CEC permitting takes from 1-2 years², before construction may start (and local building permits, as well as other required state and federal permits, must also be obtained). It is unknown at this time which of these power plants, if any, will ultimately be fully permitted and built. However, it is reasonably foreseeable that one or more

² Note that AB 970 effective January 1, 2001, will reduce CEC permitting for “extra-clean” plants to six months.

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will eventually be constructed. The following provides a brief description of each of these potential power plants, with those furthest along in the CEC permit process listed first:

- The **Sunrise Cogeneration & Power Project** is proposed by the Sunrise Cogeneration and Power Company (SCPC). The project is a 320 MW, natural gas-fired cogeneration facility, located approximately 35 miles southwest of Bakersfield, California. The power plant would be located on a 20-acre parcel of vacant land and is within an existing oil and gas production field. The vicinity is heavily developed and utilized by petroleum companies for natural gas and oil production. The 320 MW cogeneration facility will consist of two General Electric Frame 7FA combustion turbine generators (CTGs) and two-heat recovery steam generators (HRSGs). Each turbine will be equipped with dry low-NOx (oxides of nitrogen) combustors, and the HRSGs will be equipped with anhydrous ammonia type selective catalytic reduction for emissions control. Each HRSG will be designed to produce steam for Texaco California, Inc. (TCI) steam injection wells in the vicinity of the project. Water produced along with the crude oil from the production wells will be treated and reused as HRSG feedwater. Because of the “once-through” design of the HRSG, there is no boiler blowdown stream during normal operation. Natural gas will be the only fuel used at the facility and will be supplied by the gas line thermal host, TCI. The facility’s consumptive fresh water requirements will be minimal, since the primary project water supply will be pretreated, produced water from the adjacent oil field operations. It is intended that Western Kern Water District (WKWD) will be the secondary boiler feedwater and will only be used when the TCI feedwater supply is interrupted. Power will be generated by the CTGs at 18 kilovolt (kV) and stepped up by two transformers to 230 kV in a new substation (the Sunrise Substation) directly east of the cogeneration plant. The cogeneration plant interconnection to the regional transmission system will be at Pacific Gas and Electric Company’s Midway substation, via an approximately 23-mile 230 kV line. SCPC plans to begin construction immediately after certification, and commence commercial operation within a year of construction start. There will be a peak work force of approximately 255 construction jobs and about 24 permanent facility operations personnel. The CEC Presiding Member’s Proposed Decision was released on May 8, 2000.
- The **Elk Hills Power Project** proposed by Elk Hills Power, LLC, is a joint venture between Sempra Energy Resources and Occidental Energy Ventures of Elk Hills. The project consists of a nominal 500 MW, natural gas-fired, combined cycle facility. The power plant would consist of two combustion turbine generators (CTGs), two heat recovery steam generators (HRSGs) and exhaust stacks, and one steam turbine. The Elk Hills Power Project (EHPP) will be located on 12 acres roughly in the center of the 74 square mile Elk Hills Oil and Gas Field operated by Occidental Energy Ventures of Elk Hills, Inc. (OEHI). The site is in western Kern County, California, approximately 25 miles west of Bakersfield, California. A proposed new nine-mile bundled 230 kilovolt (kV) double circuit overhead transmission line will be built to interconnect either to the east at a new substation near Tupman, California, or north to the Midway substation near Buttonwillow, California. Natural gas will be supplied by a proposed new 2,500 foot, ten-inch supply pipeline owned and operated by OEHI. Process water would be groundwater provided by the West Kern Water District (WKWD) and conveyed to the project site by a proposed new 9.8-mile, 16-inch supply pipeline. Wastewater would be disposed of in proposed new disposal wells located 4 miles south of the power plant site and would be conveyed by a proposed new pipeline. The CEC Presiding Member’s Proposed Decision was released on August 25, 2000.
- The **Moss Landing Power Plant Project** is proposed by Duke Energy Moss Landing LLC. On May 7, 1999, Duke Energy filed an Application for Certification (AFC) seeking approval to construct and operate the proposed 1,060-MW power plant at the existing Moss Landing Power Plant site that was previously operated by Pacific Gas and Electric Company for about 50 years, and purchased by Duke Energy. This site is located at the intersection of Highway 1 and Dolan Road, east of the community of Moss Landing near the Moss Landing Harbor. The project consists of replacing the existing electric power generation Units 1-5, (a total of 613 MW built in the 1950s and shut down in 1995), with two 530 MW, natural gas-fired, combined cycle, units. Each combined cycle unit consists of two natural gas fired combustion turbine generators (CTGs), two unfired heat recovery steam generators (HRSGs) and a

reheat, condensing steam turbine generator (STG). Each combined cycle unit will use seawater for once-through cooling. Duke Energy also proposes to upgrade each of the existing Units 6 and 7 by 73 MW. The CEC Presiding Member's Proposed Decision was released on August 29, 2000.

- The **Hanford Energy Park (HEP)** is proposed by GWF Power Systems Company (GWF). On May 19, 2000, GWF filed an application for a Small Power Plant Exemption for the HEP. The proposed HEP Project will be a 98.7 MW project. It will include a natural gas-fired, combined cycle, with combustion turbine generator (CTG) and a heat recovery steam generator (HRSG), which will supply one steam turbine generator (STG). The HEP plant facilities will occupy approximately 10 acres and will be located adjacent to an existing GWF cogeneration power plant. The existing plant and adjacent site are located in the Kings Industrial Park, on the southern border of Hanford, California (Kings County). The proposed power plant will be a cogeneration power plant using natural gas producing two forms of energy; electricity and thermal energy (steam). It is the intent of the project to transmit power through a new 1.2-mile 115-kilovolt (kV) transmission line. HEP would be operated as a merchant power facility, selling its energy via direct sales agreements and in the spot market via the California Power Exchange. The CEC expects to complete the SPPE review process by the end of 2000. GWF plans to start operation by Summer 2002.
- The **Pastoria Power Project** is proposed by Enron North America Corporation. On November 30, 1999, Enron filed an Application for Certification (AFC) seeking approval to construct and operate the proposed 750-MW facility. The electric generation facility will operate in combined cycle mode burning natural gas. The project will also include the construction and operation of ancillary facilities including water supply lines, a natural gas pipeline, an electric transmission line to connect with the grid, and wastewater disposal facilities. The project is proposed to be located on 30 acres at the Tejon Ranch, which is located about 30 miles south of Bakersfield and about 6.5 miles east of Interstate 5 near the base of the Tehachapi Mountains (Kern County). The CEC released the Final Staff Assessment (pre-Presiding Member's Proposed Decision) on September 5, 2000.
- The **Metcalf Energy Center** is a proposed 600 MW power plant located in southern San Jose, California (Santa Clara County), approximately one-half mile west of the Pacific Gas and Electric Company's Metcalf substation. The plant will be constructed by Bechtel Enterprises Inc. and run by Calpine Corporation. If approved by the Commission, the project schedule calls for construction to begin in 2001, with the plant being operational by late 2002 or early 2003. The project will use two "F" technology industrial frame combustion gas turbine generators. The combined cycle power plant will be fueled by natural gas from an existing Pacific Gas and Electric Company backbone line located less than one mile from the site. For electrical transmission, the project will interconnect with an existing 230 kilovolt transmission line located less than 500 feet from the project site. The CEC's Preliminary Staff Assessment was released on May 15, 2000.
- The **Otay Mesa Power Plant** is proposed by Otay Mesa Generating Company, and would be a merchant power plant with a generating range of 660 to 700 MW to be located in southern San Diego County near the California-Mexico border. The facility is proposed to be a four-unit, natural gas-fired peaking plant. The project proponent may convert the plant in the future to a combined-cycle plant and is planning the electric transmission line size and circuitry to be able to handle either peaking loads or a combined-cycle's more continuous operating profile. The project would require the construction of ancillary facilities, including 69 kilovolt (kV) and 230 kV electric transmission lines, a natural gas pipeline, water and wastewater pipelines and access roads. The CEC Preliminary Staff Assessment was completed on August 18, 2000.
- The **Western Midway-Sunset Cogeneration Power Project** is proposed by the Western Midway Sunset Cogeneration Company (MSCC). On December 22, 1999, MSCC filed an Application for Certification (AFC) for the project, a 500 MW, natural gas-fired, combined cycle plant, with two combustion turbine generators (CTG) and two heat recovery steam generators (HRSG), which will supply one steam turbine generator (STG). The Western MSCC plant facilities will occupy approximately 10 acres adjacent to an

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existing 225 MW Western Midway Sunset Cogeneration power plant. The existing plant and adjacent site are located approximately 2.5 miles east of Derby Acres in western Kern County, California. The proposed power plant will use existing Western MSCC facilities, pipelines, and construction corridors. It is the intent of the project to transmit power through a new 19-mile 230 KV transmission line to be constructed parallel to and within the existing 230 KV line corridor which connects the existing MSCC plant to Pacific Gas and Electric Company's Western Midway Substation at Buttonwillow, California. Untreated water will be supplied by a new pipeline from West Kern Water District (WKWD). Emission control will be provided by a Selective Catalytic Reduction (SCR). The SCR system consists of the reduction catalyst and an aqueous ammonia injection system. The CEC Preliminary Staff Assessment was released on August 21, 2000.

- The **Contra Costa Power Plant (CCCP) Unit 8** is proposed by Southern Energy Delta LLC, (AFC filed January 31, 2000). The proposed CCPP Unit 8 Power Project will be a nominal 530 MW, natural gas-fired, combined cycle, combustion turbine power plant located within the existing Contra Costa Power Plant site complex in Contra Costa County, just north of the City of Antioch (Contra Costa County). The CCPP site occupies about 200 acres on Wilbur Avenue, one mile northeast of Antioch, on the southern shore of the San Joaquin River. Highway 4 and the Antioch Bridge are just east of the site. Immediately south and west of the site are existing industrial facilities. The river borders the north side, while a recreational marina, open space and additional industrial land uses occur east of the proposed project. The proposed Unit 8 would occupy 20 acres of the northeast corner of the complex. Pacific Gas and Electric Company originally constructed the CCPP complex in 1951. Units 4 and 5 were added in 1953, while Units 6 and 7 were placed in operation in 1964. The original Units 1, 2 and 3 were retired in 1994, while Units 4, 5, 6 and 7 continue to be operational. The existing units are conventional natural gas-fired boilers that use once-through cooling. Existing power capacity is 680 MW. Southern Energy Delta purchased the CCPP from Pacific Gas and Electric Company in April 1999. CCPP Unit 8's combined cycle power unit would consist of two natural gas-fired combustion turbine generators, two heat recovery steam generators (HRSGs), and a steam turbine generator. The natural gas fuel for Unit 8 would be supplied by the existing gas pipeline. Cooling water for Unit 8 would be supplied by re-use of the cooling water from the existing Units 6 and 7. According to the applicant's project description, no net increase in water withdrawal from the San Joaquin River is anticipated. Additional project facilities would include two 195-foot tall exhaust stacks on the heat recovery generators, a ten-cell water cooling tower, a turbine building, storage tanks, a control building, and electrical power transformers and transmission facilities to interconnect with the existing switchyard on the CCPP site complex. As described by the applicant, no additional electric transmission lines outside of the CCPP complex are needed to transmit Unit 8's electricity to the regional transmission grid. Southern Energy Delta proposes to begin construction in 2001, and start operation of CCPP Unit 8 by 2003. The CEC expects to issue its Preliminary Staff Assessment by November 2000.
- The **Blythe Energy Power Plant Project** as proposed by Blythe Energy, LLC, is a 520 MW, base-load, combined-cycle power plant proposed to be built in the City of Blythe, California (Riverside County). The company filed its AFC on December 9, 1999, and the CEC Preliminary Staff Assessment was released on May 15, 2000.
- The **Three Mountain Power Plant Project** is proposed by Three Mountain Power, LLC (Ogden Pacific Power) of Redding, California, will be built adjacent to an existing 10 MW waste wood-fueled power plant in Burney, California. The facility will be a 500 MW natural gas-fired, combined-cycle power plant comprised of two advanced technology combustion turbines, one or more steam turbines, and supporting equipment. The project proposes to interconnect to existing 230 kilovolt Pacific Gas and Electric Company transmission lines located near the project site. The AFC was filed on March 3, 1999, and the CEC's website reports substantial procedural activity since then, including evidentiary hearings; however, the status of the proceeding is unclear.

- The **Mountainview Power Plant Project** is a proposed 1,034 MW power plant project for San Bernardino County. The project proponent is Thermo Ecotek, which filed its AFC on February 1, 2000. The CEC found the AFC “Data Adequate” on May 17, 2000.
- The **Nueva Azalea Power Plant Project** (formerly called the Sunlaw Cogeneration Partners I [SCPI]) will be a 550-MW (MW), natural gas-fired combined cycle power plant. The applicant intends to locate the project on a 13.5-acre site in the City of South Gate at the eastern edge of the city limits. The site is bound by Southern Avenue on the north, East Frontage Road of the 710 Interstate Freeway on the west, Garfield Avenue and Miller Way on the east, and other developed industrial properties on portions of the south, east and west. The main power facilities for the project will contain two power islands, an electrical switchyard, administrative buildings, chemical storage areas, cooling towers and other support facilities. Natural gas will be supplied to the project via a new pipeline of approximately one mile in length. The water supply source for the plant cooling towers will be from an existing reclaimed water supply. The water supply source necessary for the electric generating cycle (steam) will be purchased from the City of South Gate, representing approximately 2.5 percent of the total volume of potable water used each year in the City. The Applicant has identified eight transmission options, with the preferred alternative requiring approximately 1,000 feet of new 230 kilovolt transmission line to be built to interconnect the project at the Southern California Edison substation. The applicant plans to complete construction and start operation of the combined cycle unit in the second quarter of 2003. During construction, up to approximately 391 construction personnel will be employed during the 20-month construction schedule. A permanent workforce of approximately 33 people will operate the plant. The CEC found the AFC (filed March 8, 2000) “Data Adequate” on August 9, 2000.
- The **Potrero Power Plant Unit 7** is proposed by Southern Energy of California (SECAL). The facility will operate in conjunction with the existing 360-MW (MW) Potrero Power Plant located in southeast San Francisco, which SECAL purchased from Pacific Gas and Electric Company in April 1999. The existing Potrero Power Plant consists of three 52 MW combustion turbines (Units 4, 5 and 6), and one 206-MW steam turbine (Unit 3). The proposed Unit 7 would be a 540 MW natural gas-fired, combined cycle power generating facility. Pollution controls include Selective Catalytic Reduction (SCR) systems to control the emissions of oxides of nitrogen (NOx), and two CO catalysts to control carbon monoxide emissions. Aqueous ammonia, which is already used at Unit 3, will be used as the reagent in Unit 7’s SCR system. Deliveries will be made by tanker trucks and stored in two identical, 20,000 gallon aboveground storage tanks; one tank will be used for Unit 7, the other will replace the existing Unit 3 storage. Interconnection with the high voltage transmission system would be through a proposed new Potrero Power Plant Switchyard, located onsite, and to two existing Pacific Gas and Electric Company substations: a direct interconnection to the adjacent Potrero Substation, and a separate underground interconnection to the Hunters Point Substation located approximately 1.8 miles to the south. The Potrero Unit 7 would be operated as a merchant power facility, selling its energy via direct sales agreements and in the spot market via the California Power Exchange. SECAL expects the Potrero Unit 7 to be operational by the summer of 2003. The CEC found the AFC (filed on May 31, 2000) “Not Data Adequate” on July 12, 2000.

The CEC also expects several additional AFCs to be filed in 2000:

- The **Morro Bay Project** as proposed by Duke Energy Power Services is a modernization of the existing Morro Bay power generating facility, which was purchased by Duke Energy in 1999 from Pacific Gas and Electric Company. This process will involve replacing existing, vintage generators with smaller units which are approximately 40 percent more efficient than traditional units due to their compact, combined cycle-design. Duke Energy withdrew an AFC for this project on December 27, 1999, and expects to refile by Fall 2000, according to Duke Energy California’s website. The new proposal will involve the construction of the modernized plant for operation by 2003, followed by demolition of the existing power plant (including large smokestacks) by 2007.

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- The **AES Antelope Valley Project** as proposed by AES Antelope Valley, LLC, is a merchant power generating facility up to 1,000 MW in size, located near California City, California, approximately 100 miles northwest of Los Angeles in Kern County. The project envisioned consists of one or two combined cycle gas turbine units. The project will include a new 12- to 40-mile 230-kilovolt transmission line (depending on the path); a short, new water pipeline to bring cooling water to the facility; and an on-site interconnection to the interstate natural gas pipeline.
- The **AES South City Project** as proposed by AES South City, LLC, is a merchant power generating facility up to 550 MW in size, located in South San Francisco, California, to the north of the San Francisco International Airport in San Mateo County. The project envisioned consists of one combined cycle gas turbine unit and one or two simple cycle units. The project will include a new, one-mile 115 kilovolt transmission line (depending on the path); a short, new water pipeline to bring cooling water to the facility; and a new, one-mile long natural gas pipeline.
- The **Long Beach District Energy Facility** project is planned by Enron as a 500 MW facility located in Long Beach, California, in Los Angeles County. No other information is currently available about the proposed project.

5.4.2.3 SCE Hydroelectric Asset Valuation

SCE has proposed the appraisal and retention of one bundled package of hydroelectric facilities and assets in 13 basins of the Central and Southern Sierra, and the San Gabriel and San Bernardino Mountains. Eight of these hydroelectric systems have storage, while five are “Run-of-River” (no storage).

