

4.11 PUBLIC SERVICES AND UTILITIES

The Public Services and Utilities section has four parts. The first part (Section 4.11A) examines potential impacts on both energy supplied by electrical power production (hydroelectric generation) and energy demand caused by potential new or more intense development. The second part (Section 4.11B) examines water supply issues. The third part (Section 4.11C) reviews the ways that the project could affect the range of services and utilities required to service communities. The final part (Section 4.11D) of this section addresses telecommunications for the hydroelectric system.

4.11A ENERGY

4.11A.1 INTRODUCTION

California's electric utility system and regulatory restrictions, including Federal Energy Regulatory Commission (FERC) authority, are described in detail in Chapter 2, Project Description, Chapter 3, Approach to Environmental Analysis, and Appendices B and C.

For this Hydrodivestiture Project, electricity is of concern on two levels:

- The project could reduce the supply and/or reliability of electricity generated by hydroelectric power.
- The project could significantly increase demand for electricity should development occur on Project Lands.

4.11A.2 SYSTEM-WIDE REGULATORY CONTEXT

4.11A.2.1 Managing System Reliability

A reliable power grid provides multiple alternative connections between generating plants, substations, and load centers, as well as multiple interconnections with other control areas, utilities, and regions. To maintain a reliable grid, electric power must be continuously monitored for adequacy and security in order for the system to stay balanced. Adequacy implies that there are sufficient generation and transmission resources available to meet projected needs at all times, including peak conditions, plus reserves for contingencies. Security implies that the system will remain intact even with planned and unplanned outages or other equipment failures that may occur.

The definition of system reliability is in transition as the industry moves to a more open, competitive market. Prior to restructuring, reliability was primarily the responsibility of investor-owned and municipal utilities with oversight by their respective regulatory bodies. Industry guidelines were developed by groups such as the North American Electric Reliability Council (NERC) and voluntarily followed. Statewide reliability is currently the responsibility of the California Independent System Operator (ISO), which is a member of NERC. Long-term reliability planning responsibilities are still being developed.

The NERC has proposed the creation of the Electric Reliability Organization (ERO) to develop and enforce mandatory reliability rules, with FERC oversight to ensure effective and fair operation. Federal legislation has been proposed to require the approach advocated by NERC.

Transmission limitations can be addressed by adding components to the transmission system, adding local generation, or limiting system usage. Transmission limitations have become exacerbated as open access market forces change system usage. To date, the ISO has not developed a mechanism to recover the costs of capital additions to the grid. As a result, how the transmission system will be expanded to accommodate growth is uncertain.

To maintain system reliability and stability, the ISO balances supply and demand. One simple operating rule prevails: Generation output must match the load at all times since there is no reserve storage of electricity in the system. When the supply purchased in the PX market is less than demand, the ISO makes up the difference by purchasing enough electricity to balance the load and meet specified “reserve” levels. The ISO engages “ancillary services” or reserves of electricity to adjust for small deviations from expected electrical use. Adjustment of the total output to match the load demand is a continuous process; such changes are normally very small for a well-operated system and are achieved through the ISO Ancillary Services Market. Five market categories of ancillary services are defined by the ISO as:

- “Regulation up” to match increasing load.
- “Regulation down” to match decreasing load.
- “Spinning reserves” -- units on-line and capable of quick step-up to meet sudden deficiencies immediately.
- “Non-spinning reserves” -- units not on-line but committed to being available within ten minutes.
- “Replacement reserves” -- units not on-line but committed to service within 30 minutes notice.

When there are larger differences between anticipated and actual demand and supply, the ISO acquires the energy through the Real-Time Imbalance Energy Market. Supplemental energy bids are sorted by price and called upon by the ISO balance generation and load when necessary. (For additional discussion of reliability and the ISO and PX markets, see Appendix B.)

4.11A.2.2 Must Run Contracts and Area Reliability

Electricity, unlike any other commodity or service, must be supplied in a manner that instantaneously balances with demands. This characteristic imposes certain physical constraints on the generation and transmission system. For reliability, this leads to specific generating units being designated as Reliability Must Run (RMR) facilities in order to prevent: (1) the extreme consequences of an electric service interruption to highly concentrated areas, (2) overloads on generators, (3) transmission facilities overloads, (4) cascading outages, (5) voltage collapse, and/or (6) total grid blackouts.

The ISO signs long-term RMR Agreements (RMRA) with some power generators whose power is used to keep the transmission system stabilized. These contracts provide a degree of control comparable to the former utility-integrated ownership, ensuring reliability of service to customers.

Must Run Designations

Many of the Pacific Gas and Electric Company hydroelectric units have been designated Must Run by the ISO. A unit is deemed RMR because, in the opinion of the ISO, it is required to support either local or area reliability requirements. Designation as an RMR unit by the ISO does not mean that the unit literally must run or operate all the time; it may be needed for only a few hours each year. Under the RMR designation, the owner must commit to maintaining the unit and to responding on a best efforts basis to a directive from the ISO to operate the unit.

The reliability criteria may cover varying regions or the entire State grid. On any given day, if the ISO determines that a particular RMR-designated hydroelectric unit is needed to assure reliability in the vicinity or to support the grid, then the ISO will direct that hydroelectric unit to produce electricity. Table 4.11-1 lists the hydroelectric power units currently under an RMRA, and projected for 2001.

Table 4.11-1 Pacific Gas and Electric Company Hydroelectric Power Units on RMR Contracts (CAISO, Aug 2000)

FERC No.	Name	Unit	MW	Actual 1999 RMR	Actual 2000 RMR	Proposed 2001 RMR
0606	Cow Creek	1	0.9		A	A
0606	Cow Creek	2	0.9			A
0606	Kilarc	1	1.6		A	A
0606	Kilarc	2	1.6			A
1121	Coleman	1	13	A		A
1121	Inskip	1	8	A	A	A
1121	South	1	7	A		A
1121	Volta	1	9	A		A
1121	Volta	2	0.9	A	A	A
1403	Narrows	1	12	A	A	A
2310	Alta PH	1	1			A
2310	Alta PH	2	1			A
2310	Deer Creek	1	5.7		A	A
2310	Drum PH	1	13.3	A		A
2310	Drum PH	2	13.3	A	A	A
2310	Drum PH	3	13.3		A	A
2310	Drum PH	4	14.1		A	A
2310	Drum PH	5	49.5		A	A
2310	Dutch Flat	1	22	A	A	A
2310	Halsey	1	11	A	A	A
2310	Newcastle	1	14.1	A	A	A
2310	Spaulding	1	7	A	A	A
2310	Spaulding	2	4.4		A	A
2310	Spaulding	3	5.8			A
2310	Wise	1	15	A		A
2310	Wise	2	3	A	A	A

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Table 4.11-1 Pacific Gas and Electric Company Hydroelectric Power Units on RMR Contracts (CAISO, Aug 2000)

FERC No.	Name	Unit	MW	Actual 1999 RMR	Actual 2000 RMR	Proposed 2001 RMR
2155	Chili Bar	1	7		A	A
0137	Electra	1	30		A	A
0137	Electra	2	31			A
0137	Electra	3	31			A
0137	Salt Springs	1	11		A	A
0137	Salt Springs	2	33			A
0137	Tiger Creek	1	32			A
0137	Tiger Creek	2	32			A
0137	West Point	1	16		A	A
1354	Crane Valley	1	0.9	A		A
1354	Crane Valley SJPH#1	2	0.4	A	A	A
1354	Crane Valley SJPH#2	3	3.2	A	A	A
1354	Crane Valley SJPH#3	4	4.2	A	A	A
1354	Wishon	1	5	A	A	A
1354	Wishon	2	5	A	A	A
1354	Wishon	3	5	A	A	A
1354	Wishon	4	5	A	A	A
096	Kerckhoff PH#1	1	12.7	A	A	A
096	Kerckhoff PH#1	2	12.7	A	A	A
096	Kerckhoff PH#1	3	12.7	A	A	A
096	Kerckhoff PH#2	1	155	A	A	A
1988	Haas PH	1	77	A		A
1988	Haas PH	2	78	A	A	A
1988	Kings River	1	52	A		A
0175	Balch PH#1	1	34	A		A
0175	Balch PH#2	2	52.5	A	A	A
0175	Balch PH#2	3	52.5	A	A	A
2735	Helms	1	404	A	A	A
2735	Helms	2	404	A	A	A
2735	Helms	3	404	A	A	A
Total MW			2,251.2			

Source: ISO, 2000

A = ISO RMR Agreement

Must Run General Contract Terms

Designation as an RMR unit is not permanent, as the ISO plans to eventually phase out RMRAs. The ISO can cancel a RMRA on ninety days notice. The owner, however, has no such right. Any Pacific

Gas and Electric Company hydroelectric unit designated as Must Run by the ISO must enter into an RMRA, and the agreement transfers with sale.

The RMR unit is under the control of its owner unless dispatched by the ISO. If owned by the Pacific Gas and Electric Company, the RMR unit must be bid into the PX until the end of the transition period. After the transition period, if the Pacific Gas and Electric Company still owns the RMR unit, the Pacific Gas and Electric Company may bid into the PX, enter into bilateral or multilateral sales, or engage in direct sales. A new owner of a unit may, immediately and without waiting for the end of the transition period, bid into the PX, make bilateral or multilateral sales or engage in direct sales.

The owner of an RMR unit may run the unit to its permitted maximum technical limits if the owner so desires. The RMR contract with the ISO allows the ISO to direct the owner of an RMR unit to generate under certain conditions affecting electric reliability. The conditions of the RMRA do not allow the ISO to stop generation.

Reliability Must Run Unit Obligations

The owner of an RMR hydroelectric unit is contractually obligated to operate and maintain the unit in accordance with good industry practice. The owner is required to notify the ISO of each forced outage, its expected duration, and when the unit is again available to generate electricity. The owner is required to perform routine and overhaul maintenance at times mutually agreed to by both the operator and the ISO.

When called upon, the owner must generate up to the maximum hourly commitment of the unit. The ISO can direct that the unit generate less than its maximum, but not less than its minimum capability. For example, the ISO might direct a unit with a maximum of 200 MW and a minimum of 50 MW to generate 100 MW. In this example, the owner could elect to generate up to the full 200 MW but the ISO would only pay for the first 100 MW and the owner would have to sell the remainder to another party.

The ISO can only dispatch an RMR unit within its operational, licensing and contractual constraints, and is limited in the number of annual startups it can require of any Must Run unit. The ISO is further obligated to honor unit generator constraints such as ramp-up time, minimum run time and all other operating constraints such as the minimum flow requirements in the FERC licenses. The ISO also agrees to honor any existing contractual constraints on the operation of an RMR unit.

The ISO also cannot order an RMR unit to violate any environmental restriction placed on the unit; it is bound by environmental restrictions to the same extent as the owner.

4.11A.3 SYSTEM-WIDE SETTING

Local electric distribution is universally provided by the Pacific Gas and Electric Company within its service area. Other local providers may supplement these services, for example, Southern California

Edison in the Kings Crane-Helms Regional Bundle. The nature of the services used and provided by Pacific Gas and Electric Company hydroelectric facilities is detailed in Chapter 2, Project Description.

When the powerhouse is online, electricity from the generator is used to provide station service power. When units are on stand-by, station power is covered by a stand-by service agreement with the local distribution utility under which the utility provides metered service to the powerhouse.

In addition to the differences in their physical components and operating modes, Pacific Gas and Electric Company's hydroelectric facilities differ in the extent to which various functions are automated or must be manually controlled. The degree of automation affects staffing, and the extent to which a facility can be used to provide certain types of ancillary services.

For most facilities, the functions associated with dispatching and monitoring the units can be performed remotely from central facilities called "switching centers." Dispatching, or "switching," includes putting the units online, changing the storing and release of water, and increasing or decreasing generation. Although the ISO has taken over responsibility for scheduling power over the transmission system, power generators retain physical control over many of the switching functions. Switching agreements between power generators and the Pacific Gas and Electric Company are an integral part of the proposed divestiture process. (See Chapter 2, Project Description.)

Hydroelectric resources have always provided a portion of Pacific Gas and Electric Company reserve and load-following needs. The current market structure also provides opportunities for hydroelectric facilities to sell a combination of products and services. In the restructured market, available power is bid and scheduled into the energy markets by auction. Unused capacity is bid and scheduled into subsequent ancillary services and imbalance markets to be used later to help balance the grid.

Potential changes in hydroelectric power operations could affect the use of other fuel sources, namely, fossil fuels. Under either the PowerMax or WaterMax Scenarios envisioned as possible outcomes of the Project, the hydroelectric power produced by project facilities would be nearly the same. The baseline systemwide power production is 12,229 gigawatt-hours (million kilowatt hours or Gwh). The hydroelectric power modeling completed in association with this EIR estimates that under the PowerMax Scenario, 12,360 GWh will be produced, and under the WaterMax Scenario, 12,120 GWh, for a difference of about one percent in either direction. And, given that fossil fuel plants currently run relatively efficiently, the tradeoffs between hydroelectric generation and fossil fuel generation resulting from the Project are difficult to predict even with mathematical models and, in any case are viewed as negligible. (Under the WaterMax Scenario, during dry years more water would be delivered for use at the end of the watercourse, but only following full use of the water for electricity generation.) For a discussion of air quality implications, see Section 4.14, Air Quality.

At this time, while it is possible to model the future, hypothetical range of hydroelectric power operations, it is not possible to know the exact operations options that new owners will choose. Therefore, estimates of potential increases or decreases in reliance on fossil fuels would be speculative at this time.

4.11A.4 REGIONAL AND LOCAL SETTING

In four of the five regional bundles, local electrical utility services are currently provided by the Pacific Gas and Electric Company. This includes Shasta, DeSabra, Drum and Motherlode. For Kings Crane-Helms, electrical services are provided in most areas by the Pacific Gas and Electric Company, but Southern California Edison (SCE) provides power to the Shaver Lake area in the Helms Pumped Storage project area (Bundle 18: Kings River) and to the entire Tule River project area (Bundle 19). All local power distribution facilities currently owned by the Pacific Gas and Electric Company will be retained and are not part of the project.

As discussed in Section 4.1, Land Use, Project Lands (excepting those covered by water) comprise over 100,000 acres within 21 counties in northern and central California. One effect of the project could be various changes in the disposition and use of the lands involved in the proposed divestiture, especially the Watershed Lands that can be managed and sold independently from lands located inside FERC license boundaries. As discussed in Chapter 3 under Future Land Development Assumptions, this EIR assessed potential future land development that could occur under new ownership. A total of 10,226 equivalent dwelling units (EDUs) and a population of 25,943 is associated with this potential development. Table 4.11-2, Provision of Water Supplies to Areas with Potential for Equivalent Development Units by Land Area, lists the potential development in each Land Area and Regional Bundle included in the proposed divestiture.

Based upon the capacity of the local utility company (Pacific Gas and Electric Company or SCE), electrical service could be provided to the proposed EDUs, with a possible exception. Currently, when parts of the hydroelectric power system need maintenance and are out of service, or when an outage occurs, specified powerhouses are required to provide power directly to local users through so-called “islanding” agreements. According to Pacific Gas and Electric Company, “islanding” on a specific line happens approximately once every two to five years. The following powerhouse units are currently included in such agreements:

- Bundle 3 - Kilarc (3.2 MW) and Cow Creek (1.8 MW);
- Bundle 13 - Salt Springs (44 MW) and West Point (14.5 MW);
- Bundle 14 - Spring Gap (7 MW) and Stanislaus (91 MW); and
- Bundle 16 - Crane Valley (0.9 MW), San Joaquin #3 (4.2 MW), AG Wishon (20 MW).

If a powerhouse is designated in an islanding agreement, and that powerhouse is automated, the new owner would be compensated for the additional labor costs incurred and for the energy delivered to retail customers. Such operational commitments from the Pacific Gas and Electric Company would transfer to the new owner of the bundle to assure local electricity supply reliability.

4.11A.5 STANDARDS OF SIGNIFICANCE

The California Environmental Quality Act Guidelines, Appendix F, addresses energy conservation. The Guidelines state that: “Potentially significant energy implications of a project should be considered in an EIR.” Specifically, the Guidelines suggest consideration of:

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- “The effects of the project on local and regional energy supplies and on requirements for additional capacity;
- “The effects of the project on peak and base period demands for electricity and other forms of energy;
- “The effects of the project on energy resources.”

For the analysis of impacts associated with the proposed project, a significant impact would occur if the project would:

- Significantly reduce hydroelectric energy supply;
- Reduce the reliability of the power supply systemwide; or
- Create an increase in demand that requires additional electricity capacity.

4.11A.6 ANALYTICAL METHODS

Hydrologic modeling was conducted to assess whether the project would result in changes in hydroelectric power generation and, hence, the availability and reliability of energy supply. This modeling is discussed in Chapter 3, Approach to Environmental Analysis, and in Appendix C. As part of this analysis, current total energy production and available generating capacity were assessed for potential changes against baseline conditions. For an assessment of the impacts of potential development in lands associated with the project, Chapter 3, Approach to Environmental Analysis, discusses each Land Area in the Pacific Gas and Electric Company hydroelectric system. Energy demand associated with projected development was determined using the information provided in Chapter 3, Approach to Environmental Analysis, and in Section 4.10, Population, Employment, and Housing. Anticipated energy demand as a result of project development was evaluated within the hydroelectric power system as well as in relation to the State power grid. The assumed demand per “equivalent development unit” was between one and two kilowatts of peak demand, or an average of 500 kilowatt-hours per month usage.

There are 54 Land Areas within the project where development may occur. Most of those Land Areas are located in remote areas not currently served with electrical power. Due to the costs associated with extending electrical power distribution to these regions, existing development relies instead upon a combination of wood, propane, diesel, oil, and solar power, with limited natural gas provided by Pacific Gas and Electric Company. Currently, rural or remote electricity line extensions can exceed \$20,000 per residence, for example, despite the fact that Pacific Gas and Electric Company contributes a portion of the costs under a “line extension allowance” for residential extensions. A new substation would be expected to be required only if demand reached approximately 5,000 electrical hookups. In addition, there is generally a maximum four-mile radius from a substation for extension of electrical service. Distribution-level service (under 50 kV) requires no CPUC permit, and only street poles or underground installation are used for distribution.

The distribution of development potential is sufficiently dispersed throughout the 100,000 acres of project lands that, even though there are 10,226 EDUs projected, no one Land Area has in excess of 2400 units/hookups, and the resulting development density would be insufficient to support the extension of electricity transmission infrastructure. In 34 of the proposed Land Areas, there are fewer than 100 EDUs projected.

4.11A.7 INTRODUCTION TO IMPACTS AND MITIGATION MEASURES

For Energy, the following impacts have been identified:

- Impact 11-1: The project could reduce the supply and/or reliability of electricity generated by hydroelectric power (*Significant*).
- Impact 11-2: The project could significantly increase electricity demand should development occur on project lands (*Less than Significant*).

4.11A.8 IMPACT 11-1: IMPACT, ANALYSIS, AND MITIGATION MEASURES

Impact 11-1: The project could reduce the supply and/or reliability of electricity generated by hydroelectric power.

The changed operational objectives for hydroelectric power due to restructuring of the State and national energy markets can result in altered hydrologic operations. For example, shifts in the timing of hydroelectric power energy production could occur regardless of implementation of the project, and the possibility of such shifts is considered part of the baseline. (See Chapter 2 and Appendix C.)

Hydrologic modeling done to assess the potential effects of the project indicates that the amount of hydroelectric power produced as a result of the project would be nearly equivalent to what is currently produced, both historically (over the past 25 years) and as a result of restructuring. On-peak generation capacity also is expected to remain unchanged. The shifts in hydroelectric power timing may increase the use of fossil fuels and other fuels during low hydroelectric power production, with compensating decreases during high hydroelectric power production. Currently, a majority of Pacific Gas and Electric Company hydroelectric power units are under the control of the ISO under RMRAs. New owners are contractually bound to recognize those RMRAs.

Because hydrologic modeling indicates that hydroelectric power energy will be supplied in essentially the same amounts as the baseline, and RMRAs and Switching and Islanding Agreements will maintain reliability needs, the impact on energy resources that could occur as a result of the project would *be less than significant*.

This conclusion is predicated upon an assumption that the project will not enhance the likelihood of the exercise of market power. To the extent that market power may be exercised due to the ownership arrangements of either the project or any of the alternatives, the project could reduce the supply and/or reliability of electricity generated by hydroelectric power and/or other sources of generation in the system. Based on the results of the screening-level market power analysis (described in further detail in Appendix C, section 6.3), these impacts would be *significant*.

4.11A.8.1 Impact 11-1: Mitigation Measures

Mitigation Measures Proposed as Part of the Project

No mitigation measures have been identified.

Mitigation Measures Identified in This Report

Mitigation Measure 11-1: Measures acceptable to the CPUC shall be taken to prevent the exercise of market power by new owners.

4.11A.8.2: Level of Significance After Mitigation

Less than significant.

4.11A.9 IMPACT 11-2: IMPACT, ANALYSIS, AND MITIGATION MEASURES

Impact 11-2: The project could increase electricity demand should development occur on project lands.

Lands included in the project total approximately 100,000 acres. Land Areas suitable for potential development are distributed throughout the hydroelectric power system. Land Areas with projected “equivalent development units” or EDUs, could be developed, thus creating increased energy demand.

A maximum of 10,226 EDUs is projected systemwide, with an associated estimated population of 25,943. Using the standard assumption of between one and two kilowatt hours of peak demand per EDU, maximum electricity demand created by the project-related development would equal 20 megawatts. This amount constitutes less than one tenth of one percent of current statewide energy demand. Such an increase is considered to be low on a systemwide level, negligible in its impact on the State power grid, and would not exceed the energy supplies available to the State. Based upon the California Energy Commission’s 2000 Demand Forecast, the State’s growth rate is estimated to be 2.3 percent annually from 1998 to 2004. (California Energy Commission Staff, *2000-2010 Demand Forecast*, P200-00-002, November 1999, Table D-9.) If fully built, the electrical power demands of the Project would constitute approximately 0.004 percent of that demand growth, an amount that is below the level of precision assumed for the demand forecast. Therefore, implementation of the project would not create substantial adverse impacts on peak and base period demand for electricity or other forms of energy, or exceed California’s existing energy supplies. The project would result in a change, but that change would have a *less-than-significant* impact. No mitigation is required

4.11A.9.1 Impact 11-2: Mitigation Measures

Mitigation Measures Proposed as Part of the Project

No mitigation measures have been identified.

Mitigation Measures Identified in This Report

None proposed.

4.11B WATER SUPPLY

4.11B.1 INTRODUCTION

This section addresses potential impacts on water users and water supplies that could occur as a result of project implementation. Water users that could be affected by the project include those that receive water from Pacific Gas & Electric Company under contract, those that are dependent on the Company's storage and release schedules, and those users that coordinate their hydroelectric and water supply operations with the Company. Development attributable to the project also could increase demand for water, thereby potentially causing local water supply impacts.

4.11B.2 SYSTEM-WIDE REGULATORY CONTEXT

4.11B.2.1 State Regulations and Policies

The right to store and use water in California is administered under a complex set of State laws. Common law principles, constitutional provisions, State statutes, court decisions, and specific contracts or agreements all govern water allocation, development, and use. California's Constitution, which requires that all water usage be both reasonable and beneficial, places a considerable limitation on water rights by prohibiting waste or unreasonable use, unreasonable method of use, or unreasonable method of diversion.

Under State law, water can be used for a variety of consumptive and non-consumptive purposes. Consumptive uses include water for household use, agricultural irrigation, stock watering, and municipal and industrial uses. Non-consumptive uses of water include hydroelectric power generation and recreation. Significantly, water diverted under non-consumptive water rights may not be used for consumptive purposes in the absence of a consumptive water right. Once water is put to use and returned to a stream, it becomes available for additional diversion and use downstream. For example, once water is used to generate electricity it may be re-diverted downstream by another right holder to meet agricultural needs.

Riparian and Appropriative Rights

Surface water rights in California are, for the most part, governed by two doctrines: the riparian doctrine and the doctrine of prior appropriation. The riparian doctrine gives landowners the right to use a portion of the natural flow of water passing by their land for reasonable and beneficial purposes. The land must lie next to or be crossed by the watercourse and the right extends only to natural flows; it does not give a landowner a right to water stored and released upstream. Significantly, all riparian water right holders share equally in the stream flow and must reduce their water use in times of water shortages. A riparian right is attached to the land and typically is not lost by a failure to use the water.

The appropriative doctrine allows a person to obtain a right to divert, store, and/or use a specific quantity of water by complying with specific requirements, regardless of whether the land on which the water is used is adjacent to a stream. Under this doctrine, the right to water in a stream system is

conferred upon those putting it to beneficial use, with priority determined by the order in which the water is first put to use. Once obtained, an appropriative right is subject to forfeiture for nonuse of the water.

Water Rights Permits and Licenses

Before 1914, the right to use water was governed by State statutes and common law doctrines. In 1914, the legislature enacted the Water Commission Act, which established an orderly method for establishing new appropriations of water. Since that time, compliance with the California Water Code has been the only lawful means of appropriation available in California. Under the Water Commission Act, the responsibility for administering appropriative water rights lies with the State Water Resources Control Board (SWRCB), which reviews water rights applications and issues conditional permits and licenses. The SWRCB also maintains jurisdiction over the water rights it issues to ensure compliance with permit and license terms and continued reasonable and beneficial use of water. The Water Commission Act also provides procedures for adjudication of water rights to resolve disputes regarding the relative priorities of right holders and quantification of existing rights.

4.11B.3 SYSTEM-WIDE SETTING

The Pacific Gas and Electric Company holds various water rights throughout its system for consumptive and non-consumptive purposes. Pacific Gas and Electric Company rights to use water are based on both pre- and post-1914 appropriations as well as on riparian rights (Appendix D). The water passing through the Pacific Gas and Electric Company's hydroelectric facilities is frequently put to subsequent use for agricultural, municipal, industrial, recreational and environmental purposes by downstream water rights holders, as well as by secondary customers who contract directly with the Pacific Gas and Electric Company for water supplies.

The Pacific Gas and Electric Company has 134 power-only water diversion or storage rights, 78 that are combination power and consumptive rights, 39 consumptive-only rights, and two combination power and other non-consumptive (such as recreation) rights. Some of the consumptive-use-only rights are for small amounts of water that are used in the company facilities, while others are quite substantial and provide a great deal of water used by third parties. Pacific Gas and Electric Company consumptive water rights consist primarily of pre-1914 appropriative and riparian rights.

Where the Pacific Gas and Electric Company holds consumptive water rights in excess of its needs, it has contracted with private individuals, irrigation districts, and county water agencies, allowing those individuals and entities to develop and use the water (see Appendix D). These agreements and contracts include those under which:

- Pacific Gas and Electric Company coordinates operations with third parties, allowing them to divert water from Pacific Gas and Electric Company owned and/or maintained canals, flumes, ditches or reservoirs;
- Third parties use Pacific Gas and Electric Company consumptive rights (see, for example, Placer County Water Agency's contract to receive water, the rights to which are held by the Pacific Gas and Electric

Company in the Drum-Spaulding watershed. On the Miocene Canal, the California Water Service Company also uses Pacific Gas and Electric Company consumptive rights); and

- Pacific Gas and Electric Company agrees to release water from storage or to bypass flows for use by downstream water rights holders.

In addition, certain FERC license requirements and other agreements require releases of water to maintain minimum flows.

Specific obligations in each watershed region are discussed below.

4.11B.4 REGIONAL AND LOCAL SETTING

As part of its hydroelectric system, the Pacific Gas and Electric Company holds a number of consumptive water rights in excess of the water needed for the company's hydroelectric power production (see Appendix D).

The Pacific Gas and Electric Company acquired many of these rights along with certain hydroelectric facilities when it bought smaller utility systems during the early twentieth century. Insofar as Pacific Gas and Electric Company hydroelectric operations do not actually consume water, the company has had little direct use for the consumptive water rights it owns, other than to provide incidental domestic supplies to powerhouses, Pacific Gas and Electric Company camps, and employee cottages. As a result, the Pacific Gas and Electric Company has allowed other parties to put the consumptive water rights to beneficial uses. In some instances when Pacific Gas and Electric Company acquired its consumptive water rights, substantial amounts were already obligated by contract to be delivered to irrigation and domestic users within the originating watersheds. The Pacific Gas and Electric Company also took on contractual or court-ordered obligations to make specific flows from its system available for diversion by third parties.

For the most part, Pacific Gas and Electric Company continues to supply water to the various districts and individuals who have been putting it to use in the past. Pacific Gas and Electric Company also has court-ordered flow or release obligations, and has consistently extended or renewed water supply contracts with those persons or districts dependent upon those water supplies.

Pacific Gas and Electric Company water deliveries to third parties are typically made under the terms of written agreements with those parties. Those contracts vary greatly, and represent the complicated nature of Pacific Gas and Electric Company's hydroelectric power system. The Lodi Decree, for example, relies on certain criteria requiring Pacific Gas and Electric Company to make average monthly releases from its facilities on the Mokelumne River. Other agreements, such as the 1963 agreement with the Nevada Irrigation District (NID), describe a detailed and complex arrangement by which the Pacific Gas and Electric Company and NID coordinate water storage and use to maximize hydroelectric power production and water supplies in combination. Still other agreements are contracts by which the Pacific Gas and Electric Company simply sells and delivers water directly to third parties.

4.11 Public Services and Utilities

Most of the Pacific Gas and Electric Company's consumptive rights are dedicated by contract to its former domestic water systems in Placer, Amador, and Tuolumne counties, where public agencies now treat and deliver the water. In these areas, the Pacific Gas and Electric Company sold its irrigation and domestic water systems to local water agencies and irrigation districts. Under the sales agreements, these public agencies have contractual rights to water supplies from Pacific Gas and Electric Company hydroelectric facilities for resale to their customers. The Pacific Gas and Electric Company also has consumptive water rights that are used under contract by water agencies and a water utility. These agencies include Amador County Water Agency (ACWA), Nevada Irrigation District, Placer County Water Agency, Western Canal Water District, Potter Valley Irrigation District, Tuolumne Utility District, and a water utility -- California Water Service Company. Any new owner of these water rights would have to continue to honor the existing contractual obligations to these public agencies for the remaining term of the agreement. Pacific Gas and Electric Company could not assign its performance of these contracts in a way that unilaterally materially lessened benefits to the other side. However, Pacific Gas and Electric Company cannot guarantee the contracts will be renewed once their terms expire.

Some current Pacific Gas and Electric Company contracts with individuals for small amounts of water for irrigation/domestic consumption may be in jeopardy as a result of the project. In certain cases, these water deliveries are made without a contract, through contracts with no termination date, or with contracts that can be terminated by either party within a limited time, usually 90 days.

4.11B.4.1 Shasta Regional Bundle

Regional Setting

There are two water service districts within the Shasta Regional Bundle that supply water to residents located adjacent to Pacific Gas and Electric Company facilities and Land Areas. Cassel Park Mutual Water Company provides water to the community of Cassel located adjacent to the Hat Creek Bundle. The Fall River Mills Community Services District (CSD) provides water to residents within the community of Fall River Mills, which is located adjacent to the Pit 1 Project facilities. The Pacific Gas and Electric Company supplies water to Fall River Mills CSD from the Pit 1 Forebay for use in the town and vicinity of Fall River Mills.

With the exception of the Hat Creek and Pit 1 Land Areas, there are no water treatment facilities within or adjacent to the Land Areas of the Shasta Regional Bundle. Typically, water supply in rural areas is provided by small community water systems and/or onsite wells or surface diversions. The Shasta County General Plan and Zoning Code requires proposed development in unincorporated areas to conduct a land capability analysis prior to assigning minimum parcel sizes to determine if parcels are able to accommodate an onsite water system.

Bundle 1: Hat Creek***Hat Creek 1 and 2***

The Pacific Gas and Electric Company supplies water to the Hat Creek 1 Powerhouse and camp for domestic use, incidental irrigation, and fire protection purposes. Additionally, the Pacific Gas and Electric Company supplies water to the Crystal Lake Fish Hatchery. Water from Hat Creek 1 and 2 is not used to provide public water supplies.