The facilities and assets would remain part of the CPUC-regulated company, for which the regulatory framework would change from performance-based modified Cost of Service to Performance-Based Ratemaking (PBR). Included in the PBR proposal:

- Profit sharing of 90/10% (Ratepayers/Shareholders), restricted review for eight years
- Capital Additions Budget of \$15 Million/year
- “Z-Factor:” (pass through to ratepayers) for all Catastrophic Losses and Mandated Costs

Also proposed:

- Environmental Trust Fund (Shared 90/10 percent in funding Ratepayers/ Shareholders; plus percentage of profits and other sources as available)
- Environmental Forum of Agencies (Non-Voting) and Non-Governmental Organizations for directing and administrating the Environmental Trust Fund
- Funding of non-mandated environmental programs
- 280 ac transfer of lands to USDA Forest Service
- 300,000 tree planting (most likely on SCE lands)
- No-Development restriction on 13,000 acres of Shareholder lands

5.4.2.4 Cumulative Effects of Future Power Plant Development

The potential, future thermal power plants described in Section 5.2.2.2 are not expected to have cumulative impacts with the project. First, only two of the proposed plants are within the physical project area (Sutter Power in Sutter County and Three Mountain Power in Shasta County); however, these proposed plants are not proximate enough to any of the project's potential impacts for there to be any cumulative effects. As to the SCE hydroelectric system, which will be undergoing market valuation, the CPUC has not yet completed its CEQA review for SCE's proposal, so any conclusions at this juncture are premature and would be speculative. However, the SCE hydroelectric system only overlaps the project physically in the southernmost Kings Crane-Helms Regional Bundle, so there is minimal likelihood of any cumulative impacts between the two projects. Since SCE does not propose to sell its hydroelectric assets, but to retain ownership in the CPUC-regulated IOU, the likelihood of there being any "synergy" of effects between the two is further minimized.

On a broader basis, new power plants could serve to inhibit the tendency of the new owners of hydroelectric plants to increase operations, due to the increased availability of electrical generation capacity in California. This could have beneficial effects for some issue areas, in which increased hydroelectric operations pose adverse impacts (see Chapter 4). Conversely, thermal power generation does not have the "zero emission" quality of hydroelectric generation with respect to air quality. Given the much cleaner, combined cycle and other technologies being employed in the future thermal plants (as referenced in Section 5.2.2.2), the very stringent air quality permitting to which thermal plants are subject, and the location of these facilities in different parts of the state, the impact to air quality by thermal power plants is minimized. However, since the hydroelectric power plants will not have a direct impact to air quality (Section 4.14) (absent the exercise of market power by owners of hydroelectric plants), the project will not contribute cumulatively to air quality in conjunction with these power plants. If, as a result of the project, the amount of hydroelectric power generated decreases, then there could be potential indirect impacts to air quality from an increase in thermal power plant production needed to compensate for the decrease in power produced by the hydroelectric power plants (Section 6.0).

5.4.3 LOCAL CUMULATIVE PROJECTS

There is potential for the project, together with projects that are planned within the local community in which particular hydroelectric assets are located, to result in cumulative environmental impacts. Table 5-7 contains a list of the local and regional water and land development projects within the Regional Bundles and are organized by Local Bundle. This table also lists the relevant county. Figures 5.4-1 through 5.4-7 also show the locations of these projects on maps of the Regional Bundles. These projects were collected from several sources, including the PEA, scoping comments, and consultation with planning agencies throughout the project area.

The reader should use Table 5-7 and Figures 5.4-1 through 5.4-7 in conjunction with the topic-by-topic cumulative effect analysis in Section 5.4.4 to augment the description and location of the local and regional projects referenced therein.

5.4.4 POTENTIAL CUMULATIVE EFFECTS

This section evaluates the potential cumulative effects of Pacific Gas and Electric Company's proposed divestiture, the subject of this EIR, in combination with the reasonably foreseeable, local and regional water and land development projects described in Table 5-7 (see Section 5.4.3). The cumulative effects of statewide water plans and projects, and future power plant development, are discussed in Sections 5.4.1 and 5.4.2.4.

This cumulative effects analysis of local and regional water and land development projects has been performed using the same topical sections employed in Chapter 4 of this EIR for the impacts of the project.

Cumulative Effects by Environmental Topic

There are no local projects in Bundle 1: Hat Creek, Bundle 3: Kilarc Cow Creek, Bundle 5: Hamilton Branch, Bundle 10: Potter Valley, Bundle 16: Crane Valley, or Bundle 18: Kings River that would have a cumulative impact with the Hydrodivestiture Project and therefore, there could be no cumulative impacts in the vicinity of those bundles.

5.4.4.1 Land Use

Impact 1-1: Substantial incompatibilities between existing and future land uses.

The project will result in increased development and new uses on Project Lands that could be substantially incompatible with existing and planned land uses.

An increased amount of development could increase the likelihood of incompatibilities between land uses. An impact can occur when the activities of one type of land use conflict with other nearby uses, resulting in an incompatibility. If a larger number and variety of uses are located in proximity to each other, there would be more opportunities for conflicts between uses and a cumulative impact could result. However, due to the highly dispersed locations of developable lands in the watershed regions, and the generally low densities of development, there is low potential for significant cumulative impacts due to land use incompatibilities. Most development potential in the watershed regions exists in already developed areas near existing towns and communities, rather than in the rural and undeveloped areas where most Project Lands are located, thereby minimizing the project's contribution to cumulative impacts characteristic of land development. Table 5-7 lists development projects considered in this analysis and those development projects are plotted on maps displayed as Figures 5.4-1 through 5.4-6.

Cumulative land development in the watershed regions could substantially alter the rural character of these regions. As discussed in Section 4.1, future development of Project Lands would contribute to a change in the basic character of these lands, which could be significant when considered together with the development potential of other lands in these regions. These cumulative land use changes would be significant to the extent that they change the character of rural lands, forestlands, and other pristine areas that are managed to further public trust values. The project's contribution to this impact could be mitigated by Mitigation Measure 1-1, which would establish conservation easements to preclude development of certain lands.

The following discussion explains specific projects where a beneficial cumulative impact has occurred.

Shasta Regional Bundle

Pit River Bundle No. 2

McArthur Swamp lands are managed by Pacific Gas and Electric Company, but are proposed for transfer to the California Waterfowl Association under pending CPUC Application No. 00-05-029 and relicensing of FERC 2687. The CEQA environmental review process for this Application has not yet been completed by the CPUC. Part of this application proposes a land transfer of 7,400 acres from Pacific Gas and Electric Company to the California Waterfowl Association; 2,000 of these acres are presently part of the FERC 2687 license area in the Pit River local bundle. Under this proposed land transfer, the California Waterfowl Association would act as land stewards and impose a conservation easement on the McArthur Swamp lands. The lands would remain subject to current grazing leases and a modified grazing management plan would be established. The agreement would preserve existing beneficial uses such as recreation, retain water rights for up to 300 acre-feet per year to maintain wetland habitat, and require the California Waterfowl Association to maintain the existing levees. Since power generation and levee maintenance would be maintained at the Pit 1 powerhouses and since beneficial uses such as recreation and grazing on associated lands would be continued, no change is expected to occur that would be incompatible with the current or planned land uses in the McArthur Swamp Land Area. The Hydrodivestiture Project would include the sale of these lands. However, if the project is approved, the McArthur Swamp lands will be preserved. Thus, the cumulative effect with the project would be beneficial.

The DPR/Burney Falls Land Exchange, under CPUC Application No. 00-05-030, proposes to transfer 4 acres known as Bowman Ditch and 182 acres known as McArthur/Burney Falls State Park from Pacific Gas and Electric Company to the California Department of Parks and Recreation (DPR) in exchange for portions of Ahjumawi Lava Springs State Park lands. The CEQA environmental review process for this Application has not yet been completed by the CPUC. As a part of the proposed agreement, beneficial recreation uses such as Camp Britton would be preserved. Since beneficial uses such as recreation and grazing on associated lands would be continued, no change is expected to occur that would be incompatible with the current or planned

land use. Also, the nature of the DPR/Burney Falls Land Exchange would be to preserve the lands under a conservation easement and thus there will be no change in the land use that would be incompatible in the Lake Britton Land Area. The Hydrodivestiture Project would include the sale of these lands. However, if the project is approved, the lands associated with the DPR/Burney Falls Land Exchange would be preserved. Therefore, the cumulative impact with the project would be beneficial.

5.4.4.2 Forestry

Impact 2-1: Reduction in regional forest inventories.

The project could result in an increase in timber harvest. However, this impact to forest inventories was determined to be less than significant before any mitigation.

Although there are additional timber sales proposed in addition to the project, there are not a significant number in additional timber sales that would cause a reduction in regional forest inventories. There are also timber management projects that are being conducted by the United States Forest Service. These management plans may include thinning, prescribed burns, fuel treatments, and the removal of sick or suppressed trees. These forest management projects and timber sales are scattered throughout the Sierra Nevada Mountains. Table 5-7 lists timber sales and management projects considered in this analysis and those projects are plotted on maps displayed as Figures 5.4 – 1 through 6.

The impact of the project on regional forest inventories would be less than significant and as discussed above, there is not a significant amount of timber being harvested in addition to the project to create a significant reduction in the overall forest inventory. Also, given the dispersed location of both the project's potential impacts and the additional timber harvest, the cumulative impacts to reduction in regional forest inventories would be less than significant.

Impact 2-2: Decrease in productive timberlands.

The project could result in land use conversions to development use, which could result in the loss of timberland acres and timber productivity. However, this impact was determined to be less than significant before any mitigation.

As discussed in the cumulative discussion on Land Use, above, the majority of the concurrent development projects separate from the Hydrodivestiture Project generally occur in already developed areas such as in the City of Auburn and thus would not cause a decrease in productive timberlands. Although there are a few proposed development projects that occur in rural areas, those developments are intended to be used as secondary or vacation homes consistent with the rural setting and will not deplete a significant amount of forestland in order to facilitate the development. Table 5-7 lists concurrent local projects considered in this analysis and those projects are plotted on maps displayed as Figures 5.4 – 1 through 6.

Development as a result of the Hydroinvestiture Project affects rural undeveloped areas that are adjacent to pristine areas and forestland. The impact of the project and cumulative local projects on productive timberlands would be less than significant. While cumulative impacts to productive timberlands may occur as development proceeds, the cumulative impact would be less than significant. Also, given that the overall amount of development throughout the region will not significantly reduce the overall amount of timber, the cumulative impact would be less than significant.

5.4.4.3 Hydrology and Water Quality

Impact 3-1: Increased flood risk as a result of decreases in available reservoir storage due to changes in operations.

The project would result in changes in hydroelectric operations that would change reservoir water levels, which could result in a significant impact from increased risk of flooding. The project level impact can be mitigated to a less than significant level with Mitigation Measure 3-1.

The implementation of cumulative residential and commercial development projects could increase impervious areas and result in additional storm water runoff that could increase flood risk at some locations. However, due to the dispersed location of the related projects, the runoff would generally not result in cumulative flooding impacts, except where several projects are located in close proximity as discussed by local bundle below. However, additional development projects generally occur on already developed areas where flood control is considered, and the few that are located along the river system are not significant enough to contribute to a cumulative impact and are discussed below. Table 5-7 lists concurrent local projects considered in this analysis and those projects are plotted on maps displayed as Figures 5.4-1 through 5.4-6.

Several related projects would increase flood storage capacity and increase the storage capacity of several reservoirs, including CALFED's Shasta Dam project, increase storage at Lake Oroville, a project to raise the Pardee Dam on the Pardee Reservoir, a flood control project on the Yuba River, and to raise Friant Dam at Millerton Lake. Therefore, the cumulative impact on flood control would not be cumulatively considerable in conjunction with the project and could be a beneficial or neutral impact.

Two proposed timber sales, the Sammy Timber Sale and the North District Timber Sale, are located alongside the Stanislaus River. The removal of trees leads to an increase in soil erosion, which could lead to an increase in runoff. In addition, there is a proposed recreation development project, Pinecrest Lake Resort Cabins, which is also located along the Stanislaus River and could lead to an increase in erosion, which would lead to an increase in runoff and thus an increase in flooding.

The Hydrodivestiture Project could result in changes in hydroelectric operations that would change seasonal reservoir water levels, potentially resulting in a significant impact from increased risk of flooding. The implementation of these other projects in addition to the Hydrodivestiture Project could further increase flood risk. Although these timber sales and resort cabins are in close proximity to the project, the amount of runoff generated as a result of these proposed projects is not expected to create a sufficient increase in runoff that would lead to a significant cumulative flooding impact. However, the impacts of the Hydrodivestiture Project combined with those of other projects could contribute cumulatively to a significant impact in flood risk.

However, as identified in Mitigation Measure 3-1, prior to the transfer of title for the Stanislaus River Bundle (FERC 2130), Pacific Gas and Electric Company shall prepare a High Flow Scheduling Plan acceptable to the CPUC that would be binding upon the new owner(s). The High Flow Scheduling Plan will document the steps necessary to ensure that the incidental flood control provided by the pertinent reservoirs under the baseline operation is maintained. This would reduce the impact resulting from the Hydrodivestiture Project to be less than significant. Since the proposed local projects are not independently substantial enough to have a significant impact to flood control, and mitigation proposed as a part of the project reduces the impact by the project, the project's contribution to the cumulative impact will be reduced to less than significant.

There is the Big Chunk Off-Highway Management Plan, which is a management plan to reroute Off Highway Vehicle trails away from waterways in an effort to prevent erosion. This project would result in a beneficial cumulative impact with the Hydrodivestiture Project.

Impact 3-2: Alteration of geomorphology and reduced channel stability as a result of changes in peak flows and relative flow magnitudes.

Changes in hydroelectric operations could either substantially increase or substantially decrease maximum streamflows, which would modify sediment transport and result in significant impacts to stream channel geomorphology. This impact could be reduced to a less than significant level with the implementation of Mitigation Measure 3-2.

None of the related projects would directly modify streamflow or increase maximum flows, thus no cumulative impacts to stream geomorphology would result. In addition, there are several streambed restoration projects, listed in Table 5-7, that could result in beneficial impacts to stream channel geomorphology.

Impact 3-3: Alteration of streamflows as a result of changes to the current program of cloud seeding.

None of the related projects would impact existing cloud seeding programs; therefore, no cumulative impacts would occur.

Impact 3-4: Impairment of the development of long term and short term streamflow volume forecasts and flood flow forecasts as a result of the elimination or significant reduction in the quantity or quality of cooperative gauging programs (including snow courses, and streamflow, lake level, and precipitation gauging).

None of the related projects would impact existing data gathering and dissemination programs; therefore, no cumulative impacts would occur.

Impact 3-5: Reduction of instream flows in bypass reaches to levels below baseline flows, resulting in a significant impact on water quality, inconsistent with the Basin Plan.

None of the related projects would cause changes in streamflows that could degrade reservoir water quality; therefore, no cumulative impacts would result.

Impact 3-6: Changes in reservoir operations and management in comparison to baseline conditions could result in a significant impact on water quality inconsistent with the Basin Plan.

The project could result in changes in reservoir operations and management that would lower reservoir levels, which could result in a significant impact on water quality. The project level impact can be mitigated with Mitigation Measure 3-6.

The implementation of flood control projects (Table 5-7) could also result in changes in reservoir operations and management that could impact water quality. These projects are proposed to increase flood storage of reservoir by raising reservoir levels. The impact of the project is as a result of reservoir levels decreasing, and thereby impacting water quality. Since the project's impact could result in lower reservoir levels and the impact of proposed flood storage projects would be higher reservoir levels, the project will not contribute to a cumulative impact. Therefore, the cumulative impact would not be cumulatively considerable in conjunction with the project.

Impact 3-7: Changes in timber harvest practices or extent could result in a significant impact on water quality inconsistent with the Basin Plan.

Changes in timber harvest practice or extent could have a cumulative impact on water quality. The impacts of the project on water quality would be mitigated to a less than significant level through the application of California Forest Practice Rules. Related timber harvesting activities occur throughout the project area in various watersheds.

Two timber sales, the Sammy Timber Sale and the North District Timber Sale, are proposed and are located alongside the Stanislaus River. The timber harvests may lead to an increase in soil erosion, which may lead to an increase in contaminants in stormwater runoff, which will impact water quality. These projects could lead to an increase in erosion and thereby contribute to an increase in contaminants in stormwater runoff, which will degrade water quality. These projects

however, would also be required to adhere to applicable California Forest Practice Rules. The cumulative impacts from changes in timber harvest practices would therefore be less than significant.

Impact 3-8: Construction activities associated with development would involve earthmoving activities that could affect receiving water quality through increased sedimentation.

Construction activities associated with increased development could have a cumulative impact on water quality. The impacts from the Hydrodivestiture Project on water quality would be mitigated to a less than significant level through compliance with the requirements of the General Construction Activity Storm Water Permit. Related concurrent projects would also meet these requirements. Both the Hydrodivestiture Project and related cumulative projects would have a less than significant effect on water quality due to construction activity, and the cumulative impact would be less than significant.

Impact 3-9: Land development could affect water quality through increases in urban pollutants in stormwater runoff and septic system use.

Increased land development could affect water quality through increases in urban pollutants in stormwater runoff and septic system use. The impacts from the Hydrodivestiture Project on water quality would be mitigated to a less than significant level through mitigation measures including compliance with Federal and State NPDES urban stormwater runoff water quality programs. Related concurrent projects would also be required meet these Federal, State, and local applicable standards.

There is a proposed recreation development project, Pinecrest Lake Resort Cabins, which is also located along the Stanislaus River and the BENA sanitary landfill expansion project, and the Kern River Freeway proposed along the Kern River. These projects could lead to an increase in erosion and thereby contribute to an increase in contaminants in stormwater runoff. The impact of the project's contribution with these projects could be cumulatively considerable. However, Mitigation Measures 3-9a through 3-9c would reduce the cumulative contribution of the project to a level that will be less than cumulatively considerable and de minimus.

Impact 3-10: The project could result in changes in reservoir sediment management practices, which could result in a significant impact on water quality inconsistent with the Basin Plan.

None of the related concurrent projects would cause changes in reservoir sediment management practices; therefore, no cumulative impacts would result.

5.4.4.4 Fisheries and Aquatic Biology

Impact 4-1: Instream flow reductions within natural channels could adversely affect fishery and aquatic resources, especially special status species, through habitat or water quality degradation.

The project would result in changes in hydroelectric operations that could decrease streamflows and result in a degradation of water quality in those streams. This could result in significant impacts to fisheries and aquatic biology in those streams.

Cumulative projects within a watershed could contribute to an increase in erosion and other stormwater contaminants that would degrade water quality. It should be noted, however, that the proposed cumulative projects are located across numerous watersheds and are generally located a considerable distance from major water features. While the runoff from the proposed projects would not result in any significant impacts to water quality, the impacts of the projects in addition to the Hydrodivestiture Project could have a cumulative impact on water quality, especially in the event that several projects were located along the same stream or river channel. However, the cumulative development projects generally occur in developed areas such as in the City of Auburn, where the development would not change the character of the land and thereby contribute to erosion or contribute to significant increases in runoff. In addition, none of the related projects would reduce instream flows and thus would not cumulate with the project effects to generate a cumulative impact.

Table 5-7 lists concurrent local projects considered in this analysis and those projects are plotted on maps displayed as Figures 5.4-1 through 5.4-6. Several streambed restoration projects could result in beneficial impacts to water quality, which are listed in Table 5-7. There are a number of cumulative development projects located along the waterways, but there is not a substantial enough number of projects to result in significant erosion. Given the various erosion control projects also proposed, in addition to the impacts that will result from the project, there will be a cumulative impact, but the cumulative impact will be less than significant.

The project's impact on fisheries and aquatic biology would be mitigated to a less-than-significant level with implementation of Mitigation Measure 4-1. Although there are some proposed development projects in rural areas, there is not a significant amount of additional development combined with the development that would result from the project such that a significant cumulative impact on water quality would result. The project and cumulative projects are located in various watersheds throughout California. In some cases, as described above, projects located within the same watershed may have cumulative impacts on water quality. In most cases, however, the projects under review are distant from one another and located in different drainages such that any possible cumulative impacts would be less than significant.

There is the Big Chunk Off-Highway Management Plan, which is a management plan to reroute Off Highway Vehicle trails away from waterways in an effort to prevent erosion. This project would result in a beneficial cumulative impact with the Hydrodivestiture Project.

Impact 4-2: Changes in the storage volume or the timing, magnitude, duration, and frequency of reservoir drawdown could result in a significant impact to the physical habitat of aquatic resources resulting in a significant impact on aquatic resources.

The project would result in changes in reservoir operations that could cause fluctuations or reductions in water levels, which could degrade water quality in those reservoirs. This could result in a significant impact to fisheries and aquatic biology within those reservoirs; however, this impact could be mitigated to a less than significant level with implementation of Mitigation Measure 4-2.

Only one related project, to increase storage of Bullards Bar Reservoir (in Bundle 9, North Yuba River), could result in changes in reservoir operations. However, as this project would increase the storage capacity of the reservoir, it is not expected to result in a degradation of water quality, and therefore should not result in impacts to fisheries and aquatic biology. Therefore, there would be no cumulative impact that differs from the effect of the project alone.

5.4.4.5 Terrestrial Biology

Impact 5-1: Adverse effects to wildlife and plant species listed and proposed for listing under the Federal Endangered Species Act and/or the California Endangered Species Act.

As discussed in Section 4.5.7.1, the project may result in the permanent loss of habitats that support species protected by the California and Federal Endangered Species Acts. Species listed under these two acts are provided with a high level of protection because they are at risk of extinction. Any impact to these species is therefore considered significant. Other development projects proposed in the vicinity of Local and Regional Bundles could also result in the permanent loss of such habitats and would therefore incrementally contribute to significant cumulative impacts.

Mitigation Measure 5-1c proposed for the project would reduce the project's impact on listed species to a less-than-significant level. If implementation of the mitigation measure results in all threatened and endangered species (TES) being avoided, then the project's contribution to the cumulative impact will be mitigated to a less than cumulatively considerable level. However, where avoidance of TES is not feasible even with implementation of Mitigation Measure 5-1c, given the importance and rarity of the resources, the impact of the project could still be cumulatively considerable. Unless impacts to listed species can be avoided completely, the project's incremental contribution to impacts on listed species could still be cumulatively considerable. Conservation easements identified in Alternative Mitigation Measure 5-1c could enable the project to avoid impacts to listed species entirely. However, since cumulative projects (including the Hydrodivestiture Project as mitigated) could result in a loss of listed species or their required habitat, the cumulative impact is considered significant.

Impact 5-2: Land use alteration may result in adverse effects to non-listed special-status wildlife and plant species (i.e., species of concern, BLM and USFS sensitive) and associated habitat.

As discussed in Section 4.5.7.2, habitats on the Project Lands support a variety of wildlife and plants species in addition to those identified in Impact 5-1 (i.e., listed as endangered or threatened under the Federal or California Endangered Species Act). Most of these species are common throughout the Project Lands and other parts of the state. Some of these species, though, have been afforded special monitoring priority or limited protection by a federal or state resources agency or private organizations. These species of plants and wildlife are herein termed “non-listed” special-status species. These species include:

- Species designated by the USFWS as “Federal species of special concern”;
- Bald or golden eagles (Federal Bald Eagle Protection Act);
- California State Species of Concern;
- California Fully Protected Species (California Fish and Game Code Sections 3511 (birds), 4700 (mammals), 5050 (reptiles and amphibians), and 5515 (fish);
- Birds of Prey (Section 3503.5 of the California Fish and Game Code);
- U.S. Forest Service Sensitive Species; (any species of plant or animal that has been recognized by the Regional Forester to need special management in order to prevent them to become threatened or endangered);
- U.S. Forest Service Management Indicator Species (any species of plant or animal that has been identified as a representative for a group of species with special habitat requirements.);
- BLM Sensitive Species (BLM Manual Section 6840 defines sensitive species as “... those species that are: (1) under status review by the FWS/NMFS; or (2) whose numbers are declining so rapidly that Federal listing may become necessary; or (3) with typically small and widely dispersed populations; or (4) those inhabiting ecological refugia or other specialized or unique habitats.” Existing California-BLM policy concerning the designation of sensitive species identifies two conditions that must be met before a species may be considered as BLM sensitive: (1) a significant population of the species must occur on BLM-administered lands, and (2) the potential must exist for improvement of the species' condition through BLM management); and
- California Native Plant Society List 2 or List 3 species.

Land development or management changes associated with the project and non-implementation of non-binding agreements and BMPs could result in significant adverse effects to non-listed special-status species for the entire system/project. Mitigation Measure 5-2 would reduce the project’s impact to a level that is less than significant, and also reduce the project’s incremental contribution to cumulative impacts. If implementation of the mitigation measure results in all non-listed special status species being avoided, then the project's contribution to the cumulative impact will be mitigated to a less than cumulatively considerable level. However, where avoidance of non-listed special status species is not feasible, even with implementation of Mitigation Measure 5-2, given the importance and rarity of the resources, the impact of the project could still be cumulatively

considerable. Conservation easements identified in Alternative Mitigation Measure 5-2c would eliminate the project's contribution to cumulative impacts on special status species.

Other development projects may result in adverse effects to sensitive species, thereby contributing to cumulative impacts. Since the cumulative land development projects could result in a loss of special status species, either directly or indirectly, and the project could also contribute incrementally to impacts to special status species, the cumulative impact is considered significant.

Impact 5-3: Land development and management changes may result in habitat degradation as measured by potential habitat fragmentation and disruption to migration corridors.

The preceding impact discussions (5-1 and 5-2 above) address the effects of direct and indirect loss of habitat on listed species and non-listed special-status species, which are elements of broader wildlife communities. This impact (5-3) considers effects on the integrity of these broader wildlife communities through habitat loss and degradation within the project and in a regional landscape, which has particular import for cumulative impacts. This is a broad, complex issue and not easily analyzed. Many of the effects cannot be measured or predicted. For purposes of illustrating effects, this analysis has been narrowed to two major subject matters: the potential for the project to result in habitat fragmentation, and the potential for the project to disrupt deer migratory corridors. Habitat fragmentation has been found to be a significant impact to the resources within the entire system/project, and other development projects in the Local and/or Regional Bundles will further contribute to this impact, and may result in a significant cumulative impact.

Mitigation measures proposed for the project would reduce the project's contribution to cumulative impacts to a level that is less than cumulatively considerable. Although Mitigation Measure 5-3c would mitigate the project's impact, given the importance and rarity of the resources, the impact may still be significant in the cumulative context. However, if mitigation could completely avoid fragmentation, then the project's contribution to the cumulative impact would be considered less than cumulatively considerable.

Even with the implementation of project mitigation measures, cumulative development is expected to incrementally contribute to fragmentation of habitat and disruption of migration corridors. Since development projects scattered throughout the Sierra Nevada Mountains would contribute cumulatively to fragmentation and effectiveness of mitigation strategies for such a large region are uncertain, the cumulative impact is considered significant.

Impact 5-4: Land use alterations may result in adverse effects to sensitive native plant communities including wetlands and riparian corridors.

As described in Section 4.5.7.4, the ability of riparian communities to function naturally is crucial to the protection of the stream water resources, including aquatic habitat, surface and ground water.

Also, birds, mammals, and other animals find the food, cover, water, and nesting sites they need as well as corridors and pathways for movement between areas.

Riparian communities occur throughout the project area, scattered from the Cascades through the southern Sierra Nevada. Land development and management changes could result in a loss of riparian habitats. Due to the scarcity of the resource [current estimates are that an estimated 95% of riparian woodlands have been lost from California due to human activities (Grenfell 1988)], any loss of vegetated riparian communities is considered significant. Therefore, this has been found to be a significant project impact due to the potential development/use intensification of Project Lands. In combination with other development projects proposed in the vicinity of Local and Regional Bundles, this may result in the permanent loss of such habitats and would therefore contribute to significant cumulative impacts in conjunction with the project.

Wetlands (Section 4.5.7.4) that occur throughout the Project Lands include creeks, stream bogs, marshes, vernal pools, and lakes. Land development and management changes could result in the loss of wetland habitat. Due to the important functions of the resource and its scarcity, any loss of wetlands is considered significant. Therefore, the potential development/use intensification of Project Lands has been found to be a significant project impact. In combination with other development projects planned or underway in the Local or Regional Bundles, an even greater significant impact could result. Although not all development would directly affect a wetland or riparian corridor, some loss or degradation of wetlands or riparian corridors would be expected. Table 5-7 lists development projects considered in this analysis and those projects are plotted on maps displayed as Figures 5.4-1 through 5.4-6.

Other sensitive communities are identified and monitored carefully by the California Department of Fish and Game. These areas are either limited in distribution by nature or have already been largely destroyed. They are considered important because they provide habitat for various sensitive species. Any loss of these communities would be considered significant. Therefore, the loss of such communities due to potential development/use intensification of Project Lands has been found to be a significant project impact.

Mitigation measures proposed by the project would reduce the project's impact to sensitive communities to a level that is less than significant. However, given the importance and rarity of the resources, the project's contribution to any impact to sensitive communities may still be significant in the cumulative context. Only if the mitigation measures completely avoid all impacts to sensitive communities would the project's contribution to a cumulative impact be considered mitigated to a less-than-considerable level. Therefore, where avoidance of sensitive communities is not feasible, the impact of the project would be cumulatively considerable. Conservation easements identified in Alternative Mitigation Measure 5-4c would avoid the project's cumulative impact contribution entirely. However, since it is considered unlikely that the impacts of all development projects in the Local or Regional Bundles could be completely mitigated, the cumulative impact to sensitive communities is considered significant.

Impact 5-5: Changes in hydroelectric operations could result in adverse effects to non-fisheries biotic resources including riparian and lacustrine vegetation communities.

None of the proposed projects would change the riparian or lacustrine vegetation enough to contribute to a cumulative impact with the project. Therefore, there would be no cumulative effect.

5.4.4.6 Recreation

Impact 6-1: Substantially diminish existing water-based recreation opportunities or the condition of water-based recreational facilities.

Changes in hydroelectric operations as a result of the project could result in changes in streamflow and reservoir water levels that could reduce the availability and condition of water-based recreational opportunities. This significant impact could be reduced to a less-than-significant level with implementation of Mitigation Measure 6-1.

None of the related projects would result in fluctuations or decreases in either streamflows or reservoir water levels that could adversely impact water-based recreational opportunities. Therefore, no cumulative impacts would result. Table 5-7 lists recreation projects considered in this analysis and those projects are plotted on maps displayed as Figures 5.4-1 through 5.4-6.

Several related projects would increase flood storage capacity and increase the storage capacity of several reservoirs, including CALFED's Shasta Dam project, increase storage at Lake Oroville, raise Pardee Dam at Pardee Reservoir, a flood control project on the Yuba River, and raise Friant Dam at Millerton Lake. An increase in the reservoir volume could enhance water-based recreational opportunities. In addition, at least one related project will enhance access to fishing opportunities along an individual stream reach. Therefore, the cumulative impact on water-based recreational opportunities would not be cumulatively considered and could be beneficial or neutral.

Impact 6-2: Substantially diminish existing land-based recreation opportunities or the condition of land-based recreational facilities.

The project would result in increased intensity of land management (e.g., timber harvest, grazing and mining) and/or development of the lands. This could eliminate or degrade the condition of existing recreational opportunities, or restrict access to recreational opportunities or facilities. This significant impact of the project could be reduced to a less than significant level with the implementation of Mitigation Measures 6-2.

None of the related projects would result in the elimination of land-based recreational facilities; however, several of the related projects could restrict access to informal recreational opportunities, including several in the DeSabra Regional Bundle (Almanor Lakeside Villas, Feather River Bundle 6), and the Bucks Lake Meadows development project in Bucks Creek Bundle 7. However, although some of these projects may restrict access in one location, other recreational opportunities

will remain in the area and other recreational access opportunities are proposed in the same area such as Canyon Dam Fishing Access on Lake Almanor and additional hiking trails; therefore, there will not be an overall loss in land-based recreational opportunities. Therefore, this impact would be less than significant. In addition, there are several related projects (listed in Table 5-7) that will enhance land based recreation opportunities in areas without loss due to development, including campgrounds, hiking trails, and an OHV trail. Table 5-7 lists recreation projects considered in this analysis and those projects are plotted on maps displayed as Figures 5.4-1 through 5.4-6. Overall, the impact of the related projects on land-based recreational opportunities could be beneficial or neutral.

As the impact of the project can be mitigated to a less than significant level, and those impacts would occur in dispersed locations and given the additional recreational opportunities proposed in the area, the cumulative impact on land-based recreational opportunities would be less than significant.

Impact 6-3: Substantial, adverse effects on the local economy as a result of reduced use of affected recreation areas.

The project would reduce or degrade both land- and water-based recreational opportunities, which would have significant impacts on the local economy in those locations that are dependent on recreational visitors. This significant impact on the local economies can be mitigated to a less than significant level, by implementation of Mitigation Measures 6-1 and 6-2.

Since the related projects could result in beneficial or neutral impacts to both water- and land-based recreational opportunities and there are various recreational opportunities proposed in the vicinity of Project Lands, and as the project impacts can be reduced to a less-than-significant level, the cumulative impact on recreation-dependent local economies would not be significant. Table 5-7 lists recreation projects considered in this analysis and those projects are plotted on maps displayed as Figures 5.4-1 through 5.4-6.

5.4.4.7 Cultural Resources

Impact 7-1: Damage or destruction of known and/or unknown cultural resources.

The proposed local projects, in conjunction with the Hydrodivestiture Project, could have the potential to unearth cultural artifact resources during construction. Given the rich histories of the lands that could be developed and the likelihood of resources being located thereon, this impact is considered a significant impact.

Although Mitigation Measure 7-1 would mitigate the project's impact, given the importance and rarity of the resources, the impact and the project's contribution to that may still be significant in the cumulative context. If the project mitigation measures would avoid all damage to cultural

resources and preserve access to cultural or historic resources, then the project's contribution to a cumulative impact will be mitigated to a less than considerable level.

The local projects would undergo separate approval processes, and it is likely that many of their entitlements could include conditions of approval to mitigate their construction period cultural impacts. If the local projects are built, any effects of them on unknown cultural resources may not be eliminated. Due to the rare nature of these resources, the project could still incrementally contribute to a cumulative impact. Any loss of these resources would be considered significant. Therefore, the cumulative impact will be significant.

Impact 7-2: Constraints on Native American access to culturally or historically significant lands or landforms.

The proposed local projects, in conjunction with the Hydrodivestiture Project, could have the potential to constrain Native American access to culturally or historically significant lands. Given the rich histories of the lands that could be developed and the likelihood of resources being located thereon, this impact is considered a significant impact.

Mitigation Measure 7-2 would mitigate the project's impact to less than significant. Since the project mitigation measures would preserve access to cultural or historic resources, the project's contribution to the cumulative impact will be mitigated to the less than cumulatively considerable level.

Impact 7-3: Changes in hydroelectric operations and reservoir management could result in damage or destruction of cultural resources.

There are several projects that would increase or decrease reservoir storage and have been considered in this cumulative analysis. Those projects are CALFED's Shasta Dam Project, a project to increase storage at Lake Oroville, and a project to raise Pardee Dam.

The Hydrodivestiture Project could affect these reservoirs because they are located downstream from powerhouses included in the Hydrodivestiture Project. There are also two flood control projects that will raise reservoir storage levels and are located in rivers in the project area: the New Bullards Bar Reservoir on the Yuba River and to raise Friant Dam at Millerton Lake.