Bundle 2: Pit River***Pit 1***

The Fall River Community Services District (FRCS D) serves approximately 498 connections, including households, some businesses and a hospital. No water is delivered for agricultural, municipal or industrial purposes. Under its agreement with Pacific Gas and Electric Company, FRCS D is entitled to receive up to 200 gpm or 288,000 gpd from the Pit 1 Forebay. However, at this time, the FRCS D does not use this water, except for a small amount sold to a golf course for summer irrigation. This water is considered a back up, emergency source only. The FRCS D gets its current water supply from a deep well in the Fall River Valley that supplies 400 gpm.

Fall River has an agreement to receive \$113,000 from the Pacific Gas and Electric Company to drill a well or to change the supply line from the Pacific Gas and Electric Company. This agreement was made after the Pacific Gas and Electric Company changed the supply line intake from one side of the river to the other. The understanding is that the Pacific Gas and Electric Company will pay to drill wells or extend the supply line so FRCS D will have access to fresh water.

If water were not available under FRCS D's agreement with Pacific Gas and Electric Company, the FRCS D would experience difficulties only in emergencies. If a new well were drilled, or the intake line were extended per the FRCS D agreement with the Pacific Gas and Electric Company, then no supply problems would be anticipated. If the Pacific Gas and Electric Company contract were not renewed, FRCS D expects minimal difficulty in obtaining sufficient water for its needs.

Pit 3, 4, and 5

The Pacific Gas and Electric Company supplies water for domestic use, fire protection, and incidental irrigation at Camp Shasta, Camp Britton, and the Pit 5 Powerhouse. There are private facilities owned and operated by Pacific Gas and Electric Company. Water from Pit 3, 4, and 5 is not used for public water supplies.

McCloud-Pit

The Pacific Gas and Electric Company supplies water for incidental domestic uses at the J. B. Black, Pit 6, and Pit 7 Powerhouses. There are private facilities owned and operated by Pacific Gas and Electric Company. Water from these facilities is not used to provide public water supply.

Bundle 3: Kilarc-Cow Creek

Kilarc-Cow Creek

The Pacific Gas and Electric Company supplies water for domestic use and incidental irrigation at the Kilarc Powerhouse. There are private facilities owned and operated by Pacific Gas and Electric Company. Water from these facilities is not used to provide public water supply.

Bundle 4: Battle Creek

Battle Creek

The Pacific Gas and Electric Company supplies water for domestic use, irrigation and incidental irrigation at the Volta 1, Inskip, and Coleman Powerhouses. There are private facilities owned and operated by Pacific Gas and Electric Company. Water from these facilities is not used to provide public water supply.

4.11B.4.2 DeSabra Regional Bundle

Regional Setting

There are no water supply/water treatment facilities within the Land Areas of the DeSabra Regional Bundle with the exception of the Coal Canyon Land Area located immediately adjacent to the City of Oroville. Typically, water treatment in rural areas is provided by small community water systems. Other water supplies come from onsite wells or surface diversions.

Bundle 5: Hamilton Branch

Hamilton Branch

The Pacific Gas and Electric Company holds irrigation rights at Mountain Meadows Reservoir and at Hamilton Branch Flume. The Pacific Gas and Electric Company supplies Western Canal Water District (via the State of California's Thermalito Afterbay) with 145,000 af from the Feather River System between March 1 and October 31 of each year. A portion of this supply comes from the Hamilton Branch watershed.

Bundle 6: Upper North Fork Feather River***Upper North Fork Feather River***

The Pacific Gas and Electric Company claims substantial irrigation rights to water stored in Lake Almanor. These rights are used to make up a portion of the 145,000 af of water delivered to Western Canal Water District.

Bundle 7: Bucks Creek***Bucks Creek***

The Pacific Gas and Electric Company retains rights to store approximately 70,000 af of water in Bucks Lake for irrigation purposes. Water stored under this right is released to provide supplies for the Western Canal Water District.

Bundle 8: Butte Creek***DeSabra-Centerville***

The Pacific Gas and Electric Company supplies water for domestic and incidental irrigation at the DeSabra and Centerville Powerhouses in addition to several small water contracts with individuals.

Various additional diverters also take water from the Upper Centerville Canal under claim of adjudicated water rights. These agreements with the Pacific Gas and Electric Company are further described in Appendix D, Binding and Non-binding Agreements.

Lime Saddle

The Pacific Gas and Electric Company supplies water to number of third parties for domestic and irrigation use. These agreements are further described in Appendix D, Binding and Non-binding Agreements.

Coal Canyon

The Pacific Gas and Electric Company supplies water to number of third parties for domestic and irrigation use. These agreements are further described in Appendix D, Binding and Non-binding Agreements.

The Coal Canyon Land Area is within the sphere of influence of the Oroville-Wyandotte Irrigation District (OWID). OWID provides domestic and irrigation water to areas north, south, and east of Oroville. OWID gets its water supply from the South Fork of the Feather River and currently exercises less than half of its water rights. It presently serves about 5,840 connections, and does not distinguish between domestic and agricultural water use. (City of Oroville, 1995.)

4.11 Public Services and Utilities

The OWID water treatment plant has a current capacity of 14.53 million gallons per day (MGD). According to OWID personnel, water supply is available to serve new development. (OWID, 2000.)

4.11B.4.3 Drum Regional Bundle

Regional Setting

In the Drum Regional Bundle, the Pacific Gas and Electric Company relies upon several pre-1914 and licensed water rights to store water in 20 lakes and reservoirs, and similar rights for water diverted for power generation at the Yuba/Bear River Powerhouses (Spaulding 1, 2, and 3, Deer Creek, Drum 1 and 2, Alta, Dutch Flat 1, Halsey, Wise 1 and 2, and Newcastle). The Pacific Gas and Electric Company also has miscellaneous water rights for irrigation, municipal, domestic, public service, and industrial users, including rights used by Placer County Water Agency (PCWA).

In addition, some of the water used by the Pacific Gas and Electric Company to generate power at the powerhouses within the Drum-Spaulding Bundle is delivered to the Nevada Irrigation District (NID) at diversion points downstream. The Pacific Gas and Electric Company benefits from these deliveries, and from water rights held by NID, to generate power at both Pacific Gas and Electric Company and NID facilities that the Pacific Gas and Electric Company operates pursuant to a Power Purchase Agreement with NID. Similarly, NID benefits from Pacific Gas and Electric Company water deliveries pursuant to water rights held by the Pacific Gas and Electric Company. As a result, the Pacific Gas and Electric Company and NID have entered into several agreements coordinating water operations and the delivery of water to the Pacific Gas and Electric Company and NID, including the Consolidated Contract for Water Diversion and Power Purchase dated July 12, 1963 and subsequent amendments. Agreements with NID are discussed below and in the water allocation schematics included in Section 4.3, Hydrology and Water Quality.

NID, Yuba County Water Agency (YCWA), PCWA, and El Dorado Irrigation District (EID) also provide water within the Drum Regional Bundle. NID serves 60,000 customers locate on 280,000 acres of land. (Nevada Irrigation District, 2000.) NID has a total of 22,000 metered connections, of which 16,327 serve treated water for industrial, commercial, and domestic uses and 4,909 serve raw water for agricultural purposes. NID supplies surface water for irrigation (approximately 19,000 acres), municipal, domestic and industrial purposes. (NID, 2000.) NID water is available in large areas of Nevada and Placer counties, and the district also has storage and distribution facilities in Sierra and Yuba counties. (NID, August 2000.) YCWA provides wholesale irrigation water, but does not sell domestic water, to the following districts: Browns Valley Irrigation District; Cordua Irrigation District; Ramirez Water District; Brophy Water District; South Yuba Water District; and Dry Creek Mutual Water Company. YCWA serves all of Yuba County and contiguous lands, and holds water rights on the North and Middle Forks Yuba River.

Bundle 9: North Yuba River***Narrows***

The Pacific Gas and Electric Company provides non-potable water through a penstock tap. NID and YCWA also provide water to the FERC-licensed areas.

YCWA has a water contract with the Pacific Gas and Electric Company associated with the Narrows facilities. This contract from May 13, 1966, expires on April 30, 2016, and is a power purchase contract. YCWA takes over the Pacific Gas and Electric Company's obligation to supply water to Browns Valley Irrigation District. This agreement sets constraints on the generation of the Colgate and Narrows 2 Powerhouses owned by YCWA to protect Pacific Gas and Electric Company senior water rights at its Narrows 1 Powerhouse. The Pacific Gas and Electric Company will retain the 1966 Agreement with YCWA and will require the new owner of the Narrows Project to enter into an agreement with the Pacific Gas and Electric Company, thus ensuring that the Pacific Gas and Electric Company will continue to meet its operational obligations

Bundle 10: Potter Valley***Potter Valley***

The major Potter Valley project facilities are:

- Lake Pillsbury, a storage reservoir on the Eel River impounded by Scott Dam;
- Van Arsdale Reservoir, which is impounded by Cape Horn Dam, and includes a forebay and diversion structures on the Eel River; and
- Potter Valley project powerhouse located at the headwaters of the East Branch of the Russian River. The Potter Valley project powerhouse generates 9.4 megawatts.

The project acts as an interbasin transfer system, diverting water from the Eel River across a natural divide to the project's powerhouse located in the headwaters of the Russian River basin. The tailrace of the PVP powerhouse is the beginning of the Russian River water system that provides water storage and directs supply for irrigation, industrial, municipal, recreational, power, and fish and wildlife uses in Mendocino, Sonoma and Marin counties. Major facilities on the Russian River include Lake Mendocino, Lake Sonoma and SCWA water withdrawal facilities along the lower river.

The Pacific Gas and Electric Company reports water rights for 102,366 af of water stored in Lake Pillsbury, and pre-1914 rights enable storage of 1,457 af of water stored in the Potter Valley Powerhouse Forebay for power, irrigation and domestic purposes. The Potter Valley Project provides water supply for PVID, Mendocino County Russian River Flood Control and Water Conservation Improvement District (MCID), the Alexander Valley in Sonoma County, the Redwood Valley Water District (RVWD) north of Ukiah, and SCWA. For SCWA, water is released into the Russian River, recharged into the Russian River aquifer, and pumped into the Sonoma County aqueduct for domestic use in Santa Rosa, other Sonoma County cities, and Novato in Marin County.

4.11 Public Services and Utilities

Since 1923, the Potter Valley Project has diverted an average of approximately 159,000 af of water per year into the Russian River. In a cooperative operations contract signed in 1965, the Pacific Gas and Electric Company agreed to “manage, control and operate” the Potter Valley Project to accommodate SCWA’s operation of its various facilities on the Russian River. The Pacific Gas and Electric Company further agreed to operate the Potter Valley Project “so as to perpetuate the long-continued diversion of water from the Eel River to the...East Fork of the Russian River.”

Sonoma and Mendocino Counties have irrigated areas served by the Potter Valley project. Most irrigated acreage is in vineyards and trees, but some acreage, perhaps 10 percent of 34,000 irrigated acres, is in hay, pasture, and field crops.

There are two water contracts associated with the Potter Valley bundle. One water contract between Potter Valley Irrigation District (PVID) and Pacific Gas and Electric Company expires in 2022. The second, between Hammeken and Pacific Gas and Electric Company, has no expiration date. Hammeken uses tailrace water to generate additional hydroelectric power and sells that power back to the Pacific Gas and Electric Company.

The following agreements require the Pacific Gas and Electric Company to sell or deliver water to third parties, thereby limiting the use of water for power generation purposes:

- Agreement dated July 31, 1965 between the Pacific Gas and Electric Company and the Sonoma County Flood Control and Water Conservation District which provides for the joint use of the Potter Valley facilities. The Pacific Gas and Electric Company agrees to divert varying amounts of water to the District’s portion of the project at varying times to the extent it does not interfere with Pacific Gas and Electric Company power production. The agreement has no termination date.
- An agreement by the Pacific Gas and Electric Company and Potter Valley Irrigation District dated March 30, 1936 and amended May 1, 1939 in which the Pacific Gas and Electric Company agrees to sell and divert up to 16,600 af of water between May 1st and October 15th (summer period) and up to 19,000 af of water minus the amount diverted the previous summer period during the winter period (October 16th to April 30th) at the tailrace of the Potter Valley Powerhouse to the District. The agreement was extended to April 14, 2022 by a Notice of Exercise of Option dated May 3, 1967.

PVID diverts between 15,000 and 22,000 af each year from the Pacific Gas and Electric Company’s Potter Valley bundle, depending upon the type of water year. (In years of high water availability, PVID obtains 50 cfs from the Potter Valley project in addition to the 19,000 af per year.) Its contract with the Pacific Gas and Electric Company gives PVID flows of 50 cfs. To generate enough head to use its gravity flow system, PVID diverts approximately 85 cfs. PVID, therefore, has an annual water right from the State Water Resources Control Board (SWRCB) for an additional 50 cfs. PVID’s contract with the Pacific Gas and Electric Company was renewed in 1983 and expires on April 14, 2022.

PVID has used water from the Potter Valley project since it was formed in 1924. The Pacific Gas and Electric Company bought the system from Snow Mountain Water and Power in 1930 and continued the contract. PVID’s flows all come from the Potter Valley powerhouse tailrace. The Pacific Gas and Electric Company contract provides the base flow for PVID.

Due to the location of PVID and limited water resources, there are no alternatives to the Pacific Gas and Electric Company water. PVID is located in a seismically active area and is underlain by a fractured aquifer. There are only small pockets of groundwater available. PVID has investigated the possibility of developing its own water storage system, but the analysis shows there are many years when the system would not generate enough water to meet PVID's needs.

PVID instituted a moratorium last year, preventing any new acreage from being annexed into the district. The district is at its absolute limit based on available supplies, and expects some reduction in water availability due to the FERC license amendment process for the Potter Valley project.

No households are served by PVID; water is provided to an estimated 6,300 irrigated acres in hay and pasture, vineyards, fruit trees, and other crops. No municipal or industrial uses are served by PVID.

The Pacific Gas and Electric Company "wheels" or delivers water under PVID's water right and PVID also uses Pacific Gas and Electric Company water rights. PVID has a licensed water right, but is entirely dependent upon continued flows out of the Potter Valley tailrace. PVID is concerned with the ongoing FERC (Project 77-110) license amendment process. The National Marine Fisheries Service (NMFS) has indicated that it might make a finding of "jeopardy" to salmon in the Eel River under the Endangered Species Act if Pacific Gas and Electric Company operations fail to provide increased flows in the Eel River for temperature control. Such a change would make less water available for power generation and, as a consequence, less water available to PVID for irrigation. PVID estimates that it may see a 15 percent reduction in flows from the Potter Valley project under such circumstances. (PVID, 2000.) The Potter Valley Project Environmental Impact Statement (EIS) of May 2000, is concerned with a potential loss of water supply as well as a potential gain from the Eel River. However, potential water supply gains are limited by fishery flow needs in the Eel River.

Bundle 11: South Yuba River

Drum-Spaulding

The Pacific Gas and Electric Company provides untreated well water to the five Pacific Gas and Electric Company-owned residences and recreation facilities at Spaulding Camp. In addition, the Pacific Gas and Electric Company provides untreated well water to two Pacific Gas and Electric Company-owned residences at Bear Valley. PCWA, EID, and YCWA also provide water to the facilities in the Drum-Spaulding Bundle. Information on Yuba County Water Agency (YCWA) is provided above. PCWA serves more than 34,600 water accounts, which represent deliveries to approximately 150,000 people as well as business, industry, and agriculture in Placer County. A significant amount of raw water is sold to PCWA customers to irrigate pastures, orchards, rice fields, farms, ranches, golf courses, and other uses. (PCWA, 2000.) Approximately 80,000 af of water is used for irrigation. (PCWA, 2000.) PCWA provides treated water to customers in Auburn, Colfax, Loomis, Rocklin, and Roseville, and in large unincorporated areas. Treated water is also sold wholesale to the City of Lincoln and other special districts, and in turn, these districts distribute and retail it directly to their customers. Raw water is sold to the City of Roseville, San Juan Water

4.11 Public Services and Utilities

District, and several other districts that individually treat and market the water to their customers. The primary sources of water for the PCWA are the Yuba and Bear Rivers. (PCWA, 2000)

Within the Drum-Spaudling Bundle, there are four water contracts between NID and the Pacific Gas and Electric Company. The obligations in one contract are that NID purchases water for consumptive uses from the Pacific Gas and Electric Company, where the maximum delivery rate is 18 cfs, up to 12 million gallons in any one day. This delivery of water is from a 30-inch outlet pipe at the spillway of Rock Creek Dam. This water contract expires on April 30, 2013. The Pacific Gas and Electric Company uses NID water at the Newcastle Powerhouse under another water contract, which expires on July 31, 2013. Under this contract, NID can purchase up to 20,000 af of supplementary water below Wise Power Plant at a rate not to exceed 50 cfs. This water, available as of DWR's April 1 forecast, indicates that the April-July natural flow of the South Fork Yuba River at Langs Crossing will be 216,000 af or more. Also under this agreement, NID can deliver water in excess of 290 cfs during the power period and 300 cfs during the non-power period into Lake Spaulding. The Pacific Gas and Electric Company and NID cooperatively operate their power and water supply systems on the Bear River and Yuba River under a contract that expires on July 31, 2013. Under the terms of this agreement, the Pacific Gas and Electric Company is required to sell and deliver to NID specific quantities of Pacific Gas and Electric Company water every month at Deer Creek Powerhouse tailrace.

There are ten water contracts associated with this FERC license that are further described in Appendix D, Binding and Non-binding Agreements.

Bundle 12: Chili Bar

Chili Bar

The Pacific Gas and Electric Company provides non-potable water through a penstock tap at a location within the FERC project lands. EID also provides water to the facilities located within the Chili Bar project lands, and background information is provided above. There are no water supply contracts associated with this FERC license.

El Dorado Irrigation District (EID) is the major water supplier along the Western slope of the Sierra Nevada Mountains in El Dorado County. The District serves a number of urban communities and agricultural areas within the 136,000-acre service area. The contiguous EID water supply system serves more than 82,000 customers located in the following communities: El Dorado Hills; Lotus/Coloma; Cameron Park; Shingle Springs; Log Town; El Dorado/Diamond Springs; Placerville; Camino/Fruitridge; Pleasant Valley; Sly Park; and Pollock Pines. (Amador Water Agency, 2000)

4.11B.4.4 Motherlode Regional Bundle

Regional Setting

Amador Water Agency (AWA), Tuolumne Utility District (TUD), and Merced Irrigation District (MID) provide water to the facilities within the Motherlode Regional Bundle. These local water purveyors are discussed in greater detail below.

In the Motherlode Regional Bundle, the Pacific Gas and Electric Company relies upon several pre-1914 and licensed rights for water stored in Upper Blue Lake, Lower Blue Lake, Twin Lake, Meadow Lake, Salt Springs Reservoir, Upper Bear Reservoir, Lower Bear Reservoir, and Lake Tabeaud. The Pacific Gas and Electric Company relies upon several pre-1914, licensed and permitted water rights for the direct diversion of water for use at the Salt Springs 1, Salt Springs 2, Tiger Creek, West Point, and Electra Powerhouses. The Pacific Gas and Electric Company relies upon riparian and pre-1914 rights for water used for irrigation and domestic purposes at the powerhouses and several cottages.

Bundle 13: Mokelumne River

Mokelumne River

The Pacific Gas and Electric Company provides water to various campsites within the project lands. The Amador Water Agency (AWA) also provides water to the facilities in the Mokelumne River Bundle. The AWA serves approximately 10,000 customers with water from the Mokelumne River. AWA provides raw or treated water to the communities of Jackson, Sutter Creek, Ione, Amador City, Drytown, Sunset Heights, Jackson Pines, Pine Grove, Pine Acres, Ranch House Estates and vicinity, Pioneer, Rabb Park, Ridgeway Pines, Silver Lake Pines/Sierra Highlands, the Mace Meadows area, and the surrounding areas in Amador County. (<http://www.amadorwa.com/info.htm>, August 22, 2000.)

There are seven water contracts associated with the Mokelumne River Bundle. The AWA has five separate contracts with the Pacific Gas and Electric Company, and three of these contracts are "runs with license." These three contracts involve increasing storage capacity in Lower Bear River Reservoir, and payment for this water storage. The AWA also has a "mutual consent" contract with the Pacific Gas and Electric Company. Under this contract, the Pacific Gas and Electric Company agreed to sell the Amador Water System and related lands, along with diversion rights. There are two water contracts with the AWA that have unknown expiration dates. One of these contracts involves use of conserved water in the Pacific Gas and Electric Company's North Fork Mokelumne River Project.

East Bay Municipal Utilities District (EBMUD) and the Pacific Gas and Electric Company have a contract where average minimum flows must be maintained. Within the terms of the Lodi Decree – a series of court orders, stipulations and agreements establishing daily and monthly average flows for the North Fork of the Mokelumne River – EBMUD supplies water to over 1.2 million customers throughout two Bay Area counties. EBMUD obtains 95 percent of its water from the Mokelumne

River, which it collects in Pardee and Camanche Reservoirs. EBMUD is concerned primarily with the potential for operations changes in this bundle that includes Salt Springs, Tiger Creek, West Point and Electra facilities. With the operational discretion and flexibility currently available, EBMUD is concerned that its long-running, mutually-coordinated operations with the Pacific Gas and Electric Company may change under a new owner (EBMUD, 2000). EBMUD's water contract with the owner of the Mokelumne Bundle, currently the Pacific Gas and Electric Company, is a mutual consent agreement, and must be honored by the new owner. Further discussions of water quality are found in Section 4.3, Hydrology and Water Quality; further discussions of the environment of the Mokelumne watershed in Section 4.4, Fisheries and Aquatic Biology and Section 4.5, Terrestrial Biology.

Bundle 14: Stanislaus River

There are four water contracts associated with this bundle which are described in further detail in Appendix D. All four are mutual consent contracts, including one between Pacific Gas and Electric Company and Tuolumne Utility District (TUD), and between Pacific Gas and Electric Company, the U.S. Bureau of Reclamation, and Tuolumne County Water District.

Spring Gap-Stanislaus

TUD provides water to the facilities within the Spring Gap-Stanislaus project lands. TUD operates a public water system and serves 83 percent of the total county population, including residential, agricultural, industrial, and other uses. TUD provides potable water to approximately 9,000 customers, and sells raw water to over 600 customers. The majority of TUD's water supply is from surface water, and approximately three percent of customers receive water derived exclusively from groundwater wells. (Tuolumne County, 2000. Planning Department, September 1996, County General Plan Update EIR.) TUD uses 19 groundwater wells on a continuous basis for 14 separate water systems. Thirteen additional wells are to be used on a supplemental basis. (Tuolumne Utilities District, 2000. Ditch System Watershed Sanitary Survey, June 1996.)

TUD estimates its average annual total water demand in 1996 was 17,120 af of water, and anticipates that demand to rise to 33,195 af of water per year by 2020. This is based on a project population of 97,100. Within the TUD service area, at least 8,225 af of additional water will be needed by 2020. (Tuolumne County, 2000. Planning Department, General Plan Update Draft EIR, September 1996.)

The Pacific Gas and Electric Company supplies water for irrigation at various project locations and for domestic use at the tender's cottage at Relief Reservoir Dam and at Lyons Cottage.

Phoenix

The Pacific Gas and Electric Company and TUD provide water to the Phoenix project lands. The Pacific Gas and Electric Company manages groundwater wells at recreation sites, and at the Phoenix Forebay for Pacific Gas and Electric Company-owned residences. Information regarding TUD is contained above.

Bundle 15: Merced River***Merced Falls***

Merced Irrigation District (MID) provides water to the facilities in the Merced River Bundle. The MID provides irrigation water to eastern Merced County's agricultural community, which consists of approximately 3,000 customers. The service boundary is more than 140,000 acres, and the MID uses water from the Merced River. (<http://www.mercedid.org/water.htm>.) There are no water contracts associated with this FERC license.

4.11B.4.5 Kings Crane-Helms Regional Bundle**Regional Setting**

Water purveyors within the Kings Crane-Helms Regional Bundle depending on untreated water supply through contractual agreements with the Pacific Gas and Electric Company include Kings River Water Association, which is associated with Bundle 18 - Kings River, and La Hacienda, Inc., which is associated with Bundle 20 - Kern Canyon.

Bundle 16: Crane Valley***Crane Valley***

The Pacific Gas and Electric Company provides water from wells to its company-owned residences at San Joaquin 2, 3 and AG Wishon Powerhouses. Its company-owned residence at Crane Valley Powerhouse is provided water from the Wishon Cove PSEA Camp at Bass Lake.

Bundle 17: Kerckhoff***Kerckhoff***

The Pacific Gas and Electric Company provides water at the AG Wishon Powerhouse. There are no other providers of water supply within the Kerckhoff FERC license.

Bundle 18: Kings River

There are four agreements associated with the Kings River Bundle that govern project operations, and ultimately water supply to Kings River Water Association. They are summarized as follows:

- United States and the Pacific Gas and Electric Company - Pacific Gas and Electric Company storage in Pine Flat (as a result of its controllable releases from its Kings River Bundle that serve as inflow to Pine Flat) is subordinate to flood control releases and storage and releases for irrigation purposes. Pacific Gas and Electric Company storage is limited to a maximum of 251,800 af at any one time. The Pacific Gas and Electric Company may store within the Pine Flat flood control space if the Pacific Gas and Electric Company reserves an equal volume in its reservoirs upstream (Courtright and Wishon), subject to the following: a) No water can be stored within the space reserved for rain floods; and b) No storage is allowed during flood control season within the uppermost 30,000 af of Pine Flat. The agreement was initiated on December 19, 1955, was amended in 1959, and its term runs with the FERC License.

4.11 Public Services and Utilities

- Kings River Water Association (KRWA) and the Pacific Gas and Electric Company – An agreement dated December 20, 1954 and amended January 18, 1972 requires the Pacific Gas and Electric Company to replace 4,600 af of evaporation losses resulting from Pacific Gas and Electric Company reservoirs and to coordinate its Kings River Bundle operations with Pine Flat Reservoir so as to maintain an accounting of water available from storage for KRWA and to allow for exchange of flood control space between the Pacific Gas and Electric Company’s Courtright and Wishon Reservoirs and Pine Flat Reservoir. The agreement term runs with the FERC License.
- U.S. Army Corps of Engineers, California Department of Water Resources and the Pacific Gas and Electric Company – The parties agree to coordinate operations and share information to reduce flood risk at Pine Flat Reservoir during critical flood control periods. The agreement was initiated September 29, 1998, and has no expiration.
- Kings River Water Association (KRWA) and the Pacific Gas and Electric Company – The parties agree to coordinate combined storage in the Pacific Gas and Electric Company’s Courtright and Wishon Reservoirs with Pine Flat Reservoir in order to meet water temperature objectives developed in coordination with the Kings River Fisheries Management Program Framework Agreement. It establishes rules and specifies a schedule for meeting various Courtright/Wishon combined target capacities each year, and allows for exchanges of capacity with Pine Flat Reservoir. The agreement was initiated May 28, 1999 and remains in effect as long as the Kings River Fisheries Management Program Framework Agreement is in effect, or until mutually terminated by the parties.

Bundle 19: Tule River

Tule River

There are no providers of water supply within the Tule River Bundle.

Bundle 20: Kern Canyon

Kern Canyon

There are no water supply providers within the Kern Canyon Bundle.

The Pacific Gas and Electric Company has a water service contract with La Hacienda, Inc., in which the Pacific Gas and Electric Company makes available up to 65 cfs for La Hacienda’s consumptive use. The point of delivery is from the Kern Canyon Penstock. The agreement was initiated on January 28, 1982, and its term runs with the FERC License.

4.11B.5 STANDARDS OF SIGNIFICANCE

For this analysis, a significant impact to water supply would result if:

1. There is a reduction in the amount or reliability of a water purveyor’s supply.
2. Demand for increased consumptive water could not be met with existing or planned capacity.

4.11B.6 ANALYTICAL METHODS

Appendix D, Binding and Non-binding Agreements, describes existing Pacific Gas and Electric Company contracts to provide consumptive water supplies to individuals and water agencies throughout the hydroelectric power system. Each contract was evaluated for its terms and for water delivery

contract amounts to determine which geographic areas, water purveyors, and water users could be affected by divestiture through the loss of a water contract.

Each bundle and Land Area was evaluated for its development potential under the project as well as for the potential demand for increased consumptive water supply. Water providers were contacted to determine their ability to provide sufficient water to meet that new demand.

The tables in Appendix D were prepared using information provided in the Proponent's Environmental Assessment (PEA) by Pacific Gas and Electric Company, as well as information contained in records kept by the California State Water Resources Control Board. Pacific Gas and Electric Company water rights associated with each FERC license are listed, as well as those associated with the company's unlicensed facilities. The validity of Pacific Gas and Electric Company water rights claims, as well as the water rights claims of other persons diverting from within, or downstream of, the watersheds in which the Pacific Gas and Electric Company operates, have not been evaluated. For the purposes of this analysis, it is assumed that Pacific Gas and Electric Company hydroelectric operations have been conducted in accordance with applicable State law governing the use of water in California, as well as applicable Federal laws governing operation of hydroelectric facilities.

Several commentors have expressed concern regarding the possible effect of the proposed hydroelectric divestiture on contractual obligations to provide water supplies for consumptive uses. The comments focus on the ability of a new owner to terminate or modify water supply agreements. The Pacific Gas and Electric Company has responded that it will assign to the new owners of the bundles its existing contractual duties, thus ensuring continued deliveries under the terms of those agreements.

It is assumed that contracts with mutual consent provisions will continue to be met by new owners because such contracts will be valid and binding regardless of divestiture. Accordingly, for those contracts and agreements, there is expected to be no change as the result of the proposed action. Similarly, court-ordered flow or release obligations are expected to be met in the future, as are water supply and flow release obligations that run with the applicable FERC licenses. There are, in addition, several contracts that may be terminated on relatively short notice by the Pacific Gas and Electric Company, and still others scheduled to terminate on specific dates that may not be renewed by a new owner. For the most part, this latter group of contracts involve small quantities of water (usually measured in miner's inches) and typically would affect individuals or small groups of users. Those persons could be forced to develop or use alternative water supplies to replace any water that may be lost as a result of the proposed divestiture.

4.11B.7 INTRODUCTION TO IMPACTS AND MITIGATION MEASURES

For Water Supply, the following impacts have been identified:

- Impact 11-3: The project could result in the loss of consumptive water to existing users (Significant).
- Impact 11-4: The project could increase water demand through land use intensification (Significant).

4.11 Public Services and Utilities

Where impacts are significant, mitigation measures are recommended at the conclusion of the analysis of each impact.

4.11B.8 IMPACT 11-3: IMPACT, ANALYSIS, AND MITIGATION MEASURES

Impact 11.3: The proposed project could result in the loss of consumptive water to existing users.

4.11B.8.1 Impact to Entire Shasta Regional Bundle

In the Shasta Regional Bundle, there are only two contracts for consumptive water with the Pacific Gas and Electric Company. They are both associated with Pit #1, FERC 2687. One is for Pacific Gas and Electric Company purchases of water from an individual to supply a powerhouse. That contract expires in 2002 or upon 30 days notice. The other contract is for the provision of water to the Fall River Mills Community Services District that expires with the FERC license. Thus, continuation of the consumptive water supply is not assured with the potential change of ownership of the facility, and the proposed project could result in the loss of water to existing users.