Any of these projects could independently have a significant impact and result in damage or destruction of cultural resources as a result of the reservoir storage levels going down. However, since these proposed cumulative projects are flood control projects that would increase the levels in reservoirs, it would be unlikely for a decrease in reservoir levels to result, thereby exposing cultural resources. Thus, these cumulative projects will not contribute to a cumulative impact with the project. In any event, the Hydrodivestiture Project will contribute such a small amount of change to those reservoirs' levels that the incremental effect of the Hydrodivestiture Project will be de minimus. Therefore, no cumulative impact would result.

5.4.4.8 Agriculture

Impact 8-1: Loss of grazing opportunities could result in increased local grazing pressure on remaining leases.

The project could either result in increased intensity of land management or result in development of Project Lands or non-renewal of grazing leases, either of which would eliminate grazing on approximately 20,340 acres of the lands. Given regional grazing opportunities, this impact would be less than significant.

Several related projects are proposed to be constructed in areas where grazing currently occurs, which could reduce grazing opportunities. The cumulative residential and commercial development projects would eliminate grazing on approximately 20,978 acres of lands. These development projects occur in local bundle number 15 Merced Falls, in the Motherlode Regional Bundle and in all four local bundles in the Kings Crane-Helms Regional Bundle. Table 5-7 lists development projects considered in this analysis.

The project loss of approximately 20,340 acres of grazing lands, together with the cumulative project loss of an additional estimated 20,978 acres of land, would not result in a significant loss of grazing opportunities throughout the region. Overall, there is a tremendous amount of grazing land available in the vicinity of the local bundles where additional developments would occur over lands currently used for grazing. Also, a majority of the proposed development is localized to already developed areas or in clusters nearby developed areas, thereby leaving ample land area to be used for grazing. Thus, the cumulative impact would not be significant.

Impact 8-2: The proposed project could affect agricultural productivity.

The project could result in the termination or non-renewal of existing water contracts, and the loss of this water would result in a significant impact to agricultural productivity. This impact could be reduced to a less than significant level with the implementation of Mitigation Measure 8-2.

None of the related projects would result in the loss of consumptive water for agricultural uses; therefore, no cumulative impacts would result.

Impact 8-3: The project could result in changes in timing and availability of water, which could impact downstream agricultural productivity.

The project would result in changes in hydroelectric operations, and this would change the timing and availability of consumptive water deliveries for agricultural uses. This impact could be reduced to a less than significant level with the implementation of Mitigation Measure 8-3.

None of the related project would result in changes in the timing and availability of water. Therefore, no cumulative impacts would result.

5.4.4.9 Hazards and Hazardous Materials

Impact 9-1: Construction modifications to hydroelectric facilities could expose the public or workers to contaminated soil and/or groundwater or hazardous building materials.

The project could involve construction modifications to hydroelectric facilities that could expose the public or workers to contaminated soil and/or groundwater or hazardous building materials. Assuming adherence to applicable regulations, this impact would be less than significant.

Although development projects present the opportunity for an increase in exposure to contaminants in the soil or water, laws and regulations protect this impact from occurring. None of the related projects would involve modifications to other hydroelectric facilities, therefore no cumulative impacts would result.

Impact 9-2: Land development could expose the public or workers to contaminated soil and/or groundwater.

The project could result in development on Project Lands that could expose the public or workers to contaminants in soil and/or groundwater. This significant impact could be reduced to a less than significant level with the implementation of Mitigation Measure 9-2.

Development of the related projects could involve construction at locations where hazardous substances may be present in the soil or groundwater. However, the presence or extent of any contamination is unknown, and laws and regulations guard the public and workers from exposure to contaminants. Given that laws and regulations protect the public and workers from exposure to contaminants that would occur from additional development, there would not be a significant cumulative impact.

Impact 9-3: Substantially increase the transport, storage, or use of hazardous materials at hydroelectric facilities and new land that could be developed.

Operation of the hydroelectric facilities and development of Project Lands could result in transport, storage, or use of hazardous materials. Assuming adherence to applicable regulations, this impact would be less than significant.

Development of the related projects could also result in transport, storage, or use of hazardous materials. Assuming adherence to applicable regulations, this impact would be less than significant. Although there are only a few projects that could result in the transport of hazardous material, such as the BENA landfill expansion and three proposed quarries (Table 5-7), regulations guard against contamination. Since the BENA landfill already exists and the change will be an increase in the landfill land area, not necessarily an increase in the transport of hazardous materials, and since two of the three proposed quarries are already in operation, there should be no significant change in the transportation in hazardous materials expected to result from these projects. Any

changes would be regulated by laws and regulations and given that the project is governed by the same laws and regulations, the cumulative impact would be less than significant.

Impact 9-4: Increased risks to workers and the public should reservoir levels, water releases, and/or facility maintenance be managed improperly.

The proposed project would result in changes in operation and maintenance of the hydroelectric facilities, which could increase risks to workers and the public should reservoir levels, water releases, and/or facility maintenance be managed improperly. This significant impact could be reduced to a less than significant impact with implementation of Mitigation Measure 9-4.

Except for the related projects that would modify reservoir storage capacity (to increase flood mitigation potential), none of the other related projects would impact the operation or maintenance of reservoirs. The design of the reservoirs that will have storage capacity expanded are anticipated to meet applicable design standards and operation of those reservoirs are expected to adhere to current practices. As the management of these hydroelectric facilities are site specific, and although there will be other reservoir storage projects, there are not projects that would contribute to an increase in risk for workers at reservoirs.

Impact 9-5: Increased risks to public safety from fire hazards should operating practices or land management change.

The proposed project would result in changes in operating practices at the hydroelectric facilities and management of the lands, which could increase risks to public safety from fire hazards. This significant impact could be reduced to a less than significant level with the implementation of Mitigation Measure 9-5.

Cumulative development projects proposed in rural areas would introduce new sources of fire risk, which could increase risks to public safety. Table 5-7 lists projects considered in this analysis and those projects are plotted on maps displayed as Figures 5.4-1 through 5.4-6. These cumulative development projects proposed in rural areas, in conjunction with development that would result from the project, would result in an increase in fire risk in rural areas and thus the cumulative impact would be significant. Although mitigation measures identified for the project would reduce the project's contribution to the impact, any increase in development, especially to rural areas, poses an increased risk in regards to fire hazard. Thus, the cumulative impact would remain significant.

5.4.4.10 Population, Employment, and Housing

Impact 10-1: Development of lands would induce population growth.

For the purposes of this cumulative analysis, all local housing development projects were considered in this analysis. (Table 5-7) However, as discussed in Section 4.10.8.1, seasonal or

vacation homes will not increase population growth and will not contribute cumulatively to the project. Thus, for the Shasta Regional Bundle, there is no population growth as a result of cumulative projects since there is no housing development proposed in the vicinity of that Regional Bundle. As discussed in Section 4.10.8, the factors used for this analysis is from estimates from the Department of Finance 1999. On average, the Department of Finance uses the 1999 estimate of 2.5 persons per household, however in some cases that estimates is different for each county.

Impact to DeSabra Regional Bundle

There will be an addition of 1,211 persons as a result of cumulative housing development projects. This increase combined with the growth associated with the Hydrodivestiture Project would be 262,329. This number would not exceed the 2010 population projections for the DeSabra Regional Bundle; therefore, the cumulative impact is less than significant.

Impact to Drum Regional Bundle

There will be an addition of 5,849 persons as a result of cumulative housing development projects. This increase combined with the growth associated with the Hydrodivestiture Project would be 625,191. This number would not exceed the 2010 population projections for the Drum Regional Bundle; therefore, the cumulative impact is less than significant.

Impact to Motherlode Regional Bundle

There will be an addition of 22,712 persons as a result of cumulative housing development projects. This increase combined with the growth associated with the Hydrodivestiture Project would be 373,045. This number would not exceed the 2010 population projections for the Motherlode Regional Bundle; therefore, the cumulative impact is less than significant.

Impact to Kings Crane-Helms Regional Bundle

There will be an addition of 102,339 persons as a result of cumulative housing development projects. This increase combined with the growth associated with the Hydrodivestiture Project would be 2,025,788. This number would not exceed the 2010 population projections for the Kings Crane-Helms Regional Bundle; therefore, the cumulative impact is less than significant.

5.4.4.11 Public Services and Utilities

Impact 11-1: Reduction in the supply and/or reliability of electricity generated by hydroelectric power.

The proposed project could result in shifts in the timing of power generation by the hydroelectric facilities, which could require other power generation sources to increase output and thus could consume energy supplies.

None of the related projects would affect the electrical generation output of other hydroelectric facilities or other sources of electrical production; therefore, no cumulative impacts would result.

Impact 11-2: Increased electricity demand.

The project could result in land development that would increase the demand for energy, however this impact would be less than significant.

Residential and commercial development would increase energy demand, and to the extent that fossil-fuel powered electrical generation sources increase operations to meet that demand, energy sources would be consumed.

The increase in energy demand from the Hydrodivestiture Project and the cumulative projects would be within projected regional growth estimates, making the impact less than significant. Additionally, several power plants are concurrently planned that will help to meet future energy demands, thus making the cumulative impact less than significant.

Impact 11-3: Loss of consumptive water to existing users.

The project could result in the termination or non-renewal of existing water contracts, and the loss of this water would result in significant impact to existing users. This impact could be reduced to a less than significant level with the implementation of Mitigation Measure 11-3.

None of the related projects would result in the loss of consumptive water for existing users; therefore, no cumulative impacts would result.

Impact 11-4: Increase water demand through land intensification.

The project could result in development of Project Lands that would increase demand on water supplies. This significant impact could be reduced to a less-than-significant impact with implementation of Mitigation Measure 11-4.

Cumulative residential and commercial development would result in increased water demand, which could result in substantial adverse impacts on water supply. The mitigation measures proposed for the project would reduce the project's contribution to less than cumulatively considerable. Although additional cumulative development projects are proposed and will require water, most of the development would occur in already developed areas where water supply exists, and will not necessarily be reliant on the same water supply as the development as a result of the project. Therefore, although both development from the project will require water and cumulative development in the area will require water and contribute to an increase in water demand throughout California, the reliance on water will not result in a significant cumulative impact.

Impact 11-5: Substantial adverse impacts on local public services and utilities providers.

The project could result in development on Project Lands that could increase demand on local public services and utilities providers.

This impact was determined to be significant in a few instances where the development scenario exceeds the capacity of local service providers. Mitigation Measure 11-5 would mitigate the impact of the project to a less than significant level.

The cumulative impacts of increased residential and commercial development could cause a significant increase in demand on local public services and utility providers. By implementing Mitigation Measure 11-5a, the project's contribution would be less than cumulatively considerable.

Impact 11-6: Reduced telecommunication capacity.

The project would result in the fragmentation of the telecommunications system installed by Pacific Gas and Electric Company, however assuming implementation of cooperative agreements (amongst the new owners) to assure continued functionality of the system, this impact would be less than significant.

None of the related projects would result in additional fragmentation of the telecommunications system installed by Pacific Gas and Electric Company; therefore, no cumulative impacts would result.

5.4.4.12 Transportation

Impact 12-1: The project could cause increased vehicular trips resulting from change in land uses and/or new employment opportunities.

There are various housing and commercial development projects that will impact the amount of vehicular trips. As discussed in Section 4.12.6.1, it was determined that an increase in 200 or more equivalent dwelling units (EDU) served for each Land Area by a Class I roadway or an increase of 100 or more EDUs for each Land Area served by a Class II through V roadway cause an increase in vehicular trips that would result in a significant impact. Therefore, the following analysis will add the number of EDUs from proposed housing development projects with the number of EDUs that are assumed to be developed as a result of the project and then if that sum is higher than the 100 or 200 significance criteria discussed in Section 4.12.6.1, a significant impact will be presumed to occur. The impact on transportation due to the increased development assumed to result from the Hydrodivestiture Project has been mitigated to a less than significant impact with Mitigation Measure 12-1.

Shasta Regional Bundle

There are no residential development projects proposed in the Shasta Regional Bundle. Other proposed projects near the Shasta Regional Bundle would not generate significant traffic, thus no cumulative impact will occur.

DeSabra Regional Bundle

The number of EDUs assumed to be developed in the DeSabra Regional Bundle as a result of the Hydrodivestiture Project is 2,099. The number of EDUs expected to result from local housing development projects in the DeSabra Regional Bundle is 1,366. Since the Hydrodivestiture Project will have a significant amount of development on Project Lands, the contribution of additional development in the area would result in a significant cumulative impact. There are additional projects such as minor commercial development and some recreational homes and opportunities proposed in the vicinity of the DeSabra Regional Bundle. (Table 5-7) These projects would contribute to an increase in traffic. The traffic increase resulting from recreation homes and opportunities would be seasonal. Given the increase in traffic resulting from the project, and given the increase in traffic resulting from the cumulative projects, the incremental impact would generate a significant increase in traffic to the area. Therefore, the cumulative impact is significant.

Drum Regional Bundle

The number of EDUs assumed to be developed in the Drum Regional Bundle as a result of the Hydrodivestiture Project is 4,071. The number of EDUs expected to result from local housing development projects in the Drum Regional Bundle is 1,898. Since the Hydrodivestiture Project will have a significant amount of development on Project Lands, the contribution of additional development in the area would result in a significant cumulative impact. There are additional projects such as commercial development to facilitate the housing development proposed in the vicinity of the Drum Regional Bundle. (Table 5-7) These projects would contribute to an increase in traffic. There are also timber sales and quarries proposed in the area. These projects will contribute to an increase in traffic. Given the increase in traffic resulting from the project, and given the increase in traffic resulting from the cumulative projects, the incremental impact would generate a significant increase in traffic to the area. Therefore, the cumulative impact is significant.

Motherlode Regional Bundle

The number of EDUs assumed to be developed in the Motherlode Regional Bundle as a result of the Hydrodivestiture Project is 319. The number of EDUs expected to result from local housing development projects in the Motherlode Regional Bundle is 8,402. There is minor commercial development, mining projects, several timber sales, and various recreation opportunities proposed in the Motherlode Regional Bundle. (Table 5-7) These projects will all contribute to an increase in traffic in the area. Although the Hydrodivestiture Project will have an incremental effect with the

additional proposed projects, with the implementation of Mitigation Measures, that impact would not be cumulatively considerable.

Kings Crane-Helms Regional Bundle

The number of EDUs assumed to be developed in the Kings Crane-Helms Regional Bundle as a result of the Hydrodivestiture Project is 701. The number of EDUs expected to result from local housing development projects in the Kings Crane-Helms Regional Bundle is 31,222. In addition to the housing development proposed in the area there is a state prison, a water treatment facility, and a landfill expansion project. These projects would contribute to an increase in traffic. Although the Hydrodivestiture Project will have an incremental effect with the additional proposed projects, with the implementation of Mitigation Measures, that impact would not be cumulatively considerable.

Impact 12-2: Restriction of access opportunities across project lands resulting in the potential disruption of existing travel patterns.

There was a significant impact identified by the Hydrodivestiture Project; however, Mitigation Measure 12-2 would mitigate that impact. Although there are many projects throughout the area, there are no local projects that will restrict access as a result of any of these projects and therefore none of these local projects will contribute cumulatively. Thus, no cumulative impact will occur.

5.4.4.13 Noise

Impact 13-1: Change in operations of the hydroelectric powerhouses would not result in substantial increases in dBA levels above the existing ambient noise conditions.

Change in hydroelectric operations could result in increases in ambient noise conditions, however these impacts would be less than significant.

None of the related projects would result in changes in the operations of hydroelectric facilities; therefore, no cumulative impacts would result.

Impact 13-2: Potential land use changes associated with the Watershed Lands would contribute substantial noise levels above the existing ambient noise conditions.

Increased intensity of land management (e.g., additional timber harvest or mining) or development of Project Lands would increase noise levels above existing ambient noise conditions. This significant impact could be reduced to a less than significant level with implementation of Mitigation Measure 13-2.

Additional cumulative projects would result in increased ambient noise levels in the vicinities of the related projects. However, most of the proposed projects are generally not located in close enough proximity to contribute to a cumulative impact in regards to noise. Table 5-7 lists cumulative projects considered in this analysis and those projects are plotted on maps displayed as Figures

5.4-1 through 5.4-6. Since hydroelectric facilities are generally not major noise sources and are primarily in remote areas where there are few sensitive receptors, there are no significant cumulative impacts expected from the project.

Some land uses are considered more sensitive to ambient noise levels than others, due to the amount of noise exposure and the types of activities typically involved. Residential areas, schools, and hospitals generally are more sensitive to noise than are commercial and industrial land uses. Land uses near the hydroelectric facilities are primarily open space, recreation, rural residential, and timberland. The concern of this impact is not whether Project Lands have an acceptable noise environment for the potential new developments, but whether the potential development would adversely affect the *existing* noise environment, on or adjacent to Project Lands.

There are various cumulative projects proposed in the vicinity of the Project. A significant amount of development can have a significant change on noise levels in the area. Also associated with an increase in development is an increase in noise due to traffic. The combination of the potential increase in noise at the powerhouses combined with the potential increase in noise as a result of development resulting from the project would have a significant impact in regards to noise. However, a majority of the proposed cumulative projects are not located in close enough proximity to Project Lands for a cumulative impact to result overall. There are few proposals in close proximity to Project Lands, such as the RJ Miles Quarry that is located near the Chicago Powerhouse, however that quarry will only change operators and not operations, thus no significant change in noise would result. There are several timber sales and the Kern River Freeway proposed. Although these projects would independently result in an impact to noise, such noise would not cumulate with noise resulting from the project. Mitigation measures identified for the project would mitigate the project's contribution to a significant cumulative noise impact. In any event, however, given the locations of proposed cumulative projects relative to noise that could result from the Hydrodivestiture Project, project noise would not combine with noise from cumulative projects so as to adversely impact sensitive receptors. Therefore the cumulative impact would not be significant.

Timber harvest activities in rural areas will temporarily have significant impacts, however since those impacts are short-term, the impact is considered less than significant. Also, except for timber harvest along the Stanislaus River, timber harvests are dispersed throughout the Sierra Nevada Mountains and are generally not next to hydroelectric powerhouses, and thus will not contribute to a cumulative impact. There are timber harvest activities already planned and expected for many regions surrounding the powerhouses. Table 5-7 lists timber sales and management projects considered in this analysis and those projects are plotted on maps displayed as Figures 5.4 – 1 through 6, also timber sales and management programs are discussed in Section 5.4.4.2 Forestry.

5.4.4.14 Air Quality

Impact 14-1: Changes in hydropower operations would affect operations at other power plants.

The proposed project could result in shifts in the timing of electrical generation by the hydroelectric facilities, which could require other electrical generation sources to increase output. This could result in emission of criteria pollutants if those sources are powered by fossil fuels. However, as the total amount of electricity generated by the hydroelectric facilities is not anticipated to change, this impact would be less than significant.

Because none of the related projects would affect the electrical generation output of other hydroelectric facilities or other sources of electrical production, no cumulative impacts would result.

Impact 14-2: The project land development could contribute substantial emissions to the local air basin, which could cause the degradation of the local air quality conditions or would contribute to a new or existing violation of the National or State Ambient Air Quality Standards.

Development of Project Lands could contribute substantial emissions to the local air basin, which could cause the degradation of the local air quality conditions or contribute to a new or existing violation of air quality standards. Although mitigation measures have been identified to reduce these impacts, these impacts would remain significant and unavoidable.

Residential and commercial development would result in increased emissions of criteria pollutants, which could exceed applicable air standards. Table 5-7 lists residential and commercial development projects considered in this analysis and those projects are plotted on maps displayed as Figures 5.4-1 through 5.4-6. Together, the impacts of both the project and cumulative projects would be significant and even with the project's mitigation measures, the project's contribution would be significant and unavoidable. Therefore, the project would result in a significant cumulative impact on air quality.

5.4.4.15 Aesthetics

Impact 15-1: The project could substantially degrade visual character due to intensification of land development.

Increased intensity of land management (e.g., additional timber harvest or mining) and development of Project Lands could substantially degrade visual character. The impacts as a result of the project would be potentially significant as a result of development and timber harvest.

Residential and commercial development and timber harvest could result in a significant aesthetic impact related to degradation of visual character in those locations impacted by the related projects. Table 5-7 lists projects considered in this analysis and those projects are plotted on maps displayed as Figures 5.4-1 through 5.4-6. Since the project is located in rural areas, development would contribute to altering the visual character of the land.

The majority of the cumulative projects proposed in rural areas are intended for recreational use or as vacation homes, and substantial clustered development generally would occur in already developed areas such as the City of Auburn. Although there is not a significant amount of cumulative development projects proposed, in conjunction with development that could result from the project, the cumulative development projects would degrade the rural character of the land.

Although each of these cumulative projects may not independently have a significant impact on aesthetics, these projects together with the project would have a significant cumulative impact. Although the project's aesthetic effect would be mitigated to a less than significant level, in the cumulative context, the project's contribution to degradation of the aesthetic environment together with the effects of the cumulative projects would remain significant.

Impact 15-2: The project could degrade visual character due to operational changes in reservoir levels resulting in substantial draw down of reservoirs beyond drawdown occurring under baseline conditions during the peak recreational season (Labor Day to Memorial Day).

Changes in hydroelectric operations could degrade visual character due to substantial draw down of reservoir water levels during the peak recreational season (Labor to Memorial Day). This significant impact could be reduced to a less than significant level with the implementation of Mitigation Measure 15-2.

Although there are various water related projects proposed in the area (Table 5-7), those projects are in place to improve habitat and water quality conditions and to reduce erosion which preserves rivers and would result in a beneficial or neutral impact to the area but would not contribute cumulatively with the project in regards to aesthetics.

Because none of the related projects would result in drawdown of reservoir water levels during the peak recreational season, no cumulative impacts would result.

5.4.4.16 Geology, Soils, and Minerals

Impact 16-1: The proposed project could result in land development that could be subject to surface fault rupture.

Development of Project Lands could be subject to a significant impact due to surface fault rupture; however, this impact could be reduced to a less-than-significant level with the implementation of Mitigation Measure 16-1.

Development of the related projects could occur at locations that may be subject to surface fault rupture, which would result in a significant impact to those structures and facilities. It is assumed that the related projects would adhere to applicable codes and regulations related to mitigation of seismic risks. Table 5-7 lists residential and commercial development projects considered in this analysis and those projects are plotted on maps displayed as Figures 5.4-1 through 5.4-6.

As the impact of the project related to potential for surface fault rupture can be mitigated to a less than cumulatively considerable level and any cumulative development (Table 5-7) would be subject to applicable codes and regulations, the project's contribution to any significant cumulative impact would not be cumulatively considerable.

Impact 16-2: The proposed project could result in land development that could increase the number of people and amount of property exposed to hazards associated with strong ground shaking on active faults.

Development of Project Lands could be subject to ground shaking related to seismic events however, this impact could be reduced to a less than significant level with the implementation of Mitigation Measure 16-2.

Development of the related projects could occur at locations that may be subject to ground shaking from seismic events, which would result in a significant impact to those structures and facilities. It is assumed that the related projects would adhere to applicable codes and regulations related to mitigation of seismic risks.

As the impact of the project related to potential ground shaking from seismic events can be mitigated to a less than cumulatively considerable level and any cumulative development (Table 5-7) would be subject to applicable codes and regulations, the project's contribution to any significant cumulative impact would not be cumulatively considerable.

Impact 16-3: The project could result in land development that could result in increased soil erosion or mass wasting during construction or occupancy.

Development of Project Lands could result in erosion or mass wasting, however, this impact could be reduced to a less than significant level with the implementation of Mitigation Measure 16-3.

Development of the related projects could also result in erosion and mass wasting, which would result in significant impacts. Table 5-7 lists residential and commercial development projects considered in this analysis and those projects are plotted on maps displayed as Figures 5.4-1 through 5.4-6. It is assumed that the related projects would adhere to applicable local regulations and ordinances and related to mitigation of erosion and other construction-related affects.

As the impact of the project related to potential for erosion and mass wasting can be mitigated to a less than cumulatively considerable and any cumulative development (Table 5-7) would be subject

to applicable codes and regulations, the project's contribution to any significant cumulative impact would not be cumulatively considerable.

Impact 16-4: The project could result in timber harvesting operations that could result in increased soil erosion or mass wasting.

The project could result in timber harvesting operations that could result in increased soil erosion or mass wasting. Adherence to the provisions of the Timber Harvest Plan would reduce these potential impacts to a less than significant level.

Additional timber harvest activities in the related projects areas could result in erosion or mass wasting. However, it is assumed that other timber harvest activities would be required to adhere to the erosion control and other obligations of the Timber Harvest Plans, which would reduce these potential impacts. Table 5-7 lists timber sales and management projects considered in this analysis and those projects are plotted on maps displayed as Figures 5.4-1 through 5.4-6, also timber sales and management programs are discussed in Section 5.4.4.2, Forestry.

As any additional development that would result (Table 5-7) would be subject to applicable codes and regulations and would be subject to provisions in a Timber Harvest Plan, the cumulative impact would not be significant and in any event, the project's contribution would not be cumulatively considerable.

Impact 16-5: The project could result in mining operations that could result in increased soil erosion or mass wasting.

The project could result in additional mining operations that could result in increased soil erosion or mass wasting. Adherence to the applicable State and local rules and regulations for mining would reduce these potential impacts to a less than significant level.

Additional mining in the related projects area could result in erosion or mass wasting. However, it is assumed that mining operations would to adhere to applicable State and local rules and regulations for mining, which would reduce these potential impacts. Table 5-7 lists mining projects and quarries considered in this analysis and those projects are plotted on maps displayed as Figures 5.4-1 through 5.4-6.

As the project impact from increased potential for erosion and mass wasting from mining can be mitigated to a less than cumulatively considerable and any cumulative development (Table 5-7) would be subject to applicable rules and regulations, the cumulative impact would not be significant and in any event, the project's contribution would not be cumulatively considerable.

Impact 16-6: The project could result in land development on or within soils in which shrink-swell (expansion) potential, slope, or shallow depth to rock could damage structures and/or create unstable rock or soil conditions.

Development of Project Lands could result in significant impacts due to soils with a high shrink-swell potential or a shallow depth to rock; however, this impact could be reduced to a less than significant level with the implementation of Mitigation Measure 16-6.

Development of the related projects could occur at locations with soils that have a high shrink-swell potential or at locations with a shallow depth to rock, which would result in significant impacts to those structures and facilities. It is assumed that the related projects would adhere to applicable codes and regulations related to construction in areas with soil or excavation problems. Table 5-7 lists additional projects considered in this analysis and those projects are plotted on maps displayed as Figures 5.4-1 through 5.4-6.

As the impact of the project related to potential for shrink-swell soils and depth to rock can be mitigated to a less than cumulatively considerable and any cumulative development (Table 5-7) would be subject to applicable codes and regulations, the cumulative impact would not be significant and in any event, the project's contribution would not be cumulatively considerable.

Impact 16-7: The project could result in a change in hydrological operations that could affect existing informal erosion control plans, which could result in new or exacerbated erosion problems.

Changes in hydrological operations could affect existing informal erosion control plans, which could result in new or exacerbated erosion problems. Implementation of Mitigation Measure 16-7 would reduce this impact to a less than significant level.

None of the related projects would affect hydropower operation, and there is not a significant amount of projects located in close enough vicinity to the rivers in the project area that a significant impact to erosion would result. (Figures 5.4-1 through 5.4-6) In addition, there are various erosion control plans for river systems and the redevelopment of recreational trails proposed to prevent further erosion and to restore the river system health. (Table 5-7) Therefore, the cumulative impact would be less than significant.

Impact 16-8: The project could result in development that could limit availability of mineral resources classified as MRZ-2 by the State Geologist or important mineral lands recognized in local land use planning, or changes in land use or hydrologic operations could result in termination of existing mining lease agreements.

Development of Project Lands could occur at the location of known mineral resources that would result in the lost ability to recover those resources. This significant impact could be reduced to a less than significant level with the implementation of Mitigation Measure 16-8.

Development of the related projects could occur at the location of known mineral resources that would result in the lost ability to recover those resources. Implementation of measures to avoid such resources, to the extent feasible, could reduce or avoid these impacts. However, it is unknown

whether local jurisdictions would implement such measures, therefore these impacts could be significant. Table 5-7 lists additional projects considered in this analysis and those projects are plotted on maps displayed as Figures 5.4-1 through 5.4-6.

While the cumulative impact could be significant, the contribution of the project to the lost potential for recovery of known mineral resources can be mitigated to a less than cumulatively considerable level. Furthermore, any cumulative development (Table 5-7) would be subject to applicable codes and regulations, further lessening the overall cumulative effect.

Impact 16-9: The project could result in land development in areas where significant mineral resources may exist but have not yet been identified.

Development of Project Lands could occur at the location of unknown mineral resources that would result in the lost ability to recover those resources. This significant impact could be reduced to a less than significant level with the implementation of Mitigation Measure 16-9.

Development of the related projects could occur at the location of unknown mineral resources that would result in the lost potential to recover those resources. Implementation of measures to avoid such resources, to the extent feasible could reduce or avoid these impacts. However, it is unknown whether local jurisdictions would implement such measures when those cumulative projects are implemented, therefore these impacts could be significant. Table 5-7 lists additional projects considered in this analysis and those projects are plotted on maps displayed as Figures 5.4-1 through 5.4-6.

While the cumulative impact could be significant, the contribution of the project to the lost potential for recovery of known mineral resources can be mitigated to a less than cumulatively considerable level. Furthermore, any cumulative development (Table 5-7) would be subject to applicable codes and regulations, further lessening the overall cumulative effect.

Impact 16-10: The project could result in a change in hydrological operations and maintenance practices, which could result in new or exacerbated erosion or slope instability problems.

Changes in hydrological operations and maintenance practices could increase erosion or slope stability problems. Implementation of Mitigation Measure 16-10 would reduce this impact to a less than significant level.

Although there are various erosion control plans for river systems and the redevelopment of recreational trails proposed to prevent further erosion and to restore the river system health (Table 5-7), these projects would result in a beneficial or neutral impact. However, this will not contribute cumulatively since there are no cumulative projects that will alter maintenance practices at powerhouses.

5.4 Cumulative Impacts

None of the related projects would affect the operation or maintenance of hydroelectric facilities; therefore, no cumulative impacts would result.

Table 5-7 Cumulative Projects

ID ^a	Name	Project Description	County
Shasta Regional Bundle			
Bundle No. 2 Pit River			
95	McArthur Swamp Weed Eradication Program	Aerial weed application program Pacific Gas and Electric has agreements for vegetation management.	Shasta
96	McArthur Swamp Land Transfer (CPUC Application 00-05-029)	Proposed land transfer of 7,400 acres from Pacific Gas and Electric Company to California Waterfowl Association (CWA), 2,000 acres currently part of FERC 2687 lands, a part of the Hydrodivestiture Project. CWA to act as lands stewards with a conservation easement. Lands will remain subject to current grazing leases with a modified grazing management plan. CWA agreement will preserve existing beneficial uses such as recreation and will retain water rights for up to 300 af/year to maintain wetland habitat and will retain the Dredge used to maintain the levees.	Shasta
97	Burney Falls Land Exchange (CPUC Application 00-05-030)	Proposed land transfer of four acres known as Bowman Ditch and 182 acres known as Burney Falls from Pacific Gas and Electric Company to Department of Parks and Recreation (DPR) in exchange for a portion of Ahjumawi Lava Springs State Park from DPR. Existing beneficial uses such as Camp Britton will be preserved.	Shasta
98	Upper Pit River Watershed Project	Watershed enhancement project through erosion control and improved water quality for watershed.	Modoc
99	Pit 1 relicensing – Fall River Pond near Hat Creek	For relicensing, stagnant pond must be flushed – significant water quality issue by WQCB.	Shasta
100	Upper Fall River Sediment Analysis	Analysis to address concerns over sedimentation and associated problems for Fall River.	Shasta
101	Increase height of Shasta Dam	Increase water storage behind dam – a CALFED project.	Shasta
102	Upper Fall River Dredging Project	Dredging project to remove recent stream sediment in order to enhance aquatic life.	Shasta
Bundle No. 4 Battle Creek			
104	Battle Creek Restoration	Creek restoration project to restore and improve salmon and steelhead habitat. This project proposes to decommission five dams.	Tehama & Shasta
105	Battle Creek Watershed Conservancy	Long-term watershed protection for salmonids and general environmental values.	Tehama & Shasta
106	Deer and Mill Creek Enhancement	Revegetation and management of critical riparian habitat and flood plains.	Tehama
107	Deer Creek Implementation	Enhance and restore the habitat for wild spring run chinook salmon.	Tehama & Butte
111	Scenic By-Way Designation	Highways 89, 44, and 36 loop around Lassen National Park and will be designated as a scenic by-way. Project will include interpretative opportunities.	Lassen National Forest

5.4 Cumulative Impacts

Table 5-7 Cumulative Projects

ID ^a	Name	Project Description	County
DeSabra Regional Bundle			
Bundle No. 6 Feather River			
69	Walker Ranch	Planned development transfer of 1,250 acres for development, definition of land use areas, set maximum development densities in specific areas and provide an entity to administer, maintain, and operate facilities and services. Project includes golf course, housing, clubhouse, and commercial development. Intended for seasonal use/second or vacation homes.	Plumas
108	Rock Creek-Cresta Relicensing Settlement Agreement	30-year-long agreement to balance power generation with environmental protection and recreation. Mandates minimum river flow levels and water temperature monitoring. Project area begins at Rock Creek Dam in Plumas County and ends at Cresta Powerhouse in Butte County.	Plumas/Butte
109	Dyer Mountain Ski Resort	Build ski resort that includes residential and commercial development to accommodate the resort. Currently in environmental review.	Lassen
103	Clear and Middle Creek Restoration	Creek restoration to reduce soil erosion, fuel loads, and improve habitat.	Lassen
70	Almanor Lakeside Villas	Tentative subdivision map to divide 2.8 acres into 24 lots (five commercial, 19 residential). One story condominiums for seasonal use located on the northeast shore of Lake Almanor near Big Cove. Located at 452 Peninsula Drive, Lake Almanor. Assessor's Parcel No.'s: 104-052-006.	Plumas
68	Almanor Lakeside Village	Proposed campground for 19 spaces on 1.41 acres. Located at 310 and 312 Peninsula Drive, Lake Almanor. Assessor's Parcel No.'s 104-102-014.	Plumas
72	Walking Path/Recreation Trail	Project to add two miles to the ten mile paved walking path between Pacific Gas and Electric Company campground on the west shore of Lake Almanor to Canyon Dam. The area is currently used as a bike trail.	Plumas
110	Canyon Dam Fishing Access	Currently, there is an existing pathway that people commonly use for year round fishing, but the trail is very slippery so the project is to set up a safe walking path. EA completed in early 1990 but project not yet started.	Plumas
73	Lake Almanor Campground	Project to restore campgrounds with 'no new footprints' however, part of this project is to develop a trailer/RV dumpsite at an existing rest area located on Highway 89 which will need to expand the sewer, water, and power public services at the rest area.	Plumas, Lassen National Forest
112	North Fork Feather River Fish Passage	Fishery project to modify fish passage through dry type of dam.	Plumas
113	Feather River Coordinated Resource Management Plan	Management plan to restore watershed, specifically the east branch of the North Fork of the Feather River.	Plumas
114	Upper Feather River Watershed Monitoring	Watershed monitoring program within the north and middle forks of Feather River watershed.	Plumas
115	Feather River – Indian Creek Watershed Plan	The plan builds on a 1989 watershed river basin study and will restore riparian areas.	Plumas