4.11B.8.2 Impact to Entire DeSabra Regional Bundle

In the DeSabra Regional Bundle, there are 13 contracts for consumptive water with the Pacific Gas and Electric Company. Two contracts, one at Hamilton Branch with the Department of Water Resources and the Western Canal Water District, and a second with an individual at DeSabra-Centerville are mutual consent contracts. These contracts would not expire without the water user's consent, so the project would not affect them. The remaining contracts have a variety of terms:

- Hamilton Branch (non-FERC) between Pacific Gas and Electric Company and the Department of Fish and Game which runs with the project;
- Rock Creek-Cresta with the Department of Fish and Game, which runs with the license;
- Upper North Fork of the Feather River with Sutter-Butte Canal Company, which has no expiration date;
- DeSabra-Centerville where there are two contracts with individuals -- one with no expiration date and one at will, and a third with the Department of Fish and Game which runs with the FERC license;
- Lime Saddle (non-FERC) where there are five contracts -- one with California Water Service with no expiration date, one with Thermalito Irrigation District with no expiration date, two with various parties with 90-day written notice terms for each, and one expired contract with an individual; and
- Coal Canyon (non-FERC) where there is one contract with an individual with 90 days written notice.

4.11B.8.3 Impact to the Entire Drum Regional Bundle

In the Drum Regional Bundle, there are 13 contracts for consumptive water with the Pacific Gas and Electric Company. None are mutual consent contracts. These contracts have a variety of terms:

- Narrows where the Yuba County Water Agency has a power purchase agreement with the Pacific Gas and Electric Company that does not affect Pacific Gas and Electric Company water rights and expires in 2016;

- Potter Valley Irrigation District has a contract ending in 2022, and an individual uses tailrace water and sells it back to the Pacific Gas and Electric Company for power generation; and
- Drum-Spaulling where an individual has a contract for water with no expiration date, the Department of Fish and Game has a contract that runs with the license. Placer County Water Agency has two contracts that expire in 2013 and one that has an unknown expiration date, and four contracts with the Nevada Irrigation District that all expire in 2013.

In addition, the Sonoma County Water Agency (SCWA) has raised concerns regarding the potential for impacts upon its consumptive water supplies if the Potter Valley Project (FERC 0077) comes under new ownership.

4.11B.8.4 Impact to Entire Motherlode Regional Bundle

In the Motherlode Regional Bundle, there are nine contracts for consumptive water supplies from the Pacific Gas and Electric Company. One of those contracts, with Amador Water Agency (AWA), is a mutual consent contract as amended February 29, 2000. The remaining eight contracts have a variety of terms:

- Mokelumne River Project where three AWA contracts run with the FERC license: one which includes Pacific Gas and Electric Company, AWA and East Bay Municipal Utility District (EBMUD) terminates when the relationship between AWA and EBMUD terminates; the Lodi Decree affecting EBMUD has no expiration date; and
- Spring Gap-Stanislaus/Phoenix Projects where one contract with the Tuolumne Utility District has no expiration date, one with a group of individuals has no expiration date, one with the U.S. Bureau of Reclamation and the Tuolumne County Water District #2 has no expiration date, and one with an individual receiving water from the Phoenix Powerhouse also has no expiration date.

4.11B.8.5 Impact to Entire Kings Crane-Helms Regional Bundle

There are seven contracts for consumptive water within the Kings Crane-Helms Regional Bundle. One contract between the Pacific Gas and Electric Company and the Kings River Water Association is a mutual consent contract involving Helms Pumped Storage, Haas-Kings River and Balch Projects. The remaining six have a variety of terms:

- Crane Valley where the original Miller & Lux agreement with San Joaquin Power and Light is now an agreement with no expiration date between the Pacific Gas and Electric Company (successor to San Joaquin Power and Light) and the U.S. Bureau of Reclamation, and the Madera Irrigation District contract has an unknown expiration date but was extended on February 15, 2000;
- Haas-Kings River where the U.S. Army Corps of Engineers and the Department of Water Resources have an agreement with no expiration date, and the United States has a contract that runs with the FERC license;
- Kings River Projects (FERC 2735,1988 and 175) where the Kings River Association has a one contract that runs with the FERC licenses; and
- Kern Canyon where La Hacienda, Inc. has a contract that runs with the license.

4.11B.8.6 Evaluation of Impact to Entire System

Although it is historically the case that the Pacific Gas and Electric Company has renewed consumptive water contracts when they expired, new owners of the hydroelectric power bundles and powerhouses cannot be expected to do the same. Therefore, consumptive water supplies provided under the contracts that are other than mutual consent cannot be safely predicted with implementation of the Project. Because the reduction or loss of existing water supplies would require affected water purveyors to find an alternate supply or to terminate service to existing customers, the systemwide project impact to water supply resulting from the potential loss of consumptive water *would be significant*.

4.11B.8.7 Impact 11-3: Mitigation Measures

Mitigation Measures Proposed as Part of the Project

None proposed.

Mitigation Measures Identified in This Report

Mitigation Measure 11-3: Prior to the transfer of title for Bundles 10 and 11 in the Drum Regional Bundle, Pacific Gas and Electric Company shall extend the terms of the existing water delivery contracts with Nevada Irrigation District, Potter Valley Irrigation District, and Placer County Water Agency, in their respective bundles.

4.11.B.8.8 Level of Significance After Mitigation

Less than significant.

4.11B.9 IMPACT 11-4: IMPACT, ANALYSIS, AND MITIGATION MEASURES

Impact 11-4 The project could increase water demand through land use intensification.

Implementation of the project could result in the various changes in the disposition and use of the land involved in the proposed divestiture. The Watershed Lands located outside the FERC license properties offer the greatest potential as they can be managed and sold independently. Throughout the approximately 100,000 acres of land included in the hydroelectric assets proposed for divestiture, there is development potential for an estimated 10,225 equivalent development units or EDUs. Table 4.11-2 indicates the responses of water providers when queried about the provision of consumptive water supplies to new development. (Water purveyors in Land Areas with fewer than ten project EDUs were not contacted as it was assumed that the impact on available water supplies would be negligible.)

Table 4.11-2 Provision of Water Supplies to Areas with Potential for Equivalent Development Units by Land Area

Land Area	Potential Development (in EDUs)	County ^a	Water Provider (bold if NOT able to supply to EDUs)
SHASTA REGIONAL BUNDLE			
Bundle 1: Hat Creek			
Hat Creek	594 units	Shasta	Cassel Mutual Water Supply
Bundle 2: Pit River			
Pit River 1	714 units	Shasta	Fall River Mills Comm. Services Dist.
McArthur Swamp (Shasta County)	17	Shasta	No water provider
Lake Britton	264 units	Shasta	No water provider
Pit 3	736 units	Shasta	No water provider
McCloud & Pit 4, 5, 6, 7	95 units	Shasta	No water provider
Bundle 3: Kilarc-Cow Creek			
Kilarc-Cow Creek	20 units	Shasta	No water provider
Bundle 4: Battle Creek			
Shingletown	558 units	Shasta	No water provider
Inskip Powerhouse	38 units	Tehama	No water provider
DESABLA REGIONAL BUNDLE			
Bundle 5: Hamilton Branch			
Mt. Meadows (Lassen County)	19 units	Lassen	No water provider
Hamilton Branch	16 units	Plumas	No water provider
Bundle 6: Upper North Fork Feather River			
North Lake Almanor	87 units	Plumas	No water provider
West Lake Almanor/Prattville	276 units	Plumas	No water provider
Southeast Lake Almanor	615 units	Plumas	No water provider
Butt Valley Reservoir	92 units	Plumas	No water provider
Caribou to Belden	16 units	Plumas	No water provider
Humbug Valley	240 units	Plumas	No water provider
Rock Creek-Cresta	19 units	Plumas	No water provider
Poe (Butte County)	31 units	Butte	No water provider
Bundle 7: Bucks Creek			
Bucks Creek/Bucks Lakes	244 units	Plumas	No water provider
Bundle 8: Butte Creek			
DeSabra-Centerville (Butte County)	66 units	Butte	No water provider
Coal Canyon (Butte County)	378 units	Butte	Oroville-Wyandotte Irrigation District
DRUM REGIONAL BUNDLE			
Bundle 9: North Yuba River			
Narrows/Lake Englebright ^b	3 units	Nevada/Yuba	NA
Bundle 10: Potter Valley			
Potter Valley	13 units	Mendocino	Mendocino County Water Agency
Lake Pillsbury	188 units	Lake	Lake County, Special Districts

4.11 Public Services and Utilities

Table 4.11-2 Provision of Water Supplies to Areas with Potential for Equivalent Development Units by Land Area

Land Area	Potential Development (in EDUs)	County ^a	Water Provider (bold if NOT able to supply to EDUs)
Bundle 11: South Yuba River			
Kidd Lake/Cascade Lake	38 units	Placer	Placer County Water Agency
Meadow/Fordyce/Sterling/White Rock Lakes ^b	7	Nevada/Placer	NA
Rock Lake/Lindsay Lakes ^b	5	Nevada	NA
Lake Valley Reservoir	329 units	Placer	Placer County Water Agency
Lake Spaulding/Drum Penstock	2,396 units	Placer/Nevada	Placer County Water Agency
Dutch Flat-Bear River	517 units	Placer/Nevada	Placer County Water Agency
Rollins Reservoir	12 units	Placer	Placer County Water Agency
Halsey Forebay/Lake Arthur	357 units	Placer	Placer County Water Agency
Rock Creek Lake	198 units	Placer	Placer County Water Agency
Folsom Lake ^b	4	Placer	NA
Bundle 12: Chili Bar			
American River-Chili Bar/Slab Creek Reservoir ^b	4	El Dorado	NA
MOTHERLODE REGIONAL BUNDLE			
Bundle 13: Mokelumne River			
Tiger Creek	11 units	Amador/Calaveras	Amador County Water Agency
Electra Tunnel/West Point PH ^b	5	Amador/Calaveras	NA
Lake Tabeaud	150 units	Amador/Calaveras	Amador County Water Agency
Lower Bear River Reservoir	38 units	Amador	Amador County Water Agency
Upper and Lower Blue Lake	67 units	Alpine	No water provider
Bundle 14: Stanislaus River			
Stanislaus River	37 units	Tuolumne	Tuolumne Water District
Lyons/Phoenix Reservoirs	10	Tuolumne	Tuolumne Water District
Bundle 15: Merced River			
KINGS CRANE-HELMS REGIONAL BUNDLE			
Bundle 16: Crane Valley			
Bass Lake	104 units	Madera	No water provider
Manzanita Lake (San Joaquin PH#3)	246 units	Madera	No water provider
San Joaquin PH#2	24 units	Madera	No water provider
A.J. Wishon PH ^b	6	Madera	NA
Bundle 17: Kerckhoff			
Kerckhoff Reservoir	91 units	Madera/Fresno	No water provider
Auberry Service Center ^b	2	Fresno	NA
Bundle 18: Kings River			
Wishon Reservoir	150 units	Fresno	No water provider
Keller Ranch ^b	3	Fresno	NA
Bundle 19: Tule River			
Tule River	45 units	Tulare	No water provider

Table 4.11-2 Provision of Water Supplies to Areas with Potential for Equivalent Development Units by Land Area

Land Area	Potential Development (in EDUs)	County ^a	Water Provider (bold if NOT able to supply to EDUs)
Bundle 20: Kern Canyon			
Kern Canyon	30 units	Kern	No water provider
Total Development	10,226 units		

a The 1999 Department of Finance Population Per Household for Shasta County is 2.46 (2.5), Tehama County 2.5, Lassen County is 2.611 (2.6), Plumas County is 2.17 (2.2), Butte County is 2.418 (2.4), Nevada County is 2.5, Mendocino County is 2.6, Lake County is 2.4. Placer County is 2.7, Eldorado County is 2.7, Amador County is 2.8, Calaveras County is 2.5, Alpine County is 2.4, Tuolumne County is 2.7, Mariposa County is 2.5, Merced County is 3.2, Fresno County is 3.14; Tulare County is 3.2, and Kern County is 2.9, and Madera County is 3.0.

b Land Areas with less than 10 EDUs assumed development.

Source: State of California. Department of Finance, Sacramento, California. January 1999; U.S. Bureau of the Census. 1990.

4.11B.9.1 Shasta Regional Bundle

The Shasta Regional Bundle contains a total of nine Land Areas. (See Section 4.1 Land Use.) The potential increase in land development in areas within the Shasta Regional Bundle (with the exception of Land Areas detailed below) would take place largely outside of existing service provider boundaries.

Bundle 1: Hat Creek

Hat Creek 1 and 2

The Hat Creek Land Area is located adjacent to the unincorporated community of Cassel, an area of the County that is identified as a Rural Community Center. Water supply in this Land Area is provided by on-site water systems, such as wells. The Cassel Park Mutual Water Company does provide water supply to 72 homes in Cassel, but would not be able to accommodate the potential 594 EDUs. Therefore, impacts to water treatment facilities are considered *potentially significant*.

Bundle 2: Pit River

Pit 1

A potential of 714 EDUs is assumed in approximately 3,568 acres of the Pit 1 Land Area located in the northeast portion of Shasta County. In the town of Fall River Mills, portions of new development would be located within or adjacent to the Fall River Mills CSD. The Fall River Mills CSD relies upon water available at the Pit 1 Forebay to serve its customers in, and in the vicinity of, Fall River Mills. Currently, Fall River Mills CSD may divert up to 1200 gpm from the Forebay to serve 498 water connections.

It is anticipated that potential development of 714 EDUs within the Pit 1 Land Area would likely require the construction of a new community water supply system, rather than rely upon individual wells. In addition, the Fall River Mills CSD would not be able to provide water service to new

development. Therefore, impacts to water treatment facilities due to increased demand are considered *significant*.

The McArthur Swamp, Lake Britton, Pit 3, and McCloud & Pit 4,5,6,7

Land Areas, with the potential for 1,112 EDUs, are located within portions of the County identified in the Shasta County General Plan as rural homesites. These areas are characterized as being outside of a Community Rural Center or Town Center. Typically, water supply and water treatment is provided by small community water systems and/or onsite wells or surface diversions. Although the Shasta County General Plan and Zoning Code require proposed development in unincorporated areas to conduct a land capability analysis prior to assigning minimum parcel sizes to determine if parcels are able to accommodate an onsite water system, it is anticipated that potential land development within the Shasta Regional Bundle Land Areas would likely require the construction of a new community water system, or rely upon individual wells. Impacts to water supply facilities are considered *significant* for these land areas.

4.11B.9.2 DeSabra Regional Bundle

The DeSabra Regional Bundle contains 13 Land Areas with a potential for 2,099 EDUs. In 12 of the Land Areas, there was no water purveyor available to contact. Because of the remoteness of the projected EDUs, domestic water is largely obtained from individual groundwater wells. This general description applies to Mountain Meadows, Hamilton Branch, North Lake Almanor, West Lake Almanor/Prattville, Southeast Lake Almanor, Butt Valley Reservoir, Caribou to Belden, Humbug Valley, Rock Creek-Cresta, Poe, Bucks Creek/Bucks Lakes, and DeSabra-Centerville. Because there is no provider of domestic water supply to these areas, impacts to water supply are considered *significant*.

Bundle 8: Butte Creek

Coal Canyon

The Coal Canyon Land area includes approximately 1,133 acres and could result in the potential development of approximately 378 EDUs. The Coal Canyon Land Area is located north of, and immediately adjacent to, the City of Oroville. The Oroville-Wyandotte Irrigation District (OWID) supplies water in the vicinity of the Land Area. Portions of the Coal Canyon Land Area are located within the sphere of influence of the OWID. If development within the Coal Canyon Land Area were to use water services from OWID, it is anticipated that impacts would be *less than significant*.

4.11B.9.3 Drum Regional Bundle

The Drum Regional Bundle contains 14 Land Areas with a total of 4,071 EDUs. Five of the Land Areas have the potential for fewer than ten EDUs and were not analyzed. Water purveyors in four Land Areas indicated a capacity to serve the potential additional development units with existing or planned capacity. In the remaining five Land Areas, water purveyors indicated an inability to serve proposed new development with the density and relative remoteness projected.

Bundle 10: Potter Valley**Potter Valley**

The Mendocino County Water Agency and the California Health Services Drinking Water Program both indicated there is no current or planned domestic water supply for this prospective development area. Unincorporated areas of the county rely largely upon wells for water supply. Because water purveyors would not be able to extend water to the proposed development, impacts to water supplies are considered *significant*.

Lake Pillsbury

Lake County Special Districts office and California Health Services Drinking Water Program indicated that domestic water supply or water treatment could not be extended to the proposed Land Area with existing or planned capacity. Because water purveyors would not be able to extend water to the proposed development, impacts to water supplies are considered *significant*.

Bundle 11: South Yuba River

The South Yuba River Bundle has been divided into ten Land Areas, and has the highest development potential within the Drum Regional Bundle. The assumed development potential for seven of the ten Land Areas in this bundle totals 3,847 EDUs distributed across 14,447 acres of Project Lands, for an average density of approximately one EDU per four acres. Three Land Areas are not analyzed because the projected EDUs number fewer than ten each. Impacts to the Kidd Lake/Cascade Lake, Lake Valley Reservoir, Lake Spaulding/Drum Penstock Forebay, Dutch Flat – Bear River North of Rollins Reservoir, Rollins Reservoir, Halsey Forebay/Lake Arthur and Rock Creek Lake Land Areas are discussed below.

Kidd Lake/Cascade Lake and Lake Valley Reservoir

Placer County Water Agency (PCWA) indicated that it was not practical to serve these proposed Land Areas with surface water entitlements that PCWA has under contract with the Pacific Gas and Electric Company from PCWA's Martis Valley system near Truckee, or through another water supply purveyor in the area, or with individual groundwater wells. Because the water purveyor would not be able to extend water to the proposed development, impacts to water supplies are considered *significant*.

Lake Spaulding/Drum Penstock Forebay

The PCWA indicates that it could provide domestic water supply to the Lake Spaulding/Drum Penstock Forebay Land Area's projected 2,396 EDUs. Should any part of the development occur outside of Zone 3, where there is currently no water service available, the area would be annexed to the district, and necessary infrastructure would be paid for by the new development. PCWA personnel indicate that it is reasonable to assume that water would be provided by PCWA for Project Lands that fall within Placer County. (PCWA, 2000.)

4.11 Public Services and Utilities

Development within the Lake Spaulding/Drum Penstock Forebay Land Area, which would occur in Nevada County, would be served by NID. NID anticipates adequate water for development through 2010. (Nevada County, 1995.)

Because the water purveyor indicates that it can provide domestic water supply with existing and/or planned capacity, impacts on water supply due to increased development would be *less than significant*.

Dutch Flat-Bear River North of Rollins Reservoir

The PCWA has indicated that it could serve the projected 517 EDUs in the Dutch Flat-Bear River Land Area.

The area lies within PCWA's Zone 3 and, although no water service is currently provided to the area above Rollins Reservoir, from Dutch Flat to Colfax, water supply is sufficient to serve the projected development. Infrastructure would have to be provided and paid for by development. PCWA personnel indicate that it is reasonable to assume that water would be provided by PCWA for portions of this land area that fall within Placer County.

Water service for the Gold Run/Dutch Flat/Alta analysis area is provided by the PCWA Alta System and individual wells. Surface water from Lake Spaulding is supplied via canals to the PCWA treatment plant. Currently, conventional treatment is provided by the plant. Planned improvements to the plant will be necessary to allow it to meet future demands and correct other existing deficiencies. In addition to the treatment plant upgrades, additional water storage capacity will have to be provided to adequately provide fire protection and backup storage for new development estimated for the years 2010 and 2040. PCWA has ample water rights to serve expected demand in this area. (Placer County, 1994.)

NID does not currently serve this area, and does not plan to do so in the future as it is outside NID's sphere of influence, in Placer County. NID has no facilities and there is no prospect of annexation. Currently, wells serve the water needs of residents. (NID, 2000.)

Because the water purveyor has indicated that it could supply water to the projected Land Area, impacts on water supply due to increased development in the Dutch Flat-Bear River North of Rollins Reservoir Land Area would be *less than significant*.

Rollins Reservoir

The PWCA has indicated that it would not be practical to consider serving the projected 12 EDUs in this area with surface water entitlements that PCWA has under contract with the Pacific Gas and Electric Company, or with individual groundwater wells. Because the water purveyor has indicated that it will not be able to supply water to the projected Land Area, impacts on water supply due to increased development would be *significant*.

Halsey Forebay/Lake Arthur

Placer County Water Agency has indicated that it would be able to serve the projected 357 EDUs in the Land Area with surface water entitlements that PCWA has under contract with the Pacific Gas and Electric Company. Because the water purveyor has indicated that it will supply water to the projected Land Area, impacts on water supply due to increased development would be *less than significant*.

Rock Creek Lake

Placer County Water Agency has indicated that it could provide water supplies to the proposed development of 198 EDUs in this Land Area. Because the water purveyor has indicated that it will supply water to the projected Land Area, impacts on water supply due to increased development would be *less than significant*.

4.11B.9.4 Motherlode Regional Bundle

The Motherlode Regional Bundle contains 8 Land Areas with a total of 318 EDUs. Two of those Land Areas would contain fewer than ten EDUs each and thus are not analyzed for potential water supply. In two of the Land Areas – Tiger Creek with 11 EDUs and Lower Bear River Reservoir with 38 EDUs, the Amador County Water Agency has indicated that it would be able to provide water supplies. Because the water purveyor has indicated that it could supply water to the projected Land Area, impacts on water supply due to increased development would be *less than significant*.

Bundle 13: Mokelumne River***Lake Tabeaud***

The Amador Water Agency (AWA) indicates that even though AWA takes raw water for its system from Lake Tabeaud, its treated water supply system does not currently, and is not planned to, reach this potential development area. Because the water purveyor would not be able to extend water to the proposed development, impacts to water treatment facilities are considered *significant*.

Upper and Lower Blue Lake

Five separate communities currently comprise Alpine County, with a total population of approximately 1200. Each community supports its own water supply system including Washoe, Markleville, Mesa Vista, Kirkwood and Bear Valley. Thus, there is no county wide, or local, water supplier to reach this potential development area. Because the water purveyor would not be able to extend water to the proposed development, impacts to water treatment facilities are considered *significant*.

Bundle 14: Stanislaus River

Stanislaus River and Lyons/Phoenix Reservoirs

The Tuolumne Utility District does not currently serve this area, and has no plans to do so in the future, especially given the projected number of EDUs (10). Because the water purveyor would not be able to extend water to the proposed development, impacts to water treatment facilities are considered *significant*.

4.11B.9.5 Kings Crane-Helms Regional Bundle

The Kings Crane-Helms Regional Bundle contains ten Land Areas with a total of 701 EDUs. Three of those Land Areas contain fewer than ten EDUs each and thus will not be analyzed. There is currently no water provider for the Bass Lake, Manzanita Lake, San Joaquin Powerhouse #2, A.J. Wishon Powerhouse, Kerckhoff Reservoir, Auberry Service Center, Wishon Reservoir, Keller Ranch, Tule River, or Kern Canyon Land Areas. Because there is no water purveyor available to extend water to the proposed development, impacts to water treatment facilities are considered *significant*.

4.11B.9.6 Evaluation of Impact 11-4 to Entire System

At some Land Areas (found in Bundles 1, 2, 8, 10, 11, 13, 14, and 16 through 20), there is a *significant impact* from increased water supply demand.

4.11B.9.7 Impact 11-4: Mitigation Measures

Mitigation Measures Proposed as Part of the Project

None proposed.

Mitigation Measures Identified in This Report

Mitigation Measure 11-4: For any new development on Project Lands, the owner shall ensure that an adequate water supply, suitable for its intended uses, is available from a public water supply system, community water supply system, or individual wells, and is supplied to the development.

Alternate Mitigation Measure 11-4: Prior to or concurrent with the transfer of title for any bundle, there shall be recorded against the property conservation easements running with the land and (in a form and substance approved by the CPUC) precluding any further development.

4.11B.9.8 Level of Significance After Mitigation

Implementation of Mitigation Measure 11-4 would reduce the impact to a *less than significant* level. Alternatively, implementation of Alternative Mitigation Measure 11-4 would eliminate this impact altogether.

4.11C OTHER PUBLIC SERVICES AND UTILITIES

4.11C.1 INTRODUCTION TO OTHER PUBLIC SERVICES AND UTILITIES RESOURCES

Public services and utilities considered in this subsection include those physical assets and community services that are vital to a community's welfare and livability. These include roads, sanitation, public safety, education, libraries, health care, and similar assets and services, both public and private. Changes in the supply and/or demand for these facilities and services can be affected by new development, changes in practices of new owners, or by the disaggregation of an existing system.

Because of the potential for the new owner(s) to alter existing practices (operational, maintenance, or otherwise) that can affect the provision of public services, it is important to examine how potential changes in existing practices caused by divestiture may affect public services and utilities. Because of the potential for additional development in each of the regions (see Section 4.1 Land Use), it is important to examine how public services and utilities might be affected by development and by the divestiture of the hydroelectric system assets.

This section addresses the following issues:

- Sanitary/Storm Sewers;
- Stormwater;
- Solid Waste;
- Water Treatment;
- Fire Protection;
- Road Maintenance;
- Emergency Services;
- Police Protection;
- Schools; and
- Parks; and
- Taxation.

4.11C.2 SYSTEM-WIDE REGULATORY CONTEXT

4.11C.2.1 State Regulations and Policies

Proposition 1A/Senate Bill 50

Proposition 1A/Senate Bill (SB) 50 (Chapter 407, Statutes of 1998) is a school construction measure that was approved by the voters on the November 3, 1998 ballot. It authorized the expenditure of State general obligation bonds totaling \$9.2 billion through 2002, primarily for the modernization and rehabilitation of older school facilities and the construction of new school facilities related to new growth. Of the \$9.2 billion, \$2.5 billion is targeted for higher education facilities and the remaining \$6.7 billion is targeted for K-12 facilities, throughout the State.

Of the \$6.7 billion for K-12 schools, \$2.9 billion is for new construction, \$2.1 billion is for modernization of older schools, \$1.0 billion is for districts in hardship situations, and \$700 million is for class size reduction. The new construction money is available through a 50/50 State/local match

4.11 Public Services and Utilities

program. The modernization money is available through an 80/20 State/local match program. There are a number of other program reforms that are not summarized here.

Proposition 1A/SB 50 also implements significant fee reform by amending the laws governing developer fees and school mitigation in a number of ways:

- It establishes the base (statutory) amount (indexed for inflation) of allowable developer fees at \$1.93 per square foot for residential construction and \$0.31 per square foot for commercial construction.
- It prohibits school districts, cities, and counties from imposing school impact mitigation fees or other requirements in excess of or in addition to those provided in the statute.
- It also suspends for a period of at least eight years, a series of court decisions allowing cities and counties to deny or condition development approvals on grounds of inadequate school facilities when acting on certain types of entitlements.

By way of background, the School Facilities Law of 1986 limited the amount of any fee or other requirement imposed on a development project for the mitigation of impacts on school facilities. Although the law appeared to prohibit denial of a project on the basis of inadequacy of school facilities, three subsequent court decisions held that this prohibition applied only to administrative land use approvals (such as tentative maps, use permits, and building permits), not to legislative land use approvals (such as general plan amendments and rezonings). These court decisions became known as the *Mira-Hart-Murietta* trilogy.

In reliance on these decisions, many cities and counties required payment of school fees in excess of the statutory limits as a condition to granting approval of general plan amendments, specific plans, rezonings, and other legislative approvals.

The new law overturns the *Mira-Hart-Murietta* cases by expressly prohibiting local agencies from using the inadequacy of school facilities as a basis for denying or conditioning approvals of any “legislative or adjudicative act ... involving ... the planning, use, or development of real property” (Government Code 65996[b]). In other words, the new regulations also explicitly prohibit local agencies from imposing school impact fees in excess of those provided by the statute in connection with approval of a project.

Additionally, a local agency cannot require participation in a Mello-Roos for school facilities. The statutory fee is reduced by the amount of any voluntary participation in a Mello-Roos however.

Proposition 1A/SB 50 has resulted in full State preemption of school mitigation. Satisfaction of the statutory requirements by a developer is deemed to be “full and complete mitigation.”

The new law does identify certain circumstances under which the statutory fee can be exceeded. These include preparation and adoption of a “needs analysis”, eligibility for State funding, and satisfaction of one of four requirements (prior to January 1, 2000) identified in the law including year-round enrollment, general obligation bond measure on the ballot over the last four years that received 50 percent plus one of the votes cast, 20 percent of the classes in portable classrooms, or specified

outstanding debt. After January 1, 2000, the district would have to satisfy two of the four requirements.

Assuming a district can exceed the statutory fee, the law establishes ultimate fee caps of 50 percent of costs where the State makes a 50 percent match, or 100 percent of costs where the State match is unavailable. All fees are levied at the time the building permit is issued. District certification of payment of the applicable fee is required before the City can issue the building permit.

Fire Safety

California Public Resources Code § 4290 sets forth guidelines regarding minimum fire safety standards that apply to the perimeters and access to all residential, commercial, and industrial building construction within State responsibility areas (SRAs) approved after January 1, 1991. This policy requires regulations including: road standards for fire equipment access; standards for signs identifying streets, roads, and buildings; minimum private water supply reserves for emergency fire use; and fuel breaks and greenbelts. These regulations do not supersede local regulations that exceed or are equal to minimum State regulations. (California Public Resources Code, Part 2, Chapter 2, § 4290 et seq.)

Public Resources Code § 4291 addresses firebreaks, trimming of trees, chimney screens and variance or exemption by regulations of the State forester as applicable to structures in forestland settings. It applies to any person who owns, leases, controls, operates, or maintains any building or structure in, upon, or adjoining any mountainous area or forest-covered lands, brush-covered lands, or grass-covered lands, or any land which is covered with flammable material, and specifies a number of fire safety precautions as follows:

- Maintain around and adjacent to such building or structure a firebreak made by removing and clearing away all flammable vegetation or other combustible growth for a distance of not less than 30 feet on each side thereof or to the property line, whichever is nearer. This subdivision does not apply to single specimens of trees, ornamental shrubbery, or similar plants used as ground cover, if they do not form a means of rapidly transmitting fire from native growth to any building or structure.
- Maintain additional fire protection or firebreak around and adjacent to any such building or structure by removing all brush, flammable vegetation, or combustible growth located up to 30 feet to 100 feet from such building or structure, or to the property line, whichever is nearer, as may be required if the director finds that, because of extra hazardous conditions, a firebreak of only 30 feet around such building or structure is not sufficient to provide reasonable fire safety. Grass and other vegetation located more than 30 feet from such building or structure and less than 18 inches in height above the ground may be maintained where necessary to stabilize the soil and prevent erosion.
- Remove that portion of any tree which extends within ten feet of the outlet of any chimney or stovepipe.
- Maintain any tree adjacent to or overhanging any building free of dead or dying wood.
- Maintain the roof of any structure free of leaves, needles, or other dead vegetative growth.
- Provide and maintain at all times a screen over the outlet of every chimney or stovepipe that is attached to any fireplace, stove, or other device that burns any solid or liquid fuel. The screen shall be constructed of nonflammable material with openings of not more than one-half inch in size.

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- Except as provided in Section 18930 of the Health and Safety Code, the director may adopt regulations exempting structures with exteriors constructed entirely of nonflammable materials, or conditioned upon the contents and composition of same, he may vary the requirements respecting the removing of clearing away of flammable vegetation or other combustible growth with respect to the area surrounding said structures.

No such exemption or variance shall apply unless and until the occupant or owner files with the department a written consent to the inspection of the interior and contents of such structure to ascertain whether the provisions and regulations are complied with at all times.

4.11C.3 SYSTEM-WIDE SETTING

4.11C.3.1 Utilities

Hydroelectric facilities both provide utilities and service systems in the regions in which they are located, and use utilities and service systems provided by others. Utilities that the Pacific Gas & Electric Company provides and uses at many of its power generation-related facilities (such as powerhouses and service centers) include power, sanitary/storm sewers, solid waste collection and disposal, internal and external communications systems, and water treatment and supply services. Depending on the facility, these services are provided entirely by the Pacific Gas and Electric Company, in part by the Pacific Gas and Electric Company and in part by other entities, wholly by other entities, or not at all. Most of the Pacific Gas and Electric Company's facilities are located in remote areas, many of which do not have municipal "sewer" services. Unless otherwise indicated, references to "sewer" services refer to septic systems, "blue-rooms," and pit toilets which are typically pumped.