Table 5-7 Cumulative Projects

ID ^a	Name	Project Description	County
Bundle No. 7 Bucks Creek			
61	Bucks Lake Meadows	Tentative subdivision map to divide 148.4 acres into 20 lots for residential use as vacation/second homes. Located at 17400 Bucks Lake Road, Bucks Lake. Assessor's Parcel No.'s: 112-060-002.	Plumas
67	Norton Meadows	Tentative subdivision map to divide 68 acres into 22 lots with an average size of one acre for residential use. Project is not finalized, but has completed Negative Declaration (#517). Located at 16860 Bucks Lake Road, Bucks Lake. Assessor's Parcel No.'s: 112-070-025.	Plumas
Bundle No. 8 Butte Creek			
12	PG&E Transmission Line – Paradise Area Reinforcement Project	Proposed construction of 6.5 miles of new 115 kV transmission line in an unincorporated area. Final Mitigated Negative Declaration completed. Construction to begin in February 2001.	Butte
116	Adams Dam Fish Screen and Fishway	Restore anadromous fishery in Butte Creek.	Butte
132	Justice Center	Proposed new court building. DEIR completed by El Dorado County. Located ½ mile from Oroville City Center.	Butte
6	North Valley Building Systems	18,000-square-foot commercial facility.	Butte
7	Feather River Tribal Health	36,000-square-foot commercial facility.	Butte
9	Walgreens	15,000-square-foot commercial facility.	Butte
5	Oroville Gymnastics	12,000-square-foot day-care center.	Butte
117	Increase storage at Oroville	Project to increase flood storage at Lake Oroville using rubber inflatable dams in spillway.	Yuba
10	Private Industry Council	85,000-square-foot office space.	Butte
Drum Regional Bundle			
Bundle No. 9 North Yuba River			
118	Removal of Daguerre Point diversion Dam	Removal of Daguerre Point Dam downstream of the Narrows Powerhouse.	Yuba/Nevada
120	Flood Control Project on Yuba River	Increase storage capacity at New Bullards Bar Reservoir for flood control.	Yuba/Nevada
119	Narrows Project	Enhance anadromous fisheries in the lower Yuba River for habitat improvement/restoration. Project includes fish screening alternatives at dams and fish passage.	Nevada
121	Upper Yuba River Studies Program	Evaluate feasibility of introducing wild Chinook and Steelhead to Upper Yuba River above Englebright Dam.	Nevada
122	Coordinated Yuba River Watershed Health Improvement and Monitoring Project	Coordination watershed planning, monitoring, and implementation of water quality improvement projects in the Yuba River watershed.	Nevada

Table 5-7 Cumulative Projects

ID ^a	Name	Project Description	County
Bundle No. 11 South Yuba - Bear River			
45	Quail Lake Estates	Planned residential development totaling 808.67 acres and subdivision totaling 745.01 acres into 93 clustered lots. Location at 12260 Lime Kiln Road. Tentative Map approved, but no activity. Developer filed a request for a two-year extension.	Nevada
46	Wolf Creek Ranch Estates	Planned residential development subdivision totaling 11 parcels on 691 acres. Located five miles south of Grass Valley, west of Highway 49 and South of Lime Kiln Road. Pending approval from the planning commission.	Nevada
54	Sugar Bowl Unit 3	Subdivision of existing parcels into 32 new lots to facilitate construction of single-family dwelling units. Located at Sugar Bowl Ski Resort, Norden.	Placer
53	Atwood III	Single-family subdivision with up to 165 lots to be constructed. Located at Atwood Road west of Bean Road, Auburn.	Placer
58	Kalorama Planned Residential Development	Rural residential subdivision of 97 single family lots on 1,200 acres (800 acres designated as open space) Located east of I-80 off Boole Road, Applegate.	Placer
62	Bickford Ranch	Development of 1,100 homes as a part of a senior housing project, 850 homes without any age restrictions, with an 18-hole golf course and a clubhouse. 14 acres of commercial development will be incorporated into the project. Located east of Sierra College.	Placer
42	Baldwin Ranch Subdivision	223-parcel subdivision, built in five phases over eight years. Includes 18-hole public golf course, club house, conference facility, golf academy, and golf maintenance facility. On 1,046 acres in southwest Nevada County. Approved Master Plan.	Nevada
65	Village at Green Hill (aka Conte Newcastle)	13.5-acre lot subdivision on approximately 65.33 acres. Located at Newcastle and Rattlesnake Road. Assessor's Parcel No.'s: 037-230-001, 003.	Placer
66	Hidden Falls Planned Unit Development	Approximately 25 lots of planned unit development on 780 acres. Located off of Mears Road, approximately 3/4 mile from the intersection of Mears and Mt. Vernon Road in northwest Auburn.	Placer
49	New Light Manufacturing Facility	Construction of a 18,300 square foot office/industrial building. Located on lot 28B, south of Earhart Avenue, within Auburn Airport Industrial Park, Auburn.	Placer
44	Higgins Center	Commercial center consisting of five buildings totaling 33,050 square feet. Mixed development to include service station, mini mart, fast food restaurant, larger chain drug store, and an office building. Located at 10025 Combie Road, on the southwest corner of Combie Road and State Highway 49. Planning review in process, EIR completed.	Nevada
51	Cellular Facility – Drum Forebay	Installation of an equipment shelter and a 55-foot monopole to operate a cellular communications facility (Spectrasite). Located at 333 Drum Forebay Road, Alta. Assessor's Parcel No.'s: 062-240-032.	Placer
55	Auburn Dodge	Development of 30,000 square foot automobile sales and service building. Located at 1900 Grass Valley Highway, Auburn.	Placer

Table 5-7 Cumulative Projects

ID ^a	Name	Project Description	County
57	Home Depot	Construction of a 106,490 square foot home improvement retail store with a 24,074 square foot outdoor garden center. Located at Dewitt Center immediately west of Highway 49.	Placer
59	Main Jail House 4	Expand existing jail bed capacity to accommodate an additional 96 inmates, addition of a visitor center, multi-use rooms, interview rooms, office, storage, and recreation yard. Located west of Richardson Ave, north of Atwood Road, and south of existing jail. Assessor's Parcel No.'s: 051-120-006.	Placer
56	Bell Road Widening	Widening of Bell Road to provide 4 lanes between I-80 and Highway 49, plus shoulders. Located in the North Auburn area.	Placer
41	Campground/Resort	Amendment to Recreation Master Plan approved for 228 sites, 16 rustic cabins and support structures including 40 cabins, 40 tent sites, and employee lodge. Proposed mixed-use facility conference center, tennis courts, employee housing, swimming lagoon, two spas, and a structure. Approved April 27, 2000.	Nevada
50	Camp Del Oro	Construction of a youth mining camp/retreat center that is located at 28000 Rollins Road, Colfax. Assessor's Parcel No.'s: 099-030-026 & 006.	Placer
47	Hanson Bros. Bears Elbow Quarry	In-stream gravel operation with three to four miles of streambed. Has been dormant for 10-12 years. Site previously was a mining site. Recently proposed to use as a rock quarry. Totals 67 acres. Location: on Greenhorn Creek, north of Rollins Reservoir.	Nevada
48	RJ Miles Plant	There is an existing sand and gravel quarry that will change operators, but operations will not change. Approximately 112 acres and is located on Bear River just northeast of Rollins Reservoir.	Nevada
123	Bear River CRMP – Sierra Nevada Mercury Assessment	Program is to complete a mercury assessment and identification of mercury hot spots, then will identify range of actions.	Placer
124	Dry Creek Watershed Restoration: Miners Ravine Pilot Project	The restoration project includes bank stabilization, monitoring, and watershed planning.	Placer
125	Dry Creek CRMP	Short and long term projects to protect and restore fish and wildlife resources and related habitat in Dry Creek watershed.	Placer
126	American River/Yuba River/Traverse Creek EQIP	Program is to improve/restore forest health with a fuel reduction treatment in order to reduce fire hazard and 500 to 600 acres of commercial timber harvest. The EA is currently in appeal.	El Dorado/Placer/Nevada
127	Auburn Creek Ravine CRMP	Program is for watershed stability through water quality and fisheries improvement and flood control on Auburn Ravine Creek.	Placer
128	Auburn Ravine/Coon Creek Ecosystem Restoration Project	Restoration project is a watershed plan for two watersheds to protect and restore habitat, protect watershed integrity, improve water quality, and improve ecological functioning of two watersheds.	Placer
129	South Yuba River Coordinated Watershed Management Plan	Plan is to improve watershed lands, reduce erosion, and improve habitat in and along the South Fork of the Yuba River.	Nevada (Narrows1)
130	South Yuba River Public Lands Partnership Program	Cooperative relationship between Federal land managing agencies and local citizens groups in order to provide cooperative stewardship of public lands along the South Yuba River.	Nevada (Narrows1)

Table 5-7 Cumulative Projects

ID ^a	Name	Project Description	County
64	Penryn Parkway Business Park	Construction of 13 commercial/office buildings, a motel and office, a gas station canopy, a parking lot, and required landscaping to be completed in five phases.	Placer
152	Long Understory Burn	Forest health analysis for Traverse Creek and Bear Creek Watersheds with proposed activities that include commercial and pre-commercial thinning and removal of brush using mechanical, hand, and understory burning methods.	Placer
155	Chipmunk Forest Health Project	Forest health analysis in the vicinity of Chipmunk Ridge in the northern portions of the Georgetown District. Proposed activities include commercial thinning and fuel reduction.	Placer
156	Darling Ridge Water Storage Tanks	Placement of two Garden Valley Fire District water storage tanks on national forest system lands adjacent to or near Darling Ridge Road, for the purpose of use during fire suppression activities.	El Dorado
158	Beanville Timber Sale	Timber sale includes understory thinning, fuels treatment, and road maintenance.	El Dorado
159	Bonkers Timber Sale	Timber sale includes understory thinning, fuel treatments, road maintenance, and road closures.	El Dorado
Bundle No. 12 Chili Bar			
154	Silver Pearl Land Exchange	Sierra Pacific Industries to exchange of 4,000 acres of federal land in the Eldorado National Forest with approximately 5,000 acres of land owned by Sierra Pacific Industries with USFS. This exchange is to consolidate land ownership patterns. The USFS will acquire lands with a recreational/multiple-use emphasis.	El Dorado
157	Cabin Fever Forest Health Project	Forest health project includes understory thinning, fuel treatments, road maintenance, and road closures.	El Dorado
153	Leonardi Forest Health Project	Forest health analysis along Wentworth Springs Road. Proposed activities include commercial and pre-commercial thinning, prescribed burning, and watershed improvement projects that will require road closures.	El Dorado
20	Cottonwood Development	An 81 unit senior complex with assisted living located on Clay Street in Placerville between Anderson and Pleasant Road.	El Dorado
23	Escalon Senior Continued Care Facility	A 23-acre senior care facility in Central Placerville, which will be a combination of assisted living and single family duplex in Weatherstone Project.	El Dorado
21	Thompsons Automotive	A 33,500 square-foot, 5.5 acres facility located between Highway 50 and Placerville Drive. The construction drawings have been submitted, but not approved and is being revised. Plan to include raising the existing road 20 feet to be level with entrance way. Located next to another car dealership "Harold Ford".	El Dorado
131	Henningson's Site	Seven acres for potential retail development that is located on Placerville Drive. The area is zoned for commercial development.	El Dorado
22	Office Buildings	An 11,000 square foot office space on vacant lands. The project has been through plan review process and was approved.	El Dorado
24	El Dorado Irrigation District	A 30,000 square foot office space is planned for the El Dorado Irrigation District Headquarters. The Master Plan is in process but has not yet been through environmental review process.	El Dorado
18	Traverse Creek Forest Health Program	Proposed forest health program for 150 to 200 acres of thinning to occur over two years.	El Dorado

Table 5-7 Cumulative Projects

ID ^a	Name	Project Description	County
133	Upper American River Relicensing	SMUD to relicense FERC No. 2101. The license expires 2007.	El Dorado
134	American River (North and South Forks) CRMP	Program focuses on wildland/urban intermix and ecosystem-watershed stability.	El Dorado/Placer
135	American River Integrated Watershed Stewardship Strategy	Plan to develop a Watershed Management Plan to address a wide range of environmental, institutional, social, and economic issues.	El Dorado
Motherlode Regional Bundle			
Bundle No. 13 Mokelumne River			
136	Mokelumne Relicensing Settlement Agreement	Relicensing agreement to establish streamflows for river-based recreational purposes, power generation, and minimum streamflow and resource management measure for protection, mitigation, and enhancement of fish and wildlife resources.	Amador
1	Martel Industrial Park	Redevelopment of an old mill site, that was closed four years ago, to an industrial park. The industrial park is intended to provide jobs for residents of Amador County. Project is located ½ miles north of Jackson.	Amador
2	Sierra West and Martel Business Parks	Two business parks on 400 acres facing each other at the intersection of Highway 88 and 49. The Sierra West project has completed and approved a Mitigated Negative Declaration for 70 acres, 17 parcels. Martel Business Park project on 387 acres made up of 62 parcels, has completed a DEIR and is in public review. The DEIR includes impacts from Sierra West development. These projects are located ½ mile north of Jackson.	Amador
3	Road Paving Project	FHWA plan to pave seven miles of road to Blue Lakes area.	Amador
4	Bear River Project	A forest health improvement of 3,134 acres that includes timber harvest, use of herbicides, biomass thinning, and road construction for fuel reduction treatment. The EA is completed.	Amador
138	Raise Pardee Dam	Project to raise Pardee Dam, FERC No. 2916, to approximately double the reservoir storage capacity. This project would inundate portion of whitewater recreation reach downstream of Electra Powerhouse and flood proposed Middle Bar Project Dam site.	Amador/Calaveras
139	Build Middle Bar Dam	Proposal to build Middle Bar Dam, FERC No. 0137, in upper reach of EBMUD's Pardee Reservoir. Dam would flood Electra Powerhouse and require reconstruction at higher elevation.	Amador/Calaveras
140	Lower Mokelumne River Restoration Program – Woodbridge Fish Screen and Passage	Implementation of key elements of existing resource management plans from CALFED, USFWS, and CDFG to increase fall-run chinook and steelhead populations.	San Joaquin
Bundle No. 14 Stanislaus River			
13	Forest Meadows Housing Development	A 400-lot subdivision that is located three to four miles southwest of Murphy's. The EIR is in process.	Calaveras
14	Saddle Creek Housing Development	A 1700 lot subdivision that is located near Copperopolis and the Tulloch Dam. The project is on 810 acres and will include 1,650 residential homes, eight public lots, 28 acres of common area. The project has been approved.	Calaveras

Table 5-7 Cumulative Projects

ID ^a	Name	Project Description	County
15	Oak Canyon Ranch Housing Development	A 3,500-lot subdivision with 3,250 acres that have a maximum of 3,150 residential development, 600 acres of which will be for multi-family use. The project not yet been approved, a tentative general plan includes rezoning agreement with the City. Currently, the EIR is in process. The project is located three to four miles south of Copperopolis, O'Byrnes Ferry Road and Copper Cove Drive	Calaveras
81	Chapparral Heights Housing Development, Units 2 & 3	31 acre development for 73 residential lots. Location: one to two miles south of Twaine Harte. Approved subdivision map.	Tuolumne
83	New Standard Housing Development and Golf Course, Town Plan	613-acre development for 729 lots and an 18 hole golf course. Located near Standard. Project includes a ten-acre town center combination of commercial and residential development. Currently in environmental review.	Tuolumne
87	Mountain Springs Housing Development	2000 lots planned, beginning with 100 to 200 lots. Located ½ mile east of Mountain Springs near the golf course and south east of Sonora. Project includes a new town center and 200 residential parcels in rural areas. Two-thirds of development will be slated for senior citizens.	Tuolumne
84	East Sonora Bypass	Major road project for two to three miles. Located between State Route 108 at Mono Way to Standard Road in a developed area.	Tuolumne
8	Spicy Sap Aspen/Meadow Restoration	Manipulate vegetation in meadows and Aspen stands within 2,800 acres. Project will run for two to three years. After tree harvest, then prescribed burn will follow.	Alpine
16	Schimke Timber Sale	5,700 acre, five million board feet timber sale, located at Skull Creek in the McKee Hill area. EA was submitted and then rejected and is currently in appeal. Project only takes co-dominant trees and sick/suppressed trees for fire management.	Calaveras
137	Aspen Fine Timber Sale	Timber sale is on 100 acres, 150,000 board feet. Area drainage into Highland Creek/Spicer Reservoir. Timber sale is located on Stanislaus River.	Calaveras
88	Sammy Timber Sale M0697-5	Thinning and regeneration harvesting followed by reforestation and prescribed burning. Located at Highway 108 to Dodge Ridge. Located near Pinecrest, a developed campground.	Tuolumne
86	North District Timber Sale EA Revision II M1095-7.2	Revision of North District Timber Sale to perform understory thinning in clusters to total ten million board feet. Located in the area between Crandall Peak and Mount Knight, Miwok Ranger District. CA Spotted owl in area.	Tuolumne
90	Pinecrest Lake Resort Cabins	Construct 15 additional two-bedroom cabins located off Pinecrest Avenue. Currently there are 60 cabins in an area that supports 20,000 visitors.	Tuolumne
91	Herring OHV Connector Trail S039614	One mile of new OHV trails to connect existing OHV routes. This new trail will run alongside a road that is temporarily being used for both standard vehicles and OHVs. OHV project is discussed in the Cow Timber Sale EA.	Tuolumne
92	Donnell OHV Route S039615	Three miles of new OHV trails to connect to existing OHV routes. An old road that has been closed will be reopened. The road is currently used by hikers.	Tuolumne
93	Pinecrest to Fraser Flat Railroad Grade S059808	Establish three miles of to connect Fraser Flat (developed campground) to Strawberry, just upstream from Pinecrest.	Tuolumne