The Pacific Gas and Electric Company also provides and uses utility services at some of its incidental facilities such as recreational areas and housing. At recreational facilities, the Pacific Gas and Electric Company generally provides power, sanitary/storm sewers, solid waste disposal, and/or water treatment and supply. At its residential facilities, the Pacific Gas and Electric Company generally supplies power, domestic water, and in some cases, sewers and wastewater services.

The Pacific Gas and Electric Company also supplies some utility services to the general public such as power and, to a limited extent, public water supply. These services are usually supplemented by other service providers.

The nature of the services used and provided by Pacific Gas and Electric Company hydroelectric facilities are set forth below.

Sanitary/Storm Sewers

The Pacific Gas and Electric Company provides sewer services at some, but not all, of its campgrounds and other recreational facilities. In some cases, other local service providers supply these services. Standard license articles included in most, but not all of the project licenses require the Pacific Gas and Electric Company to operate and maintain, or arrange for the operation and maintenance of sanitary facilities at public recreational developments. In other cases, the project has a FERC-approved

recreation plan that specifies which recreational developments will include sanitary facilities. Also, the Pacific Gas and Electric Company sometimes enters into Memoranda of Agreement with the USFS that define Pacific Gas and Electric Company responsibilities to provide and maintain sanitary facilities. The Pacific Gas and Electric Company also provides sanitary facilities at many of its powerhouses and all of its service centers, including septic systems and portable toilets.

Stormwater

Pacific Gas and Electric Company facilities with associated stormwater runoff include service centers, switchyards, and parking lots associated with generation or recreational facilities. Since the facilities use and store few hazardous materials, the facilities are exempt from compliance with General Stormwater permitting requirements due to their Standard Industrial Code (SIC) Numbers. When appropriate, Pacific Gas and Electric Company switchyards have containment systems in place to control any stormwater that comes in contact with any chemical residues. (See Section 4.9, Hazards and Hazardous Materials.)

Solid Waste

Day-to-day operations at Pacific Gas and Electric Company facilities generate little solid waste. The Pacific Gas and Electric Company provides solid waste collection and disposal services at most, but not all, of its campgrounds and other recreational facilities, and at the powerhouses themselves. In some cases, other local service providers supply these services. Standard license articles included in most, but not all, of the project licenses require the Pacific Gas and Electric Company to operate and maintain, or arrange for the operation and maintenance of, public recreational facilities. Also, the Pacific Gas and Electric Company sometimes enters into Memoranda of Agreements with the USFS which stipulate Pacific Gas and Electric Company responsibilities to maintain recreational facilities. Hazardous wastes are removed periodically by a contracted hazardous waste disposal service. Waste is removed to the appropriately classified landfill, recycler, or incinerator. Ordinary trash collection is part of normal facility maintenance and management.

Water Treatment

In some places where the Pacific Gas and Electric Company supplies water for domestic uses, water treatment is necessary prior to domestic use. Where necessary, water treatment services are provided by the Pacific Gas and Electric Company or outside providers at its recreational facilities, hydroelectric facilities, and Pacific Gas and Electric Company-owned residences. Standard license articles included in most, but not all, of the project licenses require the Pacific Gas and Electric Company to operate and maintain, or arrange for the operation and maintenance of, utilities at public recreational developments.

4.11C.3.2 Public Services

Public services for the Project and associated facilities are provided by the Pacific Gas and Electric Company and other local providers. Public services provided by the Pacific Gas and Electric Company

4.11 Public Services and Utilities

include road maintenance (on public and private roads) and recreational facilities. Public services supplied by providers other than the Pacific Gas and Electric Company include fire protection, police protection, schools, and road maintenance.

Fire Protection

Pacific Gas and Electric Company employees are trained to fight fires during their early stages, but fire protection services at all of the Pacific Gas and Electric Company facilities in the Regional Bundles are supplied by other providers, including local fire departments, the California Department of Forestry and Fire Protection (CDF) and the United States Forest Service (USFS). In addition, the Pacific Gas and Electric Company relies on fire service providers to respond to emergencies, i.e., medical emergencies and hazardous materials incidents, at its hydroelectric facilities in some cases.

The Pacific Gas and Electric Company performs regular inspections of its forest lands at one to three year intervals by Registered Professional Foresters to assess the status of the resource and determine if work is required. Inspection results may identify isolated, or groups of, damaged trees for removal or larger scale timber harvesting for tree thinning and removal over acres of land.

Road Maintenance

The Pacific Gas and Electric Company provides maintenance for both its private access roads (to areas within FERC license boundaries not open to the public) and public access roads (to recreation sites) in the Regional Bundles. In some of these cases, the Pacific Gas and Electric Company is required to adhere to specific road maintenance standards under FERC license conditions. The Pacific Gas and Electric Company also has road maintenance agreements with the USFS and contracts with users of private roads in some cases. Other access roads in the area are maintained by other providers such as the USFS, local counties, and the California Department of Transportation (Caltrans).

The Pacific Gas and Electric Company provides varying levels of road maintenance for its project roads system-wide. Access to the hydroelectric facilities and associated recreation areas is accomplished via roads on both public and private lands, with a subset of the private lands being those owned by the Pacific Gas and Electric Company. The possibility exists that a new owner of the hydroelectric facilities would not maintain Project roads in the same manner as has been customary under Pacific Gas and Electric Company ownership. A decrease in the quality and extent of road maintenance responsibility could result either in additional maintenance responsibility for Public Service agencies (such as the USFS, which manages the majority of Federal lands containing project roads) or other private property owners (such as timber companies), or would eventually lead to deteriorated road conditions that would adversely affect public accessibility to forest and Project lands and Project facilities. (See Section 4.6 for a discussion of reduced recreation access and Section 4.12 for a discussion of reduced road maintenance on private roads.)

Many of the Project bundles are governed by road maintenance requirements under their respective FERC licenses. In paraphrased form, one or both of the following FERC License conditions typically apply to the Project bundles:

- A requirement that the Licensee maintains access roads to public recreational facilities;
- A requirement making the Licensee liable for any injury or destruction to roads on lands of the United States resulting from project activities, and requiring the Licensee to maintain road standards set by the Federal agency with jurisdiction over those lands.

In the case of several Project bundles, and consistent with the second license condition noted above, Pacific Gas and Electric Company road maintenance requirements are further defined by a binding agreement with the USFS, the Federal land manager. Such agreements apply with the:

- Plumas National Forest to Bundles 6 – Feather River and 7 – Bucks Creek;
- Tahoe National Forest to Bundle 11 – South Yuba/Bear River; and
- Sierra National forest to Bundle 18 – Kings River.

The agreements typically list roads for which the Pacific Gas and Electric Company and the USFS share costs proportionate to each party's use, provided either in the form of monetary contributions or performed maintenance work.

Specifications are also included describing the appropriate guidelines for accomplishing various types of maintenance such as drainage, surface treatment, roadside vegetation, snow removal, etc. The agreements also specify maintenance levels for each road, using a rating system of I - V. Using the agreement with Tahoe National Forest as a reference, the Maintenance Levels are described as follows:

Level I – Basic maintenance for all roads not related to operational use.

- Drainage functions properly. Is adequate for current conditions. Does not cause exceptional erosion and/or sedimentation, nor show potential to do so.
- Maintain vegetative cover. Re-vegetation may be needed to alleviate erosion or sedimentation on or from roadway or roadside. Appearance of slopes should be visually consistent with ground cover above and below road.
- Perform structure maintenance as required.
- Re-sloping the road prism is not required except as necessary to satisfy other requirements.

Level II – Open for possible vehicle passage.

- Includes all requirements of Level I.
- Brushing and logging out as necessary to provide passage.
- Road travel way restored as necessary to be passable on the travel way.
- Drainage structures inspected and repaired as needed annually as a minimum.
- Warning signs in place where applicable.

Level III – For increase of traffic, safe and moderately convenient travel.

- Includes all requirements of Levels I and II.
- Surface shall be maintained as constructed.
- Spot surfacing as necessary to provide safe and moderately convenient travel.
- Brush removal as necessary for safe passage and complete logging out of windfalls to clearing limits.

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- Road Travel way restored to constructed width or, in some situations, warning markers and barricades placed for exceptional areas.
- Surface blading as necessary to provide moderately convenient travel and maintenance of roadway crown, though surface roughness is tolerated.

Level IV – For safe and comfortable use.

- Includes all requirements of Levels I, II, and III.
- Surface rock replacement to prevent wear of base course, scarify, water, replace and compact as necessary.
- Abate dust as necessary for safety, prevention of excessive loss of fines and for the protection of other resources.
- Brush control as necessary for proper drainage and sight distance.

Level V – For safe and comfortable use at designed speed. Includes maintenance of paved surfaces.

- Includes all requirements of Levels I, II, III, and IV.
- Surface is maintained to provide smooth, dust controlled, skid-free surface at designed speed.
- Paved surfaces.
- Seal coat repair plus skid-resistant wearing surfaces.
- Repair of potholes.
- Fog seals.

The majority of Project roads managed under the USFS agreements are maintained at either Level II or III, with few roads being maintained to Level V standards. Several roads are managed at Level I, but this standard normally applies to roads not used by the public, and used by the licensee only once every few years for construction activities such as replacing sections of water conveyance facilities, or by the USFS for timber harvests.

Emergency Services

The Pacific Gas and Electric Company also relies on outside service providers such as Search and Rescue, paramedics or other emergency medical services, counties, local CUPAs, and other agencies for emergency services, e.g., medical emergencies, hazardous materials incidents and confined space emergencies.

Police Protection

Police protection services at all Pacific Gas and Electric Company facilities in the Regional Bundles are supplied by other service providers, including local police and sheriff departments and the California Highway Patrol (CHP). Pacific Gas and Electric Company use of police protection services includes response for trespass and vandalism incidents, theft, abandoned vehicles, and recreation-related emergencies.

Schools

With the exception of one elementary school at the Helms Pumped Storage Project, the Pacific Gas and Electric Company does not provide schools in the Regional Bundles; all schools serving the children of Pacific Gas and Electric Company employees within this region are provided by local school districts.

Parks

The Pacific Gas and Electric Company does not provide parks in the Regional Bundles but provides a number of other recreational facilities. (See section 4.6.) Other parks and recreational facilities in the area, e.g., national, State, and county parks, forests, and recreation areas, are available through other providers, including Federal, State, and local agencies.

4.11C.3.3 Taxation

Local Government Property Tax Revenues

Pacific Gas and Electric Company hydroelectric assets, including land, improvements, water rights and equipment, are currently subject to property tax. Property taxes apply to those lands owned in fee title, and to those in which there is a possessory interest, i.e., property leased from a government agency. In general, property tax liability is determined by multiplying the standard tax rate applied to all similarly-situated property by the value of an asset, which, of course, varies by the property's characteristics and location. In most cases, counties are responsible for determining the values for taxation purposes of property located within their jurisdictions. However, in the case of utilities, which may cross county borders, the property value is calculated by the State Board of Equalization (BOE). The BOE is responsible for estimating the value of Pacific Gas and Electric Company statewide assets, collecting the associated tax revenue, and distributing these funds to the counties in which the properties are located based upon their respective shares of the asset value of the entire system. The amount of property tax assessed on Pacific Gas and Electric Company assets is determined each year on January 1st, under a Settlement Agreement dated May 1, 1992.

Based on 1999/2000 figures, the Pacific Gas and Electric Company is estimated to pay property taxes for its hydroelectric facilities as shown in Table 4.11-3.

Table 4.11-3 Estimated Taxes Paid By the Pacific Gas and Electric Company (Systemwide), 1999/2000

Regional Bundle	FERC Bundle	FERC License Number ^a	County	Estimated Assessment	Estimated Property Taxes ^b
Shasta	1	2661	Shasta	\$7,139,260	\$76,883
Shasta	2	0233 ^c	Shasta	\$115,396,682	\$1,242,707
Shasta	2	2106	Shasta	\$156,389,691	\$1,684,161
Shasta	2	2687 ^c	Shasta	\$24,390,088	\$262,657
Shasta	3	0606	Shasta	\$10,075,914	\$108,508
Shasta	4	1121	Shasta	\$29,477,751	\$317,446
Shasta	4	1121	Tehama	\$16,944,734	\$171,569
Subtotal				\$359,814,120	\$3,863,929
DeSabra	5	HB ^e	Lassen	\$4,496,687	\$47,665
DeSabra	5	HB ^e	Plumas	\$2,465,010	\$24,650

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Table 4.11-3 Estimated Taxes Paid By the Pacific Gas and Electric Company (Systemwide), 1999/2000

Regional Bundle	FERC Bundle	FERC License Number ^a	County	Estimated Assessment	Estimated Property Taxes ^b
DeSabra	6	1962	Butte	\$12,726,903	\$130,574
DeSabra	6	2107	Butte	\$38,404,146	\$394,015
DeSabra	6	1962	Plumas	\$60,464,075	\$604,641
DeSabra	6	2105	Plumas	\$226,731,563	\$2,267,316
DeSabra	7	0619	Plumas	\$27,816,202	\$278,162
DeSabra	8	LS and CC ^d	Butte	\$11,177,952	\$114,682
DeSabra	8	0803	Butte	\$46,586,899	\$477,968
DeSabra	8	0803	Tehama	\$6,414	\$65
Subtotal				\$430,875,851	\$4,339,738
Drum					
Drum	9	1403	Nevada	\$2,835,610	\$29,227
Drum	9	1403	Yuba	\$191,011	\$1,963
Drum	10	0077	Lake	\$10,306,359	\$104,494
Drum	10	0077	Mendocino	\$11,482,518	\$125,734
Drum	11	2310	Nevada	\$38,743,181	\$399,326
Drum	11	2310	Placer	\$99,876,571	\$1,096,045
Drum	12	2155	El Dorado	\$3,936,234	\$42,299
Subtotal				\$167,371,484	\$1,799,088
Motherlode					
Motherlode	13	0137	Alpine	\$4,146,289	\$41,542
Motherlode	13	0137	Amador	\$89,331,912	\$896,624
Motherlode	13	0137	Calaveras	\$8,803,244	\$95,876
Motherlode	14	2130	Alpine	\$39,622	\$397
Motherlode	14	1061	Tuolumne	\$6,651,985	\$66,805
Motherlode	14	2130	Tuolumne	\$23,455,810	\$235,562
Motherlode	15	2467	Mariposa	\$64,258	\$643
Motherlode	15	2467	Merced	\$1,841,830	\$18,779
Subtotal				\$134,334,950	\$1,356,228
Kings/Crane					
Kings/Crane	16	1354	Madera	\$27,174,569	\$284,757
Kings/Crane	17	0096	Fresno	\$94,437,433	\$1,049,776
Kings/Crane	17	0096	Madera	\$2,194,187	\$22,992
Kings/Crane	18	0175	Fresno	\$18,522,447	\$205,897
Kings/Crane	18	1988	Fresno	\$39,300,189	\$436,865
Kings/Crane	18	2735	Fresno	\$471,732,425	\$5,243,825
Kings/Crane	19	1333	Tulare	\$2,548,370	\$25,955
Kings/Crane	20	0178	Kern	\$5,150,042	\$57,868
Subtotal				\$661,059,662	\$7,327,935
TOTAL				\$1,753,456,067	\$18,686,918

**Table 4.11-3 Estimated Taxes Paid By the Pacific Gas and Electric Company
(Systemwide), 1999/2000**

Regional Bundle	FERC Bundle	FERC License Number ^a	County	Estimated Assessment	Estimated Property Taxes ^b
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Notes:

- a. This table reflects taxes paid by the Pacific Gas and Electric Company for fee land and land in which it has possessory interests.
- b. County 1999/00 tax rates used to develop estimated property taxes.
- c. Assessments for Burney Falls and McArthur Swamp Land Parcels are not included.
- d. Bundle 8 - No FERC License - Lime Saddle (LS) and Coal Canyon (CC).
- e. Bundle 5 - No FERC License - Hamilton Branch (HB).

Since 1992, the BOE has assessed utility assets for property tax purposes based upon a settlement agreement with the State's utilities. However, that agreement will expire by the end of 2000, and BOE is currently considering different valuation methods with which to determine utility property tax. The agreement provided that historic cost, less depreciation, less 25 percent of property-related deferred income taxes, be used as the sole indicator of property value.

In 1999, the BOE passed Property Tax Rule 905, which provides guidelines on assessment of property upon sale or transfer of ownership. In general, Rule 905 notes the property will become locally assessed if transferred or sold to a third party, or to an affiliate of the utility. However, BOE has issued an interim policy under which it will continue to value divested utility assets until a final decision is made.

Current Assessment Methodology

Currently, Pacific Gas and Electric Company hydroelectric assets are appraised based on a methodology applied by the BOE. BOE calculates the property tax liability of utility companies based on the value of *all* utility-operated property and assets throughout the State as a single, "unitary" value, rather than isolating the separate value of individual component parts. BOE, as indicated above, follows a Settlement Agreement which stipulated that historic cost less depreciation (HCLD) be used to value utility assets. However, BOE is currently re-examining its approach to valuing utility assets, and is expected to adopt an alternative method.

BOE distributes non-land related property taxes to individual counties based on the replacement cost less depreciation (RCLD) value of each item of unitary property. (BOE, 2000.) That is, the amount of tax revenues distributed to each county is based on the ratio of the statewide unitary value to the proportion of Pacific Gas and Electric Company property located in a particular county. In cases where property is identifiable by location, or is a continuous structure, e.g., transmission and distribution lines, its value is associated with the tax-rate area in which it is located. Likewise, land is individually appraised based on comparable sales data. BOE allocates property tax revenues associated with land based on the fair market value where the land is located. San Luis Obispo County, for example, receives property tax revenues based on a 1992 settlement agreement over valuation of the Diablo Canyon Nuclear Generating Station

Potential Changes

Divestiture of Pacific Gas and Electric Company hydroelectric assets could act to trigger three changes related to property tax revenues. First, once the assets are transferred to a new owner, responsibility for determining their value may also ultimately shift to the counties in which they are located. The BOE has taken the interim position that any transfer of ownership of the hydroelectric assets will not change the utility property tax procedures, as set forth by Article XIII, Section 19 of the California Constitution. That is, until a formal decision is made, the BOE will have the exclusive legal responsibility for assessing the valuation of utility assets, regardless of whether the owner is a public utility company or a private entity. (BOE, Data Response, August 2000.) In these cases, counties may apply their own methods for appraising value and establishing a property tax base. A county's appraisal method may be related to the new owner's acquisition price. However, it may be difficult to prorate the total price paid among the assets on an itemized basis since the purchase price would apply to the project assets as a whole. Alternatively, counties may apply some other method of appraising the assets. New owners may also protest a county's appraisal methodology, which then could result in the appraisal process being referred back to the BOE.

Under a transfer, the magnitude of the likely change in values for taxation purposes will be determined by the difference in each facility's book versus market value. It is likely that a transfer process would result in a higher appraised value than currently estimated, with concomitant increases in local tax revenues. If the facilities are assessed by the counties rather than BOE, any future increase in their assessed value would be limited to two percent per year under Proposition 13. (Under BOE assessment, property valuation is subject to an annual update. However, there is no requirement for either increase, decrease, or capping.) Valuation amounts may change very little if the BOE continues to make the assessment which, in fact, is the Board's interim opinion.

Second, if the counties ultimately become responsible for assessing the hydroelectric assets, the amount prorated to individual counties based on their estimated share of Pacific Gas and Electric Company statewide assets may be different than the amount resulting from appraisal of a particular piece of Pacific Gas and Electric Company hydroelectric assets which may be sold in a given county. This outcome would benefit some counties, and result in revenue reductions for others. However, as indicated above, given the higher values likely to be associated with almost all components of the hydroelectric generation assets, this factor in itself is as likely to result in a market value and related assessment higher than before, as it is in one lower. Previous BOE assessments have been on "book" value, not market value.

Third, some hydroelectric facilities straddle county lines. For example, rivers are a common demarcation of county borders, and several Pacific Gas and Electric Company dams are located on these rivers. Whether these facilities will be split for taxation and how their purpose and associated revenues will be allocated to the relevant counties could affect individual county treasuries. At the time of this reporting, the BOE was unable to provide conclusive answers to how this issue would be resolved.

Fourth, should the property be transferred to an entity that is currently exempt from property taxes, associated revenues would fall to zero. For example, property owned by Federal, State and local governments located within the host county, as well as by non-profit corporations, are exempt from taxation. (California Constitution.) Local governments located outside the host county must pay property taxes under State law.

Recreation-Related Potential Economic Impacts

In describing potential changes in water-related recreation activities associated with the Project, the analysis concludes that impacts could result from changes in hydrologic operations, land use development, mineral extraction practices, timber harvesting practices or in the allocation of water supply. For example, water-based recreational opportunities could decrease as a direct result of changes in hydrologic operations that may affect the frequency with which recreational facilities become unusable, or water conditions become unacceptable to support boating, fishing, and shore activities. These possible changes in recreational opportunities could have an impact on the number of visitors, reducing the number of “visitor days” and the associated taxable revenues to local businesses.

4.11C.4 REGIONAL AND LOCAL SETTING

4.11C.4.1 Shasta Regional Bundle

Regional Setting

The Shasta Regional Bundle includes four project bundles and six FERC licenses: Bundle 1-Hat Creek Bundle, Hat Creek 1 and 2 (FERC 2661); Bundle 2-Pit River Bundle, Pit 1 (FERC 2687), Pit 3, 4, and 5 (FERC 233), McCloud-Pit (FERC 2106); Bundle 3-Kilarc-Cow Creek Bundle, Kilarc-Cow Creek (FERC 606); and Bundle 4-Battle Creek Bundle, Battle Creek (FERC 1121). The Hat Creek Bundle is located north of the unincorporated community of Cassel. The Pit River Bundle extends from Fall River Mills in the east to Big Bend in the west and includes Lake Britton and McArthur Swamp. The Kilarc-Cow Creek Bundle is located in the southern portion of Shasta County. The Battle Creek Bundle is located south of the community of Shingletown and extends further south into Tehama County.

Due to the variety of living environments within Shasta County (i.e., urban, suburban, and rural), the General Plan identifies three types of communities within the County: Urban Centers, Town Centers, and Rural Community Centers. In addition, the General Plan recognizes the rural homesite, which is located outside of a community. Each type of community center and rural homesite reflects a different level of public service availability and response to the surrounding natural environment. (Shasta County, 1998.)

The Shasta Regional Bundle Land Areas (with the exception of Inskip Land Area, which is located in Tehama County) are located adjacent to unincorporated communities identified as Town Centers and Rural Community Centers, which include Fall River Mills, McArthur, Cassel, Big Bend, and Shingletown.

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Public services within Town Centers are provided by County government and limited purpose special districts. In general, Town Centers provide community water, wastewater treatment, schools, sheriff, and fire protection. Fall River Mills and McArthur are identified as Town Centers.

Within Rural Community Centers, few, if any, community services are available. In Rural Community Centers, water is typically provided by small public water systems and/or on-site wells or surface diversions. Wastewater treatment is usually provided by individual septic tanks. Other services available in these areas include schools, sheriff, and volunteer fire protection. Cassel, Big Bend, and Shingletown are identified as Rural Community Centers.

The Shasta Regional Bundle Land Areas would be classified as rural homesites. Within these areas, public services are usually limited to schools, police, and volunteer fire protection.

The Inskip Land Area is located in Tehama County in an area identified as a Rural Community Center. Similar to Shasta County, Rural Community Centers in Tehama County provide few public services. Generally, wastewater treatment is provided by individual septic tanks and water is supplied by individual or shared wells. Other services available in Rural Community Centers include schools, police protection, and fire protection manned by volunteer fire companies. The Inskip Land Area is located in the vicinity of the town of Manton, which is identified in the Tehama County General Plan as a Rural Community Center.

Public Services and Utilities

Public services and utilities within the Shasta Regional Bundle are provided by: the Pacific Gas and Electric Company, various local agencies, and several private companies. Table 4.11-4 indexes each Land Area and county, by Bundle, with the providers of each of the other utilities and service systems. Providers shown in **boldface** type (if any) are those that have indicated that they cannot serve the projected future development with the existing and planned facilities in a particular Land Area. Note that a company or agency may serve as a provider of a particular service with several Land Areas, but may not be able to maintain an acceptable service level in all Land Areas served, due to factors such as the available infrastructure or personnel in a particular area.

Table 4.11-4 Public Service and Utility Providers in the Shasta Regional Bundle Land Areas

Land Area	Sewer ^a	Stormwater	Solid Waste	Fire	Police	Schools	Road Maintenance
Bundle 1: Hat Creek							
Hat Creek (Shasta County)	None	None	Burney Disposal Inc.	CDF, USFS, Fall River Mills Fire Dept., McArthur Fire Dept., Cassel Volunteer Fire Co.	Shasta Co. Sheriff's Dept., California Highway Patrol	Fall River Joint Unified SD	PG&E Co., Shasta County, Caltrans
Bundle 2: Pit River							
Pit 1 (Shasta County)	None	None	Burney Disposal Inc.	CDF, USFS, Fall River Mills Fire Dept., McArthur Fire Dept.	Shasta Co. Sheriff's Dept., California Highway Patrol	Fall River Joint Unified SD	PG&E Co., Shasta County, Caltrans, USFS
McArthur Swamp (Shasta County)				CDF, USFS, McArthur Volunteer Fire Dept.		Fall River Joint Unified SD	
Pit 3 (Shasta County)				CDF (Johnson Park), Cassel Volunteer Fire Dept.		Big Bend SD, Mountain Union SD, Shasta Union High SD (Foothill High)	
Lake Britton (Shasta County)				CDF (Johnson Park)		Big Bend SD, Mountain Union SD, Shasta Union High SD	
McCloud, Black, Pit (Shasta County)				Big Bend Volunteer, Montgomery Creek		Big Bend SD, Mountain Union SD, Shasta Union High SD	
Bundle 3: Kilarc-Cow Creek							
Kilarc-Cow Creek (Shasta County)	None	None	None	CDF, USFS, Whitmore Volunteer Fire Co., Millville Volunteer Fire Co.	Shasta County Sheriff's Dept., California Highway Patrol	Whitmore Union Elementary, Millville Union Elementary, Shasta Union High SD	PG&E Co., Shasta County, Caltrans
Bundle 4: Battle Creek							
Shingletown (Shasta County)	None	None	Anderson-Cottonwood Disposal	USFS, CDF, Shingletown Volunteer Fire Co.	Shasta County Sheriff's Dept., California Highway Patrol	Black Butte Union Elementary, Shasta Union High SD	PG&E Co., Shasta County, Caltrans
Inskip (Tehama County)				USFS, CDF, Manton Volunteer Fire Co.	CHP, Tehama County Sheriff's Dept.	Manton Joint Union Elementary, Red Bluff Union High	PG&E Co., Tehama County, Caltrans, USFS

Source: (PG&E Co., 1999) Proponent's Environmental Assessment for Application No. 99-09-053. Volume 3. October 29, and Volume 13. March 27.

Notes:

a. Currently there are no sanitary sewer or wastewater treatment facilities identified within or in the vicinity of the Shasta Regional Bundle Land Areas. The Shasta County General Plan and Zoning Code requires proposed development in unincorporated areas to conduct a land capability analysis prior to assigning minimum parcel sizes to determine if parcels are able to accommodate an onsite wastewater treatment system.

Note: Providers shown in **boldface** type have indicated that they cannot serve the projected development in that particular Land Area with existing or planned facilities.

4.11 Public Services and Utilities

Road Maintenance

The Pacific Gas and Electric Company provides road maintenance on public and private roads as well as some parking at limited recreational facilities. Within the individual bundles, the Pacific Gas and Electric Company has road maintenance agreements with the USFS, and in some cases, contracts with users of private roads. Other providers such as local counties also provide road maintenance services for access roads within FERC licensed areas. In the Shasta Regional Bundle, the Pacific Gas and Electric Company has seven separate road maintenance agreements with the USFS Lassen National Forest or Shasta National Forest. These are summarized in Table 4.11-5.

Table 4.11-5 USFS Road Maintenance Agreements in the Shasta Regional Bundle

Bundle	FERC	Name/Location of Road	Length (Miles)	Public Agency/Forest	Principal Activity	Maintenance Requirements
2	233	In SE 1/4 of Section 21, T37N, R3E MDB&M	<0.2	Lassen National Forest	Access to recreational facilities at Lake Britton	Road to be maintained annually in passable condition during fire season. Fall all snags within 100 ft of road if they constitute a hazard. Remove all obstructions. Maintain road to allow for sufficient drainage. Periodically blade surface.
2	233	Starting in Sec 6, T36N, R3E and ending in Sec 9, T36N,R2E.	4.05	Shasta National Forest	Access to Pit 3 powerhouse	Repair all damage other than ordinary wear and tear.
2	233	Line SE 1/4 and SW1/4 of Section 17, T37N, R3E MDB&M	0.9	Shasta National Forest	Access to recreational facilities at Lake Britton	Road to be maintained annually in passable condition during fire season. Fall all snags within 100 ft of road if they constitute a hazard. Remove all obstructions. Maintain road to allow for sufficient drainage. Periodically blade surface.
2	2106	Fender Ferry Road and Fender Ridge Road	4.75 (FFR) 0.20 (FRR)	Shasta National Forest	Access to Pit 7 reservoir	Specifications for maintenance attached to document in Schedule A, include specs for ditch cleaning, surface blading, dust abatement with water, minor drainage structures, roadside vegetation and traffic services.
2	2106	Sec 21 & Sec 16, T37N, R1W.	0.41	Shasta National Forest	Access road to Hawkins Landing	Repair all damage other than ordinary wear and tear.
2	2106	Sec 4, T36N, R1W	0.39	Shasta National Forest	Access road to McCloud-Pit penstock.	Repair all damage other than ordinary wear and tear.
4	1121	Access road to North Battle Creek Reservoir - SW 1/4, Sec 28, T32N, R3E	0.3	Lassen National Forest	Access road to North Battle Creek Reservoir	Repair all damage other than ordinary wear and tear.

Source: (PG&E Co., 2000) Data Response No. HydroCEQA62_ED_Aspen-035_001. August 8.

Taxation

The Shasta Regional Bundle is located in portions of Shasta and Tehama Counties. Tables 4.11-6 and 4.11-7 show 1998 Pacific Gas and Electric Company assessments and property taxes (PG&E Co., 2000).

Table 4.11-6 Pacific Gas and Electric Company Hydroelectric Asset Valuation by County, 1998

County	Countywide Assessed Valuation (1998/1999)	Hydroelectric Assets Assessed Valuation ^a	Hydroelectric Assets % of County Valuation
Shasta	\$8,633,097,000	\$347,393,364	4.02%
Tehama	\$2,664,641,000	\$17,822,910	0.67%

Source: PEA, Volume 13, page 16-56

a. (PG&E, Co., August 23, 2000) Data Response to Data Request No. HydroCEQA71_ED_Aspen-042_001.

Table 4.11-7 Assessments and Property Taxes for Shasta Regional Bundle

Bundle	County	Area	Estimated Assessment	Estimated Property Taxes
Hat Creek	Shasta	Hat Creek 1 and 2	\$7,139,260	\$76,883
Pit River	Shasta	Pit 1 ^a	\$24,390,088	\$262,657
Pit River	Shasta	Pit 3, 4, and 5 ^a	\$115,396,682	\$1,242,707
Pit River	Shasta	McCloud Pit	\$156,389,691	\$1,684,161
Kilarc-Cow Creek	Shasta	Kilarc-Cow Creek	\$10,075,914	\$108,508
Battle Creek	Shasta	Battle Creek	\$29,477,751	\$317,446
	Subtotal		\$342,869,386	\$3,692,361
Battle Creek	Tehama	Battle Creek	\$16,944,734	\$171,569

Source: (PG&E Co., August 23, 2000) Data Response to Data Request No. HydroCEQA71_ED_Aspen-042_001

a. Assessments for Burney Falls and McArthur Swamp Land Parcels are not included.