Table 5-7 Cumulative Projects

ID ^a	Name	Project Description	County
94	Catfish Lake Loop Trail S019901	Construct a walking loop trail that will circle back down Herring Creek to the South Fork Stanislaus River and return on the river to the Pinecrest Dam and trails. Already one way trail from Pinecrest (developed campground) to Catfish Lake. The new trail loops back to Pinecrest past to the town of Strawberry.	Tuolumne
85	Big Chunk Off-Highway Management Plan M0395- 05	Management of OHV's and watershed rehabilitation, including future OHV events. Plan will use existing roads and trails that are currently used by vehicles and attempt to prevent erosion and impacts to natural resources by rerouting OHV trails away from waterways. Located along Deer Creek, Rose Creek, South and Middle Forks of the Stanislaus River.	Tuolumne
144	Tuolumne River Salmon Habitat Enhancement – Ruddy Project	Part of ongoing effort to upgrade Tuolumne River System aquatic habitat. Enhance chinook salmon spawning and rearing habitat.	Tuolumne
Bundle No. 15 Merced River			
38	Woolstenhuleme Ranch Mine	Proposed aggregate mine for cement and concrete to total 635 acres. Located five miles west of Hopetown, at the intersection of Highway 59 and Turlock. Currently, land is used as an irrigated pasture and farmland and is located next to an existing rock plant.	Merced, Mariposa
39	Doolittle Mine Site	Proposed mining project (excavation of cobble piles) totaling 150 acres. Located two miles East of Snelling, southwest corner of Highway 59 and Snelling. Land is currently piles of rocks.	Merced, Mariposa
141	Merced River Corridor Restoration Plan	Reestablishing geomorphic and ecological functions given contemporary regulated flow and sediment conditions in the Merced River.	Merced
142	Merced River Ranch Land Project	Phase 1 property acquisition and develop reclamation process; Phase 2 is reclamation and use of dredge tails for restoration.	Merced
143	Merced River Lower Western Stone Restoration Site	Improve river and floodplain dynamics, reestablish salmonid nursery habitat, reduce mortality of juvenile salmon.	Merced
Kings Crane-Helms Regional Bundle			
Bundle No. 17 Kerckhoff			
35	Jensen Ranch Golf Course	1,238 acre, 18 hole golf course with clubhouse, proshop, and driving range. Located on Avenue 12 and State Route 41. Area has a Williamson Act Contract – a ten-year perpetual agreement for non-development, therefore project may not happen.	Madera
145	Raise Friant Dam	Raise Friant Dam to increase storage at Millerton Lake.	Madera
37	Rio Mesa Area Plan	Area to plan new town totaling 29,000 new home sites on 15,000 acres to include residential, commercial development, and government center. Land currently used for agriculture and an existing golf course. Currently, no water or sewer system. No zoning in place. Board of Supervisor approved plan in 1995, and Programmatic EIR in process. Located between the cities of Fresno and Madera.	Madera

Table 5-7 Cumulative Projects

ID ^a	Name	Project Description	County
Bundle No. 19 Tule River			
33	California State Prison at Delano II	Construction of a state prison to accommodate up to 5,160 inmates and 1,600 employees on a 480-acre site. Located in the city of Delano at Cecil Avenue and Pond Road.	Madera
75	Housing Development	58 lot subdivision located at Linda Vista and Newcomb. Land previously used for cattle grazing.	Tulare
76	Housing Development	16 lot subdivision located at North Grand and Newcomb. Land previously used for cattle grazing.	Tulare
77	Housing Development	34 lot subdivision located at Avenue 176, west of Springville. Land previously used for cattle grazing.	Tulare
78	Housing Development	49 lot subdivision located at Pleasant Oak Drive, Springville. Land previously used for cattle grazing. Located on the south side of the Tule River.	Tulare
79	Housing Development	147 lot subdivision located at Pleasant Oak Drive, Springville. Land previously used for cattle grazing. Located on the south side of the Tule River.	Tulare
80	Housing Development	24 lot subdivision located at Reservation Drive, Porterville. Land previously used for cattle grazing. Located on the south side of the Tule River.	Tulare
146	Rio Vista Drive	Located on the South Fork of the Tule River. EIR completed. 49 residential lots on 59 acres. Area already has a public water system. Land previously used for cattle grazing.	Tulare
Bundle No. 20 Kern Canyon			
26	Proposed "City in the Hills" private housing development	Proposed - 700 acre parcel composed of 96 acre commercial, 65 acre condominiums and apartments, and 500 acres for single family dwellings.	Kern
147	Kern River Freeway	Freeway project planned but no environmental documents started. Freeway will be built in four phases, Western, Southern, Eastern and then Northern Beltway.	Kern
31	Recreation Camp	A 15-acre recreation camp that will be used as an environmental education facility. The project will include the construction of a new administration, storage, and bunker buildings. 35 children and seven counselors to stay for five days at a time, from Monday through Friday.	Kern
27	Housing Development	1,000 lot housing tract to support 1,100 people. DEIR public review, period closed 10/5/00. Mostly residential development and five stores. Zoning has been approved.	Kern
28	Housing Development	70 lot housing tract. Approved tentative tract.	Kern
29	Housing Development	150 lot housing tract. Approved tentative tract.	Kern
30	Housing Development	125 lot housing tract. Approved tentative tract.	Kern
32	Bakersfield Metropolitan (Bena) Sanitary Landfill, Phase 2A	Expansion of existing landfill from 54 to 229 acres. Located on Bena Road.	Kern

Table 5-7 Cumulative Projects

ID ^a	Name	Project Description	County
34	City of Bakersfield, Proposed Water Treatment Facility	Water Treatment Facility to divert water from the Kern River for the project. Project located uphill from the Kern River in the extreme northeastern corner of Bakersfield city limits. Proponents are City of Bakersfield and CA Water Service. EIR has been completed. This project is 30 months from completion.	Kern
148	Kern River Program	Program to improve water quality and quantity for Kern County.	Kern
149	South Fork Kern River Riparian Meadow Restoration	Restore wet meadow and stream habitat.	Kern
150	Upper Kern Basin Fisheries	Restore native Kern River trout.	Kern
151	South Fork Kern River Ecosystem Management Plan	Management plan for historic range of the golden trout.	Kern

a. ID number corresponds with where the cumulative projects are plotted on Figures 5.4-1 through 5.4-6.

5.4.5 REFERENCES

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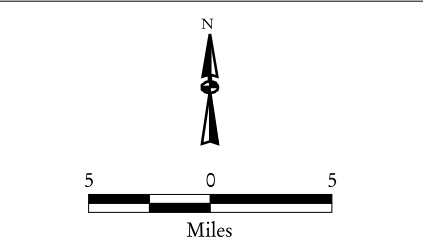
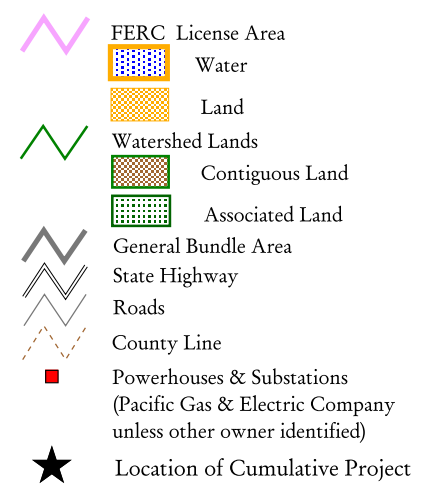
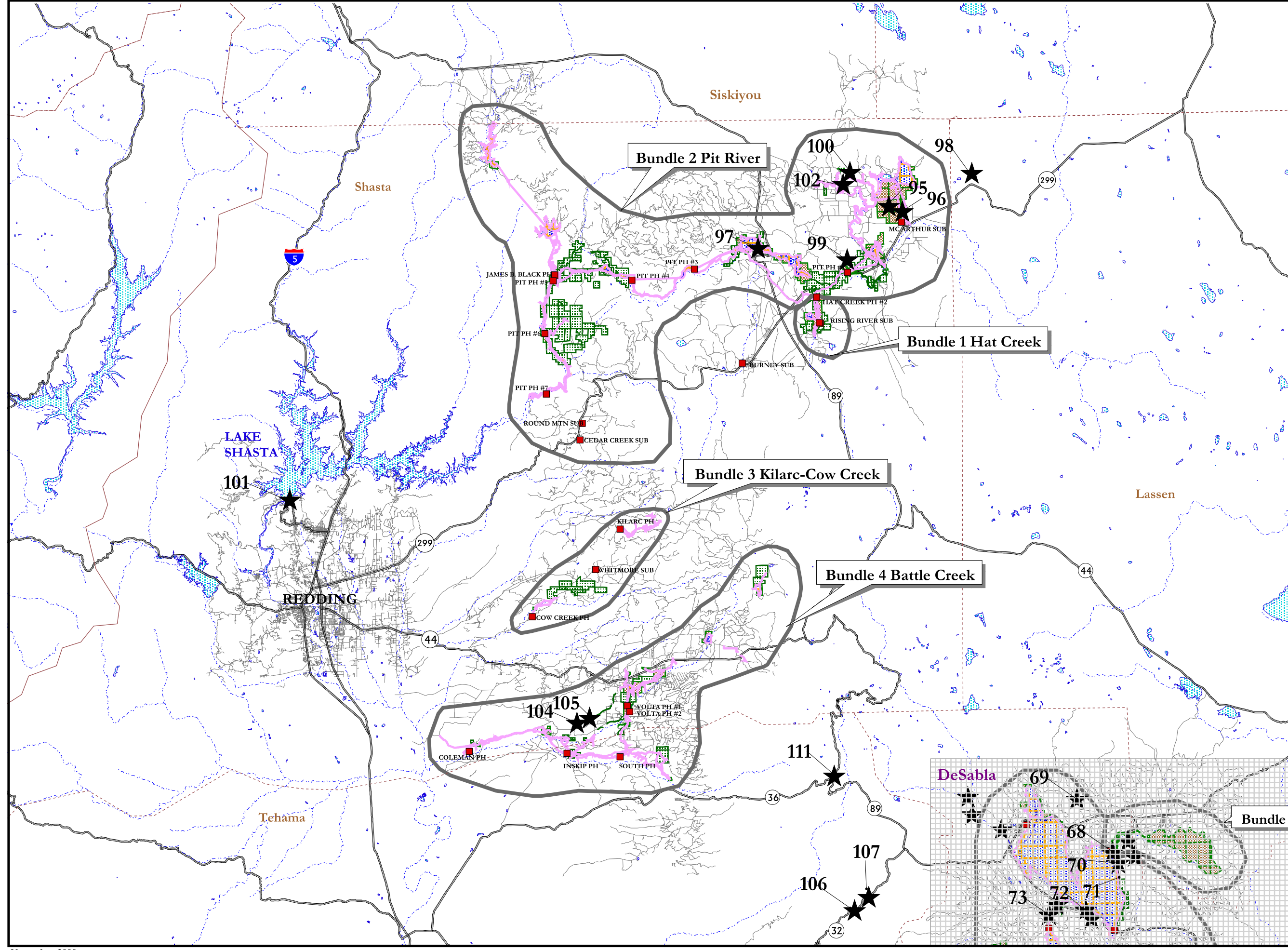
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_____. 2000d. Additional Errata to Proponent's Environmental Assessment for Application No. 99-09-053. June 8.

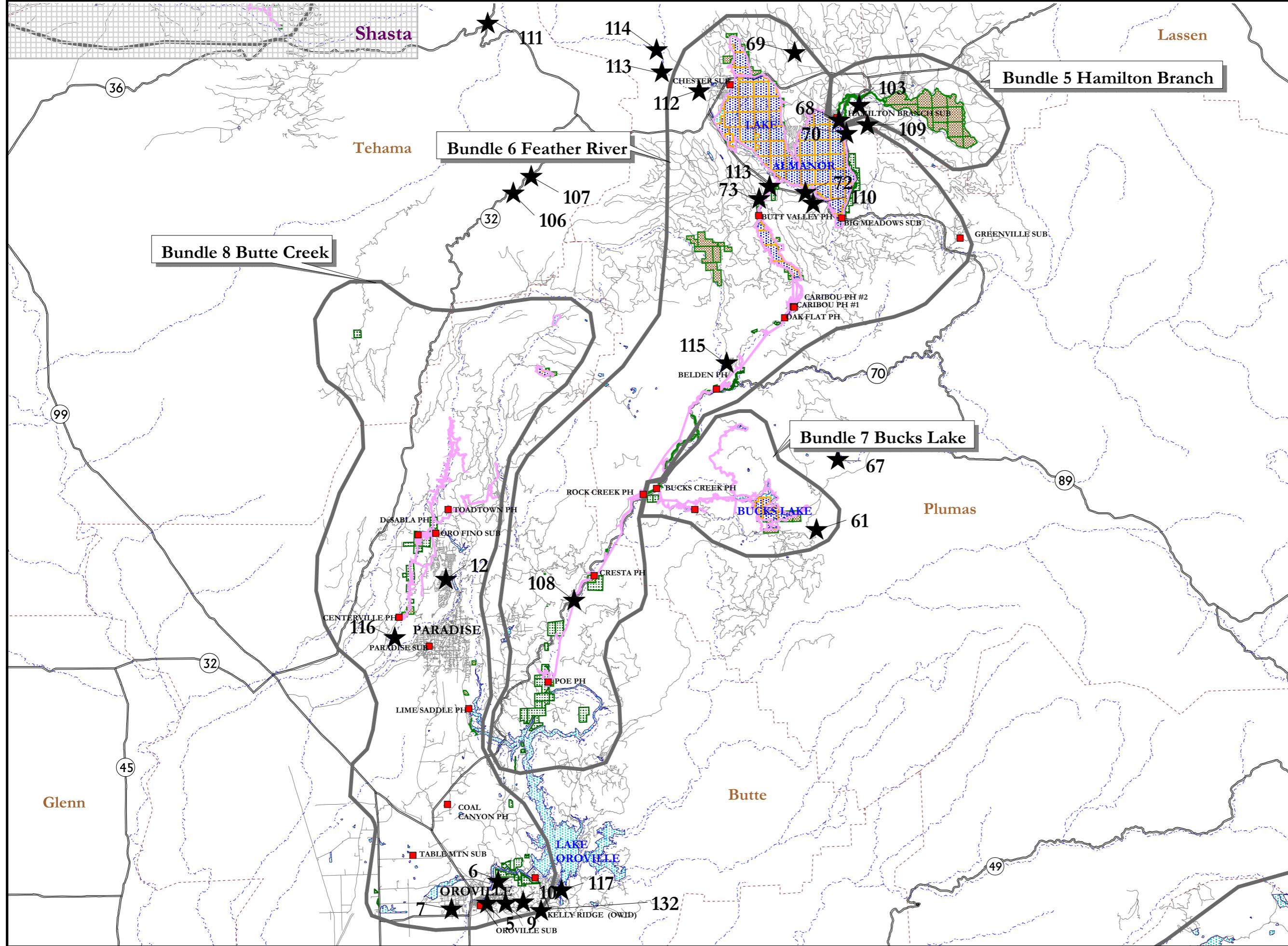
_____. 2000e. Pacific Gas and Electric Hydroelectric Properties - Cumulative Impacts Study. March 30.