4.11C.4.2 DeSabra Regional Bundle

Regional Setting

The DeSabra Regional Bundle is located in Lassen, Plumas and Butte Counties. The DeSabra Regional Bundle is comprised of four bundles, including five FERC licenses and three non-FERC facilities: Bundle 5-Hamilton Branch Bundle, Hamilton Branch (non-FERC); Bundle 6-Feather River Bundle, Upper North Fork Feather River (FERC 2105), Rock Creek-Cresta (FERC 1962), and Poe (FERC 2107); Bundle 7-Bucks Creek Bundle, Bucks Creek (FERC 619); and Bundle 8-DeSabra-Centerville Bundle, DeSabra-Centerville (FERC 803), Lime Saddle (non-FERC), and Coal Canyon (non-FERC). The Hamilton Branch Bundle is located in the southwestern portion of Lassen County, adjacent to the community of Westwood. The Feather River Bundle is located primarily in Plumas County and extends from the community of Chester and Prattville to Belden and Highway 70. This Bundle includes Lake Almanor and Butt Valley Reservoir. The Bucks Creek Bundle is located in Plumas County east of Highway 70 and the Rock Creek-Cresta Project area. The DeSabra-Centerville Bundle is located within Butte County, east of the community of Chico and extends to Lake Oroville. One small parcel of land associated with the DeSabra-Centerville Bundle is located in Tehama County, northwest of the Bundle's project area.

The DeSabra Regional Bundle Land Areas are located within the unincorporated portions of Lassen, Plumas, and Butte Counties. These areas are predominantly rural mountain environments.

4.11 Public Services and Utilities

Unincorporated communities located in the vicinity of the Land Areas include Chester, Oroville, Magalia, and the Town of Paradise.

Public services within rural areas are provided by county government and limited purpose special districts. In general, county services provide schools, police, and fire protection. However, few, if any, community services are available, such as wastewater services. Wastewater treatment is usually provided by individual septic tanks.

Public Services and Utilities

Public services and utilities within the DeSabra Regional Bundle are provided by the Pacific Gas and Electric Company, various local agencies, and several private companies. Table 4.11-8 indexes each Land Area and county, by Bundle, with the providers of each of the other utilities and service systems. Providers that are shown in **boldface** type are those that have indicated that they cannot serve the projected future development with the existing and planned facilities in a particular Land Area. Note that a company or agency may serve as a provider of a particular service with several Land Areas, but may not be able to maintain an acceptable service level in all Land Areas served, due to factors such as the available infrastructure or personnel in a particular area.

The Butte County Fire Department (BCFD) provides emergency services to all of Butte County, protecting over 1,600 square miles, several municipalities, and unincorporated populations. Within the county, only the City of Chico, Town of Paradise, and the El Medio Fire Protection District have stand-alone fire departments. (Butte County, 1996.)

The BCFD services include fire control for structural, wildland and vehicular fires; emergency medical service; hazardous materials response; flood control assistance; fire prevention and education; fire law enforcement; and vegetation management. The BCFD has established mutual aid or automatic aid agreements with other fire protection agencies to provide optimal fire protection service to the entire county. The BCFD is supported by volunteer companies that are dispatched by the BCFD as needed.

Road Maintenance

The Pacific Gas and Electric Company provides maintenance for both private access roads (to areas within FERC license boundaries not open to the public) and public access roads (to recreation sites) in the DeSabra Regional Bundle. In some of these cases, the Pacific Gas and Electric Company is required to provide road maintenance under FERC license conditions. The California Department of Transportation (Caltrans) provides road maintenance services across the entire Regional Bundle. Caltrans is responsible for the ownership and operation of California's 15,000-mile highway system. (Caltrans, 2000.) Road maintenance duties of highway workers include repairing damage from accidents, prolonging the life of the highway, maintaining landscapes, safety projects, reconstruction of old roads, and construction of new roads. (Caltrans, 2000.) Within the individual bundles, the Pacific Gas and Electric Company also has road maintenance agreements with the USFS, and in some cases,

Table 4.11-8 Public Service and Utility Providers in the DeSabra Regional Bundle Land Areas

Land Area	Sewer	Stormwater	Solid Waste	Fire	Police	Schools	Road Maintenance
Bundle 5: Hamilton Branch							
Mt. Meadows (Lassen Co.)	None	None	None	CDF, Westwood FD	Lassen Sheriff, CHP	Plumas Unified SD	Lassen Co., USFS
Hamilton Branch (Plumas Co.)	None	None	Feather River Disposal	Hamilton Branch	Plumas Sheriff, CHP	Plumas Unified SD	Plumas Co., USFS, Caltrans
Bundle 6: Upper North Fork Feather River							
North Lake Almanor (Plumas Co.)	None ^a	None	Feather River Disposal	Chester FD, Peninsula FD ^a	Plumas Co. Sheriff, CHP	Plumas Unified SD	Plumas Co., USFS, Caltrans
West Lake Almanor/Prattville (Plumas Co.)				Lake Almanor West	Plumas Co. Sheriff ^e , CHP		
Southeast Lake Almanor (Plumas Co.)				Lake Almanor West, Hamilton Branch	Plumas Co. Sheriff, CHP		
Butt Valley Reservoir (Plumas Co.)				CDF, USFS			
Caribou to Belden (Plumas Co.)				Quincy FD, USFS			
Humbug Valley (Plumas Co.)				CDF, USFS			
Rock Creek-Cresta (Plumas Co.)				Quincy FD, USFS	Plumas Unified SD, Oroville Union High SD, Golden Feather Union	USFS, Caltrans	
Poe (Butte Co.)				Feather River Disposal, NorCal Waste Systems of Butte Co.	BCFDB-CDF	Butte Co. Sheriff, CHP	Oroville Union High SD, Golden Feather Union

4.11 Public Services and Utilities

Table 4.11-8 Public Service and Utility Providers in the DeSabra Regional Bundle Land Areas

Land Area	Sewer	Stormwater	Solid Waste	Fire	Police	Schools	Road Maintenance
Bundle 7: Bucks Creek							
Bucks Creek/Bucks Lakes (Plumas Co.)	None ^a	None	Feather River Disposal	Bucks Lake FD, Meadow Valley FD, Quincy FD	Plumas Co. Sheriff, CHP	Plumas Unified SD	Butte Co., USFS, Caltrans ^a
Bundle 8: Butte Creek							
DeSabra-Centerville (Butte Co.)	None ^c	None	Paradise Solid Waste, North Valley Disposal	BCFD-CDF	Butte Co. Sheriff, CHP	Chico Unified SD, Paradise Unified SD	Butte Co., USFS, Caltrans ^b
Coal Canyon (Butte Co.)	City of Lake Oroville/Sewerage Commission Oroville Region (SCOR) ^d		NorCal Waste Systems of Butte County	BCFD-CDF, Oroville Fire Station	Butte Co. Sheriff, CHP	Paradise Unified SD, Oroville Union High SD, Oroville Elem. SD	Butte Co.

- a. The USFS does provide sewer service for recreational uses on or adjacent to USFS land (Almanor Campground and Day Use Area; Canyon Dam; Hutchins Meadows Campground, Sundew Campground, and Mill Creek Campground).
- b. Butte County Fire Department (BCFD) has an annual contract with CDF to provide fire protection services.
- c. Sewer services are provided in the vicinity of the Lake Oroville recreation area, these services are provided by the Oroville State Parks system and are not available to private development.
- d. The City of Oroville provides wastewater collection and disposal services to incorporated areas south of the Feather River. Wastewater treatment is the responsibility of the Sewerage Commission Oroville Region (SCOR). SCOR's treatment plant has a design capacity of 6.5 million gallons per day. The plant currently has enough capacity to serve more than 9,000 additional equivalent dwelling units. Present excess capacity will be allocated on a first-come first-served basis. (City of Oroville, 1995.)
- e. Maintenance of the current Plumas County Sheriff's Dept. officer to population ration (1:595) would require approximately one officer for the West Lake Almanor/Prattville Land Area and approximately 2.3 officers for the Southeast Lake Almanor Land Area.

Note: Providers shown in **boldface** type have indicated that they cannot serve the projected development in that particular Land Area with existing or planned facilities.

contracts with users of private roads. Other providers such as local counties also provide road maintenance services for access roads within the individual bundles. Within the DeSabra Regional Bundle, the Pacific Gas and Electric Company has 12 separate road maintenance agreements with the USFS Plumas National Forest and Lassen National Forest, which are summarized in Table 4.11-9.

Table 4.11-9 DeSabra Regional Bundle Road Maintenance Requirements

Bundle	FERC	Name/Location of Road	Length (Miles)	Public Agency/Forest	Principal Activity	Maintenance Requirements
8	803	Access road to Toadtown Powerhouse - SW 1/4 Sec 36, T24N, R3E	96 feet	U.S. BLM	Access road to Toadtown Powerhouse	Road to be maintained annually in passable condition during fire season. Fall all snags within 100 ft of road if they constitute a hazard. Remove all obstructions. Maintain road to allow for sufficient drainage. Periodically blade surface.
6	1962	Access road to powerhouses - NE 1/4 of NW 1/4, Sec 16, T24N, R6E	0.17	Plumas National Forest	Access road to powerhouses	Repair all damage other than ordinary wear and tear.
7	619	Access roads to Bucks Creek project - Roads run through various sections of T24N, R6E, and T24N, R7E.	10.8	Plumas National Forest	Access roads to Bucks Creek project	Repair all damage other than ordinary wear and tear.
6	2105	Access to Belden Siphon - Sec 8 & 17, T25N, R7E	0.5	Plumas National Forest	Access to Belden Siphon	Repair all damage to NF roads caused by holder in the exercise of the rights hereby granted.
6	2105	Relocation of Butt Valley-Caribou Road near Caribou Penstock	3.15	Plumas National Forest	Butt Valley-Caribou access road.	Repair all damage other than ordinary wear and tear. Additional provisions shown on Attachment A require road to be maintained annually in passable condition during fire season.
6	2105	This permit is an amendment to the above permit (2126-07-0265) for the Butt Valley-Caribou access road.	N/A	Plumas National Forest	N/A	This permit is an amendment to the above permit (2126-07-00265) for the Butt Valley-Caribou project and does not materially affect the road portion of the permit.
6	2105	This permit is an amendment to the above permit (2126-07-0265) for the Butt Valley-Caribou access road.	N/A	Plumas National Forest	N/A	This permit is an amendment to the above permit (2126-07-00265) for the Butt Valley-Caribou project and does not materially affect the road portion of the permit.
6	2105	Belden-Longville Rd and Portal #4 & Surge Chamber service roads - Sec 19, T25N, R7E. Service roads to Portals No. 2 & No. 3 - Sec 8 & Sec 17, T25N, R7E.	5.25	Plumas National Forest	Access to Portal #4 & Surge Chamber and to Portals No. 2 & No. 3. Belden-Longville Rd	Repair all damage other than ordinary wear and tear. Additional provisions shown on Exhibit II require road to be maintained annually in passable condition during fire season. Remove all obstructions. Maintain road to allow for sufficient drainage.
6	2105	Access road to Lake Almanor Campgrounds.	0.04	Lassen National Forest	Access road to Lake Almanor Campgrounds.	Repair all damage other than ordinary wear and tear. Regularly maintain the road in a safe useable condition and prevent unnecessary or undue degradation to the environment, erosion of the land, pollution of water or other valuable resources.
6	2105	Butt Valley-Caribou Road - Sec 13 and 24, T26N, R7E	2.39	Plumas National Forest	Butt Valley-Caribou Road	Repair all damage other than ordinary wear and tear.

4.11 Public Services and Utilities

Table 4.11-9 DeSabra Regional Bundle Road Maintenance Requirements

Bundle	FERC	Name/Location of Road	Length (Miles)	Public Agency/Forest	Principal Activity	Maintenance Requirements
6	2105	Access to Oak Flat powerhouse - SW 1/4 Sec 26 & NW 1/4 sec 35, T26N, R7E	Approx 1/2 mile	Plumas National Forest	Access to Oak Flat powerhouse - Roads 26N27B & 26N27BY	Repair all damage other than ordinary wear and tear.
6	2105	Repair of access road to valve house for Caribou Penstock # 1 and temporary access to shotcrete area.	Approx 1/4 mile	Plumas National Forest	Repair of access road to valve house for Caribou Penstock # 1 and temporary access to shotcrete area.	Repair all damage to NF roads caused by holder in the exercise of the rights hereby granted.

Source: (PG&E Co., 2000) Data Response No. HydroCEQA62_ED_Aspen-035_001. August 8.

Taxation

The DeSabra Regional Bundle is located in portions of Plumas, Butte, and Lassen Counties. Tables 4.11-10 and 4.11-11 show 1998 Pacific Gas and Electric Company assessments and property taxes.

Table 4.11-10 Pacific Gas and Electric Company Hydroelectric Assets Valuation by County, 1998

County	Countywide Assessed Valuation (1998/1999)	Hydroelectric Assets Assessed Valuation ^a	Hydroelectric Assets % of County Valuation
Plumas	\$2,138,915,000	\$319,908,474	14.96%
Tehama	\$2,664,641,000	\$17,822,910	0.67%
Butte	\$9,844,814,000	\$108,039,962	1.10%
Lassen	\$1,446,090,000	\$4,515,745	0.31%

a. Pacific Gas and Electric Company Data Response.

Table 4.11-11 Assessments and Property Taxes for DeSabra Regional Bundle

Bundle	County	Area	Estimated Assessment	Estimated Property Taxes
Butte Creek	Butte	Lime Saddle & Coal Canyon	\$11,177,952	\$114,682
Butte Creek	Butte	DeSabra-Centerville	\$46,586,899	\$477,968
Upper North Fork Feather River	Butte	Rock Creek-Cresta	\$12,726,903	\$130,574
Upper North Fork Feather River	Butte	Poe	\$38,404,146	\$394,015
	Subtotal		\$108,895,900	\$1,117,239
<hr/>				
Hamilton Branch	Lassen	Hamilton Branch	4,496,687	47,665
<hr/>				
Hamilton Branch	Plumas	Hamilton Branch	\$2,465,010	\$24,650
Bucks Creek	Plumas	Bucks Creek	\$27,816,202	\$278,162
Upper North Fork Feather River	Plumas	Rock Creek, Cresta	\$60,464,075	\$604,641
Upper North Fork Feather River	Plumas	Upper North Fork Feather River	\$226,731,563	\$2,267,316
	Subtotal		\$317,476,850	\$3,174,769
<hr/>				
Butte Creek	Tehama	DeSabra-Centerville	\$6,414	\$65

Source: PG&E Co., August 23, 2000; Data Response to Data Request No. HydroCEQA71_ED_Aspen-042_001

Plumas County has indicated that of the \$3,607,811 total property tax dollars that the County receives, the County's General Fund share is \$721,570, which represents approximately 20 percent of the County's local discretionary funds. (Fred Kelley, 2000.)

4.11C.4.3 Drum Regional Bundle

Regional Setting

The Drum Regional Bundle contains the following four Bundles: Bundle 9-North Yuba River Bundle, Narrows (FERC 1403); Bundle 10-Potter Valley Bundle, Potter Valley (FERC 77); Bundle 11-South Yuba River Bundle, Drum-Spaulding (FERC 2310); and Bundle 12-Chili Bar Bundle, Chili Bar (FERC 2155). Portions of Nevada, Placer, El Dorado, Mendocino, Lake, and Yuba Counties are located within the Drum Regional Bundle. The North Yuba River Bundle is located west of Grass Valley and east of the City of Marysville. The Potter Valley Bundle is northeast of Ukiah. The Drum-Spaulding Bundle is located east of the town of Grass Valley and northeast of the City of Auburn. The Chili Bar Bundle lies north of Placerville.

Public Services and Utilities

Public services and utilities within the Shasta Regional Bundle are provided by: the Pacific Gas and Electric Company, various local agencies, and several private companies. Table 4.11-12 below indexes each Land Area and county, by Bundle, with the providers of each of the other utilities and service systems. Providers that are shown in **boldface** type are those that have indicated that they cannot serve the projected future development with the existing and planned facilities in a particular Land Area. Note that a company or agency may serve as a provider of a particular service with several Land Areas, but may not be able to maintain an acceptable service level in all Land Areas served, due to factors such as the available infrastructure or personnel in a particular area.

Road Maintenance

The Pacific Gas and Electric Company provides maintenance for both private access roads (to areas within FERC license boundaries not open to the public) and public access roads (to recreation sites) in the Drum Regional Bundle. In some of these cases, the Pacific Gas and Electric Company is required to provide road maintenance under FERC license conditions. The California Department of Transportation (Caltrans) provides road maintenance services across the entire Regional Bundle. Caltrans is responsible for the ownership and operation of California's 15,000-mile highway system. (Caltrans, 2000.) Road maintenance includes repairing damage from accidents, prolonging the life of the highway maintaining landscapes, safety projects, reconstruction of old roads, and construction of new roads. (Caltrans, 2000.) Within the individual bundles, the Pacific Gas and Electric Company also has road maintenance agreements with the USFS and contracts with users of private roads in some cases. Other providers such as local counties also provide road maintenance services for access roads within the FERC license bundles. The Pacific Gas and Electric Company has 12 separate Special Use Permits issued by the USFS Tahoe National Forest and they are summarized in Table 4.11-13.

4.11 Public Services and Utilities

Table 4.11-12 Public Service and Utility Providers in the Drum Regional Bundle Land Areas

Land Area	Sewer	Stormwater	Solid Waste	Fire	Police	Schools ^b	Road Maintenance
Bundle 9: North Yuba River							
Narrows ^a (Nevada)	Various facility rental companies	Nevada and Yuba Counties	None	USFS, CDF	Nevada Co. Sheriff, CHP	Williams Ranch School, Pleasant Valley School, Nevada Union HS	Nevada Co. Dept. of Public Works, Caltrans
Bundle 10: Potter Valley							
Potter Valley (Mendocino)	Environmental Health Dept. of Mendocino Co.	None	PG&E Co. (Potter Valley Powerhouse – waste taken to PG&E Co. Service Center in Ukiah by PG&E Co. Employees); Timberline Waste Management Services (for hauling of fish screen waste to County landfill)	CDF, Potter Valley Fire Dept.	Mendocino Co. Sheriff, CHP	Potter Valley Unified SD	PG&E Co. , Mendocino Co., Caltrans
Lake Pillsbury (Lake)	None	None	Timberline Waste Management Services (for hauling of fish screen waste to Co. landfill)	CDF, Potter Valley Fire Dept.	County Sheriff, CHP	Lake County Unified SD, Potter Valley Unified SD	PG&E Co. , Lake Co., Caltrans
Bundle 11: South Yuba River							
Kidd Lake (Placer)	PG&E Co. (holding tanks and leach fields), Ben's Toilet Rental	Caltrans, Placer Co., USFS	Tahoe Truckee Disposal Service	PG&E Co. , Placer Foothills Consolidated Fire Dist. CDF, South Placer Fire Dept.	Placer Co. Sheriff, CHP	Tahoe-Truckee Unified SD, Placer Union High SD	PG&E Co. , Placer Co. Dept. Public Works, Caltrans
Lake Sterling/White Rock Lake ^a (Nevada)	PG&E Co. (holding tanks and leach fields), Ben's Toilet Rental	Caltrans, Nevada Co., USFS	Tahoe Truckee Disposal Service	PG&E Co. , CDF, Nevada City Fire Dept.	Nevada Co. Sheriff, CHP	Tahoe-Truckee Unified SD, Placer Union High SD	PG&E Co. , Nevada Co. Dept. Public Works, Caltrans
Rock Lake/Lindsley Lakes ^a (Nevada)	PG&E Co. (holding tanks and leach fields), Ben's Toilet Rental	Caltrans, Nevada Co., USFS	None	PG&E Co. , CDF, Nevada City Fire Dept.	Nevada Co. Sheriff, CHP	Tahoe-Truckee Unified SD, Placer Union High SD	PG&E Co. , Nevada Co. Dept. Public Works, Caltrans
Lake Valley Reservoir (Placer)	PG&E Co. (holding tanks and leach fields), Ben's Toilet Rental	Caltrans, Placer Co., USFS	None	PG&E Co. , Placer Foothills Consolidated Fire Dist., CDF, South Placer Fire Dept.	Placer Co. Sheriff, CHP	Emigrant Gap SD, Placer Union High SD	PG&E Co. , Placer Co. Dept. Public Works, Caltrans
Lake Spaulding/Drum Penstock (Placer/Nevada)	PG&E Co. (holding tanks and leach fields), Ben's Toilet Rental, Drum Camp for 3 PG&E Co.-owned residences, Spaulding Camp for 4 PG&E Co.-owned residences	Caltrans, USFS	Tahoe Truckee Disposal Service	CDF, USFS, Nevada Co. Fire, Dutch Flat Volunteer Fire Company, Alta Fire Protection Dist.	Nevada Co. Sheriff , Placer Co. Sheriff, CHP	Chicago Park SD, Nevada City SD, Nevada Joint Union SD, Twin Ridges Union SD, Emigrant Gap SD, Auburn Union Elem. SD, Colfax Elem. SD, Alta-Dutch Flat SD , Nevada Union High SD	Nevada Co. Dept. Public Works , Caltrans
Dutch Flat-Bear River (Placer/Nevada)	PG&E Co. (holding tanks and leach fields), Ben's Toilet Rental, Placer County Water	Caltrans, USFS, Placer Co. Public Works	Auburn Placer Disposal Service (South of Bear River), Tahoe Truckee Disposal Service	CDF, USFS, Nevada Co. Fire, Dutch Flat Volunteer Fire Co., Alta Fire Protection Dist.	Placer County Sheriff, CHP	Chicago Park SD, Nevada City SD, Nevada Joint Union SD, Twin Ridges Union SD, Emigrant Gap SD, Auburn	Placer Co. Public Works

Table 4.11-12 Public Service and Utility Providers in the Drum Regional Bundle Land Areas

Land Area	Sewer	Stormwater	Solid Waste	Fire	Police	Schools ^b	Road Maintenance
	Agency					Union Elem. SD, Colfax Elem. SD, Alta-Dutch Flat SD, Nevada Union High SD, Grass Valley Elem. SD	
Rollins Reservoir (Placer)	PG&E Co. (holding tanks and leach fields), Ben's Toilet Rental	Caltrans, Placer Co., USFS	Tahoe Truckee Disposal Service	PG&E Co., Placer Foothills Consolidated Fire District, CDF, South Placer Fire Dept.	Placer County Sheriff, CHP	Alta-Dutch Flat School District, Colfax Elem. School District, Placer Union High SD	PG&E Co., Placer Co. Dept. Public Works, Caltrans
Halsey Forebay/Lake Arthur (Placer)	PG&E Co. (holding tanks and leach fields), Ben's Toilet Rental	Caltrans, Placer Co., USFS	Auburn Placer Disposal Service	PG&E Co., Placer Foothills Consolidated Fire Dist., CDF, South Placer Fire Dept.	Placer Co. Sheriff, CHP	Auburn Union Elem. SD, Placer Hills Union SD, Placer Union High SD	PG&E Co., Placer Co. Dept. Public Works, Caltrans
Rock Creek Lake (Placer)	Placer County Water Agency	Placer Co., Caltrans, USFS	None	Placer County Consolidated Fire Dist., Placer Co. Fire Dept., CDF	Placer Co. Sheriff, CHP	Twin Ridges SD, Emigrant Gap SD, Auburn Union Elem. SD, Colfax Elem. SD, Alta-Dutch Flat Union Elem. SD, Placer Union High SD	PG&E Co., Placer Co. Dept. Public Works, Caltrans
Folsom Lake ^a (Placer)	PG&E Co. (holding tanks and leach fields), Ben's Toilet Rental	Caltrans, Placer Co., USFS	Auburn Placer Disposal Service	PG&E Co., Placer Foothills Consolidated Fire Dist., CDF, South Placer Fire Dept.	Placer Co. Sheriff, CHP	Loomis Union SD, Eureka Union SD, Placer Union High SD	PG&E Co., Placer Co. Dept. Public Works, Caltrans
Bundle 12: Chili Bar							
American River-Chili Bar (El Dorado)	Various facility rental companies	El Dorado Co.	None	USFS, CDF	El Dorado Co. Sheriff, CHP	Markham Intermediate School, El Dorado High School	El Dorado Co. Dept. Public Works, Caltrans

a. Land Areas with fewer than ten EDUs projected development.

b. The Placer County Office of Education has indicated that all schools in the district are at or over capacity, with the exception of Loomis. (Margie Petriano personal communication with Suzanne Ness (EIP) September 2000.)

Note: Providers shown in **boldface** type have indicated that they cannot serve the projected development in that particular Land Area with existing or planned facilities.

Table 4.11-13 Drum Regional Bundle Road Maintenance Requirements

Name/Location of Road	Length (miles)	Public Agency/Forest	Principal Activity	Maintenance Requirements
T16N, R11E, Sec. 2	1	Tahoe National Forest	Access rd. to Ditch Camp on the Drum Canal	Maintain 10 foot settled road bed and drainage ditches
T16N, R11E Sec. 2	0.3	Tahoe National Forest	Service access rd. from Blue Canyon Interchange to fee land	Maintain to level acceptable by forest officer in charge
T17N, R10E, Sec. 36	1000'	Tahoe National Forest	Access rd along Chalk Bluff Canal	Maintenance covered by xxma-01-0231
T17N, R11E, Sec. 32	1812'	Tahoe National Forest	Access to FERC related facilities	Maintenance covered by xxma-01-0231
T17N, R11E, Sec. 21 & 22	2.5+	Tahoe National Forest	Snowcat Trail	Fully repair all damage caused by permittee, other than normal wear & tear
Fordyce Rd. #1713 from Fordyce Summit to Fordyce Lake	3.0	Tahoe National Forest	Access to FERC related facilities	Maintain to level acceptable by forest officer in charge
T17N, 10E Sec.36; T17N, R11E, Sec.31, 32, 29 & 26; (T17N, R13E Sec.27. This portion covers Rd. to Tamarack Substation Utility Facility	0.72	Tahoe National Forest	Access to FERC related facilities	Fully repair all damage caused by permittee, construct & maintain lead off drainage & water barriers
T17N, R11E, Sec.30 & 31; T17N, R10E, Sec. 10	7,170'	Tahoe National Forest	Chalk Bluff Canal access	Maintenance covered by xxma-01-0231
T17N, R11E, Sec. 29	0.2	Tahoe National Forest	Access to South Yuba Canal	Fully repair all damage caused by permittee, other than normal wear & tear
T17N, R11E, Sec. 31 & 32	1700'	Tahoe National Forest	Access to FERC related facilities	Maintenance covered by xxma-01-0231
T17N, R11E, Sec. 29 & 32	3654'	Tahoe National Forest	Access to South Yuba Canal	Maintenance covered by xxma-01-0231
T17N, R11E, Sec. 29 & 32	4250'	Tahoe National Forest	Access to South Yuba Canal	Maintenance covered by xxma-01-0231

Taxation

The Drum Regional Bundle is located in portions of Placer, El Dorado, Nevada, Mendocino, and Lake Counties. Tables 4.11-14 and 4.11-15 show 1998 Pacific Gas and Electric Company hydroelectric assets for valuation and 1999 assessments and property taxes.

Table 4.11-14 Pacific Gas and Electric Company Hydroelectric Assets Valuation by County, 1998

County	Countywide Assessed Valuation	Hydroelectric Assets Assessed Valuation	Hydroelectric Assets % of County Valuation
Placer	\$20,009,951,000	\$106,531,746	0.53%
Nevada	\$7,252,174,000	\$40,306,333	0.56%
El Dorado	\$11,517,197,000	\$9,088,388	0.08%
Mendocino	\$5,306,563,000	\$11,162,363	0.21%

Table 4.11-14 Pacific Gas and Electric Company Hydroelectric Assets Valuation by County, 1998

County	Countywide Assessed Valuation	Hydroelectric Assets Assessed Valuation	Hydroelectric Assets % of County Valuation
Lake	\$3,427,464,000	\$10,239,912	0.30%

Table 4.11-15 Assessments and Property Taxes for Drum Regional Bundle

Bundle	County	Area	Estimated Assessment	Estimated Property Taxes
North Yuba River	Nevada	Narrows	\$2,835,610	\$29,227
South Yuba River	Nevada	Drum-Spaulding	\$38,743,181	\$399,326
	Subtotal		\$41,578,791	\$428,553
North Yuba River	Yuba	Narrows	\$191,011	\$1,963
Potter Valley	Lake	Potter Valley	\$10,306,359	\$104,494
Potter Valley	Mendocino	Potter Valley	\$11,482,518	\$125,734
South Yuba River	Placer	Drum-Spaulding	\$99,876,571	\$1,096,045
Chili Bar	El Dorado	Chili Bar	\$3,936,234	\$42,299

Source: PG&E Co., 2000; Data Response to Data Request No. HydroCEQA71_ED_Aspen-042_001

4.11C.4.4 Motherlode Regional Bundle

Regional Setting

The Motherlode Regional Bundle consists of the four following FERC licenses: Bundle 13-Mokelumne River Bundle, Mokelumne River (FERC 137); Bundle 14-Stanislaus River Bundle, Spring Gap-Stanislaus (FERC 2130), Phoenix (FERC 1061); and Bundle 15-Merced River Bundle, Merced Falls (FERC 2467). Portions of Amador County, Calaveras County, Alpine County, Tuolumne County, Merced County, and Mariposa County are located within the Motherlode Regional Bundle. The Mokelumne River Bundle is located east of the City of Jackson. The Stanislaus River Bundle comprises the Spring Gap-Stanislaus facilities, located northeast of City of Sonora, and the Phoenix facilities, located east of Sonora. The Merced River Bundle lies east of the City of Modesto.

Public Services and Utilities

Public services and utilities within the Motherlode Regional Bundle are provided by: the Pacific Gas and Electric Company, various local agencies, and several private companies. Table 4.11-16 indexes each Land Area and county, by Bundle, with the providers of each of the other utilities and service systems. Providers that are shown in **boldface** type are those that have indicated that they cannot serve the projected future development with the existing and planned facilities in a particular Land Area. Note that a company or agency may serve as a provider of a particular service within several Land Areas, but may not be able to maintain an acceptable service level in all Land Areas served, due to factors such as the available infrastructure or personnel in a particular area.