DISCLAIMER
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 2. "The FERC project boundaries and boundaries for Company fee land used in this report may not be accurate legal boundaries. The actual locations of any feature identified in this report would need to be surveyed in order to definitively determine whether the feature lies within or outside of Company fee land."
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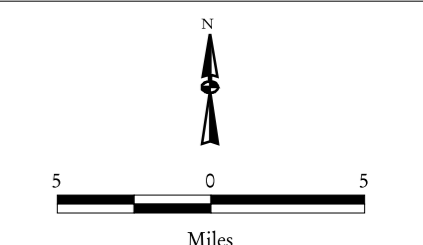
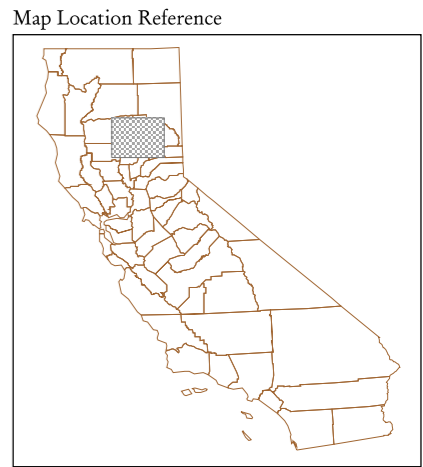


Hydroinvestiture EIR
Figure 5.4-1
Cumulative Projects
Shasta Regional Bundle
 Aspen Environmental Group

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- FERC License Area
- Water
- Land
- Watershed Lands
- Contiguous Land
- Associated Land
- General Bundle Area
- State Highway
- Roads
- County Line
- Powerhouses & Substations (Pacific Gas & Electric Company unless other owner identified)
- Location of Cumulative Project



Hydrodivestiture EIR

Figure 5.4-2
 Cumulative Projects
 DeSabra Regional Bundle

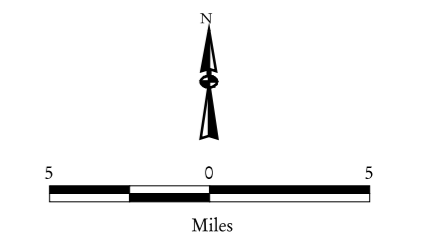
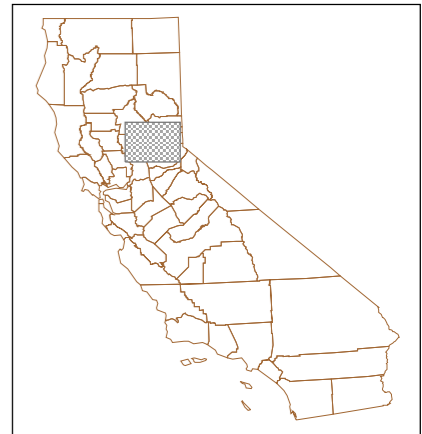
Aspen
 Environmental Group

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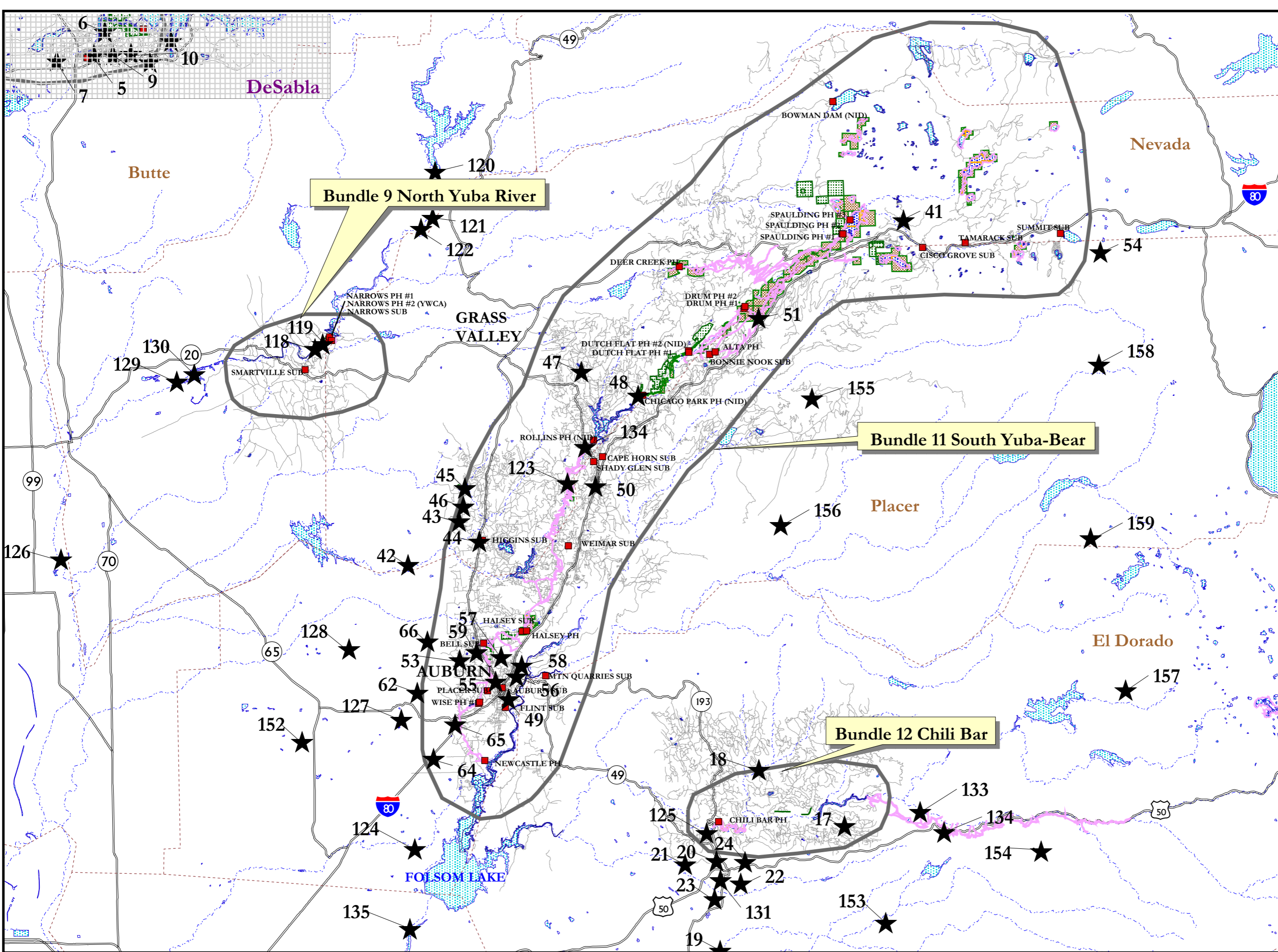
- FERC License Area
- Water
- Land
- Watershed Lands
- Contiguous Land
- Associated Land
- General Bundle Area
- State Highway
- Roads
- County Line
- Powerhouses & Substations (Pacific Gas & Electric Company unless other owner identified)
- Location of Cumulative Project

Map Location Reference



Hydrodivestiture EIR

Figure 5.4-3
Cumulative Projects
 Drum Regional Bundle
 Local Bundles 9, 11 & 12
Aspen
 Environmental Group



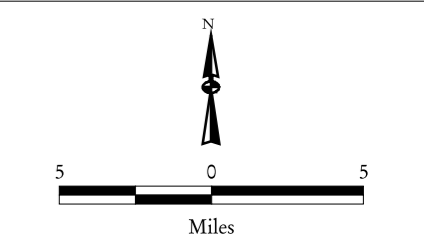
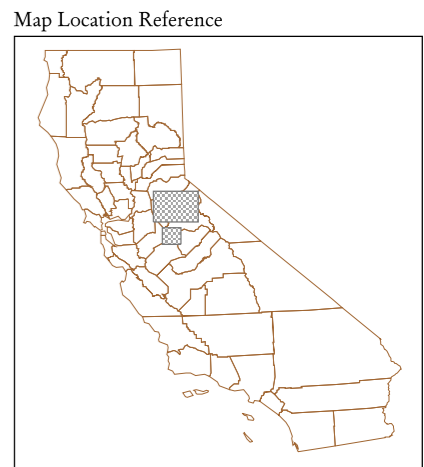
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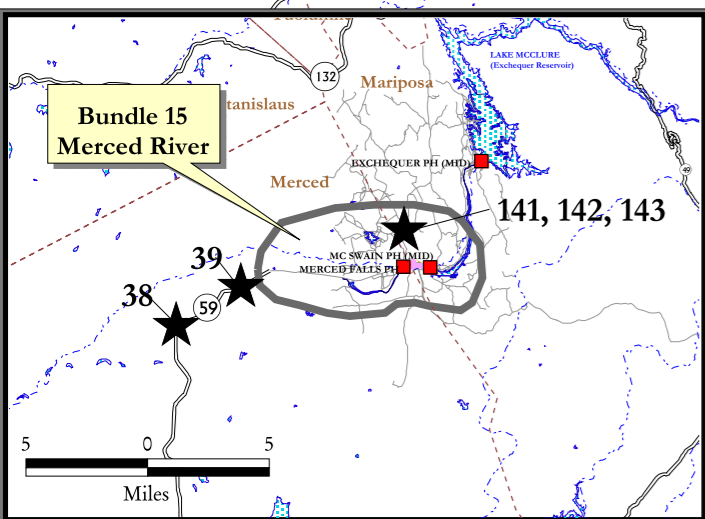
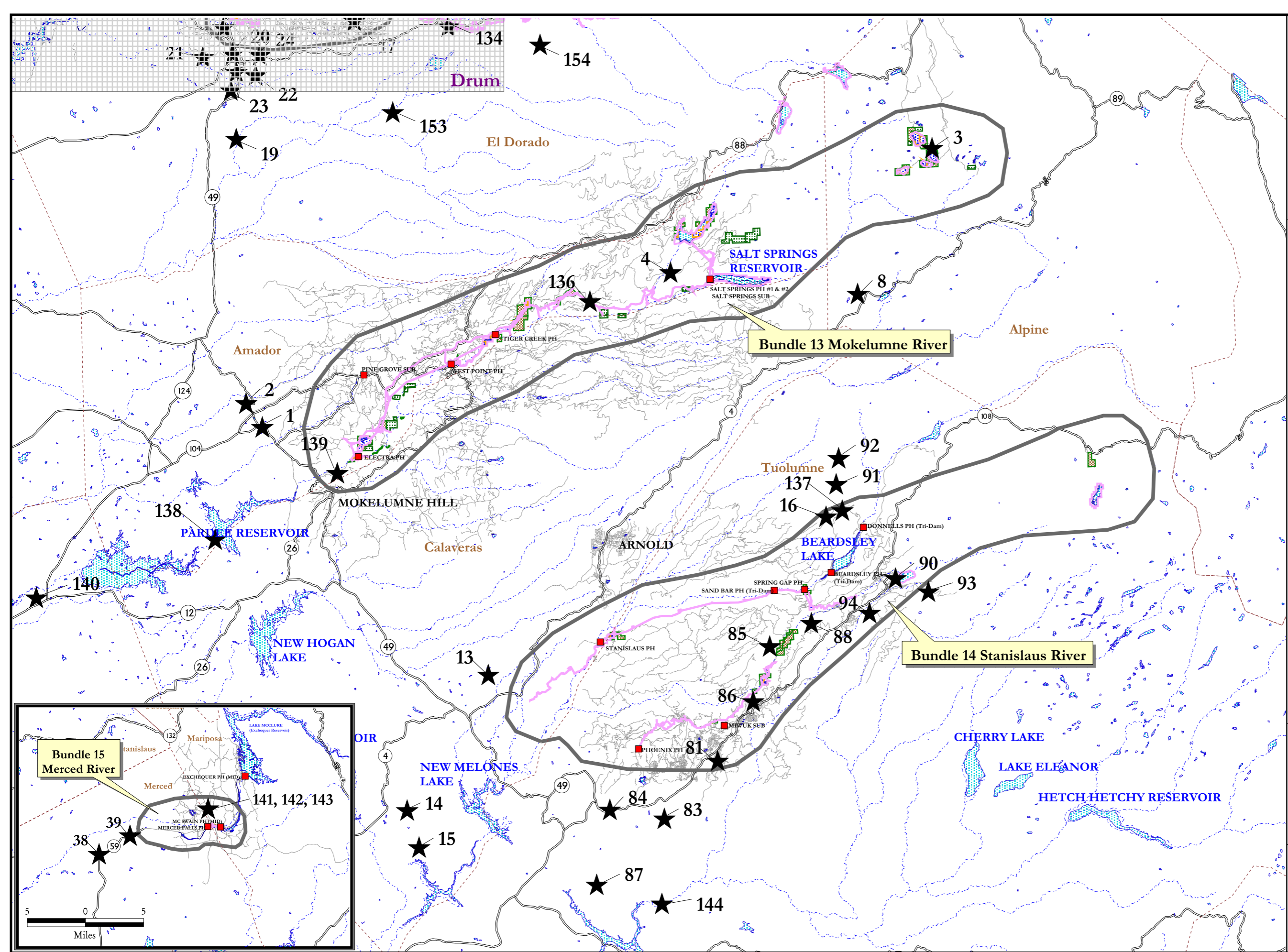
Source: Pacific Gas and Electric Company GIS Data Files; Ferc Boundary, Hydrology, Parcels, Public Lands, and EIP Associates GIS Program August 2000. GIS Data Projection: UTM Zone 10, NAD 83, Units Meters.

- FERC License Area
- Water
- Land
- Watershed Lands
- Contiguous Land
- Associated Land
- General Bundle Area
- State Highway
- Roads
- County Line
- Powerhouses & Substations (Pacific Gas & Electric Company unless other owner identified)
- Location of Cumulative Project



Hydrodivestiture EIR

Figure 5.4-4
Cumulative Projects
Motherlode Regional Bundle
Aspen
Environmental Group

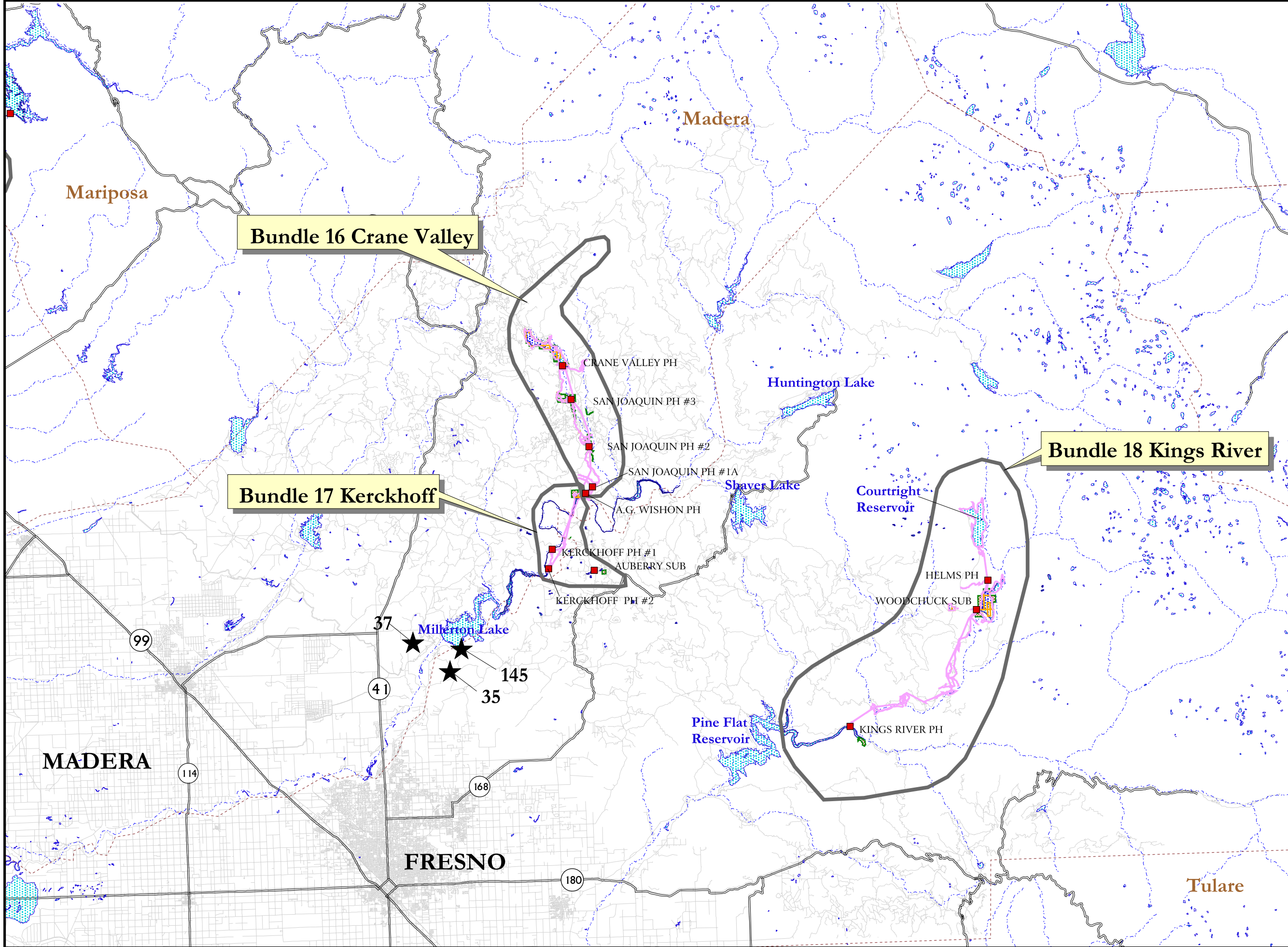


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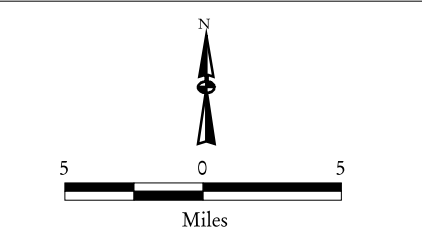


Bundle 16 Crane Valley

Bundle 17 Kerckhoff

Bundle 18 Kings River

- FERC License Area
- Water
- Land
- Watershed Lands
- Contiguous Land
- Associated Land
- General Bundle Area
- State Highway
- Roads
- County Line
- Powerhouses & Substations (Pacific Gas & Electric Company unless other owner identified)
- Location of Cumulative Project



Hydrodivestiture EIR













Figure 5.4-5
Cumulative Projects
 Kings Crane-Helms Regional Bundle
 Local Bundles 16, 17 & 18
Aspen
 Environmental Group

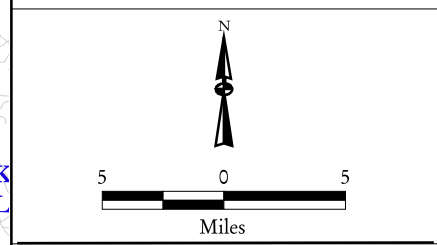
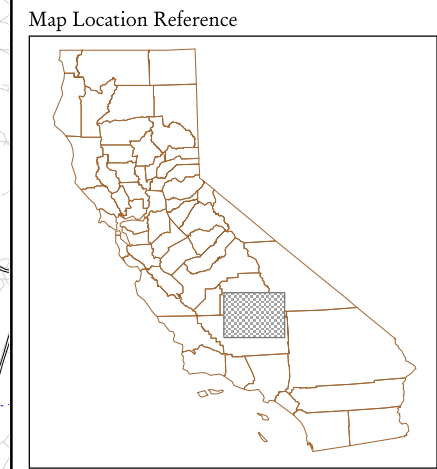
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GIS Data Projection: UTM Zone 10, NAD 83, Units Meters.

-  FERC License Area
-  Water
-  Land
-  Watershed Lands
-  Contiguous Land
-  Associated Land
-  General Bundle Area
-  State Highway
-  Roads
-  County Line
-  Powerhouses & Substations (Pacific Gas & Electric Company unless other owner identified)
-  Location of Cumulative Project



Hydrodivestiture EIR

Figure 5.4 - 6
Cumulative Projects
Kings Crane-Helms
Regional Bundle
Local Bundles 19 & 20

Aspen
 Environmental Group