4.11 Public Services and Utilities

Table 4.11-16 Public Service and Utility Providers in the Motherlode Regional Bundle Land Areas

Land Area	Sewer	Stormwater	Solid Waste	Fire	Police	Schools	Road Maintenance
Bundle 13: Mokelumne River							
Tiger Creek (Amador/Calaveras)	PG&E Co. (On-site septic systems at various campsites within the FERC Project area)	PG&E Co. (Drains on Tiger Creek Road to ensure storm water goes to the river, not the Tiger Creek Canal), USFS	Various Private Providers	CDF, USFS, AFPD, BATT #10 , Jackson Fire Dist.	Amador Co. Sheriff, Calaveras Co. Sheriff, CHP	Pioneer Elem. School, Jackson Jr. HS, Jackson Senior HS	PG&E Co., Amador Co. Dept. of Public Roads, Calaveras Co. Dept. of Public Roads, Caltrans
Electra Tunnel ^a (Amador/Calaveras)	PG&E Co. (On-site septic systems at various campsites within the FERC Project area)	PG&E Co. (Drains on Tiger Creek Road to ensure storm water goes to the river, not the Tiger Creek Canal), USFS	Various Private Providers	CDF, USFS, AFPD, BATT #10, Jackson Fire Dist.	Amador Co. Sheriff, Calaveras Co. Sheriff, CHP	Pioneer Elem. School, Jackson Jr. HS, Amador HS, Argonaut HS	PG&E Co., Amador Co. Dept. of Public Roads, Calaveras Co. Dept. of Public Roads, Caltrans
Lake Tabeaud (Amador/Calaveras)	PG&E Co. (On-site septic systems at various campsites within the FERC Project area)	PG&E Co. (Drains on Tiger Creek Road to ensure storm water goes to the river, not the Tiger Creek Canal), USFS	Various Private Providers	CDF, USFS, AFPD, BATT #10 , Jackson Fire Dist.	Amador Co. Sheriff, Calaveras Co. Sheriff, CHP	Pioneer Elem. School, Jackson Jr. HS, Amador HS, Argonaut HS	PG&E Co., Amador Co. Dept. of Public Roads, Calaveras Co. Dept. of Public Roads, Caltrans
Lower Bear River Reservoir (Amador)	PG&E Co. (On-site septic systems at various campsites within the FERC Project area)	PG&E Co. (Drains on Tiger Creek Road to ensure storm water goes to the river, not the Tiger Creek Canal), USFS	Various Private Providers	CDF, USFS, AFPD, BATT #10 , Jackson Fire Dist.	Amador Co. Sheriff, CHP	Pioneer Elem. School, Jackson Jr. High School, Amador HS, Argonaut HS	PG&E Co., Amador Co. Dept. of Public Roads, Caltrans
Upper and Lower Blue Lake (Alpine)	PG&E Co. (On-site septic systems at various campsites within the FERC Project area)	PG&E Co. (Drains on Tiger Creek Road to ensure storm water goes to the river, not the Tiger Creek Canal), USFS	Various Private Providers	CDF, USFS, Jackson Fire Dist.	Alpine Co. Sheriff, CHP	Pioneer Elem. School, Jackson Jr. HS, Amador HS, Argonaut HS	PG&E Co., Alpine Co. Dept. of Public Roads, Caltrans
Bundle 14: Stanislaus River							
Stanislaus River (Tuolumne)	None	PG&E Co., (Some stormwater from various roads (managed by Caltrans, USFS, and Tuolumne Co.) may be channeled to PG&E Co.'s open canal systems), Caltrans, Tuolumne Co., USFS	Various Private Providers	CDF, USFS	Tuolumne Co. Sheriff, CHP	Twain Harte SD, Columbia SD , Sonora SD, (High School)	PG&E Co., Tuolumne Co. Dept. of Public Roads, USFS, Caltrans
Lyons Reservoir (Tuolumne)	None	PG&E Co., (Some stormwater from various roads (managed by Caltrans, USFS, and Tuolumne Co.) may be channeled to PG&E Co.'s open canal systems), Caltrans, Tuolumne Co., USFS	Various Private Providers	CDF, Tuolumne Co. FD, City of Sonora	Tuolumne Co. Sheriff, CHP	Sonora HS	PG&E Co., Tuolumne Co. Dept. of Public Roads, USFS, Caltrans
Bundle 15: Merced River							
Merced Falls ^a (Mariposa/Merced)	None	None	Contract Hauler	Snelling Fire Station	Merced Co. Sheriff, CHP	Snelling Elem. School, Merced HS in the Merced SD	Merced Co. Road Dept.

a. Land Areas with fewer than 10 EDUs projected development.

Note: Providers shown in **boldface** type have indicated that they cannot serve the projected development in that particular Land Area with existing or planned facilities.

Table 4.11-17 Pacific Gas and Electric Company Hydroelectric Assets Valuation By County, 1998

County	Countywide Assessed Valuation ^a (1998/1999)	Hydroelectric Assets Assessed Valuation ^b	Hydroelectric Assets % of County Valuation
Amador	\$2,295,381,000	\$89,771,025	3.91%
Tuolumne	\$3,473,045,000	\$31,954,286	0.92%
Mariposa	\$1,156,315,000	\$54,181	0.005%
Merced	\$8,857,070,000	\$682,408	0.008%
Alpine	\$240,354,000	\$5,576,561	2.32%
Calaveras	\$3,002,679,000	\$9,352,512	0.31%

a. State Board of Equalization APRD, Statistics Section. January 27, 1999.

b. Pacific Gas and Electric Company data response.

Table 4.11-18 Assessments and Property Taxes for Motherlode Regional Bundle

Bundle	County	Area	Estimated Assessment	Estimated Property Taxes
Mokelumne River	Alpine	Mokelumne River	\$4,146,289	\$ 41,542
Stanislaus River	Alpine	Spring Gap-Stanislaus	\$39,622	\$397
	Subtotal		\$4,185,911	41,939
Mokelumne River	Amador	Mokelumne River	\$89,331,912	\$896,624
Mokelumne River	Calaveras	Mokelumne River	\$8,803,244	\$95,876
Merced River	Mariposa	Merced Falls	\$64,258	\$643
Merced River	Merced	Merced Falls	\$1,842,830	\$18,779
Stanislaus River	Tuolumne	Phoenix	\$6,651,985	\$66,805
Stanislaus River	Tuolumne	Spring Gap-Stanislaus	\$23,455,810	\$235,562
	Subtotal		\$30,107,795	\$302,367

Source: PG&E Co. Data Response to Data Request No. HydroCEQA71_ED_Aspen-042_001

Road Maintenance

The Pacific Gas and Electric Company provides maintenance for both private access roads (to areas within FERC license boundaries not open to the public) and public access roads (to recreation sites) in the Motherlode Regional Bundle. In some of these cases, the Pacific Gas and Electric Company is required to provide road maintenance under FERC license conditions. Within the individual bundles, the Pacific Gas and Electric Company also has road maintenance agreements with the USFS and contracts with users of private roads in some cases. Other providers such as local counties also provide road maintenance services for access roads within the individual bundles.

The Pacific Gas and Electric Company has a Road Use Agreement with the Forest Supervisor of the Stanislaus National Forest for using and maintaining access roads to facilities at Sand Flat Dam, Philadelphia Ditch, Beardsley Dam, and Stanislaus Powerhouse and Forebay. The Road Use Agreement requires the Pacific Gas and Electric Company to provide road maintenance such as

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blading, surface protection, slide disposal, visibility obstruction removal, normal seasonal cleanup, and preventive maintenance.

Taxation

The Motherlode Regional Bundle is located in portions of Tuolumne, Mariposa, Merced, Amador, Alpine, and Calaveras Counties. Tables 4.11-17 and 4.11-18 show 1998 Pacific Gas and Electric Company hydroelectric valuation and 1999 assessments and property taxes, respectively.

4.11C.4.5 Kings Crane-Helms Regional Bundle

Regional Setting

The Kings Crane-Helms Regional Bundle consists of the following seven Bundles: Bundle 16-Crane Valley Bundle, Crane Valley (FERC 1354); Bundle 17-Kerckhoff Bundle, Kerchoff (FERC 96); Bundle 18-Kings River Bundle, Helms Pumped Storage (FERC 2735), Haas-Kings River (FERC 1988), and Balch (FERC 175); Bundle 19-Tule River Bundle, Tule River (FERC 1333); and Bundle 20-Kern Canyon Bundle, Kern Canyon (FERC 178). Portions of Fresno, Kern, Madera, and Tulare Counties are located within this Regional Bundle.

Public Services and Utilities

Public Services and Utilities within the Kings Crane-Helms Regional Bundle are provided by the Pacific Gas and Electric Company, various local agencies, and several private companies. Table 4.11-19 indexes each Land Area and county, by Bundle, with the providers of each of the other utilities and service systems. Providers shown in **boldface** type are those that indicated they cannot serve the projected future development with the existing and planned facilities in a particular Land Area. Note that a company or agency may serve as a provider of a particular service within several Land Areas, but may not be able to maintain an acceptable service level in all Land Areas served, due to factors such as the available infrastructure or personnel in a particular area.

Taxation

The Kings Crane-Helms Regional Bundle is located in portions of Madera, Fresno, Tulare, and Kern counties. Tables 4.11-21 and 4.11-22 show 1998 Pacific Gas and Electric Company hydroelectric assets for valuation and 1999 assessments and property taxes, respectively.

Table 4.11-19 Public Service and Utility Providers in the Kings Crane-Helms Regional Bundle Land Areas

Land Area	Sewer	Stormwater	Solid Waste	Fire	Police	Schools	Road Maintenance
Bundle 16 Crane Valley							
Bass Lake (Madera)	None	None	Madera County	USFS, CDF	Madera Co. Sheriff's Dept., CHP	Bass Lake Elem. SD, Yosemite Union High SD	Co. of Madera
Manzanita Lake (Madera)	None	None	Madera County	USFS, CDF	Madera Co. Sheriff's Dept., CHP	Chawanakee Joint Union Elem. And High SD, Sierra Unified SD	Co. of Madera
San Joaquin #2 (Madera)	None	None	American Avenue Landfill	USFS, CDF	Madera Co. Sheriff's Dept., CHP	Chawanakee Joint Union Elem. And High SD, Sierra Unified SD	Co. of Madera
A.J. Wishon Powerhouse ^a (Madera)	None	None	American Avenue Landfill	USFS, CDF	Madera Co. Sheriff's Dept., CHP	Chawanakee Joint Union Elem. And High SD, Sierra Unified SD	Co. of Madera
Bundle 17 Kerckhoff							
Kerckhoff Reservoir (Madera/Fresno)	None	None	American Avenue Landfill	CDF	Fresno Co. Sheriff's Dept., CHP	Sierra Unified SD , Chawanakee Joint Union Elem. And High SD	Madera Co. Road Maintenance
Auberry Service Center ^a (Madera/Fresno)	None	PG&E Co.	American Avenue Landfill	CDF	Fresno Co. Sheriff's Dept., CHP	Sierra Unified SD	Fresno Co. Road Maintenance
Bundle 18 Kings River							
Wishon Reservoir (Fresno)	None	None	American Avenue Landfill	USFS, CDF	Fresno Co. Sheriff's Dept. , CHP	Sierra Unified SD, Pine Ridge Elem. School	Fresno Co., Cal Trans, USFS
Keller Ranch ^a (Fresno)	None	None	American Avenue Landfill	USFS, CDF	Fresno Co. Sheriff's Dept., CHP	Sierra Unified SD, Pine Ridge Elem. School	Fresno Co., Cal Trans, USFS
Bundle 19 Tule River							
Tule River (Tulare)	None	None	Tulare Co.	CDF	Tulare Co. Sheriff's Dept.	Springville Union SD, Springville Elem. SD , Porterville Unified SD, Porterville HS	Tulare Co., USFS
Bundle 20 Kern Canyon							
Kern Canyon (Kern)	None	None	Bena Sanitary Landfill	Kern Co. Fire Dept., CDF	Metropolitan Bakersfield Patrol Area.	Bakersfield SD, Kern High SD	Kern Co.

a. Land Areas with fewer than 10 EDUs proposed development.

Note: Providers shown in **boldface** type have indicated that they cannot serve the projected development in that particular Land Area with existing or planned facilities.

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Table 4.11-20 Kings Crane-Helms Regional Bundle Road Maintenance Requirements for Roads Under Permit with USFS

Name/Location of Road	Length (miles)	Public Agency/Forest	Principal Activity	Maintenance Requirements
West Courtright Road	2.5	Sierra National Forest	Campground access	Level 3 – Detailed Maintenance specified in Permit # 2209-27-0041
Maxon Trailhead Road	0.6	Sierra National Forest	Monthly access to Valve House	Level 3 – Detailed Maintenance specified in Permit # 2209-27-0041
Courtright Road	8.0	Sierra National Forest	Daily access to Warehouse; Monthly access to Switchyard Road & Dam	Level 4 – Detailed Maintenance specified in Permit # 2209-27-0041
Crabtree Road (S. end)	0.6	Sierra National Forest	Monthly Audit Check; Hydroelectric maintenance as required	Level 2 – Detailed Maintenance specified in Permit # 2209-27-0041
Crabtree Road (N. end)	1.0	Sierra National Forest	Occasional access to Sewage T.P. & Spray Field	Level 2 – Detailed Maintenance specified in Permit # 2209-27-0041
Black Rock Road (Paved)	15.5	Sierra National Forest	Daily routine operations	Level 3 – Detailed Maintenance specified in Permit # 2209-27-0041
Black Rock Road (Rocked)	8.0	Sierra National Forest	Daily routine operations	Level 3 – Detailed Maintenance specified in Permit # 2209-27-0041
McKinley Grove Road	0.7	Sierra National Forest	Monthly access to Valve Chamber	Level 3 - Detailed Maintenance specified in Permit # 2209-27-0041
Balch-Sycamore Road	1.0	Sierra National Forest	Daily Housing access; Occasional Siphon access & other maintenance	Level 3 - Detailed Maintenance specified in Permit # 2209-27-0041

Table 4.11.21 Pacific Gas and Electric Company Hydroelectric Assets Valuation by County, 1998/1999

County	Countywide Assessed Valuation ^a (1998/1999)	Hydroelectric Assets Valuation ^b	PG&E % of Total County Tax Base
Madera	\$5,911,150,262	\$29,325,952	0.5%
Fresno	\$29,229,087,160	\$622,662,250	2.1%
Tulare	\$14,564,122,356	\$2,646,490	0.02%
Kern	\$43,596,201,000	\$4,445,805	0.01%

a. State Board of Equalization APRD, Statistics Section. January 27, 1999.

b. PG&E Co., August 23, 2000) Data Response to Data Request No. HydroCEQA71_ED_Aspen-042_001.

Table 4.11-22 Assessments and Property Taxes for Kings Crane-Helms Regional Bundle

Bundle	County	Area	Estimated Assessment	Estimated Property Taxes
Crane Valley	Madera	Crane Valley	\$27,174,569	\$284,757
Kerckhoff	Madera	Kerckhoff	\$2,194,187	\$22,992
	Subtotal		\$29,368,756	\$307,749
Kerckhoff	Fresno	Kerckhoff	\$94,437,433	\$1,049,776
Kings River	Fresno	Balch	\$18,522,447	\$205,897
Kings River	Fresno	Haas-Kings River	\$39,300,189	\$436,865
Kings River	Fresno	Helms Pumped Storage	\$471,732,425	\$5,423,825
	Subtotal		\$623,992,494	\$7,116,363
Tule River	Tulare	Tule River	\$2,548,370	\$25,955
Kern Canyon	Kern	Kern Canyon	\$5,150,042	\$57,868

Source: PG&E Co. Data Response to Data Request No. HydroCEQA71_ED_Aspen-042_001

4.11C.5 STANDARDS OF SIGNIFICANCE

For the purposes of this EIR, impacts on public services and utilities caused by increases in development due to project implementation would be considered significant if the potential increase in land development could result in:

- The need for expansion of existing wastewater, water treatment, and stormwater facilities;
- An increase in demand necessitating new or extended services (i.e., additional staff or construction of new or altered facilities) in order to be accommodated by existing service providers; or
- A decline in property tax or fee revenues that would lead to a substantial decrease in public services.

4.11C.6 ANALYTICAL METHODS

Land Use-Related Impacts

For the purposes of this analysis, the development assumptions for the Land Areas were reviewed. The development potential for various Land Areas was determined based on an analytical method described in detail in Chapter 3 of this document.

It was determined that for the purpose of analyzing impacts to public service and utility providers, land use intensification of less than ten equivalent dwelling units would not result in a substantial increase in demand, as it would involve only a minimal population increase which would not be likely to require facility expansion in order to be served.

A ten equivalent development unit (10 EDU) threshold was therefore identified to determine whether service providers should be contacted in order to further assess the potential impacts to those providers. Service providers were contacted to determine whether the existing or planned facilities in a particular Land Area are adequate to serve the potential future development assumed for that Land Area. An increase in demand would be considered significant if it would create the need for new or substantially altered public services and utilities in order to maintain acceptable performance objectives, including service ratios, response times, and capacity requirements.

Where impacts among Land Areas would be similar, the impacts are discussed generally on a Regional Bundle level. Potential impacts for public services and utilities that are unique to a particular location are addressed under the individual Bundle discussions, with specific mention of the affected Land Area and provider. Where impacts among Regional Bundles would be similar, impacts are addressed on a systemwide level. Fire protection is discussed both on a Bundle/Land Area level (in relation to specific local service providers) and on a systemwide level for fire hazard issues affecting all Regional Bundles. Mitigation measures identified in this report indicate the Land Areas to which they are applicable; mitigation measures that are applicable to all Land Areas identify themselves as being systemwide.

Taxation-Related Impacts

California Environmental Quality Act (CEQA) documents do not typically contain a discussion of the economic and social impacts of a project. This is because CEQA only applies to activities that will cause a physical change in the environment. Section 15131 of the CEQA Guidelines states that “Economic or social effects of a project shall not be treated as a significant effects on the environment.”

However, a project’s economic and social effects can be relevant to an environmental analysis if they will lead to significant physical impacts. According to the CEQA Guidelines, an EIR may trace a chain of cause and effect from a proposed project through anticipated economic or social changes, to any physical changes caused in turn by economic or social changes. CEQA Guidelines state that intermediate economic or social changes need not be analyzed in any detail greater than necessary to trace the chain of cause and effect, and that the focus of the EIR analysis shall be on the potential physical changes which may be traced to economic impacts.

For the project described by this EIR, namely divestiture of Pacific Gas and Electric Company hydroelectric assets, there is the potential for change in the property tax revenues paid to the 21 counties within which these facilities are located.

There are no specific thresholds established by CEQA for determining the significance of physical impacts stemming from economic analyses. Thus, there is no guidance for estimating the fiscal impacts of the proposed divestiture of Pacific Gas and Electric Company’s hydroelectric assets on the counties potentially affected. Any attempt to determine the significance of the project’s economic impacts, and the further implications for individual county budgets, would be conjectural at this point.

Indirect effects on local public services could result from a decline in tax revenue cause by a decrease in recreation-related visitor spending. Reduced visitor spending and associated tax revenues could result from a decline in the availability of recreation opportunities resulting from the Project. Because the funding of public services in many rural communities depends on sales and hotel tax revenues, a reduction in visitor spending and related tax revenues could affect the ability of local governments to maintain existing levels of service. Such an impact would be considered significant.

Analysis of Taxation Issue

Using Pacific Gas and Electric Company’s tax payment data, a bundle-by-bundle analysis was done of property tax revenues paid in each of the 21 counties potentially affected. Pacific Gas and Electric Company was also asked to distinguish its properties subject to divestiture – namely the hydroelectric facilities, to determine the amount of that more limited asset base. That asset base as a proportion of each county’s total asset valuation for property tax purposes was then computed to indicate its relative importance. The relationships range from a low of less than 1/100th of one percent to a high of four percent, with the exception of Plumas County where Pacific Gas and Electric Company hydroelectric assets represent nearly 15 percent of the county’s total assessed valuation base for property taxes.

As discussed above, under CEQA the economic or social effects of a project shall not be treated as a significant effect on the environment. CEQA defines a significant impact on the environment as a “substantial or potentially substantial, adverse change in the environment.” With no established threshold for determining the significance of physical impacts associated with projected economic impacts, there will likely be differing opinions as to whether the proposed project will result in a substantial adverse change in the environment. It is unclear what specific amount of tax revenue loss to individual counties would constitute a significant impact on the provision of essential public services and utilities.

In addition, Section 15145 of the CEQA Guidelines indicates that “If, after thorough investigation, a lead agency finds that a particular impact is too speculative for evaluation, the agency should note its conclusion and terminate discussion of the impact.”

It is impossible to accurately predict at this time whether higher or lower property tax revenues will result from the project, and which, if any, local public services and utilities will experience any adverse or beneficial impacts as a result of transfer of the ownership of hydroelectric facilities. Each county is unique, and its fiscal decisions reflect the priorities of locally elected officials. During the recession of the early 1990s, for example, other cuts were made in county budgets before essential public services such as water, wastewater, police and fire were reduced. Given the information currently available, it is not possible to determine when a reduction in property tax revenue to individual counties as described in this analysis would be sufficient to cause a reduction in public services. Since this impact is too speculative for evaluation, no conclusion on the level of significance of the loss can be made and this EIR will not further discuss this issue.

The assessment of potential recreation-related impacts on the local economy focused on changes in activity anticipated at key areas, including reservoirs, rivers, and watershed lands. The evaluation considered potential reductions in the delivery of public services as a result of tax revenue losses stemming from displacement or closure of recreation-serving businesses.

In evaluating potential impacts on the delivery of public services, several factors were considered. First, the relative importance of sales tax and lodging taxes generated by recreation activity at key affected areas was evaluated. Second, potential changes in sales tax and lodging tax revenues caused by the Project were identified. Lastly, the way in which local funding of public services could be affected by Project changes was evaluated. Most communities near the affected key recreation areas are unincorporated and distribution of sales tax and lodging tax revenues to these communities is determined at the county level.

Based on these considerations, no evidence suggests that potential changes in visitor-generated tax revenues would affect the local delivery of public services in any of the watersheds. Potential changes in sales tax and lodging tax revenues were found to be small (less than 1/10th of one percent) relative to total countywide tax revenues and thereby unlikely to affect service levels in potentially affected communities. Consequently, this issue is not discussed further in the impact assessment.

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4.11C.7 INTRODUCTION TO IMPACTS AND MITIGATION MEASURES

For Other Public Services and Utilities, one impact has been identified:

- Impact 11-5: Implementation of the project could result in substantial adverse impacts on local public services and utilities providers. Where impacts are significant, mitigation measures are recommended at the conclusion of the analysis of the impact (Significant).

4.11C.8 IMPACT 11-5: IMPACT, ANALYSIS, AND MITIGATION MEASURES

Impact 11-5: Implementation of the project could result in substantial adverse impacts on local public services and utilities providers.

4.11C.8.1 Impact 11-5: Entire Shasta Regional Bundle

A total of approximately 43,636 acres of Watershed Lands are proposed for transfer to a new owner(s) within the Shasta Regional Bundle. The land use intensification assumptions for the Shasta Regional Bundle (see Section 4.1, Land Use) suggest that substantial development could occur in all Land Areas (see Table 4.11-23). Based on the land use intensification analysis, the Shasta Regional Bundle could support the development of approximately 3,036 additional units. Assuming for the purposes of this analysis that one equivalent development unit equates to one residential dwelling unit, the development of watershed lands would result in a population increase of 7,686 people.

Table 4.11-23 Development Potential in the Shasta Regional Bundle

Land Area	Total Land Acreage	Potential Development (in EDUs)	County ^a	Population
Bundle 1: Hat Creek				
Hat Creek	2,969	594 units	Shasta	1,485
Bundle 2: Pit River				
Pit 1	3,568	714 units	Shasta	1,785
McArthur Swamp	6,135	17 units	Shasta	43
Pit 3	3,681	736 units	Shasta	1,840
Lake Britton	2,636	264 units	Shasta	660
McCloud, Black, Pit	15,162	95 units	Shasta	238
Bundle 3: Kilarc-Cow Creek				
Kilarc-Cow Creek	2,603	20 units	Shasta	50
Bundle 4: Battle Creek				
Shingletown	5,528	558 units	Shasta	1,395
Inskip (Tehama County)	1,354	38 units	Tehama	95
TOTAL DEVELOPMENT	43,636	3,036 units		7,686

a. The 1999 Department of Finance Population Per Household for Shasta County is 2.46 (2.5), Tehama County 2.5.

Development of approximately 3,036 units in the Shasta Regional Bundle could result in an increased demand for additional public services and utilities including: wastewater disposal, stormwater drainage facilities, solid waste disposal, fire and police protection, and school facilities.

Sanitary Sewer/Wastewater

The Shasta Regional Bundle Land Areas are characterized as rural homesites in the Shasta County General Plan. Typically, wastewater treatment in rural homesite areas is provided by individual septic tanks. The Shasta County General Plan and Zoning Code requires proposed development in unincorporated areas to conduct a land capability analysis prior to assigning minimum parcel sizes to determine if parcels are able to accommodate an onsite wastewater treatment system. Although it is anticipated that the potential land development in the Shasta Region would require the construction of new on-site, self-contained wastewater treatment facilities or would rely on individual or community systems, the project would not require the extension of an existing facility. Therefore, impacts to existing wastewater treatment facilities are considered *less than significant*.

Stormwater

Currently, there are no stormwater facilities, including surface or subsurface drainage facilities, identified within or in the vicinity of the Shasta Regional Bundle Land Areas. It is anticipated that future development would use natural and/or new on-site, self-contained drainage systems constructed as part of a development project for stormwater runoff. The Shasta County General Plan requires that impacts of new development on other downstream areas due to increased runoff from that development shall be mitigated. The General Plan further states that in the case of town centers, the County may require development to pay fees which would be used to make improvements on downstream drainage facilities in order to mitigate the impacts of upstream development. Because future development would not require the expansion of existing stormwater facilities impacts would be *less than significant*.

Solid Waste

Solid waste services in the Shasta Regional Bundle are provided by the Burney Disposal Inc. and Anderson-Cottonwood Disposal. Solid waste is generated at a rate of approximately 2.4 tons per person per year (California Department of Finance, 2000). Based upon average waste generation factors, land development would generate approximately 18,450 tons of solid waste per year. The increase in land development would cause an incremental increase in the need for solid waste collection and disposal within the Land Areas. The service providers listed above would be able to accommodate the solid waste service demands of future land development or individual landowners would be responsible for disposing of waste at designated sites. (Tom Ghiorso, Burney Disposal, September 2000.) Because future development would not require expansion of existing solid waste disposal facilities, this impact would be *less than significant*.

Fire Protection

Table 4.11-4 identifies the fire protection service providers that would serve each of the Land Areas. Potential development in all Land Areas is considered substantial, and some service providers have

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indicated that the assumed level of development in these areas could result in the need for additional staff and construction of new or altered facilities. However, the Shasta County General Plan identifies Policy FS-e, which states that development in areas requiring additional levels of fire protection services shall participate in offsetting costs for those services. Because future development would be required to pay for or provide any additional fire protection services, fire protection impacts would be considered *less than significant*.

Police Protection

Table 4.11-4 identifies the police protection service providers that would serve each of the Land Areas. Potential development in all Land Areas is considered substantial and some service providers have indicated that the assumed level of development in these areas could result in the need for additional staff (Liz South, Shasta County Sheriff, personal communication, August 2000) and construction of new or altered facilities. However, Shasta County General Plan Policy FS-e provides a mechanism to offset the potential impact that new development could have on police protection services. Specifically, the policy states that development in areas requiring additional levels of police protection services shall participate in offsetting costs for those services. Because future development would be required to pay for or provide any additional police protection services, impacts are considered *less than significant*.

Schools

Table 4.11-4 identifies the school districts that would serve each of the Land Areas. The existing school facilities would accommodate the potential increase in students from new development. (Beverly (declined to give last name), Fall River Joint Unified, August 2000; Kathleen Penliand, Indian Springs Elementary, August 2000; Sue McNab, Mountain Union Elementary, August 2000; Rich Rhodes, Black Butte School District, August 2000; Ron Hind, Red Bluff Union High School, September 2000.) Potential land development would not result in the need for the construction of new or altered school facilities; therefore, impacts are considered *less than significant*.

Parks

It is anticipated that increased land development would also result in an incremental increased demand for developed community recreational facilities. Furthermore, the Shasta County General Plan acknowledges that in the unincorporated rural community centers of the county, currently a substantial portion of the recreation needs of residents is not being met. Shasta and Tehama Counties do not have mechanisms in place to require the dedication of parklands or the payment of in-lieu fees for new development in areas in the county designated as Rural Community Centers, Town Centers and rural homesite areas. Therefore, the increase in land development within the Shasta Regional Bundle would result in a *significant* impact to community recreation facilities.

4.11C.8.2 Impact 11-5: Entire DeSabra Regional Bundle

A total of approximately 18,039 acres of Watershed Lands are proposed for transfer to a new owner(s) within the DeSabra Regional Bundle. The land use intensification assumptions for the DeSabra Regional Bundle suggest that substantial development could occur in all Land Areas (see Table 4.11-24). Based on the land use intensification analysis, the DeSabra Regional Bundle could support the development of approximately 2,099 additional units. Assuming for the purposes of this analysis that one equivalent development unit equates to one residential dwelling unit, the development of watershed lands would result in a population increase of 4,718 people.

Table 4.11-24 Development Potential in the DeSabra Regional Bundle

Land Area	Total Acreage	Potential Development	County	Population ^a
Bundle 5: Hamilton Branch				
Mt. Meadows	1,912	19	Lassen	49
Hamilton Branch	239	16	Plumas	35
Bundle 6: Upper North Fork Feather River				
North Lake Almanor	866	87	Plumas	191
West Lake Almanor/Prattville	276	276	Plumas	607
Southeast Lake Almanor	1,230	615	Plumas	1,353
Butt Valley Reservoir	920	92	Plumas	202
Caribou to Belden	370	16	Plumas	35
Humbug Valley	2,402	240	Plumas	528
Rock Creek-Cresta	1,175	19	Plumas	42
Poe	3,823	31	Butte	74
Bundle 7: Bucks Creek				
Bucks Creek/Bucks Lakes	1,222	244	Butte	537
Bundle 8: Butte Creek				
DeSabra-Centerville	2,471	66	Butte	158
Coal Canyon	1,133	378	Butte	907
TOTAL DEVELOPMENT	18,039	2,099		4,718

a. The 1999 Department of Finance Population Per Household for Lassen County 2.611 (2.6), Plumas County 2.17 (2.2), Butte County 2.418 (2.4).

Development of approximately 2,099 units in the Land Areas in the DeSabra Regional Bundle could result in an increased demand for additional public services and utilities including: wastewater disposal, stormwater drainage facilities, solid waste disposal, fire and police protection, and school facilities.

Sanitary Sewer/Wastewater

With the exception of the Coal Canyon Land Area, there are wastewater treatment facilities within the vicinity of the DeSabra Regional Bundle Land Areas.

Typically wastewater treatment in rural areas is provided by individual onsite septic systems. It is anticipated that the potential development in the DeSabra Regional Bundle Land Areas would require the construction of onsite systems, a new community wastewater treatment facility, or a combination

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thereof. Because a majority of the potential land development would not require the extension of an existing facility, impacts to wastewater treatment facilities are considered *less than significant*.

The Coal Canyon Land Area lies north of, and immediately adjacent to, the City of Oroville. The City provides wastewater collection services to incorporated areas south of the Feather River through an agreement with the Sewerage Commission Oroville Region (SCOR). Although the Coal Canyon Land Area is located outside of the City's boundaries, wastewater treatment service to this area is feasible given the Land Area's proximity to the City. SCOR has indicated that it has capacity to serve more than 9,000 additional dwelling units, which is allotted on a first-come, first-served basis. (City of Oroville, 1995.) Therefore, impacts to wastewater treatment facilities would be *less than significant*.

Stormwater

Currently there are no stormwater facilities, including surface or subsurface drainage facilities, identified within or in the vicinity of the DeSabra Regional Bundle Land Areas. It is anticipated that future development would utilize natural and/or new on-site, self-contained drainage systems constructed as part of a development project for stormwater runoff. Because future development would not require the expansion of existing stormwater facilities, impacts would be *less than significant*.

Solid Waste

Solid waste services in the DeSabra Regional Bundle are provided by Feather River Disposal Service, Butte County Disposal Service, Paradise Solid Waste, and North Valley Disposal. Solid waste is generated at a rate of approximately 2.4 tons per person per year. (California Department of Finance, 2000.) Based upon average waste generation factors, land development would generate approximately 11,320 tons of solid waste per year. The increase in land development would cause an incremental increase in the need for solid waste collection and disposal within the Land Areas. The above-listed disposal companies have indicated that they would be able to accommodate the solid waste service demands of future land development. (NorCal Waste Systems, 2000 and Paradise Solid Waste, 2000.) Therefore, impacts to solid waste are *less than significant*.

Fire Protection

Table 4.11-8 identifies the fire protection service providers that would serve each of the Land Areas. Potential development in all Land Areas is considered substantial, and some service providers have indicated that the assumed level of new development could result in the need for new or additional fire protection services, i.e., additional volunteers and equipment, in order to maintain fire protection performance objectives. The Plumas County General Plan directs that development in areas requiring additional levels of fire protection services shall participate in offsetting costs for those additional services. Because future development in Plumas County would be required to pay or provide for any additional fire protection services, impacts are considered *less than significant*.

Butte County Fire Department fire protection services are provided by CDF through an annual contract with the county. The Butte County Department of Public Works reviews proposed developments for compliance with design standards and regulates street construction to provide for safe circulation. In addition, subdivisions, land divisions, and use permits are subject to review and approval by the County Fire Department for conformance to fire safety standards. Future development in Butte County would be required to pay or provide for any additional fire protection services; therefore, impacts are considered *less than significant*.

Police Protection

Table 4.11-8 identifies the police protection service providers that would serve each of the Land Areas. Potential development in all land areas is considered substantial, and some service providers have indicated that the assumed level of new development could result in the need for additional staff and possibly construction of new or altered facilities; therefore, police protection impacts would be considered *significant*.

Schools

Table 4.11-8 identifies the school districts that would serve each of the Land Areas. Currently the Oroville Union High School District, Oroville Elementary School District, and Paradise Unified School District are at capacity and would not be able to accommodate additional students generated by new development. These school districts would serve Poe, DeSabra-Centerville, and Coal Canyon Land Areas. Land development in these areas would result in the need for the construction of new or altered school facilities; therefore, impacts are considered *significant*.

Parks

Community recreation needs within the unincorporated rural areas are generally provided by schools and service organizations, that play a major role in meeting most, if not all, the needs of rural community residents for developed recreation facilities. It is anticipated that increased land development would also result in an incremental increased demand on developed community recreational facilities. The increase in land development within the DeSabra Regional Bundle would result in a *significant* impact to community recreation facilities.

4.11C.8.3 Impact 11-5: Entire Drum Regional Bundle

A total of approximately 22,440 acres of Watershed Lands are proposed for transfer to a new owner(s) within the Drum Regional Bundle. The land use intensification assumptions for the Drum Regional Bundle (see Section 4.1, Land Use) suggest that substantial development could occur in all Land Areas except Narrows, Lake Sterling/White Rock Lake, Rock Lake/Lindsey Lakes, Folsom Lake, and American River-Chili Bar (see Table 4.11-25). Based upon the land use intensification analysis, the Drum Regional Bundle could support the development of approximately 4,071 units. Assuming for the purposes of this analysis that one equivalent development unit equates to one residential dwelling unit, the development of watershed lands would result in a population increase of 10,642 people.

Table 4.11-25 Development Potential in the Drum Regional Bundle

Land Area	Total Land Acreage	Potential Development (in EDUs)	County ^a	Population Projection Based on Current County Population per Household
Bundle 9: North Yuba River				
Narrows	64	3 units	Nevada	8
Bundle 10: Potter Valley				
Potter Valley	2,057	13 units	Mendocino	34
Lake Pillsbury	3,765	188 units	Lake	451
Bundle 11: South Yuba River				
Kidd Lake/Cascade Lake	192	38 units	Placer	103
Lake Sterling/White Rock Lake	1,167	7 units	Nevada	18
Rock Lake/Lindsley Lakes	763	5 units	Nevada	13
Lake Valley Reservoir	1,645	329 units	Placer	888
Lake Spaulding/Drum Penstock	9,585	2,396 units	Placer/Nevada	6,230
Dutch Flat-Bear River	517	517 units	Placer/Nevada	1,344
Rollins Reservoir	12	12 units	Placer	32
Halsey Forebay/Lake Arthur	357	357 units	Placer	964
Rock Creek Lake	198	198 units	Placer	535
Folsom Lake	4	4 units	Placer	11
Bundle 12: Chili Bar				
American River-Chili Bar	4	4 units	El Dorado	1
TOTAL DEVELOPMENT	22,440	4,071 units		10,642

a. The 1999 Department of Finance Population Per Household for Nevada County is 2.5, Mendocino County is 2.6, Lake County is 2.44, Placer County is 2.7, and El Dorado County is 2.7.

Development of approximately 4,071 units in the Drum Regional Bundle could result in increased demand for additional public services and utilities including: water treatment, wastewater disposal, stormwater drainage facilities, solid waste disposal, fire and police protection, and school facilities. The potential increase in land development in the Narrows, Lake Sterling/White Rock Lake, Rock Lake/Lindsey Lakes, Folsom Lake, and American River-Chili Bar Land Areas (a total of 23 units) are not anticipated to result in an increase in demand for public services and utilities that would result in the expansion of existing facilities or services.

Therefore, public services and utility demand impacts for these six Land Areas are considered *less than significant*.

Impacts to other Land Areas within the Drum Regional Bundle are discussed below.

Sanitary Sewer/Wastewater

Table 4.11-12 identifies the sewer/wastewater service providers that would serve each of the Land Areas in the Drum Regional Bundle. Currently, service is provided primarily in the form of holding tanks, leach fields, and septic systems. It is anticipated that residents of future development would make use of septic systems, or that developers would construct on-site, self-contained wastewater systems as part of a development project. Because future development would not require the expansion of existing wastewater facilities, impacts would be *less than significant*.

Stormwater

Table 4.11-12 identifies the stormwater service providers that would serve each of the Land Areas in the Drum Regional Bundle. Portions of the land areas do not currently contain stormwater service. It is anticipated that future development would utilize natural and/or new on-site, self-contained drainage systems constructed as part of a development project for stormwater runoff. Because future development would not require the expansion of existing stormwater facilities, impacts would be *less than significant*.

Solid Waste

Solid waste services in the Drum Regional Bundle are provided by Pacific Gas and Electric Company as well as other private companies such as Timberline Waste Management Services (for hauling of fish screen waste to County landfill), Auburn Placer Disposal Service, and Tahoe Truckee Disposal Service. Solid waste is generated at a rate of approximately 2.4 tons per person per year. (California Department of Finance, 2000.) Based upon average waste generation factors, land development would generate approximately 25,540 tons of solid waste per year. The service providers listed above would be able to accommodate the solid waste service demands of future land development or individual landowners would be responsible for disposing of waste at designated sites. Because future development would not require expansion of existing solid waste disposal facilities, this impact would be *less than significant*.

Fire Protection

Table 4.11-12 identifies the fire protection service providers that would serve each of the Land Areas. The CDF has indicated that it would not be able to serve assumed development for the Lake Valley Reservoir and Rollins Reservoir Land Areas without additional staff and/or construction of new or altered facilities. Therefore, fire protection impacts for these Land Areas would be considered *significant*.

Police Protection

Table 4.11-12 identifies the police protection service providers that would serve each of the Land Areas. Some service providers have indicated that existing facilities and personnel would not be adequate to serve assumed development for the Land Areas with substantial development potential.

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Land development in these Land Areas result in the need for additional staff or construction of new or altered facilities; therefore, police protection impacts would be considered *significant*.

Schools

Table 4.11-12 identifies the school districts that would serve each of the Land Areas. Currently all School Districts in Placer County that serve Land Areas with substantial development potential are at capacity (Placer County Office of Education, 2000) and would not be able to accommodate additional students generated by new development. These school districts would collectively serve the Lake Valley Reservoir, Rollins Reservoir, Halsey Forebay/Lake Arthur, and Rock Creek Lake Land Areas, and portions of the Lake Spaulding/Drum Penstock Forebay and Dutch Flat-Bear River Land Areas. Land development in these Land Areas would result in the need for construction of new or altered school facilities; therefore, impacts on schools for these Land Areas would be considered *significant*.

Parks

Community recreational facilities are provided by various public and private entities throughout the Regional Bundle. It is anticipated that additional land development could result in an incremental increase in demand on developed community recreational facilities. The increase in land development within the Drum Regional Bundle would result in a *significant* impact to community recreation facilities.

4.11C.8.4 Impact 11-5: Entire Motherlode Regional Bundle

A total of approximately 7,817 acres of Watershed Lands are proposed for transfer to a new owner(s) within the Motherlode Regional Bundle. The land use intensification assumptions for the Motherlode Regional Bundle (see Section 4.1, Land Use) suggest that substantial development could occur in the Electra Tunnel and Merced Falls Land Areas (see Table 4.11-26). Based upon the land use intensification analysis, the Motherlode Regional Bundle could support the development of approximately 319 units. Assuming for the purposes of this analysis that one equivalent development unit equates to one residential dwelling unit, the development of watershed lands would result in a population increase of approximately 846 people.

Table 4.11-26 Development Potential in the Motherlode Regional Bundle

Land Area	Total Land Acreage	Potential Development (in EDUs)	County	Population Projection Based on Current County Population per Household ^a
Bundle 13: Mokelumne River				
Tiger Creek	1,752	11 units	Amador/Calaveras	30
Electra Tunnel	752	5 units	Amador/Calaveras	14
Lake Tabaud	752	150 units	Amador/Calaveras	405
Lower Bear River Reservoir	1,506	38 units	Amador	106
Upper and Lower Blue Lake	1,338	67 units	Alpine	161

Table 4.11-26 Development Potential in the Motherlode Regional Bundle

Land Area	Total Land Acreage	Potential Development (in EDUs)	County	Population Projection Based on Current County Population per Household ^a
Bundle 14: Stanislaus River				
Stanislaus River	1,362	37 units	Tuolumne	100
Lyons Reservoir	347	10 units	Tuolumne	27
Bundle 15: Merced River				
Merced Falls	8	1 unit	Mariposa/Merced	3
TOTAL DEVELOPMENT	7,817	319 units		846

a. The 1999 Department of Finance Population Per Household for Amador County is 2.8, Calaveras County is 2.5, Alpine County is 2.4, Tuolumne County is 2.7, Mariposa County is 2.5, and Merced County is 3.2.

Development of approximately 319 units in the Motherlode Regional Bundle could result in increased demand for additional public services and utilities including: water treatment, wastewater disposal, stormwater drainage facilities, solid waste disposal, fire and police protection, and school facilities. The potential increase in land development in the Electra Tunnel and Merced Falls Land Areas (a total of 6 units) is not anticipated to result in an increase in demand for public services and utilities that would result in the expansion of existing facilities or services.

Therefore, public services and utility demand impacts for these two Land Areas are considered *less than significant*.

Impacts to other Land Areas within the Motherlode Regional Bundle are discussed below.

Sanitary Sewer/Wastewater

Pacific Gas and Electric Company currently provides on-site septic systems at various campsites within the Motherlode Regional Bundle Land Areas. Other Land Areas do not currently contain wastewater service. It is anticipated that residents of future development would make use of septic systems, or that developers would construct on-site, self-contained wastewater systems as part of a development project. Because future development would not require the expansion of existing wastewater facilities, impacts would be *less than significant*.

Stormwater

Table 4.11-16 identifies the stormwater service providers that would serve each of the Land Areas in the Motherlode Regional Bundle. Portions of the Land Areas do not currently contain stormwater service. It is anticipated that future development would utilize natural and/or new on-site, self-contained drainage systems constructed as part of a development project for stormwater runoff. Because future development would not require the expansion of existing stormwater facilities, impacts would be *less than significant*.

Solid Waste

Solid waste services in the Motherlode Regional Bundle are provided by various private haulers. Solid waste is generated at a rate of approximately 2.4 tons per person per year. (California Department of Finance, 2000.) Based upon average waste generation factors, land development would generate approximately 2,030 tons of solid waste per year. The service providers listed above would be able to accommodate the solid waste service demands of future land development or individual landowners would be responsible for disposing of waste at designated sites. Because future development would not require expansion of existing solid waste disposal facilities, this impact would be *less than significant*.

Fire Protection

Table 4.11-16 identifies the fire protection service providers that would serve each of the Land Areas. The Amador Fire Protection District has indicated that it would not be able to serve assumed development for the Tiger Creek, Lake Tabaud, and Lower Bear River Land Areas without additional staff and/or construction of new or altered facilities. Therefore, fire protection impacts for these Land Areas would be considered *significant*.

Police Protection

Table 4.11-16 identifies the police protection service providers that would serve each of the Land Areas. The existing providers have indicated that they could accommodate the potential development. Land development in the Motherlode Regional Bundle would not result in the need for additional staff or construction of new or altered facilities; therefore, police protection impacts for the Regional Bundle would be considered *less than significant*.

Schools

Table 4.11-16 identifies the school districts that would serve each of the Land Areas. Currently the Columbia School District and the Sonora Unified School District are at capacity and would not be able to accommodate additional students generated by new development. These school districts currently serve the Stanislaus River and Lyons Reservoir Land Areas. Land development in these Land Areas would result in the need for construction of new or altered school facilities; therefore, impacts on schools for the Stanislaus River and Lyons Reservoir Land Areas would be considered *significant*.

Parks

Community recreational facilities are provided by various public and private entities throughout the Regional Bundle. It is anticipated that additional land development could result in an incremental increase in demand on developed community recreational facilities. The increase in land development within the Motherlode Regional Bundle would result in a *significant* impact to community recreation facilities.

4.11C.8.5 Impact 11-5: Entire Kings Crane-Helms Regional Bundle

A total of approximately 2,784 acres of Watershed Lands are proposed for transfer to a new owner(s) within the Kings Crane-Helms Regional Bundle. The land use intensification assumptions for the Kings Crane-Helms Regional Bundle (see Section 4.1, Land Use) suggest that substantial development could occur in all Land Areas except A.J. Wishon Power House, Auberry Service Center, and Keller Ranch (see Table 4.11-27). Based on the land use intensification analysis, the Kings Crane-Helms Regional Bundle could support the development of approximately 701 additional units. Assuming for the purposes of this analysis that one equivalent development unit equates to one residential dwelling unit, the development of watershed lands would result in a population increase of 2,149 people.

Table 4.11-27 Development Potential in the Kings Crane-Helms Regional Bundle

Land Area	Total Land Acreage	Potential Development (in EDUs)	County ^a	Population Projection Based on Current County Population per Household ^a
Bundle 16: Crane Valley				
Bass Lake	208	104 units	Madera	312
Manzanita Lake (San Joaquin PH#3)	492	246 units	Madera	738
San Joaquin PH#2	243	24 units	Madera	72
A.J. Wishon Power House	61	6 units	Madera	18
Bundle 17: Kerckhoff				
Kerckhoff Reservoir	182	91 units	Madera/Fresno	282
Auberry Service Center	18	2 units	Madera/Fresno	6
Bundle 18: Kings River				
Wishon Reservoir	750	150 units	Fresno	480
Keller Ranch	121	3 units	Fresno	10
Bundle 19: Tule River				
Tule River	45	45 units	Tulare	144
Bundle 20: Kern Canyon				
Kern Canyon	664	30 units	Kern	87
TOTAL DEVELOPMENT	2,784	701 units		2,149

a. The 1999 Department of Finance Population Per Household for Madera County is 3.0 for Fresno County is 3.14; for Tulare County is 3.2, Kern County is 2.9.

Development of approximately 701 units in the Kings Crane-Helms Regional Bundle could result in increased demand for additional public services and utilities including: water treatment, wastewater disposal, stormwater drainage facilities, solid waste disposal, fire and police protection, and school facilities. The potential increase in land development in the A.J. Wishon Power House, Auberry Service Center, and Keller Ranch Land Areas (a total of 11 units) is not anticipated to result in an increase in demand for public services and utilities that would result in the expansion of existing facilities or services.

Therefore, public services and utility demand impacts for these three Land Areas are considered *less than significant*.

Impacts to other land areas within the Kings Crane-Helms Regional Bundle are discussed below.

Sanitary Sewer/Wastewater

Currently there are no wastewater facilities identified within or in the vicinity of the Kings Crane-Helms Regional Bundle Land Areas. It is anticipated that residents of future development would make use of septic systems, or that developers would construct on-site, self-contained wastewater systems as part of a development project. Because future development would not require the expansion of existing wastewater facilities, impacts would be *less than significant*.

Stormwater

Currently there are no stormwater facilities, including surface or subsurface drainage facilities, identified within or in the vicinity of the Kings Crane-Helms Regional Bundle Land Areas. It is anticipated that future development would utilize natural and/or new on-site, self-contained drainage systems constructed as part of a development project for stormwater runoff. Because future development would not require the expansion of existing stormwater facilities, impacts would be *less than significant*.

Solid Waste

Solid waste services in the Kings Crane-Helms Regional Bundle are provided by the Madera County Landfill, the Tulare County Landfill, and the American Avenue Landfill. Solid waste is generated at a rate of approximately 2.4 tons per person per year. (California Department of Finance, 2000.) Based upon average waste generation factors, land development would generate approximately 5,160 tons of solid waste per year. The increase in land development would cause an incremental increase in the need for solid waste collection and disposal within the Land Areas. The service providers listed above would be able to accommodate the solid waste service demands of future land development or individual landowners would be responsible for disposing of waste at designated sites. Because future development would not require expansion of existing solid waste disposal facilities, this impact would be *less than significant*.

Fire Protection

Table 4.11-19 identifies the fire protection service providers that would serve each of the Land Areas. The CDF has indicated that it would not be able to serve assumed development for the Bass Lake, Manzanita Lake, San Joaquin #2, Kerckhoff Reservoir, and Wishon Reservoir Land Areas; land development in these areas would result in the need for additional staff and construction of new or altered facilities. Therefore, fire protection impacts for the Bass Lake, Manzanita Lake, San Joaquin #2, Kerckhoff Reservoir, and Wishon Reservoir Land Areas would be considered *significant*.

Police Protection

Table 4.11-19 identifies the police protection service providers that would serve each of the Land Areas. Some service providers have indicated that existing facilities and personnel would not be adequate to serve assumed development for Land Areas with substantial development potential. Land development in these areas would result in the need for additional staff or construction of new or altered facilities; therefore, police protection impacts would be considered *significant*.

Schools

Table 4.11-19 identifies the school districts that would serve each of the Land Areas. Currently the Bass Lake Elementary School District, Sierra Unified School District, Pine Ridge Elementary School District, Springville Union School District and Elementary School, Bakersfield School District, and Kern High School District are at capacity and would not be able to accommodate additional students generated by new development. These school districts would collectively serve all of the Land Areas in the Kings Crane-Helms Regional Bundle. Land development in the Bass Lake, Manzanita Lake, San Joaquin #2, Kerckhoff Reservoir, Wishon Reservoir, Tule River, and Kern Canyon Land Areas would result in the need for construction of new or altered school facilities; therefore, impacts on schools for these Land Areas would be considered *significant*.

Parks

Community recreational facilities are provided by various public and private entities throughout the Regional Bundle. It is anticipated that additional land development could result in an incremental increase in demand on developed community recreational facilities. The increase in land development within the Kings Crane-Helms Regional Bundle would result in a *significant* impact to community recreation facilities.

4.11C.8.6 Evaluation of Impact 11-5 to Entire System

Fire Protection

The new owner would be required to comply with all applicable State regulations to maintain minimum clearances of vegetation from energized lines and equipment, while the Pacific Gas and Electric Company would retain overall responsibility for maintenance of the transmission and distribution system. The greatest potential for fire hazards associated with hydroelectric power operations are primarily due to operations associated with power transmission and distribution, rather than generation. The Pacific Gas and Electric Company's transmission and distribution system is not part of the proposed ownership transfer; the Pacific Gas and Electric Company would continue to own, operate and maintain the transmission and distribution system. Only certain distribution lines that provide control power for project facilities would be transferred. Under the FERC license, the new owner would be required to operate the control power lines in a safe manner.

During fire season, the Pacific Gas and Electric Company manages its field operations on forest lands according to the Fire Index as specified by the USFS and CDF. The Fire Index is designed to compare

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the relative effect of weather on fire behavior such as spread, intensity and ignition. The Fire Index designations vary between low, medium, high, very high and extreme. Based on these designations, the Pacific Gas and Electric Company alters its field activities during Very High and Extreme Fire Indexes, for example, by avoiding tree-falling, welding and blasting work, avoiding vehicle travel on un-cleared roads, and prohibiting its employees to smoke unless they are inside of a vehicle. These procedures are specified in the Pacific Gas and Electric Company's Standard Practice No. 245-2 titled Fire Precaution Procedures in Hazardous Fire Areas, and are part of a larger Pacific Gas and Electric Company fire prevention manual titled Fire and Risk Control Manual. If a new owner were to disregard implementing similar field operating practices as the Pacific Gas and Electric Company's for fire prevention during Very High and Extreme Fire Indexes, this could lead to a higher frequency of forestland fires and an increased need for fire suppression services. Considering the thousands of acres of forest land that could be damaged, the structures and improvements that could be lost and the potential for loss of life from fire, the increase in risk to public safety from fire hazards, and the potential increase in need for fire suppression services should operating practices change, is considered to be a *significant impact*.

It is expected that a new owner would have incentive to protect the land and timber assets over time with a similar inspection and management program as the Pacific Gas and Electric Company's. Fire prevention through voluntary fuel reduction programs, such as the development of co-op shaded fuel breaks and controlled burning, may actually be facilitated under new ownership where long-term commercial timber management and timber asset protection are the primary objectives of the landowner.

The new owner may also choose to accelerate timber harvesting for providing additional near-term income, which could likely result overall in a reduced level of catastrophic fire potential and dependency on fire suppression services. Timber harvesting therefore reduces fire potential by providing greater spacing between trees and eliminating heavy debris build-up. However, there is also evidence that historic timber harvest practices have increased fire risks due to poor management of slash piles and harvesting of large trees most resistant to ground fire (Witherspoon and Skinner, 1997). If the new owner chose to develop Project Lands with new structures, residences, or recreational facilities, this would likely be preceded by timber harvesting, but would result in some additional burden and dependency on local fire agencies. Fire suppression efforts are significantly complicated in forestland settings when structures, human life and personal property are at risk, and the emphasis moves to protecting and evacuating developments rather than applying the greatest fire suppression resources to the fire.

Although the law specified under Public Resources Code § 4291 exists and applies unless exempted as administered by California Division of Forestry, in practicality, it is not enforced thoroughly, because resources do not exist for enforcement. Developments that successfully implement the fire protection measures prescribed under Public Resources Code § 4291, generally do so now as a result of their own enforcement and/or adoption of Covenants, Conditions, and Restrictions (CC&R's).

Because of the remote nature of many of the project lands, it is considered unlikely that rapid residential development would occur, and instead the development in more remote areas would be expected to be more recreational, less widespread, and less dense in population and structures. However, even with lower densities of newly developed structures in forested lands, the risk of hazards and possible need for additional fire suppression services is a *significant* impact as a result of changes in land management practices.

Road Maintenance

Where USFS Road Use Agreements exist currently for maintaining project roads on USFS managed lands, under new ownership, project roads are expected to be managed similarly, and to the same standards of maintenance, by the USFS in cooperation with the new owners. However, for project roads where no USFS Agreements exist, the standards for maintenance are informal and non-binding, and could be diminished at the discretion of the new owners. Although the new owners would be required to comply with any terms of the FERC License applicable to road maintenance, the license conditions do not specify any standards for maintenance. The ability of the new owner to diminish the standards for road maintenance could indirectly degrade the quality of roads that are currently publicly accessible and not otherwise managed by the USFS, therefore diminishing opportunities for public use of those roads. For impacts associated with public access to roads on Project Lands, refer to Section 4.12, Transportation. This is a *significant* impact.

4.11C.8.7 Mitigation Measures

Mitigation Measures Proposed as Part of the Project

No mitigation measures are proposed as part of the project.

4.11C.8.8 Mitigation Measures Identified in This Report

Mitigation Measure 11-5a: Prior to approval of any development, the new owner or developer shall consult with the appropriate county planning agency, as well as with the appropriate utilities and/or service provider(s), to determine what measures must be implemented to ensure adequate service to the proposed development. Necessary measures shall be implemented. Such measures may include, but shall not be limited to, the following:

- Establishment of a Mello-Roos Community Facilities District (CFD);
- Provision of infrastructure integral to the project;
- Reduction or other modification to the project to reduce the projected demand to an acceptable level; or
- Payment of in-lieu fees.

If no provider for a particular utility or public service currently serves the potential project site, the developer shall secure a provider for those services prior to approval of the land development..

Mitigation Measure 11-5b: For land development in Bundles 5 through 12 and Bundles 16 through 20, new development shall be required to offset the costs associated with the addition of new police protection services, i.e., additional officers, and/or equipment.

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Mitigation Measure 11-5c: For the Poe Land Area (Bundle 6), the DeSabra-Centerville and Coal Canyon Land Areas (Bundle 8), the Lake Valley Reservoir, Rollins Reservoir, Halsey Forebay/Lake Arthur, and Rock Creek Land Areas (Bundle 11), and the Tiger Creek, Lake Tabeaud, and Lower Bear River Reservoir Land Areas (Bundle 13), and to the extent consistent with State law and local requirements, new development shall be required to offset the costs associated with the addition of new school facilities, e.g., additional staff and/or classrooms.

Mitigation Measure 11-5d: For Bundles 1, 2, 3, and 4 Land Areas located within the jurisdiction of Shasta County, new land development shall be required to dedicate parklands or the payment of in-lieu fees in accordance with Shasta County development standards. Per Shasta County General Plan Policy PF-e, dedication shall be required only if the lands and fees so obtained will be maintained and administered by a local public agency which provides community recreation services.

For Land Areas within Bundles 5 through 20, new land development shall be required to dedicate parklands or the payment of in-lieu fees. Dedication shall be required only if the lands and fees so obtained will be maintained and administered by a local public agency which provides community recreation services.

Mitigation Measure 11-5e: For the Lake Valley Reservoir and Rollins Reservoir Land Areas (Bundle 11), the Stanislaus River and Lyons Reservoir Land Areas (Bundle 14), the Bass Lake, Manzanita Lake, and San Joaquin #2 Land Areas (Bundle 16), the Kerckhoff Reservoir Lake Area (Bundle 17), and the Wishon Reservoir Land Area (Bundle 18), new development shall be required to offset the costs associated with the addition of new fire protection services, i.e., additional officers and/or equipment.

Mitigation Measure 11-5f: Prior to or concurrent with the transfer of title for any bundle, the new owner shall by binding written instrument agree to adopt and implement the Pacific Gas and Electric Company's Fire and Risk Control Manual, including Standard Practice No. 245-2, titled Fire Precaution Procedures in Hazardous Fire Areas, as its own standard operating protocol until such time as it develops its own similarly detailed Fire and Risk Control Manual and associated standard practices.

Mitigation Measure 11-5g: For publicly accessible project roads on any properties, not otherwise managed under agreement with the USFS or other Federal land management agency, the new owner shall maintain project roads to a minimum standard of USFS Maintenance Level III, and in accordance with USFS standard maintenance specifications as applicable.

Mitigation Measure 11-5h: The new owner of any facility or property shall comply with Public Resources Code Section 429 regarding fire protection and shall condition the development, sale, lease, or transfer of any property with a requirement to comply with this section of the Public Resources Code.

Alternate Mitigation Measure 11-5: As an alternative to Mitigation Measures 11-5a, prior to or concurrent with the transfer of title for any bundle, there shall be recorded against the lands within the bundle conservation easements running with the land and (in a form and substance approved by the CPUC) precluding any further land use development, or expansion of timber harvest or mineral extraction activities.

4.11C.8.9 Impact 11-5: Level of Significance After Mitigation

Implementation of Mitigation Measures 11-5a through 11-5h would reduce the impact to a less than significant level. Alternatively, the implementation of Mitigation Measures 11-5g and 11-5h and Alternate Mitigation Measure 11-5 would eliminate this impact altogether.

4.11D TELECOMMUNICATIONS

4.11D.1 INTRODUCTION

The Pacific Gas and Electric Company telecommunications transmission network is part of other networks developed by Pacific Gas and Electric Company to meet business and operating needs for its hydroelectric generating system. The other communications networks include voice communications, EMS, Supervisory Control and Data Acquisition (SCADA), a local and wide area network (LAN/WAN), Generation Realtime Information Process (GRIP), telemetry, alarms, and Independent System Operator (ISO) Revenue Metering.

Telecommunications systems are integral to the divestiture as they enable the power generator to communicate with the ISO to balance available electricity with demand, especially in the case of automated powerhouses, and with officials charged with public health and safety in the event of flood, earthquake or other natural disaster that may affect nearby populations. Such networks also support telephone service within the existing statewide system, radio contact with field personnel, and computerized communications. (See Figures 4.11-1 through 4.11-5 for diagrams of communications networks within each regional bundle, including the transmission links to local bundles.)

4.11D.2 SYSTEM-WIDE REGULATORY CONTEXT

4.11D.2.1 Federal Regulations and Policies

Telecommunications law and policy is a complex, rapidly changing area that involves Congress, the Federal Communications Commission (FCC) and State public utility commissions. The Telecommunications Act of 1996 fundamentally changed telecommunications regulation by removing barriers that protected monopolies from competition and by promoting efficient competition. The Act set minimum, uniform, national rules, and relies heavily on states to apply these rules and to exercise discretion in implementing a competitive regime. (FCC, 2000. First Report and Order, August 8, 1996.) Important features of the Act that are critical to understanding the regulations include:

- Interconnectivity provisions ensure the ability of users and information providers to seamlessly and transparently transmit and receive information between and across telecommunications networks.

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Source: Hydro IT Separation Assessment
Project: Rev. August 9, 2000

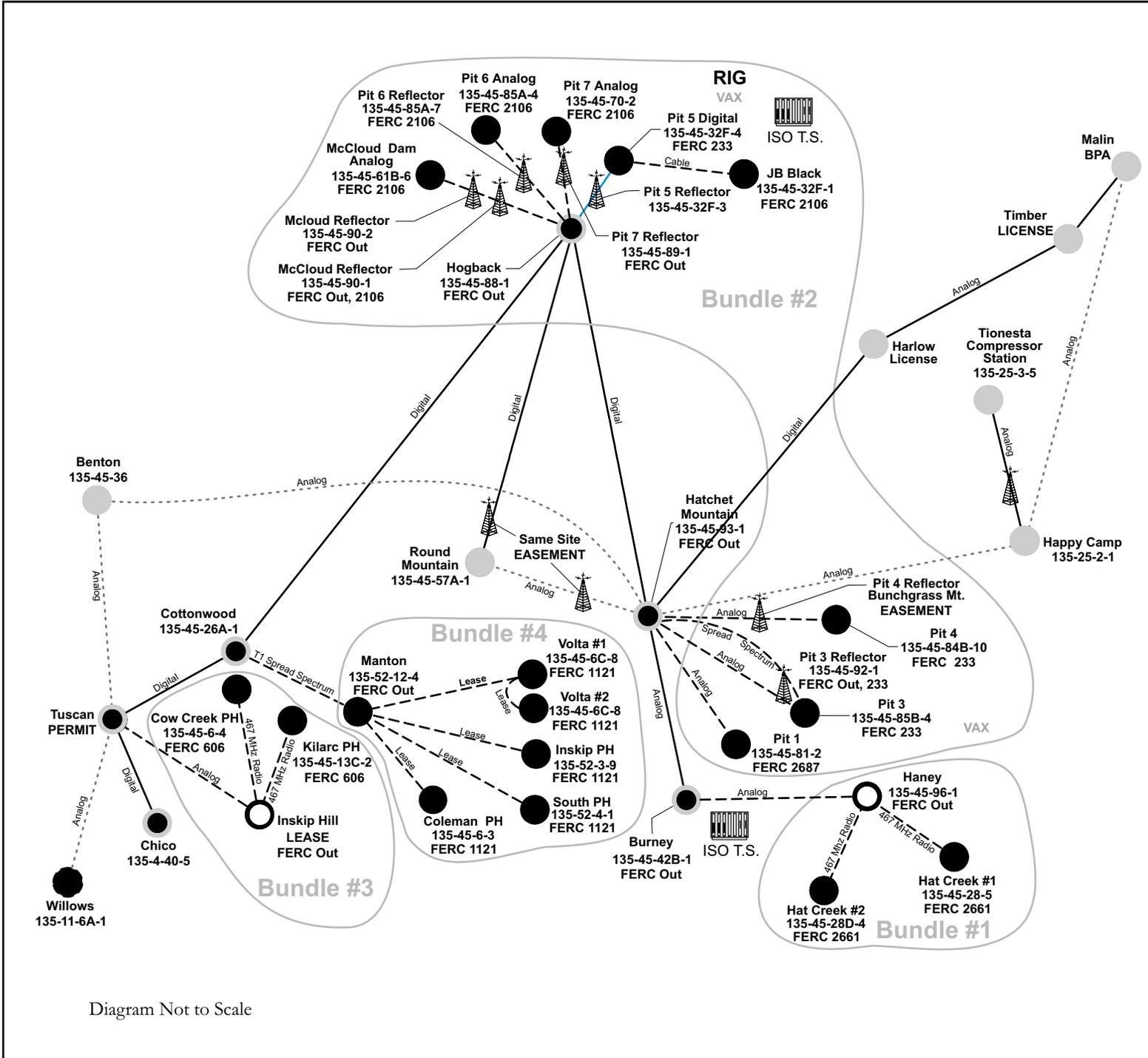


Diagram Not to Scale

- Reflector
- ISO Terminal Server
- RIG** Remote Intelligent Gateway
- VAX** SCADA Master Station
- xxxx-xxx-xxx-x SBE Parcel Number
- TCOM Site
 - Generator Asset
 - Utility Shares Facility
 - Utility Asset
 - Generator Shares Facility
- Transmission Link
 - Utility Owned
 - Hydro Owned
 - Canadian Owned

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Figure 4.11-1
Telecommunication
Network Diagram
Shasta Regional Bundle

Aspen Environmental Group

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Source: Hydro IT Separation Assessment
Project: Rev. August 9, 2000

-  Reflector
-  ISO Terminal Server
- RIG** Remote Intelligent Gateway
- VAX** SCADA Master Station
- xxxx-xx-xx-x SBE Parcel Number

- TCOM Site
 -  Generator Asset
 -  Utility Shares Facility
 -  Utility Asset
 -  Generator Shares Facility

- Transmission Link
 -  Utility Owned
 -  Hydro Owned

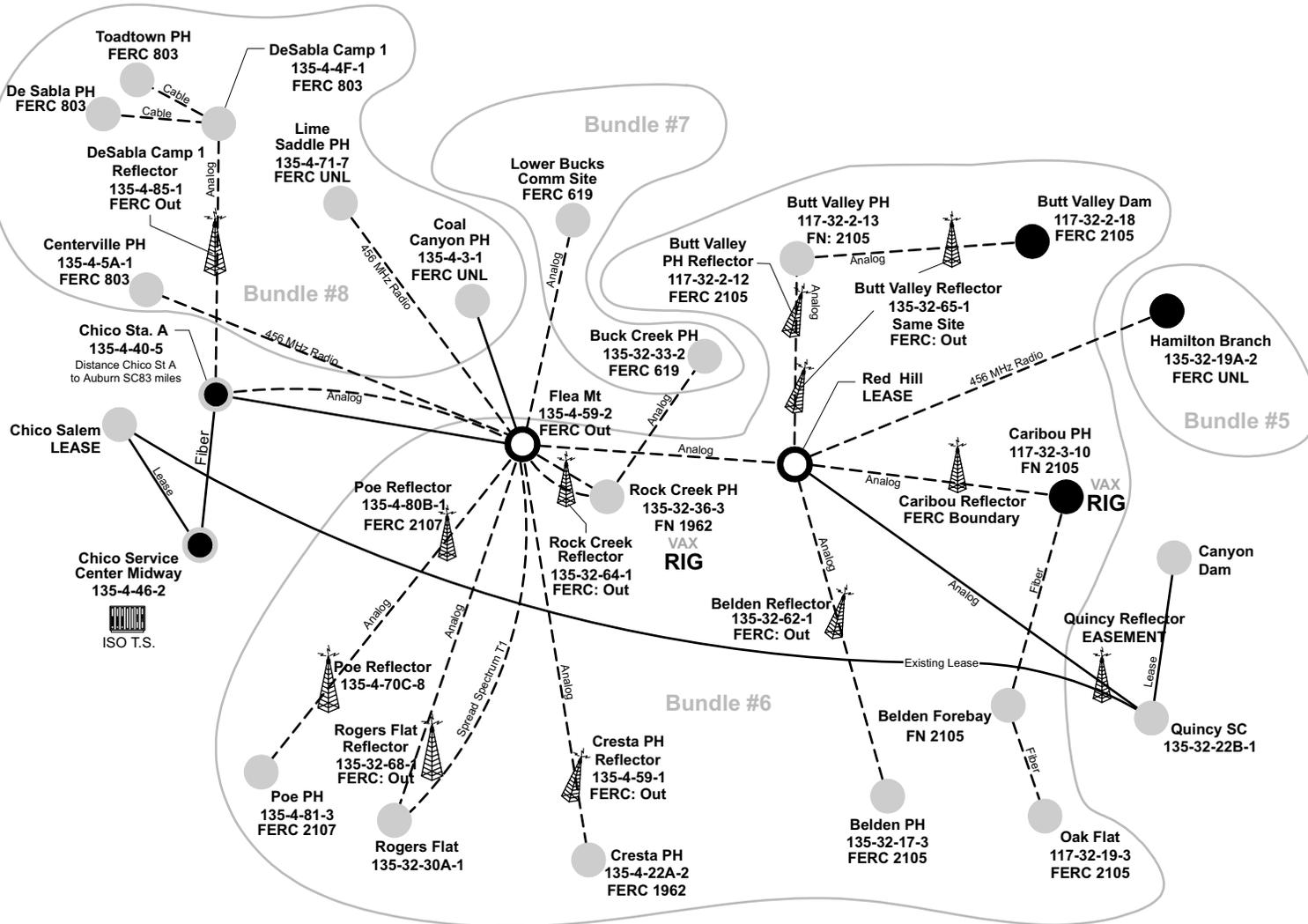


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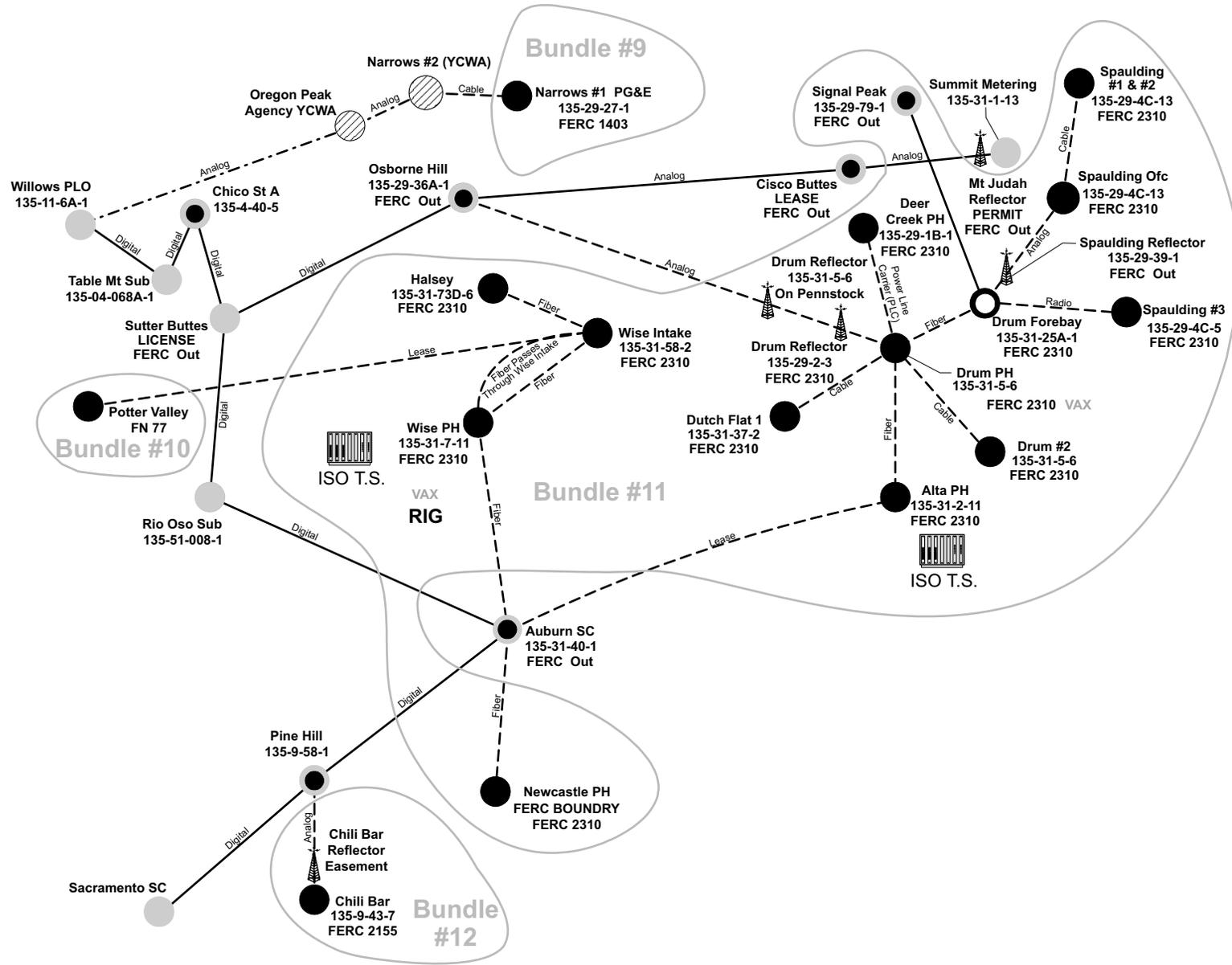
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Figure 4.11-2
Telecommunication
Network Diagram
De Sabla Regional Bundle

Aspen
Environmental Group

4.11 Public Services & Utilities

Source: Hydro IT Separation Assessment
Project: Rev. August 9, 2000



-  Reflector
-  ISO T.S.
- RIG** Remote Intelligent Gateway
- VAX** SCADA Master Station
- xxxx-xxx-xxx-x SBE Parcel Number
- TCOM Site
 -  Generator Asset
 -  Utility Shares Facility
 -  Utility Asset
 -  Generator Shares Facility
 -  Agency Site
- Transmission Link
 -  Utility Owned
 -  Hydro Owned
 -  Agency Owned

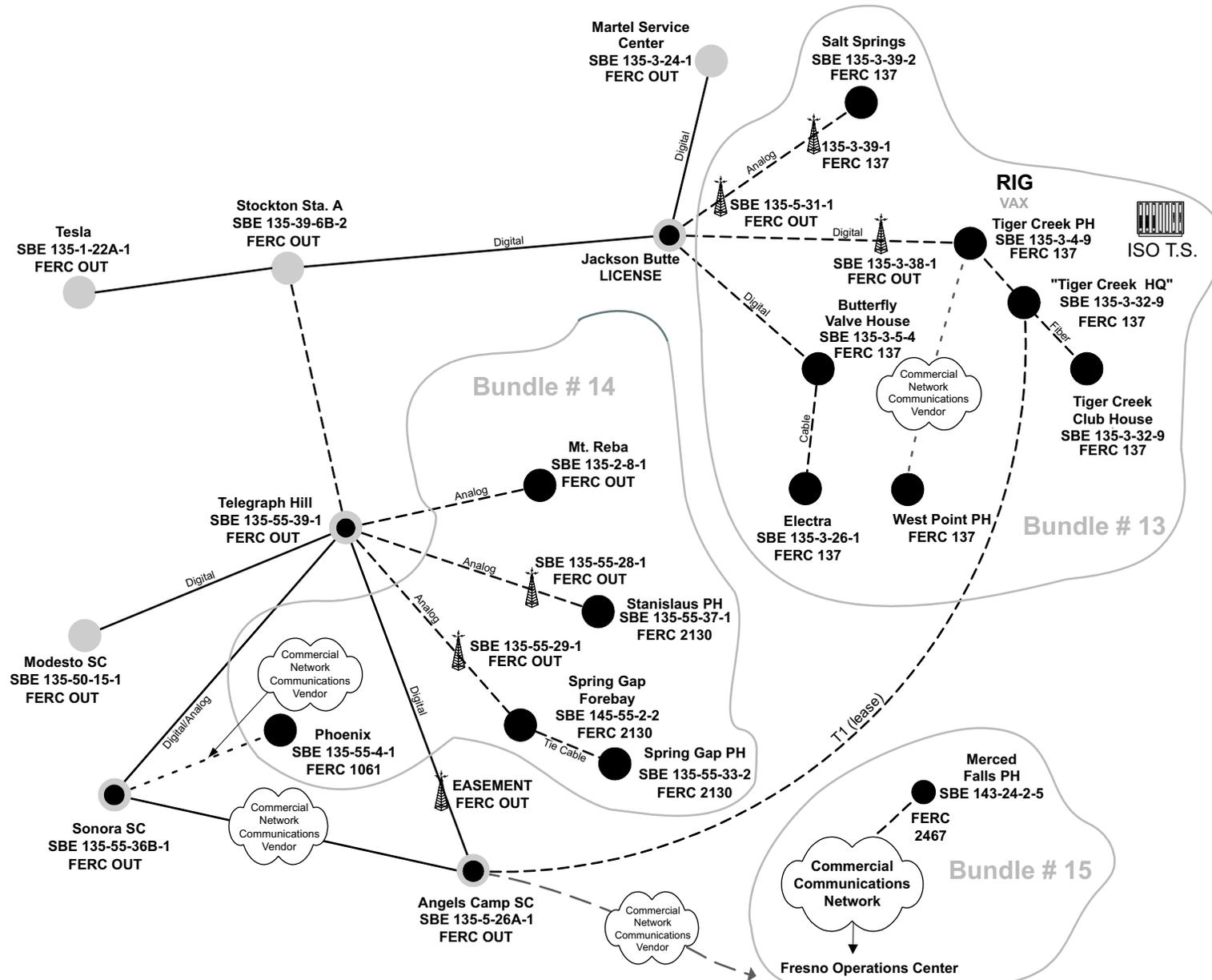
Diagram Not to Scale

Hydroinvestiture EIR

Figure 4.11-3
Telecommunication
Network Diagram
Drum Regional Bundle

Aspen
Environmental Group

Source: Hydro IT Separation Assessment
Project: Rev. August 9, 2000



- Reflector
- ISO Terminal Server
- RIG** Remote Intelligent Gateway
- VAX** SCADA Master Station
- Commercial Communications Network
- xxxx-xxxx SBE Parcel Number
- Connectivity to Other Watersheds
- TCOM Site**
- Generator Asset
- Utility Asset
- Generator Shares Facility
- Transmission Link**
- Utility Owned
- - - Hydro Owned

Diagram Not to Scale

Hydrodivestiture EIR

**Figure 4.11-4
Telecommunication
Network Diagram
Motherlode
Regional Bundle**

Aspen
Environmental Group

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Source: Hydro IT Separation Assessment
Project: Rev. August 9, 2000

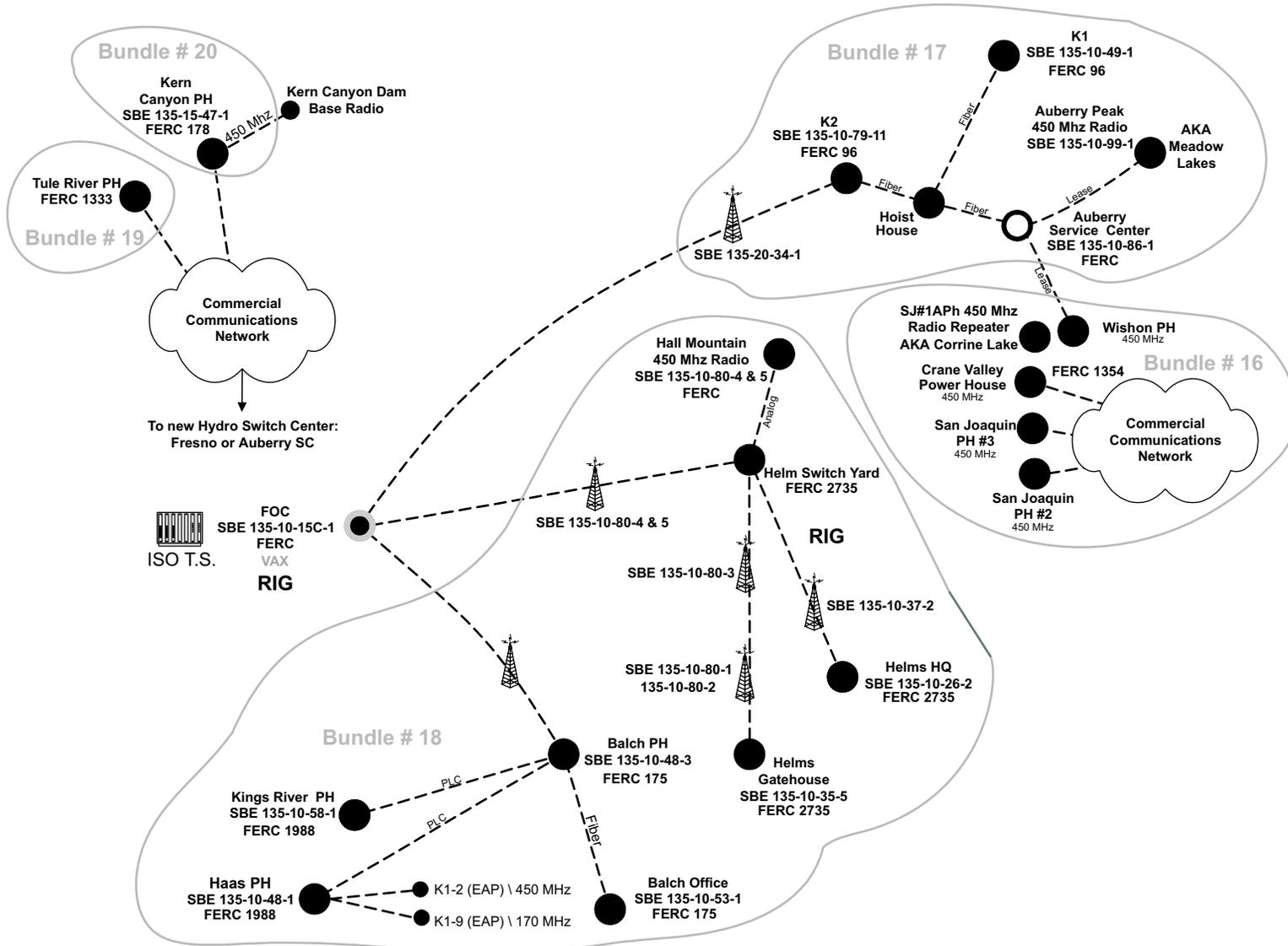


Diagram Not to Scale

- Reflector
- ISO Terminal Server
- RIG** Remote Intelligent Gateway
- VAX** SCADA Master Station
- xxxx-xx-xx-x SBE Parcel Number
- Commercial Communications Network
- TCOM Site**
 - Generator Asset
 - Utility Shares Facility
 - Utility Asset
 - Generator Shares Facility
- Transmission Link**
 - Utility Owned
 - Hydro Owned

Hydrodivestiture EIR

Figure 4.11-5
Telecommunication
Network Diagram
Kings Crane-Helms
Regional Bundle

Aspen
Environmental Group

- Rights-of-Way provisions require existing telecommunications carriers to afford access to the poles, ducts, conduits, and rights-of-way of such carrier to competing providers of telecommunications services on rates, terms, and conditions that are reasonable and non-discriminatory.
- Duty to Negotiate in Good Faith provisions require the telecommunication service provider to negotiate in good faith to fulfill its obligations to interconnect.

4.11D.2.2 State Regulations and Policies

The CPUC has jurisdiction over telecommunication companies "owning, controlling, operating, or managing any *telephone* line (or *telegraph* line) for compensation within this State" (Public Utilities Code Section 234). Since the transition from monopoly to competition began in the telecommunications industry, the CPUC has focused on developing and implementing policies and procedures to facilitate competition in all telecommunications markets, and to address regulatory changes required by State and Federal legislation. The PUC ensures:

- The provision of telecommunications networks where there is a large number of competing providers using a variety of technologies;
- Fair, affordable, universal access to necessary services, with special emphasis on preserving universal access;
- Developing clear rules of the game and regulatory tools to allow flexibility without compromising due process; and
- Removing barriers that prevent a fully competitive market; and reducing or eliminating burdensome regulation.

4.11D.3 SYSTEM-WIDE SETTING

The PG&E Telecommunications Transmission Network is comprised of interconnected point-to-point analog microwave, digital microwave, fiber-optic, and leased commercial services. The microwave systems carry up to 600 channels on each path and each channel can be used for voice or data circuits. These circuits are typically carried across multiple paths and systems to provide the end-to-connectivity required. For example, the connectivity required for the ISO to control Pit No. 5 Powerhouse consists of a circuit from the ISO in Folsom to Pacific Gas and Electric Company's San Francisco General Office (SFGO), where it connects to an Energy Management System (EMS) circuit (via microwave to Round Top, Clayton Hill, Vaca-Dixon Substation, Bald Mountain, Willows, Tuscan Butte, Benton Substation, Hatchet Mountain, Round Mountain Substation, Hogback) to the Pit No. 5 Powerhouse.

The circuits carried by the Telecommunications Transmission Network are used by other internal Pacific Gas and Electric Company networks as well.

4.11D.4 REGIONAL AND LOCAL SETTING AND REGULATORY CONTEXT

The FCC licenses the microwave transmitters at each end of a path. Each end has a unique license call sign, but multiple transmitters on the same site can be on the same call sign. Importantly, there is no

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one-to-one relationship between the FCC microwave licenses and the various telecommunication services. Upon divestiture, licenses for microwaves used primarily by the new owner will be transferred, e.g., Butt Valley Powerhouse to Butt Valley Dam would be transferred. However, the license at Red Hill will be modified to retain the Red Hill to Quincy path that would still be necessary for other Pacific Gas and Electric Company operations. A new license would be requested for the other microwaves under the new owner.

All generating units that connect to the power grid are metered by the ISO via the ISO Revenue Metering System. Generating plants with over 10 MW capacity are equipped with an EMS/SCADA Remote Terminal Unit (RTU) and connected to the EMS in SFGO and to a SCADA/ADACS Master Station at a Hydroelectric Switching Center. Nineteen of the largest plants are equipped with Automatic Generation Control (AGC) and can be controlled by the ISO.

The Butt Valley Powerhouse in the DeSabra region is the only powerhouse currently under consideration to be added to the list of powerhouses that the ISO has the capability to control.

Under the current integrated ownership, all of the hydroelectric generation facilities receive telecommunication services, including radio, telephone, a Wide Area Network (WAN) supervisory control and data acquisition (SCADA), Independent System Operator terminal servers (ISO TS), Generator Real-Time Information Program (GRIP), and Remote Intelligent Gateway System (RIGS).

As part of the project, Pacific Gas and Electric Company has proposed to unbundle its telecommunication system. For shared facilities, Pacific Gas and Electric Company is proposing to establish up to 140 contracts between Pacific Gas and Electric Company and adjacent generation owners.

4.11D.5 STANDARDS OF SIGNIFICANCE

For this analysis, a significant impact to telecommunications would result if the project creates a need for new or altered telecommunications service agreements to support effective communication among separate power generation facilities within and between regional bundles, between individual powerhouses and the ISO, and between powerhouses and public health and safety personnel.

4.11D.6 ANALYTICAL METHODS

The telecommunications analysis focuses on the potential fragmentation of Pacific Gas and Electric Company's telecommunication system including equipment and FERC licenses required to continue operation of the individual bundles. The analysis includes a review of applicable laws and regulations, Pacific Gas and Electric Company testimony, (Norm Sweeney, 2000), and the company's responses to information requests. Also, analyzed were proposed contractual agreements to share equipment that would be required either to continue Pacific Gas and Electric Company's non-hydroelectric operations and a specific bundle's operation, or to continue operation of two separate bundles.

Responses to data requests (PG&E Co., 2000) made of Pacific Gas and Electric Company, indicate that new owners of the separate bundles could easily develop separate telecommunication systems due to a regulatory environment that promotes competition. Additionally, there may be incentives for new owners to separate their telecommunication systems to lower costs, to control the reliability of system operation, and to reduce the potential for sensitive data to be shared with competitors.

If the hydroelectric assets are auctioned as five watershed regions, the new owners would continue to have access to telecommunications services through use of the assets acquired through the auction in combination with the capabilities provided by a Telecommunications Services Agreement (TSA) with the Utility.

If the assets are sold as individual or groups of bundles, new owners would have to enter into Interim Telecommunications Agreements (ITSAs) with the owners of adjoining bundles to facilitate communications services at their current level. These ITSAs are required to ensure that telecommunication assets assigned to one bundle are available to the adjoining dependent bundle through the two-year O&M period.

For example, the new owner of the Tule River Bundle (Bundle 19) would have telephone, radio, WAN and ISO telecommunications services capabilities. For GRIP and SCADA capabilities, the new owner would need to enter into an ITSA with the owner of the Kerckhoff Bundle (Bundle 17). This ITSA would provide the Tule River Bundle with GRIP and SCADA capabilities from the Kerckhoff Bundle during the two-year O&M agreement. See Table 4.11-28, Interim Telecom Services Matrix for a review of the services that Pacific Gas and Electric Company must deliver to the new owner(s) as part of divestiture.

The new owner of the Tule Bundle would have to replace these interim telecomm services during or before the end of the two-year O&M period, or renew the interim agreement.

The Telecommunications Network Diagrams in Figures 4-11.1 through 4.11-5, depict Pacific Gas and Electric Company's proposal to separate its hydroelectric telecommunication assets from those assets required to maintain its current (non-hydroelectric) operations.

Table 4.11-28 Interim Telecom Services Matrix^a

Bundle Name	Provider > Client ^b	Telephone	Radio	WAN	ISO TS	GRIP	SCADA	RIG
Pit River > Hat Creek	2 > 1	X			X	X	X	
Hat Creek > Pit River	1 > 2		X					
Pit River > Kilarc-Cow Creek	2 > 3	X			X	X	X	
Kilarc-Cow > Pit River	3 > 2		X					
Pit River > Battle Creek	2 > 4				X	X	X	
Kilarc-Cow Creek > Battle Creek	3 > 4		X					
Feather River > Bucks Creek	6 > 7	X	X		X	X	X	X
Feather River > Butte Creek	6 > 8		X		X	X	X	
South Yuba-Bear River > North Yuba River	11 > 9					X	X	
South Yuba-Bear River > Chili Bar	11 > 12	X			X	X	X	
South Yuba-Bear River > Utility	11 > U							X
Mokelumne River > Stanislaus River	13 > 14	X			X	X	X	X
Utility > Crane Valley	U > 16	X	X		X	X	X	X
Utility > Merced River	U > 15					X	X	
Utility > Kerchoff	U > 17			X	X	X	X	X
Kerchoff > Crane Valley	17 > 16		X					
Utility > Tule River	U > 19	X						
Utility > Kern Canyon	U > 20	X				X	X	
Utility > Kings River	U > 17			X	X	X	X	X

- a. Lists telecommunication services that a bundle owner would have to provide to the owner of another bundle for a 2-year period.
- b. Numbers are bundle designations.

Pacific Gas and Electric Company's separation of the telecommunication assets and ensuring that the new owners have access to essential capabilities is complex process. The asset separation process the Pacific Gas and Electric Company engaged in was to ensure that new owners have the necessary telecommunication capabilities to operate their hydroelectric projects upon divestiture without requiring new construction.

Separating the integrated telecommunication system into five independent systems, one for each watershed, was challenging for Pacific Gas and Electric Company due to the age and remoteness of the assets associated with the hydroelectric facilities, and the interconnection with the remainder of Pacific Gas and Electric Company's utility system. Many of the assets were installed in conjunction with the original hydroelectric projects' construction. The Pacific Gas and Electric Company's historical expansion of its distribution service territory resulted in many of the associated assets being integrated with the Pacific Gas and Electric Company's expanding telecommunication network. These integrated assets are critical since commercial alternatives do not exist in many remote Project locations. Therefore, the separation process evaluated what additional service agreements were required to maintain current capabilities.

When separating the telecommunication assets into watershed regions, and then into 20 bundles, Pacific Gas and Electric Company's first step was to determine which assets would be included in the auction. Then, assets were assigned to a specific FERC license. The telecommunication assets were separated by watershed region in preparation for a 20-bundle auction, identifying which assets would remain with the Pacific Gas and Electric Company and which would be assigned to a new owner. Contractual relationships would be necessary between Pacific Gas and Electric Company and the new owners and, among the new owners, to maintain the existing network connectivity under a 20-bundle auction.

The following two service agreements were developed to ensure that the Pacific Gas and Electric Company will have the connectivity and access to the data required for Utility business and operational needs after divestiture without significant changes to the existing infrastructure. This includes certain Utility retained assets, selected circuits carried on generator equipment, and access to specific SCADA and GRIP data points. The Telecom Service Agreements will enable the new owner of a bundle to be able to operate the included plants the day after closing exactly the same as the day prior to closing. If the generation assets are sold by region (a watershed), only the first agreement is needed.

- Telecommunication Services Agreement (TSA)
The TSA is between the Utility and the new owners. This ten-year initial agreement, with one five-year extension, maintains the existing network capabilities through shared use of identified telecomm assets.
- Interim Telecommunication Service Agreements (ITSA)
The ITSA is needed if the hydroelectric assets are sold in 20 bundles. The agreement identifies the rights of the owner of one bundle to rely on the continued use of assets in an adjoining bundle to maintain existing telecommunications capabilities. The ITSA's are two year agreements, coinciding with the O&M agreement. It gives the new owners time to evaluate their requirements, the services provided and the alternatives available.

4.11D.7 INTRODUCTION TO IMPACTS AND MITIGATION MEASURES

One potential impact was identified with regard to telecommunications. This is discussed below.

4.11D.8 IMPACT 11-6: IMPACT, ANALYSIS, AND MITIGATION MEASURES

Impact 11-6: The project could result in reduced telecommunications capacity among the hydroelectric power facilities, between the facilities and the ISO, and with public health and safety officials in the event of emergency. In addition, it could result in the construction of redundant telecommunications facilities (Significant).

4.11D.8.1 Evaluation of Impact 11-6 to Entire System

Fragmentation of the existing telecommunications system could result in reduced communications capacity between and among hydroelectric power units in the five watersheds that constitute the current Pacific Gas and Electric Company system. Such fragmentation could limit responsiveness to the ISO, and diminish emergency response capacity by limiting effective and timely communications in the event of flood or other hazard. The lack of effective joint telecommunications agreements could also result in construction of duplicative telecommunications facilities.

4.11D.8.2 Mitigation Measures

Mitigation Measures Proposed as Part of the Project

Mitigation Measure 11-6: As a condition of sale, Telecommunications Service Agreements (TSAs) between new bundle owners and Pacific Gas and Electric Company, and Interim Telecom Service Agreements (ITSAs) between individual new bundle owners would be required.

Creating and adhering to such agreements would ensure that telecommunications services capacity between and among hydroelectric power Projects and operators, between operators and the ISO, and with emergency management personnel throughout the hydroelectric power system continues undiminished. Adhering to such agreements would mitigate the need for new owners to immediately establish an independent telecommunication system, thus enabling them to continue operations in the same manner after acquisition of the hydroelectric projects.

Either party would be able to discontinue receiving services provided by the other party, but each party would be obligated to provide the services agreed upon to the other party for the entire term.

Compensation for physical rental space (in communication vaults and on telecommunications towers) and circuit charges would be established by researching the comparable rental rates charged by service providers and the average rates paid for circuits. The Pacific Gas and Electric Company would have the right to change the rates annually with at least a three (3) month advance notice to the other party.

Each party would be responsible for maintaining its equipment in accordance with industry standards. Either party would be able to engage the other party to perform services such as routine and

unscheduled maintenance. The labor for these services would be billed at Pacific Gas and Electric Company's standard labor rates, based upon classification of the worker, then in effect.

These proposed mitigation measures would apply to all new owners and all projects, and are proposed as part of this project.

Mitigation Measures Identified in This Report

Alternate Mitigation Measure 11-6: As an alternative to the mitigation measure proposed as part of the project to reduce the number of agreements and parties involved, and to reduce the potential for sharing of confidential data among generators, each of the regional telecommunications bundles shall be auctioned separate from the generation assets to a telecommunications vendor (regulated by the CPUC and FCC as a telecommunications provider) that will sign agreements with the generators and Pacific Gas and Electric Company as necessary.

4.11D.8.3 Impact 11-6: Level of Significance After Mitigation

Less than Significant.

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